

# Incremental rotary encoder

## ENI58IL-R\*

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

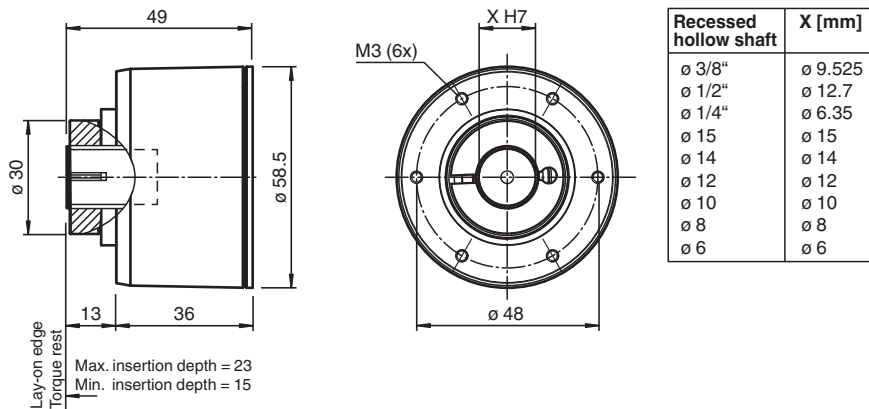


### Function

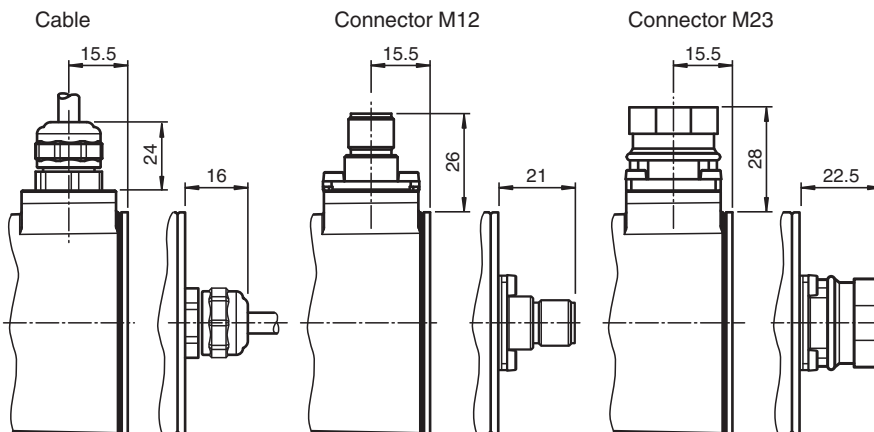
The ENI58IL impresses with its modular design, which is available over all mechanical and electrical interfaces. The ENI58IL is the best solution for all common applications, coupled with its high robustness, high reliability and versatility. With the high-precision BlueBeam technology and innovative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

### Dimensions

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



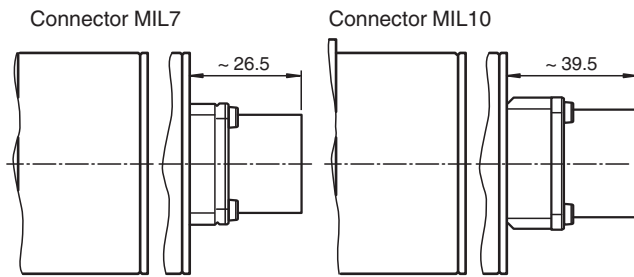
### Connections



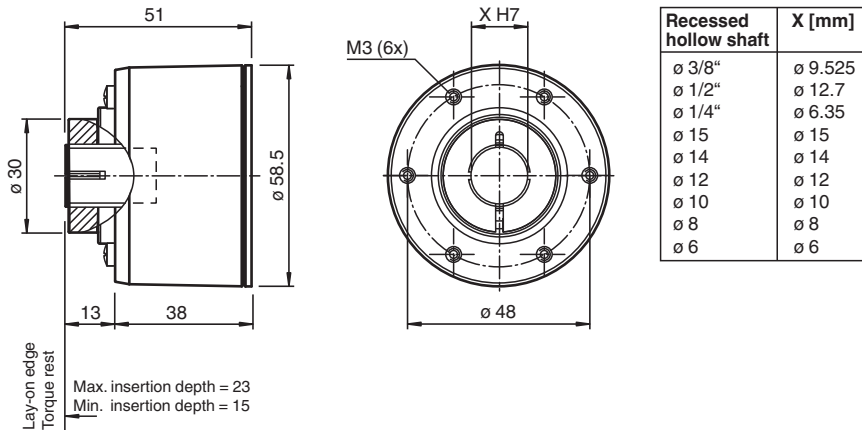
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**Dimensions**

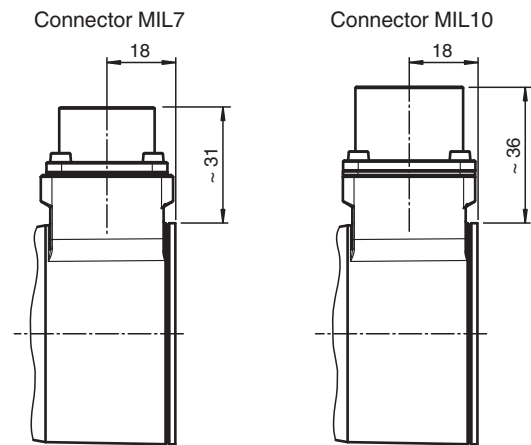
**Connections**



**Recessed hollow shaft with MIL connector (radial)**



**Connections**

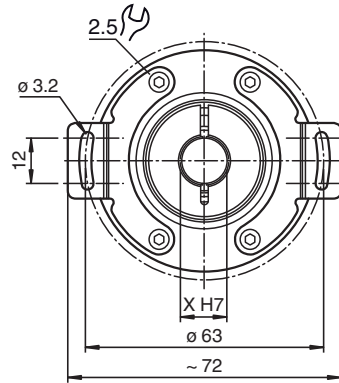
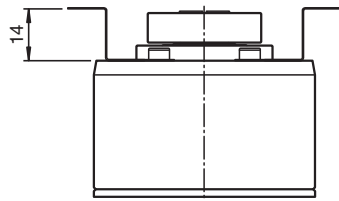


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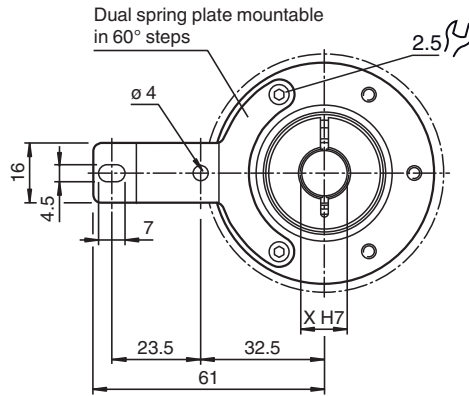
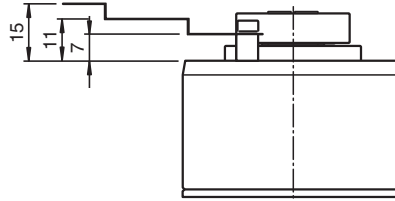
**Dimensions**

**Spring plates DA / BA / JA / LA**

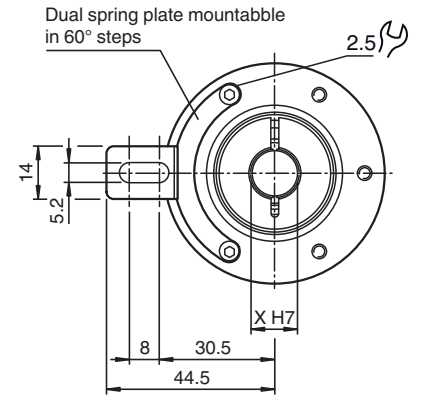
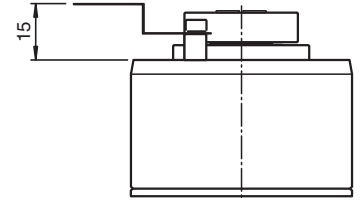
**DA**  
for more accurate measuring tasks



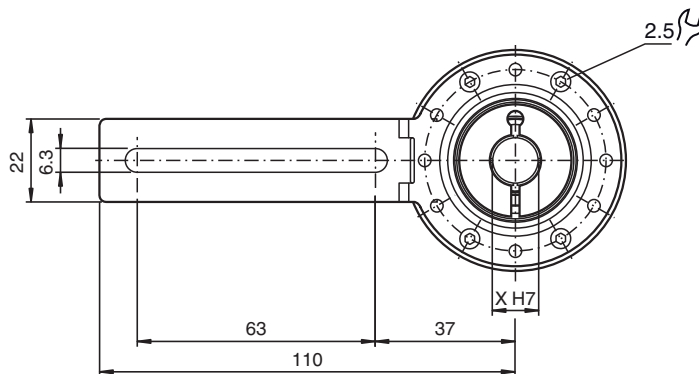
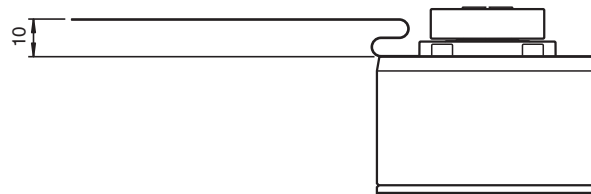
**BA**  
for standard application



**JA**  
for confined installation space



**LA**  
for larger distance to mounting point



**Technical Data**

**General specifications**

Detection type	photoelectric sampling
Linearity error	± 0.025 °
Pulse count	max. 5000

**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**

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## Technical Data

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 %
<b>Connection</b>	
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> Fixed cable with M12 plug. 5-pin Fixed cable with M12 plug. 8-pin
<b>Standard conformity</b>	
Degree of protection	DIN EN 60529, IP65, IP67
Climatic testing	DIN EN 60068-2-78 , no moisture condensation
Emitted interference	EN IEC 61000-6-4:2019
Noise immunity	EN IEC 61000-6-2:2019
Shock resistance	DIN EN 60068-2-27, 300 g, 6 ms
Vibration resistance	DIN EN 60068-2-6, 30 g, 10 ... 2000 Hz
<b>Approvals and certificates</b>	
UL approval	E223176 , cULus Listed, General Purpose, Class 2 Power Source, Type 1 enclosure , if UL marking is marked on the product. For use in NFPA 79 Applications only. adapters providing field wiring on request
Maximum permissible ambient temperature	max. 80 °C (max. 176 °F)
<b>Ambient conditions</b>	
Operating temperature	-40 ... 85 °C (-40 ... 185 °F) , cable, fixed installation -5 ... 85 °C (23 ... 185 °F) , cable, movable installation
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>	
Material	
Housing	powder coated aluminum
Flange	aluminum, blank
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	≤ 0.015 Nm for IP65 ≤ 0.025 Nm for IP67
Shaft load	
Angle offset	max. 1 °
Axial offset	max. 1 mm
Dimensions	
Diameter	58.5 mm

## Type Code

### Structure of the type code

E	N	I	5	8	I	L	-	R	(1)	(1)	(2)	(2)	(3)	-	(4)	(4)	(4)	(4)	(5)	(5)	(5)	-	(6)	(7)	(7)
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ENI	Device type
ENI	Incremental rotary encoder

## Type Code

58	Size
58	Housing diameter 58 mm

IL	Version
IL	Industrial Line

R	Shaft type
R	Recessed hollow shaft

(1) (1)	Shaft diameter
06	6 mm
08	8 mm
10	10 mm
12	12 mm
14	14 mm
15	15 mm
U2	1/4 inch
U3	3/8 inch
U4	1/2 inch

(2) (2)	Flange
BA	Spring plate, single long
JA	Spring plate, single shor
DA	Dual spring plate
LA	Spring plate, single extra long

(3)	Degree of protection
5	IP65
7	IP67

(4) (4) (4) (4)	Pulse count
0025	25 pulses
0100	100 pulses
0120	120 pulses
0125	125 pulses
0200	200 pulses
0256	256 pulses
0360	360 pulses
0500	500 pulses
1000	1000 pulses
1024	1024 pulses
1250	1250 pulses
1500	1500 pulses
1800	1800 pulses
2000	2000 pulses
2048	2048 pulses
2500	2500 pulses
3600	3600 pulses
4000	4000 pulses
4096	4096 pulses
5000	5000 pulses

(5) (5) (5)	Electrical interface
UD1	Universal output driver, $U_B$ 5 V ... 30 V
UD2	RS422, $U_B$ 5 V ... 30 V

(6)	Connection alignment
A	Axial
R	Radial

(7) (7)	Connection type
B2	Fixed cable with M12 plug, 8-pin, 1 m
B4	Fixed cable with M12 plug, 5-pin, 1 m
C1	Cable, 1 m
C2	Cable, 2 m
C3	Cable, 3 m
C5	Cable, 5 m
CA	Cable, 10 m

**Type Code**

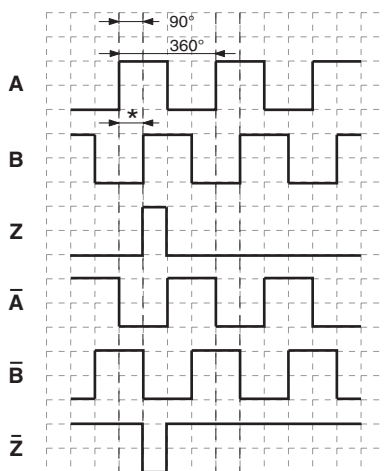
(7) (7)	Connection type
AA	M23 device plug, clockwise (type 9416)
AB	M23 device plug, counterclockwise (type 9416L))
BE	M12 device plug, 8-pin (type V19)
BD	M12 device plug, 5-pin (type V15)
MA	MIL7 connector (type 9415)
MB	MIL10 connector (type 9419)

**Connection**

Signal	Cable	Connector M23, 12-pin, clockwise/counter clockwise	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	-	-	-	-
Shielding	Shield	Housing	G	G	Housing	Housing
	<p><b>Note:</b> Unused cores must be insulated individually before commissioning in order to avoid interference..</p>					

**Operation**

**Signal outputs**



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

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