

# Absolute rotary encoder

## ENA58PL-R\*\*\*-B17

- Recessed hollow shaft
- 30 Bit multiturn
- High accuracy due to photoelectric sampling
- High resolution and accuracy
- Mechanical compatibility with all major encoders with fieldbus interface
- Status LEDs

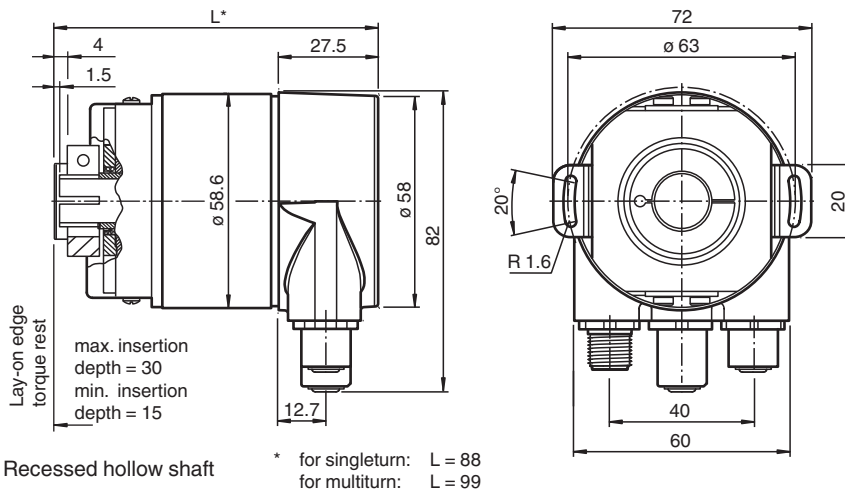
Absolute rotary encoder with photoelectric sampling and PROFINET interface



### Function

The absolute encoders with PROFINET IO interface and precious photoelectric sampling can be used in all PROFINET applications. Thanks to the Encoder Profile 4.2 and the IRT mode, they are ideally suited for I4.0 applications.

### Dimensions



### Technical Data

#### General specifications

Detection type	photoelectric sampling
Device type	Absolute rotary encoder
Linearity error	$\leq \pm 0.02^\circ$ (14 ... 16 bit)
UL File Number	E223176 "For use in NFPA 79 Applications only" , if UL marking is marked on the product.

#### Electrical specifications

Operating voltage	$U_B$	10 ... 30 V DC
Power consumption	$P_0$	approx. 4 W
Time delay before availability	$t_v$	< 15 s
Output code		binary code
Code course (counting direction)		programmable, cw ascending (clockwise rotation, code course ascending) cw descending (clockwise rotation, code course descending)

#### Interface

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## Technical Data

Interface type	PROFINET IO
Device profile	Encoder Profile V4.2
Resolution	
Single turn	up to 16 Bit
Multiturn	up to 14 Bit
Overall resolution	up to 30 Bit
Transfer rate	100 MBit/s
Cycle time	≥ 250 µs
<b>Connection</b>	
Connector	Ethernet: 2 sockets M12 x 1, 4-pin, D-coded Supply: 1 plug M12 x 1, 4-pin, A-coded
<b>Standard conformity</b>	
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 ... 1000 Hz
<b>Approvals and certificates</b>	
UL approval	cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.
<b>Ambient conditions</b>	
Operating temperature	-40 ... 85 °C (-40 ... 185 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	98 % , no moisture condensation
<b>Mechanical specifications</b>	
Material	
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
Mass	approx. 360 g (combination 1) approx. 910 g (combination 2)
Rotational speed	max. 12000 min <sup>-1</sup> for IP65 max. 3000 min <sup>-1</sup> for IP66/IP67
Moment of inertia	50 gcm <sup>2</sup>
Starting torque	< 5 Ncm
Shaft load	
Axial	24 N
Radial	198 N
Angle offset	± 0.9 °
Axial offset	± 0.3 mm static
Radial offset	± 0.5 mm static

## Type Code

### Structure of the type code

E	N	A	5	8	P	L	-	R	(1)	(1)	(2)	(2)	(3)	-	(4)	(4)	(5)	(5)	B	1	7	-	R	H	2
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ENA	Device type
ENA	Absolute rotary encoder

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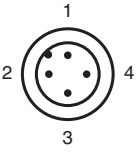
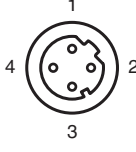
## Type Code

58	Size
58	Housing diameter 58 mm
PL	Version
PL	Performance Line
R	Shaft type
R	Recessed hollow shaft
(1) (1)	Shaft diameter
06	6 mm (d = 6F7)
10	10 mm (d = 10F7)
12	12 mm (d = 12F7)
14	14 mm (d = 14F7)
15	15 mm (d = 15F7)
(2) (2)	Flange
DA	Dual spring plate, housing and flange in aluminum, shaft in stainless
D2	Dual spring plate, housing, flange and shaft in stainless steel 1.4305 / AISI303 (V2A)
(3)	Degree of protection
5	IP65
7	IP67
(4) (4)	Multiturn resolution
00	Singleturn rotary encoder
12	Multiturn rotary encoder, 12 bit
14	Multiturn rotary encoder, 14 bit
(5) (5)	Singleturn resolution
13	13 Bit
16	16 Bit
B17	Interface, electric
B17	PROFINET
RH2	Connection type
RH2	Radial connection alignment, Bus cover with 2 sockets / plug M12 x 1

**Connection**

Pin	Male connector M12 x 1, 4-pin, A-coded	Female connector M12 x 1, 4-pin, D-coded
1	Supply voltage +U <sub>B</sub>	Tx +
2	-	Rx +
3	0 V	Tx -
4	-	Rx -

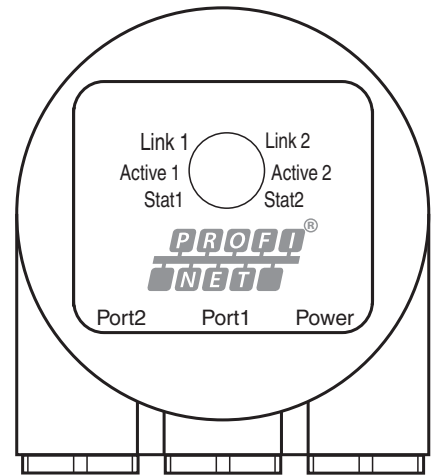
	
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**Indication**

**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"> <li>• bus disconnected</li> <li>• Master not available / switched off</li> </ul>
on	flashes <sup>1)</sup>	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"> <li>• Slave not configured yet or wrong configuration</li> <li>• Wrong station address assigned (but not outside the permitted range)</li> <li>• Actual configuration of the slave differs from the nominal configuration</li> </ul>
on	off	Data exchange. Slave and operation ok.	

1) flashing frequency 0.5 Hz for at least 3 seconds

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