



### Model Number

ENI58IL-R

### Features

- Housing Ø 58 mm
- Recessed hollow shaft
- Up to 5000 ppr
- Universal output driver
- BlueBeam technology for ultimate precision

### Description

The ENI58IL impresses with its modular design, which is available over all mechanical and electrical interfaces. The ENI58IL is the best solution for all common applications, coupled with its high robustness, high reliability and versatility. With the high-precision BlueBeam technology and innovative housing design, the ENI58IL is the new market standard for incremental encoders.

## Technical data

### General specifications

Detection type	photoelectric sampling
Linearity error	$\pm 0.025^\circ$
Pulse count	max. 5000
UL File Number	E223176 "For use in NFPA 79 Applications only", if UL marking is marked on the product.

### Functional safety related parameters

MTTF <sub>d</sub>	140 a
Mission Time (T <sub>M</sub> )	20 a
L <sub>10</sub>	15 E+9 at 6000 rpm
Diagnostic Coverage (DC)	0 %

### Electrical specifications

Operating voltage U <sub>B</sub>	4.75 ... 30 V DC
No-load supply current I <sub>0</sub>	max. 50 mA

### Output

Output type	push-pull or RS422 (universal output driver, output level depending on input voltage)
Load current	max. per channel 40 mA, short-circuit protected, reverse polarity protected
Output frequency	max. 400 kHz
Rise time	300 ns
Phase position A to B	
Pulse counts < 3600	90° ± 9° electrical
Pulse counts ≥ 3600	90° ± 15° electrical
Duty cycle	1/2 ± 10 %

### Connection

Connector	M12 connector, 8-pin M12 connector, 5 pin M23 connector, 12-pin 10-pin MIL connector 7-pin MIL connector
Cable	Ø6 mm, 4 x 2 x 0.14 mm <sup>2</sup>

### Standard conformity

Degree of protection	DIN EN 60529, IP65, IP67
Climatic testing	DIN EN 60068-2-78, no moisture condensation
Emitted interference	EN 61000-6-4:2007/A1:2011
Noise immunity	EN 61000-6-2:2005
Shock resistance	DIN EN 60068-2-27, 300 g, 6 ms
Vibration resistance	DIN EN 60068-2-6, 30 g, 10 ... 2000 Hz

### Ambient conditions

Operating temperature	-40 ... 85 °C (-40 ... 185 °F), fixed cable -5 ... 85 °C (23 ... 185 °F), movable cable
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)

### Mechanical specifications

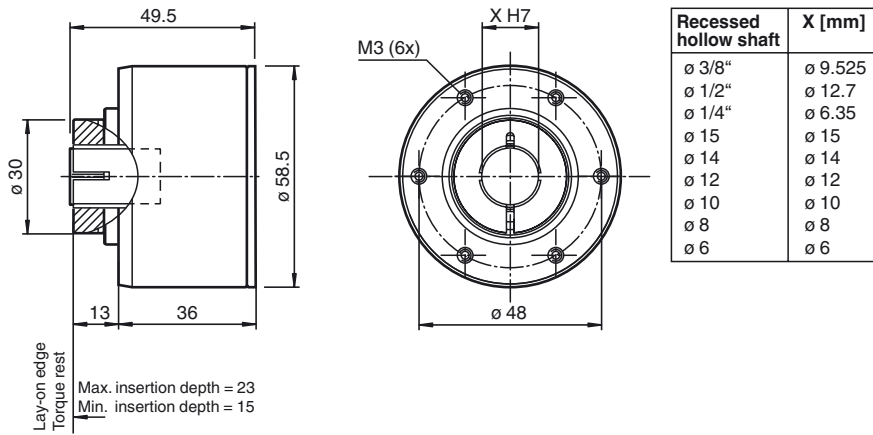
Material	
Housing	3.2315 aluminum (AlMgSi1, saltwater-proof)
Flange	3.2315 aluminum (AlMgSi1, saltwater-proof)
Shaft	Recessed hollow shaft Stainless steel
Mass	< 300 g without cable
Rotational speed	max. 8000 min <sup>-1</sup> for IP65, max. 6000 min <sup>-1</sup> for IP67
Moment of inertia	≤ 60 gcm <sup>2</sup>
Starting torque	≤ 1.5 Ncm for IP65, ≤ 2.5 Ncm for IP67
Shaft load	
Angle offset	max. 1°
Axial offset	max. 1 mm

### Approvals and certificates

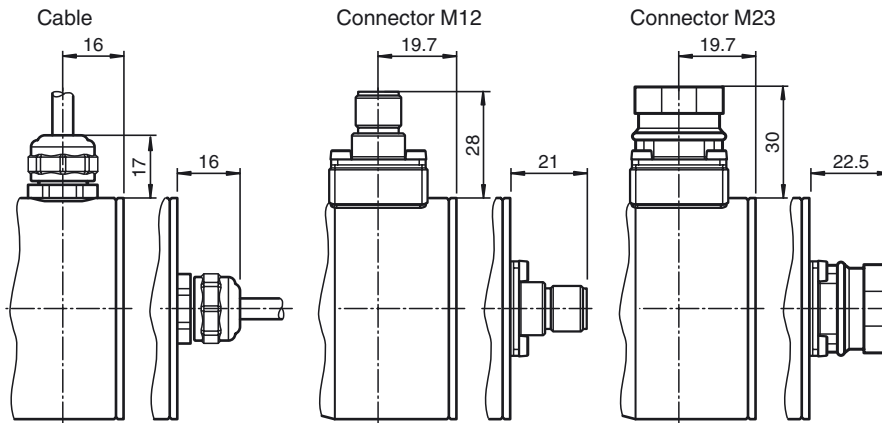
UL approval	cULus Listed, General Purpose, Class 2 Power Source, Type 1 enclosure, if UL marking is marked on the product. adapters providing field wiring on request
Maximum permissible ambient temperature	≤ 80 °C (≤ 176 °F)

**Dimensions**

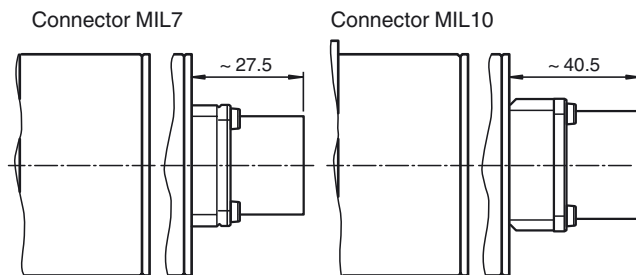
Recessed hollow shaft with cable and connector M12, M23 (radial, axial) and MIL connector (axial)



**Connections**

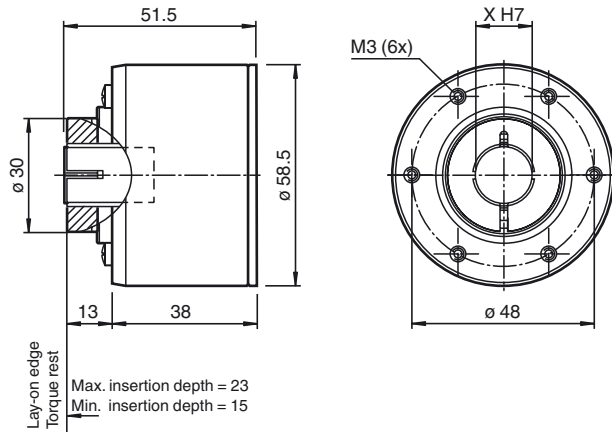


**Connections**



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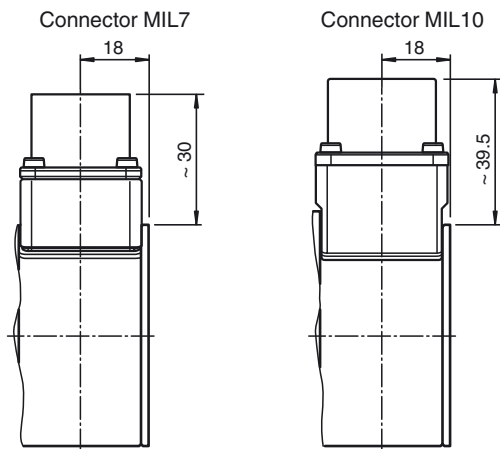
Recessed hollow shaft with MIL connector (radial)



Recessed hollow shaft	X [mm]
ø 3/8"	ø 9.525
ø 1/2"	ø 12.7
ø 1/4"	ø 6.35
ø 15	ø 15
ø 14	ø 14
ø 12	ø 12
ø 10	ø 10
ø 8	ø 8
ø 6	ø 6

Lay-on edge  
Torque rest  
Max. insertion depth = 23  
Min. insertion depth = 15

Connections



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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411  
fa-info@de.pepperl-fuchs.com

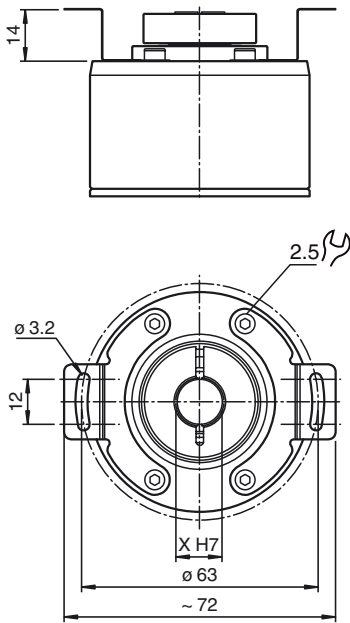
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**Spring plates**

DA / BA / JA

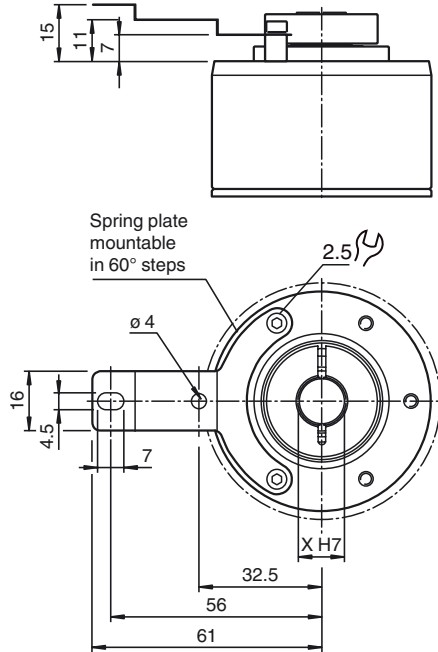
**DA**

for more accurate measuring tasks



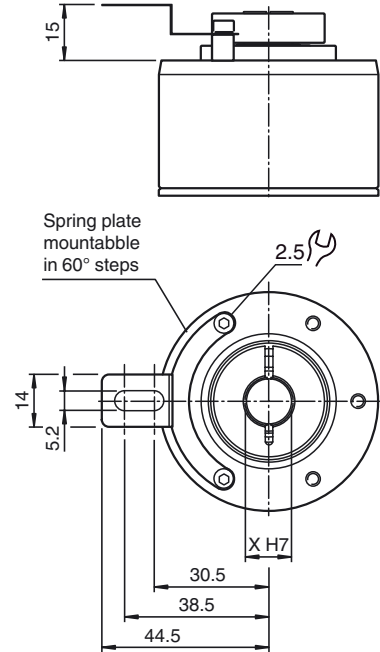
**BA**

for standard application



**JA**

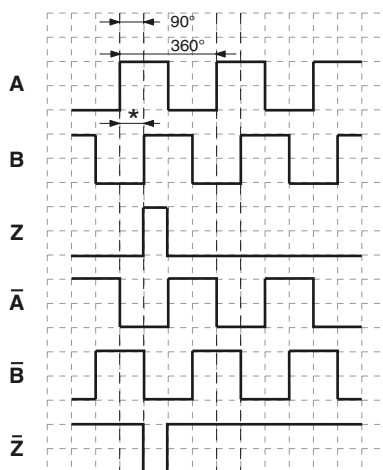
for confined installation space



**Electrical connection**

Signal	Cable	Connector M23, 12-pin, clockwise/ counterclockwise	Connector MIL7, 7-pin	Connector MIL10, 10-pin	Connector M12 x 1, 8-pin	Connector M12 x 1, 5-pin
GND	White	10	F	F	1	3
U <sub>b</sub>	Brown	12	D	D	2	1
A	Green	5	A	A	3	2
B	Grey	8	B	B	5	4
$\bar{A}$	Yellow	6	-	H	4	-
$\bar{B}$	Pink	1	-	I	6	-
Z	Blue	3	C	C	7	5
$\bar{Z}$	Red	4	-	J	8	-
NC	Violet	2	E	E	-	-
NC	Grey/Pink	7	-	-	-	-
NC	-	9	-	-	-	-
NC	Black	11	-	-	-	-
Screen	-	Housing	G	G	Housing	Housing
	<p><b>Note:</b> Unused cores must be insulated individually before commissioning in order to avoid interference..</p>					

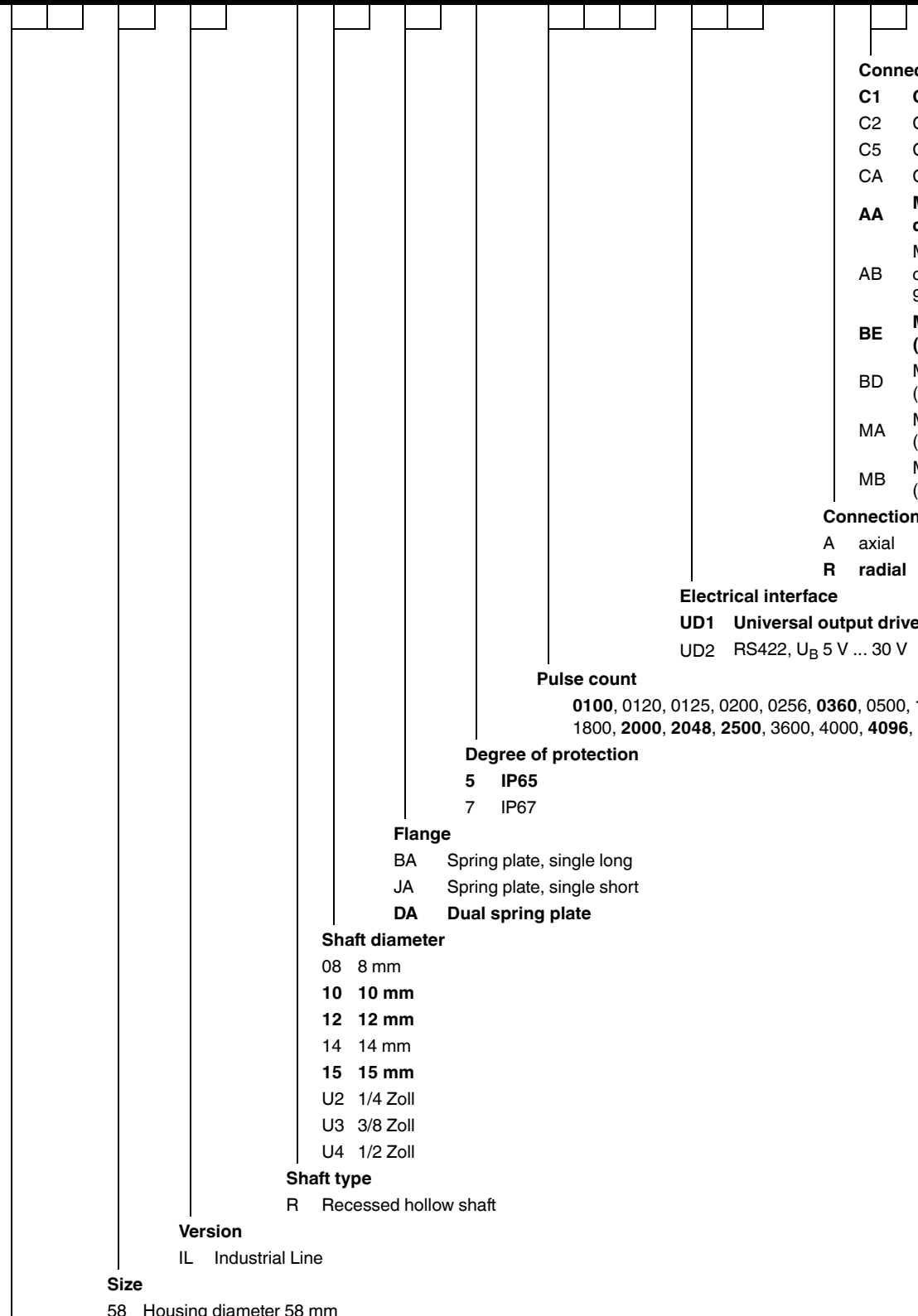
**Signal outputs**



↻ cw - with view onto the shaft  
 phase relationships electrical  
 \* 1 Measuring step is 90° electrical

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Connection type

- C1** Cable, 1 m
- C2 Cable, 2 m
- C5 Cable, 5 m
- CA Cable, 10 m

**AA** M23 device plug, clockwise (type 9416)

M23 device plug, counterclockwise (type 9416L)

**BE** M12 device plug, 8-pin (type V19)

M12 device plug, 5-pin (type V15)

MA MIL7 connector (Typ 9415)

MB MIL10 connector (Typ 9419)

Connection alignment

- A axial
- R** radial

Electrical interface

**UD1** Universal output driver, UB 5 V ... 30 V

UD2 RS422, U<sub>B</sub> 5 V ... 30 V

Pulse count

**0100**, 0120, 0125, 0200, 0256, **0360**, 0500, **1000**, **1024**, 1250, 1500, 1800, **2000**, **2048**, **2500**, 3600, 4000, **4096**, **5000**

Degree of protection

- 5** IP65
- 7 IP67

Flange

- BA Spring plate, single long
- JA Spring plate, single short
- DA** Dual spring plate

Shaft diameter

- 08 8 mm
- 10** 10 mm
- 12** 12 mm
- 14 14 mm
- 15** 15 mm
- U2 1/4 Zoll
- U3 3/8 Zoll
- U4 1/2 Zoll

Shaft type

- R Recessed hollow shaft

Version

- IL Industrial Line

Size

- 58 Housing diameter 58 mm

Device type

- ENI Incremental rotary encoder

Note: Preferred options are in bold letters.

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