

EAM360R-S - CANopen®/SAE J1939

Solid shaft with synchro flange

Magnetic single- or multiturn encoders 14 bit ST / 18 bit MT

Overview

- Encoder single- or multiturn / CANopen®/SAE J1939
- E1 compliant design
- High protection IP 67
- High resistance to shock and vibrations
- Protection against corrosion CX (C5-M)
- Wire cross section 0.5 mm²
- Electronic gear function
- Applicable up to PLd (ISO 13849)



Technical data

Technical data - electrical ratings

| | |
|-----------------------|--|
| Voltage supply | 10...30 VDC |
| Consumption typ. | 20 mA (24 VDC, w/o load) |
| Initializing time | ≤ 170 ms after power on |
| Interface | CANopen® SAE J1939 |
| Function | Multiturn Singleturn |
| Profile conformity | CANopen® CiA communication profile DS 301, LSS profile DSP 305, device profile DS 406 |
| Steps per revolution | ≤16384 / 14 bit |
| Number of revolutions | ≤262144 / 18 bit |
| Absolute accuracy | ±0,15 ° (+20 ±15 °C) ±0,25 ° (-40...+85 °C) |
| Sensing method | Magnetic |
| Code sequence | CW: ascending values with clockwise sense of rotation; looking at flange |
| Output stages | CAN-Bus, LV (3.3 V) compatible ISO 11898 |
| Interference immunity | EN 61000-6-2 ISO 11452-2:2004* / -5:2002* ISO 7637-2:2004* ISO 10605:2008 + Amd 1:2014 (CD ±8 kV / AD ±15 kV) * Severity level according to ECE R10 (Rev. 4) |
| Emitted interference | EN 61000-6-4 CISPR 25:2008 (30...1000 MHz) ISO 7637-2:2004* * Severity level according to ECE R10 (Rev. 4) |

Technical data - electrical ratings

| | |
|-------------------------------|---|
| MTTF _d (ISO 13849) | High (>100 years) Use in safety functions exclusively based on Application Note and MTTF _d reliability prediction (request separately). |
|-------------------------------|---|

Technical data - mechanical design

| | |
|-----------------------|--|
| Size (flange) | ø36 mm |
| Shaft type | ø10 x 16 mm, solid shaft with flat |
| Flange | Synchro flange |
| Protection EN 60529 | IP 67 (with shaft seal) |
| Operating speed | ≤6000 rpm |
| Starting torque | ≤2,5 Ncm (+20 °C, IP 67) |
| Moment of inertia | 15,38 gcm ² |
| Admitted shaft load | ≤40 N axial ≤80 N radial |
| Material | Housing: steel, powder-coated Flange: aluminium Shaft: stainless steel |
| Corrosion protection | IEC 60068-2-52 Salt mist for ambient conditions CX (C5-M) according to ISO 12944-2 |
| Operating temperature | -40...+85 °C (see general information) |
| Relative humidity | 95 % |
| Resistance | EN 60068-2-6 Vibration 30 g, 10...2000 Hz EN 60068-2-27 Shock 500 g, 1 ms |
| Weight approx. | 170 g |
| Connection | Flange connector M12, 5-pin Cable 2 m |

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General information

Self-heating interrelated to speed, protection, attachment method and ambient conditions as well electronics and supply voltage must be considered for precise thermal dimensioning. Self-heating is supposed to approximate 8 K (IP 67 protection) per 1000 rpm. Operating the encoder close to the maximum limits requires measuring the real prevailing temperature at the encoder flange.

Terminal assignment

Cable

for connection reference -L

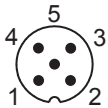
| Core colour | Signals |
|-------------|---------|
| white | 0 V |
| brown | +Vs |
| green | CAN_H |
| yellow | CAN_L |
| grey | CAN_GND |

Cable data: 5 x 0.5 mm²

Flange connector M12, 5-pin

for connection reference -N

| Pin | Signals |
|-----|---------|
| 1 | CAN_GND |
| 2 | +Vs |
| 3 | 0 V |
| 4 | CAN_H |
| 5 | CAN_L |



CANopen® features

| | |
|-------------------------|---|
| Operating modes | Timer-driven (Event-Time) Synchronously triggered (Sync) |
| Node Monitoring | Heartbeat Node guarding |
| Programmable parameters | Operating modes Total resolution Scaling Electronic gear function |
| Diagnosis | Multiturn sensing Position error Temperature exceeding Speed exceeding |
| Default | 50 kbit/s, Node ID 1 (DS406) 250 kbit/s, Node ID 4 (DS417) |

SAE J1939 features

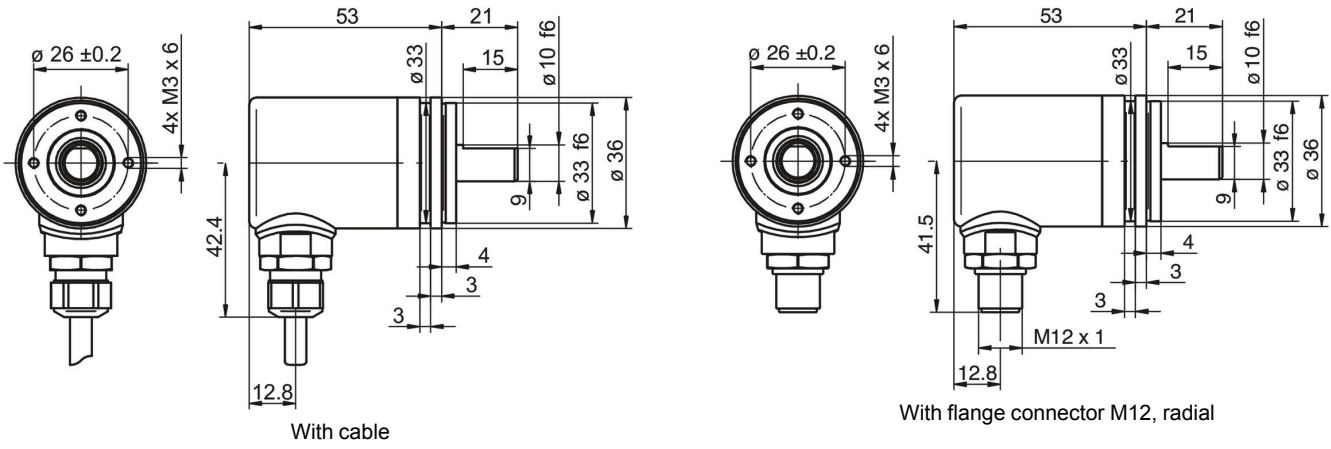
| | |
|-------------------------|---|
| Programmable parameters | Total resolution Scaling |
| Diagnosis | Multiturn sensing Position error Temperature exceeding Speed exceeding |
| Default | 250 kbit/s ECU address 172 |

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Dimensions



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Ordering reference

| | | | | | | | | | | | | | | | |
|-----------------------------------|--|----------|----------|----------|----------|----------|----------|-----------|-----------|----------|-----------|-----------|----------|----------|----------|
| | EAM360R | - | S | W | A | . | 7 | ## | ## | . | 14 | ## | 0 | . | A |
| Product | EAM360R | | | | | | | | | | | | | | |
| Shaft type | Solid shaft | | S | | | | | | | | | | | | |
| Flange (shaft) | Synchro flange, ø33 mm, M3 | | | W | | | | | | | | | | | |
| Shaft | ø10 x 16 mm, with flat | | | | A | | | | | | | | | | |
| Protection class | IP 67 | | | | | 7 | | | | | | | | | |
| Connection | Cable radial, 2 m | | | | | | | L | | | | | | | |
| | Flange socket radial, M12, 5-pin, male contacts, A-coded | | | | | | | N | | | | | | | |
| Voltage supply / interface | 10...30 VDC, CANopen (DS 406) | | | | | | | | C6 | | | | | | |
| | 10...30 VDC, SAE J1939 | | | | | | | | C9 | | | | | | |
| Resolution Singleturn | 14 Bit | | | | | | | | | | 14 | | | | |
| Resolution Multiturn | no option | | | | | | | | | | | | 00 | | |
| | 18 Bit | | | | | | | | | | | | | 18 | |
| Resolution supplement | No option | | | | | | | | | | | | | | 0 |
| Operating temperature | -40...+85 °C | | | | | | | | | | | | | | A |

Accessories

Connectors and cables

| | |
|----------|--|
| 11046264 | Female connector M12, 5-pin, straight, shielded, 2 m cable |
| 11046266 | Female connector M12, 5-pin, straight, shielded, 5 m cable |