

EAM360R-K - CANopen®/SAE J1939

Encoder kit

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

Overview

- Encoder kit 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) (see info working distance)
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).
Approval	UL approval / E217823

Technical data - mechanical design

Size (flange)	ø36 mm
Shaft type	ø6 mm (magnet bore) ø8 mm (magnet bore) ø12 mm (magnet bore)
Protection EN 60529	IP 67
Operating speed	≤6000 rpm
Working distance	1.1 ±0.9 mm axial / ≤0.3 mm eccentricity
Material	Housing: steel, powder-coated Flange: aluminium
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions CX (C5-M) according to ISO 12944-2
Operating temperature	-40...+65 °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 correlated to installation and ambient conditions as well as to electronics and supply voltage must be considered for precise thermal dimensioning. 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

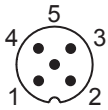
Core colour	Signals
white	0 V
brown	+Vs
green	CAN_H
yellow	CAN_L
grey	CAN_GND

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

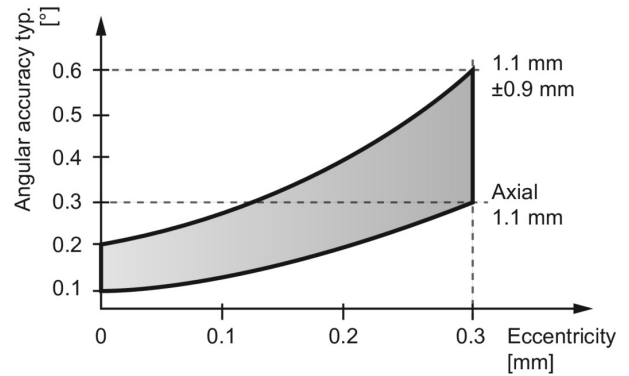
Operating modes	Timer-driven (Event-Time) Synchronously triggered (Sync)
Node Monitoring	Heartbeat Node guarding
Programmable parameters	Operating modes Total resolution Scaling Electronic gear function
Diagnosis	Multiturn sensing Position error Temperature exceeding Speed exceeding
Default	50 kbit/s,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

Working distance

The ideal working distance of the magnet related to the encoder is at an eccentricity of 0 mm and an axial distance of 1.1 mm. Deviation affects the accuracy as shown in following diagram.



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Dimensions

