

Incremental rotary encoder

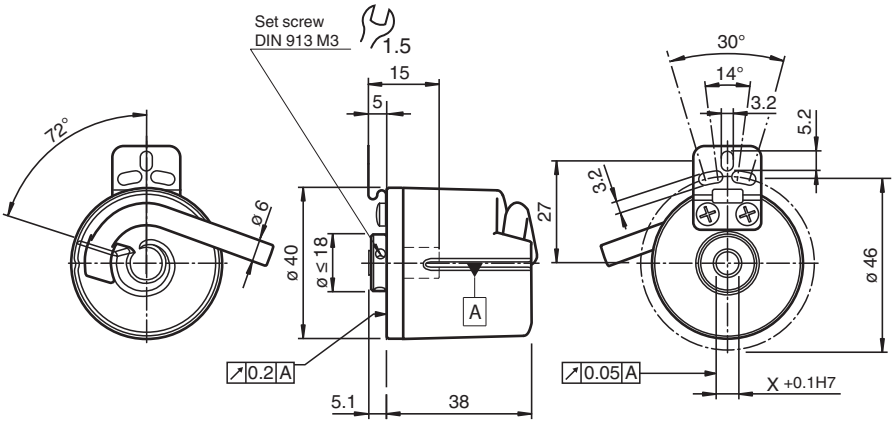
TSI40N

- Compact design
- Up to 1024 ppr
- 4.75 V ... 30 V with short-circuit proof push-pull output
- RS 422 functionality at 5 V operation
- Tangential cable outlet

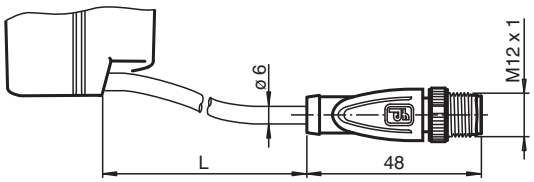
Function

The TVI40 continues the new economical target line of Pepperl+Fuchs. With a small outside diameter of 40 mm, the unit is ideal for use in industrial areas where very little space is available.
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 1024 pulses per revolution..
The rotary encoder provides the ideal combination of non-sensitivity to temperature and high resolution.
The appearance of this rotary encoder is the tangential cable outlet. This ensures a buckling-free, carefully laying of the connection cable in tangential, radial or axial manner.

Dimensions



Recessed hollow shaft	X [mm]
ø 1/4“	ø 6.35
ø 3/8“	ø 9.525
ø 3/16“	ø 4.763
ø 5/16“	ø 7.938
ø 4	ø 4
ø 6	ø 6
ø 8	ø 8



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Technical Data

General specifications		
Detection type		photoelectric sampling
Pulse count		max. 1024
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 0,128 mm^2 connection with plug M12, 8-pin, L = 0.2 m
Standard conformity		
Degree of protection		DIN EN 60529, IP54
Climatic testing		DIN EN 60068-2-3, 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, 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		-25 ... 85 °C (-13 ... 185 °F)
Mechanical specifications		
Material		
Housing		Polycarbonate
Flange		3.1645 aluminum
Shaft		Stainless steel 1.4305 / AISI 303
Mass		approx. 180 g
Rotational speed		max. 6000 min $^{-1}$
Moment of inertia		≤ 4.3 gcm^2
Starting torque		≤ 0.2 Ncm
Shaft load		
Angle offset		1 °
Axial offset		max. 1 mm
Dimensions		
Length		43 mm
Diameter		40 mm
Life span		≥ 2 x 10^9 revolutions (max. shaft loading)

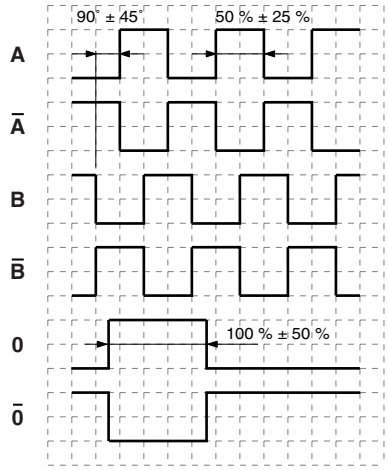
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Connection

Signal	For cabel Ø6 mm, 8-core Color	For cable connector M12, 8-pin Pin
GND	Blue	1
$+U_b$	Brown	2
A	Black	3
$\overline{A}$	Violet	4
B	White	5
$\overline{B}$	Grey	6
0	Orange	7
$\overline{0}$	Yellow	8
Shield	-	-

Operation

Signal outputs



↻ cw - with

Type Code

T	S	I	4	0	N	–						T	6	T	N	–					

Pulse count 25, 50, 60, 100, 150, 180, 200, 250, 360, 400, 500, 600, 1000, 1024

Temperature range
N normal

Output switching
T 4,75 V ... 30 V, push-pull

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

Exit position
T tangential

Connection type
K0 Cable Ø6 mm, 8 x 0.128 mm², 0.5 m
K2 Cable Ø6 mm, 8 x 0.128 mm², 2 m
BI Cable Ø6 mm, cable connector M12, 8-pin, 0.2 m

Shaft dimensions/flange type

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T	S	I	4	0	N	–						T	6	T	N	–					

Pulse count 25, 50, 60, 100, 150, 180, 200, 250, 360, 400, 500, 600, 1000, 1024

Temperature range

N normal

Output switching

T 4,75 V ... 30 V, push-pull

Signal output

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

16A Recessed hollow shaft Ø4 mm x 15 mm
14A Recessed hollow shaft Ø6 mm x 15 mm
27A Recessed hollow shaft Ø8 mm x 15 mm
20A Recessed hollow shaft Ø3/8" x 15 mm
21A Recessed hollow shaft Ø3/16" x 15 mm
22A Recessed hollow shaft Ø5/16" x 15 mm

Housing material

N Plastic

Shaft version

S Recessed hollow shaft

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