



Heavy-duty incremental encoder

ENI11HD-R

- Up to 2500 ppr
- Highly shock and vibration resistant
- Recessed hollow shaft
- Degree of protection IP66 / IP67 / IP69K
- Optional: Electrically insulated shaft for a dielectric strength up to 2.5 kV
- Variable connection by means of rotating terminal box with plug-in terminals
- High bearing loads



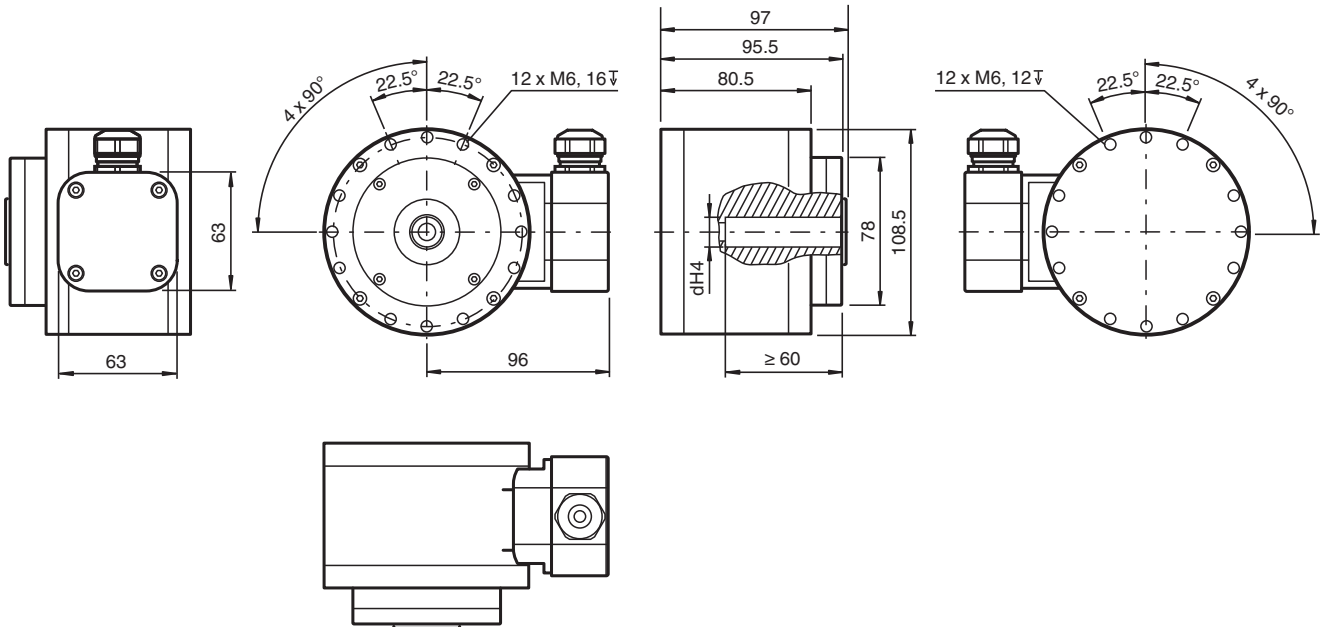
Function

When conditions are tough, the ENI11HD heavy-duty rotary encoders provide reliable speed feedback for large asynchronous motors. Heat, cold, dirt, permanent vibration, strong shocks, and electromagnetic interference pose no problem for these heavy duty encoders. The optional electrically insulated shaft guarantees a dielectric strength of up to 2.5 kV. This option prevents damage to the ball bearing due to current flashovers caused by shaft currents.

ENI11HD rotary encoders combine a long service life with a high level of reliability. The cover on the junction box, which can be rotated 4 x 90°, provides greater flexibility when installing and maintaining the device while also helping to save costs.

Dimensions

Recessed hollow shaft



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

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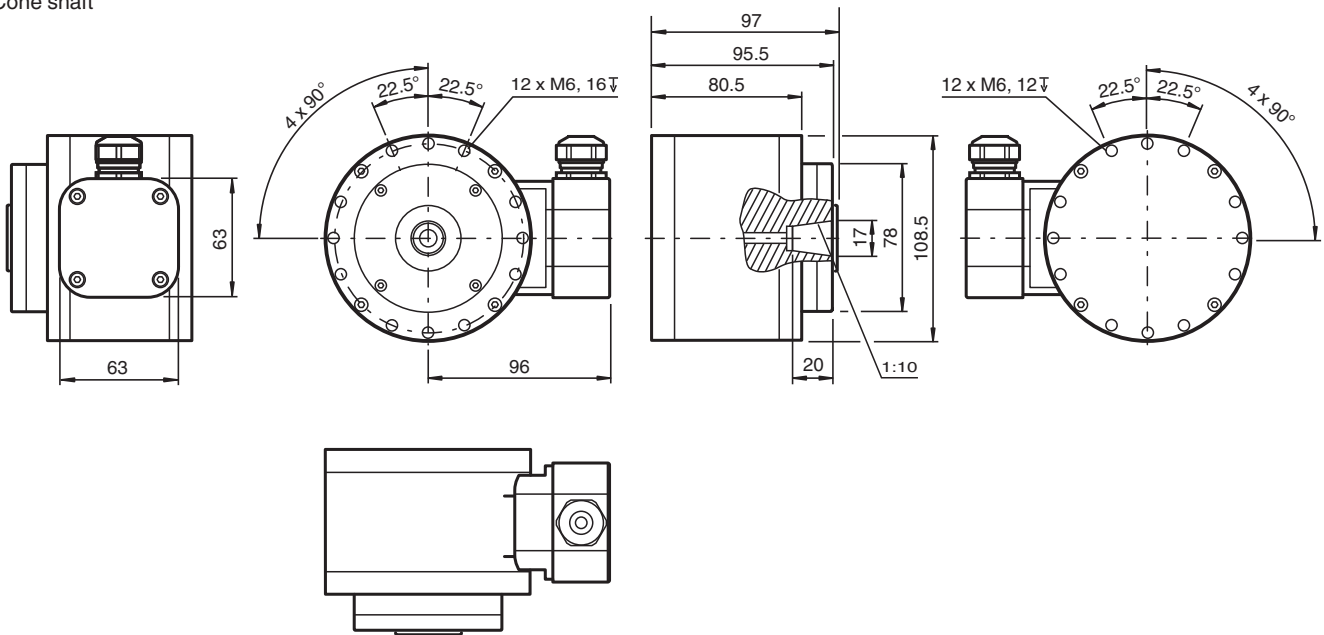
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Dimensions

Cone shaft



Technical Data

General specifications		
Detection type		photoelectric sampling
Pulse count		max. 2500
Functional safety related parameters		
MTTF _d		140 a
Mission Time (T _M)		20 a
L ₁₀		50 E+9 at 1750 rpm
Diagnostic Coverage (DC)		0 %
Electrical specifications		
Operating voltage	U _B	10 ... 30 V DC or 5 V DC ± 5 % (see "Output circuit" in the ordering information)
No-load supply current	I ₀	max. 70 mA
Output		
Output type		push-pull, incremental or RS 422, incremental (see "Output circuit" in the ordering information)
Voltage drop	U _d	< 2.5 V (push-pull, incremental)
Load current		max. per channel 40 mA , short-circuit protected, reverse polarity protected (push-pull, incremental) max. per channel 20 mA , short-circuit protected, reverse polarity protected (RS 422, incremental)
Output frequency		max. 200 kHz
Rise time		600 ns
De-energized delay	t _{off}	600 ns
Connection		
Connector		M23 connector, 12-pin , clockwise rotation M23 connector, 12-pin , counter clockwise rotation
Cable		Ø7,5 mm, 6 x 2 x 0,14 mm ²
Terminal compartment		Cable duct for cable diameter Ø4 mm ... 13 mm
Standard conformity		
Degree of protection		DIN EN 60529, IP66, IP67 or IP69K
Climatic testing		DIN EN 60068-2-78 , no moisture condensation
Emitted interference		EN 61000-6-4:2007/A1:2011












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Technical Data

Noise immunity	EN 61000-6-2:2005
Shock resistance	DIN EN 60068-2-27, 200 g, 6 ms
Vibration resistance	DIN EN 60068-2-6, 20 g, 10 ... 2000 Hz
Ambient conditions	
Operating temperature	-40 ... 80 °C (-40 ... 176 °F) fixed cable
Storage temperature	-40 ... 80 °C (-40 ... 176 °F)
Mechanical specifications	
Material	
Housing	3.2315 aluminum
Flange	3.2315 aluminum
Shaft	Stainless steel 1.4305 / AISI 303
Mass	approx. 2200 g
Rotational speed	max. 3000 min ⁻¹
Starting torque	≤ 20 Ncm
Shaft insulation	max. 2.5 kV (for dielectric strength version)
Shaft load	
Axial	≤ 300 N
Radial	≤ 400 N
Angle offset	1 °
Axial offset	max. 1 mm

Accessories

	ACC-ROD-ENI11HD-070	swivel arm, 70 mm
	ACC-ROD-ENI11HD-120	swivel arm, 120 mm
	ACC-SET-ENI11HD-DISMOUNTING	Dismounting set for ENI11HD rotary encoder
	ACC-SET-ENI11HD-EARTH	Grounding kit for ENI11HD rotary encoder
	ACC-SET-ENI11HD-GASKET	Gasket set for cable ducts
	ACC-SET-ENI11HD-RT1	Mounting accessories for cone shaft
	ACC-SET-ENI11HD-R16	Mounting accessories for recessed hollow shaft 16 mm
	ACC-SET-ENI11HD-R20	Mounting accessories for recessed hollow shaft 20 mm
	ACC-TOR-ENI11HD-070	Support plate 70 mm, straight for ENI11 HD
	ACC-TOR-ENI11HD-120	Support plate 120 mm, straight for ENI11 HD
	ACC-TOR-ENI11HD-120A	Torque rest 120 mm, angled for ENI11HD rotary encoder

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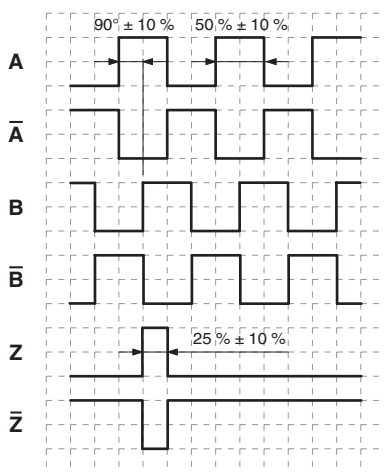
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Connection

Signal	Cable	Connector 9416, M23, 12-pin	Connector 9416L, M23, 12-pin	Terminals
GND	White	10	10	0V
U _b	Brown	12	12	U _B
A	Green	5	5	A
B	Grey	8	8	B
A $\bar{}$	Yellow	6	6	A $\bar{}$
B $\bar{}$	Pink	1	1	B $\bar{}$
Z	Blue	3	3	Z
Z $\bar{}$	Red	4	4	Z $\bar{}$
Shielding	Shield	Housing	Housing	\perp
NC	-	2, 7, 9, 11	2, 7, 9, 11	

Operation

Signal outputs



↻ cw - with view from the drive side

Type Code

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Connection type

Junction box with ...

- C1** Cable, 1 m
- C2** Cable, 2 m
- C5** Cable, 5 m
- CA** Cable, 10 m
- AA** M23 device plug, cw
- AB** M23 device plug, ccw
- TC** Cable duct

Connection alignment

T Tangential

Interface, electric

- PP5** Push-pull, 6-wire, increased EMC
- RS4** RS422, $U_B = 5\text{ V}$, increased EMC
- RS6** RS422, $U_B = 10 \dots 30\text{ V}$, increased EMC

Pulses/pulse counts per revolution

xxxx xxxx = 0100, 0360, 0500, 0512, 0600, 1000, 1024, 1250, 2048, 2500
(more on request)

Degree of protection

- E** IP66/IP67
- 9** IP69K

Flange

- NA** Support plate 70 mm, straight
- NB** Support plate 120 mm, straight
- NC** Support plate 120 mm, right angle
- T1** Support plate 70 mm, straight, with articulated arm 70 mm
- T2** Support plate 120 mm, straight, with articulated arm 70 mm
- T3** Support plate 120 mm, right angle, with articulated arm 70 mm
- V1** Support plate 70 mm, straight, with articulated arm 120 mm
- V2** Support plate 120 mm, straight, with articulated arm 120 mm
- V3** Support plate 120 mm, right angle, with articulated arm 120 mm

Shaft diameter

- 16** 16- \uparrow mm
- 20** 20- \uparrow mm
- T1** 17 mm cone
- R1** 16 mm, dielectrically strong
- R3** 20 mm, dielectrically strong
- R2** 17 mm cone, dielectrically strong

Shaft type

- R** Recessed hollow shaft

Version

HD Heavy duty

Size

11 Housing diameter: 110 mm

Device type

ENI Incremental rotary encoder

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