



## Heavy-duty incremental encoder

### ENI11HD-H

- Up to 2500 ppr
- Variable hollow shaft up to Ø28 mm
- Highly shock and vibration resistant
- 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



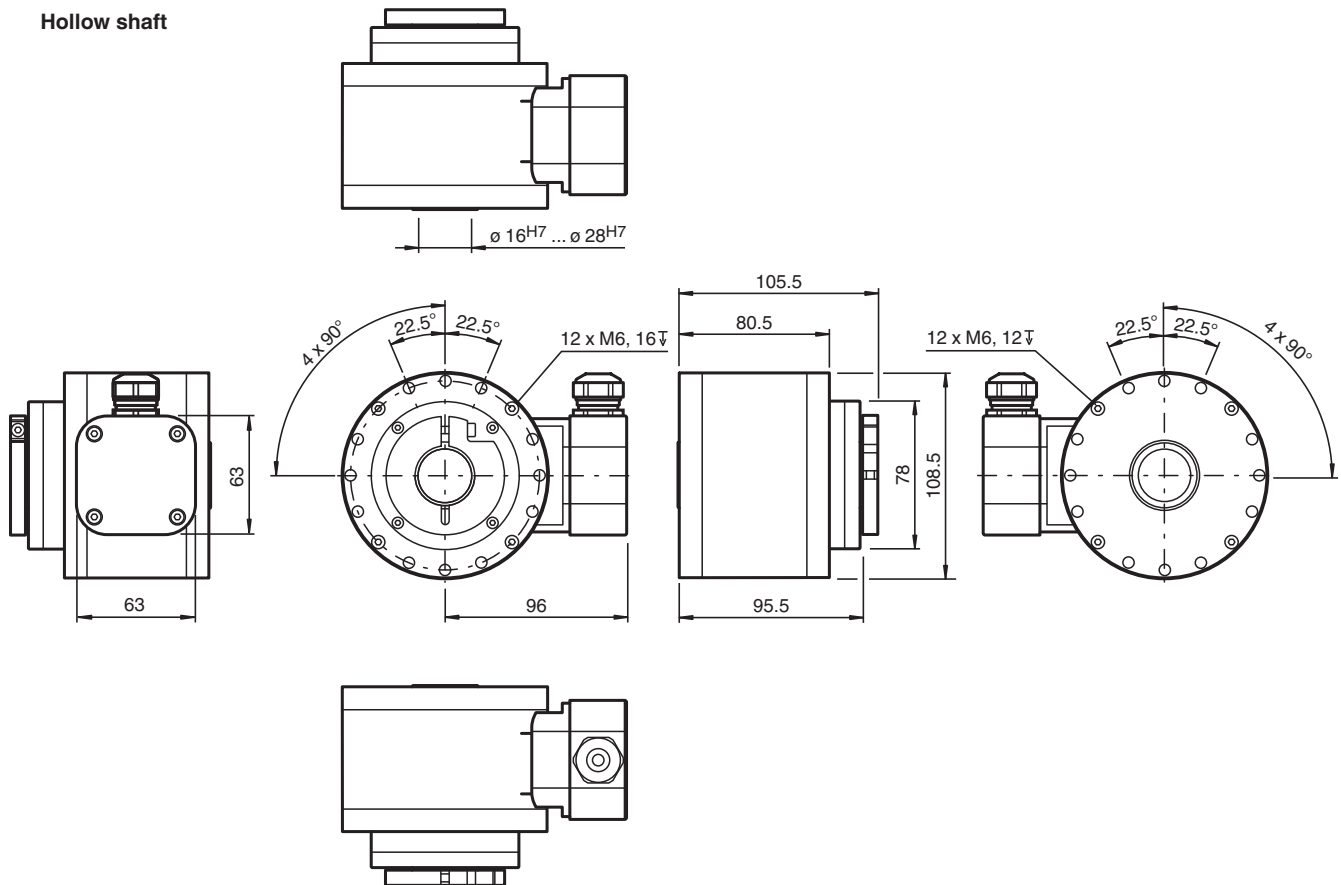
### Function

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

Hollow shaft



Technical Data

<b>General specifications</b>			
Detection type		photoelectric sampling	
Pulse count		max. 2500	
<b>Functional safety related parameters</b>			
MTTF <sub>d</sub>		140 a	
Mission Time (T <sub>M</sub> )		20 a	
L <sub>10</sub>		50 E+9 at 1750 rpm	
Diagnostic Coverage (DC)		0 %	
<b>Electrical specifications</b>			
Operating voltage	U <sub>B</sub>	10 ... 30 V DC or 5 V DC ± 5 % (see "Output circuit" in the ordering information)	
No-load supply current	I <sub>0</sub>	max. 70 mA	
<b>Output</b>			
Output type		push-pull, incremental or RS 422, incremental (see "Output circuit" in the ordering information)	
Voltage drop	U <sub>d</sub>	< 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 <sub>off</sub>	600 ns	
<b>Connection</b>			









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

## Technical Data

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 <sup>2</sup>
Terminal compartment	Cable duct for cable diameter Ø4 mm ... 13 mm
<b>Standard conformity</b>	
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
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
<b>Ambient conditions</b>	
Operating temperature	-40 ... 80 °C (-40 ... 176 °F) fixed cable
Storage temperature	-40 ... 80 °C (-40 ... 176 °F)
<b>Mechanical specifications</b>	
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 <sup>-1</sup>
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

	<b>9416</b>	Female connector
	<b>9416L</b>	Female connector
	<b>ACC-ROD-ENI11HD-070</b>	swivel arm, 70 mm
	<b>ACC-ROD-ENI11HD-120</b>	Touchscreen, hardened resistive w/antiglare glass
	<b>ACC-ROD-ENI11HD-120</b>	swivel arm, 120 mm
	<b>ACC-SET-ENI11HD-EARTH</b>	Grounding kit for ENI11HD rotary encoder
	<b>ACC-SET-ENI11HD-GASKET</b>	Gasket set for cable ducts
	<b>ACC-TOR-ENI11HD-070</b>	Support plate 70 mm, straight for ENI11 HD

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Pepperl+Fuchs Group  
www.pepperl-fuchs.com





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

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

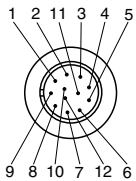
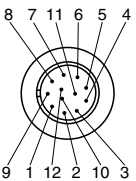
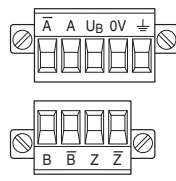
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

 **PEPPERL+FUCHS**

**Accessories**

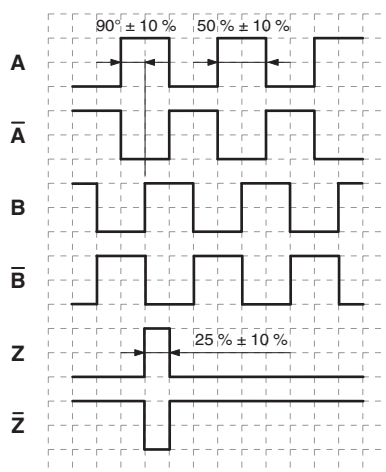
	<b>ACC-TOR-ENI11HD-070</b>	Class I / Division 2 & Zone 2
	<b>ACC-TOR-ENI11HD-120</b>	Support plate 120 mm, straight for ENI11 HD
	<b>ACC-TOR-ENI11HD-120A</b>	Torque rest 120 mm, angled for ENI11HD rotary encoder
	<b>ACC-TOR-ENI11HD-120A</b>	22" (16:10) Flat panel industrial monitor

**Connection**

Signal	Cable	Connector 9416, M23, 12-pin	Connector 9416L, M23, 12-pin	Terminals
GND	White	10	10	0V
U <sub>b</sub>	Brown	12	12	U <sub>B</sub>
A	Green	5	5	A
B	Grey	8	8	B
A\	Yellow	6	6	A\
B\	Pink	1	1	B\
Z	Blue	3	3	Z
Z\	Red	4	4	Z\
Shielding	Shield	Housing	Housing	⏏
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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