# SINAMICS S110

List Manual · 06/2012

SINAMICS

SIEMENS

# 3.2 List of faults and alarms

Product: S110, Version: 4402100, Language: eng,
Objects: CU_S110-CAN, CU_S110-DP, CU_S110-PN, SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

## F01000 Internal software error

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - evaluate fault buffer (r0945).
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

## F01001 FloatingPoint exception

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** An exception occurred during an operation with the FloatingPoint data type.
The error may be caused by the base system or an OA application (e.g., FBLOCKS, DCC).
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Note:
Refer to r9999 for further information about this fault.
r9999[0]: Fault number.
r9999[1]: Program counter at the time when the exception occurred.
r9999[2]: Cause of the FloatingPoint exception.
Bit 0 = 1: Operation invalid
Bit 1 = 1: Division by zero
Bit 2 = 1: Overflow
Bit 3 = 1: Underflow
Bit 4 = 1: Imprecise result
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- check configuration and signals of the blocks in FBLOCKS.
- check configuration and signals of DCC charts.
- upgrade firmware to later version.
- contact the Hotline.

## F01002 Internal software error

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

## F01003 Acknowledgement delay when accessing the memory

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A memory area was accessed that does not return a "READY".
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- contact the Hotline.

## N01004 (F, A) Internal software error

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An internal software error has occurred.
Fault value (r0949, hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - read out diagnostics parameter (r9999).
- contact the Hotline.
Reaction upon F: OFF2
Acknowl. upon F: POWER ON
Reaction upon A: NONE
Acknowl. upon A: NONE

## F01005 Firmware download for DRIVE-CLiQ component unsuccessful

**Message value:** Component number: %1, fault cause: %2
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** It was not possible to download the firmware to a DRIVE-CLiQ component.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = component number, xxxx = fault cause
xxxx = 000B hex = 11 dec:
DRIVE-CLiQ component has detected a checksum error.
xxxx = 000F hex = 15 dec:
The selected DRIVE-CLiQ component did not accept the contents of the firmware file.
xxxx = 0012 hex = 18 dec:
Firmware version is too old and is not accepted by the component.
xxxx = 0013 hex = 19 dec:
Firmware version is not suitable for the hardware release of the component.
xxxx = 0065 hex = 101 dec:
After several communication attempts, no response from the DRIVE-CLiQ component.
xxxx = 008B hex = 139 dec:
Initially, a new boot loader is loaded (must be repeated after POWER ON).
xxxx = 008C hex = 140 dec:
Firmware file for the DRIVE-CLiQ component not available on the memory card.
xxxx = 008D hex = 141 dec:
An inconsistent length of the firmware file was signaled. The firmware download may have been caused by a loss of connection to the firmware file. This can occur during a project download/reset in the case of a SINAMICS Integrated Control Unit, for example.
xxxx = 008F hex = 143 dec:
Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.
xxxx = 0090 hex = 144 dec:
When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card is defective.

xxxx = 0091 hex = 145 dec:
Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.
xxxx = 009C hex = 156 dec:
Component with the specified component number is not available (p7828).
xxxx = Additional values:
Only for internal Siemens troubleshooting.

**Remedy:** - check the selected component number (p7828).
- check the DRIVE-CLiQ connection.
- save suitable firmware file for download in the directory "/siemens/sinamics/code/sac/".
- use a component with a suitable hardware version
- after POWER ON has been carried out again for the DRIVE-CLiQ component, download the firmware again.
Depending on p7826, the firmware will be automatically downloaded.

## A01006 Firmware update for DRIVE-CLiQ component required

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.

**Remedy:** Firmware update using the commissioning software:
The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out.
Firmware update via parameter:
- take the component number from the alarm value and enter into p7828.
- start the firmware download with p7829 = 1.

## A01007 POWER ON for DRIVE-CLiQ component required

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** A DRIVE-CLiQ component must be powered up again (POWER ON) (e.g. due to a firmware update).
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.
Note:
For a component number = 1, a POWER ON of the Control Unit is required.

**Remedy:** Switch off the power supply of the specified DRIVE-CLiQ component and switch it on again.

## A01009 (N) CU: Control module overtemperature

**Message value:** -

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The temperature (r0037[0]) of the control module (Control Unit) has exceeded the specified limit value.

**Remedy:** - check the air intake for the Control Unit.
- check the Control Unit fan.
Note:
The alarm automatically disappears after the limit value has been undershot.

Reaction upon N: NONE

Acknowl. upon N: NONE

## F01010 Drive type unknown

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** An unknown drive type was found.
Fault value (r0949, decimal interpretation):
Drive object number (refer to p0101, p0107).
**Remedy:** - replace Power Module.
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

## F01011 (N) Download interrupted

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The project download was interrupted.
Fault value (r0949, decimal interpretation):
1: The user prematurely interrupted the project download.
2: The communication cable was interrupted (e.g. cable breakage, cable withdrawn).
3: The project download was prematurely ended by the commissioning software (e.g. STARTER, SCOUT).
100: Different versions between the firmware version and project files "Download from card".
Note:
The response to an interrupted download is the state "first commissioning".
**Remedy:** - check the communication cable.
- download the project again.
- boot from previously saved files (power-down/power-up or p0976).
- when downloading from the card, use the matching version.
Reaction upon N: NONE
Acknowl. upon N: NONE

## F01012 (N) Project conversion error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** When converting the project of an older firmware version, an error occurred.
Fault value (r0949, decimal interpretation):
Parameter number of the parameter causing the error.
For fault value = 600, the following applies:
The temperature evaluation is no longer assigned to the power unit but to the encoder evaluation.
Notice:
Monitoring of the motor temperature is no longer ensured.
**Remedy:** Check the parameter indicated in the fault value and correctly adjust it accordingly.
For fault value = 600:
Parameter p0600 must be set to the values 1, 2 or 3 in accordance with the assignment of the internal encoder evaluation to the encoder interface.
Value 1 means: The internal encoder evaluation is assigned to the encoder interface 1 via p0187.
Value 2 means: The internal encoder evaluation is assigned to the encoder interface 2 via p0188.
Value 3 means: The internal encoder evaluation is assigned to the encoder interface 3 via p0189.
- If necessary, the internal encoder evaluation must be assigned to an encoder interface via parameters p0187, p0188 or p0189 accordingly.
- If necessary, upgrade the firmware to a later version.
Reaction upon N: NONE
Acknowl. upon N: NONE

## F01015 Internal software error

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** An internal software error has occurred.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

## A01016 (F) Firmware changed

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** At least one firmware file in the directory /SIEMENS/SINAMICS/ has been changed without authorization with respect to the version shipped from the factory. No changes are permitted in this directory.
Alarm value (r2124, interpret decimal):
0: Checksum of one file is incorrect.
1: File missing.
2: Too many files.
3: Incorrect firmware version.
4: Incorrect checksum of the back-up file.
See also: r9925 (Firmware file incorrect)
**Remedy:** For the non-volatile memory for the firmware (memory card/device memory), restore the delivery condition.
Note:
The file involved can be read out using parameter r9925.
See also: r9926 (Firmware check status)
Reaction upon F: OFF2
Acknowl. upon F: POWER ON

## A01017 Component lists changed

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** On the memory card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory.
Alarm value (r2124, interpret decimal):
zyx dec: x = Problem, y = Directory, z = File name
x = 1: File does not exist.
x = 2: Firmware version of the file does not match the software version.
x = 3: File checksum is incorrect.
y = 0: Directory /SIEMENS/SINAMICS/DATA/
y = 1: Directory /ADDON/SINAMICS/DATA/
z = 0: File MOTARM.ACX
z = 1: File MOTSRM.ACX
z = 2: File MOTSLM.ACX
z = 3: File ENCDATA.ACX
z = 4: File FILTDATA.ACX
z = 5: File BRKDATA.ACX
z = 6: File DAT_BEAR.ACX
z = 7: File CFG_BEAR.ACX
z = 8: File ENC_GEAR.ACX
**Remedy:** For the file on the memory card involved, restore the status originally supplied from the factory.

## F01018 Booting has been interrupted several times

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** POWER ON
**Cause:** Module booting was interrupted several times.
Possible reasons for booting being interrupted:
- POWER OFF of the module.
- CPU crash.
- USER data invalid.
After this fault is output, then the module is booted with the factory settings.
**Remedy:** Power down the module and power it up again.
Note:
After switching on, the module reboots from the USER data (if available).
If the fault situation is repeated, then this fault is again output after several interrupted boots.

## A01019 Writing to the removable data medium unsuccessful

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The write access to the removable data medium was unsuccessful.
**Remedy:** Remove and check the removable data medium. Then run the data backup again.

## A01020 Write to RAM disk unsuccessful

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The write access to the internal RAM disk was unsuccessful.
**Remedy:** Adapt the size of the system logbook (p9930) to the internal RAM disk.

## F01023 Software timeout (internal)

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** An internal software timeout has occurred.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

## F01030 Sign-of-life failure for master control

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF3 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** For active PC master control, no sign-of-life was received within the monitoring time.
The master control was returned to the active BICO interconnection.
**Remedy:** Set the monitoring time higher at the PC or, if required, completely disable the monitoring function.
For the commissioning software, the monitoring time is set as follows:
<Drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds.

Notice:
The monitoring time should be set as short as possible. A long monitoring time means a late response when the communication fails!

## F01031 Sign-of-life failure for OFF in REMOTE

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF3 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** With the "OFF in REMOTE" mode active, no sign-of-life was received within 3 seconds.
**Remedy:** - Check the data cable connection at the serial interface for the Control Unit (CU) and operator panel.
- Check the data cable between the Control Unit and operator panel.

## F01033 Units changeover: Reference parameter value invalid

**Message value:** Parameter: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0
Fault value (r0949, parameter):
Reference parameter whose value is 0.0.
See also: p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Selecting technological units)
**Remedy:** Set the value of the reference parameter to a number different than 0.0.
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

## F01034 Units changeover: Calculation parameter values after reference value change unsuccessful

**Message value:** Parameter: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The change of a reference parameter meant that for an involved parameter the selected value was not able to be re-calculated in the per unit representation. The change was rejected and the original parameter value restored.
Fault value (r0949, parameter):
Parameter whose value was not able to be re-calculated.
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004
**Remedy:** Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation.
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

## A01035 (F) ACX: Boot from the back-up parameter back-up files

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When the Control Unit is booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out. Instead, a back-up data set or a back-up parameter back-up file is downloaded.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** If you have saved the project using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## F01036 (A) ACX: Parameter back-up file missing

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** When downloading the device parameterization, a parameter back-up file associated with a drive object cannot be found. Neither a PSxxxyyy.ACX, a PSxxxyyy.NEW nor a PSxxxyyy.BAK parameter back-up file exists in the non-volatile memory for this drive object.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file name PSxxxyyy.ACX
yyy = 000 --> consistency back-up file
yyy = 001 ... 062 --> drive object number
yyy = 099 --> PROFIBUS parameter back-up file
Byte 2, 3, 4:
Only for internal Siemens troubleshooting.

**Remedy:** If you have saved the project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
If you have not saved the project data, then first commissioning of the system has to be carried out again.

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01037 (A) ACX: Re-naming the parameter back-up file unsuccessful

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** Re-naming after saving a parameter back-up file in the non-volatile memory was unsuccessful.
One of the parameter back-up files to be re-named had the "read only" attribute. The parameter back-up files are saved in the directory \USER\SINAMICS\DATA.
It is possible that the non-volatile memory is defective.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file names PSxxxyyy.* or CAxxxyyy.* or CCxxxyyy.*
yyy = 000 --> consistency back-up file
yyy = 099 --> PROFIBUS parameter back-up file PSxxx099.*
Byte 2: xxx in the file name PSxxxyyy.*
xxx = 000 --> data save started with p0977 = 1
xxx = 010 --> data save started with p0977 = 10
xxx = 011 --> data save started with p0977 = 11
xxx = 012 --> data save started with p0977 = 12
Byte 4, 3:
Only for internal Siemens troubleshooting.

**Remedy:** - check whether one of the files to be overwritten has the attribute "read only" and change this file attribute to "writable". Check all of the files (PSxxxyyy.*, CCxxxyyy.*, CAxxxyyy.*) that belong to drive yyy designated in the fault value.
- replace the memory card or Control Unit.

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01038 (A) ACX: Loading the parameter back-up file unsuccessful

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** An error has occurred when downloading PSxxxyyy.ACX or PTxxxyyy.ACX files from the non-volatile memory.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file name PSxxxyyy.ACX
yyy = 000 --> consistency back-up file

yyy = 001 ... 062 --> drive object number
yyy = 099 --> PROFIBUS parameter back-up file
Byte 2:
255 = incorrect drive object type
254 = topology comparison unsuccessful -> drive object type was not able to be identified
Reasons could be:
- incorrect component type in the actual topology
- component does not exist in the actual topology
- component not active
Otherwise for internal Siemens troubleshooting.
Byte 4, 3:
Only for internal Siemens troubleshooting.

**Remedy:** - If you have saved the project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
- replace the memory card or Control Unit.
- for byte 1 = 255:
Correct the drive object type (see p0107).

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** Writing to at least one parameter back-up file PSxxxyyy.*** in the non-volatile memory was unsuccessful.
- In the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxyyy.*** has the "read only" file attribute and cannot be overwritten.
- There is not sufficient free memory space available.
- The non-volatile memory is defective and cannot be written to.
Fault value (r0949, interpret hexadecimal):
dcba hex
a = yyy in the file names PSxxxyyy.***
a = 000 --> consistency back-up file
a = 001 ... 062 --> drive object number
a = 070 --> FEPROM.BIN
a = 080 --> DEL4BOOT.TXT
a = 099 --> PROFIBUS parameter back-up file
b = xxx in the file names PSxxxyyy.***
b = 000 --> data save started with p0977 = 1
b = 010 --> data save started with p0977 = 10
b = 011 --> data save started with p0977 = 11
b = 012 --> data save started with p0977 = 12
d, c:
Only for internal Siemens troubleshooting.

**Remedy:** - check the file attribute of the files (PSxxxyyy.***, CAxxxyyy.***, CCxxxyyy.***) and, if required, change from "read only" to "writeable".
- check the free memory space in the non-volatile memory. Approx. 80 kbyte of free memory space is required for every drive object in the system.
- replace the memory card or Control Unit.

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01040 Save parameter settings and carry out a POWER ON

**Message value:** -
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot (e.g. p0110).
**Remedy:** - save the parameters (p0971/p0977).
- carry out a POWER ON (power off/on) for all components.

## F01041 Parameter save necessary

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** Defective or missing files were detected on the memory card when booting.
Fault value (r0949, decimal interpretation):
1: Source file cannot be opened.
2: Source file cannot be read.
3: Target directory cannot be set up.
4. Target file cannot be set up/opened.
5. Target file cannot be written to.
Additional values:
Only for internal Siemens troubleshooting.
**Remedy:** - save the parameters.
- download the project again to the drive unit.
- update the firmware
- if required, replace the Control Unit and/or memory card card.

## F01042 Parameter error during project download

**Message value:** Parameter: %1, Index: %2, fault cause: %3
**Drive object:** All objects
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value).
For the specified parameter, it was detected that dynamic limits were exceeded that may possibly depend on other parameters.
Fault value (r0949, interpret hexadecimal):
ccbbaaaa hex
aaaa = Parameter
bb = Index
cc = fault cause
0: Parameter number illegal.
1: Parameter value cannot be changed.
2: Lower or upper value limit exceeded.
3: Sub-index incorrect.
4: No array, no sub-index.
5: Data type incorrect.
6: Setting not permitted (only resetting).
7: Descriptive element cannot be changed.
9: Descriptive data not available.
11: No master control.
15: No text array available.
17: Task cannot be executed due to operating state.
20: Illegal value.
21: Response too long.
22: Parameter address illegal.
23: Format illegal.

24: Number of values not consistent.
25: Drive object does not exist.
101: Presently de-activated.
104: Illegal value.
107: Write access not permitted when controller enabled.
108: Unit unknown.
109: Write access only in the commissioning state, encoder (p0010 = 4).
110: Write access only in the commissioning state, motor (p0010 = 3).
111: Write access only in the commissioning state, power unit (p0010 = 2).
112: Write access only in the quick commissioning mode (p0010 = 1).
113: Write access only in the ready mode (p0010 = 0).
114: Write access only in the commissioning state, parameter reset (p0010 = 30).
115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
116: Write access only in the commissioning state, technological application/units (p0010 = 5).
117: Write access only in the commissioning state (p0010 not equal to 0).
118: Write access only in the commissioning state, download (p0010 = 29).
119: Parameter may not be written in download.
120: Write access only in the commissioning state, drive basis configuration (device: p0009 = 3).
121: Write access only in the commissioning state, define drive type (device: p0009 = 2).
122: Write access only in the commissioning state, data set basis configuration (device: p0009 = 4).
123: Write access only in the commissioning state, device configuration (device: p0009 = 1).
124: Write access only in the commissioning state, device download (device: p0009 = 29).
125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30).
126: Write access only in the commissioning state, device ready (device: p0009 = 0).
127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
129: Parameter may not be written in download.
130: Transfer of the master control is inhibited via binector input p0806.
131: Required BICO interconnection not possible because BICO output does not supply floating value
132: Free BICO interconnection inhibited via p0922.
133: Access method not defined.
200: Below the valid values.
201: Above the valid values.
202: Cannot be accessed from the Basic Operator Panel (BOP).
203: Cannot be read from the Basic Operator Panel (BOP).
204: Write access not permitted.

**Remedy:** - enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

## F01043 Fatal error at project download

**Message value:** Fault cause: %1

**Drive object:** All objects

**Reaction:** OFF2 (OFF1, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A fatal error was detected when downloading a project using the commissioning software.
Fault value (r0949, decimal interpretation):
1: Device status cannot be changed to Device Download (drive object ON?).
2: Incorrect drive object number.
3: A drive object that has already been deleted is deleted again.
4: Deleting of a drive object that has already been registered for generation.
5: Deleting a drive object that does not exist.
6: Generating an undeleted drive object that already existed.
7: Regenerating a drive object already registered for generation.
8: Maximum number of drive objects that can be generated exceeded.
9: Error while generating a device drive object.
10: Error while generating target topology parameters (p9902 and p9903).
11: Error while generating a drive object (global component).
12: Error while generating a drive object (drive component).
13: Unknown drive object type.
14: Drive status cannot be changed to "ready for operation" (p0947 and p0949).
15: Drive status cannot be changed to drive download.
16: Device status cannot be changed to "ready for operation".

17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.
18: A new download is only possible if the factory settings are restored for the drive unit.
19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)
20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR ).
Additional values: only for internal Siemens troubleshooting.

**Remedy:** - use the current version of the commissioning software.
- modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power unit in the offline project and at the drive).
- change the drive state (is a drive rotating or is there a message/signal?).
- carefully note any other messages/signals and remove their cause.

## F01044 CU: Descriptive data error

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** An error was detected when loading the descriptive data saved in the non-volatile memory.
**Remedy:** Replace the memory card or Control Unit.

## A01045 CU: Configuring data invalid

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An error was detected when evaluating the parameter files PSxxxyyy.ACX, PTxxxyyy.ACX, CAxxxyyy.ACX, or CCxxxyyy.ACX saved in the non-volatile memory.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** Restore the factory setting using (p0976 = 1) and re-load the project to the drive unit. Operation without any restrictions is then possible.
After downloading the project, save the parameters in STARTER using "Copy RAM to ROM" or with p0977 = 1. This overwrites the incorrect parameter files in the non-volatile memory.

## A01049 CU: It is not possible to write to file

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** It is not possible to write into a write-protected file (PSxxxxxx.acx). The write request was interrupted.
Alarm value (r2124, interpret decimal):
Drive object number.
**Remedy:** Check whether the "write protected" attribute has been set for the files in the non-volatile memory under .../USER/SINAMICS/DATA/...
When required, remove write protection and save again (e.g. set p0977 to 1).

## F01050 Memory card and device incompatible

**Message value:** -
**Drive object:** All objects
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The memory card and the device type do not match (e.g. a memory card for SINAMICS S is inserted in SINAMICS G).
**Remedy:** - insert the matching memory card.
- use the matching Control Unit or power unit.

## F01054 CU: System limit exceeded

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** At least one system overload has been identified.
Fault value (r0949, decimal interpretation):
1: Computing time load too high (r9976[1]).
5: Peak load too high (r9976[5]).
See also: r9976 (System utilization)

**Remedy:** Re fault value = 1, 5:
- reduce the computing time load of the drive unit (r9976[1] and r9976[5]) to under 100 %.
- check the sampling times and adjust if necessary (p0115, p0799, p4099).
- de-activate function modules.
- de-activate drive objects.
- remove drive objects from the target topology.
- note the DRIVE-CLiQ topology rules and if required, change the DRIVE-CLiQ topology.
When using the Drive Control Chart (DCC) or free function blocks (FBLOCKS), the following applies
- the computing time load of the individual run-time groups on a drive object can be read out in r21005 (DCC) or 20005 (FBLOCKS).
- if necessary, the assignment of the run-time group (p21000, p20000) can be changed in order to increase the sampling time (r21001, r20001).
- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

## A01064 (F) CU: Internal error (CRC)

**Message value:** -

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** CRC error in the Control Unit program memory

**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

Reaction upon F: NONE (OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## F01068 CU: Data memory, memory overflow

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** A data memory area has been overloaded.
Fault value (r0949, interpret binary):
Bit 0 = 1: High-speed data memory 1 overloaded
Bit 1 = 1: High-speed data memory 2 overloaded
Bit 2 = 1: High-speed data memory 3 overloaded
Bit 3 = 1: High-speed data memory 4 overloaded

**Remedy:** - de-activate the function module.
- de-activate the drive object.
- remove the drive object from the target topology.

## A01069 Parameter backup and device incompatible

**Message value:** -
**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The parameter backup on the memory card and the device type do not match (e.g. a memory card with the parameter backup of a SINAMICS DCM is inserted in SINAMICS G110).
The module boots with the factory settings.
**Remedy:** - insert a memory card with compatible parameter backup and carry out a POWER ON.
- insert a memory card without parameter backup and carry out a POWER ON.
- remove the memory card and carry out POWER ON.
- save the parameters (p0977 = 1).

## A01069 Parameter backup and device incompatible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The parameter backup on the memory card and the device type do not match (e.g. a memory card with the parameter backup of a SINAMICS S120 is inserted in SINAMICS G150).
The module boots with the factory settings.
**Remedy:** - insert a memory card with compatible parameter backup and carry out a POWER ON.
- insert a memory card without parameter backup and carry out a POWER ON.
- save the parameters (p0977 = 1).

## A01099 Tolerance window of time synchronization exited

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The time master exited the selected tolerance window for time synchronization.
See also: p3109 (RTC real time synchronization, tolerance window)
**Remedy:** Select the re-synchronization interval so that the synchronization deviation between the time master and drive system lies within the tolerance window.
See also: r3108 (RTC last synchronization deviation)

## F01105 (A) CU: Insufficient memory

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF1
**Acknowledge:** POWER ON
**Cause:** Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:** - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
- use an additional Control Unit.
Reaction upon A: NONE
Acknowl. upon A: NONE

### F01107 CU: Data save in the non-volatile memory unsuccessful

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** A data save in the non-volatile memory was not able to be successfully carried out.
- non-volatile memory is defective.
- insufficient space in the non-volatile memory.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:**
- try to save again.
- replace the memory card or Control Unit.

### F01112 CU: Power unit not permissible

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The connected power unit cannot be used together with this Control Unit.
Fault value (r0949, decimal interpretation):
1: Power unit is not supported (e.g. PM240).
2: DC/AC power unit connected to CU310 not permissible.
**Remedy:** Replace the power unit that is not permissible by a component that is permissible.

### F01120 (A) Terminal initialization has failed

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF1 (OFF2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** An internal software error occurred while the terminal functions were being initialized.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:**
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

Reaction upon A: NONE
Acknowl. upon A: NONE

### F01122 (A) Frequency at the measuring probe input too high

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF1 (OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** The frequency of the pulses at the measuring probe input is too high.
Fault value (r0949, decimal interpretation):
1: DI/DO 9 (X122.8)
2: DI/DO 10 (X122.10)
4: DI/DO 11 (X122.11)
8: DI/DO 13 (X132.8)
16: DI/DO 14 (X132.10)
32: DI/DO 15 (X132.11)
64: DI/DO 8 (X122.7)
128: DI/DO 12 (X132.7)
**Remedy:** Reduce the frequency of the pulses at the measuring probe input.

Reaction upon A: NONE
Acknowl. upon A: NONE

## F01150 CU: Number of instances of a drive object type exceeded

**Message value:** Drive object type: %1, number permitted: %2, actual number: %3

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The maximum permissible number of instances of a drive object type was exceeded.
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex:
aa: Drive object type (p0107), for which the maximum permissible number of instances was exceeded.
bb: Max. permissible number of instances for this drive object type.
cc: Actual number of instances for this drive object type.
dd: No significance.

**Remedy:** - power down the unit.
- suitably restrict the number of instances of a drive object type by reducing the number of inserted components.
- re-commission the unit.

## F01200 CU: Time slice management internal software error

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** A time slice management error has occurred.
It is possible that the sampling times have been inadmissibly set.
Fault value (r0949, interpret hexadecimal):
998:
Too many time slices occupied by OA (e.g. DCC).
999:
Too many time slices occupied by the basic system. Too many different sampling times may have been set.
Additional values:
Only for internal Siemens troubleshooting.

**Remedy:** - check the sampling time setting (p0112, p0115, p4099).
- contact the Hotline.

## F01205 CU: Time slice overflow

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:** Insufficient processing time is available for the existing topology.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:** - reduce the number of drives.
- increase the sampling times.

## A01224 CU: Pulse frequency inconsistent

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.
Alarm value (r2124, interpret decimal):
1: Value, low minimum value.
2: Value, high maximum value.
3: Resulting sampling time is not a multiple of 1.25 µs.
4: Value does not match clock-cycle synchronous PROFIBUS operation.
10: Special restriction of the drive object violated.
99: Inconsistency of cross drive objects detected.
116: Recommended clock cycle in r0116[0...1].

**Remedy:** Set a valid pulse frequency.

## F01250 CU: CU-EEPROM incorrect read-only data

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE (OFF2)
**Acknowledge:** POWER ON
**Cause:** Error when reading the read-only data of the EEPROM in the Control Unit.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON.
- replace the Control Unit.

## A01251 CU: CU-EEPROM incorrect read-write data

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Error when reading the read-write data of the EEPROM in the Control Unit.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
**Remedy:** For alarm value r2124 < 256, the following applies:
- carry out a POWER ON.
- replace the Control Unit.
For alarm value r2124 >= 256, the following applies:
- for the drive object with this alarm, clear the fault memory (p0952 = 0).
- as an alternative, clear the fault memory of all drive objects (p2147 = 1).
- replace the Control Unit.

## F01303 DRIVE-CLiQ component does not support the required function

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.
Fault value (r0949, decimal interpretation):
1: The component does not support the de-activation.
101: The Motor Module does not support an internal armature short-circuit.
102: The Motor Module does not support the de-activation.
201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation.
202: The Sensor Module does not support parking/unparking.
203: The Sensor Module does not support the de-activation.
204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO.
205: The Sensor Module does not support the selected temperature evaluation (r0458).
206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation.
207: The power unit with this hardware version does not support operation with device supply voltages of less than 380 V.
208: The Sensor Module does not support de-selection of commutation with zero mark (via p0430.23).
211: The Sensor Module does not support single-track encoders (r0459.10).
212: The Sensor Module does not support LVDT sensors (p4677.0).
213: The Sensor Module does not support the characteristic type (p4662).
**Remedy:** Upgrade the firmware of the DRIVE-CLiQ component involved.
For fault value = 205:
Check parameter p0600 and p0601 and if required, adapt interpretation.
For fault value = 207:
Replace the power unit or if required set the device supply voltage higher (p0210).

For fault value = 208:
Check parameter p0430.23 and reset if necessary.

## A01304 (F) Firmware version of DRIVE-CLiQ component is not up-to-date

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The non-volatile memory has a more recent firmware version than the one in the connected DRIVE-CLiQ component.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component involved.
**Remedy:** Update the firmware (p7828, p7829 and commissioning software).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

## F01305 Topology: Component number missing

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/vector drives, refer to p0107), p0141, p0151, p0161).
Fault value (r0949, decimal interpretation):
Data set number.
Note:
The fault also occurs if speed encoders have been configured (p0187 to p0189) but no component numbers exist for them.
In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number was not entered in p0141 for the third encoder (p0189)).
See also: p0121, p0131, p0141, p0142, p0186, p0187, p0188
**Remedy:** Enter the missing component number or remove the component and restart commissioning.
See also: p0121, p0131, p0141, p0142, p0186, p0187, p0188

## A01306 Firmware of the DRIVE-CLiQ component being updated

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Firmware update is active for at least one DRIVE-CLiQ component.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.
**Remedy:** Not necessary.
This alarm automatically disappears after the firmware has been updated.

## A01314 Topology: Component must not be present

**Message value:** Component number: %1, Component class: %2, Connection number: %3
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For a component, "de-activate and not present" is set but this component is still in the topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
aa = component number
bb = component class of the component
cc = connection number
Note:
Component class and connection number are described in F01375.

**Remedy:** - remove the corresponding component.
- change the setting "de-activate and not present".
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
See also: p0145 (Activate/de-activate encoder interface)

## A01315 Drive object not ready for operation

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For the active drive object involved, at least one activated component is missing.
Note:
All other active and operational drive objects can be in the "RUN" state.
**Remedy:** The alarm automatically disappears again with the following actions:
- de-activate the drive object involved (p0105 = 0).
- de-activate the components involved (p0125 = 0, p0145 = 0, p0155 = 0, p0165 = 0).
- re-insert the components involved.
See also: p0145 (Activate/de-activate encoder interface)

## A01316 Drive object inactive and again ready for operation

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** If, when inserting a component of the target topology, an inactive, non-operational drive object becomes operational again. The associated parameter of the component is, in this case, set to "activate" (p0125, p0145, p0155, p0165).
Note:
This is the only message that is displayed for a de-activated drive object.
**Remedy:** The alarm automatically disappears again with the following actions:
- activate the drive object involved (p0105 = 1).
- again withdraw the components involved.

## A01317 (N) De-activated component again present

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "de-activate" (p0125, p0145, p0155, p0165).
Note:
This is the only message that is displayed for a de-activated component.
**Remedy:** The alarm automatically disappears again with the following actions:
- activate the components involved (p0125 = 1, p0145 = 1, p0155 = 1, p0165 = 1).
- again withdraw the components involved.
See also: p0145 (Activate/de-activate encoder interface)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A01318 BICO: De-activated interconnections present

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** This alarm is used in the following cases:
- If an inactive/non-operational drive object is active again/ready for operation

- If there are items in the list of BI/CI parameters (r9498[0...29], r9499[0...29])
- If the BICO interconnections saved in the list of BI/CI parameters (r9498[0...29], r9499[0...29]) have actually been changed

**Remedy:** Reset alarm:
- Set p9496 to 1 or 2
or
- de-activate the drive object again.

## A01319 Inserted component not initialized

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Initialization is required for at least one inserted component.
This is only possible if the pulses are inhibited for all the drive objects.
**Remedy:** Activate pulse inhibit for all drive objects.

## A01320 Topology: Drive object number does not exist in configuration

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A drive object number is missing in p0978
Alarm value (r2124, interpret decimal):
Index of p0101 under which the missing drive object number can be determined.
**Remedy:** Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

## A01321 Topology: Drive object number does not exist in configuration

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** p0978 contains a drive object number that does not exist.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the drive object number can be determined.
**Remedy:** Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

## A01322 Topology: Drive object number present twice in configuration

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A drive object number is present more than once in p0978.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the involved drive object number is located.

**Remedy:** Set parameter p0009 = 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

## A01323 Topology: More than two partial lists created

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Partial lists are available more than twice in p0978. After the second 0, all must be 0.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.
**Remedy:** Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

## A01324 Topology: Dummy drive object number incorrectly created

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In p0978, dummy drive object numbers (255) are only permitted in the first partial list.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.
**Remedy:** Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

## F01325 Topology: Component Number not present in target topology

**Message value:** Component number: %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The component configured in a parameter (e.g. p0121, p0131, etc.) is not present in the target topology.
Alarm value (r2124, interpret decimal):
Configured Component Number that is not present in target topology.
**Remedy:** Establish topology and DO configuration consistency.

## A01330 Topology: Quick commissioning not possible

**Message value:** Fault cause: %1, supplementary information: %2, preliminary component number: %3
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Unable to carry out a quick commissioning. The existing actual topology does not fulfill the requirements.

Alarm value (r2124, interpret hexadecimal):
ccccbbaa hex: cccc = preliminary component number, bb = supplementary information, aa = fault cause
aa = 01 hex = 1 dec:
On one component illegal connections were detected.
- bb = 01 hex = 1 dec: For a Motor Module, more than one motor with DRIVE-CLiQ was detected.
- bb = 02 hex = 2 dec: For a motor with DRIVE-CLiQ, the DRIVE-CLiQ cable is not connected to a Motor Module.
aa = 02 hex = 2 dec:
The topology contains too many components of a particular type.
- bb = 01 hex = 1 dec: There is more than one master Control Unit.
- bb = 02 hex = 2 dec: There is more than 1 infeed (8 for a parallel circuit configuration).
- bb = 03 hex = 3 dec: There are more than 10 Motor Modules (8 for a parallel circuit configuration).
- bb = 04 hex = 4 dec: There are more than 9 encoders.
- bb = 05 hex = 5 dec: There are more than 8 Terminal Modules.
- bb = 07 hex = 7 dec: Unknown component type
- bb = 08 hex = 8 dec: There are more than 6 drive slaves.
- bb = 09 hex = 9 dec: Connection of a drive slave not permitted.
- bb = 0a hex = 10 dec: There is no drive master.
- bb = 0b hex = 11 dec: There is more than one motor with DRIVE-CLiQ for a parallel circuit.
- bb = 0c hex = 12 dec: Different power units are being used in a parallel connection.
- cccc: Not used.
aa = 03 hex = 3 dec:
More than 16 components are connected at a DRIVE-CLiQ socket of the Control Unit.
- bb = 0, 1, 2, 3 means e.g. detected at the DRIVE-CLiQ socket X100, X101, X102, X103.
- cccc: Not used.
aa = 04 hex = 4 dec:
The number of components connected one after the other is greater than 125.
- bb: Not used.
- cccc = preliminary component number of the first component and component that resulted in the fault.
aa = 05 hex = 5 dec:
The component is not permissible for SERVO.
- bb = 01 hex = 1 dec: SINAMICS G available.
- bb = 02 hex = 2 dec: Chassis available.
- cccc = preliminary component number of the first component and component that resulted in the fault.
aa = 06 hex = 6 dec:
On one component illegal EEPROM data was detected. These must be corrected before the system continues to boot.
- bb = 01 hex = 1 dec: The Order No. [MLFB] of the power unit that was replaced includes a space retainer. The space retainer (*) must be replaced by a correct character.
- cccc = preliminary component number of the component with illegal EEPROM data.
aa = 07 hex = 7 dec:
The actual topology contains an illegal combination of components.
- bb = 01 hex = 1 dec: Active Line Module (ALM) and Basic Line Module (BLM).
- bb = 02 hex = 2 dec: Active Line Module (ALM) and Smart Line Module (SLM).
- bb = 03 hex = 3 dec: SIMOTION control (e.g. SIMOTION D445) and SINUMERIK component (e.g. NX15).
- bb = 04 hex = 4 dec: SINUMERIK control (e.g. SINUMERIK 730.net) and SIMOTION component (e.g. CX32).
- cccc: Not used.
Note:
Connection type and connection number are described in F01375.
See also: p0097 (Select drive object type)

**Remedy:**

- adapt the output topology to the permissible requirements.
- carry out commissioning using the commissioning software.
- for motors with DRIVE-CLiQ, connect the power and DRIVE-CLiQ cable to the same Motor Module (Single Motor Module: DRIVE-CLiQ at X202, Double Motor Module: DRIVE-CLiQ from motor 1 (X1) to X202, from motor 2 (X2) to X203).

Re aa = 06 hex = 6 dec and bb = 01 hex = 1 dec:
Correct the order number when commissioning using the commissioning software.
See also: p0097 (Select drive object type)

## A01331 Topology: At least one component not assigned to a drive object

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** At least one component is not assigned to a drive object.
- when commissioning, a component was not able to be automatically assigned to a drive object.
- the parameters for the data sets are not correctly set.
Alarm value (r2124, interpret decimal):
Component number of the unassigned component.

**Remedy:** This component is assigned to a drive object.
Check the parameters for the data sets.
Examples:
- power unit (p0121).
- motor (p0131, p0186).
- encoder interface (p0140, p0141, p0187 ... p0189).
- encoder (p0140, p0142, p0187 ... p0189).
- Terminal Module (p0151).
- option board (p0161).

## F01354 Topology: Actual topology indicates an illegal component

**Message value:** Fault cause: %1, component number: %2

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The actual topology indicates at least one illegal component.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = cause.
xx = 1: Component at this Control Unit not permissible.
xx = 2: Component in combination with another component not permissible.
Note:
Pulse enable is prevented.

**Remedy:** Remove the illegal components and restart the system.

## F01355 Topology: Actual topology changed

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The device target topology (p0099) does not correspond to the device actual topology (r0098).
The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the commissioning software.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** One of the following counter-measures can be selected if no faults have occurred in the topology detection itself:
If commissioning is still not completed:
- carry out a self-commissioning routine (starting from p0009 = 1).
In general:
Set p0099 = r0098, set p0009 = 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107).
Generating servo drives: Set p0097 to 1, set p0009 to 0.
Generating vector drives: Set p0097 to 2, set p0009 to 0.
Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0.
In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and modify p0108. The index corresponds to the drive object (p0107).

If commissioning has already been completed:
- re-establish the original connections and re-connect power to the Control Unit.
- restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
- change the device parameterization to match the connections (this is only possible using the commissioning software).

Notice:
Topology changes that result in this fault being generated cannot be accepted by the automatic function in the device, but must be transferred using the commissioning software and parameter download. The automatic function in the device only allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.

## F01356 Topology: Defective components in actual topology

**Message value:** Fault cause: %1, Component number: %2, Connection number: %3

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The actual topology indicates at least one defective DRIVE-CLiQ component.
Fault value (r0949, interpret hexadecimal):
zzyyxx hex:
zz = connection number of component before the defective component
yy = component number of component before the defective component
xx = fault cause
xx = 1: Component at this Control Unit not permissible.
Note:
Pulse enable is withdrawn and prevented.

**Remedy:** Remove the defective components and restart the system.

## F01360 Topology: Actual topology not permissible

**Message value:** Fault cause: %1, preliminary component number: %2

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The detected actual topology is not permissible.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex: cccc = preliminary component number, aa = fault cause
aa = 01 hex = 1 dec:
Too many components were detected at the Control Unit. A maximum of 199 components is permissible.
aa = 02 hex = 2 dec:
The component type of a component is not known.
aa = 03 hex = 3 dec:
It is illegal to combine ALM and BLM.
aa = 04 hex = 4 dec:
It is illegal to combine ALM and SLM.
aa = 05 hex = 5 dec:
It is illegal to combine BLM and SLM.
aa = 06 hex = 6 dec:
A CX32 was not directly connected to a permitted Control Unit.
aa = 07 hex = 7 dec:
An NX10 or NX15 was not directly connected to a permitted Control Unit.
aa = 08 hex = 8 dec:
A component was connected to a Control Unit that is not permitted for this purpose.
aa = 09 hex = 9 dec:
A component was connected to a Control Unit with out-of-date firmware.
aa = 0A hex = 10 dec:
Too many components of a particular type detected.
aa = 0B hex = 11 dec:
Too many components of a particular type detected on a single line.
Note:
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

**Remedy:** Re fault cause = 1:
Change the configuration. Connect less than 199 components to the Control Unit.
Re fault cause = 2:
Remove the component with unknown component type.
Re fault cause = 3, 4, 5:
Establish a valid combination.
Re fault cause = 6, 7:
Connect the expansion module directly to a permitted Control Unit.
Re fault cause = 8:
Remove component or use a permissible component.
Re fault cause = 9:
Upgrade the firmware of the Control Unit to a later version.
Re fault cause = 10, 11:
Reduce the number of components.

## A01361 Topology: Actual topology contains SINUMERIK and SIMOTION components

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The detected actual topology contains SINUMERIK and SIMOTION components.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex: cc = fault cause, bb = component class of the actual topology, aa = component number of the component
cc = 01 hex = 1 dec:
An NX10 or NX15 was connected to a SIMOTION control.
cc = 02 hex = 2 dec:
A CX32 was connected to a SINUMERIK control.

**Remedy:** Re alarm value = 1:
Replace all NX10 or NX15 by a CX32.
Re alarm value = 2:
Replace all CX32 by an NX10 or NX15.

## F01380 Topology: Actual topology, defective EEPROM

**Message value:** Preliminary component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** POWER ON

**Cause:** When detecting the actual topology, a component with a defective EEPROM was detected.
Fault value (r0949, interpret hexadecimal):
bbbbaaaa hex:
aaaa = preliminary component number of the defective components

**Remedy:** Output the fault value and remove the defected component.

## A01416 Topology: Comparison additional component in actual topology

**Message value:** Component number: %1, Component class: %2, Connection number: %3

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has found a component in the actual topology which is not specified in the target topology.
The alarm value includes the component number and connection number of the component with which the additional component is connected.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
cc = connection number
bb = component class of the additional component
aa = component number
Note:
- components that are connected to this additional component are not operational.

**Remedy:** Adapting the topologies:
- remove the additional component in the actual topology.
- download the target topology that matches the actual topology (commissioning software).

## A01420 Topology: Comparison a component is different

**Message value:** Component number: %1, component class target: %2, component class actual: %3, fault cause: %4

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected differences in the actual and target topologies in relation to one component.
There are differences in the electronic rating plate.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex: aa = component number of the component, bb = component class of the target topology, cc = component class of the actual topology, dd = fault cause
dd = 01 hex = 1 dec:
Different component type.
dd = 02 hex = 2 dec:
Different Order No.
dd = 03 hex = 3 dec:
Different manufacturer.
Note:
Component class and component type are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

**Remedy:** Adapting the topologies:
- check the component soft-wired connections against the hardware configuration of the drive unit in the commissioning software and correct differences.

## A01425 Topology: Comparison serial number of a component is different

**Message value:** Component number: %1, Component class: %2, Differences: %3

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected differences in the actual and target topologies in relation to one component.
The serial number is different.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
cc = number of differences
bb = component class
aa = component number of the component
Note:
The component class is described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

**Remedy:** Adapting the topologies:
- change over the actual topology to match the target topology.
- download the target topology that matches the actual topology (commissioning software).
Re byte cc:
cc = 1 --> can be acknowledged using p9904 or p9905.
cc > 1 --> can be acknowledged using p9905 and can be de-activated using p9906 or p9907/p9908.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
See also: p9904 (Topology comparison, acknowledge differences), p9905 (Device specialization)

## F01451 Topology: Target topology is invalid

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** An error was detected in the target topology.
The target topology is invalid.

Fault value (r0949, interpret hexadecimal):
ccccbbaa hex: cccc = index error, bb = component number, aa = fault cause
aa = 1B hex = 27 dec: Error not specified.
aa = 1C hex = 28 dec: Value illegal.
aa = 1D hex = 29 dec: Incorrect ID.
aa = 1E hex = 30 dec: Incorrect ID length.
aa = 1F hex = 31 dec: Too few indices left.
aa = 20 hex = 32 dec: component not connected to Control Unit.

**Remedy:** Reload the target topology using the commissioning software.

## F01475 Topology: Target topology duplicate connection between two components

**Message value:** Component number: %1, Component class: %2, Connection number1: %3, Connection number2: %4

**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** When writing the target topology, a duplicate connection between two components was detected.
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex:
dd = connection number 2 of the duplicate connection
cc = connection number 1 of the duplicate connection
bb = component class
aa = component number of one of the components connected twice
Note:
Component class and connection number are described in F01375.

**Remedy:** Read out the fault value and remove one of the two specified connections.
Then download the target topology again using the commissioning software.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01481 Topology: Comparison power unit missing in the actual topology

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected a power unit in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - delete the drive belonging to the power unit in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check the 24 V supply voltage.
- check that the power unit is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01482 Topology: Comparison Sensor Module missing in the actual topology

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected a Sensor Module in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - re-configure the drive belonging to the Sensor Module in the commissioning software project (encoder configuration) and download the new configuration to the drive unit.
- delete the drive belonging to the Sensor Module in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check the 24 V supply voltage.
- check that the Sensor Module is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01483 Topology: Comparison Terminal Module missing in the actual topology

**Message value:** Component number: %1

**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected a Terminal Module in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - delete the Terminal Module in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check the 24 V supply voltage.
- check that the Terminal Module is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01484 Topology: Comparison DRIVE-CLiQ Hub Module missing in the actual topology

**Message value:** Component number: %1

**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected a DRIVE-CLiQ Hub Module in the target topology that does not exist in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - delete the DRIVE-CLiQ Hub Module in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check the 24 V supply voltage.
- test the DRIVE-CLiQ Hub Module to ensure that it functions properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01486 Topology: Comparison DRIVE-CLiQ components missing in the actual topology

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected a DRIVE-CLiQ component in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - delete the drive belonging to this component in the commissioning software project and download the new configuration to the drive unit.
- re-configure the drive belonging to this component in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check the 24 V supply voltage.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01487 Topology: Comparison option slot components missing in the actual topology

**Message value:** Component number: %1

**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected an option slot module in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - delete the option board in the commissioning software project and download the new configuration to the drive unit.
- re-configure the drive unit in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check that the option board is functioning correctly
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01488 Topology: Comparison EnDat encoder missing in the actual topology

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected an EnDat encoder in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - re-configure the drive belonging to the encoder in the commissioning software project (encoder configuration) and download the new configuration to the drive unit.
- delete the drive belonging to the encoder in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## A01489 Topology: Comparison motor with DRIVE-CLiQ missing in the actual topology

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The topology comparison has detected a motor with DRIVE-CLiQ in the target topology that is not available in the actual topology.
Alarm value (r2124, interpret decimal):
Component number of the additional target components.

**Remedy:** - re-configure the drive belonging to this motor in the commissioning software project and download the new configuration to the drive unit.
- re-configure the drive belonging to this motor in the commissioning software project and download the new configuration to the drive unit.
- check that the actual topology matches the target topology and if required, change over.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the motor is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

## F01505 (A) BICO: Interconnection cannot be established

**Message value:** Parameter: %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** A PROFIdrive telegram has been set (p0922).
An interconnection contained in the telegram was not able to be established.
Fault value (r0949, decimal interpretation):
Parameter receiver that should be changed.
**Remedy:** Establish another interconnection.
Reaction upon A: NONE
Acknowl. upon A: NONE

## A01507 (F, N) BICO: Interconnections to inactive objects present

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** There are BICO interconnections as signal sink from a drive object that is either inactive/not operational.
The BI/CI parameters involved are listed in r9498.
The associated BO/CO parameters are listed in r9499.
The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the de-activated drive object.
Note:
r9498 and r9499 are only written to, if p9495 is not set to 0.
Alarm value (r2124, interpret decimal):
Number of BICO interconnections found to inactive drive objects.
**Remedy:** - set all open BICO interconnections centrally to the factory setting with p9495 = 2.
- make the non-operational drive object active/operational again (re-insert or activate components).
Reaction upon F: OFF2 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A01508 BICO: Interconnections to inactive objects exceeded

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The maximum number of BICO interconnections (signal sinks) when de-activating a drive object was exceeded.
When de-activating a drive object, all BICO interconnections (signal sinks) are listed in the following parameters:
- r9498[0...29]: List of the BI/CI parameters involved.
- r9499[0...29]: List of the associated BO/CO parameters.
**Remedy:** The alarm automatically disappears as soon as no BICO interconnection (value = 0) is entered in r9498[29] and r9499[29].
Notice:
When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.

### F01510 BICO: Signal source is not float type

**Message value:** Parameter: %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The requested connector output does not have the correct data type. This interconnection is not established.
Fault value (r0949, decimal interpretation):
Parameter number to which an interconnection should be made (connector output).
**Remedy:** Interconnect this connector input with a connector output having a float data type.

### F01511 (A) BICO: Interconnection with different scalings

**Message value:** Parameter: %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
- the BICO output has different normalized units than the BICO input.
- message only for interconnections within a drive object.
Example:
The BICO output has, as normalized unit, voltage and the BICO input has current.
This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input.
p2002: contains the reference value for current
p2001: contains the reference value for voltage
Fault value (r0949, decimal interpretation):
Parameter number of the BICO input (signal sink).
**Remedy:** Not necessary.
Reaction upon A: NONE
Acknowl. upon A: NONE

### F01512 BICO: No scaling available

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** An attempt was made to determine a conversion factor for a scaling that does not exist.
Fault value (r0949, decimal interpretation):
Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.
**Remedy:** Apply scaling or check the transfer value.

### F01513 (A) BICO: Interconnection cross DO with different scalings

**Message value:** Parameter: %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different.
Example 1:
BICO output with voltage normalized unit, BICO input with current normalized unit, BICO output and BICO input lie in different drive objects. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input.
p2002: contains the reference value for current
p2001: contains the reference value for voltage

Example 2:
BICO output with voltage normalized unit in drive object 1 (DO1), BICO input with voltage normalized unit in drive object 2 (DO2). The reference values for voltage (p2001) of the two drive objects have different values. This means that the factor p2001(DO1)/p2001(DO2) is calculated between the BICO output and the BICO input.
p2001: contains the reference value for voltage, drive objects 1, 2
Fault value (r0949, decimal interpretation):
Parameter number of the BICO input (signal sink).

**Remedy:** Not necessary.
Reaction upon A: NONE
Acknowl. upon A: NONE

## A01514 (F) BICO: Error when writing during a reconnect

**Message value:** Parameter: %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to.
Example:
When writing to a double word BICO input in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting.
Alarm value (r2124, interpret decimal):
Parameter number of the BICO input (signal sink).
**Remedy:** Not necessary.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

## F01515 (A) BICO: Writing to parameter not permitted as the master control is active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** When changing the number of CDS or when copying from CDS, the master control is active.
**Remedy:** If required, return the master control and repeat the operation.
Reaction upon A: NONE
Acknowl. upon A: NONE

## A01590 (F) Drive: Motor maintenance interval expired

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected service/maintenance interval for this motor was reached.
Alarm value (r2124, interpret decimal):
Motor data set number.
See also: p0650 (Actual motor operating hours), p0651 (Motor operating hours maintenance interval)
**Remedy:** carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

## F01600 SI CU: STOP A initiated

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected a fault and initiated a STOP A (pulse suppression via the safety shutdown path of the Control Unit).
- forced checking procedure of the safety shutdown path of the Control Unit unsuccessful.
- subsequent response to fault F01611 (defect in a monitoring channel).
Fault value (r0949, decimal interpretation):
0: Stop request from the Motor Module.
1005: Pulses suppressed although STO not selected and there is no internal STOP A present.
1010: Pulses enabled although STO is selected or an internal STOP A is present.
1015: Feedback of the safe pulse suppression for Motor Modules connected in parallel are different.
9999: Subsequent response to fault F01611.

**Remedy:** - select Safe Torque Off and de-select again.
- replace the Motor Module involved.
For fault value = 9999:
- carry out diagnostics for fault F01611.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

## F01611 SI CU: Defect in a monitoring channel

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected a fault in the crosswise data comparison between the CU and Motor Module (MM) and initiated a STOP F.
As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.
Fault value (r0949, decimal interpretation):
0: Stop request from the Motor Module.
1 ... 999:
Number of the cross-checked data that resulted in this fault. This number is also displayed in r9795.
1: SI monitoring clock cycle (r9780, r9880).
2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.
3: SI SGE changeover tolerance time (p9650, p9850).
4: SI transition period STOP F to STOP A (p9658, p9858).
5: SI enable Safe Brake Control (p9602, p9802).
6: SI Motion enable, safety-relevant functions (p9501, internal value).
7: SI pulse suppression delay time for Safe Stop 1 (p9652, p9852).
8: SI PROFIsafe address (p9610, p9810).
9: SI debounce time for STO/SBC/SS1 (MM) (p9651, p9851).
10: SI delay time for pulse suppression for ESR (p9697, p9897).
11: SI Safe Brake Adapter mode, BICO interconnection (p9621, p9821).
12: SI Safe Brake Adapter relay ON time (p9622[0], p9822[0]).
13: SI Safe Brake Adapter relay OFF time (p9622[1], p9822[1]).
1000: Watchdog timer has expired. Within the time of approx. 5 x p9650 too many switching operations have occurred at terminal EP of the Motor Module, or STO (also as subsequent response) was initiated too frequently via PROFIsafe/TM54F.
1001, 1002: Initialization error, change timer / check timer.
1900: CRC error in the SAFETY sector.
1901: CRC error in the ITCM sector.
1902: Overloading in the ITCM sector has occurred in operation.
1950: Module temperature outside the permissible temperature range.
1951: Module temperature not plausible.
2000: Status of the STO selection on the Control Unit and Motor Module are different.

2001: Feedback signal for safe pulse suppression on the Control Unit and Motor Module are different.
2002: Status of the delay timer SS1 on the Control Unit and Motor Module are different.
2004: Status of the STO selection for modules connected in parallel are different.
2005: Feedback signal of the safe pulse suppression on the Control Unit and Motor Modules connected in parallel are different.
6000 ... 6999:
Error in the PROFIsafe control.
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
The significance of the individual message values is described in safety message C01711 of the Control Unit.

**Remedy:**
Re fault value = 1 ... 5 and 7 ... 999:
- check the cross-checked data that resulted in a STOP F.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 6:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 1000:
- check the EP terminal at the Motor Module (contact problems).
- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.
- check the wiring of the failsafe inputs at the TM54F (contact problems).

Re fault value = 1001, 1002:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 1900, 1901, 1902:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Control Unit software.
- replace Control Unit.

Re fault value = 2000, 2001, 2002, 2004, 2005:
- check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).
- check the causes of the STO selection in r9772. When the SMM functions are active (p9501 = 1), STO can also be selected using these functions.
- replace the Motor Module involved.

Re fault value = 6000 ... 6999:
Refer to the description of the message values in safety message C01711.
Note:
CU: Control Unit
EP: Enable Pulses (pulse enable)
MM: Motor Module
SGE: Safety-relevant input
SI: Safety Integrated
SMM: Safe Motion Monitoring
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
STO: Safe Torque Off / SH: Safe standstill
ESR: Extended Stop and Retract

## F01612 SI CU: STO inputs for power units connected in parallel different

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:**
The drive-integrated "Safety Integrated" function on the Control Unit (CU) has identified different states of the AND'ed STO inputs for power units connected in parallel and has initiated a STOP F.
As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.
Fault value (r0949, interpret binary):
Binary image of the digital inputs of the Control Unit that are used as signal source for the function "Safe Torque Off".

**Remedy:** - check the tolerance time SGE changeover and if required, increase the value (p9650).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).
Note:
CU: Control Unit
SGE: Safety-relevant input
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

## N01620 (F, A) SI CU: Safe Torque Off active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The "Safe Torque Off" (STO) function has been selected on the Control Unit (CU) using the input terminal and is active.
Note:
This message does not result in a safety stop response.
**Remedy:** Not necessary.
Note:
CU: Control Unit
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

## N01621 (F, A) SI CU: Safe Stop 1 active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The "Safe Stop 1" (SS1) function has been selected on the Control Unit (CU) and is active.
Note:
This message does not result in a safety stop response.
**Remedy:** Not necessary.
Note:
CU: Control Unit
SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
Reaction upon F: OFF3
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F01625 SI CU: Sign-of-life error in safety data

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected an error in the sign-of-life of the safety data between the CU and Motor Module (MM) and initiated a STOP A.
- there is either a DRIVE-CLiQ communication error or communication has failed.
- a time slice overflow of the safety software has occurred.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** - select Safe Torque Off and de-select again.
- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- de-select all drive functions that are not absolutely necessary.
- reduce the number of drives.
- check the electrical cabinet design and cable routing for EMC compliance
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01630 SI CU: Brake control error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive-integrated "Safety Integrated" function on the Control Unit (CU) has detected a brake control fault and initiated a STOP A.
Fault value (r0949, decimal interpretation):
Re fault value = 10, 11:
Fault in "open holding brake" operation.
- Parameter p1278 incorrectly set.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
- Ground fault in brake cable.
For fault value = 20:
Fault in "brake open" state.
- Short-circuit in brake winding.
Re fault value = 30, 31:
Fault in "close holding brake" operation.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
- Short-circuit in brake winding.
For fault value = 40:
Fault in "brake closed" state.
For fault value = 50:
Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).
For fault value = 80:
SafeBrakeAdapter: Fault in the brake control circuit of the Control Unit or communication fault between Control Unit and Motor Module (brake control diagnostics).
Note:
The following causes may apply to fault values:
- motor cable is not shielded correctly.
- defect in control circuit of the Motor Module.

**Remedy:** - check parameter p1278 (for SBC, only p1278 = 0 is permissible).
- select Safe Torque Off and de-select again.
- check the motor holding brake connection.
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.
Operation with Safe Brake Module or Safe Brake Adapter:
- check the Safe Brake Module or Safe Brake Adapter connection.
- replace the Safe Brake Module or Safe Brake Adapter.

Note:
CU: Control Unit
SBC: Safe Brake Control
SI: Safety Integrated

## F01649 SI CU: Internal software error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An internal error in the Safety Integrated software on the Control Unit has occurred.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:** - carry out a POWER ON (power off/on) for all components.
- re-commission the "Safety Integrated" function and carry out a POWER ON.
- Upgrade the firmware of the Control Unit to a later version.
- contact the Hotline.
- replace the Control Unit.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01650 SI CU: Acceptance test required

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive-integrated "Safety Integrated" function on the Control Unit requires an acceptance test.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, decimal interpretation):
130: Safety parameters for the Motor Module not available.
Note:
This fault value is always output when Safety Integrated is commissioned for the first time.
1000: Reference and actual checksum on the Control Unit are not identical (booting).
- at least one checksum-checked piece of data is defective.
2000: Reference and actual checksum on the Control Unit are not identical (commissioning mode).
- reference checksum incorrectly entered into the Control Unit (p9799 not equal to r9798).
- when de-activating the safety functions, p9501 or p9503 were not deleted.
2001: Reference and actual checksum on the Motor Module are not identical (commissioning mode).
- reference checksum incorrectly entered into the Motor Module (p9899 not equal to r9898).
- when de-activating the safety functions, p9501 or p9503 are not deleted.
2002: Enable of safety-related functions between the Control Unit and Motor Module differ (p9601 not equal to p9801).
2003: Acceptance test is required as a safety parameter has been changed.
2004: An acceptance test is required because a project with enabled safety-functions has been downloaded.
2005: The Safety logbook has identified that a functional safety checksum has changed. An acceptance test is required.
2010: Safe Brake Control is enabled differently between the Control Unit and Motor Module (p9602 not equal to p9802).
2020: Error when saving the safety parameters for the Motor Module.
3003: Acceptance test is required as a hardware-related safety parameter has been changed.
3005: The Safety logbook has identified that a hardware-related safety checksum has changed. An acceptance test is required.
9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

**Remedy:** For fault value = 130:
- carry out safety commissioning routine.
For fault value = 1000:
- again carry out safety commissioning routine.
- replace the memory card or Control Unit.
For fault value = 2000:
- check the safety parameters in the Control Unit and adapt the reference checksum (p9799).
For fault value = 2001:
- check the safety parameters in the Motor Module and adapt the reference checksum (p9899).
For fault value = 2002:
- enable the safety-related functions in the Control Unit and check in the Motor Module (p9601 = p9801).
Re fault value = 2003, 2004, 2005:
- Carry out an acceptance test and generate an acceptance report.
The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
SINAMICS S120 Function Manual Safety Integrated
The fault with fault value 2005 can only be acknowledged when the "STO" function is de-selected.
For fault value = 2010:
- check enable of the safety-related brake control in the Control Unit and Motor Module (p9602 = p9802).
For fault value = 2020:
- again carry out safety commissioning routine.
- replace the memory card or Control Unit.
For fault value = 3003:
- carry out the function checks for the modified hardware and generate an acceptance report.
The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
SINAMICS S120 Function Manual Safety Integrated
For fault value = 3005:
- carry out the function checks for the modified hardware and generate an acceptance report.
The fault with fault value 3005 can only be acknowledged when the "STO" function is de-selected.
For fault value = 9999:
- carry out diagnostics for the other safety-related fault that is present.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off
See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI setpoint checksum SI parameters (processor 2))

## F01651 SI CU: Synchronization safety time slices unsuccessful

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The "Safety Integrated" function requires a synchronization of the safety time slices between the Control Unit (CU) and Motor Module (MM) and between the Control Unit and the higher-level control. This synchronization routine was unsuccessful.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
121:
- with SINUMERIK Safety Integrated enabled, a drive-side warm restart was performed on the CU/NX.
- with SINUMERIK Safety Integrated enabled, the function "restore factory setting" was selected on a drive object of the CU and a drive-side warm restart was initiated.
150:
- fault in the synchronization to the PROFIBUS master.
All other values:
- only for internal Siemens troubleshooting.
See also: p9510 (SI Motion clock-cycle synchronous PROFIBUS master)

**Remedy:** For fault value = 121:
- carry out a common POWER ON/warm restart for the higher-level control and SINAMICS.
For fault value = 150:
- check the setting of p9510 (SI Motion clock-cycle synchronous PROFIBUS master) and if required, correct.
General:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- upgrade the software of the higher-level control.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01652 SI CU: Illegal monitoring clock cycle

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** One of the Safety Integrated monitoring clock cycles is not permissible:
- the monitoring clock cycle integrated in the drive cannot be maintained due to the communication conditions required in the system.
- the monitoring clock cycle for safe motion monitoring functions with the higher-level control is not permissible (p9500).
- The sampling time for the current controller (p0112, p0115) cannot be supported.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
- for enabled SI monitoring integrated in the drive (p9601/p9801 > 0):
Minimum setting for the monitoring clock cycle (in µs).
- with the motion monitoring function enabled (p9501 > 0):
100: No matching monitoring clock cycle was able to be found.
101: The monitoring clock cycle is not an integer multiple of the actual value sensing clock cycle.
102: An error has occurred when transferring the DP clock cycle to the Motor Module (MM).
103: An error has occurred when transferring the DP clock cycle to the Sensor Module.
104,105:
- four times the current controller sampling time is greater than 1 ms when operating with a non-isochronous PROFIBUS.
- four times the current controller sampling time is greater than the DP clock cycle when operating with an isochronous PROFIBUS.
- The DP clock cycle is not an integer multiple of the sampling time of the current controller.
106: The monitoring clock cycle does not match the monitoring clock cycle of the TM54F.
107: Four times the current controller sampling time is greater than the actual value sensing clock cycle (p9511) or the actual value sensing clock cycle is not an integer multiple of the current controller sampling time.
108: The parameterized actual value sensing clock cycle cannot be set on this component.
109: If the motion monitoring functions have been parameterized as encoderless (p9506), the actual value sensing clock cycle (p9511) and the current controller clock cycle must be identical.
110: The actual value sensing clock cycle (p9511) for safety with encoder (p9506 = 0) is less than 2 ms for this Control Unit (e.g. CU305).

**Remedy:** For enabled SI monitoring integrated in the drive (p9601/p9801 > 0):
- upgrade the Control Unit software.
For enabled motion monitoring function (p9501 > 0):
- correct the monitoring clock cycle (p9500) and carry out POWER ON.
For fault value = 101:
- actual value sensing clock cycle corresponds to position control clock cycle/DP clock cycle (factory setting).
- for motion monitoring functions integrated in the drive (p9601/p9801bit 2 = 1) the actual value sensing clock cycle can be directly parameterized in P9511/p9311.

Re fault value = 104, 105:
- set a separate actual value sensing clock cycle in p9511.
- restrict operation to a maximum of two vector drives. For the standard setting in p0112, p0115, the current controller sampling time is automatically reduced to 250 µs. If the standard values were changed, then the current controller sampling time (p0112, p0115) should be appropriately set.
- increase the DP clock cycle for operation with a clock-cycle synchronous PROFIBUS so that there is a multiple clock cycle ratio of at least 4:1 between the DP clock cycle and the current controller sampling time. A clock cycle ratio of at least 8:1 is recommended.
- With firmware version 2.5, please ensure that parameter p9510 is set to 1 in the drive (clock cycle synchronous operation).
For fault value = 106:
- set the parameters for the monitoring clock cycles the same (p10000 and p9500 / p9300).
For fault value = 107:
- set an actual value sensing clock cycle in p9511 that matches the current controller clock cycle. A clock cycle ratio of at least 8:1 is recommended.
For fault value = 108:
- set a suitable actual value sensing clock cycle in p9511.
- if the DP clock cycle is used as the actual value sensing clock cycle for operation with isochronous PROFIBUS (p9511 = 0), then a suitable DP clock cycle must be configured.
A suitable multiple of the DP clock cycle (e.g. 1, 2, 3, 4, 5, 6, 8, 10) must be parameterized on the D410. Otherwise, the clock cycle must be set to less than 8 ms.
For fault value = 109:
- set the actual value sensing clock cycle in p9511 to the same value as the current controller clock cycle (p115).
For fault value = 110:
- set the actual value sensing clock cycle in p9511 to 2 ms or higher.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01653 SI CU: PROFIBUS configuration error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** There is a PROFIBUS configuration error for using Safety Integrated monitoring functions with a higher-level control (SINUMERIK or F-PLC).
Note:
For safety functions that have been enabled, this fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
200: A safety slot for receive data from the control has not been configured.
210, 220: The configured safety slot for the receive data from the control has an unknown format.
230: The configured safety slot for the receive data from the F-PLC has the incorrect length.
231: The configured safety slot for the receive data from the F-PLC has the incorrect length.
240: The configured safety slot for the receive data from the SINUMERIK has the incorrect length.
250: A PROFIsafe slot is configured in the higher-level F control, however PROFIsafe is not enabled in the drive.
300: A safety slot for the send data to the control has not been configured.
310, 320: The configured safety slot for the send data to the control has an unknown format.
330: The configured safety slot for the send data to the F-PLC has the incorrect length.
331: The configured safety slot for the send data to the F-PLC has the incorrect length.
340: The configured safety slot for the send data to the SINUMERIK has the incorrect length.

**Remedy:** The following generally applies:
- check and, if necessary, correct the PROFIBUS configuration of the safety slot on the master side.
- upgrade the Control Unit software.
For fault value = 250:
- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.
Re fault value = 231, 331:
- configure the PROFIsafe telegram matching the parameterization in the F-PLC.
The following applies for p9501.30 = 1 (F-DI via PROFIsafe is enabled): PROFIsafe telegram 900 must be configured.
The following applies for p9501.30 = 0 (F-DI via PROFIsafe is not enabled): PROFIsafe telegram 30 must be configured.

## F01655 SI CU: Align monitoring functions

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An error has occurred when aligning the Safety Integrated monitoring functions on the Control Unit (CU) and Motor Module (MM). Control Unit and Motor Module were not able to determine a common set of supported SI monitoring functions.
- there is either a DRIVE-CLiQ communication error or communication has failed.
- Safety Integrated software releases on the Control Unit and Motor Module are not compatible with one another.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- check the electrical cabinet design and cable routing for EMC compliance
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01656 SI CU: Motor Module parameter error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When accessing the Safety Integrated parameters for the Motor Module (MM) in the non-volatile memory, an error has occurred.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, decimal interpretation):
129:
- safety parameters for the Motor Module corrupted.
- drive with enabled safety functions was possibly copied offline using the commissioning software and the project downloaded.
131: Internal Motor Module software error.
132: Communication errors when uploading or downloading the safety parameters for the Motor Module.
255: Internal software error on the Control Unit.

**Remedy:** - re-commission the safety functions.
- upgrade the Control Unit software.
- upgrade the Motor Module software.
- replace the memory card or Control Unit.
For fault value = 129:
- activate the safety commissioning mode (p0010 = 95).
- adapt the PROFIsafe address (p9610).
- start the copy function for SI parameters (p9700 = D0 hex).
- acknowledge data change (p9701 = DC hex).
- exit the safety commissioning mode (p0010 = 0).
- save all parameters (p0977 = 1 or "copy RAM to ROM").
- carry out a POWER ON (power off/on) for all components.
For fault value = 132:
- check the electrical cabinet design and cable routing for EMC compliance
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01659 SI CU: Write request for parameter rejected

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The write request for one or several Safety Integrated parameters on the Control Unit (CU) was rejected.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
1: The Safety Integrated password is not set.
2: A reset of the drive parameters was selected. However, the Safety Integrated parameters were not reset, as Safety Integrated is presently enabled.
3: The interconnected STO input is in the simulation mode.
10: An attempt was made to enable the STO function although this cannot be supported.
11: An attempt was made to enable the SBC function although this cannot be supported.
12: An attempt was made to enable the SBC function although this cannot be supported for a parallel circuit configuration.
13: An attempt was made to enable the SS1 function although this cannot be supported.
14: An attempt was made to enable the PROFIsafe communication - although this cannot be supported or the version of the PROFIsafe driver used on the CU and MM is different.
15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.
16: An attempt was made to enable the STO function although this cannot be supported when the internal voltage protection (p1231) is enabled.
17: An attempt was made to enable the PROFIsafe function although this cannot be supported for a parallel circuit configuration.
18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.
19: An attempt was made to enable the SBA (Safe Brake Adapter), although this cannot be supported.
20: An attempt was made to enable the motion monitoring functions integrated in the drive and the STO function, both controlled via F-DI.
21: An attempt was made to enable the motion monitoring functions integrated in the drive for a parallel connection, although these cannot be supported.
22: An attempt was made to enable the Safety Integrated functions although these cannot be supported by the connected Power Module.
23: For ESR, an attempt was made to enable the delay for pulse suppression, although this cannot be supported.
See also: p0970 (Reset drive parameters), p3900 (Completion of quick commissioning), r9771 (SI common functions (processor 1)), r9871 (SI common functions (processor 2))

**Remedy:** For fault value = 1:
- set the Safety Integrated password (p9761).
For fault value = 2:
- Inhibit Safety Integrated (p9501, p9601) or reset safety parameters (p0970 = 5), then reset the drive parameters again.
For fault value = 3:
- end the simulation mode for the digital input (p0795).
Re fault value = 10, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22 , 23:
- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Motor Module that supports the required function.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
For fault value = 16:
- inhibit the internal voltage protection (p1231).
For fault value = 20:
- correct setting in p9601.
For fault value = 22:
- use a Power Module that supports the Safety Integrated functions.
Note:
CU: Control Unit
ESR: Extended Stop and Retract
MM: Motor Module
SBA: Safe Brake Adapter
SBC: Safe Brake Control

SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
STO: Safe Torque Off / SH: Safe standstill
See also: p9501 (SI Motion enable safety functions (processor 1)), p9601 (SI enable, functions integrated in the drive (processor 1)), p9761 (SI password input), p9801 (SI enable, functions integrated in the drive (processor 2))

## F01660 SI CU: Safety-related functions not supported

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The Motor Module (MM) does not support the safety-related functions (e.g. the Motor Module version is not the correct one). Safety Integrated cannot be commissioned.
Note:
This fault does not result in a safety stop response.
**Remedy:** - use a Motor Module that supports the safety-related functions.
- upgrade the Motor Module software.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F01662 Error internal communications

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** A module-internal communication error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

## F01663 SI CU: Copying the SI parameters rejected

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** One of the following values is saved in p9700 or was entered offline: 87 or 208.
This is the reason that when booting, an attempt is made to copy SI parameters from the Control Unit to the Motor Module. However, no safety-relevant function has been selected on the Control Unit (p9501 = 0, p9601 = 0). This is the reason that copying is not possible.
Note:
This fault does not result in a safety stop response.
See also: p9700 (SI Motion copy function)
**Remedy:** - Set p9700 to 0.
- Check p9501 and p9601 and if required, correct.
- Restart the copying function by entering the corresponding value into p9700.

## F01664 SI CU: No automatic firmware update

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** During booting, the system detected that the "Firmware update automatic" function (p7826 = 1) was not activated. This function must be activated for automatic firmware updates/downgrades to prevent impermissible version combinations when safety functions are enabled.

Note:
This fault does not result in a safety stop response.

**Remedy:** When safety functions are enabled (p9501 <> 0 and/or p9601 <> 0):
1. Activate the "Firmware update automatic" function (p7826 = 1).
2. Save the parameters (p0977 = 1) and carry out a POWER ON.
When de-activating the safety functions (p9501 = 0, p9601 = 0), the fault can be acknowledged after exiting the safety commissioning mode.

## F01665 SI CU: System is defective

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).
Fault value (r0949, interpret hexadecimal):
200000 hex, 400000 hex, 8000yy hex (yy any):
- Fault in the actual booting/operation.
800004 hex:
- Parameters p9500/p9300 are, under certain circumstances, not the same. In addition, Safety message C01711/C30711 is displayed.
Additional values:
- defect before the last time that the system booted.

**Remedy:** - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
Re fault value = 200000 hex, 400000 hex, 8000yy hex (yy any):
- ensure that the Control Unit is connected to the Power Module.
Re fault value = 800004 hex:
- Check that parameters p9500/p9300 are the same.

## A01666 (F) SI Motion CU: Steady-state (static) 1 signal at the F-DI for safety-relevant acknowledgement

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** A logical 1 signal is present at the F-DI configured in p10006 for more than 10 seconds.
If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.

**Remedy:** Set the fail-safe digital input (F-DI) to a logical 0 signal (10006).
Note:
F-DI: Failsafe Digital Input

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

## A01669 (F, N) SI Motion: Unfavorable combination of motor and power unit

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The combination of motor and power unit used is not suitable for using safe motion monitoring functions without an encoder.
Alarm value (r2124, interpret decimal):
Number of the motor data set, which caused the fault.

**Remedy:** Use a suitable power unit with a lower power rating or a motor with a higher power rating.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE
Acknowl. upon N: NONE

## F01670 SI Motion: Invalid parameterization Sensor Module

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The parameterization of a Sensor Module used for Safety Integrated is not permissible.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
1: No encoder was parameterized for Safety Integrated.
2: An encoder was parameterized for Safety Integrated that does not have an A/B track (sine/cosine).
3: The encoder data set selected for Safety Integrated is still not valid.
4: A communication error with the encoder has occurred.
5: Number of relevant bits in the encoder coarse position invalid.
6: DRIVE-CLiQ encoder configuration invalid.
10: For an encoder used for Safety Integrated, not all of the Drive Data Sets (DDS) are assigned to the same Encoder Data Set (EDS) (p0187 ... p0189).
**Remedy:** Re fault value = 1, 2:
- use and parameterize an encoder that Safety Integrated supports (encoder with track A/B sine-wave, p0404.4 = 1).
For fault value = 3:
- check whether the drive or drive commissioning function is active and if required, exit this (p0009 = p00010 = 0), save the parameters (p0971 = 1) and carry out a POWER ON
For fault value = 4:
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Sensor Module involved and if required, carry out a diagnostics routine for the faults identified.
For fault value = 10:
- align the EDS assignment of all of the encoders used for Safety Integrated (p0187 ... p0189).
Note:
SI: Safety Integrated

## F01671 SI Motion: Parameterization encoder error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The parameterization of the encoder used by Safety Integrated is different to the parameterization of the standard encoder.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Parameter number of the non-corresponding safety parameter.
**Remedy:** Align the encoder parameterization between the safety encoder and the standard encoder.
Note:
SI: Safety Integrated

## F01672 SI CU: Motor Module software/hardware incompatible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The existing Motor Module software does not support safe motion monitoring or is not compatible to the software on the Control Unit or there is a communications error between the Control Unit and Motor Module.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
1: The existing Motor Module software does not support the safe motion monitoring function.

2, 3, 6, 8: There is a communications error between the Control Unit and Motor Module.
4, 5, 7: The existing Motor Module software is not compatible to the software on the Control Unit.
9,10,11,12: The actual Motor Module software does not support safe encoderless motion monitoring.
13: At least one Motor Module in parallel operation does not support the safe motion monitoring function.

**Remedy:** - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.
For fault value = 1:
- use a Motor Module that supports safe motion monitoring.
Re fault value = 2, 3, 6, 8:
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
Re fault value = 4, 5, 7, 9, 13:
- upgrade the Motor Module software.
Note:
SI: Safety Integrated

## F01673 SI Motion: Sensor Module software/hardware incompatible

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The existing Sensor Module software and/or hardware does not support the safe motion monitoring function with the higher-level control.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** - upgrade the Sensor Module software.
- use a Sensor Module that supports the safe motion monitoring function.
Note:
SI: Safety Integrated

## F01680 SI Motion CU: Checksum error safety monitoring functions

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The actual checksum calculated by the drive and entered in r9728 via the safety-relevant parameters does not match the reference checksum saved in p9729 at the last machine acceptance.
Safety-relevant parameters have been changed or a fault is present.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, decimal interpretation):
0: Checksum error for SI parameters for motion monitoring.
1: Checksum error for SI parameters for actual values.
2: Checksum error for SI parameters for component assignment.

**Remedy:** - check the safety-relevant parameters and if required, correct.
- perform a POWER ON if safety parameters requiring a POWER ON have been modified.
- carry out an acceptance test.

## F01681 SI Motion CU: Incorrect parameter value

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The parameter cannot be parameterized with this value.
Note:
This fault does not result in a safety stop response.

Fault value (r0949, decimal interpretation):
Parameter number with the incorrect value.
9522: The gear stage was set too high.
9500: p9500 not equal to p9300
9511: p9511 not equal to p9311

**Remedy:** Correct the parameter value.
For fault value = 9500:
Align parameters 9300 and 9500, backup parameters (p0971 = 1) and carry out a POWER ON.
With hysteresis/filtering enabled (p9501.16 = 1), the following applies:
- Set parameters p9546/p9346 and p9547/p9347 acc. to the following rule: p9546 >= 2 x p9547; p9346 >= 2 x p9347.
- The following rule must also be adhered to when actual value synchronization (p9501.3 = 1) is enabled: p9549 <= p9547; p9349 <= p9347.
For fault value = 9507:
- Set synchronous or induction motor according to p0300.
Re fault value = p9511:
Align parameters 9311 and 9511, backup parameters (p0971 = 1) and carry out a POWER ON.
For fault value = 9517:
- Also check p9516.0.
For fault value = 9522:
- Correct parameters.

## F01682 SI Motion CU: Monitoring function not supported

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The monitoring function enabled in p9501, p9601 or p9801 is not supported in this firmware version.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
1: Monitoring function SLP not supported (p9501.1).
2: Monitoring function SCA not supported (p9501.7 and p9501.8 ... 15 and p9503).
3: Monitoring function SLS override not supported (p9501.5).
4: Monitoring function external ESR activation not supported (p9501.4).
5: Monitoring function F-DI in PROFIsafe not supported (p9501.30).
6: Enable actual value synchronization not supported (p9501.3).
9: Monitoring function not supported, enable bit reserved (p9501.2, p9501.17 ... 29, p9501.31, if required p9501.6).
10: Monitoring functions only supported for a SERVO drive object.
11: Only encoderless monitoring functions integrated in the drive are supported.
12: Monitoring functions for ncSI are not supported on a CU305.
20: Motion monitoring functions integrated in the drive are only supported in conjunction with PROFIsafe (p9501, p9601.1 ... 2 and p9801.1 ... 2).
21: PROFIsafe only supported in conjunction with motion monitoring functions integrated in the drive (p9501, p9601.1 ... 2 and p9801.1 ... 2).
22: Encoderless monitoring functions in chassis format not supported.
23: CU240 does not support monitoring functions requiring an encoder.
24: Monitoring function SDI not supported (p9501.17).
25: Drive-integrated motion monitoring functions not supported (p9501, p9601.2).
26: hysteresis and filtering for SSM monitoring function without an encoder not supported (p9501.16).

**Remedy:** De-select the monitoring function involved (p9501, p9503, p9506, p9601, p9801).
Note:
ESR: Extended Stop and Retract
SCA: Safe Cam / SN: Safe software cam
SDI: Safe Direction (safe motion direction)
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches
SLS: Safely-Limited Speed / SG: Safely reduced speed
SDI: Safe Direction (safe motion direction)
See also: p9501 (SI Motion enable safety functions (processor 1)), p9503 (SI Motion SCA (SN) enable (Control Unit)), r9771 (SI common functions (processor 1))

## F01683 SI Motion CU: SOS/SLS enable missing

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The safety-relevant basic function "SOS/SLS" is not enabled in p9501 although other safety-relevant monitoring functions are enabled.
Note:
This fault does not result in a safety stop response.
**Remedy:** Enable the function "SOS/SLS" (p9501.0) and carry out a POWER ON.
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
SOS: Safe Operating Stop / SBH: Safe operating stop
See also: p9501 (SI Motion enable safety functions (processor 1))

## F01684 SI Motion: Safely limited position limit values interchanged

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** For the function "Safely-Limited Position" (SE), a lower value is in p9534 than in p9535.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
1: Limit values SLP1 interchanged.
2: Limit values SLP2 interchanged.
**Remedy:** Correct the limit values in p9534 and p9535 and carry out a POWER ON.
Note:
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches

## F01685 SI Motion CU: Safely-limited speed limit value too high

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Maximum permissible speed.
**Remedy:** Correct the limit values for SLS and carry out a POWER ON.
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9531 (SI Motion SLS limit values (processor 1))

## F01686 SI Motion: Illegal parameterization cam position

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** At least one enabled "Safety Cam" (SCA) is parameterized in p9536 or p9537 too close to the tolerance range around the modulo position.

The following conditions must be complied with to assign cams to a cam track:
- the cam length of cam x = p9536[x]-p9537[x] must be greater or equal to the cam tolerance + the position tolerance (= p9540 + p9542). This also means that for cams on a cam track, the minus position value must be less than the plus position value.
- the distance between 2 cams x and y (minus position value[y] - plus position value[x] = p9537[y] - p9536[x]) on a cam track must be greater than or equal to the cam tolerance + position tolerance (= p9540 + p9542).
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Number of the "Safe Cam" with an illegal position.
See also: p9501 (SI Motion enable safety functions (processor 1))

**Remedy:** Correct the cam position and carry out a POWER ON.
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
See also: p9536 (SI Motion SCA plus cam position (processor 1)), p9537 (SI Motion SCA minus cam position (processor 1))

## F01687 SI Motion: Illegal parameterization modulo value SCA (SN)

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The parameterized modulo value for the "Safe Cam" (SCA) function is not a multiple of 360 000 mDegrees.
Note:
This fault does not result in a safety stop response.

**Remedy:** Correct the modulo value for SCA and carry out a POWER ON.
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
See also: p9505 (SI Motion SCA (SN) modulo value (Control Unit))

## F01688 SI Motion CU: Actual value synchronization not permissible

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** - It is not permissible to enable actual value synchronization for a 1-encoder system.
- It is not permissible to simultaneously enable actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
Note:
This fault results in a STOP A that cannot be acknowledged.

**Remedy:** - Either select the "actual value synchronization" function or parameterize a 2-encoder system.
- Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches
See also: p9501 (SI Motion enable safety functions (processor 1))

## C01689 SI Motion: Axis re-configured

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:** The axis configuration was changed (e.g. changeover between linear axis and rotary axis).
Parameter p0108.13 is internally set to the correct value.

Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Parameter number of parameter that initiated the change.
See also: p9502 (SI Motion axis type (processor 1))

**Remedy:** The following should be carried out after the changeover:
- exit the safety commissioning mode (p0010).
- save all parameters (p0977 = 1 or "copy RAM to ROM").
- carry out a POWER ON.

Once the Control Unit has been switched on, safety message F01680 or F30680 indicates that the checksums in r9398[0] and r9728[0] have changed in the drive. The following must, therefore, be carried out:
- activate safety commissioning mode again.
- complete safety commissioning of the drive.
- exit the safety commissioning mode (p0010).
- save all parameters (p0977 = 1 or "copy RAM to ROM").
- carry out a POWER ON.

Note:
For the commissioning software, the units are only consistently displayed after a project upload.

## F01690 SI Motion: Data save problem for the NVRAM

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** POWER ON

**Cause:** There is not sufficient memory space in the NVRAM on the drive to save parameters r9781 and r9782 (safety logbook).
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
0: There is no physical NVRAM available in the drive.
1: There is no longer any free memory space in the NVRAM.

**Remedy:** For fault value = 0:
- use a Control Unit NVRAM.

For fault value = 1:
- de-select functions that are not required and that take up memory space in the NVRAM.
- contact the Hotline.

Note:
NVRAM: Non-Volatile Random Access Memory (non-volatile read and write memory)

## A01691 (F) SI Motion: Ti and To unsuitable for DP cycle

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The configured times for PROFIBUS communication are not permitted and the DP cycle is used as the actual value acquisition cycle for the safe movement monitoring functions:
Isochronous PROFIBUS: the total of Ti and To is too high for the set DP cycle. The DP cycle should be at least 1 current controller cycle greater than the sum of Ti and To.
Non-isochronous PROFIBUS: the DP cycle must be at least 4 x current controller cycle.

**Remedy:** Configure Ti and To low so that they are suitable for the DP cycle or increase the DP cycle time.
Alternative when SI monitoring integrated in the drive is enabled (p9601/p9801 > 0):
Use the actual value acquisition cycle p9511/p9311 and, in turn, set independently from DP cycle. The actual value sensing clock cycle must be at least four times the current controller clock cycle. A clock cycle ratio of at least 8:1 is recommended.
See also: p9511 (SI Motion actual value sensing clock cycle (processor 1))

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## F01692 SI Motion CU: Parameter value not permitted for encoderless

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The parameter cannot be set to this value if encoderless motion monitoring functions have been selected in p9506.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Parameter number with the incorrect value.
See also: p9501 (SI Motion enable safety functions (processor 1))

**Remedy:** - Correct the parameter specified in the fault value.
- If necessary, de-select encoderless motion monitoring functions (p9506).
See also: p9501 (SI Motion enable safety functions (processor 1))

## A01693 (F) SI CU: Safety parameter settings changed, warm restart/POWER ON required

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Safety parameters have been changed; these will only take effect following a warm restart or POWER ON.
Alarm value (r2124, interpret decimal):
Parameter number of the safety parameter which has changed, necessitating a warm restart or POWER ON.

**Remedy:** - carry out a warm restart (p0009 = 30, p0976 = 2, 3).
- carry out a POWER ON (power off/on) for all components.
Note:
Before performing an acceptance test, a POWER ON must be carried out for all components.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: POWER ON

## A01695 (F) SI Motion: Sensor Module was replaced

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** A Sensor Module, which is used for safe motion monitoring functions, was replaced. The hardware replacement must be acknowledged. An acceptance test must be subsequently performed.
Note:
This message does not result in a safety stop response.

**Remedy:** Carry out the following steps using the STARTER commissioning software:
- press the "Acknowledge hardware replacement" button in the safety screen form.
- execute the function "Copy RAM to ROM".
- carry out a POWER ON (power off/on) for all components.
As an alternative, carry out the following steps in the expert list of the commissioning software:
- start the copy function for the node identifier on the drive (p9700 = 1D hex).
- acknowledge the hardware CRC on the drive (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.
Then carry out an acceptance test (refer to the Safety Integrated Function Manual).
See also: p9700 (SI Motion copy function), p9701 (Acknowledge SI motion data change)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## A01696 (F) SI Motion: Testing of the motion monitoring functions selected when booting

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The test of the motion monitoring functions was already illegally active when booting.
This is the reason that the test is only carried out again after selecting the forced checking procedure parameterized in p9705.
Note:
This message does not result in a safety stop response.
See also: p9705 (SI Motion: Test stop signal source)

**Remedy:** De-select the forced checking procedure of the safety motion monitoring functions and then select again.
The signal source for initiation is parameterized in binector input p9705.
Notice:
It is not permissible to use TM54F inputs to start the test stop.
Note:
SI: Safety Integrated
See also: p9705 (SI Motion: Test stop signal source)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## A01697 (F) SI Motion: Motion monitoring functions must be tested

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The time set in p9559 for the forced checking procedure of the safety motion monitoring functions has been exceeded. A new test is required.
After next selecting the forced checking procedure parameterized in p9705, the message is withdrawn and the monitoring time is reset.
Note:
This message does not result in a safety stop response.
As the shutdown paths are not automatically checked during booting, an alarm is always issued once booting is complete.
See also: p9559 (SI Motion forced checking procedure timer (processor 1)), p9705 (SI Motion: Test stop signal source)

**Remedy:** Carry out the forced checking procedure of the safety motion monitoring functions.
The signal source for initiation is parameterized in binector input p9705.
Notice:
It is not permissible to use TM54F inputs to start the test stop.
Note:
SI: Safety Integrated
See also: p9705 (SI Motion: Test stop signal source)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## A01698 (F) SI CU: Commissioning mode active

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The commissioning of the "Safety Integrated" function is selected.
This message is withdrawn after the safety functions have been commissioned.
Note:
This message does not result in a safety stop response.
See also: p0010 (Drive commissioning parameter filter)

**Remedy:** Not necessary.
Note:
CU: Control Unit
SI: Safety Integrated

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## A01699 (F) SI CU: Shutdown path must be tested

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The time set in p9659 for the forced checking procedure of the safety shutdown paths has been exceeded. The safety shutdown paths must be re-tested.
After the next time the "STO" function is de-selected, the message is withdrawn and the monitoring time is reset.
Note:
This message does not result in a safety stop response.
See also: p9659 (SI forced checking procedure timer)

**Remedy:** Select STO and then de-select again.
Note:
CU: Control Unit
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## C01700 SI Motion CU: STOP A initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP A (pulses are suppressed via the safety shutdown path of the Control Unit).
Possible causes:
- stop request from the 2nd monitoring channel.
- pulses not suppressed after a parameterized time (p9557) after test stop selection.
- subsequent response to the message C01706 "SI Motion CU: SAM/SBR limit exceeded".
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01701 "SI Motion CU: STOP B initiated".

**Remedy:**
- remove the cause of the fault on the 2nd monitoring channel.
- carry out a diagnostics routine for message C01706.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01701.
- check the value in p9557 (where available), increase the value if necessary, and carry out a POWER ON
- check the shutdown path of the Control Unit (check DRIVE-CLiQ communication if it has been implemented)
- replace the Motor Module/Power Module
- replace Control Unit.

This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only

Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe brake ramp monitoring)
SI: Safety Integrated

## C01701 SI Motion CU: STOP B initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF3

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP B (braking along the OFF3 deceleration ramp).
As a result of this fault, after the time parameterized in p9556 has expired, or the speed threshold parameterized in p9560 has been undershot, message C01700 "STOP A initiated" is output.
Possible causes:
- stop request from the second monitoring channel.
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01711 "SI Motion CU: Defect in a monitoring channel".
- subsequent response to the message C01707 "SI Motion CU: tolerance for safe operating stop exceeded".

**Remedy:** - remove the cause of the fault on the second monitoring channel.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01711.
- carry out a diagnostics routine for message C01707.
This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only
Note:
SI: Safety Integrated

## C01706 SI Motion CU: SAM/SBR limit exceeded

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** Motion monitoring functions with encoder (p9506 = 0) or encoderless with set acceleration monitoring (p9506 = 3):
SAM - safe acceleration monitoring. After initiating STOP B (SS1) or STOP C (SS2), the speed has exceeded the selected tolerance.
Motion monitoring functions encoderless with set brake ramp monitoring (p9506 = 1):
SBR - Safe brake ramp monitoring. After initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.
The drive is shut down by the message C01700 "SI Motion: STOP A initiated".

**Remedy:** Check the braking behavior and, if necessary, adapt the tolerance for the "SAM" function or modify the parameter settings for the "SBR" function.
This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only
Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe ramp monitoring)
SI: Safety Integrated
See also: p9548 (SI Motion SBR actual velocity tolerance (processor 1)), p9581 (SI Motion brake ramp reference value (processor 1)), p9582 (SI Motion brake ramp delay time (processor 1)), p9583 (SI Motion brake ramp monitoring time (processor 1))

## C01707 SI Motion CU: Tolerance for safe operating stop exceeded

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The actual position has distanced itself further from the target position than the standstill tolerance.
The drive is shut down by the message C01701 "SI Motion: STOP B initiated".

**Remedy:** - check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.
- carry out a POWER ON.

This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: via the machine control panel in acceptance test mode only
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop
See also: p9530 (SI Motion standstill tolerance (processor 1))

## C01708 SI Motion CU: STOP C initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** STOP2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP C (braking along the OFF3 deceleration ramp).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion: Safely limited speed exceeded".
- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded".
See also: p9552 (SI Motion transition time STOP C to SOS (processor 1))

**Remedy:** - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

## C01709 SI Motion CU: STOP D initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP D (braking along the path).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion: Safely limited speed exceeded".
- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded".
See also: p9553 (SI Motion transition time STOP D to SOS (processor 1))

**Remedy:** - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

## C01710 SI Motion CU: STOP E initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP E (retraction motion).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.

Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion: Safely limited speed exceeded".
- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded".
See also: p9554 (SI Motion transition time STOP E to SOS (processor 1))

**Remedy:**
- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

## C01711 SI Motion CU: Defect in a monitoring channel

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When cross-checking and comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
If at least one monitoring function is active, then after the parameterized timer has expired, the message C01701 "SI Motion: STOP B initiated" is output.
The message value that resulted in a STOP F is displayed in r9725. The described message values involve the crosswise data comparison between the Control Unit and Motor Module. If the drive is operated together with a SINUMERIK, the message values are described in message 27001 of SINUMERIK.
The following message values may also occur in the following cases if the cause that is explicitly mentioned does not apply:
- cycle times not set uniformly (p9500/p9300 and p9511/p9311)
- differently parameterized axis types (p9502/p9302).
- excessively fast cycle times (p9500/p9300, p9511/p9311).
- for message values 3, 44 ... 57, 232 and 1-encoder systems, differently parameterized encoder values (p9516/p9316, p9517/p9317, p9518/p9318, p9520/p9320, p9521/p9321, p9522/p9322, p9526/p9326).
- incorrect synchronization.
Message value (r9749, interpret decimal):
0 to 999: Number of the cross-checked data that resulted in this fault.
Message values that are not subsequently listed are only for internal Siemens troubleshooting.
0: Stop request from the other monitoring channel.
1: Status image of monitoring functions SOS, SLS or SLP (result list 1) (r9710[0], r9710[1]).
2: Status image of monitoring function SCA or n < nx (result list 2) (r9711[0], r9711[1]).
3: The position actual value differential (r9713) between the two monitoring channels is greater than the tolerance in p9542/p9342. When actual value synchronization is enabled (p9501.3/p9301.3), the velocity differential (based on the position actual value) is greater than the tolerance in p9549/p9349.
4: Error when synchronizing the crosswise data comparison between the two channels.
5: Function enable signals (p9501/p9301)
6: Limit value for SLS1 (p9531[0]/p9331[0])
7: Limit value for SLS2 (p9531[1]/p9331[1])
8: Limit value for SLS3 (p9531[2]/p9331[2])
9: Limit value for SLS4 (p9531[3]/p9331[3])
10: Standstill tol. (p9530/p9330)
31: Position tolerance (p9542/p9342) or (p9549/p9349) when actual value synchronization is enabled (p9501.3/p9301.3)
33: Time, velocity changeover (p9551/p9351)
35: Delay time, pulse canc. (p9556/p9356)
36: Checking time, pulse canc. (p9557/p9357)
37: Trans. time, STOP C to SOS (p9552/p9352)
38: Trans. time STOP D to SOS (p9553/p9353)
40: Stop response for SLS (p9561/p9361)
42: Shutdown speed, pulse canc. (p9560/p9360)
43: Memory test, stop response (STOP A).
44 ... 57: General

Possible cause 1 (during commissioning or parameter modification)
The tolerance value for the monitoring function is not the same on the two monitoring channels.
Possible cause 2 (during active operation)
The limit values are based on the current actual value (r9713). If the safe actual values on the two monitoring channels do not match, the limit values, which have been set at a defined interval, will also be different (i.e. corresponding to fault value 3). This can be ascertained by checking the safe actual positions.
44: Position actual value (r9713) + limit value for SLS1 (p9531[0]/p9331[0]) * Safety monitoring clock cycle
45: Position actual value (r9713) - limit value for SLS1 (p9531[0]/p9331[0]) * Safety monitoring clock cycle
46: Position actual value (r9713) + limit value for SLS2 (p9531[1]/p9331[1]) * Safety monitoring clock cycle
47: Position actual value (r9713) - limit value for SLS2 (p9531[1]/p9331[1]) * Safety monitoring clock cycle
48: Position actual value (r9713) + limit value for SLS3 (p9531[2]/p9331[2]) * Safety monitoring clock cycle
49: Position actual value (r9713) - limit value for SLS3 (p9531[2]/p9331[2]) * Safety monitoring clock cycle
50: Position actual value (r9713) + limit value for SLS4 (p9531[3]/p9331[3]) * Safety monitoring clock cycle
51: Position actual value (r9713) - limit value for SLS4 (p9531[3]/p9331[3]) * Safety monitoring clock cycle
52: Standstill position + tolerance (p9530/9330)
53: Standstill position - tolerance (p9530/9330)
54: Position actual value (r9713) + limit value nx (p9546/p9346) + tolerance (p9542/p9342)
55: Position actual value (r9713) + limit value nx (p9546/p9346)
56: Position actual value (r9713) - limit value nx (p9546/p9346)
57: Position actual value (r9713) - limit value nx (p9546/p9346) - tolerance (p9542/p9342)
58: Actual stop request.
75: Velocity limit nx (p9546, p9346).
76: Stop response for SLS1 (p9563[0]/p9363[0])
77: Stop response for SLS2 (p9563[1]/p9363[1])
78: Stop response for SLS3 (p9563[2]/p9363[2])
79: Stop response for SLS4 (p9563[3]/p9363[3])
81: Velocity tolerance for SAM (p9548/p9348)
82: SGEs for SLS correction factor.
83: Acceptance test timer (p9558/p9358)
84: Trans. time STOP F (p9555/p9355)
85: Trans. time bus failure (p9580/p9380)
86: ID 1-encoder system (p9526/p9326).
87: Encoder assignment, second channel (p9526/p9326)
89: Encoder limit freq.
230: Filter time constant for n < nx.
231: Hysteresis tolerance for n < nx.
232: Smoothed velocity actual value.
233: Limit value nx / safety monitoring clock cycle + hysteresis tolerance.
234: Limit value nx / Safety monitoring clock cycle.
235: -Limit value nx / Safety monitoring clock cycle.
236: -Limit value nx / safety monitoring clock cycle - hysteresis tolerance.
237: SGA n < nx.
238: Speed limit value for SAM (p9568/p9368).
239: Acceleration for SBR (p9581/p9381 and p9583/p9383).
240: Inverse value of acceleration for SBR (p9581/p9381 and p9583/p9383).
241: Deceleration time for SBR (p9582/p9382).
242: Encoderless safety (p9506/p9306).
243: Extended alarm acknowledgment (p9507/p9307).
244: Encoderless actual value sensing filter time (p9587/p9387).
245: Encoderless actual value sensing minimum current (p9588/p9388).
246: Voltage tolerance acceleration (p9589/p9389).
247: SDI tolerance (p9564/p9364).
248: SDI positive upper limit (0x7fffffff).
249: Position actual value (r9713) - SDI tolerance.
250: Position actual value (r9713) + SDI tolerance.
251: SDI negative lower limit (0x80000001).
252: SDI stop response (p9566/p9366).
253: SDI delay time (p9565/p9365).
254: Setting the evaluation delay for actual value sensing after pulse enable (p9586/p9386).
255: Setting, behavior during pulse suppression (p9509/p9309).
256: Status image of monitoring functions SOS, SLS, SLP, test stop, SBR, SDI (result list 1 ext) (r9710).
1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.
1001: Initialization error of watchdog timer.
1005: Pulses already suppressed for test stop selection.

1011: Acceptance test status between the monitoring channels differ.
1012: Plausibility violation of the actual value from the encoder.
1020: Cyc. communication failure between the monit. cycles.
1021: Cyc. communication failure between the monit. channel and Sensor Module.
1022: Sign-of-life error for DRIVE-CLiQ encoder CU
1023: Error in the effectiveness test in the DRIVE-CLiQ encoder
1032: Sign-of-life error for DRIVE-CLiQ encoder MM
1033: Error checking offset between POS1 and POS2 for DRIVE-CLiQ encoder CU
1034: Error checking offset between POS1 and POS2 for DRIVE-CLiQ encoder MM
1041: Current absolute value too low (encoderless)
1042: Current/voltage plausibility error
1043: Too many acceleration phases
1044: Actual current values plausibility error.
5000 ... 5140:
PROFIsafe message values.
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
5000, 5014, 5023, 5024, 5030 ... 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140: An internal software error has occurred (only for internal Siemens troubleshooting).
5012: Error when initializing the PROFIsafe driver.
5013: The result of the initialization is different for the two controllers.
5022: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
5025: The result of the F parameterization is different for the two controllers.
5026: CRC error for the F parameters. The transferred CRC value of the F parameters does not match the value calculated in the PST.
5065: A communications error was identified when receiving the PROFIsafe telegram.
5066: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.
6000 ... 6166:
PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
6000: A fatal PROFIsafe communication error has occurred.
6064 ... 6071: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
6064: Destination address and PROFIsafe address are different (F_Dest_Add).
6065: Destination address not valid (F_Dest_Add).
6066: Source address not valid (F_Source_Add).
6067: Watchdog time not valid (F_WD_Time).
6068: Incorrect SIL level (F_SIL).
6069: Incorrect F-CRC length (F_CRC_Length).
6070: Incorrect F parameter version (F_Par_Version).
6071: CRC error for the F parameters (CRC1). The transferred CRC value of the F parameters does not match the value calculated in the PROFIsafe driver.
6072: F parameterization is inconsistent.
6165: A communications error was identified when receiving the PROFIsafe telegram. The fault may also occur if an inconsistent or out-of-date PROFIsafe telegram has been received after switching the Control Unit off and on or after plugging in the PROFIBUS/PROFINET cable.
6166: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.
See also: p9555 (SI Motion transition time STOP F to STOP B (processor 1)), r9725 (SI Motion, diagnostics STOP F)

**Remedy:** The following generally applies:
The monitoring clock cycles in both channels and the axis types should be checked for equality and the same setting applied if necessary. If the error continues to be identified, increasing the monitoring clock cycles may resolve it.
Re message value = 0:
- no error was identified in this monitoring channel. Note the error message of the other monitoring channel (for MM: C30711).
Re message value = 3:
Commissioning phase:
Encoder evaluation for own or second channel has been set incorrectly --> Correct the encoder evaluation.
In operation:
Check the mechanical design and the encoder signals.
Re message value = 4:
The monitoring clock cycles in both channels should be checked for equality and if required, set the same. In combination with fault value 5 from the other monitoring channel (with MM: C30711), the monitoring clock cycle settings must be increased.

Re message value = 232:
-increase the hysteresis tolerance (p9547/p9347). Possibly set the filtering higher (p9545/p9345).
Re message value = 1 ... 999:
- if the message value is listed under cause: Check the crosswise-compared parameters to which the message value refers.
- copy the safety parameters.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- correction of the encoder evaluation. The actual values differ as a result of mechanical faults (V belts, travel to a mechanical endstop, wear and window setting that is too narrow, encoder fault, ...).
Re message value = 1000:
- investigate the signal associated with the safety-relevant input (contact problems).
Re message value = 1001:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
Re message value = 1005:
- check the conditions for pulse enable.
Re message value = 1011:
- for diagnostics, refer to parameter (r9571).
Re message value = 1012:
- upgrade the Sensor Module software.
- for 1-encoder systems, check the encoder parameters for equality (p9515/p9315, p9519/p9319, p9523/p9323, p9524/p9324, p9525/p9325, p9529/p9329).
- For DQI encoders the following applies: If required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders.
Re message value = 1020, 1021:
- check the communication link.
- increase the monitoring cycle clock settings (p9500, p9511).
- carry out a POWER ON (power off/on) for all components.
- replace the hardware.
Re message value = 1033:
- If required, upgrade the firmware version of the Control Unit to a more recent version, which is released for DQI encoders.
Re message value = 1041:
- reduce the minimum current (p9588).
- for synchronous motors increase the absolute value of p9783.
- Check whether the function "Closed-loop controlled operation with HF signal injection" is activated (p1750.5 = 1) and if required, deactivate.
Re message value = 1042:
- increase the ramp-function generator ramp-up/down time (p1120/p1121).
- check that the current/speed control is set correctly (torque-generating/field-generating current and actual speed value may not fluctuate).
- reduce the dynamic response of the setpoint value.
- increase the minimum current (p9588).
Re message value = 1043:
- increase the voltage tolerance (p9589).
- increase the ramp-function generator ramp-up/down time (p1120/p1121).
- check that the current/speed control is set correctly (torque-generating/field-generating current and actual speed value may not fluctuate).
- reduce the dynamic response of the setpoint value.
Re message value = 5000, 5014, 5023, 5024, 5030, 5031, 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:
- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.
Re message value = 5012:
- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810). It is not permissible for the PROFIsafe address to be 0 or FFFF!
Re message value = 5013, 5025:

- carry out a POWER ON (power off/on) for all components.
- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re message value = 5022:
- check the setting of the values of the F parameters at the PROFIsafe slave (F_SIL, F_CRC_Length, F_Par_Version, F_Source_Add, F_Dest_add, F_WD_Time).

Re message value = 5026:
- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and update.

Re message value = 5065:
- check the configuration and communication at the PROFIsafe slave (cons. No. / CRC).
- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re message value = 5066:
- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.
- evaluate diagnostic information in the F host.
- check PROFIsafe connection.

Re message value = 6000:
- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- increase the monitoring cycle clock settings (p9500, p9511).
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

Re message value = 6064:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave.
- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).

Re message value = 6065:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave. It is not permissible for the destination address to be either 0 or FFFF!

Re message value = 6066:
- check the setting of the value in the F parameter F_Source_Add at the PROFIsafe slave. It is not permissible for the source address to be either 0 or FFFF!

Re message value = 6067:
- check the setting of the value in the F parameter F_WD_Time at the PROFIsafe slave. It is not permissible for the watch time to be 0!

Re message value = 6068:
- check the setting of the value in the F parameter F_SIL at the PROFIsafe slave. The SIL level must correspond to SIL2!

Re message value = 6069:
- check the setting of the value in the F parameter F_CRC_Length at the PROFIsafe slave. The setting of the CRC2 length is 2-byte CRC in the V1 mode and 3-byte CRC in the V2 mode!

Re message value = 6070:
- check the setting of the value in the F parameter F_Par_Version at the PROFIsafe slave. The value for the F parameter version is 0 in the V1 mode and 1 in the V2 mode!

Re message value = 6071:
- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and, if required, update.

Re message value = 6072:
- check the settings of the values for the F parameters and, if required, correct.

The following combinations are permissible for F parameters F_CRC_Length and F_Par_Version:
F_CRC_Length = 2-byte CRC and F_Par_Version = 0
F_CRC_Length = 3-byte CRC and F_Par_Version = 1

Re message value = 6165:
- if the fault occurs after powering up the Control Unit or after plugging in the PROFIBUS/PROFINET cable, acknowledge the fault.
- check the configuration and communication at the PROFIsafe slave.
- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re message value = 6166:

- check the configuration and communication at the PROFIsafe slave.
- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.
- evaluate diagnostic information in the F host.
- check PROFIsafe connection.

This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel

See also: p9300 (SI Motion monitoring clock cycle (processor 2)), p9500 (SI Motion monitoring clock cycle (processor 1))

## C01712 SI Motion CU: Defect in F-IO processing

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
The safety message C01711 with message value 0 is also displayed due to initiation of STOP F.
If at least one monitoring function is active, the safety message C01701 "SI Motion: STOP B initiated" is output after the parameterized timer has expired.
Message value (r9749, interpret decimal):
Number of the cross-checked data that resulted in this message.
1: SI discrepancy monitoring time inputs (p10002, p10102).
2: SI acknowledgement internal event input terminal (p10006, p10106).
3: SI STO input terminal (p10022, p10122).
4: SI SS1 input terminal (p10023, p10123).
5: SI SS2 input terminal (p10024, p10124).
6: SI SOS input terminal (p10025, p10125).
7: SI SLS input terminal (p10026, p10126).
8: SI SLS_Limit(1) input terminal (p10027, p10127).
9: SI SLS_Limit(2) input terminal (p10028, p10128).
10: SI Safe State signal selection (p10039, p10139).
11 SI F-DI input mode (p10040, p10140).
12: SI F-DO 0 signal sources (p10042, p10142).
13: Different states for static inactive signal sources (p10006, p10022 ... p10028).
14: SI discrepancy monitoring time outputs (p10002, p10102).
15: SI acknowledgment internal event (p10006, p10106).
16: SI test sensor feedback signal test mode selected for test stop (p10046, p10146, p10047, p10147).
17: SI delay time for test stop at DOs (p10001).
18 ... 25: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of internal readback signal, generated from the selected test stop mode.
26 ... 33: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of external readback signal, generated from the selected test stop mode.
34 ... 41: SI test sensor feedback signal (p10046, p10146, p10047, p10147). Expected state of second internal readback signal, generated from the selected test stop mode.
42: Internal data for processing the second internal readback signal, generated from the selected test stop mode (p10047, p10147).
43: Internal data for processing the internal readback signal, generated from the selected test stop mode (p10047, p10147).
44: Internal data for processing the external readback signal, generated from the selected test stop mode (p10047, p10147).
45: Internal data for initialization state of test stop mode, dependent upon test stop parameters.
46: SI digital inputs debounce time (p10017, p10117)
47: Selection F-DI for PROFIsafe (p10050, p10150)
48: Selection F-DI for PROFIsafe (p10050, p10150)
49: SI SDI positive input terminal (p10030, p10130).
50: SI SDI negative input terminal (p10031, p10131).

**Remedy:**
- check parameterization in the parameters involved and correct if required.
- ensure equality by copying the SI data to the second channel and then carry out an acceptance test.
- check monitoring clock cycle in p9500 and p9300 for equality.

Note:
This message can be acknowledged via F-DI or PROFIsafe.
See also: p9300 (SI Motion monitoring clock cycle (processor 2)), p9500 (SI Motion monitoring clock cycle (processor 1))

## C01714 SI Motion CU: Safely-Limited Speed exceeded

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive has moved faster than that specified by the velocity limit value (p9531). The drive is stopped as a result of the configured stop response (p9563).
Message value (r9749, interpret decimal):
100: SLS1 exceeded.
200: SLS2 exceeded.
300: SLS3 exceeded.
400: SLS4 exceeded.
1000: Encoder limit frequency exceeded.

**Remedy:** - check the traversing/motion program in the control.
- check the limits for "Safely-Limited Speed (SLS) and if required, adapt (p9531).
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9531 (SI Motion SLS limit values (processor 1)), p9563 (SI Motion SLS-specific stop response (processor 1))

## C01716 SI Motion CU: Tolerance for safe motion direction exceeded

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9566).
Message value (r9749, interpret decimal):
0: Tolerance for the "safe motion direction positive" function exceeded.
1: Tolerance for the "safe motion direction positive negative" function exceeded.

**Remedy:** - check the traversing/motion program in the control.
- check the tolerance for "SDI" function and if required, adapt (p9564).
This message can be acknowledged as follows:
Via F-DI or PROFIsafe
Note:
SDI: Safe Direction (safe motion direction)
SI: Safety Integrated
See also: p9564 (SI Motion SDI tolerance (processor 1)), p9565 (SI Motion SDI delay time (processor 1)), p9566 (SI Motion SDI stop response (processor 1))

## C01745 SI Motion CU: Checking braking torque for the brake test

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** POWER ON (IMMEDIATELY)

**Cause:** The scaling of the brake torque for the brake test can be changed using parameter p2003.
An acceptance test must be carried out again for the braking test. This determines whether the braking test is still carried out with the correct braking torque.

**Remedy:** - carry out a POWER ON (power off/on) for all components.
- repeat the acceptance test for the safe brake test if the brake test is used.
See also: p2003 (Reference torque)

## C01750 SI Motion CU: Hardware fault safety-relevant encoder

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The encoder that is used for the safety-relevant motion monitoring functions signals a hardware fault.
Message value (r9749, interpret decimal):
Encoder status word 1, encoder status word 2 that resulted in the message.
**Remedy:** - check the encoder connection.
- replace the encoder.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel.

## C01751 SI Motion CU: Effectivity test error safety-relevant encoder

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The DRIVE-CLiQ encoder for safe motion monitoring signals an error for the effectivity tests.
Message value (r9749, interpret decimal):
Only for internal Siemens troubleshooting.
**Remedy:** - check the encoder connection.
- replace the encoder.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel

## C01770 SI Motion CU: Discrepancy error of the failsafe inputs or outputs

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The fail-safe digital inputs/digital outputs (F-DI/F-DO) show a different state longer than that parameterized in p10002 / p10102.
Fault value (r0949, interpret bitwise binary):
yyyyxxxx bin
xxxx: Discrepancy error for fail-safe digital inputs (F-DI).
Bit 0: Discrepancy error for F-DI 0
Bit 1: Discrepancy error for F-DI 1
...
yyyy: Discrepancy error for fail-safe digital outputs (F-DO).
Bit 0: Discrepancy error for F-DO 0
...
Note:
If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.
**Remedy:** - check the wiring of the F-DI (contact problems).
Note:
This message can be acknowledged via F-DI or PROFIsafe.
Discrepancy errors of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006 or acknowledgment via PROFIsafe). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally.
For cyclic switching operations at the F-DI, it may be necessary to adapt the discrepancy time to the switching frequency.

If the period of a cyclic switching pulse has the order of magnitude of double the value of p10002, then the following formulas must be checked.
p10002 < (tp / 2) - td (discrepancy time must be less than half the period minus the actual discrepancy time)
p10002 >= p9500 (discrepancy time must be no less than P9500)
p10002 > td (discrepancy time must be greater than the switch discrepancy time which may actually apply)
td = possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI sampling cycle (see p9500).
tp = period for a switching operation in ms.
When debounce p10017 is active, the discrepancy time is directly specified by the debounce time.
If the period of a cyclic switching pulse has the order of magnitude of twice the debounce time, then the following formulas should be checked.
p10002 < p10017 + 1 ms - td
p10002 > td
p10002 >= p9500
Example:
For a 12 ms SI sampling cycle and a switching frequency of 110 ms (p10017 = 0), the maximum discrepancy time which can be set is as follows:
p10002 <= (110/2 ms) - 12 ms = 43 ms
Rounded-off, p10002 <= 36 ms is obtained (since the discrepancy time can only be accepted as a whole SI sampling cycle, the value will need to be rounded up or down to a whole SI sampling time value if the result is not an exact multiple of an SI sampling cycle).
Note:
F-DI: Failsafe Digital Input
F-DO: Failsafe Digital Output

## A01772 SI Motion CU: Test stop failsafe inputs/outputs active

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The test stop for the fail-safe digital inputs (F-DI) and/or fail-safe digital outputs (F-DO) is presently being performed.
Note:
F-DI: Failsafe Digital Input
F-DO: Failsafe Digital Output

**Remedy:** The alarm disappears automatically after successfully ending or canceling (when a fault condition occurs) the test stop.

## F01773 SI Motion CU: Test stop error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** A fault has occurred on the CU side during the test stop for the fail-safe outputs.
Fault value (r0949, interpret hexadecimal):
RRRVWXYZ hex:
R: Reserved.
V: Actual state of the DO channel concerned (see X) on the CU (corresponds to the states read back from the hardware, bit 0 = DO 0, bit 1 = DO 1, etc.).
W: Required state of the DO channel concerned (see X, bit 0 = DO 0, bit 1 = DO 1, etc.).
X: DO channels involved, which indicate an error (bit 0 = DO 0, bit 1 = DO 1, etc.).
Y: Reason for the test stop fault.
Z: State of the test stop in which the fault has occurred.
Y: Reason for the test stop fault
Y = 1: MM side in incorrect test stop state (internal fault).
Y = 2: Expected states of the DOs were not fulfilled (CU305: readback via DI 22 / CU240 readback DI 2).
Y = 3: Incorrect timer state on CU side (internal fault)
Y = 4: Expected states of the diag DOs were not fulfilled (CU305: internal readback on MM channel).
Y = 5: Expected states of the second diag DOs were not fulfilled (CU305: internal readback on CU channel).
X and V indicate the DI or Diag-DO state dependent upon the reason for the fault (2, 4 or 5).
In the event of multiple test stop faults, the first one that occurred is shown.
Z: Test stop state and associated test actions

Z = 0 ... 3: Synchronization phase of test stop between CU and Motor Module no switching operations
Z = 4: DO + OFF and DO - OFF
Z = 5: Check to see if states are as expected
Z = 6: DO + ON and DO - ON
Z = 7: Check to see if states are as expected
Z = 8: DO + OFF and DO - ON
Z = 9: Check to see if states are as expected
Z = 10: DO + ON and DO - OFF
Z = 11: Check to see if states are as expected
Z = 12: DO + OFF and DO - OFF
Z = 13: Check to see if states are as expected
Z = 14: End of test stop
Diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: 0/-/-/1
7: 0/-/-/0
9: 0/-/-/0
11: 1/-/-/1
13: 0/-/-/1
Second diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/-/-/1
7: -/-/-/0
9: -/-/-/1
11: -/-/-/0
13: -/-/-/1
DI expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/1/1/-
7: -/0/0/-
9: -/0/1/-
11: -/0/1/-
13: -/1/1/-
Example:
Fault F01773 (CU) is signaled with fault value = 0001_0127 and fault F30773 (MM) is signaled with fault value 0000_0127.
This means that in state 7 (Z = 7) the state of the external readback signal was not set correctly (Y = 2) after DO-0 (X = 1) was switched to ON/ON.
Fault value 0001_0127 indicates that 0 was expected (W = 0) and 1 (V = 1) was read back from the hardware.
Fault value 0000_0127 on the MM indicates that the states were as expected.
In the case of fault F30773, W and V are always identical; a value of 0 always means that 0 was expected at the readback input but was not present on the other channel (CU).

**Remedy:** Check the wiring of the F-DOs and restart the test stop.
Note:
The fault is withdrawn if the test stop is successfully completed.
In the event of multiple test stop faults, the first one that occurred is shown.
Once the test stop has been restarted the next queued test stop fault will be signaled (if there is one).

## A01774 SI Motion CU: Test stop necessary

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** - after powering up the drive, a test stop has still not been carried out.
- a new test stop is required after commissioning.
- the time to carry out the forced checking procedure (test stop) has expired (p10003).

**Remedy:** Initiate test stop (BI: p10007).

## A01796 (F, N) SI Motion CU: Wait for communication

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The drive waits for communication to be established with SINUMERIK or TM54F to execute the safety-relevant motion monitoring functions.
Note:
In this state, the pulses are safely suppressed.
**Remedy:** If, after a longer period of time, the message is not automatically withdrawn, the following checks have to be made as appropriate:
For communication with SINUMERIK, the following applies:
- check any other PROFIBUS messages/signals present and remove their cause.
- check that assignment of the axes on the higher-level control to the drives in the drive unit is correct.
- check enable signal of the safety-relevant motion monitoring functions for the corresponding axis on the higher-level control and if required, set it.
For communication with TM54F, the following applies:
- check any other messages/signals present for DRIVE-CLiQ communication with the TM54F and remove their cause.
- check the setting of p10010. All the drive objects controlled by the TM54F must be listed.
See also: p9601 (SI enable, functions integrated in the drive (processor 1)), p9801 (SI enable, functions integrated in the drive (processor 2))
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## C01798 SI Motion CU: Test stop running

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The test stop is active.
**Remedy:** Not necessary.
The message is withdrawn when the test stop is finished.
Note:
SI: Safety Integrated

## C01799 SI Motion CU: Acceptance test mode active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The acceptance test mode is active. The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the RESET button of the higher-level control.
**Remedy:** Not necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated

## F01800 DRIVE-CLiQ: Hardware/configuration error

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** A DRIVE-CLiQ connection fault has occurred.

Fault value (r0949, decimal interpretation):
100 ... 107:
Communication via DRIVE-CLiQ socket X100 ... X107 has not been switched to cyclic operation. The cause may be an incorrect structure or a configuration that results in an impossible bus timing.
10:
Loss of the DRIVE-CLiQ connection. The cause may be, for example, that the DRIVE-CLiQ cable was withdrawn from the Control Unit or as a result of a short-circuit for motors with DRIVE-CLiQ. This fault can only be acknowledged in cyclic communication.
11:
Repeated faults when detecting the connection. This fault can only be acknowledged in cyclic communication.
12:
A connection was detected but the node ID exchange mechanism does not function. The reason is probably that the component is defective. This fault can only be acknowledged in cyclic communication.

**Remedy:** Re fault value = 100 ... 107:
- ensure that the DRIVE-CLiQ components have the same firmware versions.
- avoid longer topologies for short current controller clock cycles.

For fault value = 10:
- check the DRIVE-CLiQ cables at the Control Unit.
- remove any short-circuit for motors with DRIVE-CLiQ.
- carry out a POWER ON.

For fault value = 11:
- check the electrical cabinet design and cable routing for EMC compliance

For fault value = 12:
- replace the component involved.

## A01840 SMI: Component found without motor data

**Message value:** Component number: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An SMI/DQI without motor data has been found (e.g. SMI installed as replacement part).
Alarm value (r2124, interpret decimal):
Component number from target topology.

**Remedy:** 1. Download the SMI/DQI data (motor/encoder data) from the data backup again (p4690, p4691).
2. Carry out a POWER ON (power off/on) for this component.
Note:
DQI: DRIVE-CLiQ Sensor Integrated
SMI: SINAMICS Sensor Module Integrated
See also: p4690 (SMI spare part component number), p4691 (SMI spare part save/download data)

## A01900 (F) PB/PN: Configuration telegram error

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** A controller attempts to establish a connection using an incorrect configuring telegram.
Alarm value (r2124, interpret decimal):
1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978.
2: Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is specified by the number of indices in r2050/p2051.
3: Uneven number of bytes for input or output.
4: Setting data for synchronization not accepted. For more information, see A01902.
223: Illegal clock synchronization for the PZD interface set in p8815[0].
253: PN Shared Device: illegal mixed configuration of PROFIsafe and PZD.
254: PN Shared Device: Illegal double assignment of a slot/subslot.
255: PN: Configured drive object and existing drive object do not match.
501: PROFIsafe parameter error (e.g. F_dest).

**Remedy:** Check the bus configuration on the master and slave sides.
Re alarm value = 1:
Check the list of the drive objects with process data exchange (p0978).
With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
Re alarm value = 2:
Check the number of data words for output and input to a drive object.
Re alarm value = 255:
Check the drive objects to be configured.
Re alarm value = 501:
Check the set PROFIsafe address (p9610).

Reaction upon F: NONE (OFF1)

Acknowl. upon F: IMMEDIATELY

## A01902 IF1: PB/PN clock cycle synchronous operation parameterization not permissible

**Message value:** %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Parameterization for isochronous operation is not permissible.
Alarm value (r2124, interpret decimal):
0: Bus cycle time Tdp < 0.5 ms.
1: Bus cycle time Tdp > 32 ms.
2: Bus cycle time Tdp is not an integer multiple of the current controller clock cycle.
3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.
4: Instant of the actual value sensing Ti is not an integer multiple of the current controller clock cycle.
5: Instant of the setpoint acceptance To >= Bus cycle time Tdp or To = 0.
6: Instant of the setpoint acceptance To is not an integer multiple of the current controller clock cycle.
7: Master application cycle time Tmapc is not an integer multiple of the speed controller clock cycle.
8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller clock cycles.
10: Instant of the setpoint acceptance not To <= data exchange time Tdx + To_min.
11: Master application cycle time Tmapc > 14 x Tdp or Tmapc = 0.
12: PLL tolerance window Tpll_w > Tpll_w_max.
13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].
14: For COMM BOARD with the setting To - 1 x Tbase_io = Tdp - Ti, the instant of the setpoint acceptance is not To <= Data exchange time Tdx + 2 * To_min.
15: This configuration is not permitted for Tdp < 1 ms.
16: Instant of the actual value sensing Ti is less than the permitted value (COMM BOARD: Ti >= 2 x Tbase_io).
17: The setting (To + Ti = Tdp + 2 x Tbase_io) is not permitted for COMM BOARD.

**Remedy:** - adapt the parameterizing telegram.
- adapt the current and speed controller clock cycle.
Re alarm value = 15:
- check the number of specific drive object types in the configuration.
Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET
Tbase_io: Time basis for Ti, To (= 125us)

## F01910 (N, A) Fieldbus: setpoint timeout

**Message value:** -

**Drive object:** All objects

**Reaction:** OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY

**Cause:** The reception of setpoints from the fieldbus interface (onboard, PROFIBUS/PROFINET/USS) has been interrupted.
- bus connection interrupted.
- controller switched off.
- controller set into the STOP state.
See also: p2047 (PROFIBUS additional monitoring time)

**Remedy:** Restore the bus connection and set the controller to RUN.
PROFIBUS slave redundancy:
For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.
See also: p2047 (PROFIBUS additional monitoring time)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01911 (N, A) PB/PN clock cycle synchronous operation clock cycle failure

**Message value:** -

**Drive object:** All objects

**Reaction:** OFF1 (OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tpllw).

**Remedy:** - check the physical bus configuration (cable,connector, terminating resistor, shielding, etc.).
- check whether communication was briefly or permanently interrupted.
- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).
Note:
PB: PROFIBUS
PN: PROFINET

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01912 (N, A) PB/PN clock cycle synchronous operation sign-of-life failure

**Message value:** -

**Drive object:** All objects

**Reaction:** OFF1 (OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The maximum permissible number of errors in the controller sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.

**Remedy:** - physically check the bus (cables, connectors, terminating resistor, shielding, etc.).
- correct the interconnection of the controller sign-of-life (p2045).
- check whether the controller correctly sends the sign-of-life (e.g. create a trace with STW2.12 ... STW2.15 and trigger signal ZSW1.3).
- check the permissible telegram failure rate (p0925).
- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).
Note:
PB: PROFIBUS
PN: PROFINET

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01915 (N, A) PB/PN clock cycle synchronous operation sign-of-life failure drive object 1

**Message value:** -

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** Group display for problems with the sign-of-life of the master (clock-cycle synchronous operation) on the drive object 1 (Control Unit).
For central measurements, synchronism with the central master is lost.

**Remedy:** Note:
PB: PROFIBUS
PN: PROFINET
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A01920 (F) PROFIBUS: Interruption cyclic connection

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The cyclic connection to the PROFIBUS master is interrupted.
**Remedy:** Establish the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode.
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

## A01921 (F) PROFIBUS: Receive setpoints after To

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle.
**Remedy:** - check bus configuration.
- check parameters for clock cycle synchronization (ensure To > Tdx).
Note:
To: Time of setpoint acceptance
Tdx: Data exchange time
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

## A01930 PB/PN current controller clock cycle clock cycle synch. not equal

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The current controller clock cycle of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with different current controller clock cycle.
**Remedy:** Set current controller clock cycles to identical values (p0115[0]).
Note:
PB: PROFIBUS
PN: PROFINET

## A01931 PB/PN speed controller clock cycle clock cycle synch. not equal

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The speed controller clock cycle of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with the different speed controller clock cycle.

**Remedy:** Set the speed controller clock cycles the same (p0115[1]).
Note:
PB: PROFIBUS
PN: PROFINET

## A01932 PB/PN clock cycle synchronization missing for DSC

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** There is no clock synchronization or clock synchronous sign of life and DSC is selected.
Note:
DSC: Dynamic Servo Control
See also: p0922, p1190, p1191
**Remedy:** Set clock synchronization across the bus configuration and transfer clock synchronous sign-of-life.
See also: r2064 (PROFIdrive diagnostics clock synchronous mode)

## A01940 PB/PN clock cycle synchronism not reached

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master.
- the master does not send a clock synchronous global control telegram although clock synchronous operation was selected when configuring the bus.
- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
- at least one drive object has a pulse enable (not controlled from PROFIBUS/PROFINET either).

**Remedy:** - check the master application and bus configuration.
- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
- check that no drive object has a pulse enable. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives.
Note:
PB: PROFIBUS
PN: PROFINET

## A01941 PB/PN clock cycle signal missing when establishing bus communication

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is not being received.
**Remedy:** Check the master application and bus configuration.
Note:
PB: PROFIBUS
PN: PROFINET

## A01943 PB/PN clock cycle signal error when establishing bus communication

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is being irregularly received.
-.the master is sending an irregular global control telegram.

- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.

**Remedy:** - check the master application and bus configuration.
- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
Note:
PB: PROFIBUS
PN: PROFINET

## A01944 PB/PN sign-of-life synchronism not reached

**Message value:** -

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. Synchronization with the master sign-of-life (STW2.12 ... STW2.15) could not be completed because the sign-of-life is changing differently to how it was configured in the Tmapc time grid.

**Remedy:** - ensure that the master correctly increments the sign-of-life in the master application clock cycle Tmapc.
- correct the interconnection of the master sign-of-life (p2045).
Note:
PB: PROFIBUS
PN: PROFINET

## A01945 PROFIBUS: Connection to the Publisher failed

**Message value:** Fault cause: %1 bin

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed.
Alarm value (r2124, binary interpretation):
Bit 0 = 1: Publisher with address in r2077[0], connection failed.
...
Bit 15 = 1: Publisher with address in r2077[15], connection failed.

**Remedy:** - check the PROFIBUS cables.
- carry out a first commissioning of the Publisher that has the failed connection.
See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

## F01946 (A) PROFIBUS: Connection to the Publisher aborted

**Message value:** Fault cause: %1 bin

**Drive object:** All objects

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation has been aborted.
Fault value (r0949, interpret binary):
Bit 0 = 1: Publisher with address in r2077[0], connection aborted.
...
Bit 15 = 1: Publisher with address in r2077[15], connection aborted.

**Remedy:** - check the PROFIBUS cables.
- check the state of the Publisher that has the aborted connection.
See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

Reaction upon A: NONE

Acknowl. upon A: NONE

## F01950 (N, A) PB/PN clock cycle synchronous operation synchronization unsuccessful

**Message value:** -
**Drive object:** All objects
**Reaction:** OFF1 (NONE)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.
**Remedy:** Only for internal Siemens troubleshooting.
Note:
PB: PROFIBUS
PN: PROFINET
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A01990 (F) USS: PZD configuration error

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The configuration of the process data (PZD) for the USS protocol is incorrect.
Alarm value (r2124, interpret decimal):
2: PZD amount (p2022) too great for the first drive object (p978[0]).
The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051.
**Remedy:** Re alarm value = 2:
Check the amount of USS PZD (p2022) and the maximum PZD amount (r2050/p2051) for the first drive object (p0978[0]).
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

## A02000 Function generator: Start not possible

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The function generator has already been started.
**Remedy:** Stop the function generator and restart again if necessary.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

## A02005 Function generator: Drive does not exist

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The drive object specified for connection does not exist.
See also: p4815 (Function generator drive number)

**Remedy:** Use the existing drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

## A02006 Function generator: No drive specified for connection

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** No drive specified for connection in p4815.
See also: p4815 (Function generator drive number)
**Remedy:** At least one drive to be connected must be specified in p4815.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

## A02007 Function generator: Drive not SERVO / VECTOR / DC_CTRL

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The drive object specified for connection is not a SERVO / VECTOR or DC_CTRL.
See also: p4815 (Function generator drive number)
**Remedy:** Use a SERVO / VECTOR / DC_CTRL drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02008 Function generator: Drive specified a multiple number of times

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The drive object specified for connection is already specified.
Alarm value (r2124, interpret decimal):
Drive object number of the drive object that is specified a multiple number of times.
**Remedy:** Specify a different drive object.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02009 Function generator: Illegal mode

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The set operating mode (p1300) of the drive object is not permissible when using the function generator.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.

**Remedy:** Change the operating mode for this drive object to p1300 = 20 (encoderless speed control) or p1300 = 21 (speed control with encoder).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02010 Function generator: Speed setpoint from the drive is not zero

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The speed setpoint of a drive selected for connection is greater than the value for the standstill detection set using p1226.
**Remedy:** For all of the drives specified for connection, set the speed setpoints to zero.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02011 Function generator: The actual drive speed is not zero

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The speed actual value of a drive selected for connection is greater than the value for the standstill detection set using p1226.
**Remedy:** Set the relevant drives to zero speed before starting the function generator.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02015 Function generator: Drive enable signals missing

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The master control and/or enable signals are missing to connect to the specified drive.
See also: p4815 (Function generator drive number)
**Remedy:** Fetch the master control to the specified drive object and set all enable signals.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02016 Function generator: Magnetizing running

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Magnetizing has not yet been completed on a drive object specified for connection.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.
See also: p4815 (Function generator drive number)

**Remedy:** Wait for magnetizing of the motor (r0056.4).
Note:
The alarm is reset as follows:
- restart the function generator.
See also: r0056 (Status word, closed-loop control)

## A02020 Function generator: Parameter cannot be changed

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** This parameter setting cannot be changed when the function generator is active (p4800 = 1).
See also: p4810, p4812, p4813, p4815, p4820, p4821, p4822, p4823, p4824, p4825, p4826, p4827, p4828, p4829
**Remedy:** - stop the function generator before parameterizing (p4800 = 0).
- if required, start the function generator (p4800 = 1).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

## A02025 Function generator: Period too short

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The value for the period is too short.
See also: p4821 (Function generator period)
**Remedy:** Check and adapt the value for the period.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period)

## A02026 Function generator: Pulse width too high

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected pulse width is too high.
The pulse width must be less than the period duration.
See also: p4822 (Function generator pulse width)
**Remedy:** Reduce pulse width.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period), p4822 (Function generator pulse width)

## A02030 Function generator: Physical address equals zero

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The specified physical address is zero.
See also: p4812 (Function generator physical address)

**Remedy:** Set a physical address with a value other than zero.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4812 (Function generator physical address)

## A02040 Function generator: Illegal value for offset

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
See also: p4826 (Function generator offset)
**Remedy:** Adjust the offset value accordingly.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4826 (Function generator offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)

## A02041 Function generator: Illegal value for bandwidth

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The bandwidth referred to the time slice clock cycle of the function generator has either been set too low or too high.
Depending on the time slice clock cycle, the bandwidth is defined as follows:
Bandwidth_max = 1 / (2 x time slice clock cycle)
Bandwidth_min = Bandwidth_max / 100000
Example:
Assumption: p4830 = 125 µs
--> Bandwidth_max = 1 / (2 x 125 µs) = 4000 Hz
--> Bandwidth_min = 4000 Hz / 100000 = 0.04 Hz
Note:
p4823: Function generator bandwidth
p4830: Function generator time slice clock cycle
See also: p4823 (Function generator bandwidth), p4830 (Function generator time slice cycle)
**Remedy:** Check the value for the bandwidth and adapt accordingly.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

## A02047 Function generator: Time slice clock cycle invalid

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The time slice clock cycle selected does not match any of the existing time slices.
See also: p4830 (Function generator time slice cycle)
**Remedy:** Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: r7901 (Sampling times)

## A02050 Trace: Start not possible

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The trace has already been started.
See also: p4700 (Trace control)
**Remedy:** Stop the trace and, if necessary, start again.

## A02055 Trace: Recording time too short

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The trace duration is too short.
The minimum is twice the value of the trace clock cycle.
See also: p4721 (Trace recording time)
**Remedy:** Check the selected recording time and, if necessary, adjust.

## A02056 Trace: Recording cycle too short

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected recording cycle is shorter than the selected basic clock cycle 0 (p0110[0]).
See also: p4720 (Trace recording cycle)
**Remedy:** Increase the value for the trace cycle.

## A02057 Trace: Time slice clock cycle invalid

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The time slice clock cycle selected does not match any of the existing time slices.
See also: p4723 (Time slice cycle for trace)
**Remedy:** Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

## A02058 Trace: Time slice clock cycle for endless trace not valid

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected time slice clock cycle cannot be used for the endless trace
See also: p4723 (Time slice cycle for trace)
**Remedy:** Enter the clock cycle of an existing time slice with a cycle time >= 2 ms for up to 4 recording channels or >= 4 ms from 5 recording channels per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

## A02059 Trace: Time slice clock cycle for 2 x 8 recording channels not valid

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected time slice clock cycle cannot be used for more than 4 recording channels.
See also: p4723 (Time slice cycle for trace)
**Remedy:** Enter the clock cycle of an existing time slice with a cycle time >= 4 ms or reduce the number of recording channels to 4 per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

## A02060 Trace: Signal to be traced missing

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** - a signal to be traced was not specified.
- the specified signals are not valid.
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
**Remedy:** - specify the signal to be traced.
- check whether the relevant signal can be traced.

## A02061 Trace: Invalid signal

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** - the specified signal does not exist.
- the specified signal can no longer be traced (recorded).
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
**Remedy:** - specify the signal to be traced.
- check whether the relevant signal can be traced.

## A02062 Trace: Invalid trigger signal

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** - a trigger signal was not specified.
- the specified signal does not exist.
- the specified signal is not a fixed-point signal.
- the specified signal cannot be used as a trigger signal for the trace.
See also: p4711 (Trace trigger signal)
**Remedy:** Specify a valid trigger signal.

## A02063 Trace: Invalid data type

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The specified data type to select a signal using a physical address is invalid.
See also: p4711 (Trace trigger signal), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)

**Remedy:** Use a valid data type.

## A02070 Trace: Parameter cannot be changed

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The trace parameter settings cannot be changed when the trace is active.
See also: p4700, p4710, p4711, p4712, p4713, p4714, p4715, p4716, p4720, p4721, p4722, p4730, p4731, p4732, p4733, p4780, p4781, p4782, p4783, p4789, p4795
**Remedy:** - stop the trace before parameterization.
- if required, start the trace.

## A02075 Trace: Pretrigger time too long

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected pretrigger time must be shorter than the trace time.
See also: p4721 (Trace recording time), p4722 (Trace trigger delay)
**Remedy:** Check the pretrigger time setting and change if necessary.

## F02080 Trace: Parameterization deleted due to unit changeover

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The trace parameterization in the drive unit was deleted due to a unit changeover or a change in the reference parameters.
**Remedy:** Restart trace.

## A02099 Trace: Insufficient Control Unit memory

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The memory space still available on the Control Unit is no longer sufficient for the trace function.
**Remedy:** Reduce the memory required, e.g. as follows:
- reduce the trace time.
- increase the trace clock cycle.
- reduce the number of signals to be traced.
See also: r4708 (Trace memory space required), r4799 (Trace memory location free)

## A02100 Drive: Computing dead time current controller too short

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The value in p0118 produces a dead time of one clock cycle because it is prior to setpoint availability.
Possible causes:
- A parameter backup with a version higher than 4.3 was loaded to a version less than or equal to 4.3.
- The system properties after replacing a component no longer match the parameter assignment.
Alarm value (r2134, floating point):
The minimum value for p0118 where a dead time no longer occurs.

**Remedy:** - set p0118 to zero.
- set p0118 to a value greater than or equal to the alarm value (for p1810.11 = 1)
- set p0117 to an automatic setting (p0117 = 1).
- check the firmware versions of the components involved.

## A02150 OA: Application cannot be loaded

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The system was not able to load an OA application.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Note:
OA: Open Architecture

## F02151 (A) OA: Internal software error

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** An internal software error has occurred within an OA application.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.
Note:
OA: Open Architecture
Reaction upon A: NONE
Acknowl. upon A: NONE

## F02152 (A) OA: Insufficient memory

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF1
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:** - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
- use an additional Control Unit.
Note:
OA: Open Architecture
Reaction upon A: NONE
Acknowl. upon A: NONE

## F03000 NVRAM fault on action

**Message value:** %1
**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** A fault occurred during execution of action p7770 = 1, 2 for the NVRAM data.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = fault cause, xx = application ID
yy = 1:
The action p7770 = 1 is not supported by this version if Drive Control Chart (DCC) is activated for the drive object concerned.
yy = 2:
The data length of the specified application is not the same in the NVRAM and the backup.
yy = 3:
The data checksum in p7774 is not correct.
yy = 4:
No data available to load.
**Remedy:** Perform the remedy according to the results of the troubleshooting.
If necessary, start the action again.

## F03001 NVRAM checksum incorrect

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** A checksum error occurred when evaluating the non-volatile data (NVRAM) on the Control Unit.
The NVRAM data affected was deleted.
**Remedy:** POWER ON all components (switch the power off and then back on again).

## A03507 (F, N) Digital output not set

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Despite specification by the signal source the digital output has not been set.
Possible causes:
- power supply missing.
- the digital output is in current limiting (e.g. due to short-circuit).
- The digital output is being used for Safety Extended Functions.
- The control has authority to access the digital output by means of direct access (see also r0729).

Alarm value (r2124, interpret bitwise binary):
Digital output involved (structured the same as r0747).
**Remedy:**
- check the 24 V power supply (e.g. X131.7 for CU305 (ground is X131.8)).
- check the output terminals for short-circuits.
- reset the signal source of the digital output for use by Safety Extended functions.
- carry out a POWER ON (power off/on).

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A03510 (F, N) CU: Calibration data not plausible

**Message value:** %1
**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** During booting, the calibration data for the analog inputs is read and checked with respect to plausibility.
At least one calibration data point was determined to be invalid.
**Remedy:** - power down/power up the power supply for the Control Unit.
- check the DRIVE-CLiQ connection.
If it reoccurs, replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A03510 (F, N) TM: Calibration data not plausible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility.
At least one calibration data point was determined to be invalid.
Alarm value (r2124, binary interpretation):
Bit 1: 10 V value, analog input 0 invalid.
Bit 3: 10 V value, analog input 1 invalid.
Bit 4: Offset, analog output 0 invalid.
Bit 5: 10 V value, analog output 0 invalid.
Bit 6: Offset, analog output 1 invalid.
Bit 7: 10 V value, analog input 1 invalid.
**Remedy:** - power down/power up the power supply for the Control Unit.
- check the DRIVE-CLiQ connection.
If it reoccurs, replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A05000 (N) Power unit: Overtemperature heat sink AC inverter

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The alarm threshold for overtemperature at the inverter heat sink has been reached. The response is set using p0290.
If the temperature of the heat sink increases by an additional 5 K, then fault F30004 is initiated.
**Remedy:** Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the cooling failed?
Reaction upon N: NONE
Acknowl. upon N: NONE

## A05001 (N) Power unit: Overtemperature depletion layer chip

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached.
Note:
- The response is set using p0290.
- If the depletion layer temperature increases by an additional 15 K, then fault F30025 is triggered.
**Remedy:** Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the cooling failed?
- pulse frequency too high?
See also: r0037, p0290 (Power unit overload response)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A05002 (N) Power unit: Air intake overtemperature

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 °C (hysteresis 2 K). The response is set using p0290.
If the air intake temperature increases by an additional 13 K, then fault F30035 is output.
**Remedy:** Check the following:
- is the ambient temperature within the defined limit values?
- has the fan failed? Check the direction of rotation.
Reaction upon N: NONE
Acknowl. upon N: NONE

## A05003 (N) Power unit: Internal overtemperature

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The alarm threshold for internal overtemperature has been reached.
If the temperature inside the power unit increases by an additional 5 K, then fault F30036 is triggered.
**Remedy:** Check the following:
- is the ambient temperature within the defined limit values?
- has the fan failed? Check the direction of rotation.
Reaction upon N: NONE
Acknowl. upon N: NONE

## A05004 (N) Power unit: Rectifier overtemperature

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The alarm threshold for the overtemperature of the rectifier has been reached. The response is set using p0290.
If the temperature of the rectifier increases by an additional 5 K, then fault F30037 is triggered.

**Remedy:** Check the following:
- is the ambient temperature within the defined limit values?
- have the load conditions and the load duty cycle been appropriately dimensioned?
- has the fan failed? Check the direction of rotation.
- has a phase of the line supply failed?
- is an arm of the supply (incoming) rectifier defective?

Reaction upon N: NONE
Acknowl. upon N: NONE

## A05006 (N) Power unit: Overtemperature thermal model

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The temperature difference between the chip and heat sink has exceeded the permissible limit value (blocksize power units only).
Depending on p0290, an appropriate overload response is initiated.
See also: r0037
**Remedy:** Not necessary.
The alarm disappears automatically once the limit value is undershot.
Note:
If the alarm does not disappear automatically and the temperature continues to rise, this can result in fault F30024.
See also: p0290 (Power unit overload response)
Reaction upon N: NONE
Acknowl. upon N: NONE

## N05007 (A) Power unit: Overtemperature thermal model (chassis PU)

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The temperature difference between the chip and heat sink has exceeded the permissible limit value (r0293) (chassis power units only).
Depending on p0290, an appropriate overload response is initiated.
See also: r0037
**Remedy:** Not necessary.
The alarm disappears automatically once the limit value is undershot.
See also: p0290 (Power unit overload response)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F06310 (A) Supply voltage (p0210) incorrectly parameterized

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (OFF1, OFF2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** For AC/AC drive units, the measured DC voltage lies outside the tolerance range after pre-charging has been completed. The following applies for the tolerance range: 1.16 * p0210 < r0070 < 1.6 * p0210.
The fault can only be acknowledged when the drive is powered down.
See also: p0210 (Drive unit line supply voltage)
**Remedy:** - check the parameterized supply voltage and if required change (p0210).
- check the line supply voltage.
See also: p0210 (Drive unit line supply voltage)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07011 Drive: Motor overtemperature

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY

**Cause:** KTY:
The motor temperature has exceeded the fault threshold (p0605) or the timer (p0606) after the alarm threshold was exceeded (p0604) has expired.
PTC, bimetallic NC contact:
The response threshold of 1650 ohms was exceeded (in SME p4600..p4603 or in TM120 p4610..p4613 = 10 or 30), or the timer (p0606) has expired after 1650 ohms was exceeded (in SME p4600..p4603 or in TM120 p4610..p4613 = 12 or 32).
Possible causes:
- Motor is overloaded
- motor ambient temperature too high.
- PTC / bimetallic NC contact: Wire breakage or sensor not connected.
Fault value (r0949, decimal interpretation):
200: The I2t motor model signals an overtemperature (p0612.0 = 1, p0611 > 0).
Number of the temperature channel leading to the message (for SME/TM120 (p0601 = 10, 11)).
See also: p0604 (Motor temperature alarm threshold), p0605 (Motor temperature fault threshold), p0606 (Motor temperature timer)

**Remedy:**
- Reduce the motor load.
- check the ambient temperature and the motor ventilation.
- check the wiring and the connection of the PTC or bimetallic NC contact.
See also: p0604 (Motor temperature alarm threshold), p0605 (Motor temperature fault threshold), p0606 (Motor temperature timer)

## A07012 (N) Drive: I2t motor model overtemperature

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The thermal I2t motor model (for synchronous motors) identified that the temperature alarm threshold was exceeded.
See also: r0034 (Motor utilization), p0605 (Motor temperature fault threshold), p0611 (I2t motor model thermal time constant)

**Remedy:**
- check the motor load and if required, reduce.
- check the motor ambient temperature.
- check the thermal time constant p0611.
- check the overtemperature fault threshold p0605 (= alarm threshold for the I2t motor model, see p0612)

Reaction upon N: NONE

Acknowl. upon N: NONE

## A07015 Drive: Motor temperature sensor alarm

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An error was detected when evaluating the temperature sensor set in p0600 and p0601.
With the fault, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 50 ms after alarm A07015.
Possible causes:
- wire breakage or sensor not connected (KTY: R > 1630 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Alarm value (r2124, interpret decimal):
- if SME/TM120 is selected (p0601 = 10, 11),
this is the number of the temperature channel leading to the message.

**Remedy:** - make sure that the sensor is connected correctly.
- check the parameterization (p0600, p0601).
See also: r0035 (Motor temperature), p0600 (Motor temperature sensor for monitoring), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)

## F07016 Drive: Motor temperature sensor fault

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY

**Cause:** An error was detected when evaluating the temperature sensor set in p0600 and p0601.
Possible causes:
- wire breakage or sensor not connected (KTY: R > 1630 Ohm).
- measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Note:
If alarm A07015 is present, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 50 ms after alarm A07015.
Fault value (r0949, decimal interpretation):
- if SME/TM120 is selected (p0601 = 10, 11),
this is the number of the temperature channel leading to the message.
See also: p0607 (Temperature sensor fault timer)

**Remedy:** - make sure that the sensor is connected correctly.
- check the parameterization (p0600, p0601).
- induction motors: De-activate temperature sensor fault (p0607 = 0).
See also: r0035 (Motor temperature), p0600 (Motor temperature sensor for monitoring), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)

## F07080 Drive: Incorrect control parameter

**Message value:** Parameter: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The closed-loop control parameters have been parameterized incorrectly (e.g. p0356 = L_spread = 0).
Fault value (r0949, decimal interpretation):
The fault value includes the parameter number involved.
The following parameter numbers only occur as fault values for vector drives:
p0310, for synchronous motors: p0341, p0344, p0350, p0357
The following parameter numbers do not occur as fault values for synchronous motors:
p0354, p0358, p0360
See also: p0310, p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0400, p0404, p0408, p0640, p1082, p1300

**Remedy:** Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0).
See also: p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0400, p0404, p0408, p0640, p1082

## F07082 Macro: Execution not possible

**Message value:** Fault cause: %1, supplementary information: %2, preliminary parameter number: %3

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The macro cannot be executed.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex:
cccc = preliminary parameter number, bb = supplementary information, aa = fault cause
Fault causes for the trigger parameter itself:
19: Called file is not valid for the trigger parameter.
20: Called file is not valid for parameter 15.
21: Called file is not valid for parameter 700.
22: Called file is not valid for parameter 1000.
23: Called file is not valid for parameter 1500.
24: Data type of a TAG is incorrect (e.g. Index, number or bit is not U16).

Fault causes for the parameters to be set:
25: Error level has an undefined value.
26: Mode has an undefined value.
27: A value was entered as string in the tag value that is not "DEFAULT".
31: Entered drive object type unknown.
32: A device was not able to be found for the determined drive object number.
34: A trigger parameter was recursively called.
35: It is not permissible to write to the parameter via macro.
36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect.
37: Source parameter for a BICO interconnection was not able to be determined.
38: An index was set for a non-indexed (or CDS-dependent) parameter.
39: No index was set for an indexed parameter.
41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN.
42: A value not equal to 0 or 1 was set for a BitOperation.
43: Reading the parameter to be changed by the BitOperation was unsuccessful.
51: Factory setting for DEVICE may only be executed on the DEVICE.
61: The setting of a value was unsuccessful.

**Remedy:** - check the parameter involved.
- check the macro file and BICO interconnection.
See also: p0015

## F07083 Macro: ACX file not found

**Message value:** Parameter: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The ACX file (macro) to be executed was not able to be found in the appropriate directory.
Fault value (r0949, decimal interpretation):
Parameter number with which the execution was started.
See also: p0015

**Remedy:** - check whether the file is saved in the appropriate directory on the memory card.
Example:
If p0015 is set to 1501, then the selected ACX file must be located in the following directory:
... /PMACROS/DEVICE/P15/PM001501.ACX

## F07084 Macro: Condition for WaitUntil not fulfilled

**Message value:** Parameter: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts.
Fault value (r0949, decimal interpretation):
Parameter number for which the condition was set.

**Remedy:** Check and correct the conditions for the WaitUntil loop.

## F07085 Drive: Open-loop/closed-loop control parameters changed

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** Open-loop/closed-loop control parameters have had to be changed for the following reasons:
1. As a result of other parameters, they have exceeded the dynamic limits.
2. They cannot be used due to the fact that the hardware detected not having certain features.
Fault value (r0949, decimal interpretation):
Changed parameter number.
340:
The motor and control parameters were automatically calculated (p0340 = 1), because the vector control was subsequently activated as configuration (r0108.2).

See also: p0640 (Current limit), p1082 (Maximum speed), p1300 (Open-loop/closed-loop control operating mode), p1800 (Pulse frequency setpoint)

**Remedy:** Not necessary.
It is not necessary to change the parameters as they have already been correctly limited.

## F07086 Units changeover: Parameter limit violation due to reference value change

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit representation (cause: e.g. the steady-state minimum/maximum limit or that defined in the application was violated). The values of the parameters were set to the corresponding violated minimum/maximum limit or to the factory setting.
Fault value (r0949, parameter):
Diagnostics parameter r9450 to display the parameters that were not able to be re-calculated.
See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

**Remedy:** Check the adapted parameter value and if required correct.
See also: r9450 (Reference value change parameter with unsuccessful calculation)

## F07087 Drive: Encoderless operation not possible for the selected pulse frequency

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** Encoderless operation is not possible for the selected pulse frequency (p1800).
Encoderless operation is activated under the following conditions:
- the changeover speed for encoderless operation (p1404) is less than the maximum speed (p0322).
- a control type with encoderless operation has been selected (p1300).
- encoder faults of the motor encoder result in a fault response with encoderless operation (p0491).
See also: p0491 (Motor encoder fault response ENCODER), p1300 (Open-loop/closed-loop control operating mode), p1404 (Encoderless operation changeover speed), p1800 (Pulse frequency setpoint)

**Remedy:** Increase the pulse frequency (p1800).
Note:
In encoderless operation, the pulse frequency must be at least as high as half the current controller clock cycle (1/p0115[0]).

## F07088 Units changeover: Parameter limit violation due to units changeover

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** A changeover of units was initiated.
Possible causes for the violation of a parameter limit are:
- when rounding off a parameter corresponding to its decimal places, the steady-state minimum or maximum limit was violated.
- inaccuracies for the data type "FloatingPoint".
In these cases, when the minimum limit is violated then the parameter value is rounded up and when the maximum limited is violated the parameter value is rounded down.
Fault value (r0949, decimal interpretation):
Diagnostics parameter r9451 to display all parameters whose value had to be adapted.
See also: p0100 (IEC/NEMA mot stds), p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Selecting technological units)

**Remedy:** Check the adapted parameter values and if required correct.
See also: r9451 (Units changeover adapted parameters)

## A07089 Changing over units: Function module activation is blocked because the units have been changed over

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An attempt was made to activate a function module. This is not permissible if the units have already been changed over.
See also: p0100 (IEC/NEMA mot stds), p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units)
**Remedy:** Restore units that have been changed over to the factory setting.

## F07090 Drive: Upper torque limit less than the lower torque limit

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The upper torque limit is lower than the lower torque limit.
**Remedy:** P1 must be >= P2 if parameter P1 is connected to p1522 and parameter P2 to p1523.

## A07200 Drive: Master control ON command present

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The ON/1 command is present (no 0 signal).
The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control.
**Remedy:** Switch the signal via binector input p0840 (aktueller CDS) or control word bit 0 via the master control to 0.

## F07220 (N, A) Drive: Master control by PLC missing

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** The "master control by PLC" signal was missing in operation.
- interconnection of the binector input for "master control by PLC" is incorrect (p0854).
- the higher-level control has withdrawn the "master control by PLC" signal.
- data transfer via the fieldbus (master/drive) was interrupted.

**Remedy:** - check the interconnection of the binector input for "master control by PLC" (p0854).
- check the "master control by PLC" signal and, if required, switch in.
- check the data transfer via the fieldbus (master/drive).
Note:
If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized to NONE or the message type should be parameterized as alarm.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07300 (A) Drive: Line contactor feedback signal missing

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE)
**Acknowledge:** IMMEDIATELY
**Cause:**
- the line contactor was not able to be closed within the time in p0861.
- the line contactor was not able to be opened within the time in p0861.
- the line contactor dropped out during operation
- the line contactor has closed although the drive converter is powered down.

**Remedy:**
- check the setting of p0860.
- check the feedback circuit from the line contactor.
- increase the monitoring time in p0861.

See also: p0860 (Line cont. fdbk sig), p0861 (Line contactor monitoring time)

Reaction upon A: NONE
Acknowl. upon A: NONE

## F07320 Drive: Automatic restart interrupted

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:**
- The specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt.
- there is no active ON command.
- the monitoring time for the power unit has expired (p0857).
- when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically powered up again.

Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:**
- increase the number of restart attempts (p1211). The actual number of starting attempts is displayed in r1214.
- increase the delay time in p1212 and/or the monitoring time in p1213.
- issue an ON command (p0840).
- either increase or disable the monitoring time of the power unit (p0857).

## A07321 Drive: Automatic restart active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The automatic restart (AR) is active. When the line supply returns and/or the causes of the existing faults are removed the drive is automatically restarted. The pulses are enabled and the motor starts to rotate.
**Remedy:**
- the automatic restart (AR) should, if required, be inhibited (p1210 = 0).
- an automatic restart can be directly interrupted by withdrawing the power-on command (BI: p0840).

## A07350 (F) Drive: Measuring probe parameterized to a digital output

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output.
Alarm value (r2124, interpret decimal):
8: DI/DO 8 (X122.9/X132.1)
9: DI/DO 9 (X122.10/X132.2)
10: DI/DO 10 (X122.12/X132.3)
11: DI/DO 11 (X122.13/X132.4)
12: DI/DO 12 (X132.9)

13: DI/DO 13 (X132.10)
14: DI/DO 14 (X132.12)
15: DI/DO 15 (X132.13)
To the terminal designation:
The first designation is valid for CU320, the second for CU305.

**Remedy:** - set the terminal as input (p0728).
- de-select the measuring probe (p0488, p0489, p0580).

Reaction upon F: OFF1

Acknowl. upon F: IMMEDIATELY

## A07400 (N) Drive: DC link voltage maximum controller active

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The DC link voltage controller has been activated because of the upper switch-in threshold (r1244).
A system deviation can occur between the setpoint and actual speed.
See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller or Vdc monitoring configuration)

**Remedy:** Not necessary.
This alarm automatically disappears after the upper threshold has been distinctly undershot.
Otherwise, apply the following measures:
- use a Braking Module or regenerative feedback unit.
- increase the ramp-down times (p1121, p1135).
- shut down the Vdc_max controller (p1240 = 0).

Reaction upon N: NONE

Acknowl. upon N: NONE

## A07402 (N) Drive: DC link voltage minimum controller active

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The DC link voltage controller has been activated due to the lower switch-in threshold (r1248).
A system deviation can occur between the setpoint and actual speed.
A possible cause can be e.g. that the line supply has failed.
See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller or Vdc monitoring configuration), p1248 (DC link voltage threshold lower)

**Remedy:** Not necessary.
This alarm automatically disappears after the lower threshold has been distinctly exceeded.
Otherwise, apply the following measures:
- check the line supply and infeed.
- increase the ramp-up times (p1120).
- shut down the Vdc_min controller (p1240 = 0).

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07403 (N, A) Drive: Lower DC link voltage threshold reached

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The DC link voltage monitoring is active (p1240 = 5, 6) and the lower DC link voltage threshold (p1248) was reached in the "Operation" state.

**Remedy:** - check the line supply voltage.
- check the infeed.
- reduce the lower DC link threshold (p1248).
- switch out (disable) the DC link voltage monitoring (p1240 = 0).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07404 Drive: Upper DC link voltage threshold reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The DC link voltage monitoring is active (p1240 = 4, 6) and the upper DC link voltage threshold (p1244) was reached in the "Operation" state.
**Remedy:**
- check the line supply voltage.
- check the infeed module or the Braking Module.
- increase the upper DC link voltage threshold (p1244).
- switch out (disable) the DC link voltage monitoring (p1240 = 0).

## F07410 Drive: Current controller output limited

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1)
**Acknowledge:** IMMEDIATELY
**Cause:** The condition "I_act = 0 and Uq_set_1 longer than 16 ms at its limit" is present and can be caused by the following:
- motor not connected or motor contactor open.
- no DC link voltage present.
- Motor Module defective.

**Remedy:**
- connect the motor or check the motor contactor.
- check the DC link voltage (r0070).
- check the Motor Module.

## F07411 Drive: Flux controller output limited

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1)
**Acknowledge:** IMMEDIATELY
**Cause:** The specified flux setpoint cannot be reached although 90% of the maximum current has been specified.
- incorrect motor data.
- motor data and motor configuration (star-delta) do not match.
- the current limit has been set too low for the motor.
- induction motor (encoderless, open-loop controlled) in I2t limiting.
- the Motor Module is too small.

**Remedy:**
- correct the motor data.
- check the motor configuration.
- correct the current limits (p0640, p0323).
- reduce the induction motor load.
- if required, use a larger Motor Module.

## F07412 Drive: Commutation angle incorrect (motor model)

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (NONE, OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** An incorrect commutation angle was detected that can result in a positive coupling in the speed controller.
Possible causes:
- the motor encoder is incorrectly adjusted with respect to the magnet position.
- the motor encoder is damaged.
- the angular commutation offset is incorrectly set (p0431).

- data to calculate the motor model has been incorrectly set (p0356 (motor-stator leakage inductance) and/or p0350 (motor-stator resistance) and/or p0352 (cable resistance).
- the changeover speed for the motor model is too low (p1752). The monitoring function only becomes effective above the changeover speed.
- pole position identification might have calculated an incorrect value when activated (p1982 = 1).
- the motor encoder speed signal is faulted.
- the control loop is instable due to incorrect parameterization.

Fault value (r0949, decimal interpretation):
SERVO:
0: The comparison of the pole position angle from the encoder and motor model resulted in an excessively high value (> 80 ° electrical).
1: -
VECTOR:
0: The comparison of the pole position angle from the encoder and motor model resulted in an excessively high value (> 45 ° electrical).
1: The change in the speed signal from the motor encoder has changed by > p0492 within a current controller clock cycle.

**Remedy:**
- if the encoder mounting was changed - re-adjust the encoder.
- replace the defective motor encoder.
- correctly set the angular commutation offset (p0431). If required, determine using p1990.
- correctly set the motor stator resistance, cable resistance and motor-stator leakage inductance (p0350, p0352, p0356).

Calculate the cable resistance from the cross-section and length, check the inductance and stator resistance using the motor data sheet, measure the stator resistance, e.g. using a multimeter - and if required, again identify the values using the stationary motor data identification (p1910).
- increase the changeover speed for the motor model (p1752). The monitoring is completely de-activated for p1752 > p1082 (maximum speed).
- with pole position identification activated (p1982 = 1) check the procedure for pole position identification (p1980) and force a new pole position identification procedure by means of de-selection followed by selection (p1982 = 0 -> 1).

Note:
For High Dynamic Motors (1FK7xxx-7xxx), for applications with a higher current, if necessary, the monitoring should be disabled.

## F07413 Drive: Commutation angle incorrect (pole position identification)

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (NONE, OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** An incorrect commutation angle was detected that can result in a positive coupling in the speed controller.
Within the pole position identification routine (p1982 = 2):
- a difference of > 45° electrical to the encoder angle was determined.

For VECTOR, within the encoder adjustment (p1990 = 2):
- a difference of > 6 ° electrical to the encoder angle was determined.

**Remedy:**
- correctly set the angular commutation offset (p0431).
- re-adjust the motor encoder after the encoder has been replaced.
- replace the defective motor encoder.
- check the pole position identification routine. If the pole position identification routine is not suitable for this motor type, then disable the plausibility check (p1982 = 0).

## F07414 (N, A) Drive: Encoder serial number changed

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (NONE, OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
Cause 1:
The encoder was replaced.

Cause 2:
A third-party, build-in or linear motor was re-commissioned.
Cause 3:
The motor with integrated and adjusted encoder was replaced.
Cause 4:
The firmware was updated to a version that checks the encoder serial number.

**Remedy:** Re causes 1, 2:
Carry out an automatic adjustment using the pole position identification routine. Acknowledge the fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.
SERVO:
If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
or
Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
or
Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Re causes 3, 4:
Accept the new serial number with p0440 = 1.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## N07415 (F) Drive: Angular commutation offset transfer running

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** NONE

**Cause:** The angular commutation offset was automatically determined using p1990 = 1.
This fault causes the pulses to be suppressed - this is necessary to transfer the angular commutation offset to p0431.
See also: p1990 (Encoder adjustment, determine angular commutation offset)

**Remedy:** The fault can be acknowledged without any additional measures.

Reaction upon F: OFF2

Acknowl. upon F: IMMEDIATELY

## F07420 Drive: Current setpoint filter natural frequency > Shannon frequency

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** One of the filter natural frequencies is greater than the Shannon frequency.
The Shannon frequency is calculated according to the following formula: 0.5 / p0115[0]
Fault value (r0949, interpret hexadecimal):
Bit 0: Filter 1 (p1658, p1660)
Bit 1: Filter 2 (p1663, p1665)
Bit 2: Filter 3 (p1668, p1670)
Bit 3: Filter 4 (p1673, p1675)
Bit 8 ... 15: Data set number (starting from zero)

**Remedy:** - reduce the numerator or denominator natural frequency of the current setpoint filter involved.
- reduce the current controller sampling time (p0115[0]).
- switch out the filter involved (p1656).

## F07421 Drive: Speed filter natural frequency > Shannon frequency

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (OFF1, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** One of the filter natural frequencies is greater than the Shannon frequency.
The Shannon frequency is calculated according to the following formula: 0.5 / p0115[1]
Fault value (r0949, interpret hexadecimal):
Bit 0: Filter 1 (p1417, p1419)
Bit 1: Filter 2 (p1423, p1425)
Bit 8 ... 15: Data set number (starting from zero)
**Remedy:** - reduce the numerator or denominator natural frequency of the speed setpoint filter involved.
- reduce the speed controller sampling time (p0115[1]).
- switch out the filter involved (p1414).

## F07422 Drive: Reference model natural frequency > Shannon frequency

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (OFF1, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The natural filter frequency of the PT2 element for the reference model (p1433) is greater than the Shannon frequency.
The Shannon frequency is calculated according to the following formula: 0.5 / p0115[1]
**Remedy:** - reduce the natural frequency of PT2 element for reference model (p1433).
- reduce the speed controller sampling time (p0115[1]).

## F07426 (A) Technology controller actual value limited

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The actual value for the technology controller, interconnected via connector input p2264, has reached a limit.
Fault value (r0949, decimal interpretation):
1: upper limit reached.
2: lower limit reached.
**Remedy:** - adapt the limits to the signal level (p2267, p2268).
- check the scaling of the actual value (p2264).
See also: p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07429 Drive: DSC without encoder not possible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The function DSC (Dynamic Servo Control) was activated although there is no encoder.
See also: p1191 (DSC position controller gain KPC)
**Remedy:** If there is no encoder and connector input p1191 (DSC position controller gain) is interconnected, then connector input p1191 must have a 0 signal.

## F07430 Drive: Changeover to open-loop torque controlled operation not possible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** For encoderless operation, the converter cannot change over to closed-loop torque-controlled operation (BI: p1501).
**Remedy:** Do not attempt to cover over to closed-loop torque-controlled operation.

## F07431 Drive: Changeover to encoderless operation not possible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (OFF1)
**Acknowledge:** IMMEDIATELY
**Cause:** For closed-loop torque control, the converter cannot change over to encoderless operation (p1404).
**Remedy:** Do not attempt to change over to encoderless operation.

## F07432 Drive: Motor without overvoltage protection

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (OFF1)
**Acknowledge:** IMMEDIATELY
**Cause:** In the case of a fault at maximum speed, the motor can generate an overvoltage that can destroy the drive system.
Fault value (r0949, interpret hexadecimal):
Associated Drive Data Set (DDS).
**Remedy:** Overvoltage protection can be implemented in the following ways:
- limit the maximum speed (p1082) without any additional protection.
The maximum speed without protection is calculated as follows:
Rotary synchronous motors: p1082 [rpm] <= 11.695 * p0297/p0316 [Nm/A]
Linear motors: p1082 [m/min] <= 73.484 * p0297/p0316 [N/A]
Rotary synchronous motors connected to a high-frequency converter: p1082 [rpm] <= 4.33165 * (-p0316 + square root(p0316^2 + 4.86E-9 * (p0297 * r0313)^2 * (r0377 - r0233) [mH] * r0234 [µF]) / (p0297 * r0313^2 * (r0377 - r0233) [mH] * r0234 [µF])
Linear motor connected to a high-frequency converter: p1082 [m/min] <= 0.6894 * (-p0316 + square root( p0316^2 + 1.91865E-7 * (p0297 * r0313 * 3.1415)^2 * (r0377 - r0233) [mH] * r0234 [µF]) / (p0297 * r0313^2 * (r0377 - r0233) [mH] * r0234 [µF])
Rotary induction motor connected to a high-frequency converter: p1082 [rpm] <= Maximum (2.11383E5 / (r313 * square root((r0377 [mH] + r0382 [mH]) * r0234 [µF])) ; 0.6364*p0297*p0311[rpm] / p0304)
- use a voltage protection module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801) (only for synchronous motors).
When using a synchronous motor with VPM connected to a high-frequency converter, the following must apply:
p1082 [rpm] <= p0348 * (r0377 + p0233) / p0233
When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be suppressed - this means that the terminals for the function "Safe Torque Off" (STO) must be connected to the VPM.
When using a VPM, p0643 must be set to 1.
- activating the internal voltage protection (IVP) with p1231 = 3 (only for synchronous motors).
See also: p0643 (Overvoltage protection for synchronous motors), p1231 (Armature short-circuit / DC braking configuration)

## F07433 Drive: Closed-loop control with encoder is not possible as the encoder has not been unparked

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (OFF1, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The changeover to closed-loop control with encoder is not possible as the encoder has not been unparked.
**Remedy:** - check whether the encoder firmware supports the "parking" function (r0481.6 = 1).
- upgrade the firmware.

Note:
For long-stator motors (p3870.0 = 1), the following applies:
The encoder must have completed the unparking procedure (r3875.0 = 1) before a changeover can be made to closed-loop control with encoder. The encoder is unparked using binector input p3876 = 0/1 signal and remains until a 0 signal in this state.

## F07434 Drive: It is not possible to change the direction of rotation with the pulses enabled

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A drive data set was selected - with the pulses enabled - which has a different parameterized direction of rotation (p1821).
It is only possible to change the motor direction of rotation using p1821 when the pulses are inhibited.
**Remedy:** - change over the drive data set with the pulses inhibited.
- ensure that the changeover to a drive data set does not result in the motor direction of rotation being changed (i.e. for these drive data sets, the same value must be in p1821).
See also: p1821 (Dir of rot)

## F07439 Drive: Higher current controller dynamic performance not possible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** The function "Current controller dynamics higher" (p1810.11 = 1) is selected, however is not supported by the power unit (r0192.27 = 0) or by the safety technology without encoder (9506 = 1).
Fault value (r0949, decimal interpretation):
1:
- firmware of the booksize power unit is not up-to-date.
- blocksize or S120 combi power unit was used.
2:
- a sine-cosine encoder with encoderless safety technology is used.
**Remedy:** In general:
- Deselect the function "Current controller dynamics higher" (p1810.11 = 0) and if required, set the current, speed and position controller again or calculate (p0340 = 4).
For fault value = 1:
- If necessary, upgrade the firmware of the booksize power unit to a later version (version >= 4.4).
- Use a booksize power unit (version >= 4.4).
For fault value = 2:
- Re-parameterize encoderless safety technology (9506 = 1) to safety technology with an encoder (p9506 = 0).
See also: r0192 (Power unit firmware properties), p1810 (Modulator configuration), p9506 (SI Motion function specification (processor 1))

## A07440 EPOS: Jerk time is limited

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The calculation of the jerk time Tr = max(p2572, p2573) / p2574 resulted in an excessively high value so that the jerk time is internally limited to 1000 ms.
Note:
The alarm is also output if jerk limiting is not active.
**Remedy:** - increase the jerk limiting (p2574).
- reduce maximum acceleration or maximum deceleration (p2572, p2573).
See also: p2572 (EPOS maximum acceleration), p2573 (EPOS maximum deceleration), p2574 (EPOS jerk limiting)

## A07441 LR: Save the position offset of the absolute encoder adjustment

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The status of the absolute encoder adjustment has changed.
In order to permanently save the determined position offset (p2525) it must be saved in a non-volatile fashion (p0971, p0977).
**Remedy:** Not necessary.
This alarm automatically disappears after the offset has been saved.
See also: p2507 (LR absolute encoder adjustment status), p2525 (LR encoder adjustment, offset)

## F07442 (A) LR: Multiturn does not match the modulo range

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The ratio between the multiturn resolution and the modulo range (p2576) is not an integer number.
This results in the adjustment being set back, as the position actual value cannot be reproduced after power-off/power-on.
**Remedy:** Make the ration between the multiturn resolution and the modulo range an integer number.
The ratio v is calculated as follows:
1. Motor encoder without position tracking:
v = (p0421 * p2506 * p0433 * p2505) / (p0432 * p2504 * p2576)
2. Motor encoder with position tracking for the measuring gear:
v = (p0412 * p2506 * p2505) / (p2504 * p2576)
3. Motor encoder with position tracking for the load gear:
v = (p2721 * p2506 * p0433) / (p0432 * p2576)
4. Motor encoder with position tracking for the load and measuring gear:
v = (p2721 * p2506) / p2576
5. Direct encoder without position tracking:
v = (p0421 * p2506 * p0433) / (p0432 * p2576)
6. Direct encoder with position tracking for the measuring gear:
v = (p0412 * p2506) / p2576
Note:
With position tracking, it is recommended that p0412 and p2721 are changed
See also: p0432, p0433, p2504, p2505, p2506, p2576, p2721
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07443 (A) LR: Reference point coordinate not in the permissible range

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The reference point coordinate received when adjusting the encoder via connector input p2599 lies outside the half of the encoder range and cannot be set as actual axis position.
Fault value (r0949, decimal interpretation):
Maximum permissible value for the reference point coordinate.
**Remedy:** Set the reference point coordinate to a lower value than specified in the fault value.
See also: p2598 (EPOS reference point coordinate, signal source), p2599 (EPOS reference point coordinate value)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07446 (A) Load gear: Position tracking cannot be reset

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The position tracking cannot be reset.
**Remedy:** Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07447 Load gear: Position tracking, maximum actual value exceeded

**Message value:** Component number: %1, encoder data set: %2, drive data set: %3
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** When the position tracking of the load gear is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.
Maximum value: p0408 * p2721 * 2^p0419
Fault value (r0949, interpret hexadecimal):
ccbbaa hex
aa = encoder data set
bb = component number
cc = drive data set
See also: p0408 (Rotary encoder pulse No.), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear, rotary absolute gearbox, revolutions, virtual)
**Remedy:** - reduce the fine resolution (p0419).
- reduce the multiturn resolution (p2721).
See also: p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear, rotary absolute gearbox, revolutions, virtual)

## F07448 (A) Load gear: Position tracking, linear axis has exceeded the maximum range

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** For a configured linear axis/no modulo axis, the currently effective motor encoder (encoder 1) has exceeded the maximum possible traversing range.
For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. It should be read in p2721 and interpreted as the number of load revolutions.
Note:
Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x].
**Remedy:** The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07449 (A) Load gear: Position tracking, actual position outside tolerance window

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** When powered down, the currently effective motor encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Note:
Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x].
Fault value (r0949, decimal interpretation):
Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gear - if one is being used. The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r2724.
See also: p2722 (Load gear, position tracking tolerance window), r2724 (Load gear position difference)

**Remedy:** Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010 (Drive commissioning parameter filter), p2507 (LR absolute encoder adjustment status)

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07450 (A) LR: Standstill monitoring has responded

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** After the standstill monitoring time (p2543) expired, the drive left the standstill window (p2542).
- position actual value inversion incorrectly set (p0410).
- standstill window set too small (p2542).
- standstill monitoring time set too low (p2543).
- position loop gain too low (p2538).
- position loop gain too high (instability/oscillation, p2538).
- mechanical overload.
- check the connecting cable, motor/drive converter (phase missing, interchange).
- when selecting motor identification, select tracking mode (BI: p2655[0] = 1 signal).
- when selecting function generator, select tracking mode (BI: p2655[0] = 1 signal) and de-activate position control (BI:p2550 = 0 signal).

**Remedy:** Check the causes and resolve.

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07451 (A) LR: Position monitoring has responded

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** When the position monitoring time (p2545) expired, the drive had still not reached the positioning window (p2544).
- positioning window parameterized too small (p2544).
- position monitoring time parameterized too short (p2545).
- position loop gain too low (p2538).
- position loop gain too high (instability/oscillation, p2538).
- drive mechanically locked.

**Remedy:** Check the causes and resolve.

Reaction upon A: NONE
Acknowl. upon A: NONE

## F07452 (A) LR: Following error too high

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The difference between the position setpoint position actual value (following error dynamic model, r2563) is greater than the tolerance (p2546).
- the drive torque or accelerating capacity exceeded.
- position measuring system fault.
- position control sense incorrect.
- mechanical system locked.
- excessively high traversing velocity or excessively high position reference value (setpoint) differences

**Remedy:** Check the causes and resolve.
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07453 LR: Position actual value preprocessing error

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** An error has occurred during the position actual value preprocessing.
**Remedy:** Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)

## A07454 LR: Position actual value preprocessing does not have a valid encoder

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** One of the following problems has occurred with the position actual value preprocessing:
- an encoder is not assigned for the position actual value preprocessing (p2502 = 0).
- an encoder is assigned, but no encoder data set (p0187 = 99 or p0188 = 99 or p0189 = 99).
- an encoder an an encoder data set have been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).

**Remedy:** Check the drive data sets, encoder data sets and encoder assignment.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0400 (Encoder type selection), p2502 (LR encoder assignment)

## A07455 EPOS: Maximum velocity limited

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The maximum velocity (p2571) is too high to correctly calculate the modulo correction.
Within the sampling time for positioning (p0115[5]), with the maximum velocity, a maximum of the half modulo length must be moved through. p2571 was limited to this value.
**Remedy:** - reduce the maximum velocity (p2571).
- increase the sampling time for positioning (p0115[5]).

## A07456 EPOS: Setpoint velocity limited

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The actual setpoint velocity is greater than the parameterized maximum velocity (p2571) and is therefore limited.
**Remedy:** - check the entered setpoint velocity.
- reduce the velocity override (CI: p2646).
- increase the maximum velocity (p2571).
- check the signal source for the externally limited velocity (CI: p2594).

## A07457 EPOS: Combination of input signals illegal

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An illegal combination of input signals that are simultaneously set was identified.
Alarm value (r2124, interpret decimal):
0: Jog 1 and jog 2 (p2589, p2590).
1: Jog 1 or jog 2 and direct setpoint input/MDI (p2589, p2590, p2647).
2: Jog 1 or jog 2 and start referencing (p2589, p2590, p2595).
3: Jog 1 or jog 2 and activate traversing task (p2589, p2590, p2631).
4: Direct setpoint input/MDI and starting referencing (p2647, p2595).
5: Direct setpoint input/MDI and activate traversing task (p2647, p2631).
6: Start referencing and activate traversing task (p2595, p2631).
**Remedy:** Check the appropriate input signals and correct.

## F07458 EPOS: Reference cam not found

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** After starting the search for reference, the axis moved through the maximum permissible distance to search for the reference cam without actually finding the reference cam.
**Remedy:** - check the "reference cam" binector input (BI: p2612).
- check the maximum permissible distance to the reference cam (p2606).
- if axis does not have any reference cam, then set p2607 to 0.
See also: p2606 (EPOS search for reference, reference cam, maximum distance), p2607 (EPOS search for reference, reference cam present), p2612 (EPOS search for reference, reference cam)

## F07459 EPOS: No zero mark

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** After leaving the reference cam, the axis has traversed the maximum permissible distance between the reference cam and zero mark without finding the zero mark.
**Remedy:** - check the encoder regarding the zero mark
- check the maximum permissible distance between the reference cam and zero mark (p2609).
- use an external encoder zero mark (equivalent zero mark) (p0495).
See also: p0495 (Equivalent zero mark, input terminal), p2609 (EPOS search for reference, max. distance ref. cam and zero mark)

## F07460 EPOS: End of reference cam not found

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** During the search for reference, when the axis reached the zero mark it also reached the end of the traversing range without detecting an edge at the binector input "reference cam" (BI: p2612).
Maximum traversing range: -2147483648 [LU] ... -2147483647 [LU]
**Remedy:** - check the "reference cam" binector input (BI: p2612).
- repeat the search for reference.
See also: p2612 (EPOS search for reference, reference cam)

## A07461 EPOS: Reference point not set

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When starting a traversing block/direct setpoint input, a reference point is not set (r2684.11 = 0).
**Remedy:** Reference the system (search for reference, flying referencing, set reference point).

## A07462 EPOS: Selected traversing block number does not exist

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A traversing block selected via BI: p2625 to BI: p2630 was started via BI: p2631 = 0/1 edge "Activate traversing task".
- the number of the started traversing block is not contained in p2616[0...n].
- the started traversing block is suppressed.
Alarm value (r2124, interpret decimal):
Number of the selected traversing block that is also not available.
**Remedy:** - correct the traversing program.
- select an available traversing block number.

## A07463 (F) EPOS: External block change not requested in the traversing block

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For a traversing block with the block change enable CONTINUE_EXTERNAL_ALARM, the external block change was not requested.
Alarm value (r2124, interpret decimal):
Number of the traversing block.
**Remedy:** Resolve the reason as to why the edge is missing at binector input (BI: p2632).
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

## F07464 EPOS: Traversing block is inconsistent

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The traversing block does not contain valid information.
Alarm value (r2124, interpret decimal):
Number of the traversing block with invalid information.
**Remedy:** Check the traversing block and where relevant, take into consideration alarms that are present.

## A07465 EPOS: Traversing block does not have a subsequent block

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** There is no subsequent block in the traversing block.
Alarm value (r2124, interpret decimal):
Number of the traversing block with the missing subsequent block.
**Remedy:** - parameterize this traversing block with the block change enable END.
- parameterize additional traversing blocks with a higher block number and for the last block, using the block change enable END.

## A07466 EPOS: Traversing block number assigned a multiple number of times

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The same traversing block number was assigned a multiple number of times.
Alarm value (r2124, interpret decimal):
Number of the traversing block that was assigned a multiple number of times.
**Remedy:** Correct the traversing blocks.

## A07467 EPOS: Traversing block has illegal task parameters

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The task parameter in the traversing block contains an illegal value.
Alarm value (r2124, interpret decimal):
Number of the traversing block with an illegal task parameter.
**Remedy:** Correct the task parameter in the traversing block.

## A07468 EPOS: Traversing block jump destination does not exist

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In a traversing block, a jump was programmed to a non-existent block.
Alarm value (r2124, interpret decimal):
Number of the traversing block with a jump destination that does not exist.
**Remedy:** - correct the traversing block.
- add the missing traversing block.

## A07469 EPOS: Traversing block < target position < software limit switch minus

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the traversing block the specified absolute target position lies outside the range limited by the software limit switch minus.
Alarm value (r2124, interpret decimal):
Number of the traversing block with illegal target position.
**Remedy:** - correct the traversing block.
- change software limit switch minus (CI: p2578, p2580).

## A07470 EPOS: Traversing block> target position > software limit switch plus

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the traversing block the specified absolute target position lies outside the range limited by the software limit switch plus.
Alarm value (r2124, interpret decimal):
Number of the traversing block with illegal target position.
**Remedy:** - correct the traversing block.
- change software limit switch plus (CI: p2579, p2581).

## A07471 EPOS: Traversing block target position outside the modulo range

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the traversing block the target position lies outside the modulo range.
Alarm value (r2124, interpret decimal):
Number of the traversing block with illegal target position.
**Remedy:** - in the traversing block, correct the target position.
- change the modulo range (p2576).

## A07472 EPOS: Traversing block ABS_POS/ABS_NEG not possible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the traversing block the positioning mode ABS_POS or ABS_NEG were parameterized with the modulo correction not activated.
Alarm value (r2124, interpret decimal):
Number of the traversing block with the illegal positioning mode.
**Remedy:** Correct the traversing block.

## A07473 (F) EPOS: Beginning of traversing range reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When traversing, the axis has moved to the traversing range limit.
**Remedy:** Move away in the positive direction.
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07474 (F) EPOS: End of traversing range reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When traversing, the axis has moved to the traversing range limit.
**Remedy:** Move away in the negative direction.
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

### F07475 (A) EPOS: Target position < start of traversing range

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The target position for relative traversing lies outside the traversing range.
**Remedy:** Correct the target position.
Reaction upon A: NONE
Acknowl. upon A: NONE

### F07476 (A) EPOS: Target position > end of the traversing range

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The target position for relative traversing lies outside the traversing range.
**Remedy:** Correct the target position.
Reaction upon A: NONE
Acknowl. upon A: NONE

### A07477 (F) EPOS: Target position < software limit switch minus

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the actual traversing operation, the target position is less than the software limit switch minus.
**Remedy:** - correct the target position.
- change software limit switch minus (CI: p2578, p2580).
See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

### A07478 (F) EPOS: Target position > software limit switch plus

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the actual traversing operation, the target position is greater than the software limit switch plus.
**Remedy:** - correct the target position.
- change software limit switch plus (CI: p2579, p2581).
See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

### A07479 EPOS: Software limit switch minus reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The axis is at the position of the software limit switch minus. An active traversing block was interrupted.

**Remedy:** - correct the target position.
- change software limit switch minus (CI: p2578, p2580).
See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)

## A07480 EPOS: Software limit switch plus reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The axis is at the position of the software limit switch plus. An active traversing block was interrupted.
**Remedy:** - correct the target position.
- change software limit switch plus (CI: p2579, p2581).
See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)

## F07481 (A) EPOS: Axis position < software limit switch minus

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The actual position of the axis is less than the position of the software limit switch minus.
**Remedy:** - correct the target position.
- change software limit switch minus (CI: p2578, p2580).
See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07482 (A) EPOS: Axis position > software limit switch plus

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The actual position of the axis is greater than the position of the software limit switch plus.
**Remedy:** - correct the target position.
- change software limit switch plus (CI: p2579, p2581).
See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)
Reaction upon A: NONE
Acknowl. upon A: NONE

## A07483 EPOS: Travel to fixed stop clamping torque not reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The fixed stop in the traversing block was reached without the clamping torque/clamping force having been achieved.
**Remedy:** - Check the maximum torque-generating current (r1533).
- check the torque limits (p1520, p1521).
- check the power limits (p1530, p1531).
- check the BICO interconnections of the torque limits (p1522, p1523, p1528, p1529).

## F07484 EPOS: Fixed stop outside the monitoring window

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF3 (OFF1, OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** In the "fixed stop reached" state, the axis has moved outside the defined monitoring window (p2635).
**Remedy:** - check the monitoring window (p2635).
- check the mechanical system.

## F07485 (A) EPOS: Fixed stop not reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** In a traversing block with the task FIXED STOP, the end position was reached without detecting a fixed stop.
**Remedy:** - check the traversing block and locate the target position further into the workpiece.
- check the "fixed stop reached" control signal (p2637).
- if required, reduce the maximum following error window to detect the fixed stop (p2634).

Reaction upon A: NONE
Acknowl. upon A: NONE

## A07486 EPOS: Intermediate stop missing

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "no intermediate stop/intermediate stop" (BI: p2640) did not have a 1 signal.
**Remedy:** Connect a 1 signal to the binector input "no intermediate stop/intermediate stop" (BI: p2640) and re-start motion.
See also: p2640 (EPOS intermediate stop (0 signal))

## A07487 EPOS: Reject traversing task missing

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "do not reject traversing task/reject traversing task" (BI: p2641) does not have a 1 signal.
**Remedy:** Connect a 1 signal to the binector input "do not reject traversing task/reject traversing task" (BI: p2641) and restart motion.
See also: p2641 (EPOS reject traversing task (0 signal))

## F07488 EPOS: Relative positioning not possible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** In the mode "direct setpoint input/MDI", for continuous transfer (p2649 = 1) relative positioning was selected (BI: p2648 = 0 signal).
**Remedy:** Check the control.

## A07489 EPOS: Reference point correction outside the window

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For the function "flying referencing" the difference between the measured position at the measuring probe and the reference point coordinate lies outside the parameterized window.
**Remedy:** - check the mechanical system.
- check the parameterization of the window (p2602).

## F07490 EPOS: Enable signal withdrawn while traversing

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** - for a standard assignment, another fault may have occurred as a result of withdrawing the enable signals.
- the drive is in the "switching on inhibited" state (for a standard assignment).
**Remedy:** - set the enable signals or check the cause of the fault that first occurred and then result (for a standard assignment).
- check the assignment to enable the basic positioning function.

## F07491 (A) EPOS: STOP cam minus reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF3
**Acknowledge:** IMMEDIATELY
**Cause:** A 0 signal was detected at binector input BI: p2569, i.e. the STOP cam minus was reached.
For a positive traversing direction, the STOP cam minus was reached - i.e. the wiring of the STOP cam is incorrect.
See also: p2569 (EPOS STOP cam minus)
**Remedy:** - leave the STOP cam minus in the positive traversing direction and return the axis to the valid traversing range.
- check the wiring of the STOP cam.
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07492 (A) EPOS: STOP cam plus reached

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF3
**Acknowledge:** IMMEDIATELY
**Cause:** A 0 signal was detected at binector input BI: p2570, i.e. the STOP cam plus was reached.
For a negative traversing direction, the STOP cam plus was reached - i.e. the wiring of the STOP cam is incorrect.
See also: p2570 (EPOS STOP cam plus)
**Remedy:** - leave the STOP cam plus in the negative traversing direction and return the axis to the valid traversing range.
- check the wiring of the STOP cam.
Reaction upon A: NONE
Acknowl. upon A: NONE

## F07493 LR: Overflow of the value range for position actual value

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.
When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset.

Fault value (r0949, decimal interpretation):
1: The position actual value (r2521) has exceeded the value range.
2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.

**Remedy:** If required, reduce the traversing range or position resolution (p2506).
Increase the fine resolution of absolute position actual value (p0419).
Note for fault value = 3:
If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.
For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:
1. Motor encoder without position tracking
p2506 * p0433 * p2505 / (p0432 * p2504)
p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders
2. Motor encoder with position tracking for measuring gear:
p2506 * p0412 * p2505 / p2504
3. Motor encoder with position tracking for load gear
p2506 * p2721 * p0433 / p0432
4. Motor encoder with position tracking for load and measuring gear
p2506 * p2721
5. Direct encoder without position tracking
p2506 * p0433 / p0432
p2506 * p0433 * p0421 / p0432 for multiturn encoders
6. Direct encoder with position tracking for measuring gear
p2506 * p0412

## F07494 LR: Drive Data Set changeover in operation

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A Drive Data Set changeover (DDS) with a change of the mechanical relationships (p2503 ... 2506), direction of rotation (p1821) or the encoder assignment (p2502) was requested in operation.
Note:
DDS: Drive Data Set
**Remedy:** To changeover the drive data set, initially, exit the "operation" mode.

## A07495 (F) LR: Reference function interrupted

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An activated reference function (reference mark search or measuring probe evaluation) was interrupted.
- an encoder fault has occurred (Gn_ZSW.15 = 1).
- position actual value was set during an activated reference function.
- simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).
- activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).

**Remedy:** - check the causes and resolve.
- reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.

Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07496 EPOS: Enable not possible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** It is not possible to enable the basic positioner because at least one signal is missing.
Alarm value (r2124, interpret decimal):
1: EPOS enable missing (BI: p2656).
2: Position actual value, valid feedback signal missing (BI: p2658).
See also: p2656 (EPOS enable basic positioner), p2658 (EPOS pos. actual value valid, feedback signal)
**Remedy:** Check the appropriate binector inputs and signals.

## A07497 LR: Position setting value activated

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
**Remedy:** Not necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

## A07498 (F) LR: Measuring probe evaluation not possible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When evaluating the measuring probe, an error occurred.
Alarm value (r2124, interpret decimal):
6: The input terminal for the measuring probe is not set.
4098: Error when initializing the measuring probe.
4100: The measuring pulse frequency is too high.
> 50000: The measuring clock cycle is not a multiple integer of the position controller clock cycle.
**Remedy:** De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value > 50000:
Set the clock cycle ratio of the measuring clock cycle to the position controller clock cycle to an integer multiple.
To do this, the currently effective measuring clock cycle can be determined from the alarm value as follows:
Tmeas [125 µs] = alarm value - 50000
With PROFIBUS, the measuring clock cycle corresponds to the PROFIBUS clock cycle (r2064[1]).
Without PROFIBUS, the measuring clock cycle is an internal cycle time that cannot be influenced.
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

## F07499 (A) EPOS: Reversing cam approached with the incorrect traversing direction

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF3
**Acknowledge:** IMMEDIATELY
**Cause:** The reversing cam MINUS was approached in the positive traversing direction or the reversing cam PLUS was approached in the negative traversing direction.

See also: p2613 (EPOS search for reference reversing cam minus), p2614 (EPOS search for reference reversing cam plus)

**Remedy:** - check the wiring of the reversing cam (BI: p2613, BI: p2614).
- check the traversing direction to approach the reversing cam.

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07500 Drive: Power unit data set PDS not configured

**Message value:** Drive data set: %1

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** Only for controlled line supply infeed/regenerative feedback units:
The power unit data set was not configured - this means that a data set number was not entered into the drive data set.
Fault value (r0949, decimal interpretation):
Drive data set number of p0185.

**Remedy:** The index of the power unit data set associated with the drive data set should be entered into p0185.

## F07501 Drive: Motor Data Set MDS not configured

**Message value:** Drive data set: %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** Only for power units:
The motor data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, decimal interpretation):
The fault value includes the drive data set number of p0186.

**Remedy:** The index of the motor data set associated with the drive data set should be entered into p0186.
See also: p0186 (Motor Data Sets (MDS) number)

## F07502 Drive: Encoder Data Set EDS not configured

**Message value:** Drive data set: %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** Only for power units:
The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, decimal interpretation):
The fault value includes the drive data set number of p0187, p0188 and p0189.
The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).

**Remedy:** The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).

## F07503 EPOS: STOP cam approached with the incorrect traversing direction

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:**

**Remedy:**

## A07504 Drive: Motor data set is not assigned to a drive data set

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A motor data set is not assigned to a drive object.
All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0...n]).
There must be at least as many drive data sets as motor data sets.
Alarm value (r2124, interpret decimal):
Number of the motor data set that has not been assigned.
**Remedy:** In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0...n]).
- check whether all of the motor data sets are assigned to drive data sets.
- if required, delete superfluous motor data sets.
- if required, set up new drive data sets and assign to the corresponding motor data sets.
See also: p0186 (Motor Data Sets (MDS) number)

## A07505 EPOS: Travel to fixed stop not possible in the V/f control mode

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The traversing task "travel to fixed stop" is not possible in the V/f control mode.
Alarm value (r2124, interpret decimal):
Number of the traversing block with an illegal task parameter.
See also: p1300 (Open-loop/closed-loop control operating mode), p2621 (EPOS traversing block task)
**Remedy:** Change the EPOS traversing block task type or change the open-loop/closed-loop control mode.
See also: p1300 (Open-loop/closed-loop control operating mode), p2621 (EPOS traversing block task)

## F07509 Drive: Component number missing

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A Drive Data Set (DDS) is assigned to a Motor Data Set (MDS) or Encoder Data Set (EDS) that does not have a component number.
Alarm value (r2124, interpret decimal):
nnmmmxxyyy
nn: Number of the MDS/EDS.
mmm: Parameter number of the missing component number.
xx: Number of the DDS that is assigned to the MDS/EDS.
yyy: Parameter number that references the MDS/EDS.
Example:
p0186[7] = 5: DDS 7 is assigned MDS 5.
p0131[5] = 0: There is no component number set in MDS 5.
Alarm value = 0513107186
**Remedy:** In the drive data sets, no longer assign MDS/EDS using p0186, p0187, p0188, p0189 or set a valid component number.
See also: p0131 (Motor component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0186 (Motor Data Sets (MDS) number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

## F07511 Drive: Encoder used a multiple number of times

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated.

Fault value (r0949, decimal interpretation):
The two parameters in coded form, that refer to the same component number.
First parameter:
Index: First and second decimal place (99 for EDS, not assigned DDS)
Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS)
Drive number: Fourth and fifth decimal place
Second parameter:
Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS)
Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS)
Drive number: Ninth and tenth decimal place
See also: p0141 (Encoder interface (Sensor Module) component number)

**Remedy:** Correct the double use of a component number using the two parameters coded in the fault value.

## A07514 (N) Drive: Data structure does not correspond to the interface module

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The interface mode "SIMODRIVE 611 universal" was set (p2038 = 1) and the data structure does not correspond to this mode.
For the data structure, the following rule must be complied with.
Within the group of 8 drive data sets, the assignment to the motor data set must be set the same:
p0186[0] = p0186[1] = ... = p0186[7]
p0186[8] = p0186[9] = ... = p0186[15]
p0186[16] = p0186[17] = ... = p0186[23]
p0186[24] = p0186[25] = ... = p0186[31]
See also: p0180 (Number of Drive Data Sets (DDS)), p0186 (Motor Data Sets (MDS) number), p2038 (IF1 PROFIdrive STW/ZSW interface mode)

**Remedy:** - structure the data according to the rules of the "SIMODRIVE 611 universal" interface mode.
- check the interface mode (p2038).

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07515 Drive: Power unit and motor incorrectly connected

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology.
Alarm value (r2124, interpret decimal):
Number of the incorrectly parameterized drive data set.

**Remedy:** - assign the drive data set to a combination of motor and power unit permitted by the target topology.
- adapt the target topology.
See also: p0121 (Power unit component number), p0131 (Motor component number), p0186 (Motor Data Sets (MDS) number)

## F07516 Drive: Re-commission the data set

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned.
Fault value (r0949, decimal interpretation):
Drive data set to be re-commissioned.

**Remedy:** Commission the drive data set specified in the fault value (r0949).

## F07518 Drive: Motor data set changeover incorrectly parameterized

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The system has identified that two motor data sets were incorrectly parameterized.
Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor data sets are assigned different motors. p0827 is used to assign the motors and/contactors.
It is not possible to toggle between motor data sets.
Alarm value (r2124, interpret hexadecimal):
xxxxyyyy:
xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS
**Remedy:** Correct the parameterization of the motor data sets.

## A07519 Drive: Motor changeover incorrectly parameterized

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** With the setting p0833.0 = 1, a motor changeover via the application is selected. This is the reason that p0827 must have different values in the appropriate motor data set.
Alarm value (r2124, interpret hexadecimal):
xxxxyyyy:
xxxx: First MDS, yyyy: Second MDS
**Remedy:** - parameterize the appropriate motor data sets differently (p0827).
- select the setting p0833.0 = 0 (motor changeover via the drive).

## A07520 Drive: Motor cannot be changed over

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The motor cannot be changed over.
Alarm value (r2124, interpret decimal):
1:
The contactor for the motor that is presently active cannot be opened, because for a synchronous motor, the speed (r0063) is greater than the speed at the start of field weakening (p3048). As long as r0063 > p0348, the current in the motor does not decay in spite of the pulses being suppressed.
2:
The "contactor opened" feedback signal was not detected within 1 s.
3:
The "contactor closed" feedback signal was not detected within 1 s.
**Remedy:** Re alarm value = 1:
Set the speed lower than the speed at the start of field weakening (r0063 < p0348).
Re alarm value = 2, 3:
Check the feedback signals of the contactor involved.

## A07530 Drive: Drive Data Set DDS not present

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected drive data set is not available (p0837 > p0180). The drive data set was not changed over.
See also: p0180 (Number of Drive Data Sets (DDS)), p0820 (Drive Data Set selection DDS bit 0), r0837 (Drive Data Set DDS selected)
**Remedy:** - select the existing drive data set.
- set up additional drive data sets.

## A07531 Drive: Command Data Set CDS not present

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected command data set is not available (p0836 > p0170). The command data set was not changed over.
See also: p0810 (Command data set selection CDS bit 0), r0836 (Command Data Set CDS selected)
**Remedy:** - select the existing command data set.
- set up additional command data sets.

## A07541 Drive: Data set changeover not possible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out.
For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348).
See also: r0063 (Actual speed smoothed), p0348 (Speed at the start of field weakening Vdc = 600 V)
**Remedy:** Reduce the speed below the speed at the start of field weakening.

## F07545 Drive: Pulse encoder interface parameterized incorrectly

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The pulse encoder interface has been parameterized incorrectly.
Fault value (r0949, decimal interpretation):
1:
The encoder type setting for encoder interface 1 or 2 is not the same for all data sets.
Accordingly, the following parameter assignment, for example, would generate a fault:
p0187[0] = 0: Encoder data set 0 is assigned to drive data set 0.
p0187[1] = 1: Encoder data set 1 is assigned to drive data set 1.
p0400[0] = 9000: A value of 9000 (pulse encoder) is set in encoder data set 0.
p0400[1] = 2001: A value of 2001 (sin/cos encoder) is set in encoder data set 1.
2:
The setting in p0400 is not compatible with the telegram selection made in p0922 and p2079.
3:
A second encoder interface can only be used for pulse encoders (p0184 > 0).
**Remedy:** For fault value = 1:
- make the encoder type setting for encoder interface 1 or 2 the same for all data sets.
For fault value = 2:
- if applicable, do not set parameter p0400 to 9000 or 9001
- if you are using the pulse encoder interface (p0400 = 9000, 9001), set up a free telegram configuration first (p0922 = 999 and p2079 = 999)
For fault value = 3:
- Check the setting for the second encoder interface (p0184).

## A07550 (F, N) Drive: Not possible to reset encoder parameters

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ.
Alarm value (r2124, interpret decimal):
Component number of the encoder involved.

**Remedy:** - repeat the operation.
- check the DRIVE-CLiQ connection.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07551 Drive encoder: No commutation angle information

**Message value:** Fault cause: %1, drive data set: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The commutation angle information is missing. This means that synchronous motors cannot be controlled (closed-loop control)
Fault value (r0949, decimal interpretation):
yyyyxxxx dec: yyyy = fault cause, xxxx = drive data set
yyyy = 1 dec:
The motor encoder used does not supply an absolute commutation angle.
yyyy = 2 dec:
The selected ratio of the measuring gear does not match the motor pole pair number.

**Remedy:** Re fault cause = 1:
- check the encoder parameterization (p0404).
- use an encoder with track C/D, EnDat interface of Hall sensors.
- use an encoder with sinusoidal A/B track for which the motor pole pair number (r0313) is an integer multiple of the encoder pulse number (p0408).
- activate the pole position identification routine (p1982 = 1).
Re fault cause = 2:
- the quotient of the pole pair number divided by the ratio of the measuring gear must be an integer number: (p0314 * p0433) / p0432.
Note:
For operation with track C/D, this quotient must be less than 8.
See also: p0404 (Encoder configuration effective), p0432 (Gearbox factor, encoder revolutions), p0433 (Gearbox factor, motor/load revolutions)

## F07552 (A) Drive encoder: Encoder configuration not supported

**Message value:** Fault cause: %1, component number: %2, encoder data set: %3

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456.
Fault value (r0949, decimal interpretation):
ccccbbaa hex: cccc = fault cause, bb = component number, aa = encoder data set
cccc = 1: encoder sin/cos with absolute track (is supported by SME25).
cccc = 3: Squarewave encoder (this is supported by SMC30).
cccc = 4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).
cccc = 10: DRIVE-CLiQ encoder (is supported by DQI).
cccc = 12: sin/cos encoder with reference mark (this is supported by SME20).
cccc = 15: Commutation with zero mark for separately-excited synchronous motors with VECTORMV.
cccc = 23: Resolver (this is supported by SMC10, SMI10).
cccc = 65535: Other function (compare r0456 and p0404).
See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)

**Remedy:** - check the encoder parameterization (p0400, p0404).
- use the matching encoder evaluation (r0456).

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07553 (A) Drive encoder: Sensor Module configuration not supported

**Message value:** Encoder data set: %1, first incorrect bit: %2, incorrect parameter: %3

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The Sensor Module does not support the requested configuration.
For incorrect p0430 (cc = 0), the following applies:
- In p0430 (requested functions), at least 1 bit was set that is not set in r0458 (supported functions) (exception: Bit 19, 28, 29, 30, 31).
- p1982 > 0 (pole position identification requested), but r0458.16 = 0 (pole position identification not supported).
For incorrect p0437 (cc = 1), the following applies:
- In p0437 (requested functions), at least 1 bit was set that is not set in r0459 (supported functions).
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex
aa: encoder data set number
bb: first incorrect bit
cc: incorrect parameter
cc = 0: incorrect parameter is p0430
cc = 1: incorrect parameter is p0437
cc = 2: incorrect parameter is r0459
dd: reserved (always 0)

**Remedy:** - check the encoder parameterization (p0430, p0437).
- check the pole position identification routine (p1982).
- use the matching encoder evaluation (r0458, r0459).
See also: p0430 (Sensor Module configuration), p0437 (Sensor Module configuration extended), r0458 (Sensor Module properties), r0459 (Sensor Module properties extended), p1982 (PolID selection)

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07555 (A) Drive encoder: Configuration position tracking

**Message value:** Component number: %1, encoder data set: %2, drive data set: %3, fault cause: %4

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** For position tracking, the configuration is not supported.
Position tracking can only be activated for absolute encoders.
For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears.
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex
aa = encoder data set
bb = component number
cc = drive data set
dd = fault cause
dd = 00 hex = 0 dec
An absolute encoder is not being used.
dd = 01 hex = 1 dec
Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
dd = 02 hex = 2 dec
For a linear axis, the position tracking was activated for the load and measuring gear.
dd = 03 hex = 3 dec
Position tracking cannot be activated because position tracking with another gear ratio, axis type or tolerance window has already been detected for this encoder data set.
dd = 04 hex = 4 dec
A linear encoder is being used.
See also: p0404 (Encoder configuration effective)

**Remedy:** - use an absolute encoder.
- if necessary, de-select the position tracking (p0411 for the measuring gear, p2720 for the load gear).
- use a Control Unit with sufficient NVRAM.
- Only activate position tracking of the load gear in the same encoder data set if the gear ratio (p2504, p2505), axis type (p2720.1) and tolerance window (p2722) are also the same.

Reaction upon A: NONE

Acknowl. upon A: NONE

## A07557 (F) Encoder 1: Reference point coordinate not in the permissible range

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position. The maximum permissible value is displayed in the supplementary information.

**Remedy:** Set the reference point coordinate less than the value from the supplementary information.
See also: p2598 (EPOS reference point coordinate, signal source)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

## A07558 (F) Encoder 2: Reference point coordinate not in the permissible range

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as actual axis position. The maximum permissible value is displayed in the supplementary information.

**Remedy:** Set the reference point coordinate less than the value from the supplementary information.
See also: p2598 (EPOS reference point coordinate, signal source)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

## F07560 Drive encoder: Number of pulses is not to the power of two

**Message value:** Encoder data set: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** For rotary absolute encoders, the pulse number in p0408 must be to the power of two.
Fault value (r0949, decimal interpretation):
The fault value includes the encoder data set number involved.

**Remedy:** - check the parameterization (p0408, p0404.1, r0458.5).
- upgrade the Sensor Module firmware if necessary

## F07561 Drive encoder: Number of multiturn pulses is not to the power of two

**Message value:** Encoder data set: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The multiturn resolution in p0421 must be to the power of two.
Fault value (r0949, decimal interpretation):
The fault value includes the encoder data set number involved.

**Remedy:** - check the parameterization (p0421, p0404.1, r0458.5).
- upgrade the Sensor Module firmware if necessary

## F07562 (A) Drive, encoder: Position tracking, incremental encoder not possible

**Message value:** Fault cause: %1, component number: %2, encoder data set: %3

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The requested position tracking for incremental encoders is not supported.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex
aa = encoder data set
bb = component number
cccc = fault cause
cccc = 00 hex = 0 dec
The encoder type does not support the "Position tracking incremental encoder" function.
cccc = 01 hex = 1 dec
Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
cccc = 04 hex = 4 dec
A linear encoder is used that does not support the "position tracking" function.
See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)

**Remedy:** - check the encoder parameterization (p0400, p0404).
- use a Control Unit with sufficient NVRAM.
- if required, de-select position tracking for the incremental encoder (p0411.3 = 0).

Reaction upon A: NONE

Acknowl. upon A: NONE

## A07565 (F, N) Drive: Encoder error in PROFIdrive encoder interface 1

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G1_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[0] is not equal to zero.

**Remedy:** Acknowledge the encoder error using the encoder control word (G1_STW.15 = 1).

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A07566 (F, N) Drive: Encoder error in PROFIdrive encoder interface 2

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G2_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[1] is not equal to zero.

**Remedy:** Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1).

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A07569 (F) Encoder could not be identified

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** During encoder identification (waiting) with p0400 = 10100, the encoder could not be identified.
Either the wrong encoder has been installed or no encoder has been installed, the wrong encoder cable has been connected or no encoder cable has been connected to the Sensor Module, or the DRIVE-CLiQ component has not been connected to DRIVE-CLiQ.
Note:
Encoder identification must be supported by the encoder and is possible in the following cases:
- Encoder with EnDat interface
- Motor with DRIVE-CLiQ

**Remedy:** - check and, if necessary, connect the encoder and/or encoder cable.
- check and, if necessary, establish the DRIVE-CLiQ connection.
- in the case of encoders that cannot be identified (e.g. encoders without EnDat interface), the correct encoder type must be entered in p0400.

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## F07575 Drive: Motor encoder not ready

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (ENCODER)
**Acknowledge:** IMMEDIATELY
**Cause:** The motor encoder signals that it is not ready.
- initialization of encoder 1 (motor encoder) was unsuccessful.
- the function "parking encoder" is active (encoder control word G1_STW.14 = 1).
- the encoder interface (Sensor Module) is de-activated (p0145).
- the Sensor Module is defective.

**Remedy:** Evaluate other queued faults via encoder 1.

## A07576 Drive: Encoderless operation due to a fault active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Encoderless operation is active due to a fault (r1407.13 = 1).
Note:
The behavior for faults has been set to ENCODER fault response in p0491.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - remove the cause of a possible encoder fault.
- carry out a POWER ON (power off/on) for all components.

## A07577 (F) Encoder 1: Measuring probe evaluation not possible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When evaluating the measuring probe, an error occurred.
Alarm value (r2124, interpret decimal):
6: The input terminal for the measuring probe is not set.
4098: Error when initializing the measuring probe.
4100: The measuring pulse frequency is too high.
4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.

**Remedy:** De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value = 4200:
Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.

Reaction upon F: OFF1

Acknowl. upon F: IMMEDIATELY

## A07578 (F) Encoder 2: Measuring probe evaluation not possible

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** When evaluating the measuring probe, an error occurred.
Alarm value (r2124, interpret decimal):
6: The input terminal for the measuring probe is not set.
4098: Error when initializing the measuring probe.
4100: The measuring pulse frequency is too high.
4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.

**Remedy:** De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
Re alarm value = 6:
Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
Re alarm value = 4098:
Check the Control Unit hardware.
Re alarm value = 4100:
Reduce the frequency of the measuring pulses at the measuring probe.
Re alarm value = 4200:
Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.

Reaction upon F: OFF1

Acknowl. upon F: IMMEDIATELY

## A07580 (F, N) Drive: No Sensor Module with matching component number

**Message value:** Encoder data set: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** A Sensor Module with the component number specified in p0141 was not found.
Alarm value (r2124, interpret decimal):
Encoder data set involved (index of p0141).

**Remedy:** Correct parameter p0141.

Reaction upon F: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

## A07581 (F) Encoder 1: Position actual value preprocessing error

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An error has occurred during the position actual value preprocessing.

**Remedy:** Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07582 (F) Encoder 2: Position actual value preprocessing error

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An error has occurred during the position actual value preprocessing.
**Remedy:** Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07584 Encoder 1: Position setting value activated

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
**Remedy:** Not necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

## A07585 Encoder 2: Position setting value activated

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The position actual value is set to the value received via CI: p2515while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
**Remedy:** Not necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

## A07587 Encoder 1: Position actual value preprocessing does not have a valid encoder

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The following problem has occurred during the position actual value preprocessing.
- an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
**Remedy:** Check the drive data sets, encoder data sets.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0400 (Encoder type selection), p2502 (LR encoder assignment)

## A07588 Encoder 2: Position actual value preprocessing does not have a valid encoder

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The following problem has occurred during the position actual value preprocessing.
- an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).

**Remedy:** Check the drive data sets, encoder data sets.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0400 (Encoder type selection), p2502 (LR encoder assignment)

## A07590 (F) Encoder 1: Drive Data Set changeover in operation

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
**Remedy:** To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07591 (F) Encoder 2: Drive Data Set changeover in operation

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
**Remedy:** To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07593 (F, N) Encoder 1: Value range for position actual value exceeded

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.
When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset.
Fault value (r0949, decimal interpretation):
1: The position actual value (r2521) has exceeded the value range.
2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.
**Remedy:** If required, reduce the traversing range or position resolution.
Re alarm value = 3:
Reducing the position resolution and conversion factor:
- reduce the length unit (LU) per load revolution for rotary encoders (p2506).
- increase the fine resolution of absolute position actual values (p0419).
Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A07594 (F, N) Encoder 2: Value range for position actual value exceeded

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.
When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset.

Fault value (r0949, decimal interpretation):
1: The position actual value (r2521) has exceeded the value range.
2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.

**Remedy:** If required, reduce the traversing range or position resolution.
Re alarm value = 3:
Reducing the position resolution and conversion factor:
- reduce the length unit (LU) per load revolution for rotary encoders (p2506).
- increase the fine resolution of absolute position actual values (p0419).

Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A07596 (F) Encoder 1: Reference function interrupted

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An activated reference function (reference mark search or measuring probe evaluation) was interrupted.
- an encoder fault has occurred (Gn_ZSW.15 = 1).
- position actual value was set during an activated reference function.
- simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).
- activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).

**Remedy:** - check the causes and resolve.
- reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.

Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## A07597 (F) Encoder 2: Reference function interrupted

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An activated reference function (reference mark search or measuring probe evaluation) was interrupted.
- an encoder fault has occurred (Gn_ZSW.15 = 1).
- position actual value was set during an activated reference function.
- simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).
- activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).

**Remedy:** - check the causes and resolve.
- reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.

Reaction upon F: OFF1 (OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## F07599 (A) Encoder 1: Adjustment not possible

**Message value:** Drive data set: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.

**Remedy:** If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.
For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:
1. Motor encoder without position tracking:
p2506 * p0433 * p2505 / (p0432 * p2504)
p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders
2. Motor encoder with position tracking for measuring gear:
p2506 * p0412 * p2505 / p2504
3. Motor encoder with position tracking for load gear:
p2506 * p2721 * p0433 / p0432
4. Motor encoder with position tracking for load and measuring gear:
p2506 * p2721
5. Direct encoder without position tracking:
p2506 * p0433 / p0432
p2506 * p0433 * p0421 / p0432 for multiturn encoders
6. Direct encoder with position tracking for measuring gear:
p2506 * p0412

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07600 (A) Encoder 2: Adjustment not possible

**Message value:** Drive data set: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.

**Remedy:** If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.
For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:
1. Motor encoder without position tracking:
p2506 * p0433 * p2505 / (p0432 * p2504)
p2506 * p0433 * p2505 * p0421 / (p0432 * p2504) for multiturn encoders
2. Motor encoder with position tracking for measuring gear:
p2506 * p0412 * p2505 / p2504
3. Motor encoder with position tracking for load gear:
p2506 * p2721 * p0433 / p0432
4. Motor encoder with position tracking for load and measuring gear:
p2506 * p2721
5. Direct encoder without position tracking:
p2506 * p0433 / p0432
p2506 * p0433 * p0421 / p0432 for multiturn encoders
6. Direct encoder with position tracking for measuring gear:
p2506 * p0412

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07800 Drive: No power unit present

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The power unit parameters cannot be read or no parameters are stored in the power unit.
Connection between Control Unit and power unit was interrupted or is defective.
Note:
This fault also occurs if an incorrect topology was selected in the commissioning software and this parameterization is then downloaded to the Control Unit.
See also: r0200 (Power unit code number actual)

**Remedy:** - connect the data line to power unit and restart the CU (POWER ON).
- check or replace the CU.
- Check the cable between the CU and power unit.
- after correcting the topology, the parameters must be again downloaded using the commissioning software.

## F07801 Drive: Motor overcurrent

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The permissible motor limit current was exceeded.
- effective current limit set too low.
- current controller not correctly set.
- motor was braked with an excessively high stall torque correction factor.
- U/f operation: Up ramp was set too short or the load is too high.
- U/f operation: Short-circuit in the motor cable or ground fault.
- U/f operation: Motor current does not match the current of Motor Module.
Note:
Synchronous motor: Limit current= 1.3 x p0323
Induction motor: Limit current= 1.3 x r0209

**Remedy:** - check the current limits (p0323, p0640).
- check the current controller (p1715, p1717).
- reduce the stall torque correction factor (p0326).
- increase the up ramp (p1318) or reduce the load.
- check the motor and motor cables for short-circuit and ground fault.
- check the Motor Module and motor combination.

## F07802 Drive: Infeed or power unit not ready

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** After an internal power-on command, the infeed or drive does not signal ready.
- monitoring time is too short.
- DC link voltage is not present.
- associated infeed or drive of the signaling component is defective.
- supply voltage incorrectly set.

**Remedy:** - increase the monitoring time (p0857).
- ensure that there is a DC link voltage. Check the DC link busbar. Enable the infeed.
- replace the associated infeed or drive of the signaling component.
- check the line supply voltage setting (p0210).
See also: p0857 (Power unit monitoring time)

## A07805 (N) Drive: Power unit overload I2t

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Alarm threshold for I2t overload (p0294) of the power unit exceeded.
The response parameterized in p0290 becomes active.
See also: p0290 (Power unit overload response)

**Remedy:** - reduce the continuous load.
- adapt the load duty cycle.
- check the assignment of the rated currents of the motor and Motor Module.

Reaction upon N: NONE
Acknowl. upon N: NONE

## F07810 Drive: Power unit EEPROM without rated data

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** No rated data are stored in the power unit EEPROM.
See also: r0206 (Rated power unit power), r0207 (Rated power unit current), r0208 (Rated power unit line supply voltage), r0209 (Power unit, maximum current)

**Remedy:** Replace the power unit or inform Siemens Customer Service.

## F07815 Drive: Power unit has been changed

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The code number of the actual power unit does not match the saved number. This only occurs if the comparator in p9906 or p9908 is not at 2 (low) or 3 (minimum).
Fault value (r0949, decimal interpretation):
Number of the incorrect parameter.
See also: r0200 (Power unit code number actual), p0201 (Power unit code number)

**Remedy:** Connect the original power unit and power up the Control Unit again (POWER ON) or set p0201 to r0200 and exit commissioning with p0010 = 0.
For infeeds, the following applies:
Line reactors or line filters must be used that are specified for the new power unit. A line supply and DC link identification routine (p3410 = 5) must then be carried out. It is not possible to change the power unit without re-commissioning the system if the type of infeed (A_Infeed, B_Infeed, S_Infeed), the type of construction/design (booksize, chassis) or the voltage class differ between the old and new power units.
For inverters, the following applies:
If the new power unit is accepted, then if required, the current limit (p0640) can be reduced by a lower maximum current of the power unit (r0209) (torque limits stay the same).
If not only the power unit is changed, but also the motor, then the motor must be re-commissioned (e.g. using p0010 = 1). This is also necessary if motor data is still to be downloaded via DRIVE-CLiQ.
If the comparison stage in p9906 is set to 2, 3, then commissioning can be exited (p0010 = 0) and the fault acknowledged.
See also: r0200 (Power unit code number actual)

## A07820 Drive: Temperature sensor not connected

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The temperature sensor for monitoring the motor temperature, specified in p0600, is not available.
Alarm value (r2124, interpret decimal):
1: p0601 = 10 (SME), but in p0600 - not evaluated via encoder is selected.
2: p0600 = 10 (BICO), but the signal source (p0603) is not interconnected.
3: p0601 = 11 (BICO), but in p0600 - not evaluated via BICO interconnection is selected (20 or 21).
4: p0601 = 11 (BICO) and p4610-p4613 > 0, but the associated signal source (p0608, p0609) is not interconnected.
5: Component with sensor evaluation not present or has been removed in the meantime.
6: Evaluation via Motor Module not possible (r0192.21).

**Remedy:** Re alarm value = 1:
- In p0600 set an encoder with temperature sensor.
Re alarm value = 2:
- interconnect p0603 with the temperature signal.
Re alarm value = 3, 4:
- set the available temperature sensor (p0600, p0601).
- set p4610 ... p4613 = 0 (no sensor), or interconnect p0608 or p0609 with an external temperature signal.
Re alarm value = 5:
- connect the component with the temperature sensor. Check the DRIVE-CLiQ connection.

Re alarm value = 6:
- update the Motor Module firmware. Connect temperature sensor via encoder.
See also: p0600 (Motor temperature sensor for monitoring), p0601 (Motor temperature sensor type)

### A07850 (F) External alarm 1

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The BICO signal for "external alarm 1" was triggered.
The condition for this external alarm is fulfilled.
See also: p2112 (External alarm 1)
**Remedy:** Eliminate the causes of this alarm.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

### A07851 (F) External alarm 2

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The BICO signal for "external alarm 2" was triggered.
The condition for this external alarm is fulfilled.
See also: p2116 (External alarm 2)
**Remedy:** Eliminate the causes of this alarm.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

### A07852 (F) External alarm 3

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The BICO signal for "external alarm 3" was triggered.
The condition for this external alarm is fulfilled.
See also: p2117 (External alarm 3)
**Remedy:** Eliminate the causes of this alarm.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

### F07860 (A) External fault 1

**Message value:** -
**Drive object:** All objects
**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The BICO signal "external fault 1" was triggered.
See also: p2106 (External fault 1)
**Remedy:** Eliminate the causes of this fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

### F07861 (A) External fault 2

**Message value:** -
**Drive object:** All objects
**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The BICO signal "external fault 2" was triggered.
See also: p2107 (External fault 2)
**Remedy:** Eliminate the causes of this fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

### F07862 (A) External fault 3

**Message value:** -
**Drive object:** All objects
**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The BICO signal "external fault 3" was triggered.
See also: p2108 (External fault 3)
**Remedy:** Eliminate the causes of this fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

### F07890 Internal voltage protection / internal armature short-circuit with STO active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The internal armature short-circuit (p1231 = 4) is not possible as Safe Torque Off (STO) is enabled. The pulses cannot be enabled.
**Remedy:** Switch out the internal armature short-circuit (p1231=0) or de-activate Safe Torque Off (p9501 = p9561 = 0).
Note:
STO: Safe Torque Off / SH: Safe standstill

### F07900 (N, A) Drive: Motor locked/speed controller at its limit

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** Motor has been operating at the torque limit longer than the time specified in p2177 and below the speed threshold in p2175.
This signal can also be initiated if the speed actual value is oscillating and the speed controller output repeatedly goes to its limit.
See also: p2175 (Motor locked speed threshold), p2177 (Motor locked delay time)
**Remedy:** - check that the motor can rotate freely.
- check the torque limit: For a positive direction of rotation r1538, for a negative direction of rotation r1539.
- check the parameter, message "Motor locked" and if required, correct (p2175, p2177).
- check the inversion of the actual value (p0410).
- check the motor encoder connection.
- check the encoder pulse number (p0408).
- for SERVO with encoderless operation and motors with low power ratings (< 300 W), increase the pulse frequency (p1800).
- after de-selecting the "Basic positioner" (EPOS) function mode, check the motoring (p1528) and regenerative (p1529) torque limit and modify again.

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

## F07901 Drive: Motor overspeed

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (IASC/DCBRAKE)
**Acknowledge:** IMMEDIATELY
**Cause:** The maximum permissible speed was either positively or negatively exceeded.
The maximum permissible positive speed is formed as follows: Minimum (p1082, CI: p1085) + p2162
The maximum permissible negative speed is formed as follows: Maximum (-p1082, CI: 1088) - p2162
**Remedy:** The following applies for a positive direction of rotation:
- check r1084 and if required, correct p1082, CI:p1085 and p2162.
The following applies for a negative direction of rotation:
- check r1087 and if required, correct p1082, CI:p1088 and p2162.

## F07902 (N, A) Drive: Motor stalled

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** For a vector drive the system has identified that the motor has stall for a time longer than is set in p2178.
Fault value (r0949, decimal interpretation):
1: Stall detection using r1408.11 (p1744 or p0492).
2: Stall detection using r1408.12 (p1745).
3: Stall detection using r0056.11 (only for separately excited synchronous motors).
**Remedy:** For closed-loop speed and torque control with speed encoder, the following applies:
- check the speed signal (interrupted cable, polarity, pulse number, broken encoder shaft).
- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the same motor that is controlled for the data set changeover.
If there is no fault, then the fault tolerance (p1744 and p0492) can be increased.
For closed-loop speed and torque control without speed encoder, the following applies:
- check whether the drive in the open-loop controlled mode (r1750.0) stalls under load. If yes, then increase the current setpoint using p1610.
- check whether the drive stalls due to the load if the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.
- if the motor excitation (magnetizing) time (r0346) was significantly reduced, then it should be increased again.
- check the current limits (p0640, r0067). If the current limits are too low, then the drive cannot be magnetized.
- check the current controller (p1715, p1717) and the speed adaptation controller (p1764, p1767). If the dynamic response was significantly reduced, then this should be increased again.
- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the motor that is controlled for the data set changeover.
If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.
For separately-excited synchronous motors (closed-loop control with speed encoder), the following applies:
- check the speed signal (interrupted cable, polarity, pulse number).
- ensure the correct motor parameterization (rating plate and equivalent circuit diagram parameters).
- check the excitation equipment and the interface to the closed-loop control.
- encoder the highest possible dynamic response of the closed-loop excitation current control.
- check the speed control for any tendency to oscillate and if resonance effects occur, use a bandstop filter.
- do not exceed the maximum speed (p2162).
If there is no fault, then the delay time can be increased (p2178).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A07903 Drive: Motor speed deviation

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The absolute value of the speed difference from the two setpoints (p2151, p2154) and the speed actual value (r2169) exceeds the tolerance threshold (p2163) longer than tolerated (p2164, p2166).
The alarm is only enabled for p2149.0 = 1.
Possible causes could be:
- the load torque is greater than the torque setpoint.
- when accelerating, the torque/current/power limit is reached. If the limits are not sufficient, then it is possible that the drive has been dimensioned too small.
- for closed-loop torque control, the speed setpoint does not track the speed actual value.
- for active Vdc controller.
For U/f control, the overload condition is detected as the Imax controller is active.
See also: p2149 (Monitoring configuration)

**Remedy:** - increase p2163 and/or p2166.
- increase the torque/current/power limits.
- for closed-loop torque control: The speed setpoint should track the speed actual value.
- de-activate alarm with p2149.0 = 0.

## A07904 (N) External armature short-circuit: Contactor feedback signal "Closed" missing

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** When closing, the contactor feedback signal (p1235) did not issue the signal "Closed" (r1239.1 = 1) within the monitoring time (p1236).

**Remedy:** - check that the contactor feedback signal is correctly connected (p1235).
- check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open").
- increase the monitoring time (p1236).
- if required, set the external armature short-circuit without contactor feedback signal (p1231 = 2).

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07905 (N, A) External armature short-circuit: Contactor feedback signal "Open" missing

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** When opening, the contactor feedback signal (p1235) did not issue the signal "Open" (r1239.1 = 0) within the monitoring time (p1236).

**Remedy:** - check that the contactor feedback signal is correctly connected (p1235).
- check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open").
- increase the monitoring time (p1236).
- if required, set the external armature short-circuit without contactor feedback signal (p1231 = 2).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07906 Armature short-circuit / internal voltage protection: Parameterization error

**Message value:** Fault cause: %1, motor data set: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The armature short-circuit is incorrectly parameterized.
Fault value (r0949, decimal interpretation):
zzzzyyxx: zzzz = fault cause, xx = motor data set
zzzz = 1: A permanent-magnet synchronous motor has not been selected.
zzzz = 2: An induction motor has not been selected.
zzzz = 101: External armature short-circuit: Output (r1239.0) not connected up.
zzzz = 102: External armature short-circuit with contactor feedback signal: No feedback signal connected (BI:p1235).
zzzz = 103: External armature short-circuit without contactor feedback signal: Delay time when opening (p1237) is 0.
zzzz = 201: Internal voltage protection: The maximum output current of the Motor Module (r0209) is less than 1.8 x motor short-circuit current (r0331).
zzzz = 202: Internal voltage protection: A Motor Module in booksize or chassis format is not being used.
zzzz = 203: Internal voltage protection: The motor short-circuit current (p0320) is greater than the maximum motor current (p0323).
zzzz = 204: Internal voltage protection: The activation (p1231 = 4) is not given for all motor data sets with synchronous motors (p0300 = 2xx, 4xx).

**Remedy:** For fault value = 1:
- an armature short-circuit / voltage protection is only permissible for permanent-magnetic synchronous motors. The highest position of the motor type in p0300 must either be 2 or 4.
For fault value = 101:
- the contactor for the external armature short-circuit configuration should be controlled using output signal r1239.0. The signal can, e.g. be connected to an output terminal via binector input p0738. Before this fault can be acknowledged, p1231 must be set again.
For fault value = 102:
- if the external armature short-circuit with contactor feedback signal (p1231 = 1) is selected, this feedback signal must be connected to an input terminal (e.g. r722.x) and then connected to BI: p1235.
- alternatively, the external armature short-circuit without contactor feedback signal (p1231 = 2) can be selected.
For fault value = 103:
- if the external armature short-circuit without contactor feedback signal (p1231 = 2) is selected, then a delay time must be parameterized in p1237. This time must always be greater than the actual contactor opening time, as otherwise the Motor Module would be short-circuited!
For fault value = 201:
- a Motor Module with a higher maximum current or a motor with a lower short-circuit current must be used. The maximum Motor Module current must be higher than 1.8 x short-circuit current of the motor.
For fault value = 202:
- for internal voltage protection, use a Motor Module in booksize or chassis format.
For fault value = 203:
- for internal voltage protection, only use short-circuit proof motors.
For fault value = 204:
- The internal voltage protection must either be activated for all motor data sets with synchronous motors (p0300 = 2xx, 4xx) (p1231 = 3) or it must be de-activated for all motor data sets (p1231 not equal to 3). This therefore ensures that the protection cannot be accidentally withdrawn as a result of a data set changeover. The fault can only be acknowledged if this condition is fulfilled.

## F07907 Internal armature short-circuit: Motor terminals are not at zero potential after pulse suppression

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The function "Internal voltage protection" (p1231 = 3) was activated.
The following must be observed:
- when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)!
- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).
- the Motor Module must be able to continually conduct 180% short-circuit current (r0331) of the motor (r0289).

- the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.
- if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.
- if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.
- if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).

**Remedy:** Not necessary.
This a note for the user.

## A07908 Internal armature short-circuit active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal armature short-circuit is selected (p1231 = 4):
**Remedy:** For synchronous motors, the armature short-circuit braking is activated with binector input p1230 = 1 signal.
See also: p1230 (Armature short-circuit / DC braking activation), p1231 (Armature short-circuit / DC braking configuration)

## F07909 Internal voltage protection: De-activation only effective after POWER ON

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** POWER ON
**Cause:** The de-activation of the internal voltage protection (p1231 not equal to 3) only becomes effective after POWER ON. The status signal r1239.6 = 1 indicates that the internal voltage protection is ready.
**Remedy:** Not necessary.
This a note for the user.

## A07910 (N) Drive: Motor overtemperature

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** KTY:
The motor temperature has exceeded the fault threshold (p0604 or p0616).
PTC:
The response threshold of 1650 Ohm was exceeded.
Alarm value (r2124, interpret decimal):
this is the number of the temperature channel leading to the message.
See also: p0604 (Motor temperature alarm threshold)
**Remedy:** - check the motor load.
- check the motor ambient temperature and cooling.
- check PTC or bimetallic NC contact.

Reaction upon N: NONE
Acknowl. upon N: NONE

## F07913 Excitation current outside the tolerance range

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The difference between the excitation current actual value and setpoint has exceeded the tolerance:
abs(r1641 - r1626) > p3201 + p3202
The cause of this fault is again reset for abs(r1641 - r1626) < p3201.
**Remedy:** - check the parameterization (p1640, p3201, p3202).
- check the interfaces to the excitation equipment (r1626, p1640).
- check the excitation equipment.

## F07914 Flux out of tolerance

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The difference between the flux actual value and setpoint has exceeded the tolerance:
abs(r0084 - r1598) > p3204 + p3205
The cause of this fault is again reset for abs(r0084 - r1598) < p3204.
The fault is only issued after the delay time in p3206 has expired.
**Remedy:** - check the parameterization (p3204, p3205).
- check the interfaces to the excitation equipment (r1626, p1640).
- check the excitation equipment.
- check the flux control (p1590, p1592, p1597).
- check the control for oscillation and take the appropriate counter measures (e.g. optimize the speed control loop, parameterize a bandstop filter).

## A07918 (N) Three-phase setpoint generator operation selected/active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Only for separately excited synchronous motors (p0300 = 5):
The actual open-loop/closed-loop control mode is I/f control (open-loop) with a fixed current (p1300 = 18).
The speed is entered via the setpoint channel and the current setpoint is given by the minimum current (p1620).
It must be ensured that in this mode, the control dynamic performance is very limited. This is the reason that longer ramp-up times should be set for the setpoint speed than for normal operation.
**Remedy:** Select another open-loop/closed-loop control mode
See also: p1300 (Open-loop/closed-loop control operating mode)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A07920 Drive: Torque/speed too low

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The torque deviates from the torque/speed envelope characteristic (too low).
See also: p2181 (Load monitoring response)
**Remedy:** - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

## A07921 Drive: Torque/speed too high

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The torque deviates from the torque/speed envelope characteristic (too high).
**Remedy:** - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

## A07922 Drive: Torque/speed out of tolerance

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The torque deviates from the torque/speed envelope characteristic.
**Remedy:** - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

## F07923 Drive: Torque/speed too low

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The torque deviates from the torque/speed envelope characteristic (too low).
**Remedy:** - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

## F07924 Drive: Torque/speed too high

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The torque deviates from the torque/speed envelope characteristic (too high).
**Remedy:** - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

## F07925 Drive: Torque/speed out of tolerance

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The torque deviates from the torque/speed envelope characteristic.
**Remedy:** - check the connection between the motor and load.
- adapt the parameterization corresponding to the load.

## A07926 Drive: Envelope curve, parameter invalid

**Message value:** Parameter: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Invalid parameter values were entered for the envelope characteristic of the load monitoring.
The following rules apply for the speed thresholds:
p2182 < p2183 < p2184
The following rules apply for the torque thresholds:
p2185 > p2186

p2187 > p2188
p2189 > p2190
Alarm value (r2124, interpret decimal):
Number of the parameter with the invalid value.

**Remedy:** Set the parameters for the load monitoring according to the applicable rules or de-activate load monitoring (p2181 = 0, p2193 = 0).

## A07927 DC braking active

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The motor is braked with DC current. DC braking is active.
1)
A message with response DCBRK is active. The motor is braked with the braking current set in p1232 for the duration set in in p1233. If the standstill threshold p1226 is undershot, then braking is prematurely canceled.
2)
DC braking has been activated at binector input p1230 with the DC braking set (p1230 = 4). Braking current p1232 is injected until this binector input becomes inactive.

**Remedy:** Not necessary.
The alarm automatically disappears once DC braking has been executed.

## F07928 Internal voltage protection initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal voltage protection is selected (p1231 = 3).

**Remedy:** If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module automatically decides - using the DC link voltage - as to whether the armature short-circuit should be activated.
The armature short-circuit is activated and response OFF2 is initiated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the armature short-circuit is withdrawn.
If the motor is still in a critical speed range, the armature short-circuit is re-activated once the DC link voltage exceeds the threshold of 800 V.
If the autonomous (independent) internal voltage protection is active (r1239.5 = 1) and the line supply returns (450 V < DC link voltage < 800 V), the armature short-circuit is withdrawn after 3 minutes.

## F07930 Drive: Brake control error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The Control Unit has detected a brake control error.
Fault value (r0949, decimal interpretation):
10, 11: Fault in "open holding brake" operation.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1).
- Ground fault in brake cable.
20: Fault in "brake open" state.
- Short-circuit in brake winding.
30, 31: Fault in "close holding brake" operation.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1).
- Short-circuit in brake winding.
40: Fault in "brake closed" state.
50: Fault in the brake control circuit of the Control Unit or communication fault between Control Unit and Motor Module (brake control diagnostics).
80: When using the Safe Brake Adaptor (SBA), a fault has occurred in the brake control of the Control Unit.

Note:
The following causes may apply to fault values:
- motor cable is not shielded correctly.
- defect in control circuit of the Motor Module.
See also: p1278 (Brake control, diagnostics evaluation)

**Remedy:**
- check the motor holding brake connection.
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.
Operation with Safe Brake Module:
- check the Safe Brake Modules connection.
- replace the Safe Brake Module.
Operation with Safe Brake Module (SBA):
- check the SBA connection and if required, replace the SBA.
See also: p1215 (Motor holding brake configuration), p1278 (Brake control, diagnostics evaluation)

## A07931 (F, N) Brake does not open

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** This alarm is output for r1229.4 = 1.
See also: p1216 (Motor holding brake, opening time), r1229 (Motor holding brake status word)
**Remedy:**
- check the functionality of the motor holding brake.
- check the feedback signal (p1223).

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A07932 Brake does not close

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** This alarm is output for r1229.5 = 1.
For r1229.5 = 1, OFF1/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.
See also: p1217 (Motor holding brake closing time), r1229 (Motor holding brake status word)
**Remedy:**
- check the functionality of the motor holding brake.
- check the feedback signal (p1222).

## F07934 (N) Drive: S120 Combi motor holding brake configuration

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (OFF1, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** A connected motor holding brake has been detected with an S120 Combi. However, this brake has not been assigned to just one Combi feed drive and, therefore, brake control is not configured (correctly). It is also not permitted to assign the brake to the spindle.
Fault value (r0949, decimal interpretation):
0: No motor holding brake is assigned (p1215 = 0 or 3 on all S120 Combi feed drives).
1: More than one motor holding brake has been assigned (p1215 = 1 or 2 on more than one S120 Combi feed drive) - or there is more than one DRIVE-CLiQ motor with motor holding brake.

2: Brake was accidentally assigned to the spindle (p1215 = 1); this is not permitted.
3: An attempt was made to enable the function "Safe brake control" (SBC, p9602 = p9802 = 1) for the spindle. This is not permitted.

**Remedy:** Check whether the motor holding brake has been assigned to one S120 Combi feed drive exclusively (p1215 = 1 or 2) and not the spindle.
The fault will only be withdrawn once the motor holding brake has been assigned to just one of the S120 Combi feed drives and not the spindle (p1215 = 1 or 2 for this one drive). From this point, the motor holding brake will be controlled by this drive.
See also: p1215 (Motor holding brake configuration)

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07935 (N) Drv: Motor holding brake detected

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A motor holding brake was detected where the brake control has not been configured (p1215 = 0).
Fault value (r0949, decimal interpretation):
0:
The brake control configuration was set to "motor holding brake the same as sequence control" (p1215 = 1) (only when commissioning for the first time).
1:
The brake control configuration was left at "No motor holding brake available" (p1215 = 0).

**Remedy:** For fault value = 0:
- No remedy required.
For fault value = 1:
- If required change the motor holding brake configuration (p1215 = 1, 2).
- If this fault value unexpectedly occurs, then the motor connections should be checked in order to rule out that they have been interchanged.
See also: p1215 (Motor holding brake configuration)

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07950 (A) Drive: Incorrect motor parameter

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** - the motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor)
- The braking resistor (p6811) has still not been parameterized - commissioning cannot be completed.
Fault value (r0949, decimal interpretation):
Parameter number involved.
The following motor parameters can be incorrect for fault value 307:
p0304, p0305, p0307, p0308, p0309
See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323

**Remedy:** Compare the motor data with the rating plate data and if required, correct.
See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323

Reaction upon A: NONE

Acknowl. upon A: NONE

## F07955 Drive: Motor has been changed

**Message value:** Parameter: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The code number of the actual motor with DRIVE-CLiQ does not match the saved number.

Fault value (r0949, decimal interpretation):
Number of the incorrect parameter.
See also: p0301 (Motor code number selection), r0302 (Motor code number of motor with DRIVE-CLiQ)

**Remedy:** Connect the original motor, power up the Control Unit again (POWER ON) and exit quick commissioning with p0010 = 0.
Or set p0300 = 10000 (load the parameters from the motor with DRIVE-CLiQ) and re-commission.
Quick commissioning (p0010 = 1) is automatically exited with p3900 > 0.
If quick commissioning was exited with p0010 = 0, then an automatic controller calculation (p0340 = 1) is not carried out.

## F07956 (A) Drive: Motor code does not match the list (catalog) motor

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** The motor code of the connected motor with DRIVE-CLiQ does not match the possible list motor types (see selection in p0300).
The connected motor with DRIVE-CLiQ might not be supported by this firmware version.
Fault value (r0949, decimal interpretation):
Motor code of the connected motor with DRIVE-CLiQ.
Note:
The first three digits of the motor code generally correspond to the list motor type.
**Remedy:** Use a motor with DRIVE-CLiQ and the matching motor code.
Reaction upon A: NONE
Acknowl. upon A: NONE

## A07965 (N) Drive: Save required

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The angular commutation offset (p0431) was re-defined and has still not been saved.
In order to permanently accept the new value, it must be saved in a non-volatile fashion (p0971, p0977).
See also: p0431 (Angular commutation offset), p1990 (Encoder adjustment, determine angular commutation offset)
**Remedy:** Not necessary.
This alarm automatically disappears after the data has been saved.
See also: p0971 (Save drive object parameters), p0977 (Save all parameters)
Reaction upon N: NONE
Acknowl. upon N: NONE

## F07966 Drive: Check the commutation angle

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** The speed actual value was inverted and the associated angular commutation offset is not equal to zero and is therefore possibly incorrect.
**Remedy:** Angular commutation offset after the actual value inversion or determine it again (p1990=1).

## A07971 (N) Drive: Angular commutation offset determination activated

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The automatic determination of the angular commutation offset (encoder adjustment) is activated (p1990 = 1).
The automatic determination is carried out at the next power-on command.

For SERVO and fault F07414 present, the following applies:
The determination of the angular commutation offset is automatically activated (p1990 = 1), if a pole position identification technique is set in p1980.
See also: p1990 (Encoder adjustment, determine angular commutation offset)

**Remedy:** Not necessary.
The alarm automatically disappears after determination or for the setting p1990 = 0.

Reaction upon N: NONE

Acknowl. upon N: NONE

## A07980 Drive: Rotating measurement activated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The rotating measurement is activated. For the rotating measurement, the motor can accelerate up to the maximum speed and with maximum torque. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective. The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).
The rotating measurement is carried out at the next power-on command.
See also: p1960 (Rotating measurement selection)

**Remedy:** Not necessary.
The alarm automatically disappears after the rotating measurement has been successfully completed or for the setting p1960 = 0.
Note:
If a POWER ON or a warm restart is performed with motor data identification selected, the motor data identification request will be lost. If motor data identification is required, it will need to be selected again manually following ramp-up.

## F07990 Drive: Incorrect motor data identification

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (NONE, OFF1)

**Acknowledge:** IMMEDIATELY

**Cause:** A fault has occurred during the identification routine.
Fault value (r0949, decimal interpretation):
1: Current limit value reached.
2: Identified stator resistance lies outside the expected range 0.1 ... 100% of Zn.
3: Identified rotor resistance lies outside the expected range 0.1 ... 100% of Zn.
4: Identified stator reactance lies outside the expected range 50 ... 500% of Zn.
5: Identified magnetizing reactance lies outside the expected range 50 ... 500% of Zn.
6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s.
7: Identified total leakage reactance lies outside the expected range 4 ... 50% of Zn.
8: Identified stator leakage reactance lies outside the expected range 2 ... 50% of Zn.
9: Identified rotor leakage reactance lies outside the expected range 2 ... 50% of Zn.
10: Data set changeover during motor data identification.
11: Motor shaft rotates.
20: Identified threshold voltage of the semiconductor devices lies outside the expected range 0 ... 10 V.
30: Current controller in voltage limiting.
40: At least one identification contains errors. The identified parameters are not saved to prevent inconsistencies.
50: With the selected current controller sampling rate, the pulse frequency cannot be implemented.
Note:
Percentage values are referred to the rated motor impedance:
Zn = Vmot.nom / sqrt(3) / Imot,nom
101: Voltage amplitude even at 30% maximum current amplitude is too low to measure the inductance.
102, 104: Voltage limiting while measuring the inductance.
103: Maximum frequency exceeded during the rotating inductance measurement.
110: Motor not finely synchronized before the rotating measurement.
111: The zero mark is not received within 2 revolutions.
112:Fine synchronization is not realized within 8 seconds after the zero mark has been passed.
113: The power, torque or current limit is zero.

115: U/f control is active.
120: Error when evaluating the magnetizing inductance.
125: Cable resistance greater than the total resistance.
126: Series inductance greater than the total leakage inductance.
127: Identified leakage inductance negative.
128: Identified stator resistance negative.
129: Identified rotor resistance negative.
130: Drive data set changeover during the motor data identification routine.
140: The setpoint channel inhibits both directions.
160: Accelerating when determining kT, moment of inertia or reluctance torque too short or the accelerating time is too long.
173: Internal problem.
180: Identification speed (maximum speed, rated speed, 0.9 x p0348) less than p1755.
190: Speed setpoint not equal to zero.
191: An actual speed of zero is not reached.
192: Speed setpoint not reached.
193: Inadmissible motion of the motor when identifying the voltage emulation error.
194: Supplementary torque (r1515) not equal to zero.
195: Closed-loop torque control active.
200, 201: Not possible to identify the voltage emulation error characteristic of the drive converter (p1952, p1953).

**Remedy:**

For fault value = 0:
- check whether the motor is correctly connected. Observe configuration (star-delta).

Re fault value = 1 ... 40:
- check whether motor data have been correctly entered in p0300, p0304 ... p0311.
- is there an appropriate relationship between the motor power rating and that of the Motor Module? The ratio of the Motor Module to the rated motor current should not be less than 0.5 and not be greater than 4.
- check configuration (star-delta).

For fault value = 2:
- for parallel circuits, check the motor winding system in p7003. If, for power units connected in parallel, a motor is specified with a single-winding system (p7003 = 0), although a multi-winding system is being used, then a large proportion of the stator resistance is interpreted as feeder cable resistance and entered in p0352.

Re fault value = 4, 7:
- check whether inductances are correctly entered in p0233 and p0353.
- check whether motor has been correctly connected (star-delta).

For fault value = 50:
- reduce the current controller sampling rate.

For fault value = 101:
- increase current limit (p0640) or torque limit (p1520, p1521).
- check current controller gain (p1715).
- reduce current controller sampling time (p0115).

It may be impossible to completely identify the L characteristic, as required current amplitude is too high.
- suppress meas. (p1909, p1959).

Re fault value = 102, 104:
- reduce current limit (p0640).
- check current controller P gain.
- suppress meas. (p1909, p1959).

For fault value = 103:
- increase external moment of inertia (if possible).
- reduce current controller sampling time (p0115).
- suppress meas. (p1909, p1959).

For fault value = 110:
- before rotating measurement, traverse motor over zero mark.

For fault value = 111:
- it is possible that encoder does not have zero mark. Correct setting in p0404.15.
- encoder pulse number was incorrectly entered. Correct setting in p0408.
- if zero mark signal is defective, replace encoder.

For fault value = 112:
- upgrade encoder software.

For fault value = 113:
- check the limits (p0640, p1520, p1521, p1530, p1531), correct the zero values.

For fault value = 115:
- de-select U/f control (p1317 = 0).

For fault value = 120:
- check current controller P gain (p1715) and if required, reduce.
- increase the pulse frequency (p1800).
For fault value = 125:
- reduce cable resistance (p0352).
For fault value = 126:
- reduce series inductance (p0353).
Re fault = 127, 128, 129:
- it is possible that current controller is oscillating. Reduce p1715 before next measurement.
For fault value = 130:
- do not initiate a drive data set changeover during motor ident. routine.
For fault value = 140:
- before the measurement, enable at least one direction (p1110 = 0 or p1111 = 0 or p1959.14 = 1 or p1959.15 = 1).
For fault value = 160:
- extend accelerating time when determining kT, moment of inertia and reluctance torque, e.g. by increasing max. speed (p1082), increasing moment of inertia or reducing max. current (p0640).
- in encoderless operation with load moment of inertia, parameterize the load moment of inertia (p1498).
- reduce the ramp-up time (p1958).
- increase speed controller P-gain (p1460).
- suppress meas. (p1959).
For fault value = 173:
-
For fault value = 180:
- increase max. speed (p1082).
- reduce p1755.
- suppress meas. (p1909, p1959).
For fault value = 190:
- set speed setpoint to zero.
For fault value = 191:
- do not start motor data ident. routine while motor is still rotating.
For fault value = 192:
- check closed-loop speed control (motor rotor may be locked or closed-loop speed control is not functioning).
- for p1215 = 1, 3 (brake the same as the sequence control) check the control sense (p0410.0).
- ensure that enable signals are present during measurement.
- remove any pulling loads from motor.
- increase max. current (p0640).
- reduce max. speed (p1082).
- suppress meas. (p1959).
For fault value = 193:
- the motor has moved through more than 5 ° electrical (r0093). Lock motor rotor at one of these pole position angles (r0093): 90 °, 210 ° or 330 ° (+/-5 °) and then start identification.
For fault value = 194:
- switch out all supplementary torques (e.g. CI: p1511).
- for hanging/suspended axes: Lock motor rotor at one of these pole position angles (r0093): 90 °, 210 ° or 330 ° (+/-1 °) and then start identification.
For fault value = 195:
- de-select closed-loop torque control (p1300 = 21 or 20, or set the signal source in p1501 to a 0 signal).
Re fault value = 200, 201:
- set pulse frequency to 0.5 x current controller frequency (e.g. 4 kHz for a current controller clock cycle of 125 us).
- reduce cable length between Motor Module and motor.
- read-out measured values (r1950, r1951) and therefore determine suitable values for p1952, p1953 according to your own estimation.

## A07991 (N) Drive: Motor data identification activated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The motor data ident. routine is activated.
The motor data identification routine is carried out at the next power-on command.
See also: p1910 (Motor data identification routine, stationary (standstill)), p1960 (Rotating measurement selection)

**Remedy:** Not necessary.
The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1910 = 0 or p1960 = 0.
If a POWER ON or a warm restart is performed with motor data identification selected, the motor data identification request will be lost. If motor data identification is required, it will need to be selected again manually following ramp-up.

Reaction upon N: NONE

Acknowl. upon N: NONE

## F07993 Drive: Incorrect direction of rotation of the field or encoder actual value inversion

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** Either the direction of the rotating field or the encoder actual value has an incorrect sign. The motor data identification automatically changed the actual value inversion (p0410) in order to correct the control sense. This can result in a direction of rotation change.
Note:
To acknowledge this fault, the correctness of the direction of rotation must first be acknowledged with p1910 = -2.

**Remedy:** Check the direction of rotation (also for the position controller, if one is being used).
If the direction of rotation is correct, the following applies:
No additional measures are required (except set p1910 = -2 and acknowledge fault).
If the direction of rotation is incorrect, the following applies:
To change the direction of rotation, two phases must be interchanged and the motor identification routine must be repeated.

## F07995 Drive: Pole position identification not successful

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The pole position identification routine was unsuccessful.
Fault value (r0949, decimal interpretation):
1: No current is established.
2: The starting current is not zero.
3: The selected max. distance was exceeded (p1981).
4x: The measuring signal does not permit a clear evaluation.
5: The max. current was exceeded during the measurement.
6: The current measurement must be re-calibrated.
7x: The Sensor Module does not support the pole position identification routine.
8: The pole position identification routine current required is greater than the max. current.
9: The set pole position identification routine current is zero.
10: Data set changeover during the pole position identification.
11: The encoder adjustment to determine the commutation angle (p1990 = 1) and the encoder without zero mark is not finely synchronized or does not have any valid data.
100: Motion-based pole position identification, 1st and 2nd measurement different. Motor locked or current (p1993) too low.
101: Motion-based position position identification, insufficient motion, motor locked or current (p1993) too low.
102: Motion-based pole position identification, brake is being used and is closed. The motion-based position position identification in conjunction with the brake is not permitted.
103: Motion-based pole position identification without encoder.
104: Motion-based pole position identification, speed actual value not zero after stabilizing time.
200: Elasticity-based pole position identification, internal error in the arctan calculation ( 0/0 ).
201: Elasticity-based pole position identification, too few measuring points that can be evaluated.
202: Elasticity-based pole position identification, outliers in the measurement series.
203: Elasticity-based pole position identification, maximum rotation without current.
204: Elasticity-based pole position identification, no positive edge found.
205: Elasticity-based pole position identification, the result of the Fourier transformation differs by more than 480 ° electrical / p3093 from the rough estimate.
206: Elasticity-based pole position identification, plausibility test unsuccessful.

207: Elasticity-based pole position identification, no negative measured value found.
It is possible that all measured values are identical. The expected deflection was not able to be reached, either because the expectation is too high or not enough current was able to be established.
208: Elasticity-based pole position identification, measuring current is 0.
209: Elasticity-based pole position identification, the selected max. distance was exceeded (p3095).
210: Elasticity-based pole position identification without encoder.
250 ... 260:
Elasticity-based pole position identification, more than 3 attempts have been made and fault value 200 ... 210 output.
Example:
Fault value= 253 --> more than 3 attempts have been made and fault value 203 output.

**Remedy:**

For fault value = 1:
- check the motor connection and DC link voltage.
- for the following parameters, set practical values that are not zero (p0325, p0329).
Re fault value = 1, 2:
- in the case of a large computing time load (e.g., 6 drives with Safety Integrated), set the computing dead time of the current controller to late transfers (p0117 = 3).
For fault value = 3:
- increase the max. distance (p1981).
- reduce the currents for the pole position identification routine (p0325, p0329).
- stop the motor in order to carry out the pole position identification routine.
For fault value = 5:
- reduce the currents for the pole position identification routine (p0325, p0329).
For fault value = 6:
- re-calibrate the Motor Module.
For fault value = 8:
- reduce the currents for the pole position identification routine (p0329, p0325, p1993).
- the power unit cannot provide the necessary pole position identification routine current (p0209 < p0329, p0325, p1993), replace the power unit with a power unit with a higher max. current.
For fault value = 9:
- enter a value not equal to zero in the pole position identification routine current (p0329, p0325, p1993).
For fault value = 10:
- do not initiate a data set changeover during the pole position identification.
For fault value = 11:
- for incremental encoders without commutation with zero mark (p0404.15 = 0), it does not make sense to adjust the encoder to determine the commutation angle (p1990 = 1). In this case, the function should be de-selected (p1990 = 0) or, for an encoder with suitable zero mark, commutation with zero mark should be selected (p0404.15 = 1).
- for absolute encoders, only adjust the encoder to determine the commutation angle (p1990 = 1) if the encoder supplies commutation information and is finely synchronized (p1992.8 = 1 and p1992.10 = 1). The encoder is possibly parked, de-activated (p0145), not ready for operation or signals a fault condition.
- de-select the encoder adjustment to determine the commutation angle (set p1990 to 0).
Re fault value = 40 ... 49:
- increase the currents for the pole position identification routine (p0325, p0329).
- stop the motor in order to carry out the pole position identification routine.
- select another technique for pole position identification routine (p1980).
- use another motor, absolute encoder or Hall sensors.
Re fault value = 70 ... 79:
- upgrade the software in the Sensor Module.
Re fault value = 100, 101:
- check and ensure that the motor is free to move.
- increase the current for motion-based pole position identification (p1993).
For fault value = 102:
- if the motor is to be operated with a brake: Select a different technique to identify the pole position (p1980).
- if the motor can be operated without a brake: Open the brake (p1215 = 2).
For fault value = 103:
- the motion-based pole position identification can only be carried out using an encoder. Connect an encoder or select another technique for pole position identification routine (p1980).
For fault value = 104:
- pole position identification, increase the smoothing time, motion-based (p1997).
- pole position identification, increase the rise time, motion-based (p1994).
- pole position identification, check the gain, motion-based (p1995).
- pole position identification, check the integral time, motion-based (p1996).
- for motor encoders with track A/B sq-wave (p0404.3 = 1) and flank time measurement (p0430.20 = 0), disable the integral time (p1996 = 0).

For fault value = 200:
- check parameter setting (p3090 ... p3096).
For fault value = 201:
- check parameter setting (p3090 ... p3096).
- reduce p3094.
For fault value = 202:
- check parameter setting (p3090 ... p3096).
- fault has occurred during the identification. Repeat the measurement.
- check the brake or brake control.
For fault value = 203:
- check the brake or brake control.
- check the measuring current (p3096).
- increase p3094.
For fault value = 204:
- check parameter setting (p3090 ... p3096).
For fault value = 205:
- check parameter setting (p3090 ... p3096).
For fault value = 206:
- check parameter setting (p3090 ... p3096).
- fault has occurred during the identification. Repeat the measurement.
- check the brake or brake control.
For fault value = 207:
- reduce the expected deflection (p3094).
- increase the measuring current (p3096).
For fault value = 208:
- set the measuring current (p3096).
For fault value = 209:
- check parameter setting p3095.
- check the brake or brake control.
For fault value = 210:
- the elasticity-based pole position identification can only be carried out using an encoder. Connect an encoder or select another technique for pole position identification routine (p1980).
Re fault value = 250 ... 260:
- check parameter setting (p3090 ... p3096, p1980).

## F07996 Drive: Pole position identification routine not carried out

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (OFF2)

**Acknowledge:** IMMEDIATELY

**Cause:** In operation, the operating mode that requires a pole position identification was changed over, which is not possible in this state.
- the drive was changed over, flying, from encoderless operation to operation with encoder without having previously carried out a pole position identification for the encoder. p1404 is then at a value between zero and the max. speed and the pulses in the speed range above p1404 were enabled without a pole position ident. routine having been previously carried out in operation with encoder.
- in operation, an EDS changeover was made to an encoder where it is necessary to carry out a pole position identification. However, this has still not been carried out (p1982 = 1 or 2 and p1992.7 = 0).

**Remedy:** - for a flying changeover between operation with and without encoder with pole position identification after POWER ON or commissioning (p0010 not equal to zero) enable the pulses once at zero speed. This means that the pole position identification routine is carried out and the result is available for operation.
- carry out the EDS changeover with the pulses inhibited, or, before the changeover, carry out a pole position identification using this data set.

## A07999 Drive: Motor data identification cannot be activated

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Closed-loop control is enabled on a SERVO drive object type. To select motor data identification, pulses must be suppressed for all SERVO drive objects.

Fault value (r0949, decimal interpretation):
Drive object with enabled closed-loop control.

**Remedy:** Withdraw the pulse enable on all drives and re-activate the motor data identification.

## F08510 (A) COMM BOARD: Send configuration data invalid

**Message value:** %1
**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** COMM BOARD did not accept the send-configuration data.
Fault value (r0949, decimal interpretation):
Return value of the send-configuration data check.
**Remedy:** Check the send configuration data.
Reaction upon A: NONE
Acknowl. upon A: NONE

## A08526 (F) PROFINET: No cyclic connection

**Message value:** -
**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** There is no connection to a PROFINET controller.
**Remedy:** Establish the cyclic connection and activate the controller with cyclic operation.
Check the parameters "Name of Station" and "IP of Station" (r61000, r61001).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

## A08565 CBE20: Consistency error affecting adjustable parameters

**Message value:** -
**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A consistency error was detected when activating the configuration (p8925 = 1) for the PROFINET interface.
The currently set configuration has not been activated.
Possible causes:
- IP address, subnet mask or default gateway is not correct
- IP address or station name used twice in the network
- station name contains invalid characters, etc.
See also: p8920 (PN Name of Station), p8921 (PN IP address of station), p8922 (PN Default Gateway of Station), p8923 (PN Subnet Mask of Station)
**Remedy:** Check the required interface configuration (p8920 and following), correct if necessary, and activate (p8925 = 1).
See also: p8925 (PN interface configuration)

## F08700 (A) CAN: Communications error

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF3 (NONE, OFF1, OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** A CAN communications error has occurred.
Fault value (r0949, decimal interpretation):
1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller.
- bus cable short circuit.
- incorrect baud rate.
- incorrect bit timing.

2: The master no longer interrogated the CAN node status longer than for its "life time". The "life time" is obtained from the "guard time" (p8604[0]) multiplied by the "life time factor" (p8604[1]).
- bus cable interrupted.
- bus cable not connected.
- incorrect baud rate.
- incorrect bit timing.
- master fault.
Note:
The fault response can be set as required using p8641.
See also: p8604 (CAN node guarding), p8641 (CAN Abort Connection Option Code)

**Remedy:**
- check the bus cable
- check the baud rate (p8622).
- check the bit timing (p8623).
- check the master.
The CAN controller must be manually restarted with p8608 = 1 after the cause of the fault has been resolved!
See also: p8608 (CAN Clear Bus Off Error), p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

Reaction upon A: NONE

Acknowl. upon A: NONE

## F08701 CAN: NMT state change

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF3

**Acknowledge:** IMMEDIATELY

**Cause:** A CANopen NMT state transition from "operational" to "pre-operational" or after "stopped".
Fault value (r0949, decimal interpretation):
1: CANopen NMT state transition from "operational" to "pre-operational".
2: CANopen NMT state transition from "operational" to "stopped".
Note:
In the NMT state "pre-operational", process data cannot be transferred and in the NMT state "stopped", no process data and no service data can be transferred.

**Remedy:** Not necessary.
Acknowledge the fault and continue operation.

## F08702 (A) CAN: RPDO Timeout

**Message value:** -

**Drive object:** All objects

**Reaction:** OFF3 (NONE, OFF1, OFF2)

**Acknowledge:** IMMEDIATELY

**Cause:** The monitoring time of the CANopen RPDO telegram has expired because the bus connection was either interrupted or the CANopen Master was switched-off.
See also: p8699 (CAN: RPDO monitoring time)

**Remedy:**
- check the bus cable
- check the master.
- If required, increase the monitoring time (p8699).

Reaction upon A: NONE

Acknowl. upon A: NONE

## A08751 CAN: Telegram loss

**Message value:** -

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The CAN controller has lost a receive message (telegram).

**Remedy:** Reduce the cycle times of the receive messages.

## A08752 CAN: Error counter for error passive exceeded

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The error counter for the send or receive telegrams has exceeded the value 127.
**Remedy:** - check the bus cable
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
See also: p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

## A08753 CAN: Message buffer overflow

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A message buffer overflow.
Alarm value (r2124, interpret decimal):
1: Non-cyclic send buffer (SDO response buffer) overflow.
2: Non-cyclic receive buffer (SDO receive buffer) overflow.
3: Cyclic send buffer (PDO send buffer) overflow.
**Remedy:** - check the bus cable.
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
Re alarm value = 2:
- reduce the cycle times of the SDO receive messages.
- SDO request from master only after SDO feedback for previous SDO request.
See also: p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

## A08754 CAN: Incorrect communications mode

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the "operational" mode, an attempt was made to change parameters p8700 ... p8737.
**Remedy:** Change to the "pre-operational" or "stopped" mode.

## A08755 CAN: Obj cannot be mapped

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The CANopen object is not provided for the Process Data Object (PDO) Mapping.
**Remedy:** Use a CANopen object intended for the PDO mapping or enter 0.
The following objects can be mapped in the Receive Process Data Object (RPDO) or Transmit Process Data Object (TPDO):
- RPDO: 6040 hex, 6060 hex, 60FF hex, 6071 hex; 5800 hex - 580F hex; 5820 hex - 5827 hex
- TPDO: 6041 hex, 6061 hex, 6063 hex, 6069 hex, 606B hex, 606C hex, 6074 hex; 5810 hex - 581F hex; 5830 hex - 5837 hex
Only sub-index 0 of the specified objects can be mapped.
Note:
As long as A08755 is present, the COB-ID cannot be set to valid.

## A08756 CAN: Number of mapped bytes exceeded

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The number of bytes of the mapped objects exceeds the telegram size for net data. A max. of 8 bytes is permissible.
**Remedy:** Map fewer objects or objects with a smaller data type.
See also: p8710, p8711, p8712, p8713, p8714, p8715, p8716, p8717, p8730, p8731, p8732, p8733, p8734, p8735, p8736, p8737

## A08757 CAN: Set COB-ID invalid

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For online operation, the appropriate COB-ID must be set invalid before mapping.
Example:
Mapping for RPDO 1 should be changed (p8710[0]).
--> set p8700[0] = C00006E0 hex (invalid COB-ID)
--> set p8710[0] as required.
--> p8700[0] enter a valid COB-ID
**Remedy:** Set the COB-ID to invalid.

## A08759 CAN: PDO COB-ID already available

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An existing PDO COB-ID was allocated.
**Remedy:** Select another PDO COB-ID.

## A13000 License not adequate

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** - for the drive unit, the options that require a license are being used but the licenses are not sufficient.
- an error occurred when checking the existing licenses.
Alarm value (r2124, interpret decimal):
0:
The existing license is not sufficient.
1:
An adequate license was not able to be determined as the memory card with the required licensing data was withdrawn in operation.
2:
An adequate license was not able to be determined as there is no licensing data available on the memory card.
3:
An adequate license was not able to be determined as there is a checksum error in the license key.
4:
An internal error occurred when checking the license.
**Remedy:** Re alarm value = 0:
Additional licenses are required and these must be activated (p9920, p9921).
Re alarm value = 1:
With the system powered down, re-insert the memory card that matches the system.
Re alarm value = 2:
Enter and activate the license key (p9920, p9921).

Re alarm value = 3:
Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).
Re alarm value = 4:
- carry out a POWER ON.
- upgrade firmware to later version.
- contact the Hotline.

## A13001 Error in license checksum

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When checking the checksum of the license key, an error was detected.
**Remedy:** Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).

## F13010 Licensing function module not licensed

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF1
**Acknowledge:** IMMEDIATELY
**Cause:** At least one function module which is under license does not have a license.
Fault value (r0949, interpret hexadecimal):
Bit x = 1: The corresponding function module does not have a license.
Note:
Refer to p0108 or r0108 for the assignment between the bit number and function module.
**Remedy:** - enter and activate the license key for function modules under license (p9920, p9921).
- if necessary, de-activate unlicensed function modules (p0108, r0108).
See also: p9920 (Licensing, enter license key), p9921 (Licensing, activate license key)

## F30001 Power unit: Overcurrent

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The power unit has detected an overcurrent condition.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: Rated motor current is significantly greater than that of the Motor Module.
- infeed: High discharge and post-charging currents for voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at power-up due to the missing line reactor.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.
- line phase interrupted.
Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (powered down) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.
Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.
Bit 3: Overcurrent in the DC link.
Note:
Fault value = 0 means that the phase with overcurrent is not recognized (e.g. for blocksize device).

**Remedy:**
- check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star-delta)
- U/f operation: Increase up ramp.
- U/f operation: Check the assignment of the rated currents of the motor and Motor Module.
- infeed: Check the line supply quality.
- infeed: Reduce the motor load.
- infeed: Correct connection of the line reactor.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.
- check the line supply phases.

For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

## F30002 Power unit: DC link voltage, overvoltage

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:**
The power unit has detected overvoltage in the DC link.
- motor regenerates too much energy.
- device connection voltage too high.
- when operating with a Voltage Sensing Module (VSM), the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.
- line phase interrupted.

Fault value (r0949, decimal interpretation):
DC link voltage at the time of trip [0.1 V].

**Remedy:**
- increase the ramp-down time
- activate the DC link voltage controller
- use a brake resistor or Active Line Module
- increase the current limit of the infeed or use a larger module (for the Active Line Module)
- check the device supply voltage
- check and correct the phase assignment at the VSM and at the power unit
- check the line supply phases.

See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller or Vdc monitoring configuration)

## F30003 Power unit: DC link voltage, undervoltage

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:**
The power unit has detected an undervoltage condition in the DC link.
- line supply failure
- line supply voltage below the permissible value.
- line supply infeed failed or interrupted.
- line phase interrupted.

Note:
The monitoring threshold for undervoltage in the DC link is indicated in r0296.

**Remedy:**
- check the line supply voltage
- check the line supply infeed and observe the fault messages relating to it (if there are any)
- check the line supply phases.
- check the line supply voltage setting (p0210).
- booksize units: check the setting of p0278.

Note:
The ready signal for the infeed (r0863) must be interconnected to the associated drive inputs (p0864).
See also: p0210 (Drive unit line supply voltage)

## F30004 Power unit: Overtemperature heat sink AC inverter

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The temperature of the power unit heat sink has exceeded the permissible limit value.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.
Fault value (r0949):
Temperature [1 bit = 0.01 °C].
**Remedy:** - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05000 has been undershot.
See also: p1800 (Pulse frequency setpoint)

## F30005 Power unit: Overload I2t

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The power unit was overloaded (r0036 = 100 %).
- the permissible rated power unit current was exceeded for an inadmissibly long time.
- the permissible load duty cycle was not maintained.
Fault value (r0949, decimal interpretation):
I2t [100 % = 16384].
**Remedy:** - reduce the continuous load.
- adapt the load duty cycle.
- check the motor and power unit rated currents.
See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

## F30011 Power unit: Line phase failure in main circuit

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (OFF1)
**Acknowledge:** IMMEDIATELY
**Cause:** A line phase failure was detected at the power unit.
- the fuse of a phase of a main circuit has ruptured.
- the DC link voltage ripple has exceeded the permissible limit value.
Note:
The cause may also be a phase failure in the motor feeder cable.
**Remedy:** - check the main circuit fuses.
- check the motor feeder cables.

## F30012 Power unit: Temperature sensor heat sink wire breakage

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (OFF2)
**Acknowledge:** IMMEDIATELY
**Cause:** The connection to a heat sink temperature sensor in the power unit is interrupted.
Fault value (r0949, interpret hexadecimal):
Bit 0: Module slot (electronics slot)
Bit 1: Air intake

Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2

**Remedy:** Contact the manufacturer.

## F30013 Power unit: Temperature sensor heat sink short-circuit

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (OFF2)

**Acknowledge:** IMMEDIATELY

**Cause:** The heat sink temperature sensor in the power unit is short-circuited.
Fault value (r0949, interpret hexadecimal):
Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2

**Remedy:** Contact the manufacturer.

## F30015 (N, A) Power unit: Phase failure motor cable

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (NONE, OFF1, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A phase failure in the motor feeder cable was detected.
The signal can also be output in the following case:
- the motor is correctly connected, however the closed-speed control is instable and therefore an oscillating torque is generated.
Note:
Chassis power units do not feature phase failure monitoring.

**Remedy:** - check the motor feeder cables.
- check the speed controller settings.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## A30016 (N) Power unit: Load supply switched out

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The DC link voltage is too low.
Alarm value (r2124, interpret decimal):
DC link voltage at the time of trip [0.1 V].

**Remedy:** - switch on load supply.
- check the line supply if necessary.

Reaction upon N: NONE
Acknowl. upon N: NONE

## F30017 Power unit: Hardware current limit has responded too often

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The number of times the limit has been exceeded depends on the design and type of power unit.
For infeed units, the following applies:
- closed-loop control is incorrectly parameterized.
- load on the infeed is too high.
- Voltage Sensing Module incorrectly connected.
- line reactor missing or the incorrect type.
- power unit defective.

The following applies to Motor Modules:
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Fault value (r0949, interpret binary):
Bit 0: Phase U
Bit 1: Phase V
Bit 2: Phase W

**Remedy:** For infeed units, the following applies:
- check the controller settings and reset and identify the controller if necessary (p0340 = 2, p3410 = 5)
- reduce the load and increase the DC-link capacitance or use a higher-rating infeed if necessary
- check the connection of the optional Voltage Sensing Module
- check the connection and technical data of the line reactor
- check the power cables for short-circuit or ground fault.
- replace power unit.

The following applies to Motor Modules:
- check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

## F30020 Power unit: Configuration not supported

**Message value:** fault cause: %1, additional information: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A configuration is requested that is not supported by the power unit.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex: xxxx = fault cause, yyyy = additional information (siemensintern)
xxxx = 0: Autonomous operation is requested but is not supported.
xxxx = 1: The requested DRIVE-CLiQ timing is not permissible.
xxxx = 2: A PM260 has been detected with PS-ASIC version 2. This combination is not supported.
xxxx = 3: Initialization was not able to be successfully completed. It is possible that the Control Unit was withdrawn from the power module before or during power-up.
xxxx = 4: The combination of power unit and Control Unit or Control Unit Adapter is not supported.
xxxx = 5: The higher current controller dynamic performance is not supported.

**Remedy:** Re fault cause = 0:
If required, deactivate an active internal voltage protection (p1231).
Re fault cause = 1:
Update the Control Unit firmware or change the DRIVE-CLiQ topology.
Re fault cause = 2:
Replace the power unit with a PM260 with PS-ASIC version 3 (or higher).
Re fault cause = 3, 4:
Insert a Control Unit or Control Unit Adapter (CUAxx) on an appropriate Power Module and perform a POWER ON for the Control Unit or the Control Units Adapter.
Re fault cause = 5:
- use a booksize format power unit.
- for a Double Motor Module operate the two drive controls with the same current controller sampling time (p0115[0]). Otherwise, the higher current controller dynamics can only be activated on the drive with the longer sampling time.
- If required, de-select the higher current controller dynamic performance (p1810.11 = 0). After deselecting the computing dead time, recalculate the controller gains (p0340 = 4). If required, optimize the speed controller.
See also: p1231 (Armature short-circuit / DC braking configuration), p1810 (Modulator configuration)

## F30021 Power unit: Ground fault

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** Power unit has detected a ground fault.
- ground fault in the power cables.
- winding fault or ground fault at the motor.
- CT defective.
Additional cause for CU310/CUA31:
- when the brake is applied, this causes the hardware DC current monitoring to respond.
Additional cause for parallel switching devices (r0108.15 = 1):
- the closed-loop circulating current control is either too slow or has been set too fast.
Fault value (r0949, decimal interpretation):
Absolute value, total current amplitude [20479 = r0209 x 1.4142].
Note:
For power units, a ground fault is also emulated in r3113.5.

**Remedy:** - check the power cable connections.
- check the motor.
- check the CT.
The following applies additionally for CU310/CUA31:
- check the cables and contacts of the brake connection (a wire is possibly broken).
For parallel switching devices (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).
See also: p0287 (Ground fault monitoring thresholds)

## F30022 Power unit: Monitoring U_ce

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:** In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded.
Possible causes:
- fiber-optic cable interrupted.
- power supply of the IGBT gating module missing.
- short-circuit at the power unit output.
- defective semiconductor in the power unit.
Fault value (r0949, interpret binary):
Bit 0: Short-circuit in phase U
Bit 1: Short circuit in phase V
Bit 2: Short-circuit in phase W

Bit 3: Light transmitter enable defective
Bit 4: U_ce group fault signal interrupted
See also: r0949 (Fault value)

**Remedy:** - check the fiber-optic cable and if required, replace.
- check the power supply of the IGBT gating module (24 V).
- check the power cable connections.
- select the defective semiconductor and replace.

## F30024 Power unit: Overtemperature thermal model

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The temperature difference between the heat sink and chip has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.
See also: r0037

**Remedy:** - adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.

## F30025 Power unit: Chip overtemperature

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** Chip temperature of the semiconductor has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.
Fault value (r0949):
Temperature difference between the heat sink and chip [1 Bit = 0.01 °C].

**Remedy:** - adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05001 has been undershot.
See also: r0037

## F30027 Power unit: Precharging DC link time monitoring

**Message value:** Enable signals: %1, Status: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The power unit DC link was not able to be pre-charged within the expected time.
1) There is no line supply voltage connected.
2) The line contactor/line side switch has not been closed.
3) The line supply voltage is too low.

4) Line supply voltage incorrectly set (p0210).
5) The pre-charging resistors are overheated as there were too many pre-charging operations per time unit.
6) The pre-charging resistors are overheated as the DC link capacitance is too high.
7) The pre-charging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link.
8) The pre-charging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module.
9) The DC link has either a ground fault or a short-circuit.
10) The pre-charging circuit is possibly defective (only for chassis units).
11) Infeed is defective and/or fuse has ruptured in the Motor Module (only Booksize units).
Fault value (r0949, interpret binary):
yyyyxxxx hex:
yyyy = power unit state
0: Fault status (wait for OFF and fault acknowledgement).
1: Restart inhibit (wait for OFF).
2: Overvoltage condition detected -> change into the fault state.
3: Undervoltage condition detected -> change into the fault state.
4: Wait for bypass contactor to open -> change into the fault state.
5: Wait for bypass contactor to open -> change into restart inhibit.
6: Commissioning.
7: Ready for pre-charging.
8: Pre-charging started, DC link voltage less than the minimum switch-on voltage.
9: Pre-charging, DC link voltage end of pre-charging still not detected.
10: Wait for the end of the de-bounce time of the main contactor after pre-charging has been completed.
11: Pre-charging completed, ready for pulse enable.
12: It was detected that the STO terminal was energized at the power unit.
xxxx = Missing internal enable signals, power unit (inverted bit-coded, FFFF hex -> all internal enable signals available)
Bit 0: Power supply of the IGBT gating shut down.
Bit 1: Ground fault detected.
Bit 2: Peak current intervention.
Bit 3: I2t exceeded.
Bit 4. Thermal model overtemperature calculated.
Bit 5: (heat sink, gating module, power unit) overtemperature measured.
Bit 6: Reserved.
Bit 7: Overvoltage detected.
Bit 8: Power unit has completed pre-charging, ready for pulse enable.
Bit 9: STO terminal missing.
Bit 10: Overcurrent detected.
Bit 11: Armature short-circuit active.
Bit 12: DRIVE-CLiQ fault active.
Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit.
Bit 14: Undervoltage detected.
See also: p0210 (Drive unit line supply voltage)

**Remedy:**

In general:
- check the line supply voltage at the input terminals.
- check the line supply voltage setting (p0210).
For booksize drive units, the following applies:
- wait (approx. 8 minutes) until the pre-charging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.
Re 5):
- carefully observe the permissible pre-charging frequency (refer to the appropriate Equipment Manual).
Re 6):
- check the total capacitance of the DC link and reduce in accordance with the maximum permissible DC-link capacitance if necessary (refer to the appropriate Equipment Manual)
Re 7):
- interconnect the ready-for-operation signal from the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link
Re 8):
- check the connections of the external line contactor. The line contactor must be open during DC-link fast discharge.
Re 9):
- check the DC link for ground faults or short circuits.

Re 11):
- Check the DC link voltage of the infeed (r0070) and Motor Modules (r0070).
If the DC link voltage generated by the infeed (or external) is not displayed for the Motor Modules (r0070), then a fuse has ruptured in the Motor Module.
See also: p0210 (Drive unit line supply voltage)

## A30031 Power unit: Hardware current limiting, phase U

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.
Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

**Remedy:** - check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta)
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

## A30032 Power unit: Hardware current limiting, phase V

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.
Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

**Remedy:** Check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta)
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

## A30033 Power unit: Hardware current limiting, phase W

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

**Remedy:** - check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta)
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

## A30034 Power unit: Internal overtemperature

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The alarm threshold for internal overtemperature has been reached.
If the temperature inside the unit continues to increase, fault F30036 may be triggered.
- ambient temperature might be too high.
- insufficient cooling, fan failure.
Fault value (r0949, interpret binary):
Bit 0 = 1: Control electronics range.
Bit 1 = 1: Power electronics range.

**Remedy:** - check the ambient temperature.
- check the fan for the inside of the unit.

## F30035 Power unit: Air intake overtemperature

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (OFF2)

**Acknowledge:** IMMEDIATELY

**Cause:** The air intake in the power unit has exceeded the permissible temperature limit.
For air-cooled power units, the temperature limit is at 55 °C.
- ambient temperature too high.
- insufficient cooling, fan failure.
Fault value (r0949, decimal interpretation):
Temperature [0.01 °C].

**Remedy:** - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05002 has been undershot.

## F30036 Power unit: Internal overtemperature

**Message value:** %1

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** For chassis power units, the following applies:
The temperature inside the drive converter has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
Fault value (r0949, interpret binary):
Bit 0 = 1: Overtemperature in the control electronics range.
Bit 1 = 1: Overtemperature in the power electronics range.

**Remedy:** - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
Notice:
This fault can only be acknowledged once the permissible temperature limit minus 5 K has been fallen below.

## F30037 Power unit: Rectifier overtemperature

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The temperature in the rectifier of the power unit has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- line supply phase failure.
Fault value (r0949, decimal interpretation):
Temperature [0.01 °C].

**Remedy:** - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- check the line supply phases.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05004 has been undershot.

## F30040 Power unit: Undervolt 24 V

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** Failure of the 24 V power supply for the power unit.
- The undervoltage threshold was undershot for longer than 3 ms.
Fault value (r0949, decimal interpretation):
24 V voltage [0.1 V].

**Remedy:** - check the 24 V DC power supply of the power unit.
- carry out a POWER ON (power off/on) for the component.

## A30041 (F) Power unit: Undervoltage 24 V alarm

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** 24 V power supply fault for the power unit.
- the 16 V threshold was undershot..
Alarm value (r2124, interpret decimal):
24 V voltage [0.1 V].

**Remedy:** - check the 24 V DC power supply of the power unit.
- carry out a POWER ON (power off/on) for the component.

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

## A30042 Power unit: Fan operating time reached or exceeded

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The maximum operating time of the fan in the power unit is set in p0252.
This message indicates the following:
Fault value (r0949, decimal interpretation):
0: The maximum fan operating time is 500 hours.
1: The maximum fan operating time has been exceeded.
**Remedy:** Replace the fan in the power unit and reset the operating hours counter to 0 (p0251 = 0).
See also: p0251 (Operating hours counter power unit fan), p0252 (Maximum operating time power unit fan)

## F30043 Power unit: Overvolt 24 V

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** The following applies for CU31x:
Overvoltage of the 24 V power supply for the power unit.
- the 31.5 V threshold was exceeded for more than 3 ms.
Fault value (r0949, decimal interpretation):
24 V voltage [0.1 V].
**Remedy:** Check the 24 V DC power supply of the power unit.

## A30044 (F) Power unit: Overvoltage 24 V alarm

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The following applies for CU31x:
24 V power supply fault for the power unit.
- the 32.0 V threshold was exceeded.
Alarm value (r2124, interpret decimal):
24 V voltage [0.1 V].
**Remedy:** Check the 24 V DC power supply of the power unit.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

## F30045 Power unit: Supply undervoltage

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** Power supply fault in the power unit.
- The voltage monitor signals an undervoltage fault on the module.
The following applies for CU31x:
- the voltage monitoring on the DAC board signals an undervoltage fault on the module.
**Remedy:** - check the 24 V DC voltage supply to power unit.
- carry out a POWER ON (power off/on) for the component.
- replace the module if necessary.

## A30046 (F) Power unit: Undervoltage, alarm

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Before the last restart, a problem occurred at the power unit power supply.
- the voltage monitor in the internal FPGA of the PSA signals an undervoltage fault on the module.
Fault value (r0949):
Register value of the voltage fault register.
**Remedy:** - check the 24 V DC voltage supply to power unit.
- carry out a POWER ON (power off/on) for the component.
- replace the module if necessary.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

## A30048 Power unit: External fan faulty

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The feedback signal from the external fan indicates a fault.
- fan faulty, blocked.
- feedback signal inaccurate.
**Remedy:** - check the external fan and replace if necessary.
- if you are using an external fan with feedback, check its wiring (X12.2 or X13.2).
Note:
If you are using an external fan without feedback, check that the feedback terminal wiring on the power unit is connected to ground and make this connection if necessary (X12.1/2 or X13.1/2).

## A30049 Power unit: Internal fan faulty

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The internal fan has failed.
**Remedy:** Check the internal fan and replace if necessary.

## F30050 Power unit: 24 V supply overvoltage

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** The voltage monitor signals an overvoltage fault on the module.
**Remedy:** - check the 24 V power supply.
- replace the module if necessary.

## F30052 EEPROM data error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** POWER ON
**Cause:** EEPROM data error of the power unit module.

Fault value (r0949, interpret hexadecimal):
0: The EEPROM data read in from the power unit module is inconsistent.
1: EEPROM data is not compatible to the firmware of the power unit application.
Additional values:
Only for internal Siemens troubleshooting.

**Remedy:** For fault value = 0:
Replace the power unit module or update the EEPROM data.
For fault value = 1:
The following applies for CU31x and CUA31:
Update the firmware \SIEMENS\SINAMICS\CODE\SAC\cu31xi.ufw (cua31.ufw)

## A30054 (F) Power unit: Undervoltage when opening the brake

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** When the brake is being opened, it is detected that the power supply voltage is less than 24 V - 10% = 21.6V.
Alarm value (r2124, interpret decimal):
Supply voltage fault [0.1 V].
Example:
Alarm value = 212 --> voltage = 21.2 V

**Remedy:** Check the 24V power supply for stability and value.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

## F30055 Power unit: Braking chopper overcurrent

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** An overcurrent condition has occurred in the braking chopper.

**Remedy:** - check whether the braking resistor has a short circuit.
- for an external braking resistor, check whether the resistor may have been dimensioned too small.
Note:
The braking chopper is only enabled again at pulse enable after the fault has been acknowledged.

## F30060 (A) Pre-charge contactor state monitoring

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2 (NONE, OFF1)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** At the end of the monitoring time (p0255[0]), the actual state of the pre-charge contactor does not match the desired state.
Bit 0: Monitoring time exceeded.
Bit 1: Contactor opened during operation.
Bit 2: Contactor closed in OFF state.

**Remedy:** - check the monitoring time setting (p0255[0]).
- check the contactor wiring and activation.
- replace the contactor.

Reaction upon A: NONE

Acknowl. upon A: NONE

## F30061 (A) Bypass contactor monitoring

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (NONE, OFF1)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** At the end of the monitoring time (p0255[1]), the actual state of the bypass contactor does not match the desired state.
Fault value (r0949, interpret bitwise binary):
Bit 0: Monitoring time exceeded.
Bit 1: Contactor opened during operation.
Bit 2: Contactor closed in OFF state.
**Remedy:** - check the monitoring time setting (p0255[1]).
- check the contactor wiring and activation.
- replace the contactor.
Reaction upon A: NONE
Acknowl. upon A: NONE

## F30070 Cycle requested by the power unit module not supported

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A cycle is requested that is not supported by the power unit.
Fault value (r0949, interpret hexadecimal):
0: The current control cycle is not supported.
1: The DRIVE-CLiQ cycle is not supported.
2: Internal timing problem (clearance between RX and TX instants too low).
3: Internal timing problem (TX instant too early).
**Remedy:** The power unit only supports the following cycles:
62.5 µs, 125 µs, 250 µs and 500 µs
For fault value = 0:
Set a permitted current control cycle.
For fault value = 1:
Set a permitted DRIVE-CLiQ cycle.
Re fault value = 2, 3:
Contact the manufacturer (you may have an incompatible firmware version).

## F30071 No new actual values received from the power unit module

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The number of actual value telegrams from the power unit module that have failed has exceeded the permissible number.
**Remedy:** Check the interface (adjustment and locking) to the power unit module.

## F30072 Setpoints are no longer being transferred to the power unit

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The following applies for CU31x and CUA31:
More than one setpoint telegram was not able to be transferred to the power unit module.
**Remedy:** The following applies for CU31x and CUA31:
Check the interface (adjustment and locking) to the power unit module.

## A30073 (N) Actual value/setpoint preprocessing no longer synchronous

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Communication with the power unit module is no longer in synchronism with the current control cycle.
**Remedy:** Wait until synchronization is re-established.
Reaction upon N: NONE
Acknowl. upon N: NONE

## F30074 (A) Communication error between the Control Unit and Power Module

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** Communications between the Control Unit (CU) and Power Module (PM) via the interface no longer possible. The CU may have been withdrawn or is incorrectly inserted.
Fault value (r0949, interpret hexadecimal):
0 hex:
The Control Unit was withdrawn from the Power Module during operation.
1 hex:
The Control Unit was withdrawn from the Power Module during operation, although the encoderless safe motion monitoring functions are enabled. This is not supported. After re-inserting the Control Unit in operation, communications to the Power Module no longer possible.
20A hex:
The Control Unit was inserted on a Power Module, which has another code number.
20B hex:
The Control Unit was inserted on a Power Module, which although it has the same code number, has a different serial number.
601 hex:
The Control Unit was inserted on a Power Module, whose power/performance class (chassis unit) is not supported.
**Remedy:** Reinsert the Control Unit (CU) or the Control Unit adapter (CUAxx) onto the original Power Module and continue operation. If required, carry out a POWER ON for the CU and/or the CUA.
Reaction upon A: NONE
Acknowl. upon A: NONE

## F30080 Power unit: Current increasing too quickly

**Message value:** Fault cause: %1 bin
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The power unit has detected an excessive rate of rise in the overvoltage range.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: Rated motor current is significantly greater than that of the Motor Module.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.

Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.

**Remedy:**
- check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star-delta)
- U/f operation: Increase up ramp.
- U/f operation: Check the assignment of the rated currents of the motor and Motor Module.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

## F30081 Power unit: Switching operations too frequent

**Message value:** Fault cause: %1 bin

**Drive object:** All objects

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** The power unit has executed too many switching operations for current limitation.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: Rated motor current is significantly greater than that of the Motor Module.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.

Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.

**Remedy:**
- check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star-delta)
- U/f operation: Increase up ramp.
- U/f operation: Check the assignment of the rated currents of the motor and Motor Module.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

## F30105 PU: Actual value sensing fault

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).
The incorrect actual value channels are displayed in the following diagnostic parameters.

**Remedy:** Evaluate the diagnostic parameters.
If the actual value channel is incorrect, check the components and if required, replace.

## F30314 Power unit: 24 V power supply overloaded by PM

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The 24 V power supply through the Power Module (PM) is overloaded.
An external 24 V power supply via X124 on the Control Unit is not connected.

**Remedy:** Connect an external 24 V power supply via X124 at the Control Unit.

## A30315 (F) Power unit: 24 V power supply overloaded by PM

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The 24 V power supply through the Power Module (PM) is overloaded.
An external 24 V power supply via X124 on the Control Unit is not connected.
**Remedy:** Connect an external 24 V power supply via X124 at the Control Unit.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

## A30502 Power unit: DC link overvoltage

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The power unit has detected overvoltage in the DC link on a pulse inhibit.
- device connection voltage too high.
- line reactor incorrectly dimensioned.
Fault value (r0949, decimal interpretation):
DC link voltage [1 bit = 100 mV].
See also: r0070 (Actual DC link voltage)
**Remedy:** - check the device supply voltage (p0210).
- check the dimensioning of the line reactor.
See also: p0210 (Drive unit line supply voltage)

## F30600 SI MM: STOP A initiated

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The "Safety Integrated" function integrated in the drive in the Motor Module (MM) has detected a fault and initiated STOP A (pulse suppression via the safety shutdown path of the Motor Module).
- forced checking procedure of the safety shutdown path of the Motor Module unsuccessful.
- subsequent response to fault F30611 (defect in a monitoring channel).
Fault value (r0949, decimal interpretation):
0: Stop request from the Control Unit.
1005: Pulses suppressed although STO not selected and there is no internal STOP A present.
1010: Pulses enabled although STO is selected or an internal STOP A is present.
1020: Internal software error in the "Internal voltage protection" function. The "internal voltage protection" function is withdrawn. A STOP A that cannot be acknowledged is initiated.
9999: Subsequent response to fault F30611.
**Remedy:** - select Safe Torque Off and de-select again.
- replace the Motor Module involved.
For fault value = 1020:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- replace the Motor Module.
For fault value = 9999:
- carry out diagnostics for fault F30611.
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill

## F30611 SI MM: Defect in a monitoring channel

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE (OFF1, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The "Safety Integrated" function integrated in the drive in the Motor Module (MM) has detected a fault in the crosswise data comparison between the Control Unit (CU) and MM and initiated a STOP F.
As a result of this fault, after the parameterized transition has expired (p9858), fault F30600 is output (SI MM: STOP A initiated).
Fault value (r0949, decimal interpretation):
0: Stop request from the Control Unit.
1 ... 999:
Number of the cross-checked data that resulted in this fault. This number is also displayed in r9895.
1: SI monitoring clock cycle (r9780, r9880).
2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.
3: SI SGE changeover tolerance time (p9650, p9850).
4: SI transition period STOP F to STOP A (p9658, p9858).
5: SI enable Safe Brake Control (p9602, p9802).
6: SI Motion enable, safety-relevant functions (p9501, internal value).
7: SI pulse suppression delay time for Safe Stop 1 (p9652, p9852).
8: SI PROFIsafe address (p9610, p9810).
9: SI debounce time for STO/SBC/SS1 (MM) (p9651, p9851).
10: SI delay time for pulse suppression for ESR (p9697, p9897).
11: SI Safe Brake Adapter mode, BICO interconnection (p9621, p9821).
12: SI Safe Brake Adapter relay ON time (p9622[0], p9822[0]).
13: SI Safe Brake Adapter relay OFF time (p9622[1], p9822[1]).
1000: Watchdog timer has expired. Within the time of approx. 5 x p9850 too many switching operations have occurred at the safety-related inputs of the Control Unit, or STO (also as subsequent response) was initiated too frequently via PROFIsafe/TM54F.
1001, 1002: Initialization error, change timer / check timer.
1950: Module temperature outside the permissible temperature range.
1951: Module temperature not plausible.
2000: Status of the STO selection on the Control Unit and Motor Module are different.
2001: Feedback signal for safe pulse suppression on the Control Unit and Motor Module are different.
2002: Status of the delay timer SS1 on the Control Unit and Motor Module are different.
6000 ... 6999:
Error in the PROFIsafe control.
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
The significance of the individual message values is described in safety message C01711 of the Control Unit.

**Remedy:** Re fault value = 1 ... 5 and 7 ... 999:
- check the cross-checked data that resulted in a STOP F.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 6:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

For fault value = 1000:
- check the wiring of the safety-relevant inputs (SGE) on the Control Unit (contact problems).
- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller. - check the wiring of the failsafe inputs at the TM54F (contact problems).

Re fault value = 1001, 1002:
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 2000, 2001, 2002:
- check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).
- check the cause of the STO selection in r9772. When the SMM functions are active (p9501 = 1), STO can also be selected using these functions.
- replace the Motor Module involved.

Re fault value = 6000 ... 6999:
Refer to the description of the message values in safety message C01711.
Note:
CU: Control Unit
MM: Motor Module
SGE: Safety-relevant input
SI: Safety Integrated
SMM: Safe Motion Monitoring
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
STO: Safe Torque Off / SH: Safe standstill
ESR: Extended Stop and Retract

## N30620 (F, A) SI MM: Safe Torque Off active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The "Safe Torque Off" function was selected on the Motor Module (MM) via the input terminal and is active.
Note:
This message does not result in a safety stop response.
**Remedy:** Not necessary.
Note:
MM: Motor Module
SI: Safety Integrated
STO: Safe Torque Off / SH: Safe standstill
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

## N30621 (F, A) SI MM: Safe Stop 1 active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The "Safe Stop 1" function (SS1) was selected on the Motor Module (MM) and is active.
Note:
This message does not result in a safety stop response.
**Remedy:** Not necessary.
Note:
MM: Motor Module
SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
Reaction upon F: OFF3
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon A: NONE
Acknowl. upon A: NONE

## F30625 SI MM: Sign-of-life error in safety data

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The "Safety Integrated" function integrated in the drive on the Motor Module (MM) has detected an error in the sign-of-life of the safety data between the Control Unit (CU) and MM and initiated a STOP A.
- there is either a DRIVE-CLiQ communication error or communication has failed.
- a time slice overflow of the safety software has occurred.

Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:**
- select Safe Torque Off and de-select again.
- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- de-select all drive functions that are not absolutely necessary.
- reduce the number of drives.
- check the electrical cabinet design and cable routing for EMC compliance

Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F30630 SI MM: Brake control error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The "Safety Integrated" function integrated in the drive on the Motor Module (MM) has detected a brake control error and initiated a STOP A.
Fault value (r0949, decimal interpretation):
10:
Fault in "open holding brake" operation.
- Parameter p1278 incorrectly set.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
- Ground fault in brake cable.

30:
Fault in "close holding brake" operation.
- No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
- Short-circuit in brake winding.

40:
Fault in "brake closed" state.
60, 70:
Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).
81: SafeBrakeAdapter: Fault in "brake closed" state.
82: SafeBrakeAdapter: Fault in "open brake" state.
83: SafeBrakeAdapter: Fault in "close brake" state.
84,85:
SafeBrakeAdapter: Fault in the brake control circuit of the Control Unit or communication fault between Control Unit and Motor Module (brake control).
Note:
The following causes may apply to fault values:
- motor cable is not shielded correctly.
- defect in control circuit of the Motor Module.

**Remedy:**
- check parameter p1278 (for SBC, only p1278 = 0 is permissible).
- select Safe Torque Off and de-select again.
- check the motor holding brake connection.
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.

Operation with Safe Brake Module or Safe Brake Adapter:
- check the Safe Brake Module or Safe Brake Adapter connection.
- Replace the Safe Brake Module or Safe Brake Adapter.

Note:
MM: Motor Module
SBC: Safe Brake Control
SI: Safety Integrated

## A30640 (F) SI MM: Fault in the shutdown path of the second channel

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The Motor Module has detected a communication error with the higher-level control or the TM54F to transfer the safety-relevant information or there is a communication error between motor modules connected in parallel.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** For the higher-level control, the following applies:
- check the PROFIsafe address in the higher-level control and Motor Modules and if required, align.
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

For TM54F, carry out the following steps:
- start the copy function for the node identifier (p9700 = 1D hex).
- acknowledge hardware CRC (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

For a parallel connection:
- check the PROFIsafe address in the Control Unit and Motor Module and if required, align.
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.

The following generally applies:
- upgrade the Motor Module software.

Note:
MM: Motor Module
SI: Safety Integrated
See also: p9810 (SI PROFIsafe address (processor 2))

Reaction upon F: NONE (OFF2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

## F30649 SI MM: Internal software error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An internal error in the Safety Integrated software on the Motor Module has occurred.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:**
- carry out a POWER ON (power off/on) for all components.
- re-commission the Safety Integrated function and carry out a POWER ON.
- upgrade the Motor Module software.
- contact the Hotline.
- replace the Motor Module.

Note:
MM: Motor Module
SI: Safety Integrated

## F30650 SI MM: Acceptance test required

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The "Safety Integrated" function on the Motor Module requires an acceptance test.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, decimal interpretation):
130: Safety parameters for the Motor Module not available.
Note:
This fault value is always output when Safety Integrated is commissioned for the first time.
1000: Reference and actual checksum in the Motor Module are not identical (booting).
- at least one checksum-checked piece of data is defective.
2000: Reference and actual checksum on the Motor Module are not identical (commissioning mode).
- reference checksum incorrectly entered into the Motor Module (p9899 not equal to r9898).
2003: Acceptance test is required as a safety parameter has been changed.
2005: The safety logbook has identified that the safety checksums have changed. An acceptance test is required.
3003: Acceptance test is required as a hardware-related safety parameter has been changed.
9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

**Remedy:** For fault value = 130:
- carry out safety commissioning routine.
For fault value = 1000:
- again carry out safety commissioning routine.
- replace the memory card or Control Unit.
For fault value = 2000:
- check the safety parameters in the Motor Module and adapt the reference checksum (p9899).
Re fault value = 2003, 2005:
- Carry out an acceptance test and generate an acceptance report.
The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
SINAMICS S120 Function Manual Safety Integrated
For fault value = 3003:
- carry out the function checks for the modified hardware and generate an acceptance report.
The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
SINAMICS S120 Function Manual Safety Integrated
For fault value = 9999:
- carry out diagnostics for the other safety-related fault that is present.
Note:
MM: Motor Module
SI: Safety Integrated
See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI setpoint checksum SI parameters (processor 2))

## F30651 SI MM: Synchronization with Control Unit unsuccessful

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The "Safety Integrated" function integrated in the drive is requesting synchronization of the safety time slices on the Control Unit and Motor Module. This synchronization routine was unsuccessful.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
Note:
MM: Motor Module
SI: Safety Integrated

## F30652 SI MM: Illegal monitoring clock cycle

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The Safety Integrated monitoring clock cycle cannot be maintained due to the communication conditions requested in the system.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** - if fault 1652 simultaneously occurs, apply the remedy/countermeasure described there.
- upgrade the Motor Module software.
Note:
MM: Motor Module
SI: Safety Integrated

## F30655 SI MM: Align monitoring functions

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An error has occurred when aligning the Safety Integrated monitoring functions on the Control Unit (CU) and Motor Module (MM). Control Unit and Motor Module were not able to determine a common set of supported SI monitoring functions.
- there is either a DRIVE-CLiQ communication error or communication has failed.
- Safety Integrated software releases on the Control Unit and Motor Module are not compatible with one another.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- check the electrical cabinet design and cable routing for EMC compliance
Note:
CU: Control Unit
MM: Motor Module
SI: Safety Integrated

## F30656 SI MM: Motor Module parameter error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When accessing the Safety Integrated parameters for the Motor Module (MM) in the non-volatile memory, an error has occurred.
Note:
This fault results in a STOP A that can be acknowledged.

Fault value (r0949, decimal interpretation):
129:
- safety parameters for the Motor Module corrupted.
- drive with enabled safety functions was possibly copied offline using the commissioning software and the project downloaded.
131: Internal software error on the Control Unit.
255: Internal Motor Module software error.

**Remedy:**
- re-commission the safety functions.
- upgrade the Control Unit software.
- upgrade the Motor Module software.
- replace the memory card or Control Unit.
For fault value = 129:
- activate the safety commissioning mode (p0010 = 95).
- adapt the PROFIsafe address (p9610).
- start the copy function for SI parameters (p9700 = D0 hex).
- acknowledge data change (p9701 = DC hex).
- exit the safety commissioning mode (p0010 = 0).
- save all parameters (p0977 = 1 or "copy RAM to ROM").
- carry out a POWER ON (power off/on) for all components.
Note:
MM: Motor Module
SI: Safety Integrated

## F30659 SI MM: Write request for parameter rejected

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The write request for one or several Safety Integrated parameters on the Motor Module (MM) was rejected.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
10: An attempt was made to enable the STO function although this cannot be supported.
11: An attempt was made to enable the SBC function although this cannot be supported.
13: An attempt was made to enable the SS1 function although this cannot be supported.
14: An attempt was made to enable the safe motion monitoring function with the higher-level control, although this cannot be supported.
15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.
16: An attempt was made to enable the PROFIsafe communication - although this cannot be supported or the version of the PROFIsafe driver used on the CU and MM is different.
18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.
19: For ESR, an attempt was made to enable the delay for pulse suppression, although this cannot be supported.
See also: r9771 (SI common functions (processor 1)), r9871 (SI common functions (processor 2))

**Remedy:** Re fault value = 10, 11, 13, 14, 15, 16, 18, 19:
- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Motor Module that supports the required function.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
Note:
CU: Control Unit
ESR: Extended Stop and Retract
MM: Motor Module
SBC: Safe Brake Control
SI: Safety Integrated
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
STO: Safe Torque Off / SH: Safe standstill

## F30662 Error in internal communications

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** A module-internal communication error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

## F30664 Error while booting

**Message value:** %1
**Drive object:** All objects
**Reaction:** OFF2
**Acknowledge:** POWER ON
**Cause:** An error has occurred during booting.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

## F30665 SI MM: System is defective

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).
Fault value (r0949, interpret hexadecimal):
200000 hex, 400000 hex:
- Fault in the actual booting/operation.
2 hex:
- parameters p9500 and p9300 are not the same (if Safety message C30711 is displayed at the same time).
Additional values:
- defect before the last time that the system booted.
**Remedy:** - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
For fault value = 2:
- check parameters p9500 and p9300 to see if they are the same (if Safety message C30711 is displayed at the same time).
Re fault value = 400000 hex:
- ensure that the Control Unit is connected to the Power Module.

## A30666 (F) SI Motion MM: Steady-state (static) 1 signal at the F-DI for safety-relevant acknowledgement

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A logical 1 signal is present at the F-DI configured in p10106 for more than 10 seconds.
If, at the F-DI no acknowledgment was performed for safe acknowledgment, then a steady-state logical and 0 signal must be present. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.

**Remedy:** Set the fail-safe digital input (F-DI) to a logical 0 signal (p10106).
Note:
F-DI: Failsafe Digital Input
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

## F30672 SI CU: Control Unit software incompatible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The existing Control Unit software does not support the safe drive-based motion monitoring function.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
**Remedy:** - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module (F01655, F30655) and if required, carry out diagnostics for the faults involved.
- use a Control Unit that supports the safe motion monitoring function.
- upgrade the Control Unit software.
Note:
SI: Safety Integrated

## F30680 SI Motion MM: Checksum error safety monitoring functions

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The actual checksum calculated by the Motor Module and entered in r9398 over the safety-relevant parameters does not match the reference checksum saved in p9399 at the last machine acceptance.
Safety-relevant parameters have been changed or a fault is present.
Note:
This fault results in a STOP A that can be acknowledged.
Fault value (r0949, decimal interpretation):
0: Checksum error for SI parameters for motion monitoring.
1: Checksum error for SI parameters for component assignment.
**Remedy:** - check the safety-relevant parameters and if required, correct.
- set the reference checksum to the actual checksum.
- perform a POWER ON if safety parameters requiring a POWER ON have been modified.
- carry out an acceptance test.

## F30681 SI Motion MM: Incorrect parameter value

**Message value:** Parameter: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The parameter cannot be parameterized with this value.
Note:
This message does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Parameter number with the incorrect value.
**Remedy:** Correct the parameter value.
If the encoder parameters (p9526/p9326) have different values, start the copy function for SI parameters on the drive (p9700 = 57 hex).
Also check p9316.0 for fault value 9317.

## F30682 SI Motion MM: Monitoring function not supported

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The monitoring function enabled in p9301, p9501, p9601 or p9801 is not supported in this firmware version.
Note:
This message does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
1: Monitoring function SLP not supported (p9301.1).
2: Monitoring function SCA not supported (p9301.7 and p9301.8 ... 15).
3: Monitoring function SLS override not supported (p9301.5).
4: Monitoring function external ESR activation not supported (p9301.4).
5: Monitoring function F-DI in PROFIsafe not supported (p9301.30).
6: Enable actual value synchronization not supported (p9301.3).
9: Monitoring function not supported, enable bit reserved (p9301.2, p9301.17 ... 29, p9301.31, if required p9301.6).
12: This Control Unit does not support NcSI.
24: Monitoring function SDI not supported.
26: hysteresis and filtering for SSM monitoring function without an encoder not supported (p9301.16).
30: The firmware version of the Motor Module is older than the version of the Control Unit.

**Remedy:** - de-select the monitoring function involved (p9301, p9301, p9303, p9601, p9801).
- Upgrade the Motor Module firmware.
Note:
ESR: Extended Stop and Retract
SCA: Safe Cam / SN: Safe software cam
SDI: Safe Direction (safe motion direction)
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9301, p9501, p9503, p9601, p9801, r9871

## F30683 SI Motion MM: SOS/SLS enable missing

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The safety-relevant basic function "SOS/SLS" is not enabled in p9301 although other safety-relevant monitoring functions are enabled.
Note:
This message does not result in a safety stop response.

**Remedy:** Enable the function "SOS/SLS" (p9301.0).
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
SOS: Safe Operating Stop / SBH: Safe operating stop
See also: p9301 (SI Motion enable safety functions (processor 2))

## F30685 SI Motion MM: Safely-Limited Speed limit value too high

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz.
Note:
This message does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Maximum permissible speed.

**Remedy:** Correct the limit values for SLS and carry out a POWER ON.
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9331 (SI Motion SLS limit values (processor 2))

## F30688 SI Motion MM: Actual value synchronization not permissible

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** - It is not permissible to enable actual value synchronization for a 1-encoder system.
- It is not permissible to simultaneously enable actual value synchronization and a monitoring function with absolute reference (SCA/SLP).
Note:
This fault results in a STOP A that cannot be acknowledged.
**Remedy:** - Either select the "actual value synchronization" function or parameterize a 2-encoder system.
- Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON.
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches
See also: p9501 (SI Motion enable safety functions (processor 1))

## F30692 SI Motion MM: Incorrect parameter value encoderless

**Message value:** Parameter: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The parameter cannot be parameterized with this value if encoderless motion monitoring functions have been parameterized in p9306.
Note:
This message does not result in a safety stop response.
Fault value (r0949, decimal interpretation):
Parameter number with the incorrect value.
See also: p9301 (SI Motion enable safety functions (processor 2))
**Remedy:** Correct the parameter value or de-select encoderless motion monitoring functions.
See also: p9301 (SI Motion enable safety functions (processor 2)), p9501 (SI Motion enable safety functions (processor 1))

## A30693 (F) SI MM: Safety parameter settings changed, warm restart/POWER ON required

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Safety parameters have been changed; these will only take effect following a warm restart or POWER ON.
Alarm value (r2124, interpret decimal):
Parameter number of the safety parameter which has changed, necessitating a warm restart or POWER ON.
**Remedy:** - carry out a warm restart (p0009 = 30, p0976 = 2, 3).
- carry out a POWER ON (power off/on) for all components.
Note:
Before performing an acceptance test, a POWER ON must be carried out for all components.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: POWER ON

## C30700 SI Motion MM: STOP A initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP A (pulses are suppressed via the safety shutdown path of the Control Unit).
Possible causes:
- stop request from the Control Unit.
- pulses not suppressed after a parameterized time (p9357) after test stop selection.
- subsequent response to the message C30706 "SI Motion MM: SAM/SBR limit exceeded".
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C30701 "SI Motion MM: STOP B initiated".

**Remedy:** - remove the cause to the fault on the Control Unit.
- check the value in p9357, if required, increase the value.
- check the shutdown path of the Control Unit (check DRIVE-CLiQ communication).
- carry out a diagnostics routine for message C30706.
- carry out a diagnostics routine for message C30714.
- carry out a diagnostics routine for message C30701.
- replace the Motor Module/Power Module
- replace Control Unit.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe brake ramp monitoring)
SI: Safety Integrated

## C30701 SI Motion MM: STOP B initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF3

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP B (braking along the OFF3 ramp).
As a result of this fault, after the time parameterized in p9356 has expired or after the speed threshold parameterized in p9360 has been fallen below, message C30700 "SI Motion MM: STOP A initiated" is output.
Possible causes:
- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
- subsequent response to the message C30711 "SI Motion MM: Defect in a monitoring channel".
- subsequent response to the message C30707 "SI Motion MM: tolerance for safe operating stop exceeded".

**Remedy:** - remove the cause to the fault on the Control Unit.
- carry out a diagnostics routine for message C30714.
- carry out a diagnostics routine for message C30711.
- carry out a diagnostics routine for message C30707.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated

## C30706 SI Motion MM: SAM/SBR limit exceeded

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** Motion monitoring functions with encoder (p9306 = 0) or encoderless with set acceleration monitoring (p9306 = 3): SAM - safe acceleration monitoring. After initiating STOP B (SS1) or STOP C (SS2), the speed has exceeded the selected tolerance.

Motion monitoring functions encoderless with set brake ramp monitoring (p9306 = 1):
SBR - Safe brake ramp monitoring. After initiating STOP B (SS1) or SLS changeover to the lower speed stage, the speed has exceeded the selected tolerance.
- via F-DI or PROFIsafe.
The drive is shut down by the message C30700 "SI Motion MM: STOP A initiated".

**Remedy:** Check the braking behavior and, if necessary, adapt the tolerance for the "SAM" function or modify the parameter settings for the "SBR" function.
This message can be acknowledged without a POWER ON as follows:
- motion monitoring functions integrated in the drive: via Terminal Module 54F (TM54F) or PROFIsafe
Note:
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SBR: Safe Brake Ramp (safe ramp monitoring)
SI: Safety Integrated
See also: p9348, p9381, p9382, p9383, p9548

## C30707 SI Motion MM: Tolerance for safe operating stop exceeded

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The actual position has distanced itself further from the target position than the standstill tolerance.
The drive is shut down by the message C30701 "SI Motion MM: STOP B initiated".

**Remedy:** - check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop
See also: p9530 (SI Motion standstill tolerance (processor 1))

## C30708 SI Motion MM: STOP C initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** STOP2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP C (braking along the OFF3 ramp).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded".
See also: p9552 (SI Motion transition time STOP C to SOS (processor 1))

**Remedy:** - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

## C30709 SI Motion MM: STOP D initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP D (braking along the path).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.

Possible causes:
- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion: Safely limited speed exceeded".
See also: p9353 (SI Motion transition time STOP D to SOS (processor 2)), p9553 (SI Motion transition time STOP D to SOS (processor 1))

**Remedy:** - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

## C30710 SI Motion MM: STOP E initiated

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive is stopped via a STOP E (retraction motion).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C30714 "SI Motion: Safely limited speed exceeded".
See also: p9354 (SI Motion transition time STOP E to SOS (processor 2)), p9554 (SI Motion transition time STOP E to SOS (processor 1))

**Remedy:** - remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

## C30711 SI Motion MM: Defect in a monitoring channel

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When cross-checking and comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
If at least one monitoring function is active, then after the parameterized timer has expired, the message C30701 "SI Motion: STOP B initiated" is output. The message is output with message value 1031 when the Sensor Module hardware is replaced.
The following message values may also occur in the following cases if the cause that is explicitly mentioned does not apply:
- differently parameterized cycle times (p9500/p9300, p9511/p9311).
- differently parameterized axis types (p9502/p9302).
- excessively fast cycle times (p9500/p9300, p9511/p9311).
- incorrect synchronization.
Message value (r9749, interpret decimal):
0 ... 999: Number of the cross-checked data that resulted in this message. Refer to safety message C01711for a description of the individual data.
The significance of the individual message values is described in safety message C01711 of the Control Unit.
1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.
1001: Initialization error of watchdog timer.
1005: Pulses already suppressed for test stop selection.
1011: Acceptance test status between the monitoring channels differ.
1012: Plausibility violation of the actual value from the encoder.
1020: Cyc. communication failure between the monit. cycles.
1021: Cyc. communication failure between the monit. channel and Sensor Module.
1023: Error in the effectiveness test in the DRIVE-CLiQ encoder
1030: Encoder fault detected from another monitoring channel.

1031: Data transfer error between the monitoring channel and the Sensor Module (p9526/p9326).
1040: Pulses suppressed with active encoderless monitoring functions.
1041: Current absolute value too low (encoderless)
1042: Current/voltage plausibility error
1043: Too many acceleration phases
1044: Actual current values plausibility error.
5000 ... 5140:
PROFIsafe message values.
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
The significance of the individual message values is described in safety message C01711 of the Control Unit.
6000 ... 6166:
PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
The significance of the individual message values is described in safety message C01711 of the Control Unit.
See also: p9555 (SI Motion transition time STOP F to STOP B (processor 1)), r9725 (SI Motion, diagnostics STOP F)

**Remedy:** Re message value = 1030:
- check the encoder connection.
- if required, replace the encoder.
Re message value = 1031:
When replacing a Sensor Module, carry out the following steps:
- start the copy function for the node identifier on the drive (p9700 = 1D hex).
- acknowledge the hardware CRC on the drive (p9701 = EC hex).
- save all parameters (p0977 = 1).
- carry out a POWER ON (power off/on) for all components.
The following always applies:
- check the encoder connection.
- if required, replace the encoder.
Re message value = 1040:
- de-select encoderless monitoring functions, select and de-select STO.
- if monitoring function is active, issue "SLS" pulse enable within 5 s of de-selecting STO.
Re other message values:
- The significance of the individual message values is described in safety message C01711 of the Control Unit.
Note:
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
See also: p9300 (SI Motion monitoring clock cycle (processor 2)), p9500 (SI Motion monitoring clock cycle (processor 1))

## C30712 SI Motion MM: Defect in F-IO processing

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
The safety message C30711 with message value 0 is also displayed due to initiation of STOP F.
If at least one monitoring function is active, the safety message C30701 "SI Motion: STOP B initiated" is output after the parameterized timer has expired.
Message value (r9749, interpret decimal):
Number of the cross-checked data that resulted in this message.
Refer to the description of the message values in safety message C01712.

**Remedy:** - check parameterization in the parameters involved and correct if required.
- ensure equality by copying the SI data to the second channel and then carry out an acceptance test.
- check monitoring clock cycle for equality (p9500, p9300).
Note:
This message can be acknowledged via F-DI or PROFIsafe.
See also: p9300 (SI Motion monitoring clock cycle (processor 2)), p9500 (SI Motion monitoring clock cycle (processor 1))

## C30714 SI Motion MM: Safely-Limited Speed exceeded

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The drive had moved faster than that specified by the velocity limit value (p9331). The drive is stopped as a result of the configured stop response (p9363).
Message value (r9749, interpret decimal):
100: SLS1 exceeded.
200: SLS2 exceeded.
300: SLS3 exceeded.
400: SLS4 exceeded.
1000: Encoder limit frequency exceeded.

**Remedy:** - check the traversing/motion program in the control.
- check the limits for "SLS" function and if required, adapt (p9331).
Note:
This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9331 (SI Motion SLS limit values (processor 2)), p9363 (SI Motion SLS stop response (processor 2))

## C30716 SI Motion MM: Tolerance for safe motion direction exceeded

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The tolerance for the "safe motion direction" function was exceeded. The drive is stopped as a result of the configured stop response (p9366).
Message value (r9749, interpret decimal):
0: Tolerance for the "safe motion direction positive" function exceeded.
1: Tolerance for the "safe motion direction positive negative" function exceeded.

**Remedy:** - check the traversing/motion program in the control.
- check the tolerance for "SDI" function and if required, adapt (p9364).
This message can be acknowledged as follows:
Via F-DI or PROFIsafe
Note:
SDI: Safe Direction (safe motion direction)
SI: Safety Integrated
See also: p9364 (SI Motion SDI tolerance (processor 2)), p9365 (SI Motion SDI delay time (processor 2)), p9366 (SI Motion SDI stop response (processor 2))

## C30770 SI Motion MM: Discrepancy error affecting the fail-safe inputs/outputs

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The fail-safe digital inputs/digital outputs (F-DI/F-DO) show a different state longer than that parameterized in p10002 / p10102.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
xxxx: Discrepancy error for fail-safe digital inputs (F-DI).
Bit 0: Discrepancy error for F-DI 0
Bit 1: Discrepancy error for F-DI 1
...
yyyy: Discrepancy error for fail-safe digital outputs (F-DO).
Bit 0: Discrepancy error for F-DO 0
...
Note:
If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.

**Remedy:** - check the wiring of the F-DI (contact problems).
Note:
This message can be acknowledged via F-DI or PROFIsafe.
Discrepancy errors of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006 or acknowledgment via PROFIsafe). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state internally.
For cyclic switching operations at the F-DI, it may be necessary to adapt the discrepancy time to the switching frequency.
If the period of a cyclic switching pulse has the order of magnitude of double the value of p10002, then the following formulas must be checked.
p10002 < (tp / 2) - td (discrepancy time must be less than half the period minus the actual discrepancy time)
p10002 >= p9500 (discrepancy time must be no less than P9500)
p10002 > td (discrepancy time must be greater than the switch discrepancy time which may actually apply)
td = possible actual discrepancy time (in ms) that can occur with a switching operation. This must correspond to at least 1 SI sampling cycle (see p9500).
tp = period for a switching operation in ms.
When debounce p10017 is active, the discrepancy time is directly specified by the debounce time.
If the period of a cyclic switching pulse has the order of magnitude of twice the debounce time, then the following formulas should be checked.
p10002 < p10017 + 1 ms - td
p10002 > td
p10002 >= p9500
Example:
For a 12 ms SI sampling cycle and a switching frequency of 110 ms (p10017 = 0), the maximum discrepancy time which can be set is as follows:
p10002 <= (110/2 ms) - 12 ms = 43 ms
Rounded-off, p10002 <= 36 ms is obtained (since the discrepancy time can only be accepted as a whole SI sampling cycle, the value will need to be rounded up or down to a whole SI sampling time value if the result is not an exact multiple of an SI sampling cycle).
Note:
F-DI: Failsafe Digital Input
F-DO: Failsafe Digital Output

## A30772 SI Motion MM: Test stop failsafe inputs/outputs active

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The test stop for the fail-safe digital inputs (F-DI) and/or fail-safe digital outputs (F-DO) is presently being performed.
Note:
F-DI: Failsafe Digital Input
F-DO: Failsafe Digital Output

**Remedy:** The alarm disappears automatically after successfully ending or canceling (when a fault condition occurs) the test stop.

## F30773 SI Motion MM: Test stop fault Motor Module

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** A fault has occurred on the MM side during the test stop for the fail-safe outputs.
Fault value (r0949, interpret hexadecimal):
RRRVWXYZ hex:
R: Reserved.
V: Actual state of the DO channel concerned (see X) on the CU (corresponds to the states read back from the hardware, bit 0 = DO 0, bit 1 = DO 1, etc.).
W: Required state of the DO channel concerned (see X, bit 0 = DO 0, bit 1 = DO 1, etc.).
X: DO channels involved, which indicate an error (bit 0 = DO 0, bit 1 = DO 1, etc.).
Y: Reason for the test stop fault.
Z: State of the test stop in which the fault has occurred.
Y: Reason for the test stop fault

Y = 1: MM side in incorrect test stop state (internal fault).
Y = 2: Expected states of the DOs were not fulfilled (CU305: readback via DI 22 / CU240 readback DI 2).
Y = 3: Incorrect timer state on CU side (internal fault)
Y = 4: Expected states of the diag DOs were not fulfilled (CU305: internal readback on MM channel).
Y = 5: Expected states of the second diag DOs were not fulfilled (CU305: internal readback on CU channel).
X and V indicate the DI or Diag-DO state dependent upon the reason for the fault (2, 4 or 5).
In the event of multiple test stop faults, the first one that occurred is shown.
Z: Test stop state and associated test actions
Z = 0 ... 3: Synchronization phase of test stop between CU and Motor Module no switching operations
Z = 4: DO + OFF and DO - OFF
Z = 5: Check to see if states are as expected
Z = 6: DO + ON and DO - ON
Z = 7: Check to see if states are as expected
Z = 8: DO + OFF and DO - ON
Z = 9: Check to see if states are as expected
Z = 10: DO + ON and DO - OFF
Z = 11: Check to see if states are as expected
Z = 12: DO + OFF and DO - OFF
Z = 13: Check to see if states are as expected
Z = 14: End of test stop
Diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: 0/-/-/1
7: 0/-/-/0
9: 0/-/-/0
11: 1/-/-/1
13: 0/-/-/1
Second diag expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/-/-/1
7: -/-/-/0
9: -/-/-/1
11: -/-/-/0
13: -/-/-/1
DI expected states in table format:
Test stop state: Expectation Mode 1 / Mode 2 / Mode 3 / Mode 4
5: -/1/1/-
7: -/0/0/-
9: -/0/1/-
11: -/0/1/-
13: -/1/1/-
Example:
Fault F01773 (CU) is signaled with fault value = 0001_0127 and fault F30773 (MM) is signaled with fault value 0000_0127.
This means that in state 7 (Z = 7) the state of the external readback signal was not set correctly (Y = 2) after DO-0 (X = 1) was switched to ON/ON.
Fault value 0001_0127 indicates that 0 was expected (W = 0) and 1 (V = 1) was read back from the hardware.
Fault value 0000_0127 on the MM indicates that the states were as expected.
In the case of fault F30773, W and V are always identical; a value of 0 always means that 0 was expected at the readback input but was not present on the other channel (CU).

**Remedy:** Check the wiring of the F-DOs and restart the test stop.
Note:
The fault is withdrawn if the test stop is successfully completed.
In the event of multiple test stop faults, the first one that occurred is shown.
Once the test stop has been restarted the next queued test stop fault will be signaled (if there is one).

## C30798 SI Motion MM: Test stop running

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The test stop is active.

**Remedy:** Not necessary.
The message is withdrawn when the test stop is finished.
Note:
SI: Safety Integrated

## C30799 SI Motion MM: Acceptance test mode active

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The acceptance test mode is active. The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the acknowledgement functions of the higher-level control.
**Remedy:** Not necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated

## N30800 (F) Power unit: Group signal

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** NONE
**Cause:** The power unit has detected at least one fault.
**Remedy:** Evaluate the other messages that are presently available.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

## F30801 Power unit DRIVE-CLiQ: Sign-of-life missing

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
The computing time load might be too high.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0A hex:
The sign-of-life bit in the receive telegram is not set.
**Remedy:** - check the electrical cabinet design and cable routing for EMC compliance
- remove DRIVE-CLiQ components that are not required.
- de-select functions that are not required.
- if required, increase the sampling times (p0112, p0115).
- replace the component involved.

## F30802 Power unit: Time slice overflow

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A time slice overflow has occurred.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

## A30804 (F) Power unit: CRC

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** CRC error actuator
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Reaction upon F: OFF2 (OFF1, OFF3)
Acknowl. upon F: IMMEDIATELY

## F30805 Power unit: EPROM checksum error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
**Remedy:** Replace the module.

## F30809 Power unit: Switching information not valid

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** For 3P gating unit:
The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

## A30810 (F) Power unit: Watchdog timer

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY

## F30850 Power unit: Internal software error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** POWER ON
**Cause:** An internal software error has occurred in the power unit.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.

**Remedy:** - replace power unit.
- if required, upgrade the firmware in the power unit.
- contact the Hotline.

## F30899 (N, A) Power unit: Unknown fault

**Message value:** New message: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, decimal interpretation):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
**Remedy:** - replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F30903 Power unit: I2C bus error occurred

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** Communications error with an EEPROM or A/D converter.
Fault value (r0949, interpret hexadecimal):
80000000 hex:
- internal software error.
00000001 hex ... 0000FFFF hex:
- module fault.
**Remedy:** Re fault value = 80000000 hex:
- upgrade firmware to later version.
Re fault value = 00000001 hex ... 0000FFFF hex:
- replace the module.

## F30907 Power unit: FPGA configuration unsuccessful

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** During initialization within the power unit, an internal software error has occurred.
**Remedy:** - if required, upgrade the firmware in the power unit.
- replace power unit.
- contact the Hotline.

## A30920 (F) Power unit: Temperature sensor fault

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm, PT100: R > 375 Ohm).
2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT100: R < 30 Ohm).

**Remedy:** - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

## A30999 (F, N) Power unit: Unknown alarm

**Message value:** New message: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.

**Remedy:** - replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

## F31100 (N, A) Encoder 1: Zero mark distance error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, decimal interpretation):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- replace the encoder or encoder cable

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31101 (N, A) Encoder 1: Zero mark failed

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Fault value (r0949, decimal interpretation):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31103 (N, A) Encoder 1: Amplitude error, track R

**Message value:** R track: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 1.
The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)
The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.
The response threshold for the differential signal level of the encoder is < -1600 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
The fault value can only be represented between -32767 ... 32767 dec (-770 ... 770 mV).
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31110 (N, A) Encoder 1: Serial communications error

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** Serial communication protocol transfer error between the encoder and evaluation module.
Fault value (r0949, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).

Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Bit 13: Data line incorrect.

**Remedy:** Re fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.

Re fault value, bit 1 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.

Re fault value, bit 2 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.

Re fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.

Re fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

Re fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

Re fault value, bit 6 = 1:
- Update Sensor Module firmware.

Re fault value, bit 8 = 1:
- Check parameterization (p0429.2).

Re fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

Re fault value, bit 10 = 1:
- Check parameterization (p0429.2, p0449).

Re fault value, bit 11 = 1:
- Check parameterization (p0436).

Re fault value, bit 12 = 1:
- Check parameterization (p0429.6).

Re fault value, bit 13 = 1:
- Check data line.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31111 (N, A) Encoder 1: Absolute encoder EnDat, internal fault/error

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The EnDat encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit 0: Lighting system failed.
Bit 1: Signal amplitude too low.
Bit 2: Position value incorrect.
Bit 3: Encoder power supply overvoltage condition.
Bit 4: Encoder power supply undervoltage condition.
Bit 5: Encoder power supply overcurrent condition.
Bit 6: The battery must be changed.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** Re fault value, bit 0 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 1 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 2 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 3 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
Re fault value, bit 4 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When using a motor with DRIVE-CLiQ: Replace the motor.
Re fault value, bit 5 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31112 (N, A) Encoder 1: Error bit set in the serial protocol

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The encoder sends a set error bit via the serial protocol.
Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.
**Remedy:** For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31115 (N, A) Encoder 1: Amplitude error track A or B (A^2 + B^2)

**Message value:** A track: %1, B-track: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude (root of A^2 + B^2) for encoder 1 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for sensors modules for resolvers (e. g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).
The following applies to measuring systems without their own bearing system:
- adjust the scanning head and check the bearing system of the measuring wheel.
The following applies for measuring systems with their own bearing system:
- ensure that the encoder housing is not subject to any axial force.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31116 (N, A) Encoder 1: Amplitude error monitoring track A + B

**Message value:** A track: %1, B-track: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** The amplitude of the rectified encoder signals A and B and the amplitude from the roots of A^2 + B^2 for encoder 1 are not within the tolerance bandwidth.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 176 mV (observe the frequency response of the encoder) and > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31117 (N, A) Encoder 1: Inversion error signals A/B/R

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
Fault value (r0949, interpret binary):
Bits 0 ... 15: Only for internal Siemens troubleshooting.
Bit 16: Error track A.
Bit 17: Error track B.
Bit 18: Error track R.
Note:
For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies:
A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - Check the encoder/cable.
- Does the encoder supply signals and the associated inverted signals?
Note:
For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:
- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):
- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31118 (N, A) Encoder 1: Speed difference outside the tolerance range

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Encoder 1 is used as motor encoder and can be effective has fault response to change over to encoderless operation.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
See also: p0491 (Motor encoder fault response ENCODER), p0492 (Square-wave encoder, maximum speed difference per sampling cycle)

**Remedy:** - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31120 (N, A) Encoder 1: Power supply voltage fault

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** A power supply fault was detected for encoder 1.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** Re fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
Re fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable

Re fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable
Re fault value, bit 3 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31121 (N, A) Encoder 1: Coarse position error

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** For the actual value sensing, an error was detected on the module.
As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31122 Encoder 1: Internal power supply voltage faulty

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER
**Acknowledge:** IMMEDIATELY
**Cause:** Fault in internal reference voltage of ASICs for encoder 1.
Fault value (r0949, decimal interpretation):
1: Reference voltage error.
2: Internal undervoltage.
3: Internal overvoltage.
**Remedy:** Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

## F31123 (N, A) Encoder 1: Signal level A/B unipolar outside tolerance

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The unipolar level (AP/AN or BP/BN) for encoder 1 is outside the permissible tolerance.
Fault value (r0949, interpret binary):
Bit 0 = 1: Either AP or AN outside the tolerance.
Bit 16 = 1: Either BP or BN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31125 (N, A) Encoder 1: Amplitude error track A or B overcontrolled

**Message value:** A track: %1, B-track: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude of track A or B for encoder 1 exceeds the permissible tolerance band.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for sensors modules for resolvers (e. g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31126 (N, A) Encoder 1: Amplitude AB too high

**Message value:** Amplitude: %1, Angle: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude (root of A^2 + B^2 or |A| + |B|) for encoder 1 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31129 (N, A) Encoder 1: Position difference, hall sensor/track C/D and A/B too large

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429.
Fault value (r0949, decimal interpretation):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31130 (N, A) Encoder 1: Zero mark and position error from the coarse synchronization

**Message value:** Angular deviation, electrical: %1, angle, mechanical: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Determined mechanical zero mark position (can only be used for track C/D).
xxxx: Deviation of the zero mark from the expected position as electrical angle.
Scaling: 32768 dec = 180 °
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - Check p0431 and, if necessary, correct (trigger via p1990 = 1 if necessary).
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- Check the connection of track C or D.
- replace the encoder or encoder cable

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31131 (N, A) Encoder 1: Deviation, position incremental/absolute too large

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** Absolute encoder:
When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
Limit value for the deviation:
- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.
Incremental encoder:
When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Fault value (r0949, decimal interpretation):
Deviation in quadrants (1 pulse = 4 quadrants).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:**
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31135 Encoder 1: Fault when determining the position

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display)
Bit 1: F2 (safety status display)
Bit 2: Lighting (reserved)
Bit 3: Signal amplitude (reserved)
Bit 4: Position value (reserved)
Bit 5: Overvoltage (reserved)
Bit 6: Undervoltage (reserved)
Bit 7: Overcurrent (reserved)
Bit 8: Battery (reserved)
Bit 16: Lighting (--> F3x135, x = 1, 2, 3)
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3)
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3)
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3)
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3)
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3)
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3)
Bit 23: Singleturn position 2 (safety status display)

Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3)
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3)
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3)
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3)
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3)
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3)
Bit 31: Multiturn battery (reserved)

**Remedy:** Replace DRIVE-CLiQ encoder.

## F31136 Encoder 1: Error when determining multiturn information

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display)
Bit 1: F2 (safety status display)
Bit 2: Lighting (reserved)
Bit 3: Signal amplitude (reserved)
Bit 4: Position value (reserved)
Bit 5: Overvoltage (reserved)
Bit 6: Undervoltage (reserved)
Bit 7: Overcurrent (reserved)
Bit 8: Battery (reserved)
Bit 16: Lighting (--> F3x135, x = 1, 2, 3)
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3)
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3)
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3)
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3)
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3)
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3)
Bit 23: Singleturn position 2 (safety status display)
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3)
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3)
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3)
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3)
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3)
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3)
Bit 31: Multiturn battery (reserved)

**Remedy:** Replace DRIVE-CLiQ encoder.

## F31137 Encoder 1: Internal fault when determining the position

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Only for internal Siemens troubleshooting.

**Remedy:** Replace encoder.

## F31138 Encoder 1: Internal error when determining multiturn information

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Only for internal SIEMENS troubleshooting.
**Remedy:** Replace encoder.

## F31150 (N, A) Encoder 1: Initialization error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** Encoder functionality selected in p0404 is not operating correctly.
Fault value (r0949, interpret hexadecimal):
Encoder malfunction.
The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
See also: p0404 (Encoder configuration effective), p0491 (Motor encoder fault response ENCODER)
**Remedy:** - Check that p0404 is correctly set.
- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31151 (N, A) Encoder 1: Encoder speed for initialization AB too high

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** The encoder speed is too high during while initializing the sensor.
**Remedy:** Reduce the speed of the encoder accordingly during initialization.
If necessary, de-activate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31160 (N, A) Encoder 1: Analog sensor channel A failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, decimal interpretation):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4673).
3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:** For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4673).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31161 (N, A) Encoder 1: Analog sensor channel B failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, decimal interpretation):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
**Remedy:** For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4675).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31163 (N, A) Encoder 1: Analog sensor position value exceeds limit value

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.
Fault value (r0949, decimal interpretation):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
**Remedy:** For fault value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A31400 (F, N) Encoder 1: Alarm threshold zero mark distance error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The measured zero mark distance does not correspond to the parameterized zero mark distance.

For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31401 (F, N) Encoder 1: Alarm threshold zero mark failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## F31405 (N, A) Encoder 1: Temperature in the encoder evaluation inadmissible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature.
The fault threshold is 125 ° C.
Alarm value (r2124, interpret decimal):
Measured board/module temperature in 0.1 °C.

**Remedy:** Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A31407 (F, N) Encoder 1: Function limit reached

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The encoder has reached one of its function limits. A service is recommended.
Alarm value (r2124, interpret decimal):
1 : Incremental signals
3 : Absolute track
4 : Code connection

**Remedy:** Perform service. Replace the encoder if necessary.
Note:
The current functional reserve of an encoder can be displayed via r4651.
See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31410 (F, N) Encoder 1: Serial communications

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, binary interpretation):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31411 (F, N) Encoder 1: EnDat encoder signals alarms

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The error word of the EnDat encoder has alarm bits that have been set.
Alarm value (r2124, binary interpretation):
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.

Bit 3: Battery discharged.
Bit 4: Reference point passed.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** Replace encoder.
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31412 (F, N) Encoder 1: Error bit set in the serial protocol

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The encoder sends a set error bit via the serial protocol.
Alarm value (r2124, binary interpretation):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.
**Remedy:** - carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder.
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31414 (F, N) Encoder 1: Amplitude error track C or D (C^2 + D^2)

**Message value:** C track: %1, D track: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The amplitude (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## N31415 (F, A) Encoder 1: Amplitude alarm track A or B (A^2 + B^2)

**Message value:** Amplitude: %1, Angle: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The amplitude (root of A^2 + B^2) for encoder 1 exceeds the permissible tolerance.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 300 mV (observe the frequency response of the encoder).
A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
Note for sensors modules for resolvers (e. g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:**
- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon A: NONE

Acknowl. upon A: NONE

## A31418 (F, N) Encoder 1: Speed difference per sampling rate exceeded

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder, maximum speed difference per sampling cycle)

**Remedy:**
- check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31419 (F, N) Encoder 1: Track A or B outside tolerance

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The amplitude/phase/offset correction for track A or B is at the limit.
Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxxx1: Minimum of the offset correction, track B
xxxx2: Maximum of the offset correction, track B
xxx1x: Minimum of the offset correction, track A
xxx2x: Maximum of the offset correction, track A
xx1xx: Minimum of the amplitude correction, track B/A
xx2xx: Maximum of the amplitude correction, track B/A
x1xxx: Minimum of the phase error correction
x2xxx: Maximum of the phase error correction
1xxxx: Minimum of the cubic correction
2xxxx: Maximum of the cubic correction
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31421 (F, N) Encoder 1: Coarse position error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Alarm value (r2124, interpret decimal):
3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.

**Remedy:** Re alarm value = 3:
- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31422 (F, N) Encoder 1: Pulses per revolution square-wave encoder outside tolerance bandwidth

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The measured zero mark distance does not correspond to the parameterized zero mark distance.
This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
Alarm value (r2124, interpret decimal):
accumulated differential pulses in encoder pulses.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31429 (F, N) Encoder 1: Position difference, hall sensor/track C/D and A/B too large

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31431 (F, N) Encoder 1: Deviation, position incremental/absolute too large

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:**
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- Clean coding disk or remove strong magnetic fields.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31432 (F, N) Encoder 1: Rotor position adaptation corrects deviation

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
Alarm value (r2124, interpret decimal):
Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
**Remedy:**
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check encoder limit frequency.
- adapt the parameter for the distance between zero marks (p0424, p0425).

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31442 (F, N) Encoder 1: Battery voltage pre-alarm

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
**Remedy:** Replace battery.
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31443 (F, N) Encoder 1: Unipolar CD signal level outside specification

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance.
Alarm value (r2124, binary interpretation):
Bit 0 = 1: Either CP or CN outside the tolerance.
Bit 16 = 1: Either DP or DN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.

The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)?
- replace the encoder cable.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31460 (N) Encoder 1: Analog sensor channel A failed

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:** Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4673).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31461 (N) Encoder 1: Analog sensor channel B failed

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:** Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31462 (N) Encoder 1: Analog sensor, no channel active

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Channel A and B are not activated for the analog sensor.
**Remedy:** - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
See also: p4670 (Analog sensor configuration)
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31463 (N) Encoder 1: Analog sensor position value exceeds limit value

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
**Remedy:** Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31470 (F, N) Encoder 1: Soiling detected

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.
**Remedy:** - check the plug connections
- replace the encoder or encoder cable
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## F31500 (N, A) Encoder 1: Position tracking traversing range exceeded

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

**Remedy:** The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31501 (N, A) Encoder 1: Position tracking encoder position outside tolerance window

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Fault value (r0949, decimal interpretation):
Deviation (difference) to the last encoder position in increments of the absolute value.
The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r0477.
**Remedy:** Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010 (Drive commissioning parameter filter), p2507 (LR absolute encoder adjustment status)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A31700 Encoder 1: Effectivity test does not supply the expected value

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
**Remedy:** Replace encoder.

## N31800 (F) Encoder 1: Group signal

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** NONE
**Cause:** The motor encoder has detected at least one fault.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Evaluate the other messages that are presently available.
Reaction upon F: ENCODER (IASC/DCBRAKE, NONE)
Acknowl. upon F: IMMEDIATELY

## F31801 (N, A) Encoder 1 DRIVE-CLiQ: Sign-of-life missing

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0A hex:
The sign-of-life bit in the receive telegram is not set.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31802 (N, A) Encoder 1: Time slice overflow

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A time slice overflow has occurred in encoder 1.
Fault value (r0949, decimal interpretation):
9: Time slice overflow of the fast (current controller clock cycle) time slice.
10: Time slice overflow of the average time slice.
12: Time slice overflow of the slow time slice.
999: Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Reduce the current controller frequency.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31804 (N, A) Encoder 1: Checksum error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31805 (N, A) Encoder 1: EPROM checksum error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31806 (N, A) Encoder 1: Initialization error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
Bit 2: Mid-voltage matching for track A unsuccessful.
Bit 3: Mid-voltage matching for track B unsuccessful.
Bit 4: Mid-voltage matching for acceleration input unsuccessful.
Bit 5: Mid-voltage matching for track safety A unsuccessful.
Bit 6: Mid-voltage matching for track safety B unsuccessful.
Bit 7: Mid-voltage matching for track C unsuccessful.
Bit 8: Mid-voltage matching for track D unsuccessful.
Bit 9: Mid-voltage matching for track R unsuccessful.
Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
Bit 16: Internal fault - fault reading a register (CAFE)
Bit 17: Internal fault - fault writing a register (CAFE)
Bit 18: Internal fault: No mid-voltage matching available
Bit 19: Internal error - ADC access error.
Bit 20: Internal error - no zero crossover found.
Note:
Bit 0, 1: Up to 6SL3055-0AA00-5*A0
Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Acknowledge the fault.
If the fault cannot be acknowledged:
Bits 2 ... 9: Check encoder power supply.
Bits 2 ... 14: Check the corresponding cable.
Bit 15 with no other bits: Check track R, check settings in p0404.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A31811 (F, N) Encoder 1: Encoder serial number changed

**Message value:** -

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
Cause 1:
- The encoder was replaced.
Cause 2:
- A third-party, built-in or linear motor was re-commissioned.
Cause 3:
- The motor with integrated and adjusted encoder was replaced.
Cause 4:
- The firmware was updated to a version that checks the encoder serial number.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
Proceed as follows to hide serial number monitoring:
- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0442 = 0, p0444 = 0, p0445 = 0.
- parameterize F07414 as message type N (p2100, p2101).
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** Re causes 1, 2:
Carry out an automatic adjustment using the pole position identification routine. Acknowledge the fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.
SERVO:
If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
or
Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
or
Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Re causes 3, 4:
Accept the new serial number with p0440 = 1.

Reaction upon F: NONE (ENCODER, OFF2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:** A cycle requested from the Control Unit or RX/TX timing is not supported.
Fault value (r0949, decimal interpretation):
0: Application cycle is not supported.
1: DRIVE-CLiQ cycle is not supported.
2: Distance between RX and TX instants in time too low.
3: TX instant in time too early.

**Remedy:** POWER ON all components (switch the power off and then back on again).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31813 Encoder 1: Hardware logic unit failed

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit 0: ALU watchdog has responded.
Bit 1: ALU has detected a sign-of-life error.
**Remedy:** Replace encoder.

## F31820 (N, A) Encoder 1 DRIVE-CLiQ: Telegram error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 01 hex:
CRC error.
xx = 02 hex:
Telegram is shorter than specified in the length byte or in the receive list.
xx = 03 hex:
Telegram is longer than specified in the length byte or in the receive list.
xx = 04 hex:
The length of the receive telegram does not match the receive list.
xx = 05 hex:
The type of the receive telegram does not match the receive list.
xx = 06 hex:
The address of the component in the telegram and in the receive list do not match.
xx = 07 hex:
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
xx = 08 hex:
No SYNC telegram is expected - but the received telegram is one.
xx = 09 hex:
The error bit in the receive telegram is set.
xx = 10 hex:
The receive telegram is too early.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31835 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.

Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 21 hex:
The cyclic telegram has not been received.
xx = 22 hex:
Timeout in the telegram receive list.
xx = 40 hex:
Timeout in the telegram send list.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31836 (N, A) Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 41 hex:
Telegram type does not match send list.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 20 hex:
Error in the telegram header.
xx = 23 hex:
Receive error: The telegram buffer memory contains an error.
xx = 42 hex:
Send error: The telegram buffer memory contains an error.
xx = 43 hex:
Send error: The telegram buffer memory contains an error.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

## F31845 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0B hex:
Synchronization error during alternating cyclic data transfer.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31850 (N, A) Encoder 1: Encoder evaluation, internal software error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** POWER ON
**Cause:** An internal software error has occurred in the Sensor Module of encoder 1.
Fault value (r0949, decimal interpretation):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
11000 ... 11499: Descriptive data from EEPROM incorrect.
11500 ... 11899: Calibration data from EEPROM incorrect.
11900 ... 11999: Configuration data from EEPROM incorrect.
16000: DRIVE-CLiQ encoder initialization application error.
16001: DRIVE-CLiQ encoder initialization ALU error.
16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
16003: DRIVE-CLiQ encoder safety initialization error.
16004: DRIVE-CLiQ encoder internal system error.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31851 (N, A) Encoder 1 DRIVE-CLiQ (CU): Sign-of-life missing

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.

Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0A hex = 10 dec:
The sign-of-life bit in the receive telegram is not set.

**Remedy:** Upgrade the firmware of the component involved.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31860 (N, A) Encoder 1 DRIVE-CLiQ (CU): Telegram error

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 11 hex = 17 dec:
CRC error and the receive telegram is too early.
xx = 01 hex = 01 dec:
Checksum error (CRC error).
xx = 12 hex = 18 dec:
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
xx = 02 hex = 02 dec:
Telegram is shorter than specified in the length byte or in the receive list.
xx = 13 hex = 19 dec:
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
xx = 03 hex = 03 dec:
Telegram is longer than specified in the length byte or in the receive list.
xx = 14 hex = 20 dec:
The length of the receive telegram does not match the receive list and the receive telegram is too early.
xx = 04 hex = 04 dec:
The length of the receive telegram does not match the receive list.
xx = 15 hex = 21 dec:
The type of the receive telegram does not match the receive list and the receive telegram is too early.
xx = 05 hex = 05 dec:
The type of the receive telegram does not match the receive list.
xx = 16 hex = 22 dec:
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
xx = 06 hex = 06 dec:
The address of the power unit in the telegram and in the receive list do not match.
xx = 19 hex = 25 dec:
The error bit in the receive telegram is set and the receive telegram is too early.
xx = 09 hex = 09 dec:
The error bit in the receive telegram is set.
xx = 10 hex = 16 dec:
The receive telegram is too early.

**Remedy:** - carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31885 (N, A) Encoder 1 DRIVE-CLiQ (CU): Cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
The nodes do not send and receive in synchronism.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 1A hex = 26 dec:
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
xx = 21 hex = 33 dec:
The cyclic telegram has not been received.
xx = 22 hex = 34 dec:
Timeout in the telegram receive list.
xx = 40 hex = 64 dec:
Timeout in the telegram send list.
xx = 62 hex = 98 dec:
Error at the transition to cyclic operation.

**Remedy:** - check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31886 (N, A) Encoder 1 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 41 hex:
Telegram type does not match send list.

**Remedy:** - carry out a POWER ON.
- check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F31887 (N, A) Encoder 1 DRIVE-CLiQ (CU): Component fault

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE)

**Acknowledge:** IMMEDIATELY

**Cause:** Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 20 hex:
Error in the telegram header.

xx = 23 hex:
Receive error: The telegram buffer memory contains an error.
xx = 42 hex:
Send error: The telegram buffer memory contains an error.
xx = 43 hex:
Send error: The telegram buffer memory contains an error.
xx = 60 hex:
Response received too late during runtime measurement.
xx = 61 hex:
Time taken to exchange characteristic data too long.

**Remedy:** - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31895 (N, A) Encoder 1 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0B hex:
Synchronization error during alternating cyclic data transfer.
**Remedy:** Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31896 (N, A) Encoder 1 DRIVE-CLiQ (CU): Inconsistent component properties

**Message value:** Component number: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, decimal interpretation):
Component number.
**Remedy:** - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F31899 (N, A) Encoder 1: Unknown fault

**Message value:** New message: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, decimal interpretation):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## A31902 (F, N) Encoder 1: SPI-BUS error occurred

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:** - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A31903 (F, N) Encoder 1: I2C-BUS error occurred

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** Error when operating the internal I2C bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:** - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## F31905 (N, A) Encoder 1: Parameterization error

**Message value:** Parameter: %1, supplementary information: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** IMMEDIATELY

**Cause:** A parameter of encoder 1 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, decimal interpretation):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
yyyy = 0:
No information available.
yyyy = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
yyyy = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
Please start a new encoder identification.
yyyy = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
Please select a listed encoder in p0400 with a code number < 10000.
yyyy = 4:
This component does not support SSI encoders (p0404.9 = 1) without track A/B.
yyyy = 5:
For SQW encoder, value in p4686 greater than in p0425.
yyyy = 6:
DRIVE-CLiQ encoder cannot be used with this firmware version.
yyyy = 7:
For the SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks.
yyyy = 8:
The motor pole pair width is not supported by the linear scale being used.
See also: p0491 (Motor encoder fault response ENCODER)

**Remedy:** - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number = 314:
- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## A31915 (F, N) Encoder 1: Configuration error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The configuration for encoder 1 is incorrect.
Alarm value (r2124, interpret decimal):
1: Re-parameterization between fault/alarm is not permissible.
419: When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.

**Remedy:** Re alarm value = 1:
No re-parameterization between fault/alarm.
Re alarm value = 419:
Reduce the fine resolution (p0419).

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE
Acknowl. upon N: NONE

## F31916 (N, A) Encoder 1: Parameterization fault

**Message value:** Parameter: %1, supplementary information: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** A parameter of encoder 1 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, decimal interpretation):
Parameter number.
Note:
This fault is only output for encoders where r0404.10 = 1 or r0404.11 = 1. It corresponds to A31905 with encoders where r0404.10 = 0 and r0404.11 = 0.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A31920 (F, N) Encoder 1: Temperature sensor fault

**Message value:** Fault cause: %1, channel number: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
yyxx hex: yy: channel number, xx = fault cause
xx = 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
xx = 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
xx = Additional values:
Only for internal Siemens troubleshooting.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - check that the encoder cable is the correct type and is correctly connected.
- check the temperature sensor selection in p0600 to p0603.
- replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31940 (F, N) Sensor 1: Spindle clamping state error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The spindle clamping state is incorrect.
Fault value (r0949, decimal interpretation):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.

**Remedy:** - Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A31999 (F, N) Encoder 1: Unknown alarm

**Message value:** New message: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
See also: p0491 (Motor encoder fault response ENCODER)
**Remedy:** - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

## F32100 (N, A) Encoder 2: Zero mark distance error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, decimal interpretation):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- replace the encoder or encoder cable

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32101 (N, A) Encoder 2: Zero mark failed

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, decimal interpretation):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

**Remedy:**
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32103 (N, A) Encoder 2: Amplitude error, track R

**Message value:** R track: %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 2.
The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)
The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.
The response threshold for the differential signal level of the encoder is < -1600 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
The fault value can only be represented between -32767 ... 32767 dec (-770 ... 770 mV).
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

**Remedy:**
- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32110 (N, A) Encoder 2: Serial communications error

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** Serial communication protocol transfer error between the encoder and evaluation module.
Fault value (r0949, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Bit 13: Data line incorrect.

**Remedy:** Re fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.
Re fault value, bit 1 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- Incorrect encoder type / replace the encoder or encoder cable.
Re fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.
Re fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 6 = 1:
- Update Sensor Module firmware.
Re fault value, bit 8 = 1:
- Check parameterization (p0429.2).
Re fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
Re fault value, bit 10 = 1:
- Check parameterization (p0429.2, p0449).
Re fault value, bit 11 = 1:
- Check parameterization (p0436).
Re fault value, bit 12 = 1:
- Check parameterization (p0429.6).
Re fault value, bit 13 = 1:
- Check data line.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32111 (N, A) Encoder 2: Absolute encoder EnDat, internal fault/error

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** The EnDat encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit 0: Lighting system failed.
Bit 1: Signal amplitude too low.

Bit 2: Position value incorrect.
Bit 3: Encoder power supply overvoltage condition.
Bit 4: Encoder power supply undervoltage condition.
Bit 5: Encoder power supply overcurrent condition.
Bit 6: The battery must be changed.

**Remedy:** Re fault value, bit 0 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 1 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 2 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 3 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
Re fault value, bit 4 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When using a motor with DRIVE-CLiQ: Replace the motor.
Re fault value, bit 5 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
Re fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32112 (N, A) Encoder 2: Error bit set in the serial protocol

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** PULSE INHIBIT
**Cause:** The encoder sends a set error bit via the serial protocol.
Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.
**Remedy:** For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32115 (N, A) Encoder 2: Amplitude error track A or B (A^2 + B^2)

**Message value:** A track: %1, B-track: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude (root of A^2 + B^2) for encoder 2 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for sensors modules for resolvers (e. g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).
The following applies to measuring systems without their own bearing system:
- adjust the scanning head and check the bearing system of the measuring wheel.
The following applies for measuring systems with their own bearing system:
- ensure that the encoder housing is not subject to any axial force.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32116 (N, A) Encoder 2: Amplitude error monitoring track A + B

**Message value:** Amplitude: %1, Angle: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** The amplitude of the rectified encoder signals A and B and the amplitude from the roots of A^2 + B^2 for encoder 2 are not within the tolerance bandwidth.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 176 mV (observe the frequency response of the encoder) and > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32117 (N, A) Encoder 2: Inversion error signals A/B/R

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
Fault value (r0949, interpret binary):
Bits 0 ... 15: Only for internal Siemens troubleshooting.
Bit 16: Error track A.
Bit 17: Error track B.
Bit 18: Error track R.

Note:
For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies:
A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.

**Remedy:** - Check the encoder/cable.
- Does the encoder supply signals and the associated inverted signals?
Note:
For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:
- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):
- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32118 (N, A) Encoder 2: Speed difference outside the tolerance range

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Fault value (r0949, decimal interpretation):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder, maximum speed difference per sampling cycle)

**Remedy:** - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32120 (N, A) Encoder 2: Power supply voltage fault

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** A power supply fault was detected for encoder 2.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.

**Remedy:** Re fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
Re fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable

Re fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable
Re fault value, bit 3 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32121 (N, A) Encoder 2: Coarse position error

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** PULSE INHIBIT
**Cause:** For the actual value sensing, an error was detected on the module.
As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
**Remedy:** Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32122 Encoder 2: Internal power supply voltage faulty

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER
**Acknowledge:** IMMEDIATELY
**Cause:** Fault in internal reference voltage of ASICs for encoder 2.
Fault value (r0949, decimal interpretation):
1: Reference voltage error.
2: Internal undervoltage.
3: Internal overvoltage.
**Remedy:** Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

## F32123 (N, A) Encoder 2: Signal level A/B unipolar outside tolerance

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The unipolar level (AP/AN or BP/BN) for encoder 2 is outside the permissible tolerance.
Fault value (r0949, interpret binary):
Bit 0 = 1: Either AP or AN outside the tolerance.
Bit 16 = 1: Either BP or BN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
**Remedy:** - make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

## F32125 (N, A) Encoder 2: Amplitude error track A or B overcontrolled

**Message value:** A track: %1, B-track: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude of track A or B for encoder 2 exceeds the permissible tolerance band.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for sensors modules for resolvers (e. g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32126 (N, A) Encoder 2: Amplitude AB too high

**Message value:** Amplitude: %1, Angle: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** The amplitude (root of A^2 + B^2 or |A| + |B|) for encoder 2 exceeds the permissible tolerance.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32129 (N, A) Encoder 2: Position difference, hall sensor/track C/D and A/B too large

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429.
Fault value (r0949, decimal interpretation):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

**Remedy:** - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32130 (N, A) Encoder 2: Zero mark and position error from the coarse synchronization

**Message value:** Angular deviation, electrical: %1, angle, mechanical: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Determined mechanical zero mark position (can only be used for track C/D).
xxxx: Deviation of the zero mark from the expected position as electrical angle.
Scaling: 32768 dec = 180 °

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- Check the connection of track C or D.
- replace the encoder or encoder cable

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32131 (N, A) Encoder 2: Deviation, position incremental/absolute too large

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

**Acknowledge:** PULSE INHIBIT

**Cause:** Absolute encoder:
When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
Limit value for the deviation:
- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.
Incremental encoder:
When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Fault value (r0949, decimal interpretation):
Deviation in quadrants (1 pulse = 4 quadrants).

**Remedy:**
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32135 Encoder 2: Fault when determining the position

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display)
Bit 1: F2 (safety status display)
Bit 2: Lighting (reserved)
Bit 3: Signal amplitude (reserved)
Bit 4: Position value (reserved)
Bit 5: Overvoltage (reserved)
Bit 6: Undervoltage (reserved)
Bit 7: Overcurrent (reserved)
Bit 8: Battery (reserved)
Bit 16: Lighting (--> F3x135, x = 1, 2, 3)
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3)
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3)
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3)
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3)
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3)
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3)
Bit 23: Singleturn position 2 (safety status display)
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3)

Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3)
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3)
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3)
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3)
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3)
Bit 31: Multiturn battery (reserved)

**Remedy:** Replace DRIVE-CLiQ encoder.

## F32136 Encoder 2: Error when determining multiturn information

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display)
Bit 1: F2 (safety status display)
Bit 2: Lighting (reserved)
Bit 3: Signal amplitude (reserved)
Bit 4: Position value (reserved)
Bit 5: Overvoltage (reserved)
Bit 6: Undervoltage (reserved)
Bit 7: Overcurrent (reserved)
Bit 8: Battery (reserved)
Bit 16: Lighting (--> F3x135, x = 1, 2, 3)
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3)
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3)
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3)
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3)
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3)
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3)
Bit 23: Singleturn position 2 (safety status display)
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3)
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3)
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3)
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3)
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3)
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3)
Bit 31: Multiturn battery (reserved)

**Remedy:** Replace DRIVE-CLiQ encoder.

## F32137 Encoder 2: Internal fault when determining the position

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Only for internal Siemens troubleshooting.

**Remedy:** Replace encoder.

### F32138 Encoder 2: Internal error when determining multiturn information

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** PULSE INHIBIT
**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Only for internal SIEMENS troubleshooting.
**Remedy:** Replace encoder.

### F32150 (N, A) Encoder 2: Initialization error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** Encoder functionality selected in p0404 is not operating correctly.
Fault value (r0949, interpret hexadecimal):
Encoder malfunction.
The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
**Remedy:** - Check that p0404 is correctly set.
- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

### F32151 (N, A) Encoder 2: Encoder speed for initialization AB too high

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** PULSE INHIBIT
**Cause:** The encoder speed is too high during while initializing the sensor.
**Remedy:** Reduce the speed of the encoder accordingly during initialization.
If necessary, de-activate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

### F32160 (N, A) Encoder 2: Analog sensor channel A failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, decimal interpretation):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4673).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
**Remedy:** For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4673).

For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32161 (N, A) Encoder 2: Analog sensor channel B failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, decimal interpretation):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
**Remedy:** For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4675).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32163 (N, A) Encoder 2: Analog sensor position value exceeds limit value

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE)
**Acknowledge:** PULSE INHIBIT
**Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.
Fault value (r0949, decimal interpretation):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
**Remedy:** For fault value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32400 (F, N) Encoder 2: Alarm threshold zero mark distance error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Alarm value (r2124, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32401 (F, N) Encoder 2: Alarm threshold zero mark failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## F32405 (N, A) Encoder 2: Temperature in the encoder evaluation inadmissible

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature.
The fault threshold is 125 ° C.
Alarm value (r2124, interpret decimal):
Measured board/module temperature in 0.1 °C.
**Remedy:** Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32407 (F, N) Encoder 2: Function limit reached

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The encoder has reached one of its function limits. A service is recommended.

Alarm value (r2124, interpret decimal):
1 : Incremental signals
3 : Absolute track
4 : Code connection

**Remedy:** Perform service. Replace the encoder if necessary.
Note:
The current functional reserve of an encoder can be displayed via r4651.
See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32410 (F, N) Encoder 2: Serial communications

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, binary interpretation):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32411 (F, N) Encoder 2: EnDat encoder signals alarms

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The error word of the EnDat encoder has alarm bits that have been set.
Alarm value (r2124, binary interpretation):
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.
Bit 3: Battery discharged.
Bit 4: Reference point passed.

**Remedy:** Replace encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32412 (F, N) Encoder 2: Error bit set in the serial protocol

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The encoder sends a set error bit via the serial protocol.
Alarm value (r2124, binary interpretation):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.

**Remedy:**
- carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A32414 (F, N) Encoder 2: Amplitude error track C or D (C^2 + D^2)

**Message value:** C track: %1, D track: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The amplitude (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.

**Remedy:**
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## N32415 (F, A) Encoder 2: Amplitude alarm track A or B (A^2 + B^2)

**Message value:** Amplitude: %1, Angle: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The amplitude (root of A^2 + B^2) for encoder 2 exceeds the permissible tolerance.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = Amplitude, i.e. root from A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 300 mV (observe the frequency response of the encoder).
A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.

The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
Note for sensors modules for resolvers (e. g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

**Remedy:** - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check the Sensor Module (e.g. contacts).
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32418 (F, N) Encoder 2: Speed difference per sampling rate exceeded

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder, maximum speed difference per sampling cycle)
**Remedy:** - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32419 (F, N) Encoder 2: Track A or B outside tolerance

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The amplitude/phase/offset correction for track A or B is at the limit.
Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxxx1: Minimum of the offset correction, track B
xxxx2: Maximum of the offset correction, track B
xxx1x: Minimum of the offset correction, track A
xxx2x: Maximum of the offset correction, track A
xx1xx: Minimum of the amplitude correction, track B/A
xx2xx: Maximum of the amplitude correction, track B/A
x1xxx: Minimum of the phase error correction
x2xxx: Maximum of the phase error correction
1xxxx: Minimum of the cubic correction
2xxxx: Maximum of the cubic correction

**Remedy:** - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A32421 (F, N) Encoder 2: Coarse position error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Alarm value (r2124, interpret decimal):
3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.

**Remedy:** Re alarm value = 3:
- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A32422 (F, N) Encoder 2: Pulses per revolution square-wave encoder outside tolerance bandwidth

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The measured zero mark distance does not correspond to the parameterized zero mark distance.
This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
Alarm value (r2124, interpret decimal):
accumulated differential pulses in encoder pulses.

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
. check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

## A32429 (F, N) Encoder 2: Position difference, hall sensor/track C/D and A/B too large

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
**Remedy:** - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32431 (F, N) Encoder 2: Deviation, position incremental/absolute too large

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).
**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- Clean coding disk or remove strong magnetic fields.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32432 (F, N) Encoder 2: Rotor position adaptation corrects deviation

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
Alarm value (r2124, interpret decimal):
Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.

**Remedy:** - check that the encoder cables are routed in compliance with EMC.
- check the plug connections
- replace the encoder or encoder cable
- check encoder limit frequency.
- adapt the parameter for the distance between zero marks (p0424, p0425).

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32442 (F, N) Encoder 2: Battery voltage pre-alarm

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
**Remedy:** Replace battery.
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32443 (F, N) Encoder 2: Unipolar CD signal level outside specification

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance.
Alarm value (r2124, binary interpretation):
Bit 0 = 1: Either CP or CN outside the tolerance.
Bit 16 = 1: Either DP or DN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

**Remedy:** - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)?
- replace the encoder cable.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32460 (N) Encoder 2: Analog sensor channel A failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).

**Remedy:** Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4673).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

## A32461 (N) Encoder 2: Analog sensor channel B failed

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
**Remedy:** Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

## A32462 (N) Encoder 2: Analog sensor, no channel active

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Channel A and B are not activated for the analog sensor.
**Remedy:** - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
See also: p4670 (Analog sensor configuration)

Reaction upon N: NONE
Acknowl. upon N: NONE

## A32463 (N) Encoder 2: Analog sensor position value exceeds limit value

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
**Remedy:** Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE

## A32470 (F, N) Encoder 2: Soiling detected

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.
**Remedy:** - check the plug connections
- replace the encoder or encoder cable
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## F32500 (N, A) Encoder 2: Position tracking traversing range exceeded

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
**Remedy:** The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32501 (N, A) Encoder 2: Position tracking encoder position outside tolerance window

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Fault value (r0949, decimal interpretation):
Deviation (difference) to the last encoder position in increments of the absolute value.
The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r0477.
**Remedy:** Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010 (Drive commissioning parameter filter), p2507 (LR absolute encoder adjustment status)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32700 Encoder 2: Effectivity test does not supply the expected value

**Message value:** Fault cause: %1 bin
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
**Remedy:** Replace encoder.

## N32800 (F) Encoder 2: Group signal

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** NONE
**Cause:** The motor encoder has detected at least one fault.
**Remedy:** Evaluates other actual messages.
Reaction upon F: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

## F32801 (N, A) Encoder 2 DRIVE-CLiQ: Sign-of-life missing

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0A hex:
The sign-of-life bit in the receive telegram is not set.
**Remedy:** - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32802 (N, A) Encoder 2: Time slice overflow

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A time slice overflow has occurred in encoder 2.
Fault value (r0949, decimal interpretation):
9: Time slice overflow of the fast (current controller clock cycle) time slice.
10: Time slice overflow of the average time slice.
12: Time slice overflow of the slow time slice.
999: Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
**Remedy:** Reduce the current controller frequency.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32804 (N, A) Encoder 2: Checksum error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.
**Remedy:** - check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32805 (N, A) Encoder 2: EPROM checksum error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
**Remedy:** Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32806 (N, A) Encoder 2: Initialization error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** PULSE INHIBIT
**Cause:** The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
Bit 2: Mid-voltage matching for track A unsuccessful.
Bit 3: Mid-voltage matching for track B unsuccessful.
Bit 4: Mid-voltage matching for acceleration input unsuccessful.
Bit 5: Mid-voltage matching for track safety A unsuccessful.
Bit 6: Mid-voltage matching for track safety B unsuccessful.
Bit 7: Mid-voltage matching for track C unsuccessful.
Bit 8: Mid-voltage matching for track D unsuccessful.
Bit 9: Mid-voltage matching for track R unsuccessful.
Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
Bit 16: Internal fault - fault reading a register (CAFE)
Bit 17: Internal fault - fault writing a register (CAFE)
Bit 18: Internal fault: No mid-voltage matching available

Bit 19: Internal error - ADC access error.
Bit 20: Internal error - no zero crossover found.
Note:
Bit 0, 1: Up to 6SL3055-0AA00-5*A0
Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher

**Remedy:** Acknowledge the fault.
If the fault cannot be acknowledged:
Bits 2 ... 9: Check encoder power supply.
Bits 2 ... 14: Check the corresponding cable.
Bit 15 with no other bits: Check track R, check settings in p0404.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32811 (N, A) Encoder 2: Encoder serial number changed

**Message value:** -
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
- The encoder was replaced.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
Proceed as follows to hide serial number monitoring:
- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0442 = 0, p0444 = 0, p0445 = 0.

**Remedy:** Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32812 (N, A) Encoder 2: Requested cycle or RX-/TX timing not supported

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** A cycle requested from the Control Unit or RX/TX timing is not supported.
Fault value (r0949, decimal interpretation):
0: Application cycle is not supported.
1: DRIVE-CLiQ cycle is not supported.
2: Distance between RX and TX instants in time too low.
3: TX instant in time too early.

**Remedy:** POWER ON all components (switch the power off and then back on again).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32813 Encoder 2: Hardware logic unit failed

**Message value:** Fault cause: %1 bin

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** PULSE INHIBIT

**Cause:** The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit 0: ALU watchdog has responded.
Bit 1: ALU has detected a sign-of-life error.

**Remedy:** Replace encoder.

## F32820 (N, A) Encoder 2 DRIVE-CLiQ: Telegram error

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 01 hex:
CRC error.
xx = 02 hex:
Telegram is shorter than specified in the length byte or in the receive list.
xx = 03 hex:
Telegram is longer than specified in the length byte or in the receive list.
xx = 04 hex:
The length of the receive telegram does not match the receive list.
xx = 05 hex:
The type of the receive telegram does not match the receive list.
xx = 06 hex:
The address of the component in the telegram and in the receive list do not match.
xx = 07 hex:
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
xx = 08 hex:
No SYNC telegram is expected - but the received telegram is one.
xx = 09 hex:
The error bit in the receive telegram is set.
xx = 10 hex:
The receive telegram is too early.

**Remedy:** - carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32835 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.

Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 21 hex:
The cyclic telegram has not been received.
xx = 22 hex:
Timeout in the telegram receive list.
xx = 40 hex:
Timeout in the telegram send list.

**Remedy:** - carry out a POWER ON.
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32836 (N, A) Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 41 hex:
Telegram type does not match send list.

**Remedy:** Carry out a POWER ON.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32837 (N, A) Encoder 2 DRIVE-CLiQ: Component fault

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 20 hex:
Error in the telegram header.
xx = 23 hex:
Receive error: The telegram buffer memory contains an error.
xx = 42 hex:
Send error: The telegram buffer memory contains an error.
xx = 43 hex:
Send error: The telegram buffer memory contains an error.

**Remedy:** - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32845 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0B hex:
Synchronization error during alternating cyclic data transfer.

**Remedy:** Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32850 (N, A) Encoder 2: Encoder evaluation, internal software error

**Message value:** %1

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** POWER ON

**Cause:** An internal software error has occurred in the Sensor Module of encoder 2.
Fault value (r0949, decimal interpretation):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
11000 ... 11499: Descriptive data from EEPROM incorrect.
11500 ... 11899: Calibration data from EEPROM incorrect.
11900 ... 11999: Configuration data from EEPROM incorrect.
16000: DRIVE-CLiQ encoder initialization application error.
16001: DRIVE-CLiQ encoder initialization ALU error.
16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
16003: DRIVE-CLiQ encoder safety initialization error.
16004: DRIVE-CLiQ encoder internal system error.

**Remedy:** - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

## F32851 (N, A) Encoder 2 DRIVE-CLiQ (CU): Sign-of-life missing

**Message value:** Component number: %1, fault cause: %2

**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN

**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0A hex = 10 dec:
The sign-of-life bit in the receive telegram is not set.

**Remedy:** Upgrade the firmware of the component involved.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

## F32860 (N, A) Encoder 2 DRIVE-CLiQ (CU): Telegram error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 11 hex = 17 dec:
CRC error and the receive telegram is too early.
xx = 01 hex = 01 dec:
Checksum error (CRC error).
xx = 12 hex = 18 dec:
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
xx = 02 hex = 02 dec:
Telegram is shorter than specified in the length byte or in the receive list.
xx = 13 hex = 19 dec:
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
xx = 03 hex = 03 dec:
Telegram is longer than specified in the length byte or in the receive list.
xx = 14 hex = 20 dec:
The length of the receive telegram does not match the receive list and the receive telegram is too early.
xx = 04 hex = 04 dec:
The length of the receive telegram does not match the receive list.
xx = 15 hex = 21 dec:
The type of the receive telegram does not match the receive list and the receive telegram is too early.
xx = 05 hex = 05 dec:
The type of the receive telegram does not match the receive list.
xx = 16 hex = 22 dec:
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
xx = 06 hex = 06 dec:
The address of the power unit in the telegram and in the receive list do not match.
xx = 19 hex = 25 dec:
The error bit in the receive telegram is set and the receive telegram is too early.
xx = 09 hex = 09 dec:
The error bit in the receive telegram is set.
xx = 10 hex = 16 dec:
The receive telegram is too early.
**Remedy:** - carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32885 (N, A) Encoder 2 DRIVE-CLiQ (CU): Cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
The nodes do not send and receive in synchronism.

Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 1A hex = 26 dec:
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
xx = 21 hex = 33 dec:
The cyclic telegram has not been received.
xx = 22 hex = 34 dec:
Timeout in the telegram receive list.
xx = 40 hex = 64 dec:
Timeout in the telegram send list.
xx = 62 hex = 98 dec:
Error at the transition to cyclic operation.

**Remedy:**
- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32886 (N, A) Encoder 2 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Data were not able to be sent.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 41 hex:
Telegram type does not match send list.
**Remedy:** Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32887 (N, A) Encoder 2 DRIVE-CLiQ (CU): Component fault

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 20 hex:
Error in the telegram header.
xx = 23 hex:
Receive error: The telegram buffer memory contains an error.
xx = 42 hex:
Send error: The telegram buffer memory contains an error.
xx = 43 hex:
Send error: The telegram buffer memory contains an error.
xx = 60 hex:
Response received too late during runtime measurement.
xx = 61 hex:
Time taken to exchange characteristic data too long.

**Remedy:** - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32895 (N, A) Encoder 2 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

**Message value:** Component number: %1, fault cause: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
**Acknowledge:** IMMEDIATELY
**Cause:** A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0B hex:
Synchronization error during alternating cyclic data transfer.
**Remedy:** Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32896 (N, A) Encoder 2 DRIVE-CLiQ (CU): Inconsistent component properties

**Message value:** Component number: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, decimal interpretation):
Component number.
**Remedy:** - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## F32899 (N, A) Encoder 2: Unknown fault

**Message value:** New message: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY (POWER ON)
**Cause:** A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, decimal interpretation):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.

**Remedy:** - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32902 (F, N) Encoder 2: SPI-BUS error occurred

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32903 (F, N) Encoder 2: I2C-BUS error occurred

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** Error when operating the internal I2C bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
**Remedy:** - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## F32905 (N, A) Encoder 2: Parameterization error

**Message value:** Parameter: %1, supplementary information: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** A parameter of encoder 2 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, decimal interpretation):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
yyyy = 0:
No information available.
yyyy = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).

yyyy = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
yyyy = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
yyyy = 4:
This component does not support SSI encoders (p0404.9 = 1) without track A/B.
yyyy = 5:
For SQW encoder, value in p4686 greater than in p0425.
yyyy = 6:
DRIVE-CLiQ encoder cannot be used with this firmware version.
yyyy = 7:
For the SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks.
yyyy = 8:
The motor pole pair width is not supported by the linear scale being used.

**Remedy:** - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number = 314:
- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32915 (F, N) Encoder 2: Configuration error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The configuration for encoder 2 is incorrect.
Alarm value (r2124, interpret decimal):
1: Re-parameterization between fault/alarm is not permissible.
419: When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
**Remedy:** Re alarm value = 1:
No re-parameterization between fault/alarm.
Re alarm value = 419:
Reduce the fine resolution (p0419).
Reaction upon F: NONE (IASC/DCBRAKE)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## F32916 (N, A) Encoder 2: Parameterization fault

**Message value:** Parameter: %1, supplementary information: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
**Acknowledge:** IMMEDIATELY
**Cause:** A parameter of encoder 2 was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, decimal interpretation):
Parameter number.

Note:
This fault is only output for encoders where r0404.10 = 1 or r0404.11 = 1. It corresponds to A32905 with encoders where r0404.10 = 0 and r0404.11 = 0.

**Remedy:** - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

## A32920 (F, N) Encoder 2: Temperature sensor fault

**Message value:** Fault cause: %1, channel number: %2
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
yyxx hex: yy: channel number, xx = fault cause
xx = 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
xx = 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
xx = Additional values:
Only for internal Siemens troubleshooting.
**Remedy:** - check that the encoder cable is the correct type and is correctly connected.
- check the temperature sensor selection in p0600 to p0603.
- replace the Sensor Module (hardware defect or incorrect calibration data).

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32940 (F, N) Sensor 2: Spindle clamping state error

**Message value:** %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The spindle clamping state is incorrect.
Fault value (r0949, decimal interpretation):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.
**Remedy:** - Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

## A32999 (F, N) Encoder 2: Unknown alarm

**Message value:** New message: %1
**Drive object:** SERVO_S110-CAN, SERVO_S110-DP, SERVO_S110-PN
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.

Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.

**Remedy:** - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

## A50001 (F) PROFINET configuration error

**Message value:** %1

**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** A PROFINET controller attempts to establish a connection using an incorrect configuring telegram. The "Shared Device" function has been activated (p8929 = 2).
Alarm value (r2124, interpret decimal):
10: A CPU sends a PROFIsafe telegram.
11: F CPU sends a PZD telegram.
12: F CPU without an A CPU.
13: F CPU with more PROFIsafe subslots than activated with p9601.3.
14: F CPU with fewer PROFIsafe subslots than activated with p9601.3.
See also: p8929 (PN remote controller number), p9601 (SI enable, functions integrated in the drive (processor 1))

**Remedy:** Check the configuration of the PROFINET controllers as well as the p8929 and p9601.3 setting.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

## A50020 (F) PROFINET: Second controller missing

**Message value:** -

**Drive object:** CU_S110-CAN, CU_S110-DP, CU_S110-PN

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The PROFINET function "Shared Device" has been activated (p8929 = 2). However, only the connection to a PROFINET controller is present.
See also: p8929 (PN remote controller number)

**Remedy:** Check the configuration of the PROFINET controllers as well as the p8929 setting.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

## F50510 FBLOCKS: Logon of the run-time group rejected

**Message value:** -

**Drive object:** All objects

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** When the run-time groups of the free function blocks attempted to log on with the sampling time management, the logon of at least one run-time group was rejected.
Too many different hardware sampling times may have been assigned to the free function blocks.
See also: r20008 (Hardware sampling times available)

**Remedy:** - check number of different hardware sampling times (r20008, r7903).
- if necessary, deactivate again the drive object on which the function module "free function blocks" was last activated (p0108[0...15].18 = 0). Then carry out a POWER ON.
Note:
The assignment of drive object numbers to the index numbers of p0108[0...15] can be read out in p0101[0...15]; the assignment to the drive object types can be read out in p0107[0...15] on the drive object of the CU or CX (only with SM150).

## F50511 FBLOCKS: Memory no longer available for free function blocks

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** When the free function blocks were activated, more memory was requested than was available on the Control Unit.
**Remedy:** Deactivate again the drive object on which the function module "free function blocks" was last activated (p0108[0...15].18 = 0). Then carry out a POWER ON.
Note:
The assignment of drive object numbers to the index numbers of p0108[0...15] can be read out in p0101[0...15]; the assignment to the drive object types can be read out in p0107[0...15] on the drive object of the CU or CX (only with SM150).

## A50513 (F) FBLOCKS: Run sequence value already assigned

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An attempt was made to assign a run sequence value already assigned to a function block on this drive object to another additional function block on the same drive object. A run sequence value can only be precisely assigned to one function block on one drive object.
**Remedy:** Set another value that is still available on this drive object for the run sequence.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

## A50514 FBLOCKS: Sampling time of fixed run-time group differs

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The sampling time of a system function was set to a value (p0112, p0115) lower than the smallest permissible sampling time that is allowed for the fixed run-time group belonging to this system block (1 ms). The fixed run-time group involved is assigned as a minimum to one block.
**Remedy:** Using p0112 or p0115, increase the sampling time of the system function to the minimum permissible sampling time for the run-time groups of 1 ms or change the sampling time assignment of this run-time group in p20000[0...9].

## A50517 FBLOCKS: Int. meas. active

**Message value:** -
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** A Siemens internal measurement has been activated.
**Remedy:** Carry out a POWER ON (power off/on) for the Control Unit involved.

## F50518 FBLOCKS: Sampling time of free run-time group differs at download

**Message value:** %1
**Drive object:** All objects
**Reaction:** NONE
**Acknowledge:** IMMEDIATELY
**Cause:** In the STARTER/SCOUT project that was downloaded, the hardware sampling time of a free run-time group (1 <= p20000[i] <= 256) was set to a value that was either too low or too high.
The sampling time must be between 1 ms and the value r20003 - r20002.
If the sampling time of the selected free run-time group is < 1 ms, the equivalent value of 1 ms is used.
If the value >= r20003, then the sampling time is set to the next higher or the same software sampling time >= r21003.

Fault value (r0949, decimal interpretation):
Number of the p20000 index of the run-time group where the sampling time is incorrectly set.
Number of the run-time group = fault value + 1
Note:
For SIMOTION D410, r20003 (unlike all the other Control Units) is automatically set the same as the PROFIBUS sampling time.
See also: r20008 (Hardware sampling times available)

**Remedy:**
- correctly set the sampling time of the run-time group.
- if required, take all of the blocks from the run-time group.

Note:
Fault F50518 only detects an incorrectly parameterized run-time group. If, after correcting p20000[i] in the project, this error occurs again at download, then the run-time group involved should be identified using the fault value (r0949) and the sampling time correctly set.