

# Absolute encoders - bus interfaces

## Encoder kit

### Magnetic single- or multturn encoders 14 bit ST / 18 bit MT

#### EAM580R-K - CANopen®/SAE J1939 - MAGRES



EAM580R Kit with cable

#### Features

- Encoder kit single- or multturn / CANopen®/ SAE J1939
- ISO 13849 compliant firmware
- E1 compliant design
- High protection IP 67
- High resistance to shock and vibrations
- Protection against corrosion C5-M
- Wire cross section 0.5 mm<sup>2</sup>
- Electronic gear function

#### 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
Interfaces	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	DIN 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	DIN EN 61000-6-4 CISPR 25:2008 (30..1000 MHz) ISO 7637-2:2004* * Severity level according to ECE R10 (Rev. 4)

#### Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø6 mm (magnet bore) ø8 mm (magnet bore) ø12 mm (magnet bore)
Protection DIN EN 60529	IP 67
Operating speed	≤6000 rpm
Working distance	1.1 ±0.9 mm axial / ≤0.3 mm eccentricity
Materials	Housing: steel, powder-coated Flange: aluminium
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C5-M (CX) according to ISO 12944-2
Operating temperature	-40...+85 °C (see general information)
Relative humidity	95 %
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 500 g, 1 ms
Weight approx.	250 g
Connection	Flange connector M12, 5-pin Cable 2 m
Instruction	Use in safety functions exclusively based on Application Note and MTTFd reliability prediction (request separately).

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## Part number

EAM580R-K Y . 7 . 14 0.A

### Resolution multiturn

00 No option

18 18 bit

### Resolution singleturn

14 14 bit

### Voltage supply / signals

C6 10...30 VDC / CANopen® (DS406)

C9 10...30 VDC / SAE J1939

### Connection

N Flange connector M12, 5-pin, radial, male contacts, CCW

L Cable 2 m, radial

### Protection

7 IP 67

### Magnet holder / bore diameter

6 ø6 mm

8 ø8 mm

C ø12 mm

### Flange

Y Synchro flange, flute ø53 mm, M3/M4

## 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

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##### 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

##### 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

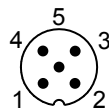
Core colour	Signals
white	0 V
brown	+Vs
green	CAN_H
yellow	CAN_L
grey	CAN_GND

Cable data: 5 x 0.5 mm<sup>2</sup>

###### 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



##### 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.

