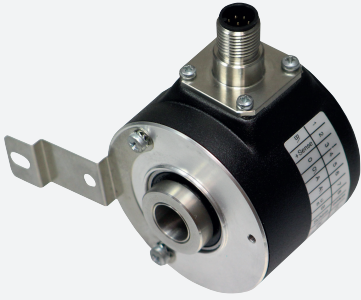


General Purpose Incremental Encoder

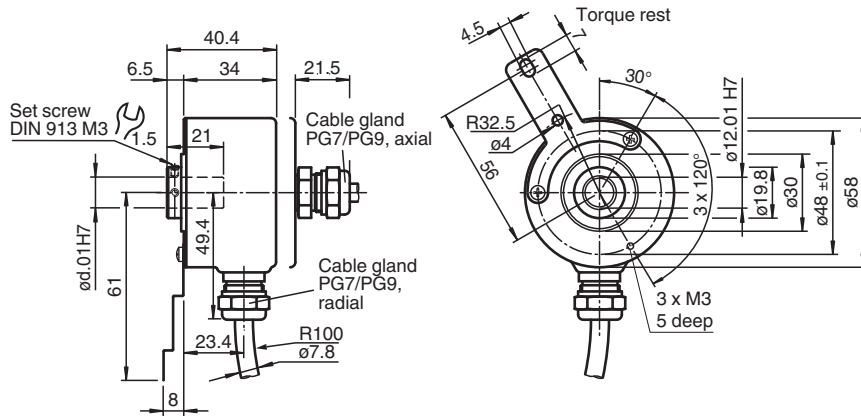
RSI58N-*****X



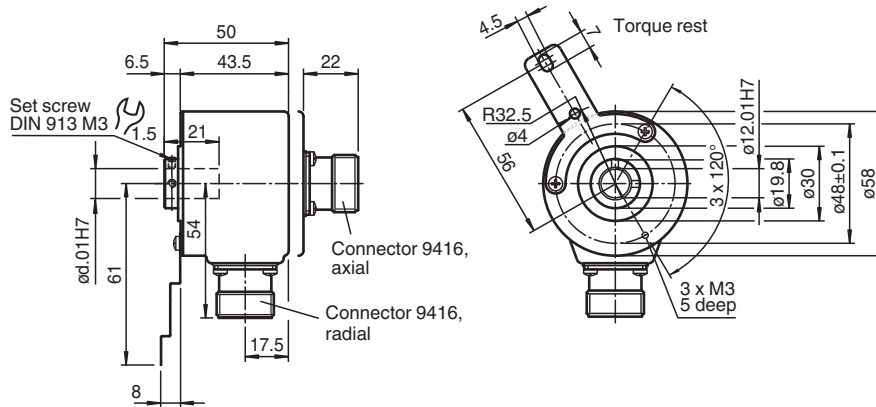
- Industrial standard housing Ø58 mm
- Up to 5000 ppr
- Recessed hollow shaft
- 10 V ... 30 V with RS 422 interface



Dimensions



Recessed hollow shaft



Recessed hollow shaft

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

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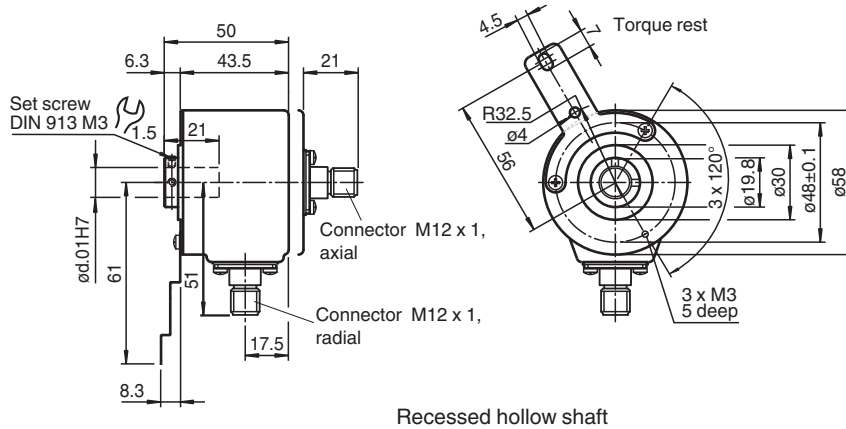
USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

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

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

PF PEPPERL+FUCHS

Dimensions



Technical Data

General specifications			
Detection type	photoelectric sampling		
Pulse count	max. 5000		
Functional safety related parameters			
MTTF _d	140 a		
Mission Time (T _M)	20 a		
L ₁₀	70 E+9 at 6000 rpm		
Diagnostic Coverage (DC)	0 %		
Electrical specifications			
Operating voltage	U _B	10 ... 30 V DC	
No-load supply current	I ₀	max. 50 mA	
Output			
Output type	RS 422, incremental		
Load current	max. per channel 20 mA , conditionally short-circuit proof (not with U _b), reverse polarity protected		
Output frequency	max. 200 kHz		
Rise time	100 ns		
Connection			
Connector	type 9416 (M23), 12-pin or M12 connector, 8-pin		
Cable	Ø7.8 mm, 6 x 2 x 0.14 mm ² , 1 m		
Standard conformity			
Degree of protection	DIN EN 60529, IP54		
Climatic testing	DIN EN 60068-2-3, 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, 100 g, 3 ms		
Vibration resistance	DIN EN 60068-2-6, 10 g, 10 ... 2000 Hz		
Approvals and certificates			
UL approval	cULus Listed, General Purpose, Class 2 Power Source		
Ambient conditions			
Operating temperature			
Glass disk	-5 ... 80 °C (23 ... 176 °F) , movable cable -20 ... 80 °C (-4 ... 176 °F), fixed cable		
Plastic disk	-5 ... 60 °C (23 ... 140 °F) , movable cable -20 ... 60 °C (-4 ... 140 °F), fixed cable		
Storage temperature			
Glass disk	-40 ... 100 °C (-40 ... 212 °F)		

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Technical Data

Plastic disk		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
Material		
Housing		powder coated aluminum
Flange		3.1645 aluminum
Shaft		Stainless steel 1.4305 / AISI 303
Mass		approx. 280 g
Rotational speed		max. 12000 min ⁻¹
Moment of inertia		≤ 35 gcm ²
Starting torque		≤ 1 Ncm
Shaft load		
Angle offset		1 °
Axial offset		max. 1 mm

Function

Compatibility says it all for this incremental rotary encoder.

All six output channels are fitted for this incremental rotary encoder. It can thus be used universally in many different applications. Focussing on the designs that are most often required has allowed us to offer rapid availability at an attractive price.

The pulse disk is designed in plastic up to 1500 pulses. Beyond that, glass is used.

This incremental rotary encoder is available in recessed hollow shaft design with a shaft 10 mm in diameter x 20 mm or with a shaft 12 mm in diameter x 20 mm. The rotary encoder is held in place by an included torque rest.

The electrical connection is made by a 8-pin or a 12-pin round plug connector. It is also possible to obtain a version with a cable connector.

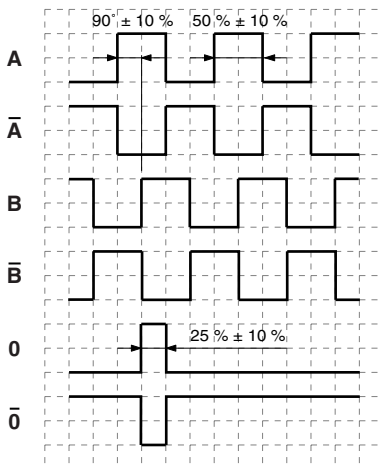
Connection

Signal	Cable	Connector 9416	Connector 9416L	Connector M12 x 1
GND	White	10	10	1
U _b	Brown	12	12	2
A	Green	5	5	3
B	Grey	8	8	5
\bar{A}	Yellow	6	6	4
\bar{B}	Pink	1	1	6
0	Blue	3	3	7
$\bar{0}$	Red	4	4	8
U _b Sens ^{*)}	Violet	2	2	-
NC	Grey/Pink	7	7	-
Screen	-	Housing	Housing	Housing
NC	-	9	9	-
GND Sens ^{*)}	Black	11	11	-

*) only for devices with 5 V supply and RS 422 interface (output circuit 6)

Operation

Signal outputs



↻ cw - with view onto the shaft clamping ring

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Order code

R	S	I	5	8	N	-			A					N	-				
---	---	---	---	---	---	---	--	--	---	--	--	--	--	---	---	--	--	--	--

Pulse count 100, 360, 500, 512, 1000, 1024, 1250, 2048, 2500, 3600, 4096, 5000

Option
N Normal

Output switching
1 10 V ... 30 V, push-pull
6 5 V, RS 422
X 10 V ... 30 V, RS 422

Signal output
6 A + B + 0 and \bar{A} + \bar{B} + $\bar{0}$

Exit position
A Axial
R Radial

Connection type
AA Plug connector type 9416, 12-pin
AB Plug connector type 9416L, 12-pin
BE Plug connector M12 x 1, 8-pin
K1 Cable Ø7.8 mm, 6 x 2 x 0.14 mm², 1 m

Flange version
A Hollow shaft

Shaft dimension
01 Recessed hollow shaft Ø10 mm x 20 mm
02 Recessed hollow shaft Ø12 mm x 20 mm

Housing material
N Aluminium, powder coated

Shaft version
S Recessed hollow shaft

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

Installation instructions

Anti-interference measures

The use of highly sophisticated microelectronics requires a consistently implemented anti-interference and wiring concept. This becomes all the more important the more compact the constructions are and the higher the demands are on the performance of modern machines.

The following installation instructions and proposals apply for "normal industrial environments". There is no ideal solution for all interfering environments.

When the following measures are applied, the encoder should be in perfect working order:

- With RS 422 Interface devices and long cables, a line-termination by a suitable termination resistor is required.
- A shielded cable should be used at installation. For the connection of RS 422 devices the wires must be twisted in pairs.
- The wiring of the encoder should be laid at a large distance to energy lines which could cause interferences.
- Cable cross-section of the screen at least 4 mm².
- Cable cross-section at least 0,14 mm².
- The wiring of the screen and 0 V should be arranged radially, if and when possible.
- Do not kink or jam the cables.
- Adhere to the minimum bending radius of 10 mm and avoid tensile as well as shearing load.

Operating instructions

Every encoder manufactured by Pepperl+Fuchs leaves the factory in a perfect condition. In order to ensure this quality as well as a faultless operation, the following specifications have to be taken into consideration:

- Avoid any impact on the housing and in particular on the encoder shaft as well as the axial and radial overload of the encoder shaft.
- The accuracy and service life of the encoder is guaranteed only, if a suitable coupling and / or torque support is used.
- Any wiring work has to be carried out with the system in a dead condition.
- The maximum operating voltages and output currents must not be exceeded. The devices have to be operated at extra-low safety voltage.
- Sensor wires are connected internally to the supply voltage and may be used for Voltage adjustment or -control in case of long cables.
- Unused sensor wires should either isolated or connected to the corresponding supply potentials (GND Sens connected to GND and Ub Sens connected to UB).
- Unused outputs must be isolated before initial use of the encoder.

Notes on connecting the electric screening

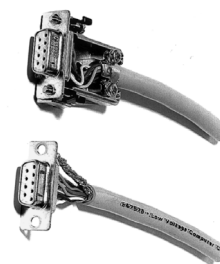
The immunity to interference of a plant depends on the correct screening. In this field installation faults occur frequently. Often the screen is applied to one side only, and is then soldered to the earthing terminal with a wire, which is a valid procedure in LF engineering. However, in case of EMC the rules of HF engineering apply.

One basic goal in HF engineering is to pass the HF energy to earth at an impedance as low as possible as otherwise energy would discharge into the cable. A low impedance is achieved by a large-surface connection to metal surfaces.

The following instructions have to be observed:

- Apply the screen on both sides to a "common earth" in a large surface, if there is no risk of equipotential currents.
- The screen has to be passed behind the insulation and has to be clamped on a large surface below the tension relief.
- In case of cable connections to screw-type terminals, the tension relief has to be connected to an earthed surface.
- If plugs are used, metallised plugs only should be fitted (such as sub D plugs with metallised housing). Please observe the direct connection of the tension relief to the housing.

Advantage:	metallised connector, shield
relief	clamped with the strain clamp
Disadvantage:	soldering shield on



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