



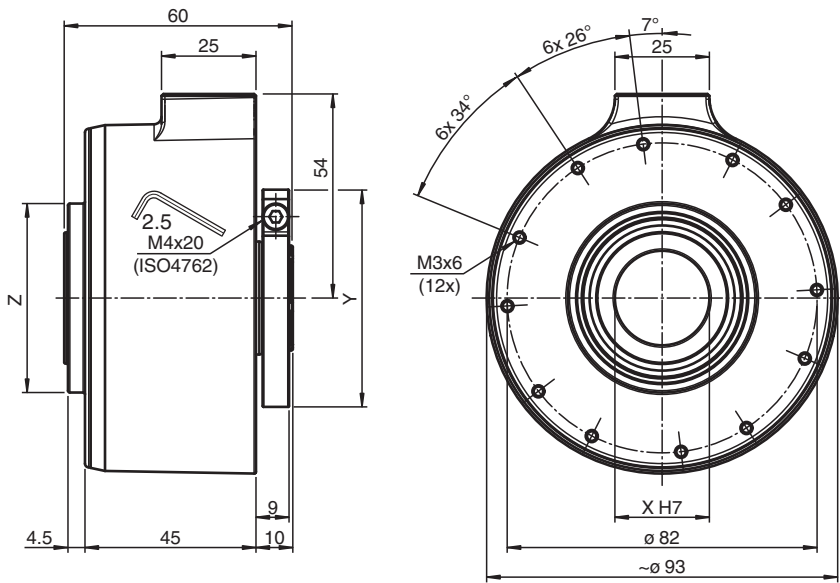
Incremental rotary encoder ENI90PL-H

- Housing Ø 93 mm
- Hollow shaft
- Up to 5000 pulses
- Universal output driver
- BlueBeam technology for ultimate precision



Dimensions

Hollow shaft with cable and connector M12, M23



Hollow shaft X	X [mm]	Clamping ring Y [mm]	Z [mm]
Ø 1/2"	Ø 12.7	Ø 53	Ø 50
Ø 5/8"	Ø 15.875	Ø 58	Ø 50
Ø 3/4"	Ø 19.05	Ø 58	Ø 50
Ø 7/8"	Ø 22.225	Ø 63	Ø 68
Ø 1"	Ø 25.4	Ø 63	Ø 68
Ø 16	Ø 16	Ø 49	Ø 50
Ø 20	Ø 20	Ø 53	Ø 50
Ø 25	Ø 25	Ø 58	Ø 50
Ø 30	Ø 30	Ø 63	Ø 68
Ø 38	Ø 38	Ø 70	Ø 68

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

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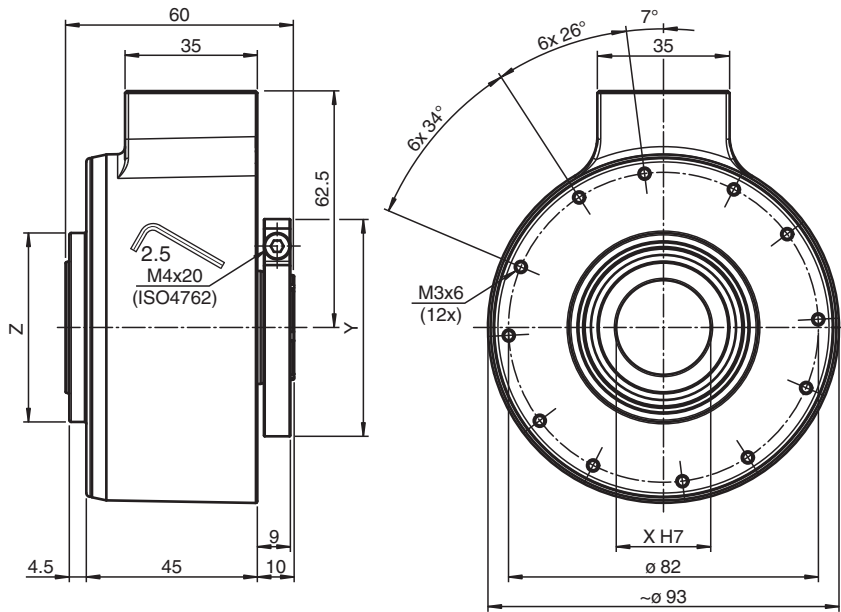
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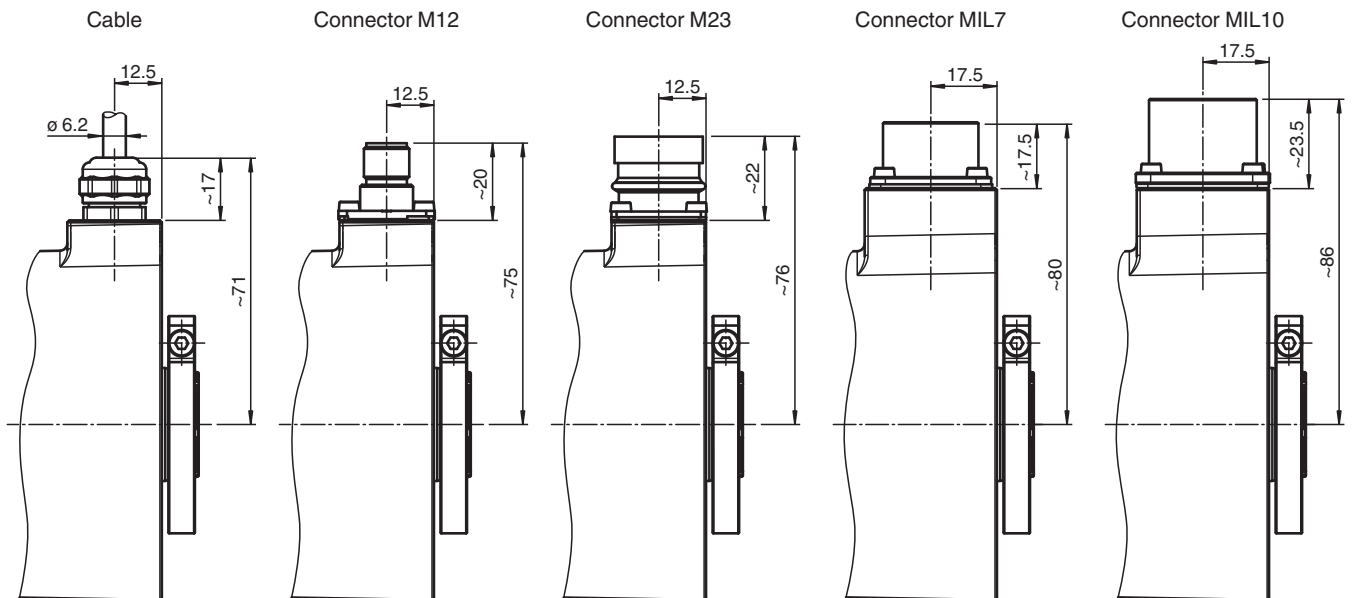
Dimensions

Hollow shaft with connector MIL7 and MIL10



Hollow shaft X	X [mm]	Clamping ring Y [mm]	Z [mm]
ø 1/2"	ø 12.7	ø 53	ø 50
ø 5/8"	ø 15.875	ø 58	ø 50
ø 3/4"	ø 19.05	ø 58	ø 50
ø 7/8"	ø 22.225	ø 63	ø 68
ø 1"	ø 25.4	ø 63	ø 68
ø 20	ø 20	ø 53	ø 50
ø 25	ø 25	ø 58	ø 50
ø 30	ø 30	ø 63	ø 68
ø 38	ø 38	ø 70	ø 68

Connections



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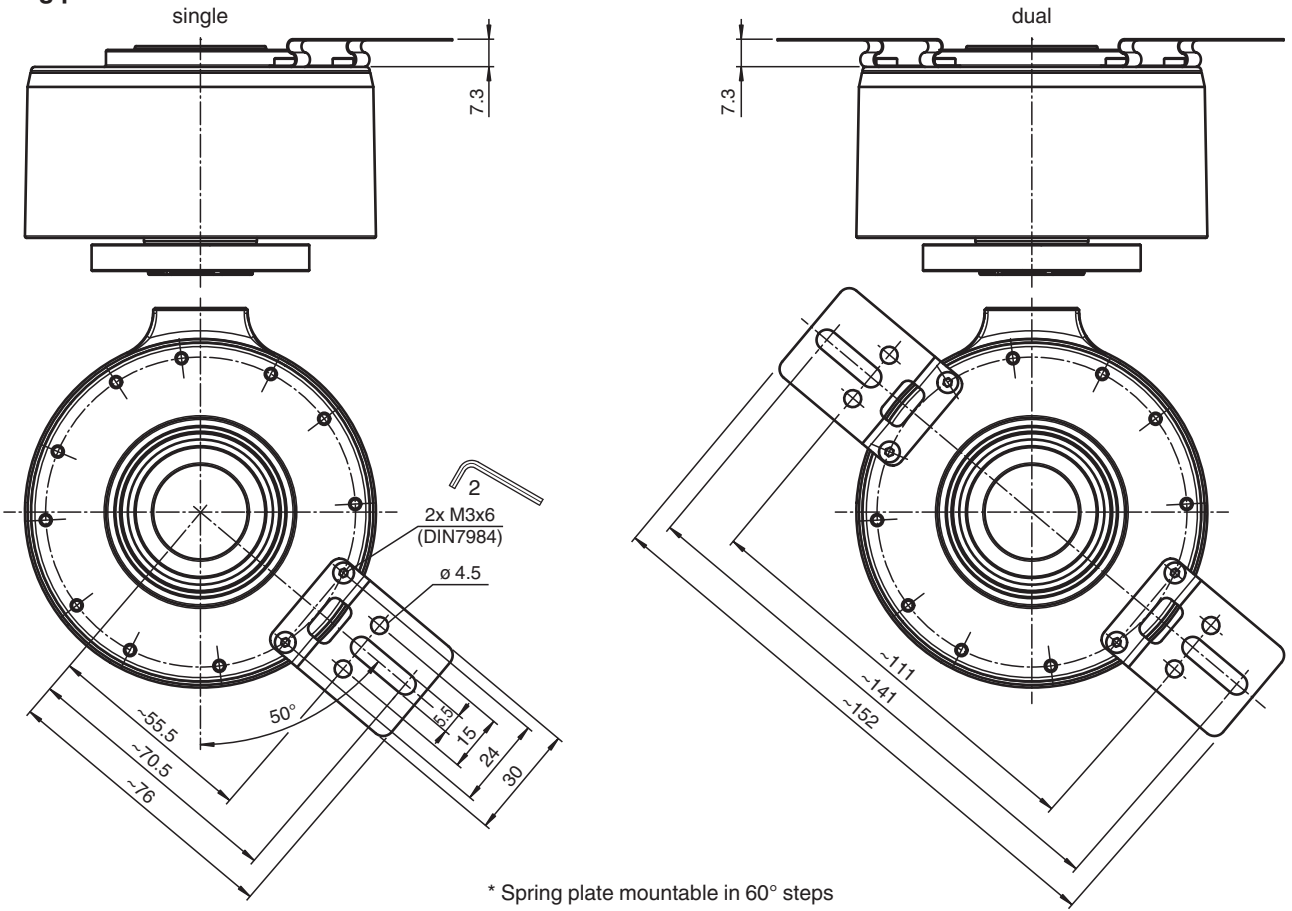
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Dimensions

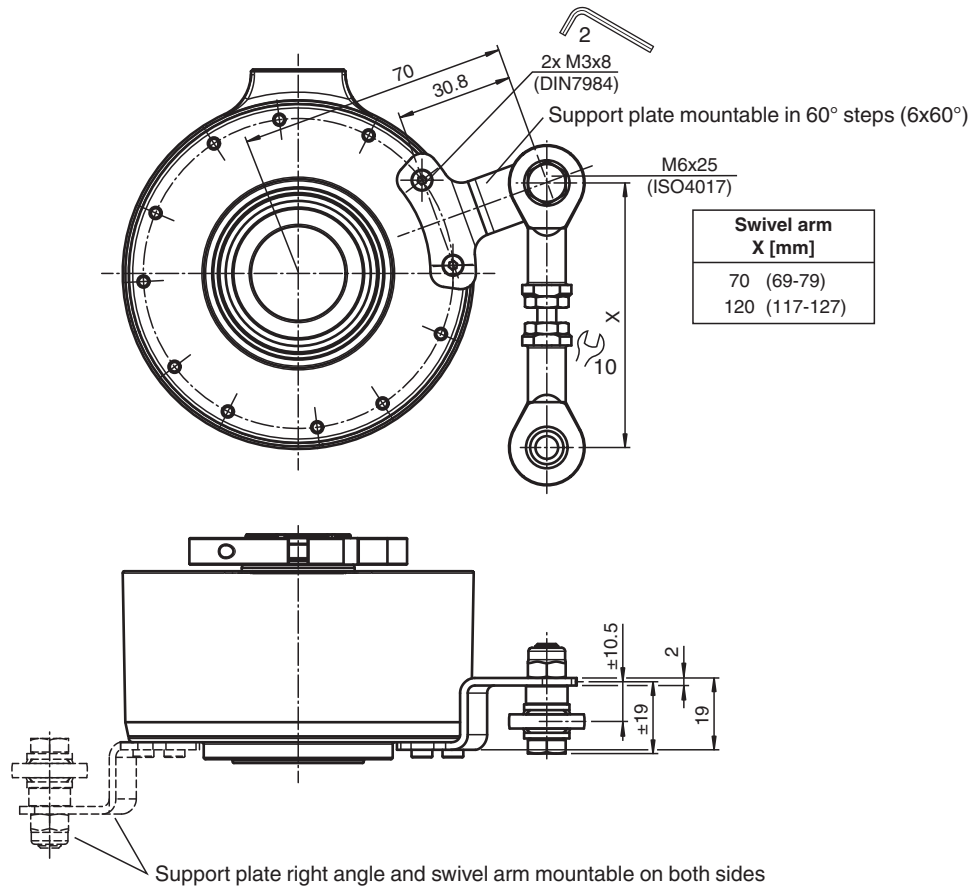
Spring plate JA



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Dimensions

Support plate right angle 70 mm with swivel arm



Technical Data

General specifications	
Detection type	photoelectric sampling
Linearity error	± 0.025 °
Pulse count	max. 5000
Functional safety related parameters	
MTTF _d	435 a
Mission Time (T _M)	10 a
L ₁₀	20 E+9
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	
Pulse counts < 3600	90 ° ± 9 ° electrical
Pulse counts ≥ 3600	90 ° ± 25 ° electrical
Duty cycle	1/2 ± 10 %
Connection	

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Technical Data

Connector	M12 connector, 8-pin M12 connector, 5 pin M23 connector, 12-pin , clockwise rotation M23 connector, 12-pin , counter clockwise rotation 10-pin MIL connector 7-pin MIL connector
Cable	Ø6 mm, 4 x 2 x 0.14 mm ²
Standard conformity	
Degree of protection	DIN EN 60529, IP65, IP66, 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
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	-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	powder coated aluminum
Flange	aluminum, blank
Shaft	anodized aluminum
Mass	< 700 g without cable
Rotational speed	max. 6000 min ⁻¹ for IP65 max. 3000 min ⁻¹ for IP66/IP67
Starting torque	≤ 10 Ncm for IP65 ≤ 25 Ncm for IP66/IP67
Shaft insulation	max. 2 kV (for dielectric strength version)
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	P	L	-	H	(1)	(1)	(2)	(2)	(3)	-	(4)	(4)	(4)	(4)	(5)	(5)	(5)	-	R	(6)	(6)
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ENI	Device type
ENI	Incremental rotary encoder

90	Size
90	Housing diameter 90 mm

PL	Version
PL	Performance Line

H	Shaft type
H	Hollow shaft

(1) (1)	Shaft diameter
16	16 mm
20	20 mm

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Type Code

(1) (1)	Shaft diameter
25	25 mm
30	30 mm
38	38 mm
U4	1/2 Zoll
U5	5/8 inch
U6	3/4 inch
U7	7/8 inch
U8	1 inch
R1	16 mm, dielectrically strong
R3	20 mm, dielectrically strong
R5	25 mm, dielectrically strong
R8	30 mm, dielectrically strong

(2) (2)	Flange
JA	Spring plate, single short
DA	Spring plate, double
T4	Support plate 70 mm, right ankle, with articulated arm 70 mm
T5	Support plate 70 mm, right ankle, with articulated arm 120 mm

(3)	Degree of protection
5	IP65
E	IP66 / IP67

(4) (4) (4) (4)	Pulse count
0100	100 pulses
0360	360 pulses
0500	500 pulses
1000	1000 pulses
1024	1024 pulses
2048	2048 pulses
2500	2500 pulses
3072	3072 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

R	Connection alignment
R	Radial

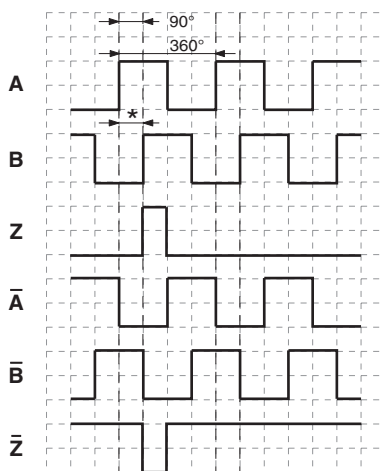
(6) (6)	Connection type
C1	Cable, 1 m
C2	Cable, 2 m
C3	Cable, 3 m
C5	Cable, 5 m
CA	Cable, 10 m
AA	M23 device plug, cw (type 9416)
AB	M23 device plug, ccw type 9416L)
BE	M12 device plug, 8- pin (type V19)
BD	M12 device plug, 5-pin (type V15)
MA	MIL7 device plug (Typ 9415)
MB	MIL10 M12 device plug (Typ 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 _b	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	-	2	E	E	-	-
NC	-	7	-	-	-	-
NC	-	9	-	-	-	-
NC	-	11	-	-	-	-
Shielding	Shield	Housing	G	G	Housing	Housing
	<p>Note: Unused cores must be insulated individually before commissioning in order to avoid interference..</p>					

Operation

Signal outputs



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

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