Model Number

EVM58-PN

Features

- **Industrial standard housing Ø58 mm**
- **PROFINET IRT**
- **30 Bit multiturn**
- **Servo or clamping flange**
- **Network loop through by means of integrated 2 port switch (IRT capable)**
- **IP address resettable**
- **No DIP switches for address setting**
- **Mechanical compatibility with all major encoders with fieldbus interface**
- **Status LEDs**

Description

Absolute multiturn rotary encoders deliver an absolute step value for each angle setting.
This device has a maximum basic resolution of 65536 steps per revolution (16 bits) and codes up to 16384 revolutions (14 bits). Thus the overall resolution amounts to 30 bits. On account of the high number of measuring steps resulting (more than 1 billion), this type of encoder can be used to divide very long linear distances into small measuring steps.
The device is designed for shaft assembly and is available in servo flange or clamping flange design.

Technical Data

General specifications	
Detection type	photoelectric sampling
Device type	Multiturn absolute encoder
UL File Number	E223176 "For use in NFPA 79 Applications only" , if UL marking is marked on the product.
Functional safety related parameters	
$MTTF_d$	120 a
Mission Time (T_M)	20 a
L_{10}	1.9 E+11 at 6000 rpm and 20/40 N axial/radial shaft load
Diagnostic Coverage (DC)	0 %
Electrical specifications	
Operating voltage U_B	10 ... 30 V DC
Power consumption P_0	max. 4 W
Linearity	± 2 LSB (up to 16 Bit)
Output code	binary code
Code course (counting direction)	programmable, cw ascending (clockwise rotation, code course ascending) cw descending (clockwise rotation, code course descending)
Interface	
Interface type	PROFINET IO
Resolution	
Single turn	up to 16 Bit
Multiturn	14 Bit
Overall resolution	up to 30 Bit
Physical	Ethernet
Transfer rate	100 MBit/s
Cycle time	≤ 1 ms (IRT) ; ≤ 10 ms (RT)
Connection	
Connector	Ethernet: 2 sockets M12 x 1, 4-pin, D-coded Supply: 1 plug M12 x 1, 4-pin, A-coded
Standard conformity	
Degree of protection	DIN EN 60529, Aluminum version: shaft side: IP64 (without shaft seal)/IP66 (with shaft seal) housing side: IP65 Stainless steel version (INOX): completely IP67
Climatic testing	DIN EN 60068-2-3, no moisture condensation
Emitted interference	EN 61000-6-4:2007
Noise immunity	EN 61000-6-2:2005
Shock resistance	DIN EN 60068-2-27, 100 *g*, 6 ms
Vibration resistance	DIN EN 60068-2-6, 10 *g*, 10 ... 2000 Hz
Ambient conditions	
Operating temperature	-40 ... 85 °C (-40 ... 185 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications	
Material	housing: powder coated aluminum flange: aluminum shaft: stainless steel
Combination 1	housing: powder coated aluminum flange: aluminum shaft: stainless steel
Combination 2 (Inox)	housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303
Combination 3 (A)	housing: stainless steel 1.4404 / AISI 316L flange: stainless steel 1.4404 / AISI 316L shaft: stainless steel 1.4112 / AISI 440B
Mass	approx. 370 g (Aluminum version) approx. 860 g (Stainless steel version)
Rotational speed	max. 12000 min^{-1} for IP64 max. 3000 min^{-1} for IP66/IP67
Moment of inertia	30 gcm^2
Starting torque	≤ 3 Ncm (version without shaft seal)
Shaft load	
Axial	40 N
Radial	110 N
Approvals and certificates	
UL approval	cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.

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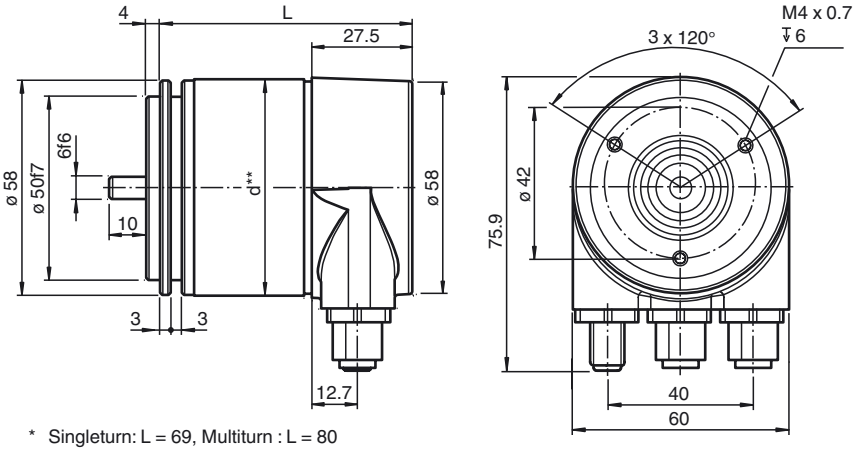
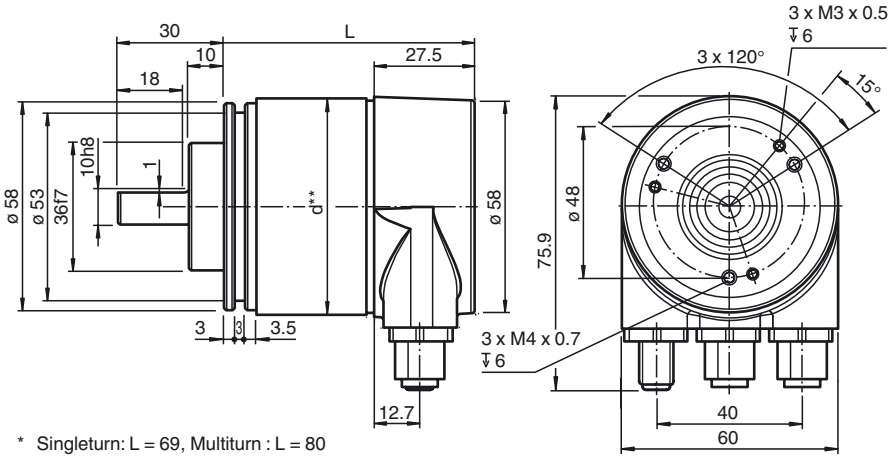
Dimensions



* Singleturn: L = 69, Multiturn : L = 80
** Aluminum: d = 59, stainless steel: d = 61



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".
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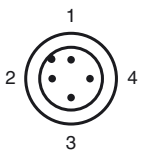
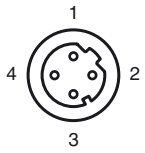
PEPPERL+FUCHS

Electrical connection

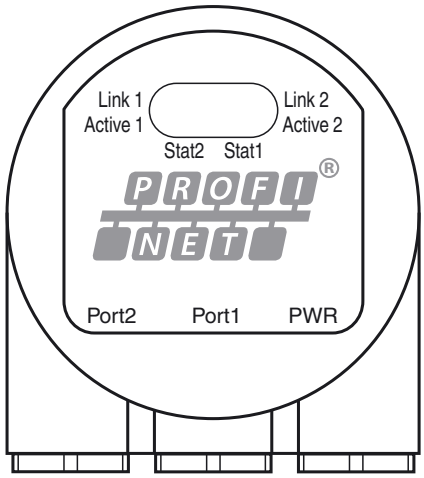
Pin	Male connector M12 x 1, 4-pin, A-coded	Female connector M12 x 1, 4-pin, D-coded
1	Supply voltage +U_B	Tx +
2	-	Rx +
3	0 V	Tx -
4	-	Rx -
		

Indicators

Diagnostic LEDs

LED	Color	Description for LED = ON
Active1	Yellow	Incoming and outgoing data traffic for port 1
Link1*	Green	Connection to other Ethernet devices on port 1
Active2	Yellow	Incoming and outgoing data traffic for port 2
Link2*	Green	Connection to other Ethernet devices on port 2
Stat1	Green	Status 1, details see table below
Stat2	Red	Status 2, details see table below

* flashes with 2 Hz if engineering identification call is activated and link connection is available



Stat1 (green)	Stat2 (red) bus failure	Meaning	Cause
off	off	No power	
on	on	No connection to another device Criteria: no data exchange	• bus disconnected • Master not available / switched off
on	flashes [1)]	Parameterization fault, no data exchange Criteria: data exchange correct. However, the slave did not switch to the data exchange mode.	• Slave not configured yet or wrong configuration • Wrong station address assigned (but not outside the permitted range) • Actual configuration of the slave differs from the nominal configuration
on	off	Data exchange. Slave and operation ok.	

1) flashing frequency 0.5 Hz for at least 3 seconds

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Accessories

Accessories	Name/defining feature	Order code	Description
Couplings	D1: Ø6 mm, D2: Ø6 mm	9401	shaft Ø6 mm
	D1: Ø6 mm, D2: Ø6 mm	9402	
	D1: Ø6 mm, D2: Ø6 mm	9404	
	D1: Ø6 mm, D2: Ø6 mm	9409	
	D1: Ø6 mm, D2: Ø6 mm	KW	
	D1: Ø10 mm, D2: Ø10 mm	9401	shaft Ø10 mm
	D1: Ø10 mm, D2: Ø10 mm	9404	
	D1: Ø10 mm, D2: Ø10 mm	9409	
	D1: Ø10 mm, D2: Ø10 mm	KW	
Measurement wheels with circumference of 500 mm	Plastic	9101, 10	
	Pimpled rubber	9102, 10	
	Knurled aluminium	9103, 10	
	Knurled plastic	9112, 10	
Measurement wheels with circumference of 200 mm	Plastic	9108, 10	
	Pimpled rubber	9109, 10	
	Knurled aluminium	9110, 10	
	Knurled plastic	9113, 10	
Mounting aids	Mounting bracket	9203	Clamping flange
	Mounting bracket	9213	
Mounting aids	Mounting bracket and set	9300 and 9311-3	Servo flange
	Eccentric clamping elements	9310-3	

For additional information on the accessories, please see the "Accessories" section.

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Order code

E	V	M	5	8		–				P	N	R	0	B	N	–				

Number of bits singleturn
13 8192 (standard)
16 65536

Number of bits multiturn
12 4096 (standard)
14 16384

Temp.
N normal

Output code
B binary

Option
0 none

Exit position
R radial

Connection type / protocol
PN Profinet protocol, 2 female connectors/1 male connector, M12 x 1

Flange version*
1 Clamping flange
2 Servo flange

Shaft dimensions*
01 Shaft Ø10 mm x 20 mm
03 Shaft Ø6 mm x 10 mm

Housing material
N Aluminium, powder coated
W Aluminium, powder coated with shaft seal
I Stainless steel 1.4305 / AISI 303
A Stainless steel 1.4404 / AISI 306L *(only with shaft dimension / flange version **01 1** and **03 2**)

Function principle
M Multiturn

Shaft version
V Solid shaft

Data format
E Ethernet

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