HAKKO OPERATOR INTERFACE PANELS

MONITOUCH

e-Front runners

International Edition
2005.04
www.monitouch.com

V7 & V6 series

The New Monitouch V7 Series
Putting You in Touch with the Future of Productivity

Hakko Electronics Co., Ltd.

Our development center is accredited with ISO9001 and ISO14001.

Graphic IT Stations, Much More than Just

In the rapidly changing manufacturing environment, what is the best way for people to interact with the machines they use?

Our new Monitouch V7 Operator Interface Panels (OIPs) will keep pace with the ever changing demands of production management and digital networks.

- Full color (32,768 colors) provides realistic display of video and graphic images even on 6 inch display.
- Ethernet, internet and field networks communication.
- Over 100 PLC drivers and over 50 drivers for temperature controllers, drives, etc.
- Dual driver expands interation between PLCs and other control devices.
- CompactFlash™ (CF) card interface facilitates data storage in a variety of formats.
- Choice of models with 12, 10 and 8 inch display sizes, and with SVGA resolution.
- User-friendly configuration software V-SFT.
- Easy composition of high-quality animations.

Programmable Displays

Central Station for Factory Information Transfer

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HAKKO OPERATOR INTERFACE PANELS

MONITOUCH V7series

V7 Series 1

Ranked at the Top for Its Superior

32,768 colors* and 800×600 pixels resolution

(12, 10 and 8 inch display sizes)

Monitouch multifunctional operator interface panels facilitate image/data sharing by multiple work stations.

V712iS/V712S 32,768 Colors

12.1 inches / 800X600 pixels / TFT color LCD

V710iS/V710S 32,768 Colors

10.4 inches / 800X600 pixels / TFT color LCD

V710iT/V710T 32,768 Colors

10.4 inches / 640X480 pixels / TFT color LCD

V710C 128 Colors

10.4 inches / 640X480 pixels / TFT color LCD

V708iS/V708S 32,768 Colors

8.4 inches / 800X600 pixels / TFT color LCD

V708C 128 Colors

7.7 inches / 640X480 pixels / STN color LCD

Capabilities

(SVGA) standard features on most models

accurate control and monitoring of the manufacturing systems, and enable

*excl. V710C, V708C and V706M

Standard 10BASE-T Ethernet, Optional Accessories for Video Input and Sound Output

Advanced V7i Series

■ **Specifications** (Refer to page 27 for other specifications)

Series	V712 Series	V710 Series		V708 Series
Model	V712iS	V710iS	V710iT	V708iSD
Display size	12.1 inches	10.4 inches		8.4 inches
Display type	TFT color LCD			
Display resolution (Pixels)	800X600		640X480	800X600
Color	32,768 colors + 16 colors in blink mode			
Backup memory	SRAM (64KB)			
Clock	Standard feature			
Ethernet	10BASE-T standard feature			
CF card interface	Standard feature(Compatible with CompactFlash™)			
Printer interface	Centronics compatible, Half pitch 20 pins			
Memory expansion cassette	Option V7EM-F (Flash memory cassette: 8MB for display data memory expansion) / V7EM-S (SRAM cassette: sampling data, 512KB for memory backup)			
Video	Option EU-00 (Video input+sound output unit)			
RGB input	Option EU-01 (RGB input+sound output unit)			
RGB output	Option EU-02 (RGB output+sound output unit)			
Sound output	Option EU-03 (Sound output unit)			
Communication unit	Option (CU-xx)			

Economical Basic Unit with High-Level Functionality

Standard V7 Series

■ **Specifications** (Refer to page 27 for other specifications)

Series	V712 Series	V710 Series			V708 Series	
Model	V712S	V710S	V710T	V710C	V708SD	V708CD
Display size	12.1 inches	10.4 inches			8.4 inches	7.7 inches
Display type	TFT color LCD					STN color LCD
Display resolution (Pixels)	800X600		640X480		800X600	640X480
Color	32,768 colors + 16 colors in blink mode			256 colors + 16 colors in blink mode	32,768 colors + 16 colors in blink mode	256 colors + 16 colors in blink mode
Backup memory	SRAM (64KB)					
Clock	Standard feature					
Ethernet	Option (CU-03)					
CF card interface	Standard feature (Compatible with CompactFlash™)					
Printer interface	Centronics compatible, Half pitch 20 pins					
Memory expansion cassette	Option V7EM-F (Flash memory cassette: 8MB for display data memory expansion) / V7EM-S (SRAM cassette: sampling data, 512KB for memory backup)					
Video	Not available					
RGB input	Not available					
RGB output	Not available					
Sound output	Not available					
Communication unit	Option (CU-xx)					

V7 Series 2

Introducing the V706!
The Cutting Edge Model that Sets 32,768 Colors on a 6 inch Screen

V706T

5.7 inches / 320×240 pixels / TFT color LCD

V706C

5.7 inches / 320×240 pixels / STN color LCD

V706M

5.7 inches / 320×240 pixels / STN monochrome LCD

■ **Specifications** (Refer to page 25 for other specifications)

Series	V706 Series		
Model	V706T	V706C	V706M
Display size	5.7 inches		
Display type	TFT color LCD	STN color LCD	STN monochrome LCD
Display resolution (Pixels)	320×240		
Color	32,768 colors + 16 colors in blink mode		monochrome 8 grayscale + blink mode
Backup memory	Standard: SRAM (128KB), Option: V706EM-S (512KB, DU-01(option) required)		
Clock	Standard feature		
Ethernet	Option DU-01		
CF card interface	Option DU-01		
Memory expansion cassette	Option V706EM-F (Flash memory cassette: 4MB for display data memory expansion) / DU-01		

New Standards in Slim-line Compactness that is Only 42.5 mm Thick

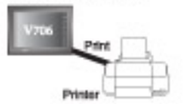
V706 - The Complete Interface

Enhanced versatility in a wide range of situations via USB connection

USB Master/Slave equipped as standard

Slave:
High-speed screen data transfer between your PC and the V706 via USB, enabling you to use screens composed with V-SFT.

Master:
Enhanced versatility with new capabilities to print to EPSON STYLUS PHOTO Series printers or save data to a CF card via USB.



Save and safeguard your important data

Internal 128 KB SRAM Memory

Internal 128KB SRAM Memory equipped as standard, enabling a host of different uses. In addition to a recipe data, you can back up your sampling data, memo pad data, internal memory data for macro use, etc.

Increased information management capability

CompactFlash™(CF) Card interface*

Simply insert the CF card and you can easily back up sampling data or store away recipe data and bitmap screens, etc.

* Optional DU-01 unit required

The V706 can optionally be equipped with Ethernet 10BASE-T.

Ethernet 10BASE-T*

An Ethernet connection allows you to monitor production site operations and collect production data in real time using Monitouch application software (TELLUS & V-Server).

* Optional DU-01 unit required

V7 Expression❶

Create Images of Superb Clarity

With 32,768 colors to choose from, use video have missed.

Real-life 3D Images

Full-color Display with 32,768 Colors*

We have produced an operator interface panel with a brilliant, full color, high-resolution display, to help you construct colorful, high-definition 3D images. You will be able to easily develop and display JPEG and Bitmap images, and accurately reproduce images captured by digital cameras or scanners.

● Previous model with only 128 colors

● New model with 32,768 colors

*excl. V710C, V708C, V706M

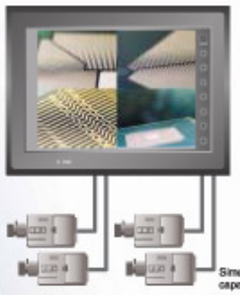
Simultaneous 4-Channel Display and Superimposing Function

Powerful Video Input Capability (Option on V7i only*)

4 different images transmitted by video cameras can be viewed simultaneously. Utilizing superimposing function, a fully functional operator screen can be displayed over the video images. To view and analyze operational process details, use single-snap function to capture one frame image and multiple strobe-effect snap function to capture 16 frame images.

*Optional unit (EU-00) required for video input

● Simultaneous 4-channel video input



Simultaneous 4-channel display capability

● Superimposing

Even when the entire display (640 x 480 pixels) is used to view the video image, a fully functional operator screen can be superimposed over the the video image.

Displaying Saved JPEG Files

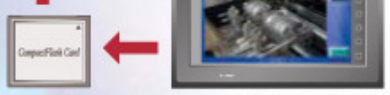
JPEG File Display*

The V7 panel allows you to review images captured on video camera. You can compare previously recorded images with real-time images, and tranfer images saved as JPEG files to a PC for future processing.

Because JPEG data are saved on CF card, V7 screen data capacity is not affected.

JPEG files can be displayed on V7.

Video images can be saved as JPEG files and the saved JPEG files can be re-displayed on V7 panels.



*excl. V710C, V708C, V706M

and Intricate Detail in a Flash

and JPEG images to capture and recall what you might

Ladder and I/O Monitor Capability

Ladder Monitor function now available (V7 Series only)

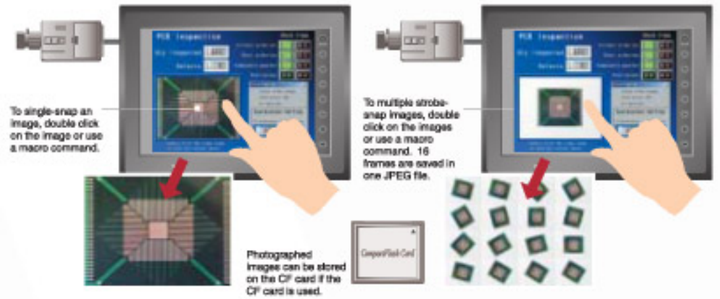
Whenever a problem is encountered or if you wish to confirm PLC programming immediately on site, you can use the ladder or I/O monitor with your V7 Series to identify the cause of the breakdown.
(Compatible PLCs: Mitsubishi QnH (Q) Series CPU, Mitsubishi QnH (Q) Series Link)

With a single touch, move easily from the error message screen to the ladder monitor

Whenever an error message appears in a relay mode or in a relay sampling mode, just touch the error message and the responsible relay will automatically be displayed on the ladder monitor for quick and easy analysis. You can then quickly visualize the step in question.

● Single-snap images

● Multiple strobe-snap images



New Function!

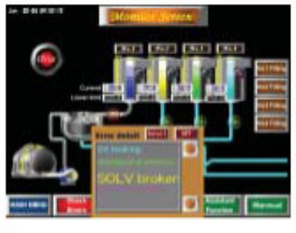
Coordinate Output Function

A new function is added to output the touch coordinate. Using this function, you can guide, for example, a robotic arm to the desired position while watching the movement on the display.

Create Vibrant Screens Using Attractive Fonts

Windows Fonts (V7 Series only)

Now you can display any font available on a Windows PC. Composition using attractive fonts increase the visual appeal of your screens.



Use different characters to display various alarm.

In relay mode, relay sample or alarm display, you can set messages to appear with different colors and character boldness. Errors can be highlighted in different ways depending on the situation.

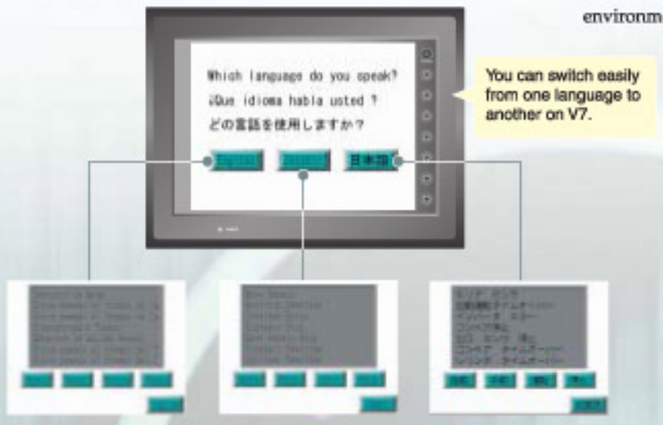
V7 Expression 2

Animation, Sound Effects, Foreign Interface Panel Combining All the

Switch Between 8 Available Languages on the Fly

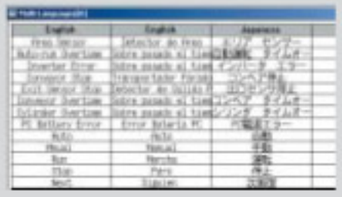
Multilingual Display*

- One screen data file can have 8 different languages.
- Supports all European languages, Japanese, Chinese, Korean, Cyrillic, and Hebrew.
- Switch from one language to another at the touch of a button (no need to re-load screen data)!
- A very useful feature in a multi-language factory environment.



Multilingual Editing

All languages are displayed simultaneously, so it is easy to understand and easy to edit.



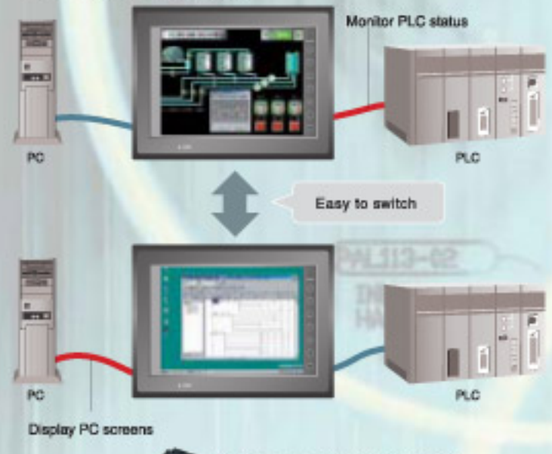
* CF card required for multilingual operation.

Connect V7i Panels to PC or Projector

Analog RGB Input / Output (Option on V7i* models only)

● Analog RGB input (EU-01)

If connected to PC, V7i panel becomes a monitor, and it is easy to switch between monitouch screens and PC screens.



*Optional unit (EU-01) required for analog RGB input.

● Analog RGB output (EU-02)

Monitouch screens can be displayed on a PC monitor, or projected onto a large screen.

*Optional unit (EU-02) required for analog RGB output.

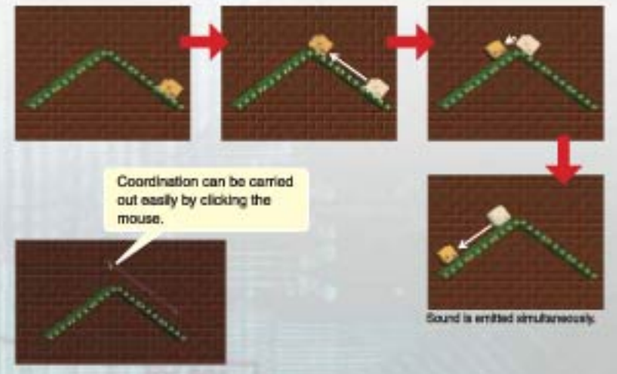
Languages··· A Functional Operator
Features of an Ideal Human Machine Interface

Easy-to-use Animation Features

Animation Function*

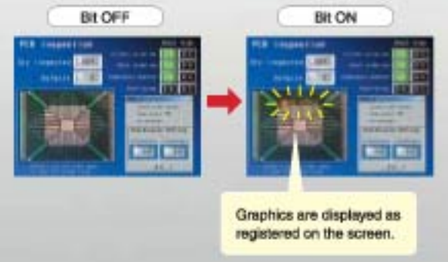
- High quality animations are easily created by combining Bitmap images.
- Animated images can be accompanied by sound files.
- Sophisticated animations enhance intuitive operation.

● Animation display



● Bit ON/OFF switching

Bitmap images are displayed/erased by switching a bit ON/OFF. Graphic images are clearly displayed on the screen because their colors and text are distinctly defined against the background color.



*excl. V710C, V708C, V706 Series

Audible Alarm

Sound Output Function (Option on V7i* models only)

WAV files (sound files) can be played and output through a speaker connected to the Monitouch panel. Occurence of errors and malfunctions can be broad casted over a wide area, ensuring timely response and safe operation.

● In case of errors

WAV files can be saved on CF cards.

*Optional unit (EU-00 – EU-03) and amplified speakers are required for sound output.

Clear Display Even in the Dark

Brightness Adjustment Function (excl. V708C, V706C and V706M)

The brightness control has 128 steps. Display quality is maintained by precise adjustment of brightness control even in the dark or changing light environment. A convenient feature that compensates for variations in illumination conditions (Lifespan of the backlight may be shortened by the use of brightness control feature).

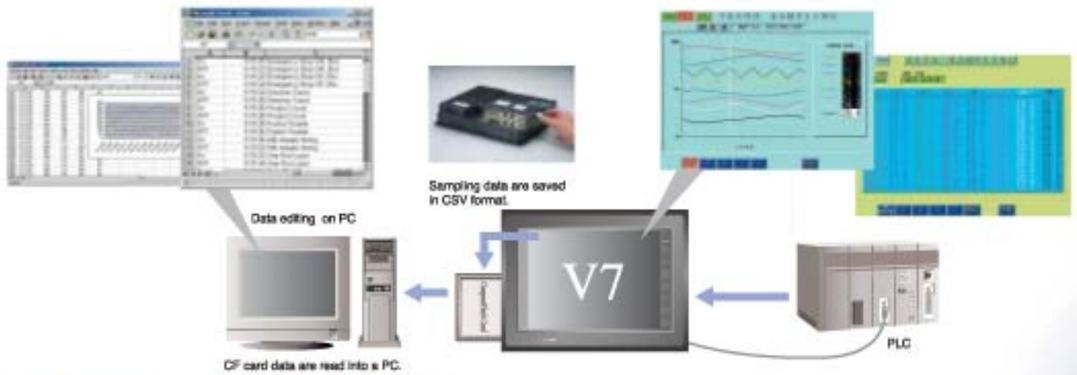
V7 Information Control

Insert a CF Card, and Instantly Functionality and Performance

System Data Can Be Easily Edited on a PC

Saving Sampling Data (Data Logging Function)

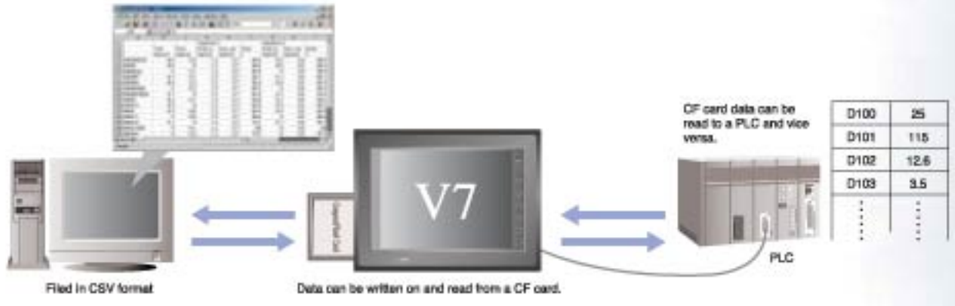
System data and error history can be saved in CSV format and easily edited on a PC in Excel, etc.



Data Edited on PC Are Transferred to V7

Transferring Recipe Data

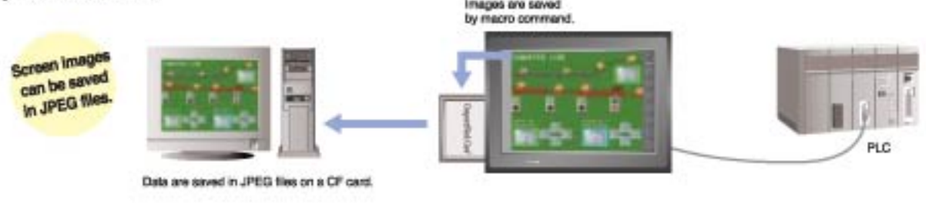
Recipe data (CSV file) created on a PC, including system data and PLC settings, can be transferred to PLC through V7. PLC data can be transferred to V7 and saved on CF cards.



Creation of Project Documentation and Manuals Is Simplified

Saving Screen Images

Screen images can be saved as JPEG files. When V7 is not connected to a printer, screen images can be saved on a CF card and printed from a PC.



Upgrade Your Information System's

Just Insert a CF Card

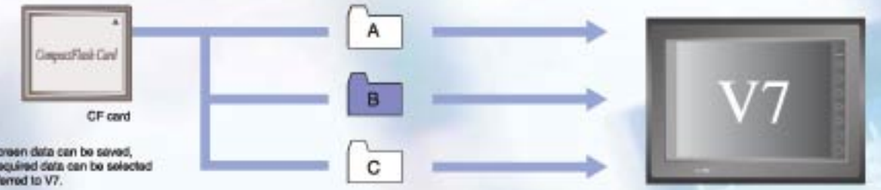
Automatic Uploading of Screen Data

Screen data created on a PC and saved on CF card can be automatically uploaded to V7. This feature enables screen data renewal even at the production site where a personal computer is not available.

Effortless Screen Data Exchange

Saving Multiple Project Screen Data

Multiple project screen data saved on CF cards can be selected and transferred to V7 whenever it is required.



Reducing Screen Data Volume

Storing Bitmap/JPEG Data

The use of Bitmap data or JPEG data in creation of the V7 screen data considerably decreases available memory space. Saving this data on CF cards restores available memory space on the V7.

Excellent Memory Media

Powerful Backup Feature

Optional Memory Expansion

SRAM is included as standard on all models

V712/710/706: 64KB
V706: 128KB

- Backup of sampling data
- Memory manager function
- Backup of memo pad data
- Backup of internal memory

SRAM cassette V7EM-S (option)*1 V706EM-S (option)*2

SRAM capacity can be increased to 512KB with a SRAM cassette.

*1 For V712, V710, V708
*2 For V706

Flash memory cassette V7EM-F (option)*

Screen data capacity can be increased from the standard 5MB to 13MB by adding a flash memory cassette.

* For V712, V710, V708

Flash memory cassette V706EM-F (option)*

Screen data capacity can be increased from the standard 1.4MB to 5.4MB by adding a flash memory cassette.

* For V706

V7 Information Transfer 1

The Ultimate Central Station All Your Networks

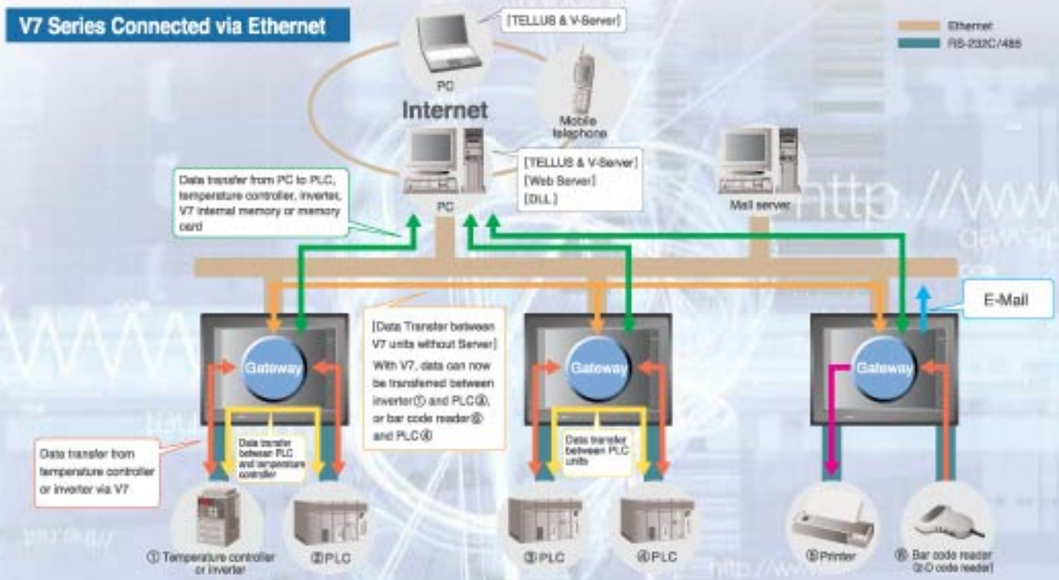
The new, upgraded V7 is the gateway to all your production data.

High Quality Network Solutions

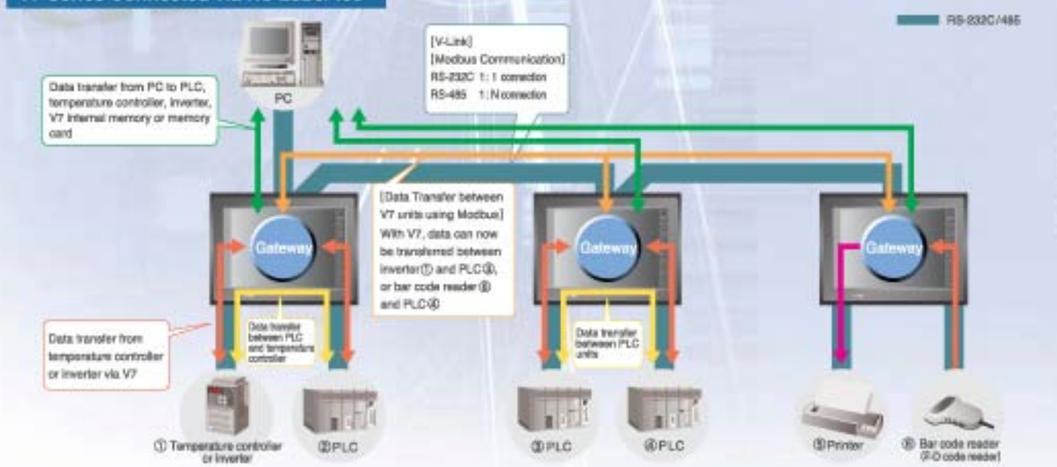
Gain access to all network data with the aid of the Ethernet 10BASE-T port (V7i models only). Using TELLUS & V-Server (see page 15) and the Web Server function, you can closely monitor the progress of the manufacturing process. The V7 panel functions as a communication gateway that enables you to transfer data from PC to PLC or from PLC to temperature controller, and vice versa, all from the same central station. When used to its full potential, the V7 can help you launch your business into the new age of data access without boundaries.

Acting as a Communication Gateway to a World of New Solutions

V7 Series Connected via Ethernet



V7 Series Connected via RS-232C/485



* All functions depicted in the above diagrams cannot be used simultaneously.

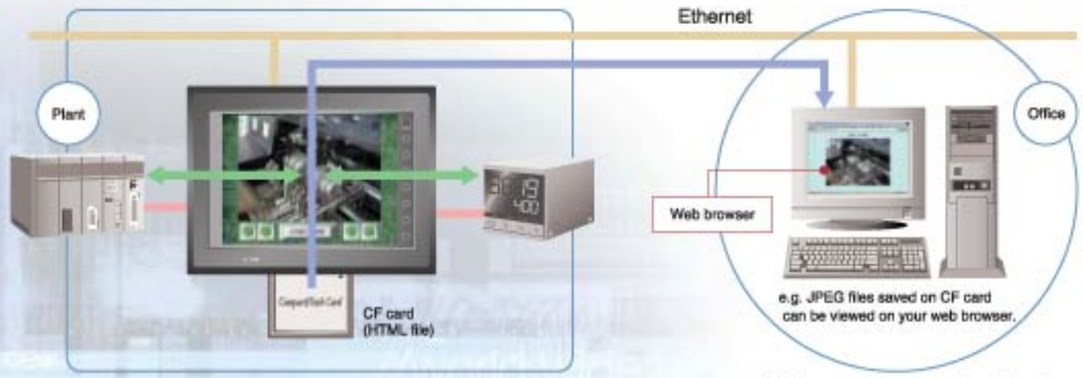
for Your Factory Data that Links to

Built-in Ethernet 10BASE-T (V7i models only)

Monitor Progress of the Manufacturing Process on the Web Browser Screen

Web Server Function (V7i models, V706+DU-01 only)

Loading previously created HTML files from CF card into the V7 enables you to gain remote access to your system through any Web Browser residing on your PC. From the comfort of your office you can monitor system performance, access system data, modify PLC settings, view JPEG files saved on CF card and troubleshoot your system.

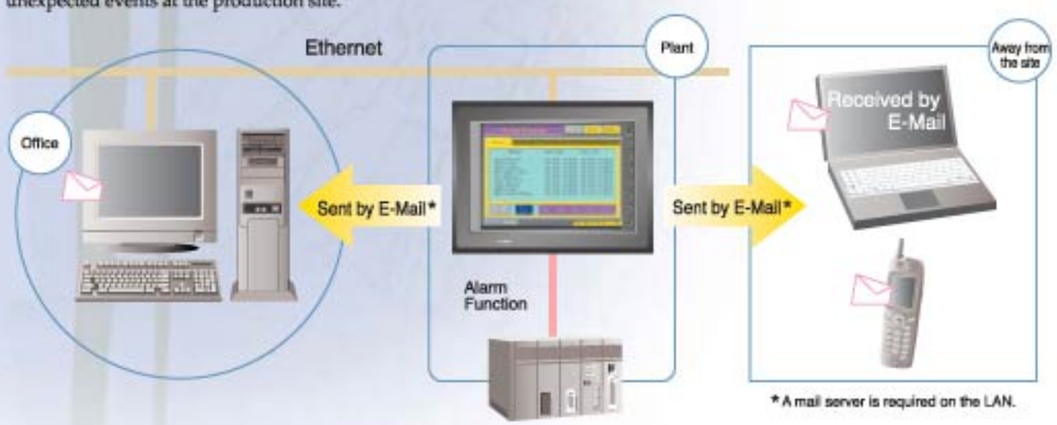


* Web server can be accessed only through a LAN network.

Stay in Touch with Your System

E-Mail Generation Function (V7i models, V706+DU-01 only)

Whenever you are away from the manufacturing facility, you can still remain in touch with your system. You can be notified about any problems or performance deviations through the email messages. This feature enables you to instantly respond to the unexpected events at the production site.



* A mail server is required on the LAN.

V7 Information Transfer 2

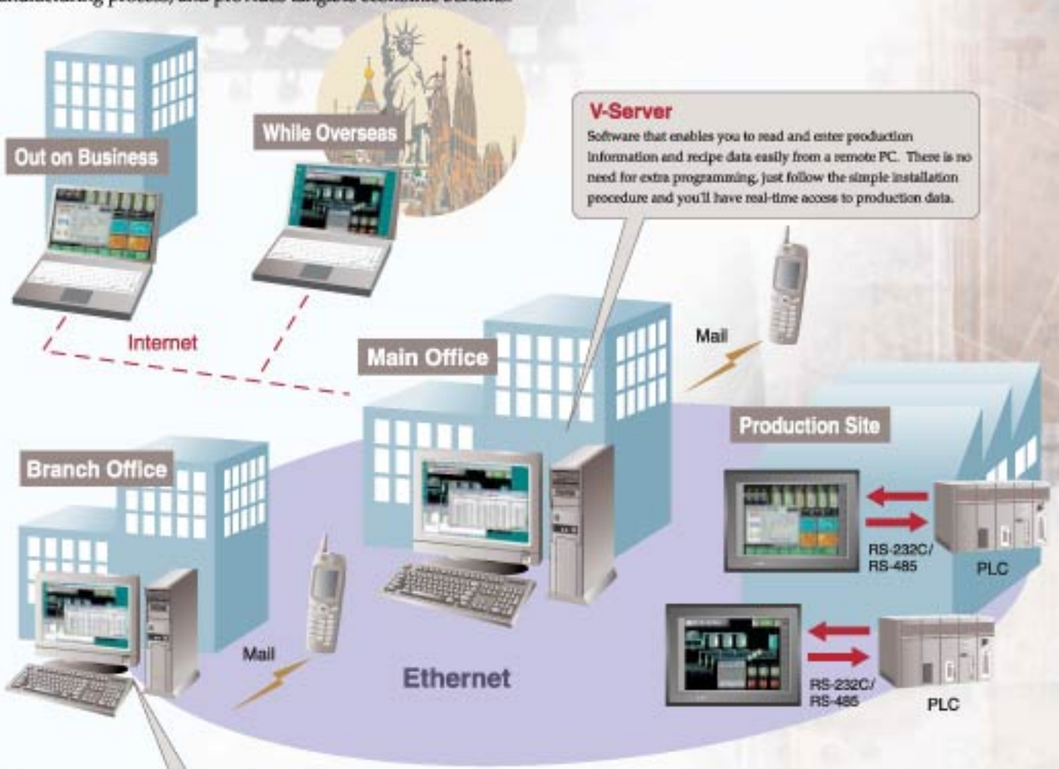
Remote System Access Using PC

Ethernet 10BASE-T Port Standard (Models excl. V7i series require an optional unit)

Advanced Software Enabling Connection of Your Office to the Production Site

TELLUS & V-Server (Option)

[TELLUS] enables system monitoring and operation while away from the production site, and [V-Server] allows you to collect data and issue instructions from a remote location. Simply by installing and connecting your V7 panel to Ethernet, you can gain access to high-level networks in the office and the production site. Whether it's from around the country or around the world, the Internet connection provides real-time access to your system, enabling fast and cost-effective monitoring and troubleshooting. The ability to remotely monitor and interact with the production line improves the overall efficiency of the manufacturing process, and provides tangible economic benefits.



TELLUS & V-Server

If you have ever been worried about the possibility of something going wrong while you are away from the production site, or not having immediate access to information, this is the solution. Because the on-site V7 screen can be relayed directly to your PC, you can monitor and react to any problems whether you are in the office or out on business.

Features of TELLUS & V-Server

- On-site V7 and PLC units can be monitored and operated using PC.
- The V7 screens can be used without any modification.
- Effective for monitoring and operating multiple units at the same time.
- System can be accessed from remote locations using the Web.
- Cost-effective.

Features of V-Server

- Data from PLC can be collected and saved in files.
- V7 sampling data can be saved in files.
- Recipe data can be managed and transferred.
- Alarm monitoring function allows immediate warning by e-mail.
- With DDE function, data can be managed from application software on PC.
- V7 screen data can be transferred via Ethernet.

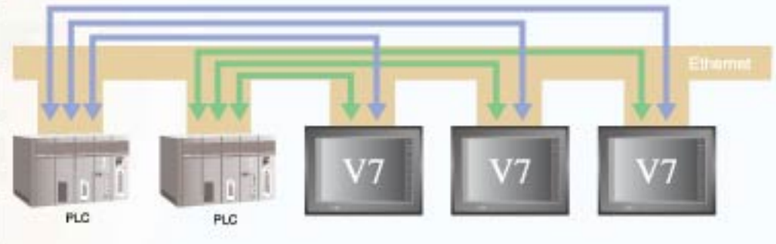
Ethernet 10BASE-T/100BASE-TX* Port Standard (V7 models require CU-03, V706 models require DU-01)

Easy to Install without Extra Programming

PLC Connection

- Multiple V7 and PLC units can be now easily connected (N:N connection)
- High-speed response

PLC	Allen-Bradley	PLC-5 (Ethernet) SLC500 (Ethernet) Control Logix (Ethernet)
	AutomationDirect	Direct LOGIC (Ethernet)
	Hitachi	HIDIC-S10/S10s, S10mini (Ethernet) HIDIC-S10V (Ethernet) HIDIC-H (Ethernet)
	KEYENCE	KV-700 (Ethernet TCP/IP) KV-700 (Ethernet UDP/IP) KV-1000 (Ethernet TCP/IP)
	LG	GLOFA-GM Series (Ethernet) MASTER-K Series (Ethernet)
	Matsushita Electric Works	FP Series (Ethernet TCP/IP) FP Series (Ethernet UDP/IP)
	MITSUBISHI ELECTRIC	QnA Series (Ethernet) QnH (Q) Series (Ethernet)
	OMRON	SYSMAC CS1/CJ1 (Ethernet) SYSMAC CS1/CJ1 (Ethernet Auto) SYSMAC CS1/CJ1 DNA (Ethernet)
	SHARP	JW Series (Ethernet)
	Toyoda Machine Works	TOYOPUC (Ethernet)
	Yokogawa Electric	FA-M3/FA-M3R (Ethernet)
	Others	MODBUS TCP/IP (Ethernet)



*Not supported in CU-03

Reciprocal Access

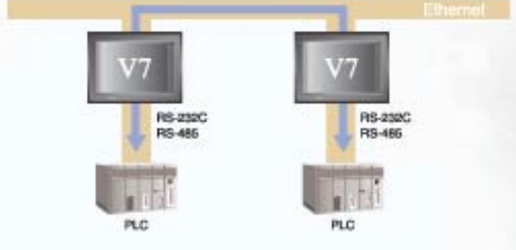
Data Transfer with V7 Using DLL

- Using applications developed with DLL incorporated in the V-SFT software, you can access internal memory of PLC or V7 from a PC. Also, data can be sent to a PC from V7 using the "SEND" Macro command.
- Even if PLC is not equipped with Ethernet, you can still access PLC from the server using V7. Regardless of the manufacturer or model of the PLC, data access via PC is possible with the same program.

Low-cost Network

Data Exchange between V7 Panels without Server

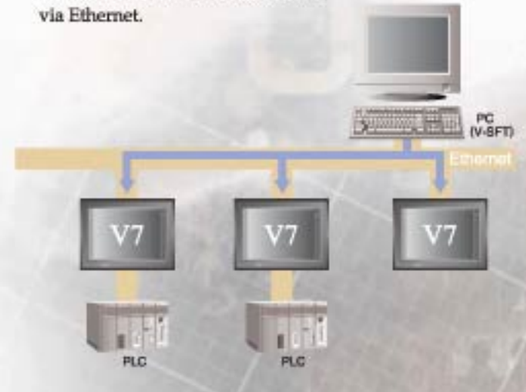
- You can exchange data reciprocally between V7 panels and PLC units.
- Easy-to-use, cost-effecient PLC network.



High-speed Transfer

Transferring Screen Data

- Screen data can be transferred to multiple V7 panels at a high-speed via Ethernet.



V7 Information Transfer 3 Extensive Networking Functions Communication

High-speed Communication with PLCs

Direct Connection to Multi-vendor PLCs

Communication speed of up to 115,200 bps can be achieved.

Allen-Bradley	PLC-5, SLC500 Micro Logix 1000 Control Logix
Automationdirect	Direct LOGIC Direct LOGIC (K-Sequence)
Baldor	Mint
DELTA	DVP Series
FANUC	Power Mate
FATEC AUTOMATION	FACON FB Series
Fuji Electric	MICREX-F T link FLEX-PC (OPCN-1) MICREX-F Series SPB (N mode) & FLEX-PC Series SPB (N mode) & FLEX-PC CPU FLEX-PC COM (T) FLEX-PC (T) FLEX-PC CPU (T)
GE Fanuc	90 Series 90 Series (SNP-X)
Hitachi	HIDIC-H HIDIC-S10/2α HIDIC-S10/4α HIDIC-S10/ABS HIDIC-S10 (OPCN-1) HIDIC-S10V
IDEC	MICRO3 MICRO Smart
KEYENCE	KZ Series link KZ-A500 CPU KZ/KV Series CPU KZ24/300 CPU KV10/24 CPU, KV-700 KV-1000

KOYO ELECTRONICS	SU/SG, SR-T SR-T (K Protocol) SU/SG Series (K-Sequence)
LG	MASTER-K10/80/200 MASTER-K500/1000 MASTER-KxxxS MASTER-KxxxS CNET GLOFA CNET GLOFA GM Series CPU
Matsushita Electric Works	MEWNET
MITSUBISHI ELECTRIC	A Series link, A Series CPU A Series (OPCN-1) A Series (CC-LINK) QnA Series link QnA Series CPU QnA Series (CC-LINK) QnA Series (Ethernet) QnH(Q) Series link QnH(A) Series CPU QnH(Q) Series CPU Q00J/00/01 CPU QnH(Q) Series (CC-LINK) FX Series CPU FX2N Series CPU FX1S Series CPU FX-3UC Series CPU FX Series link (A Protocol) Net10, A link+Net10
Modbus RTU	
MODICON	Modbus RTU
MOELLER	PS4
OMRON	SYSMAC C SYSMAC C (OPCN-1) SYSMAC CV SYSMAC CS1/CJ1 SYSMAC CS1/CJ1 DNA

SAIA	PCD
SAMSUNG	SPC Series N_plus, SECNET
SHARP	JW Series JW100/70H COM Port JW20 COM Port, JW (FL-Net) JW300 Series
SHINKO ELECTRIC	SELMART
Siemens	S5, S5 PG Port S7, S7-200 PPI S7-300/400MPI S7-300MPI (HMI ADP) S7-300MPI (PC ADP) S7-300MPI (Hewhnolz SSW7ADP) S7 PROFIBUS-DP TI500/505
TAIAN	TP02
Telemecanique	TSX Micro
TOSHIBA	T Series, EX Series
TOSHIBA MACHINE	TC200
Toyoda Machine Works	TOYOPUC
VIGOR	M Series
Yamatake	MX Series
Yaskawa Electric	MEMOBUS, CP9200SH/MP900
Yokogawa Electric	FA500, FA-M3, FA-M3R

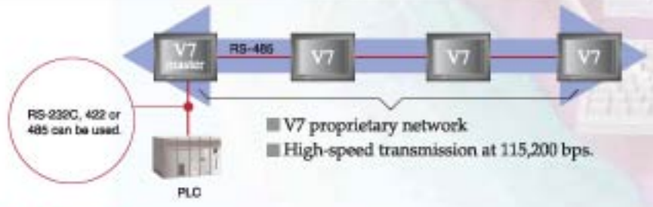
For inquires about compatibility or other manufactures' models, please contact us.

PLC Multi-Link Connection Up to 32 V7 touch panels can be connected to one PLC (upper link unit). Optional accessory units are not required.
PLC Multi-Drop Connection Up to 32 PLC units (upper link units) can be connected to one V7 touch panel. Optional accessory units are not required.

High-speed Multi-link for up to Four V7 Panels

Multi-Link 2

Up to Four V7 touch panels can be connected to one PLC via high-speed serial link. The V7 master unit and the PLC are connected via RS-232C, 422 or 485.



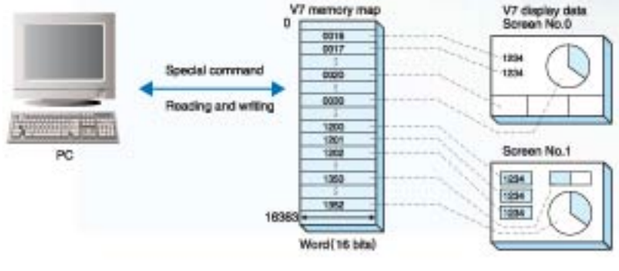
- V7 proprietary network
- High-speed transmission at 115,200 bps.

Reading and Writing Data Using Special Commands

Universal Serial Communication

PC and V7 panels exchange information via V7 internal memory table.

- Data to be displayed on V7 panels is written to the V7 internal memory table from PC using special commands. Information such as switch status on V7 is accessible from PC by issuing reading commands.
- Up to 32 V7 panels can be connected to a PC via RS-422 or RS-485 links.



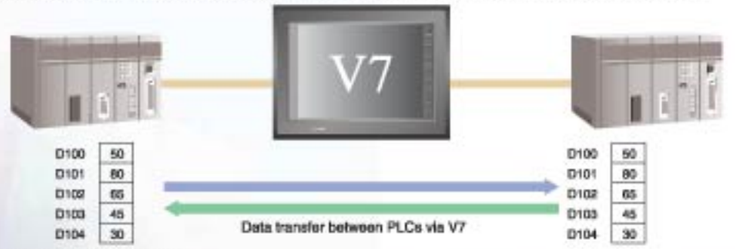
Provide Fast and Secure

So Easy, So Convenient

Dual Driver

● Dual Driver Support for Two Different PLCs.

The V7 panel can monitor and control operation of two PLCs of different models and manufacturers.



PLCs accessible through MJ ports

Fuji Electric	MICREX-F Series, SPB (N mode) & FLEX-PC Series
Hitachi	HIDIC-S10/2α, 4α, mini
Matsushita Electric Works	MEWNET
MITSUBISHI ELECTRIC	A Series link, QnA Series link, QnH (Q) Series link QnH (Q) Series CPU, FX Series link (A protocol)

OMRON	SYSMAC C, SYSMAC CV, SYSMAC CS1/CJ1
SHARP	JW Series, JW100/70H COM Port, JW20 COM Port
Yokogawa Electric	FA-M3, FA-M3R

● Dual Driver Support for One PLC and Other Devices (temperature control network).

Connecting PLC and temperature controller directly to V7 panel facilitates data transfer between PLC and temperature controller and enables memory monitoring, parameter setting, sampling and batch control. Various connectivity options are available to meet distinct system requirements, and simplify PLC configuration.

■ Sampling

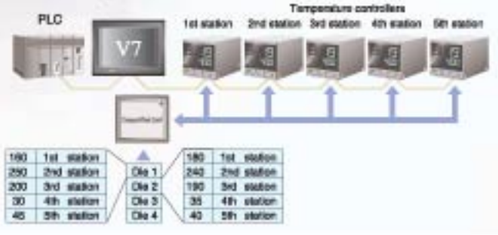
It is possible to sample the current temperature and error condition of the temperature controllers.

■ Monitoring and access to the temperature controller's memory

- Temperature controller memory can be monitored on numerical data displays.
- Temperature controller parameters can be entered using a keypad.
- Errors can be monitored with a lamp in relay mode.

■ Memory setting for a group of temperature controllers

- Saves the recipe data of temperature controller (e.g. die change) on CF cards.
- Batch setting of data in temperature controllers.
- Batch reading of data in temperature controllers.



● Compatible models of temperature controllers

Temperature Controller	CHINO	DZ1000 (MODBUS RTU) / 3000 (MODBUS RTU) KP1000, LT400 Series (MODBUS RTU)
	Fuji Electric	PYX (MODBUS RTU), PYH, PXR (MODBUS RTU)
	OHKURA	EC6000 / 5800, EC6800 / 5900A
	OMRON	E5CK, E5ZE, E5ZD, E5EK, E5EK-T, E5AK, E5AK-T, E5CK-T, E5AN / E5EN / E5CN / E5GN, E5ZN, E5AR, E5ER
	RKC	SR-Mini (MODBUS RTU), CB100 / 400 / 500 / 700 / 900 (MODBUS RTU), SR-Mini (Standard Protocol), REX-F400/ F700/ F900 (Standard Protocol), REX-5800 (Standard Protocol) REX-F9000 (Standard Protocol), SRV (MODBUS RTU), MA900/901
	SHINKO TECHNOS	C Series, FC Series, GC Series, DCL-33A, JCe-300 Series
	TOHO ELECTRONICS	TTM-900
	Yamatake	SDC10 / 20 / 21 / 30 / 31 / 40A, DMC10, SDC40/3, DMC50, AHC2001
	Yokogawa M&C	UT100 / 700/ 550 / 520 / 350 / 320 UP350 / 550 / 750, UM330 / 350, UT2400 / 2800
Inverter • Others	A&D	AD-4402 (MODBUS RTU), AD-4404 (MODBUS RTU)
	EUROTHERM	2400 Series (MODBUS RTU)
	Fuji Electric	F-MPD/MP, FVR-E11S, FVR-C11S, FRENIC5000 G11S / P11S FRENIC5000 VG7S, FRENIC-Mini (MODBUS RTU), HFR-C9K PRMC (MODBUS RTU), FALDIC-G/Series, PH Series, FALDIC-W Series
	Gammaflex	TTC2100
	Hitachi	SJ300 Series, L300P Series
	IAI	Super SEL Controller, X-SEL Controller ROBO CYLINDER (RCP2/ERC), ROBO CYLINDER (RCS)
	LG	IS5, IS7
	MITSUBISHI ELECTRIC	FR-*500, FR-V500, MR-J2S-*A, MR-J2S-*CL
	Modbus Free	
	M-SYSTEM	R1M Series (MODBUS RTU), R5 Series (MODBUS RTU)
	NIKKI DENSO	SG9-6/G9
	OMRON	V600 / V620, 3G3MV (MODBUS RTU)
	SAMSUNG	MOSCON-E7
	SANMEI	Q-Ay Axis
	SanRex	DC AUTO (HKD type)
	SANYO DENKI	PB1 Series
	SUNX	LP-200, LP-P10, LP-300, LP-400
	TOSHIBA	VF-S7, VF-S9, VF-A7
	UNIPULSE	F340A, F371, F600
	Yaskawa Electric	V5 mini V7 Series, E-POSI Series

V7 Information Transfer 4

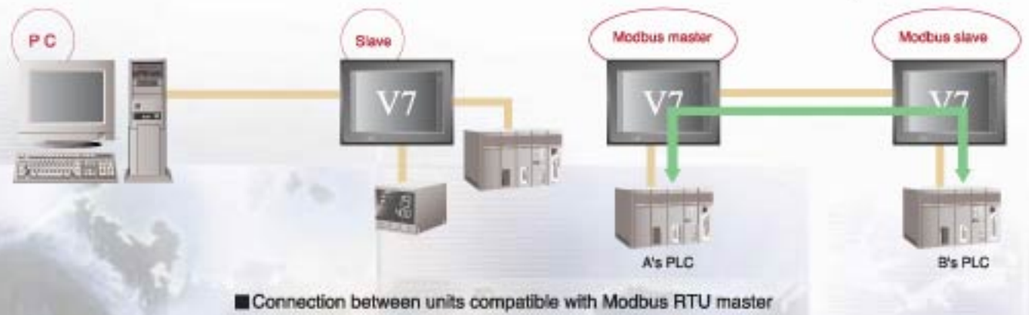
Direct Connection to the Control Versatile Operation

Low Cost Serial Network Solution

Modbus Slave Communication

■ Using Modbus communication you can read and write into the memory of V7 panels, PLCs and temperature controllers from a PC.

■ Temperature control network (Modbus free format) enables reading and writing of data to and from different makes PLCs via V7 panel.



■ Connection between units compatible with Modbus RTU master

Low Cost Serial Network Solution

V-Link

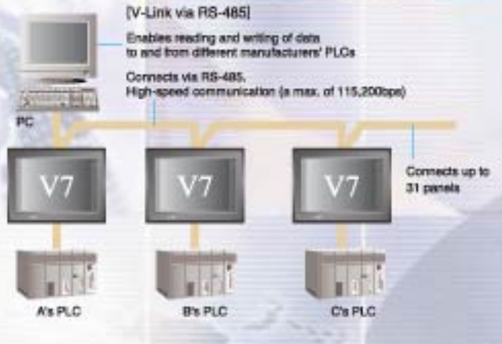
V-Link protocol enables reading and writing into the internal memory of V7 panel, the memory of PLCs and temperature controller connected to this V7 panel.

[V-Link via RS-232C]

[V-Link via RS-485]

Enables reading and writing of data to and from different manufacturers' PLCs

Connects via RS-485. High-speed communication (a max. of 115,200bps)



Connection with EPSON Color Inkjet Printer

Direct Connection with Color Inkjet (V7 Series only)

In addition to MS-DOS printers, Windows printers (EPSON STYLUS PHOTO) are now supported.
Not only can you connect to a wide range of printers, it is also possible to produce superbly clear hard copy printouts employing 32,768 colors!

● Printer Compatibility

Model		V710/710/708	V708
STYLUS PHOTO 750	Parallel	●	●*
STYLUS PHOTO 1200	Parallel	●	●*
STYLUS PHOTO 720	Parallel	●	●*
STYLUS PHOTO EX3	Parallel	●	●*
STYLUS PHOTO 700	Parallel	●	●*
STYLUS PHOTO 890	Parallel	●	●*
STYLUS PHOTO 1290	Parallel	●	●*
STYLUS PHOTO 810	Parallel	●	●*
STYLUS C81	Parallel	●	●*
STYLUS C86	Parallel	●	●*
STYLUS C83	Parallel	●	●*

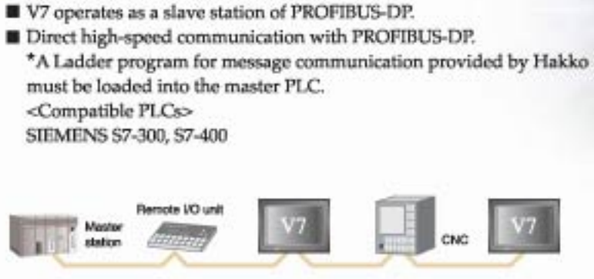
* Use UC-PGT (ELECOM)
(Parallel printer cable for USB connection)

Devices Enables Effortless and

Cennecting to Popular Field Network

PROFIBUS-DP I/F UNIT: CU-04 (Not available for V706)

- V7 operates as a slave station of PROFIBUS-DP.
- Direct high-speed communication with PROFIBUS-DP.
  *A Ladder program for message communication provided by Hakko must be loaded into the master PLC.
  <Compatible PLCs>
  SIEMENS S7-300, S7-400



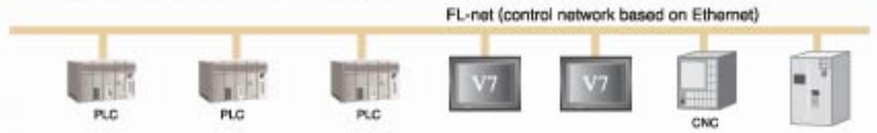
*V7 models require I/F unit (CU-04).

Flexible System

FL-net I/F UNIT: CU-03 (Not available for V706)

Connects to a leading edge multi-vendor network [FL-net]

- High-speed communication by masterless and token method.
  Flexible connection with different types of controllers such as PC, PLC, CNC and RC.
- It can conduct high-speed cyclic transmission in the range of 50ms when the total common memory is 2kbit + 2kW (64 bit + 64 W×32 nodes).
- V7 can access the memory of a controller (PLC) directly by message transmission service.

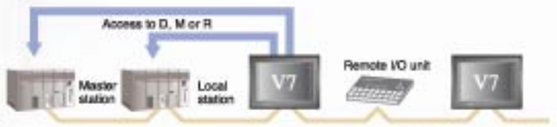


Economical and Space Saving Network

CC-Link I/F UNIT: CU-02 (Not available for V706)

A direct access network that simplifies system configuration, minimizes system wiring, and reduces space.

- V7 panels connect directly to PLC through the I/F unit (CU-02) installed in V7.
- V7 panel operates as an intelligent device station. The station provides cyclical communication for continuous update of remote I/O, and transient communication for direct access to PLC's memory.
- Maximum of 26 V7 panels (intelligent device station) can be connected in one system.



*V7 models require I/F unit (CU-02).

[Transient transfer]

Direct access to the memory of the master station and local stations. No programming required to link remote I/O devices.

[Cyclic transfer]

Select I/O memory for high-speed transmission.

V7 Configuration Software V-SFT 1

Original Configuration Software

V-SFT Ver.2

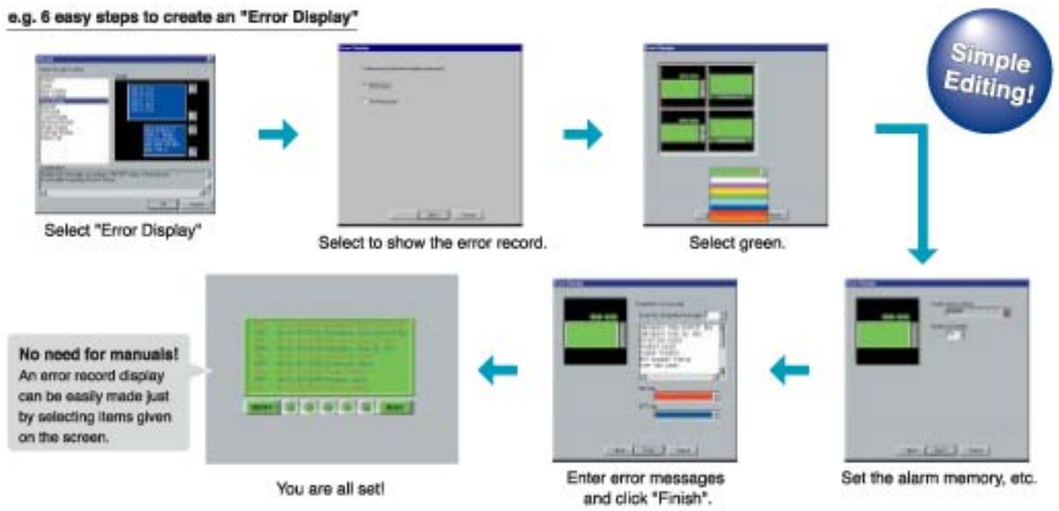
Original Screens on a Single PC

Easy, User-Friendly Operation

Wizard Function

Install V-SFT software on your PC and follow instructions shown on the monitor to create screen data.

e.g. 6 easy steps to create an "Error Display"



Select "Error Display" → Select to show the error record. → Select green. → Simple Editing! → Set the alarm memory, etc. → Enter error messages and click "Finish". → You are all set!

No need for manuals! An error record display can be easily made just by selecting items given on the screen.

32,768 Colors Provide Intricate and Effective Expression

3-D Symbols

More than 1,000 3-D images of symbols are available. With 32,768 colors to choose from, you'll be able to express your plant's needs graphically and with high accuracy. Of course, you can create customized symbol libraries or add your favorite bitmap images.

● 3-D parts

Can Be Created and Edited Easily and Quickly

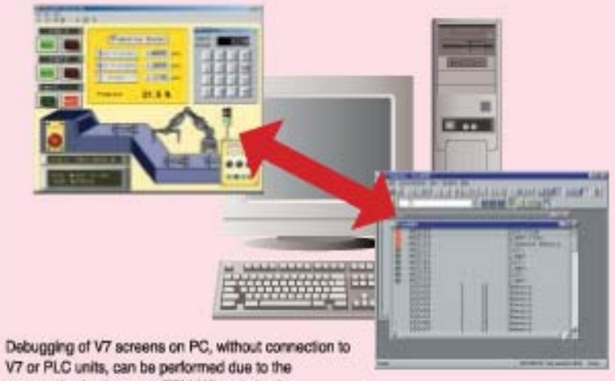
Easy Debugging of V7 Panels

Simulation Using PC (TELLUS Emulation Mode)

● Debugging without V7 or PLC

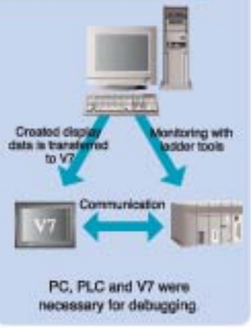
Now, in TELLUS emulation mode, you can perform system debugging using just a PC.
(Previously debugging was possible only between V7 and PLC units.)

Debugging in TELLUS mode



Debugging of V7 screens on PC, without connection to V7 or PLC units, can be performed due to the communication between TELLUS and simulator.

Conventional debugging



PC, PLC and V7 were necessary for debugging.

* TELLUS emulation mode function is provided free of charge.

Easy Creation of Project Documentation

Documentation

● Copy and paste screen images

V7 screen images can be copied and pasted in word processing software. This function saves time for documentation.

● Output screen data in Rich Text format (.RTF)

Editing is easy using word processing software.

● Paste operation image

In TELLUS emulation mode, system operation images on V7 can be reproduced on PC and pasted into documents.

Since operation data can be pasted into documents, creating manuals is a cinch!

● V-SFT Ver.2 Operating Requirements

CPU	Pentium II 450MHz or higher
OS	Windows 98/Me/NT Ver.4.0/2000/XP
Hard disk	460MB or more of available space is necessary. (For installation, at least 105MB is necessary.)
Display	Display resolution of 800X600 or more is recommended.

The latest version of V-SFT can be downloaded via Internet.

http://www.monitouch.com

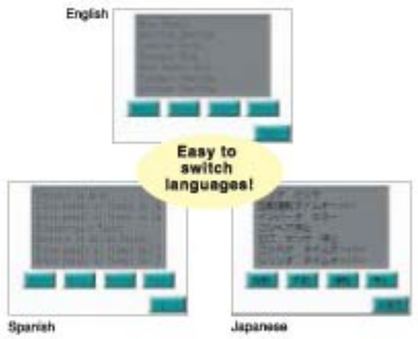
V7 Drawing Software V-SFT 2

Highly Functional and Easy to the Next Generation of Panel

Compatible with Multiple OS Platforms

Multilingual Editing

You can now select and use available foreign languages without the need for a foreign language version of operating system. Furthermore, by viewing multilingual window, you can check the text prepared in your native language against other languages.

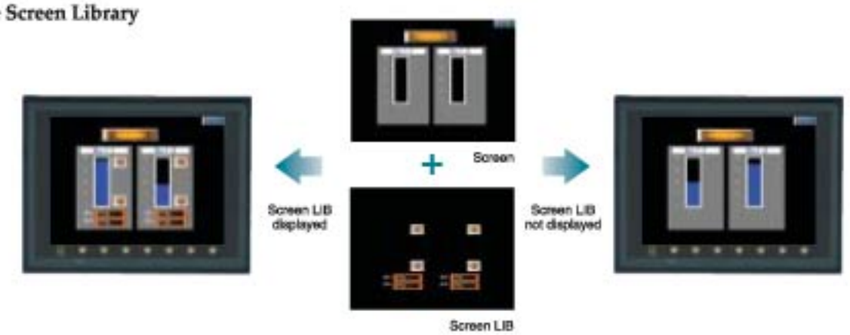


Enhanced Screen Library

Screen Library (V7 series only)

Conditionally Visible Screen Library

When the screen refreshes, the Screen Library can be visible or invisible according to the register value or bit status that you pre-defined.



Custom Design Parts to Match Your Needs

Creating Your Own Original Symbols

Create and use original symbols utilizing Bitmap images that meet exact requirements of your application.

● 3-D Imaging

Standard 3-D switch/lamp symbols are easily adaptable for creation of original symbol images.

For example, here are two types of standard 3-D symbols:

The green lamp lights up when OFF, the red lamp lights up when ON, and you have successfully made your own original symbol!

Use, Editors

A Great Reduction in PLC Display Programming

Macro

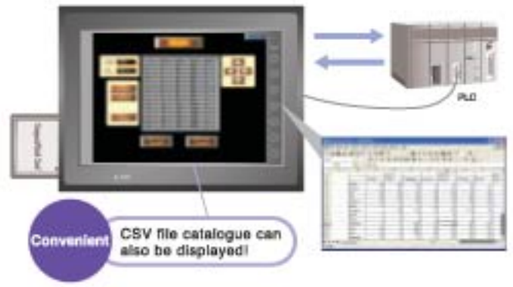
- Macro is a function which allows users to run programs for event processing or mathematical calculation.
- Macro programming is like programming in BASIC language. Program editing is extremely easy by just mouse clicking.
- Macro is executed when, for example, a screen is opened, a switch is turned ON, or a signal is received from PLC.

[When using a switch ON Macro]
If the switch is ON, Macro is executed once.

Even more user-friendly than before!

Recipe Mode (V7 series only)

Recipe mode is an easy-to-use data management system, and it allows CSV file data in the CF card to be displayed or edited on the V7 series as well as on your PC.



Improved Signalling

Flashing

It is simple to regulate switch and lamp indicators to flash when necessary.

When 3-notch lamp memory is set to M0

Easy Time Chart Composition

Rectangular Wave Graphs

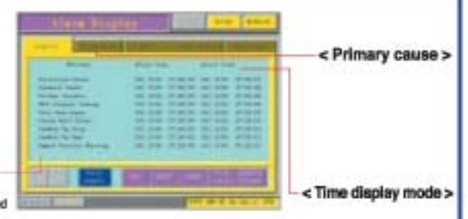
Trends and sampling can be represented using horizontal rectangular wave graphs. This simplifies the creation of time charts.

High-level Function

Alarm Display

When alarms are triggered (or reset), messages are displayed with time stamp. The system can recognize and display the primary cause and the secondary causes of alarms.

Alarm display automatically shows frequency of error, total time, etc.



Time of Occurrence

Roller No.2 Error	16:15:43	
Sensor No.1 Error	16:15:51	
Sensor No.2 Error	16:15:52	

Exact time of error occurrence is displayed.

Time of Occurrence and Resolution

Roller No.2 Error	16:15:43	16:21:12
Sensor No.1 Error	16:15:51	* * * *
Sensor No.2 Error	16:15:52	* * * *

Exact time of error occurrence and resolution. * indicates the error is not yet resolved.

Time Interval

Roller No.2 Error	* * * *
Sensor No.1 Error	000:00:42
Sensor No.2 Error	000:00:50

Time interval between error occurrences.

Overall Error Frequency

Sensor No.2 Error	1
Sensor No.1 Error	2
Roller No.2 Error	2

Shows how many times errors have occurred, in order of least frequency.

Total Time of Occurrence

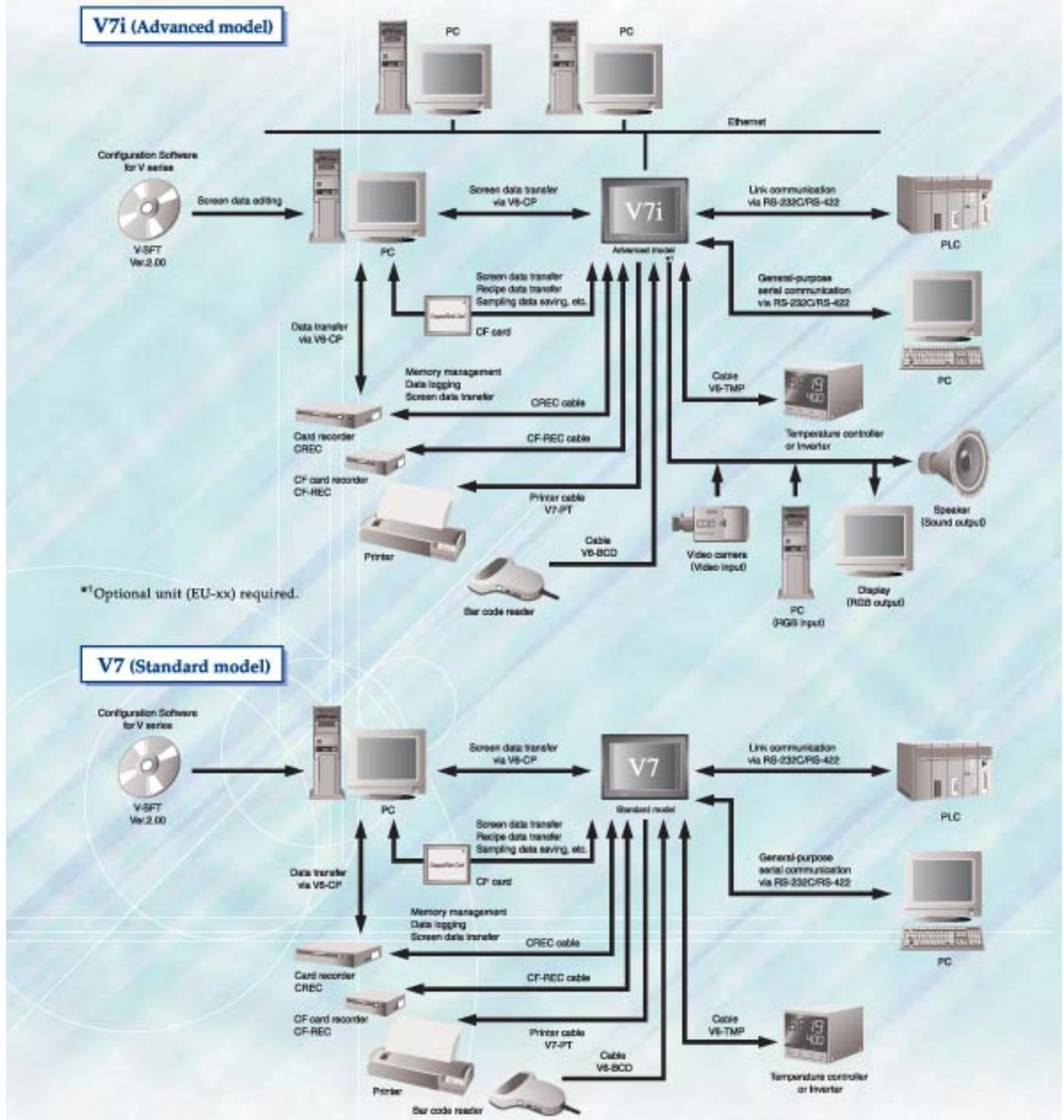
Sensor No.2 Error	000:00:41
Sensor No.1 Error	000:00:42
Roller No.2 Error	000:00:50

Shows total time of error occurrence, in order of least time.

V7 System Configuration

Versatile Systems for Your Production Sites

System Configuration



V7 Options

A Wide Range of Options to Extend Functionality of Your V7 Panels

Optional Accessories

Application Software

●Configuration Software

V-SFT
V-SFT (Compatible with Windows98/NT4.0/Me/2000/XP)
Ver.2.00 or later version is compatible with V7 series.

●Remote Control Monitoring Software

TELLUS & V-Server
TELLUS: enables remote monitoring and control of the manufacturing process.
V-Server: enables remote data collection and interation with the system's operation. (These two programs help you to connect your office to the manufacturing facility.)

Optional Units

●Optional Units (* For V7i only)

EU-00
(Video input + sound output unit)
Images from a video camera are displayed on V7i. Sound files are outputted to external, amplified speakers.

EU-01
(RGB input + sound output unit)
Images displayed on CRT are displayed on V7i. Sound files are outputted to external, amplified speakers.

EU-02
(RGB output + sound output unit)
Images displayed on V7i are displayed on CRT. Sound files are outputted to external, amplified speakers.

EU-03
(Sound output unit)
Sound files are outputted to external, amplified speakers.

●I/F Units

CU-xx
[xx:00→OPCN-1, 01→T-LINK, 02→CC-LINK, 03→Ethernet/FL-net, 04→PROFIBUS-DP, 05→MELSECNET/10] Interface Unit
Connects to various networks. One PLC can be connected to one or multiple V7 panels. Other devices can be linked to the network, improving system's cost-effectiveness.
*Not available for V706

●Memory Expansion Cassettes

V7EM-F
(Flash memory cassette)
This memory expansion board increases screen data memory.
Capacity: 8MB

V7EM-S
(SRAM cassette)
This memory expansion board increases SRAM memory.
Capacity: 512KB

V7EM-L
(Flash memory cassette)
This memory expansion board enables the ladder monitoring feature

V706EM-F
(Flash memory cassette)
This memory expansion board increases screen data memory.
Capacity: 4MB
*For V706 only

V706EM-S
(SRAM cassette)
This memory expansion board increases SRAM memory.
Capacity: 512KB
*For V706 only

Cables

V6-CP (Cable for screen data transfer) 3m

Connects V7 to a PC or PC to a CREC.

V7-PT (Printer cable) 2.5m

Connects V7 to a printer.

V6-BCD (Cable for bar code reader) 3m

Connects V7 to a bar code reader.

MJ-D25 (MJ - D-sub25 conversion cable) 0.3m

Connects between V7 and PLCs in PLC2Way mode, or connects between PLC and MJ2 on V706 via RS485 (4-wire system) in 1:1 connection.

V6-MLT (Cable for Multi-link 2) 3m

Connects V7 master unit and V7 slave units in Multi-Link 2 mode.

V6-TMP (Cable for temperature controller) 3m

Connects between V7 and temperature controller or PLCs in PLC2Way mode.

MJ2-PLC (MJ - D-sub conversion cable) 0.3m

Connects between PLC and MJ2 on V706 via RS232C or RS422 (4-wire system) in 1:1 connection.

Other Optional Accessories

TC485
(Terminal converter)
Connects V7 panels and PLCs via RS-422/485 terminal.

CREC (Card recorder)
Used for recording data onto a card for back-up. Also used for recording data by memory manager or data logging functions.

CF-REC (CF card recorder)
Facilitates reading screen data, sampling data or recipe data. Can be attached to control panel.

V-I/O
(I/O serial expansion)
External I/O unit with 16 inputs and 16 outputs. Expands system's I/O configuration.

V7-BT
(Battery)
Lithium battery for V7 series panels

REC-MCARD (Memory card) Compatible with JEIDA Ver. 4.0
Data recording via CREC in case of data back-up, memory managing and data logging
SRAM 256KB, 512KB, 1MB, 2MB, 4MB
FLASH ROM 256KB, 512KB, 1MB

V7xx-GS and V7xx-GSN10
[xx:08→V708/V708i, 10→V710/V710i, 12→V712/V712i] (Protection sheet)
Protection sheet for Monitouch operator panels. N10 is a non-glare type sheet (5 sheets per package).

V708S-FL→V708S/V708iS
V6xxx-FL [xxx:08C→V708C, 10T→V710T/V710T, 10S→V710S/V710iS, 12S→V712S/V712iS] (Backlight unit)
Replacement backlight for V7 panels

V7 Specifications ❶

Operator Panels with Advanced Sizes of 12, 10, 8 and 6 inches

General Specifications

Item	Model	V712		V710	
		AC	DC	AC	DC
Power supply	Rated voltage	100-240V AC	24V DC	100-240V AC	24V DC
	Permissible range of voltage	100-240V AC±10%	24V DC±10%	100-240V AC±10%	24V DC±10%
	Permissible momentary power failure	within 20ms	within 1ms	within 20ms	within 1ms
	Demand (maximum rating)	60VA or less	30W or less	60VA or less	30W or less
	Inrush current	16A, 8ms (100V AC) 32A, 7ms (200V AC)	30A, 1ms	16A, 8ms (100V AC) 32A, 7ms (200V AC)	30A, 1ms
	Insulation resistance	500V DC, 10MΩ or more			
Physical environment	Operating ambient temperature	0℃ ~ +50℃			
	Storage ambient temperature	-10℃ ~ +60℃			
	Relative humidity	85%RH or less (No dew condensation)			
	Resistance to solvent	Not exposed to oil or organic solvent			
	Atmosphere	Not exposed to gas or conductive dust			
Mechanical *1	Resistance to oscillation	Vibration frequency: 10~150Hz, acceleration: 9.8m/s²{1.0G} pulsating width: 0.075mm, X,Y,Z: 3 directions 1 hour each way			
	Vibration proof	Pulse shape: half-sine, peak acceleration: 147m/s²{15G}, X,Y,Z: 3 directions, six times each way			
Electric *2	Noise proof	1500Vp-p (pulse width 1μs, pulse rise time : 1ns)			
	Static discharge	Complies with IEC61000-4-2, contact: 6kV, air: 8kV			
Installation conditions	Grounding	Grounding resistance : Less than 100Ω			
	Structure	Ratings : Front panel : Compatible with IP65 (when water-proof gasket is used.) Rear cover : Compatible with IP20 Form : Single unit Installation method : Panel mounting			
	Cooling system	Natural air cooling			
	Weight	Analog type: Approx.2.7kg / Matrix type: Approx.3.2kg		Analog type: Approx.2.4kg / Matrix type: Approx.2.8kg	
	Dimensions W×H×D (mm)	326.4×259.8×72.0		303.8×231.2×72.0	
	Panel cutout (mm)	313.0"×246.8"		289.0"×216.2"	
	Case color	Black (Munsell N2.0)			
	Material	PC/PS resin (Teflon)			

*1: Mechanical operating condition
*2: Electric operating condition

Performance Specifications

Item	Model	V712xS	V710xS	V710xT	V710C
Display	Screen memory	FLASH memory about 4,992kB (can be increased depending on font)			
	Display device	TFT color LCD			
	Resolution W×H (pixels)	800×600		640×480	
	Display size	12.1 inches	10.4 inches		
	Colors	32,768 colors + 16 colors blink			128 colors + 16 colors blink
	Backlight	CCFL (User replaceable)			
	Backlight Auto OFF	Lit in normal (Set by the user)			
	Power lamp	Lit when power is ON			
	Contrast adjustment	Fixed			
	Brilliance adjustment	128 steps *1			
Number of characters	1/4 size 1-byte 2-byte	100 columns×75 lines 100 columns×37 lines 50 columns×37 lines		80 columns×60 lines 80 columns×30 lines 40 columns×30 lines	
	Enlargement of characters	X: 1 ~ 8 times Y: 1 ~ 8 times			
Touch switch	Switch resolution	Analog: 1024(W)×1024(H) Matrix: 50(W)×30(H)	Analog resistance membrane 1024(W)×1024(H)	Analog resistance membrane 1024(W)×1024(H)	Matrix resistance membrane 40(W)×24(H)
	Mechanical life	1 million times or more			
	Surface treatment	Hard coating, Non-glare finish 5%			
Function switch	Number of function switches	8 switches			
External interface	For PLC (CN1: D-Sub25 pins)	RS-232C, RS-422/485, Asynchronous type, Data length : 7, 8 bits, Parity : even, odd, none, Stop bit : 1, 2 bits, Baud rate : 4800, 9600, 19200, 38400, 57600, 76800, 115200 bps			
	For data transfer/other external interface1, 2 (modular 8 pins)	RS-232C, RS-422/485 (two-wire system), CREC, Bar code reader, V-I/O, Multi-link 2, Temperature control netPLC/Way, V-link			
	Printer interface	Compatible with centronics, Half pitch 30 pins, NEC: PR201, EPSON : ESC/P-J84 or later, ESC/P24-J84, CBM292/293 printer*2 Bar code printer MR400			
	CF card interface	Compatible with CompactFlash™			
	Ethernet 10BASE-T (V7i standard equipment)	Complies with IEEE802.3 Baud rate : 10Mbps Cable : 100Ω Unsealed twist pair, Category 5, Max. length : 100m			
Clock & Back-up memory	Battery	Coin-type lithium primary battery			
	Back up memory	SRAM 64KB			
	Back up period	5 years (Ambient temperature 25℃)			
	Calendar accuracy	Gap ± 90 sec per month (Ambient temperature 25℃)			

*1: Adjusted with function switches
*2: CBM292/293 printer cannot print out the screen image.

Features, Versatile Interfaces and Display

Item	Model	V708	V706
		DC	DC
Power supply	Rated voltage	24V DC	24V DC
	Permissible range of voltage	24V DC±10%	24V DC±10%
	Permissible momentary power failure	within 1ms	within 1ms
	Demand (maximum rating)	V708C: 15W or less; V708S/IS: 22W or less	18W or less
	Inrush current	25A, 0.7ms	20A, 0.1ms
	Insulation resistance	500V DC, 10MΩ or more	
Physical environment	Operating ambient temperature	0℃ ~ +50℃	0℃ ~ +50℃ *3
	Storage ambient temperature	-10℃ ~ +60℃	
	Relative humidity	85%RH or less (No dew condensation)	
	Resistance to solvent	Not exposed to oil or organic solvent	
	Atmosphere	Not exposed to gas or conductive dust	
Mechanical *1	Resistance to oscillation	Vibration frequency: 10~150Hz, acceleration: 9.8m/s²(1.0G) pulsating width: 0.075mm, X,Y,Z: 3 directions 1 hour each way	
	Vibration proof	Pulse shape: half-sine, peak acceleration: 147m/s²(15G), X,Y,Z: 3 directions, six times each way	
Electric shock *2	Noise proof	1500Vp-p (pulse width 1μs, pulse rise time : 1ns)	1000Vp-p (pulse width 1μs, pulse rise time : 1ns)
	Static discharge	Complies with IEC61000-4-2, contact: 6kV, air: 8kV	
Installation conditions	Grounding	Grounding resistance : Less than 100Ω	
	Structure	Ratings : Front panel : Compatible with IP65 (when water-proof gasket is used.) Rear cover : Compatible with IP20	Form : Single unit Installation method : Panel mounting
	Cooling system	Natural air cooling	
	Weight	Approx.1.5kg	Approx.0.7kg
	Dimensions W×H×D (mm)	233×178×66.1	182.5×138.8×42.5
	Panel cutout (mm)	220.5[+0.8 0]×166.5[+0.8 0]	174[+0.8 0]×131[+0.8 0]
	Case color	Black (Munsell N2.0)	
	Material	PC/PS resin (Teflon)	

*1: Mechanical operating condition *2: Electric operating condition
*3: Degradation may occur on STN displays when used at high ambient temperature (40 ~ 50℃) for a long time.

Item	Model	V708xS	V708C	V706T	V706C	V706M
Display	Screen memory	FLASH memory about 4,992kB (can be increased depending on font)		FLASH memory about 1,472kB (can be increased depending on font)		
	Display device	TFT color LCD	STN color LCD	TFT color LCD	STN color LCD	STN monochrome LCD
	Resolution W×H (pixels)	800×600	640×480	320×240		
	Display size	8.4 inches	7.7 inches	5.7 inches		
	Colors	32,768 colors + 16 colors blink	128 colors + 16 colors blink	32,768 colors + 16 colors blink		Monochrome 8 hues + blink
	Backlight	CCFL (User replaceable)		CCFL (User unreplaceable)		
	Backlight Auto OFF	Lit in normal (Set by the user)				
	Power lamp	Lit when power is ON		Lit (green) when power is ON, ALM (red) when power battery is low		
	Contrast adjustment	Fixed	Adjustable *1	Fixed	Adjustable *1	
	Brilliance adjustment	128 steps *2	Fixed	128 steps *2	Fixed	
Number of characters	1/4 size	100 columns×75 lines	80 columns×60 lines	40 columns×30 lines		
	1-byte	100 columns×37 lines	80 columns×30 lines	40 columns×15 lines		
	2-byte	50 columns×37 lines	40 columns×30 lines	20 columns×15 lines		
	Enlargement of characters	X: 1 ~ 8 times Y: 1 ~ 8 times				
Touch switch	Operation method	Analog resistance membrane		Analog resistance membrane		Matrix resistance membrane
	Switch resolution	1024(W)×1024(H)		1024(W)×1024(H)		200(W)×128(H)
	Mechanical life	1 million times or more				
	Surface treatment	Hard coating, Non-glare finish 5%				
Function switch	Number of function switches	8 switches		6 switches		
External interface	For PLC (CN1: D-Sub25 pins *5)	RS-232C, RS-422/485, Asynchronous type, Data length : 7, 8 bits, Parity : even, odd, none, Stop bit : 1, 2 bits, Baud rate : 4800, 9600, 19200, 38400, 57600, 76800, 115200 bps				
	For data transfer/other external interface1, 2 *5 (modular 6 pins)	RS-232C, RS-422/485 (two-wire system), CREC, Bar code reader, V-I/O, Multi-link 2, Temperature control net/PLC2Way, V-link				
	Printer interface	Compatible with centronics, Half pitch 36 pins, NEC: PR201, EPSON: ESC/P-J84 or later, CSC/PS4-J84, CBM293/293 printer *4 Bar code printer MH400		—		
	CF card interface *6	Compatible with CompactFlash™				
	Ethernet 10BASE-T *5 (V7 standard equipment)	Complies with IEEE802.3 Baud rate : 10Mbps Cable : 100Ω Unseated twist pair, Category 5, Max. length : 100m				
	USB interface	—		Type A,Type B (Ver.1.1)		
Clock & Back up memory	Battery	Coin-type lithium primary battery				
	Back up memory	SRAM 64KB		SRAM 128KB		
	Back up period	5 years (Ambient temperature 25℃)				
	Calendar accuracy	Gap ± 90 sec per month (Ambient temperature 25℃)				

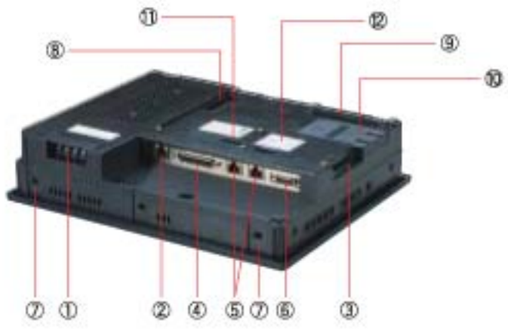
*1: Adjusted with function switch *2 By macro command *3 V706: Used only when connecting an optional unit
*4 CBM293/293 printer cannot print out the screen image. *5 V706 has MJ1 only (MJ2: for PLC)

V7 Specifications ❷

Operator Panels with Advanced Sizes of 12, 10, 8 and 6 inches

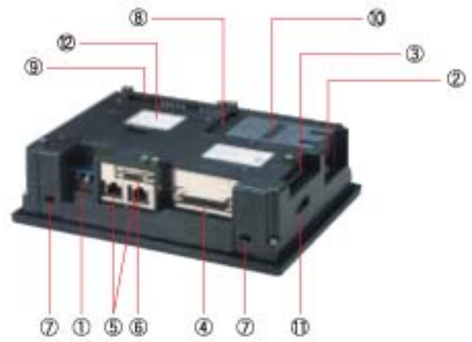
Interface

V710/V710i/V712/V712i



① **AC power supply / DC power supply**
② **LAN:** 10BASE-T (For V7i only)
③ **CF:** CompactFlash™
④ **CN1:** PLC
⑤ **MJ1, MJ2:** Data transfer and temperature controller/bar code reader/CREC
⑥ **Printer:** Printer
⑦ **Mounting hole**
⑧ **CN5:** Communication interface unit
⑨ **CN6:** Option
⑩ **Memory:** Extension memory
⑪ **Dip switches**
⑫ **Battery holder**

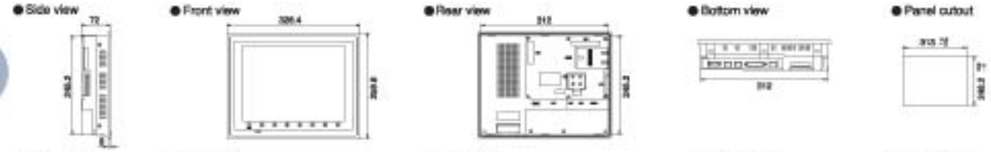
V708/V708i



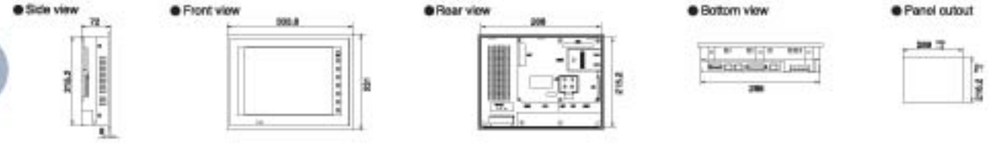
① **DC power supply**
② **LAN:** 10BASE-T (For V7i only)
③ **CF:** CompactFlash™
④ **CN1:** PLC
⑤ **MJ1, MJ2:** Data transfer and temperature controller/bar code reader/CREC
⑥ **Printer:** Printer
⑦ **Mounting hole**
⑧ **CN5:** Communication interface unit
⑨ **CN6:** Option
⑩ **Memory:** Extension memory
⑪ **Dip switches**
⑫ **Battery holder**

Dimensions (unit:mm)

V712i/ V712



V710i/ V710

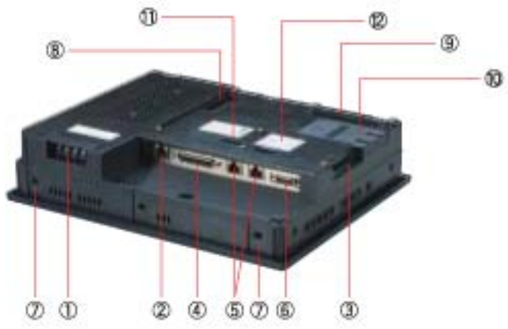


V7 Specifications ❷

Operator Panels with Advanced Sizes of 12, 10, 8 and 6 inches

Interface

V710/V710i/V712/V712i



① **AC power supply / DC power supply**
② **LAN:** 10BASE-T (For V7i only)
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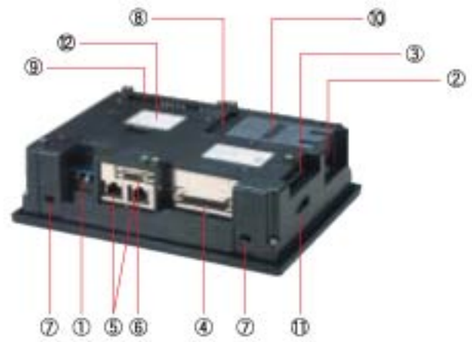
⑩ **Memory:** Extension memory
⑪ **Dip switches**
⑫ **Battery holder**

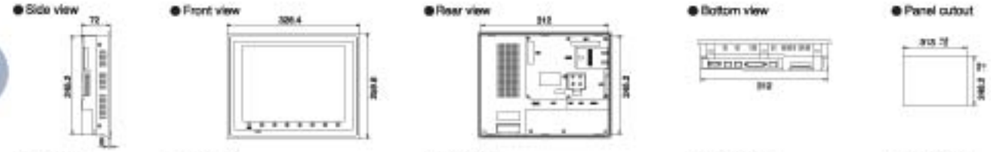
V708/V708i



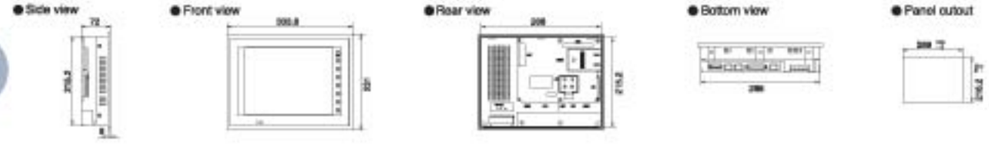
① **DC power supply**
② **LAN:** 10BASE-T (For V7i only)
③ **CF:** CompactFlash™
④ **CN1:** PLC
⑤ **MJ1, MJ2:** Data transfer and temperature controller/bar code reader/CREC
⑥ **Printer:** Printer
⑦ **Mounting hole**
⑧ **CN5:** Communication interface unit
⑨ **CN6:** Option
⑩ **Memory:** Extension memory
⑪ **Dip switches**
⑫ **Battery holder**

Dimensions (unit:mm)

V712i/ V712



V710i/ V710



V6 series Line-up

V6 Series Touch Panels are Designed a Wide Variety of Applications

Popular Around the World! Low Cost and Powerful.

Serial communication specialist with over 100 drivers !

V606e

【Line-up】

16 Color STN Display

V606eC 5.7inches STN

Specifications ● Display: STN color LCD ● Resolution 320X240 (pixels) Color: 16 colors + blink ● Dimensions: 181.8X138.8X44 (mm)

Monochrome 8 Hues White Mode Display

V606eM 5.7inches STN

Specifications ● Display: STN monochrome LCD ● Resolution 320X240 (pixels) ● Color: 8 hues + blink ● Dimensions: 181.8X138.8X44 (mm)

- ○Onboard 128KB SRAM Memory on V606eC20 and V606eM20 models (V606eM10 does not have onboard 128KB SRAM.)
- ○Built-in real time clock (V606eM10 does not have built-in real time clock.)
- ○D-sub25 serial port interfaces over 100 kinds of PLCs.
- ○MJ serial port interfaces barcode readers, temperature controllers, inverters, etc.
- ○Four step brightness adjustment
- ○44.0 mm thickness slim design to fit in the narrowest of spaces

to Meet the Requirements of

[V6 Series Line-up]

Multifunctional High Luminance Color

V606iT 5.7inches TFT

Specifications ●Display: TFT color LCD ●Resolution 320X240 (pixels) ●Color: 16 colors + blink ●Dimensions: 182.5X138.8X57.3 (mm)

Clear and User-friendly Display

V606C 5.7inches STN

Specifications ●Display: STN color LCD ●Resolution 320X240 (pixels) ●Color: 16 colors + blink ●Dimensions: 182.5X138.8X50 (mm)

Cost-effective 5.7 inch Color Display with High Luminance

V606iC 5.7inches STN

Specifications ●Display: STN color LCD ●Resolution 320X240 (pixels) ●Color: 16 colors + blink ●Dimensions: 182.5X138.8X57.3 (mm)

Monochrome 8 Hues and White Mode Display

V606M 5.7inches STN

Specifications ●Display: STN monochrome LCD ●Resolution 320X240 (pixels) ●Color: 8 hues + blink ●Dimensions: 182.5X138.8X50 (mm)

High Visibility Blue Monochrome Display

V606iM 5.7inches STN

Specifications ● Display: STN monochrome LCD ●Resolution 320X240 (pixels) ● Color: 8 hues + blink ● Dimensions: 182.5X138.8X57.3 (mm)

High Luminance 8.9 inch Display with Wide Viewing Angle

V609E 8.9inches EL

Specifications ●Display: High luminance EL ●Resolution 640X400 (pixels) ● Color: 2 colors + blink ● Dimensions: 288X203X35 (mm)

Highly Functional Handheld Unit

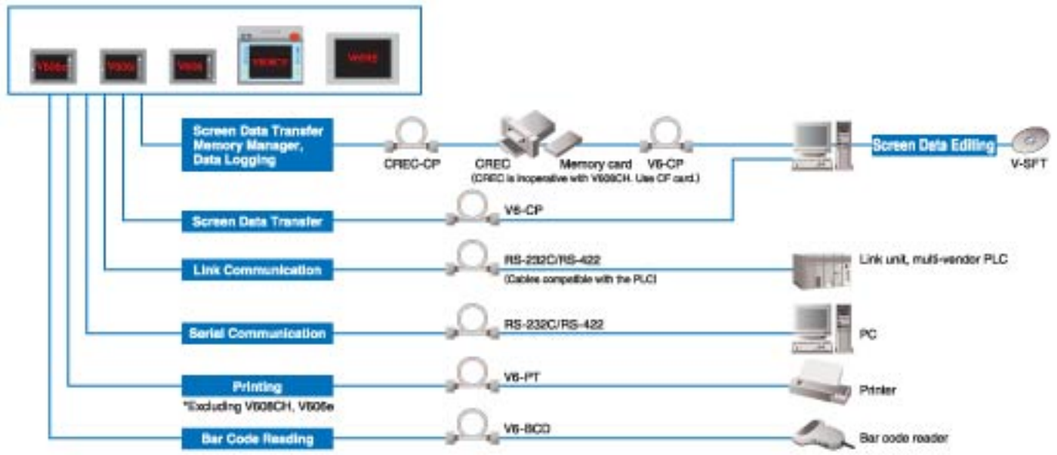
V608CH 7.7inches STN

Specifications ●Display: STN color LCD ● Resolution 640X480 (pixels) ● Color: 128 colors + blink ● Dimensions: 258X232X47 (mm) (Excluding emergency stop switch)

V6 series Line-up

Superb Connectivity and High User Friendliness

System Configuration



Interface

V606i Back View

V606 Back View

V605e Back View

V608CH Back View

V609E Back View

① DC power supply
② AC power supply
③ CN1: PLC (RS-232C,RS-422)
④ CN2: Printer interface
⑤ Dip switches

⑥ MJ1, 2: Screen data transmission: Bar code/ CREC (option)
⑦ Extension memory (option)
⑧ Communication interface unit (option)
⑨ Battery holder (V606eX20 only)

⑩ TB1: PLC communication, power supply, external output terminal
⑪ MJ1*: screen data transmission
⑫ I/F cover
⑬ CF card interface
*In the case of V608CH, open I/F cover to use MJ1.


Interface


Interface for a printer cable

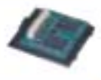
Accessories

V6-PT (Printer cable) 2.5m

This is a cable to connect a V6 and a printer.
* In the case of CBM292/293, use V6-PTCBM.

V6EM/4i (FPROM cassette)

•V606i
This memory expansion board increases screen data memory.
Capacity : FPROM 4MB



V6EM/RSi (SRAM cassette)

•V606i
Saves sampling data, V6 internal memory, memo pads, and enables real time clock.
Capacity : SRAM 512KB

V-MDD (ACPU/QnACPU/FXCPU dual port interface)

This interface device splits the interface port enabling dual connection. This is useful to connect to ACPU/QnACPU/FXCPU (MITSUBISHI).

V606GS (Protective sheet)

•V606i/V606

GD-GS80E (Protective sheet)

•V608E
This is protective sheet for the operation panel surface. (5 sheets are included in one package.)

The following accessories are common to V6 and V7 Series.

【Software】
V-SFT, TELLUS & V-Server

【Cable】
V6-CP, V6-BCD, V6-MLT *2, V6-TMP

【Others】
TC485 *1,V-IO *2, CREC *2, REC-MCARD *2, CU-xx (available V606i only)
Accessories with *1 are not used for V608CH, V606e.
Accessories with *2 are not used for V608CH.

Functionality Offer Unprecedented

General Specifications

Item	Model	V606x	V606x	V606xx	V608CH	V609E AC	V609E DC
Power supply	Rated voltage	24VDC				100/240VAC	24VDC
	Permissible range of voltage	24±10%VDC				85—264VAC (47—440Hz)	24±10%VDC
	Permissible momentary power failure	within 10ms		within 1ms	within 10ms	within 20ms	within 10ms
	Demand	10W or less			20W or less	40VA or less	20W or less
Ambient conditions	Ambient temperature	0°C—+50°C					
	Storage ambient temperature	−15°C—+60°C (V606E : −10°C—+60°C)					
	Ambient humidity	85%RH or less (without dew condensation)					
	Atmosphere	No corrosive gas or conductive dust					
	Vibration resistance	Vibration frequency : 10—150Hz,Accelerasion : 9.8m/s²{1.0G},X,Y,Z: one hour in three directions					
	Shock resistance	Pulse shape : half sine wave, Peak acceleration : 147m/s²{15G},X,Y,Z:six times in three directions					
	Noise resistance	1500Vp-p (Pulse width 1μs)	1000Vp-p (Pulse width 1μs)		1500Vp-p (Pulse width 1μs)		
Installation conditions	Grounding	Grounding resistance : less than 100 Ω					
	Structure	Front panel : complies with IP67* (when water-proof gasket is used.), Rear cover : complies with IP20					
	Installation method	Panel mounting (V608CH : Handheld panel)					
	Cooling system	Natural air cooling					
	Weight	Approx. 0.8kg			Approx.1.2kg	Approx.2.1kg	
	Dimensions W×H×D (mm)	182.5×138.5×39	182.5×138.5×39	182.5×138.5×39	260×220×47 (excl. I/F)*	260×220×55	
	Panel cutout (mm)	174 +1 0 ×131 +1 0			———	277 +1 0 ×192 +1 0	
Case color		BLACK	GREY	BLACK	BLACK	GREY	BLACK

* V609E with SD-WP30E : complies with IP65, excluding V608CH2 and V608CH3

Performance Specifications

Item	Model	V606iT	V606iC	V606iM	V606C	V606M	V606eC	V606eM	V608CH	V609E
Display specifications	Display type	TFT color LCD	STN color LCD	STN mono-chrome LCD	STN color LCD	STN mono-chrome LCD	STN color LCD	STN mono-chrome LCD	STN color LCD	High Lumi-nance EL
	Resolution WXH (dots)	320×240							640×480	640×400
	Display size	5.7 inches							7.7 inches	8.8 inches
	Colors, gradation	16 colors + blink	Monochrome (tone = 16)	16 colors + blink	Monochrome (tone = 16)	16 colors + blink	Monochrome (tone = 16)	256 colors + 16 colors blink	8 colors + blink	
Touch panel specifications	Backlight	CCFL (except V609E)								
	Backlight average life*1	Approx. 50 000 hrs		Approx. 40 000 hrs	Approx. 54 000 hrs	Approx. 50 000 hrs	Approx. 40 000 hrs		——	
	Power lamp	Lit when power is ON								
	Operation method	Resistance membrane panel								
	Touch switch resolution	Analog:: 1024(W)×1024(L) Matrix type : V606H/V606/20(W)(X120,L), V606E/40(W)×29(L)								
	Number of function switches	6							13*2	0
	Life	1 million times or more								
External interface	For PLC (CH1 : D-SUB25 pin*3)	RS-232C, RS-422 / 485, Asynchronous type, Data length : 7, 8 bits, Parity : even, odd, none, stop bit : 1, 2 bits, Baud rate : 4800, 9600, 19200, 38400, 57600, 76800, 115,200 bps (76,800, 115,200 bps are not available with V606, V606, V609E, V606e.)								
	For data transfer / other external interface 1, 2 (modular 8 pin)*4	RS-232C, RS-422 / 485 CRED, Bar code reader, V-I / O, Multi-link 2, Temperature control network, V-Link *4								
	For printer*7	Complies with centronics, Half pitch 36 pins (for PC98, NEC : PR201, EPSON : ESC / P-J84 or later, HP : PCL, level 3, CBM892 / 293 *5 (excl. V608CH)								

*1 : At normal temperatures (25°C), surface luminance drops to 50% of the initial value.
*2 : 4 SWs are for external output. *3 : V608CH : Terminal block
*4 : V608CH : only Bar code and V-Link (RS-232C) can be used. *5 : The screen copy can not be printed out.
*6 : V606e has MJ1 only. *7 : V606e does not have parallel port.

Display Specifications

Item			Specifications				
All models	Display language		Japanese	English / W.Europe	Chinese	Chinese (Simplified)	Korean
	Character	1/4 size, 1-byte	ANK code	Latin1	ASCII code	ASCII code	ASCII code
		2-byte(16dots)	JIS first & second level standard	—	Chinese	Chinese (Simplified)	Korean (no Kanji)
		2-byte(32dots)	JIS first level standard	—	—	—	—
	Size of character		1/4 size : 8×8 dots 1-byte : 8×16 dots 2-byte :16×16 dots or 32×32 dots Enlargement : W1 — 8 times L1 — 8 times				

Item \ Model	V606iT	V606iC	V606iM	V606C	V606M	V606xx	V608CH	V609E
Number of characters	1/4 size: 40 columns×30 lines 1-byte: 40 columns×15 lines 2-byte: 20 columns×15 lines						1/4: 80×60 1-b: 80×30 2-b: 40×30	1/4: 80×40 1-b: 80×20 2-b: 80×20

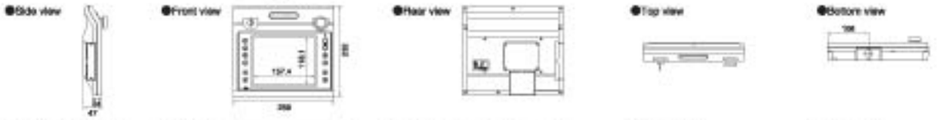
Dimensions (unit: mm)

V606iT
V606iC
V606iM

V606C
V606M

V606eC
V606eM

V608CH



V609E

V7&V6 Models

■ **The V7 Series.**

Series	Model	Specifications	Certifications
V706 Series 6 inches	V706TD	TFT color, 320×240 pixels, 24VDC	CE, UL and cUL
	V706CD	STN color, 320×240 pixels, 24VDC	CE, UL and cUL
	V706MD	STN monochrome, 320×240 pixels, 24VDC	CE, UL and cUL
V708 Series 8 inches	V708SD	TFT color, 800×600 pixels, 24VDC	CE, UL and cUL
	V708ND	TFT color, 800×600 pixels, 10Base-T Ethernet, 24VDC	CE, UL and cUL
	V708CD	STN color, 640×480 pixels, 24VDC	CE, UL and cUL
V710 Series 10 inches	V710T	TFT color, 640×480 pixels, 100-240VAC	
	V710TD	TFT color, 640×480 pixels, 24VDC	CE, UL and cUL
	V710iT	TFT color, 640×480 pixels, 10Base-T Ethernet, 100-240VAC	
	V710iTD	TFT color, 640×480 pixels, 10Base-T Ethernet, 24VDC	CE, UL and cUL
	V710S	TFT color, 800×600 pixels, 100-240VAC	
	V710SD	TFT color, 800×600 pixels, 24VDC	CE, UL and cUL
	V710iS	TFT color, 800×600 pixels, 10Base-T Ethernet, 100-240VAC	
	V710iSD	TFT color, 800×600 pixels, 10Base-T Ethernet, 24VDC	CE, UL and cUL
	V710C	TFT color, 640×480 pixels, 100-240VAC	
	V710CD	TFT color, 640×480 pixels, 24VDC	CE, UL and cUL
V712 Series 12 inches	V712S	TFT color, 800×600 pixels, 100-240VAC	
	V712SD	TFT color, 800×600 pixels, 24VDC	CE, UL and cUL
	V712iS	TFT color, 800×600 pixels, 10Base-T Ethernet, 100-240VAC	
	V712iSD	TFT color, 800×600 pixels, 10Base-T Ethernet, 24VDC	CE, UL and cUL

■ **The V6 Series.**

Series	Model	Specifications	Certifications
V606e Series 6 inches	V606eC20	STN color, 320×240 pixels, 24VDC	CE, UL and cUL
	V606eM20	STN monochrome, 320×240 pixels, 24VDC	CE, UL and cUL
	V606eM10	STN monochrome, 320×240 pixels, 24VDC	CE, UL and cUL
V606i Series 6 inches	V606iT10	TFT color, 320×240 pixels, 24VDC	CE, UL and cUL
	V606iC10	STN color, 320×240 pixels, 24VDC	CE, UL and cUL
	V606iM10	STN monochrome, 320×240 pixels, 24VDC	CE, UL and cUL
V606CH Series 6 inches	V606CH0	STN color, 640×480 pixels, 24VDC, deadman switch	CE, UL and cUL
	V606CH1	STN color, 640×480 pixels, 24VDC, deadman switch with a key switch	CE, UL and cUL
	V606CH2	STN color, 640×480 pixels, 24VDC, 3-position deadman switch	CE, UL and cUL
	V606CH3	STN color, 640×480 pixels, 24VDC, 3-position deadman switch with a key switch	CE, UL and cUL
V609E Series 9 inches	V609E30M	High luminance EL, 640×400 pixels, 100-240VAC	
	V609E30MD	High luminance EL, 640×400 pixels, 24VDC	CE, UL and cUL

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