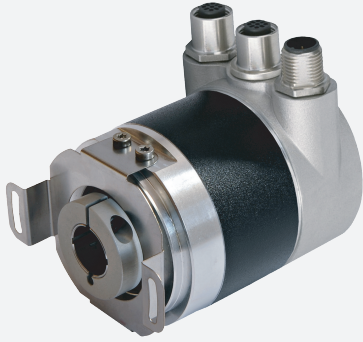


Singleturn absolute encoder

ESS58-PN



- Industrial standard housing $\varnothing 58$ mm
- PROFINET IRT
- 16 Bit singleturn
- Recessed hollow shaft
- 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



Function

In addition to the CANopen-, DeviceNet-, PROFIBUS- and AS-Interface encoders, we have broadened our product line of bus-capable absolute encoders with the ESS58 for Ethernet.

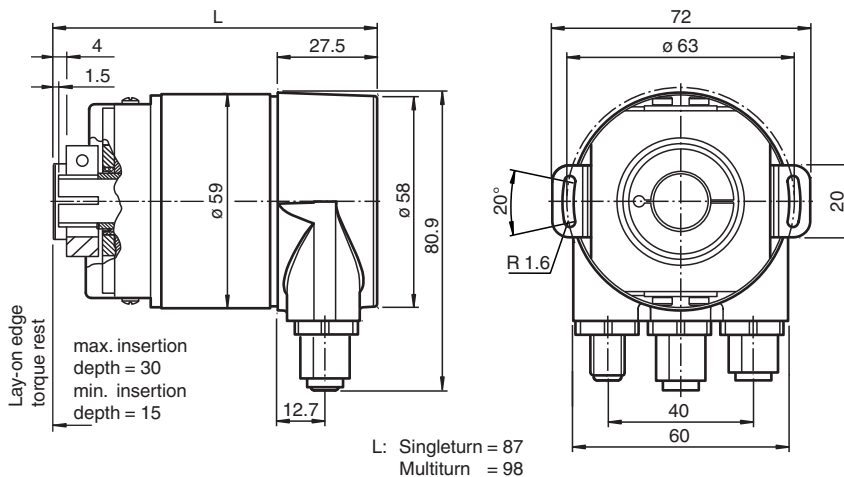
Absolute rotary encoders deliver an absolute step value for each angle setting. This device has a maximum basic resolution of 65536 steps per revolution (16 bits).

The Ethernet interface of this absolute encoder supports the Profinet protocol. The integrated webserver provides Java applets, which allow the whole parameterisation of the encoder via any web browser. In addition to various functions like resolution adjustment, e-mail-services, change of the IP address and many others, the following operation modes can be selected:

- Polled mode
- Cyclic mode
- Change of state mode

The absolute encoder is mounted directly onto the application shaft, without any coupling. Rotation of the absolute encoder is prevented by a torque rest.

Dimensions



Technical Data

General specifications

Detection type	photoelectric sampling
Device type	Singleturn 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

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

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PF PEPPERL+FUCHS

Technical Data

MTTF _d		130 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		± 0.5 LSB (12 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
Overall resolution		up to 16 Bit
Physical		
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, 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
Approvals and certificates		
UL approval		cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.
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 1.4301 / AISI 304 shaft: stainless steel 1.4305 / AISI 303
Mass		approx. 360 g (combination 1) approx. 910 g (combination 2)
Rotational speed		max. 12000 min ⁻¹
Moment of inertia		30 gcm ²
Starting torque		≤ 3 Ncm (version without shaft seal)
Tightening torque, fastening screws		max. 1.8 Nm
Shaft load		
Angle offset		± 0.9 °
Axial offset		static: ± 0.3 mm, dynamic: ± 0.1 mm

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PEPPERL+FUCHS

Technical Data

Radial offset static: ± 0.5 mm, dynamic: ± 0.2 mm

Type Code

Structure of the type code

E	S	S	5	8	(1)	-	(2)	(2)	(2)	P	N	R	0	B	N	-	0	0	(3)	(3)
---	---	---	---	---	-----	---	-----	-----	-----	---	---	---	---	---	---	---	---	---	-----	-----

E	Data format
E	Ethernet

S	Shaft version
S	Recessed hollow shaft

S	Function principle
S	Singleturn

58	Housing diameter
58	58 mm

1	Housing material
N	Aluminum, powder coated
W	Aluminum, powder coated with shaft seal
I	Stainless steel

(2) (2) (2)	Shaft dimensions
F1A	Recessed hollow shaft Ø10 mm x 30 mm
F2A	Recessed hollow shaft Ø12 mm x 30 mm
F3A	Recessed hollow shaft Ø15 mm x 30 mm

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

R	Exit position
R	Radial





0	Option
0	None

B	Output code
B	Binary

N	Temperature
N	Normal

(3) (3)	Number of bits singleturn
13	13 Bits : 8192 pulses (standard)
16	16 Bits : 65536 pulses

Accessories

	ACC-PACK-ABS-_S_58 ø15	Accessories set for Ø58 absolute rotary encoder with recessed hollow shaft 15 mm
	ACC-PACK-ABS-_S_58 ø14	Accessories set for Ø58 absolute rotary encoder with recessed hollow shaft 14 mm
	ACC-PACK-ABS-_S_58 ø12	Accessories set for Ø58 absolute rotary encoder with recessed hollow shaft 12 mm
	ACC-PACK-ABS-_S_58 ø10	Accessories set for Ø58 absolute rotary encoder with recessed hollow shaft 10 mm

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Connection

Pin	Voltage supply	Ethernet
	Male connector M12 x 1, 4-pin, A-coded	Female connector M12 x 1, 4-pin, D-coded
1	+VS (15 ... 30 VDC)	Tx +
2	n. c.	Rx +
3	GND (0 V)	Tx -
4	n. c.	Rx -

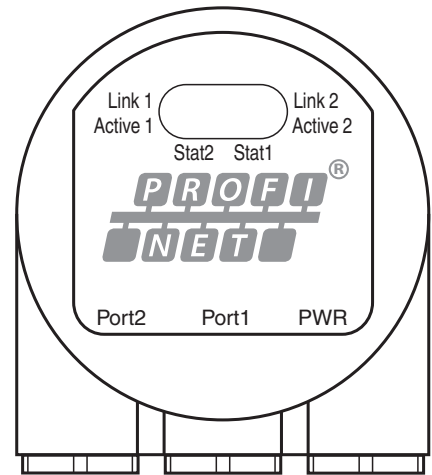
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Indication

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	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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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