



# Incremental rotary encoder

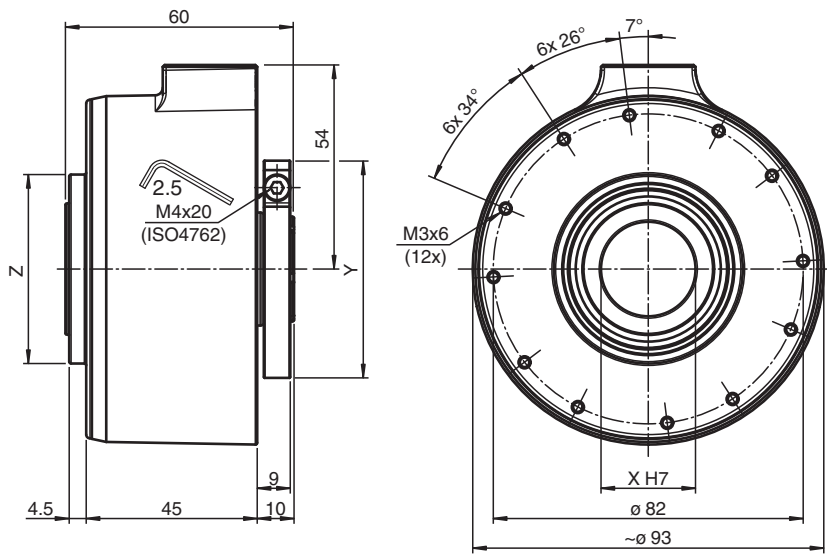
## ENI90IL-H

- Housing Ø 93 mm
- Hollow shaft
- Up to 2048 pulses
- Universal output driver
- BlueBeam technology for ultimate precision



### Dimensions

#### Hollow shaft

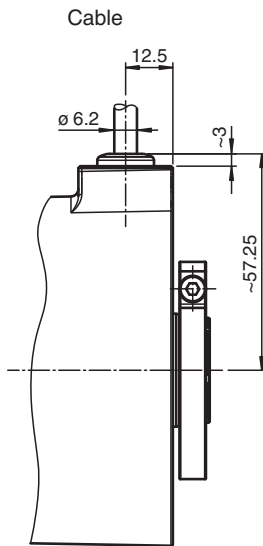


Hollow shaft X	X [mm]	Clamping ring Y [mm]	Z [mm]
ø 5/8"	ø 15.875	ø 58	ø 50
ø 1"	ø 25.4	ø 63	ø 68
ø 25	ø 25	ø 58	ø 50
ø 38	ø 38	ø 70	ø 68

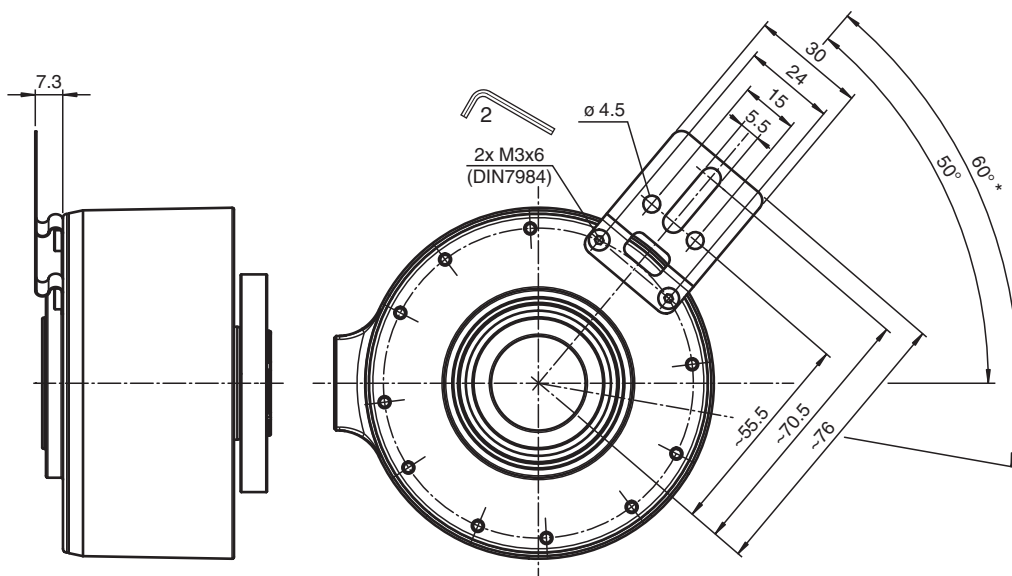
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## Dimensions

### Connection



### Spring plate JA



\* Spring plate mountable in 60° steps

## Technical Data

### General specifications

Detection type	photoelectric sampling
Linearity error	$\pm 0.025^\circ$
Pulse count	max. 2048

### Functional safety related parameters

MTTF <sub>d</sub>	435 a
Mission Time (T <sub>M</sub> )	10 a
Diagnostic Coverage (DC)	0 %

## Technical Data

Electrical specifications	
Operating voltage	$U_B$ 4.75 ... 30 V DC
No-load supply current	$I_0$ 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	$90^\circ \pm 9^\circ$ electrical
Duty cycle	$1/2 \pm 10\%$
Connection	
Cable	$\varnothing 6$ mm, 4 x 2 x 0.14 mm <sup>2</sup>
Standard conformity	
Degree of protection	DIN EN 60529, IP65
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, 100 g, 6 ms
Vibration resistance	DIN EN 60068-2-6, 10 g, 10 ... 2000 Hz
Approvals and certificates	
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)
Ambient conditions	
Operating temperature	-20 ... 70 °C (-4 ... 158 °F) , fixed cable -5 ... 70 °C (23 ... 158 °F) , movable cable
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)
Mechanical specifications	
Material	
Housing	aluminum, blank
Flange	aluminum, blank
Shaft	anodized aluminum
Mass	< 700 g without cable
Rotational speed	max. 3000 min <sup>-1</sup>
Starting torque	≤ 0.1 Nm
Shaft load	
Axial	≤ 50 N
Radial	≤ 100 N
Dimensions	
Length	55 mm
Diameter	93 mm

## Type Code

### Structure of the type code

E	N	I	9	0	I	L	-	H	(1)	(1)	J	A	5	-	(2)	(2)	(2)	(2)	(3)	(3)	(3)	-	R	(4)	(4)
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ENI	Device type
ENI	Incremental rotary encoder

90	Size
90	Housing diameter 90 mm

IL	Version
IL	Industrial Line

## Type Code

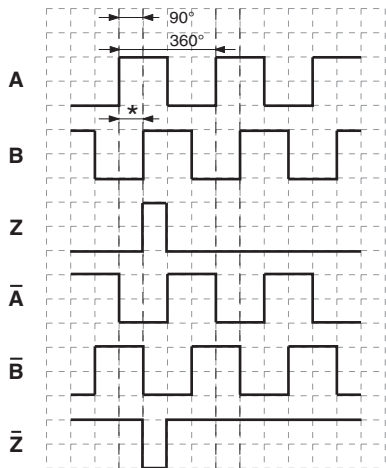
<b>H</b>	<b>Shaft type</b>
H	Hollow shaft
<b>(1) (1)</b>	<b>Shaft diameter</b>
25	25 mm
38	38 mm
U5	5/8 inch
U8	1 inch
<b>JA</b>	<b>Flange</b>
JA	Spring plate, single short
<b>5</b>	<b>Degree of protection</b>
5	IP65
<b>(2) (2) (2) (2)</b>	<b>Pulse count</b>
0100	100 pulses
0360	360 pulses
0500	500 pulses
1000	1000 pulses
1024	1024 pulses
2048	2048 pulses
<b>(3) (3) (3)</b>	<b>Electrical interface</b>
UD1	Universal output driver, $U_B$ 5 V ... 30 V
UD2	RS422, $U_B$ 5 V ... 30 V
<b>R</b>	<b>Connection alignment</b>
R	Radial
<b>(4) (4)</b>	<b>Connection type</b>
C1	Cable, 1 m
C2	Cable, 2 m
C3	Cable, 3 m
C5	Cable, 5 m

**Connection**

Signal	Cable
GND	White
U <sub>b</sub>	Brown
A	Green
B	Grey
$\bar{A}$	Yellow
$\bar{B}$	Pink
Z	Blue
$\bar{Z}$	Red
NC	-
NC	-
NC	-
NC	-
Shielding	Schirm
	<b>Note:</b> Unused cores must be insulated individually before commissioning in order to avoid interference.

**Operation**

**Signal outputs**



↺ ccw - with view onto the flange  
 phase relationships electrical  
 \* 1 Measuring step is 90° electrical

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