

# Absolute encoders - bus interfaces

Blind hollow shaft

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

## EAM360R-B - CANopen®/SAE J1939 - MAGRES



EAM360R with hollow shaft

### Features

- Encoder single- or multiturn / 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)
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)	ø36 mm
Shaft type	ø10...15 mm (blind hollow shaft)
Protection DIN EN 60529	IP 67 (with shaft seal)
Operating speed	≤6000 rpm
Starting torque	≤2.5 Ncm (+20 °C, IP 67)
Moment of inertia	46.75 gcm <sup>2</sup>
Materials	Housing: steel, powder-coated Flange: aluminium Hollow shaft: stainless steel
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.	170 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

EAM360R-B 

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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

Specification hollow shaft

A ø10 mm, clamping ring at A side  
C ø12 mm, clamping ring at A side  
E ø14 mm, clamping ring at A side  
F ø15 mm, clamping ring at A side

Flange

N Without stator coupling  
D With stator coupling ø41 mm  
P Torque pin 3 mm, axial/radial

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### 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

### Terminal assignment

#### Cable

for connection reference **-L**

Core colour	Signals
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white	0 V
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brown	+Vs
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green	CAN_H
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yellow	CAN_L
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grey	CAN_GND
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Cable data: 5 x 0.5 mm<sup>2</sup>

#### Flange connector M12, 5-pin

for connection reference **-N**

Pin	Signals
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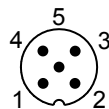
1	CAN_GND
---	---------

2	+Vs
---	-----

3	0 V
---	-----

4	CAN_H
---	-------

5	CAN_L
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## EAM360R-B - CANopen®/SAE J1939 - MAGRES

### 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 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 12 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.

### 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)

# Absolute encoders - bus interfaces

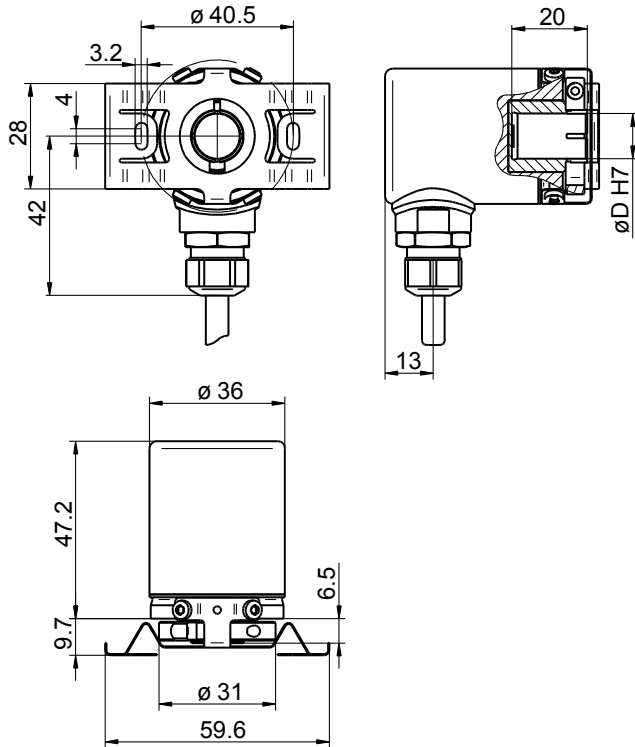
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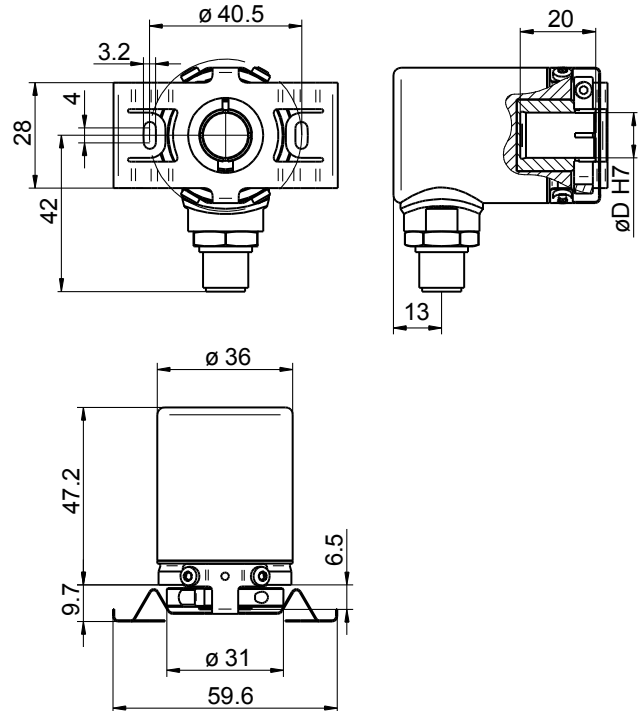
## EAM360R-B - CANopen®/SAE J1939 - MAGRES

### Dimensions

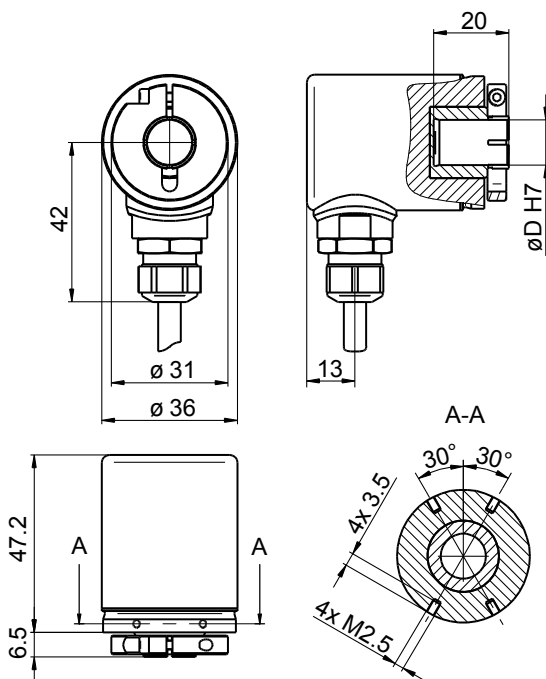
EAM360R, cable with stator coupling



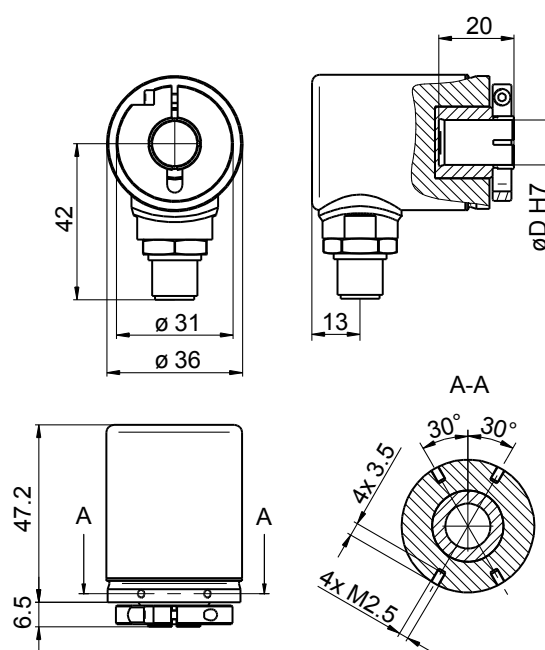
EAM360R, M12 with stator coupling



EAM360R, cable w/o stator coupling



EAM360R, M12 w/o stator coupling



# Absolute encoders - bus interfaces

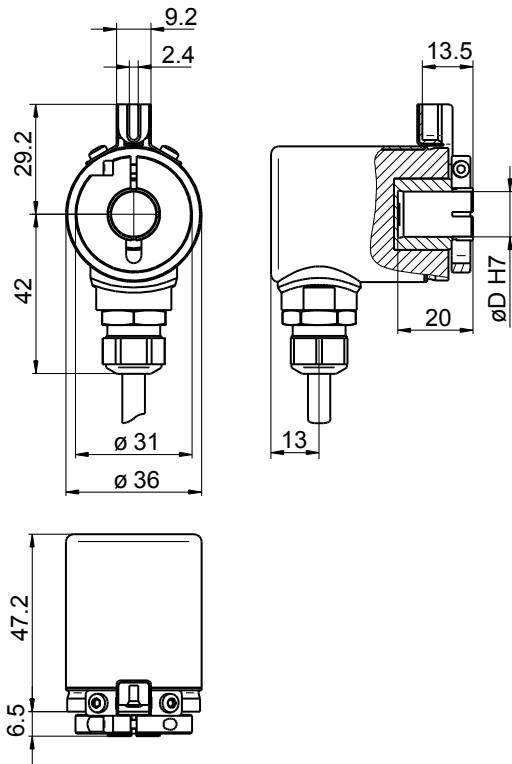
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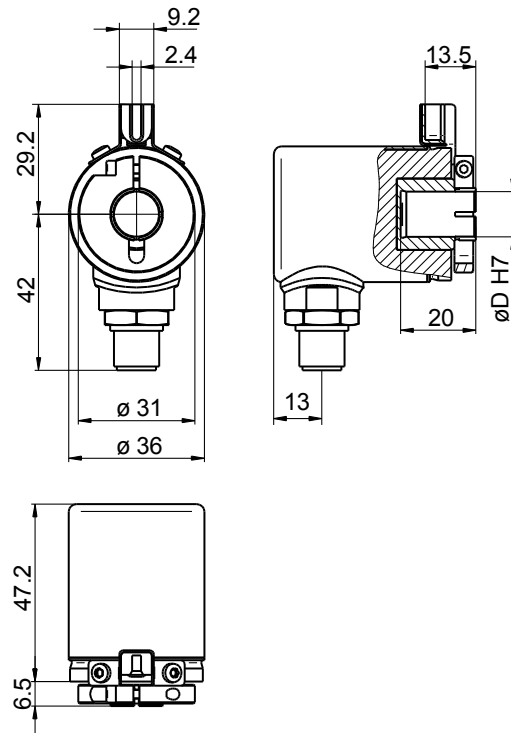
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## Dimensions

EAM360R, cable with torque pin



EAM360R, M12 with torque pin



EAM360R, torque pin

