



Incremental rotary encoder TH158N

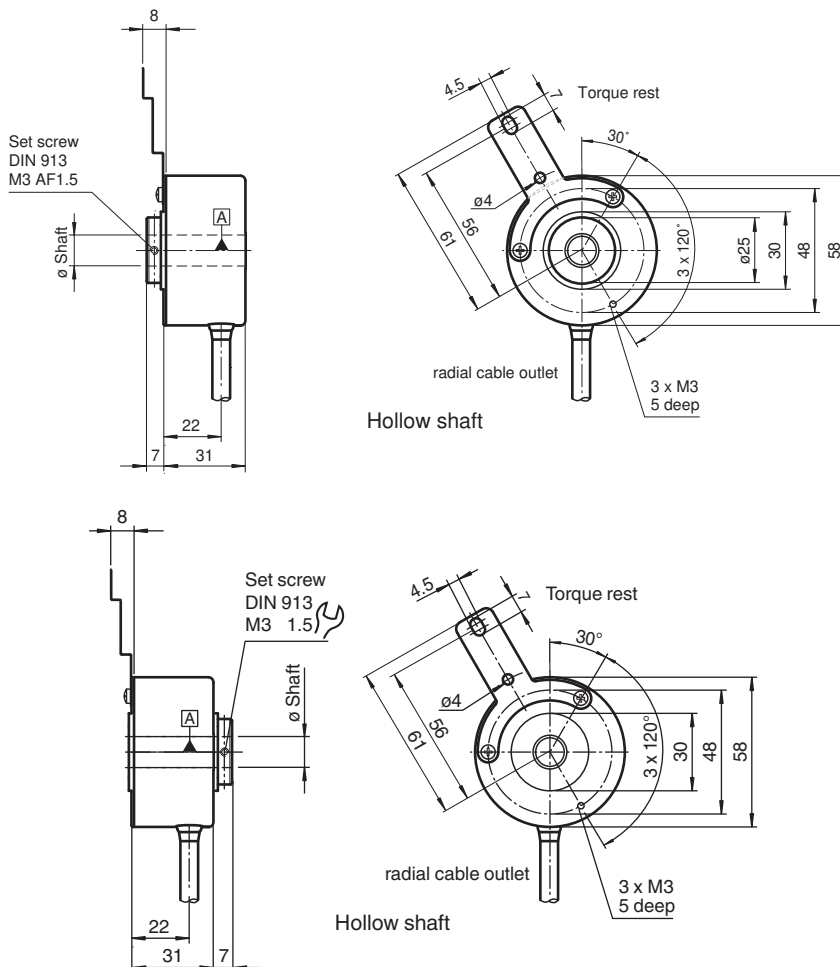
- Sturdy and compact design
- Up to 1500 ppr
- Hollow shaft
- 4.75 V ... 30 V with short-circuit proof push-pull output
- RS 422 functionality at 5 V operation



Function

The Pepperl+Fuchs target line is extended by the TH158, an economical hollow shaft encoder. With its outside diameter of 58 mm, the device is fully mechanical compatible to the usual industry standard. The technology of the rotary encoder is adapted to the new requirements of the rotary encoder market. Innovative fast technology with Opto-ASIC forms the central basis of the device. The rotary encoder is available with a pulse count of up to 1500 pulses per revolution. The rotary encoder provides the ideal combination of non-sensitivity to temperature and high resolution.

Dimensions



Release date: 2024-04-04 Date of issue: 2024-04-04 Filename: t27876_eng.pdf

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

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Technical Data

General specifications		
Detection type		photoelectric sampling
Pulse count		max. 1500
Functional safety related parameters		
MTTF _d		810 a
Mission Time (T _M)		20 a
L ₁₀		50 E+9 at 3000 rpm
Diagnostic Coverage (DC)		0 %
Electrical specifications		
Operating voltage	U _B	4.75 ... 30 V DC 5 V DC for RS-422
No-load supply current	I ₀	max. 55 mA
Output		
Output type		push-pull, incremental or RS-422, incremental
Voltage drop	U _d	≤ 2.5 V (< 2.5 V)
Load current		max. per channel 30 mA , short-circuit protected (max. per channel 20 mA, conditionally short-circuit proof)
Output frequency		max. 100 kHz (max. 100 kHz)
Rise time		980 ns (225 ns)
De-energized delay	t _{off}	980 ns (225 ns)
Connection		
Cable		Ø6 mm, 8 x 0.14 mm ² , 0.5 m, UL-Style 2571
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, 6 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
Maximum permissible ambient temperature		max. 60 °C (max. 140 °F)
Ambient conditions		
Operating temperature		-10 ... 70 °C (14 ... 158 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Mechanical specifications		
Material		
Housing		aluminum, blank
Flange		3.1645 aluminum
Shaft		Stainless steel 1.4305 / AISI 303
Mass		approx. 290 g
Rotational speed		max. 6000 min ⁻¹
Moment of inertia		≤ 40 gcm ²
Starting torque		≤ 2.5 Ncm
Shaft load		
Angle offset		1 °
Axial offset		max. 1 mm
Dimensions		
Length		31 mm
Diameter		58 mm

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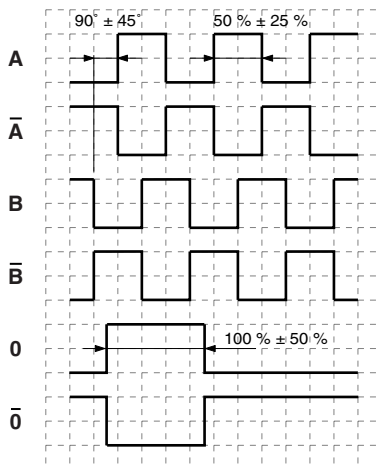
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Connection

Signal	Cable Ø6 mm, 8-core
GND	White
+U _b	Brown
A	Green
B	Grey
\bar{A}	Yellow
\bar{B}	Pink
0	Blue
$\bar{0}$	Red
Screen	-

Operation

Signal outputs



↻ cw - with



Pulse count 100, 125, 250, 360, 500, 512, 600, 1000, 1024, 1500

Option

N Normal

Output switching

T 4.75 V ... 30 V, push-pull

Signal output

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

Exit position

R Radial

Connection type

K0 Cable Ø6 mm, 8 x 0.14 mm², 0.5 m, UL style 2571

K2 Cable Ø6 mm, 8 x 0.14 mm², 2 m, UL style 2571

Flange version

A Hollow shaft

Shaft dimension

0A Hollow shaft Ø10 mm (clamping ring at flange side)

0B Hollow shaft Ø12 mm (clamping ring at flange side)

0T Hollow shaft Ø15 mm (clamping ring at flange side)

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Pulse count 100, 125, 250, 360, 500, 512, 600, 1000, 1024, 1500

Option

N Normal

Output switching

T 4.75 V ... 30 V, push-pull

1A Hollow shaft Ø10 mm (clamping ring at cover side)

1B Hollow shaft Ø12 mm (clamping ring at cover side)

1T Hollow shaft Ø15 mm (clamping ring at cover side)

Housing material/protection degree

N Aluminium, IP54

Shaft version

H hollow shaft