

Absolute encoders - SSI

Blind hollow shaft max. $\varnothing 6$ mm

Magnetic single- or multiturn encoders 12 bit ST / 13 bit MT

BMSH 30, BMMH 30 SSI - MAGRES



BMMH 30 SSI with blind hollow shaft

Features

- Mini encoder single- or multiturn / SSI
- Magnetic sensing method
- Resolution: singleturn 12 bit, multiturn 13 bit
- Housing $\varnothing 30$ mm
- High resistance to shock and vibrations
- Reset input

Technical data - electrical ratings

| | |
|------------------------|--|
| Voltage supply | 5 VDC ± 10 % 10...30 VDC |
| Consumption typ. | 100 mA (5 VDC, w/o load) 50 mA (24 VDC, w/o load) |
| Initializing time typ. | 70 ms after power on |
| Interface | SSI |
| Steps per turn | 4096 / 12 bit |
| Absolute accuracy | $\pm 1^\circ$ |
| Sensing method | Magnetic |
| Code | Gray or binary |
| Code sequence | CW: ascending values with clockwise sense of rotation; looking at flange |
| Inputs | SSI clock Zero setting input |
| Output stages | SSI data: linedriver RS485 |
| Interference immunity | DIN EN 61000-6-2 |
| Emitted interference | DIN EN 61000-6-3 |
| Approval | UL approval / E217823 |
| BMSH 30 | |
| Function | Singleturn |
| BMMH 30 | |
| Function | Multiturn |
| Number of turns | 8192 / 13 bit |

Technical data - mechanical design

| | |
|-------------------------|--|
| Size (flange) | $\varnothing 30$ mm |
| Shaft type | $\varnothing 4$ mm (blind hollow shaft) $\varnothing 6$ mm (blind hollow shaft) |
| Protection DIN EN 60529 | IP 65 |
| Operating speed | ≤ 6000 rpm |
| Operating torque typ. | 0.0075 Nm |
| Materials | Housing: steel Flange: aluminium |
| Operating temperature | -20...+85 °C |
| Relative humidity | 95 % |
| Resistance | DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 100 g, 6 ms |
| Connection | Connector M12, 8-pin Cable 2 m |
| BMSH 30 | |
| Weight approx. | 60 g |
| BMMH 30 | |
| Weight approx. | 70 g |

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Terminal significance

| | |
|----------------|--|
| +Vs | Encoder supply voltage. |
| 0 V | Encoder ground connection relating to +Vs. |
| Data+ | Positive, serial data output of differential linedriver. |
| Data- | Negative, serial data output of differential linedriver. |
| Clock+ | Positive SSI clock input. Clock+ together with Clock- forms a current loop. A current of approx. 7 mA towards Clock+ input means logic 1 in positive logic. |
| Clock- | Negative SSI clock input. Clock- together with Clock+ forms a current loop. A current of approx. 7 mA towards Clock- input means logic 0 in positive logic. |
| Zero | Input for setting a zero point anywhere within the encoder resolution. The zero setting operation is triggered by a Low impulse. Connect to +Vs after setting operation for maximum interference immunity. Impulse duration >2 ms. |
| Rot. direction | Ascending position values when looking at the flange and rotating the shaft clockwise. |

Trigger level

| Control inputs | Input circuit |
|------------------|----------------|
| Input level Low | <0,4 V (>2 ms) |
| Input level High | +Vs or open |

Terminal assignment

Cable

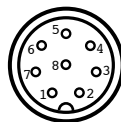
for connection references **-4** and **-5**

| Core colour | Signals | Description |
|-------------|--------------------------|--------------------|
| brown | +Vs | Supply voltage |
| white | 0 V | Supply voltage |
| grey | Data+ | Data signal |
| pink | Data- | Data signal |
| green | Clock+ | Clock signal |
| yellow | Clock- | Clock signal |
| blue | Zero | Zero setting input |
| red | d.u. | do not use |
| Screen | connected to housing | |
| Cable data | 8 x 0.14 mm ² | |

Connector M12 male

for connection reference **-N** and **-T**

| Connector | Signals | Description |
|-----------|---------|--------------------|
| Pin 1 | 0 V | Supply voltage |
| Pin 2 | +Vs | Supply voltage |
| Pin 3 | Clock+ | Clock signal |
| Pin 4 | Clock- | Clock signal |
| Pin 5 | Data+ | Data signal |
| Pin 6 | Data- | Data signal |
| Pin 7 | Zero | Zero setting input |
| Pin 8 | d.u. | do not use |



Absolute encoders - SSI

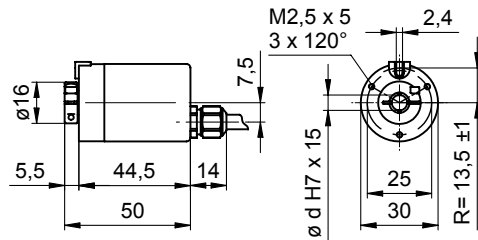
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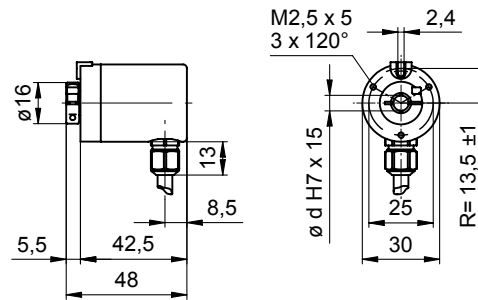
BMSH 30, BMMH 30 SSI - MAGRES

Dimensions

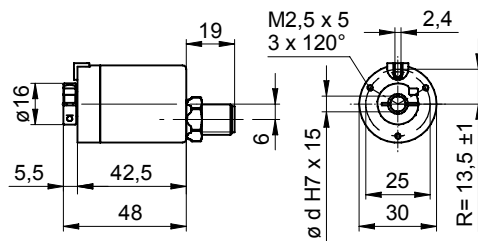
BMSH/BMMH 30 SSI, cable axial



BMSH/BMMH 30 SSI, cable radial



BMSH/BMMH 30 SSI, connector M12 axial



BMSH/BMMH 30 SSI, connector M12 radial

