EAM580RS-SC - CANopen® Safety

Solid shaft with clamping flange

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

Overview

- Safety encoder single- or multiturn, SIL2, PLd – Cat. 3
- Safe communication via CANopen® Safety and standard data package with CANopen® communication
- Galavanic isolated and short circuit protected CAN interface
- High resistance to shock and vibrations, temperature changes
- E1 compliant design (ECE R10, Rev.6)
- High protection IP 67
- Protection against corrosion CX (C5-M)
- Electronic gear function (non safety rated)
- Additional diagnostic data

Picture similar

Technical data

Safety-relevant key characteristics	
Performance Level (ISO 13849)	PLd
Category (ISO 13849)	3
$MTTF_d$ (ISO 13849)	618 years
DC_{avg} (ISO 13849)	90.5 %
TM (service life, ISO 13849)	20 years
Safety Integrity Level (IEC 61508)	SIL2
PFH_D (IEC 61508)	9.5 E-9
PFD_{avg} (IEC 61508)	8.3 E-4
Technical data - electrical ratings	
System nominal voltage	12 / 24 VDC
Voltage supply range	8...48 VDC
Reverse polarity protection	Yes
Overvoltage protection	Yes (≤60 VDC)
Consumption typ.	35 mA (24 VDC, w/o load)
Initializing time	≤ 1 s after power on
Error reaction time	≤ 15 ms
Interface	CANopen® CANopen® Safety (EN 50325-5, communication based EN 50325-4)
Function	Multiturn Singleturn
Profile conformity	CANopen® CiA Communication profile DS 301 LSS profile DSP 305 Device profile DS 406
Resolution / SRDO	Safe acceleration 16 bit Safe speed 16 bit Safe position 32 bit
Steps per revolution	≤16384 / 14 bit
Number of revolutions	≤262144 / 18 bit
Absolute accuracy	±0.2 ° (+20 ±15 °C, see general information) ±0.3 ° (-40...+75 °C, see general information)

Technical data - electrical ratings	
Sensing method	Magnetic
Code sequence	CW: ascending values with clockwise sense of rotation; looking at flange
Output stages	CAN-Bus, LV (5 V) compatible ISO 11898
Interference immunity	EN 61000-6-2 IEC 61326-3-1 IEC 61800-5-2 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. 6)
Emitted interference	EN 61000-6-3 ISO 7637-2:2004* * Severity level according to ECE R10 (Rev. 6)
Environmental conditions (ISO 16750)	ISO 16750-2 (Electrical loads) ISO 16750-5 (Chemical load)* * Partial
Diagnostic function	Device temperature monitoring Supply voltage monitoring Number of turn CW - CCW Operating cycle counter ON/OFF Operating hour counter
Approval	CE UL approval (≤42 VDC) / E217823 (the UL marking is based on UL508 and is independent of the safety certification)
Technical data - mechanical design	
Size (flange)	ø58 mm
Shaft type	ø10 x 20 mm, solid shaft with flat, spring slot
Flange	Clamping flange
Protection EN 60529	IP 65 (mounted mating connector / on request) IP 66 (mounted mating connector) IP 67 (mounted mating connector)

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Technical data

Technical data - mechanical design	
Operating speed	≤6000 rpm
Angular acceleration	≤10890 rad/s²
Starting torque	≤2.5 Ncm (+20 °C)
Admitted shaft load	≤40 N axial ≤80 N radial
Material	Housing: stainless steel 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...+75 °C (see general information)
Storage temperature	-40...+85 °C

Technical data - mechanical design	
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration 10 g, 10-2000 Hz EN 60068-2-27 1xM12 and cable: Shock 100 g, 2 ms (5000 shocks) 2xM12: Shock 40 g, 6 ms (5000 shocks)
Weight approx.	250 g
Connection	Flange connector 1xM12, 5-pin Flange connector 2xM12, 5-pin Cable 2 m (in preperation)

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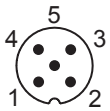
General information

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. Operating the encoder in a magnetic field ≥1 mT (≥795 A/m) can lead to reduced measuring accuracy. In addition to this data sheet, please observe the applicable documents, for example the original operating and mounting instructions, the safety manual as well as the function and interface description (CANopen / CANopen Safety).

Terminal assignment

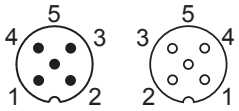
Flange connector M12, 5-pin, A-encoding

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



Flange connector 2xM12, 5-pin, A-encoding

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



Cable (in preperation)

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

Cable data: 5 x 0.5 mm²

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CANopen® features	
Operating modes	Timer-driven (Event-Time) Synchronously triggered (Sync)
Node Monitoring	Heartbeat Node guarding
Baud rate	50...1000 kbit/s
Number of SRDOs	3 SRDOs
Programmable parameters (non safety relevant)	Operating modes Total resolution Scaling Electronic gear function
Default	Baud rate 250 kbit/s Node-ID 1 No terminating resistor

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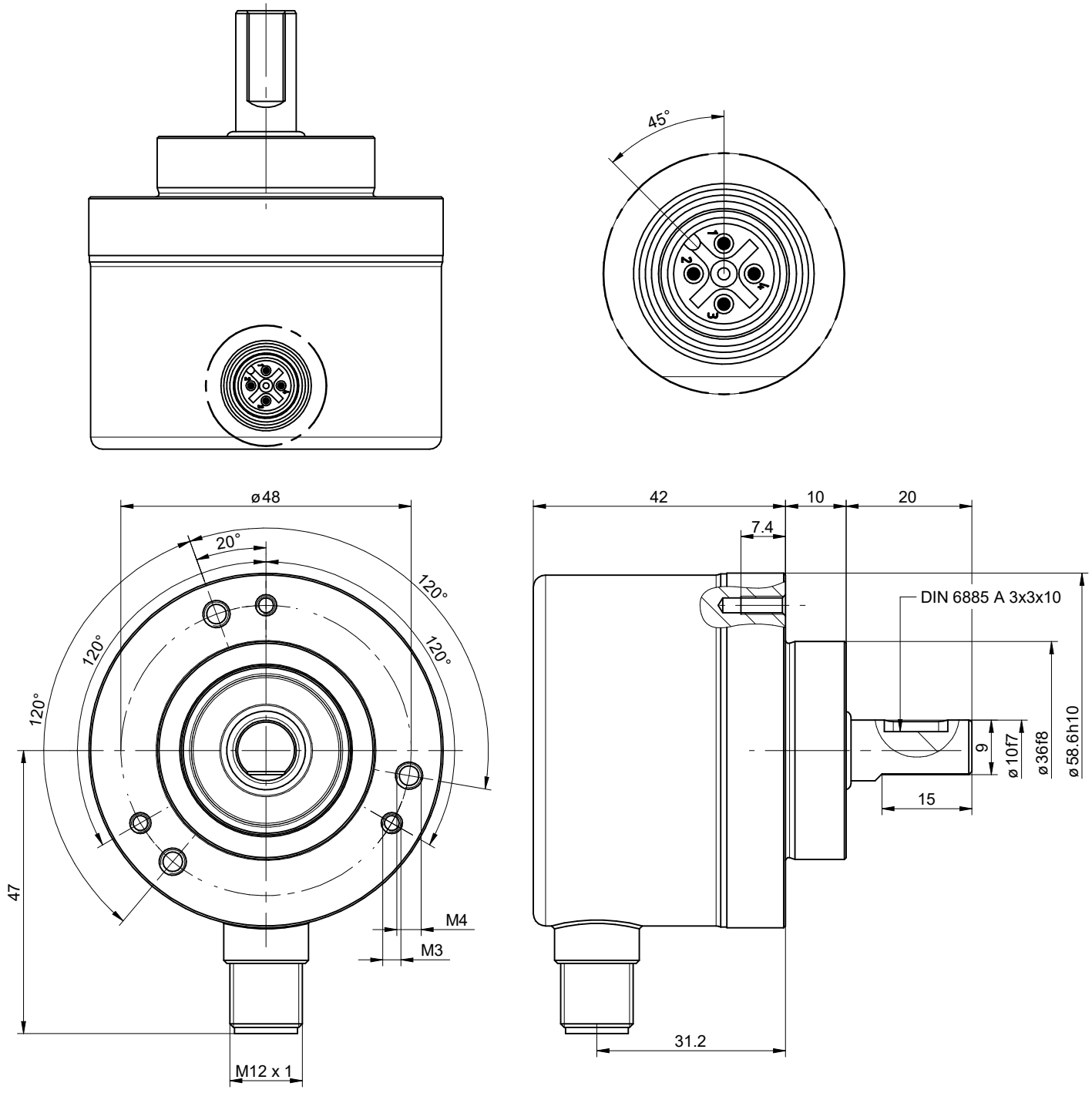
Dimensions



EAM580RS-SC - connector M12

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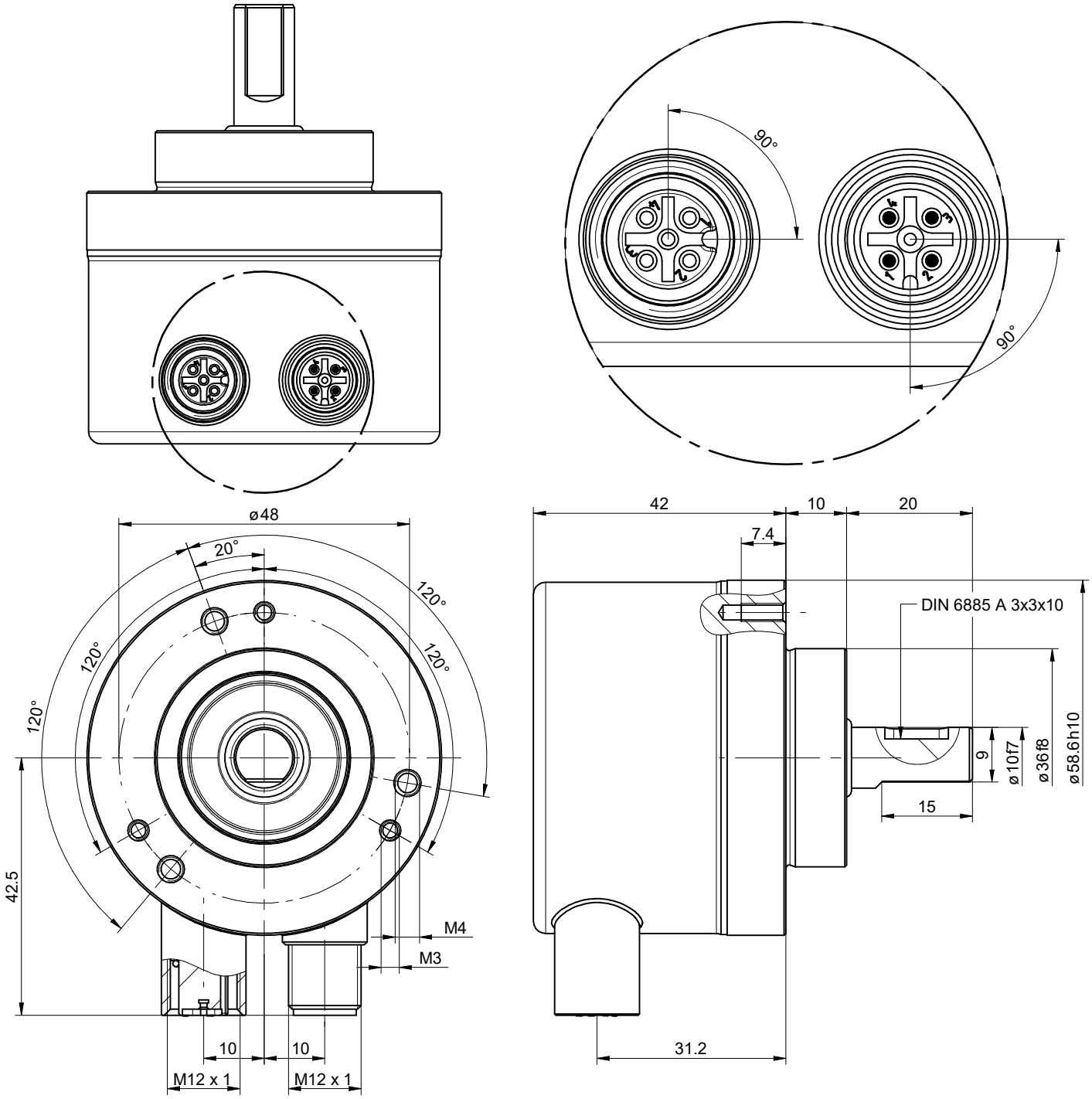
Dimensions



EAM580RS-SC - connector 2xM12

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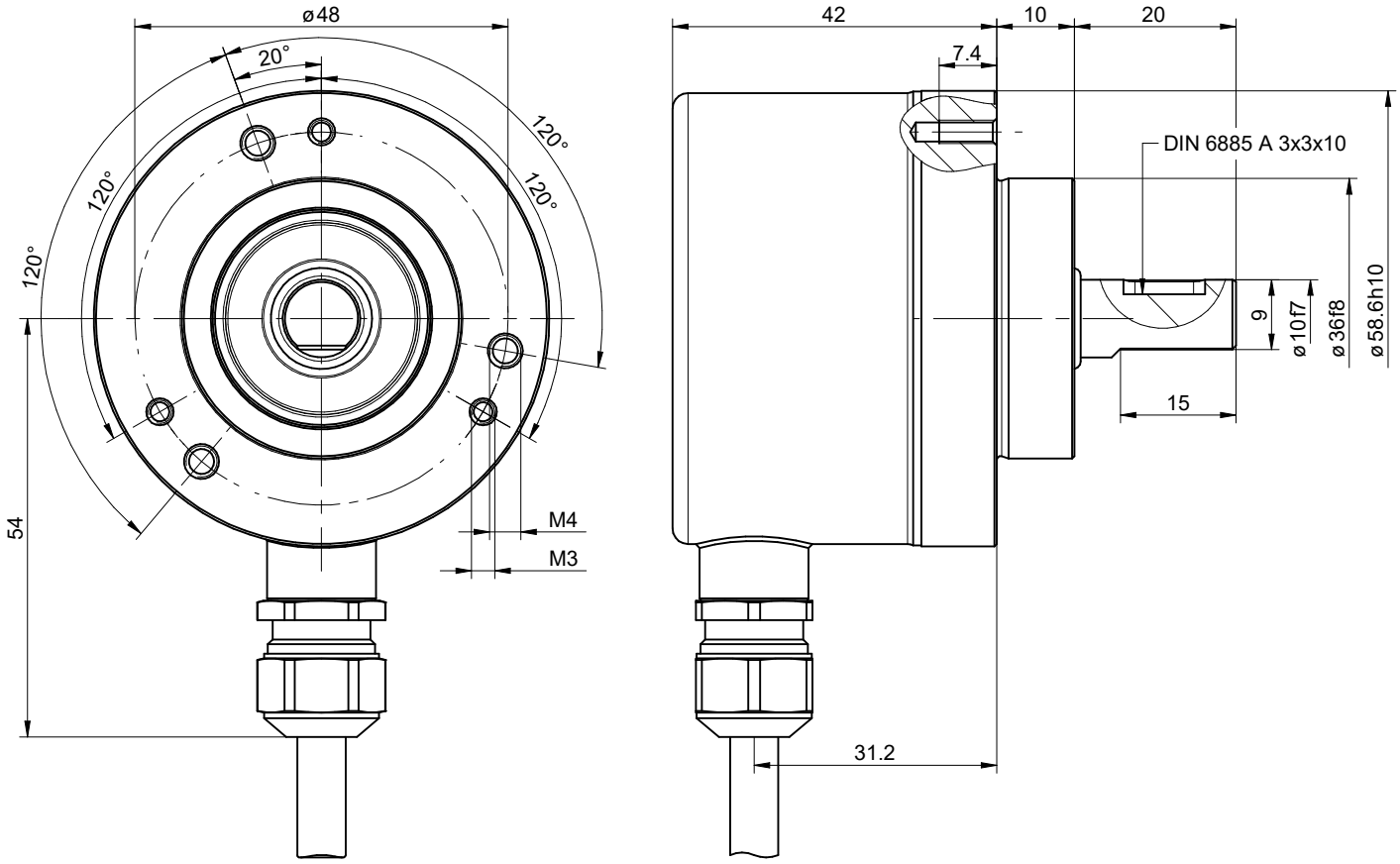
Dimensions



EAM580RS-SC - cable (in preperation)

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Ordering reference

	EAM580RS-	S	C	B	.	#	#	CS	.	14	##	0	.	J
Product														
	EAM580RS-													
Shaft type														
Solid shaft		S												
Flange														
Clamping flange, ø36 mm, M3/M4			C											
Solid shaft														
ø10 x 20 mm solid shaft, with flat, spring slot				B										
Protection														
IP 66, IP 67						E								
IP 65, IP 67 (on request)						H								
Connection														
Flange connector M12, 5-pin, radial, male contacts, CCW							N							
Flange connector 2xM12, 5-pin, radial, male and female contacts, CCW							J							
Cable radial, 2 m (in preperation)							L							
Voltage supply / interface														
8...48 VDC / CANopen® Safety (DS406)								CS						
Resolution singleturn														
14 bit										14				
Resolution multiturn														
No option											00			
18 bit											18			
Option														
No option												0		
Operating temperature														
-40...+75 °C														J

Accessories

Mounting accessories

10125051	Mounting adaptor