



## Incremental rotary encoder

### TVI40N

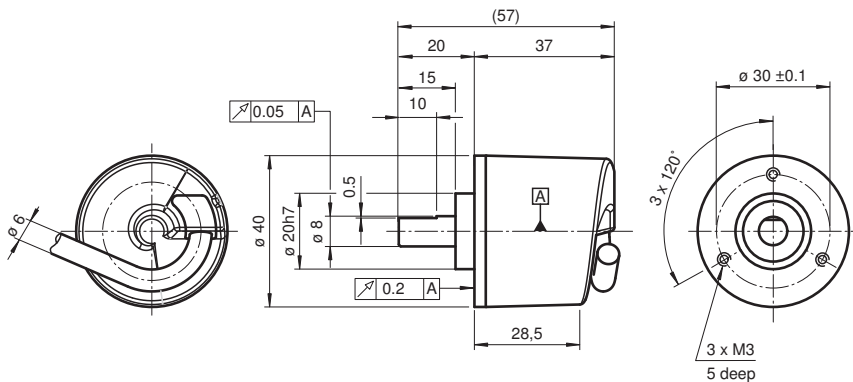
- Compact design
- Up to 1024 ppr
- 4.75 V ... 30 V with short-circuit proof push-pull output
- RS 422 functionality at 5 V operation
- Tangential cable outlet



### 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



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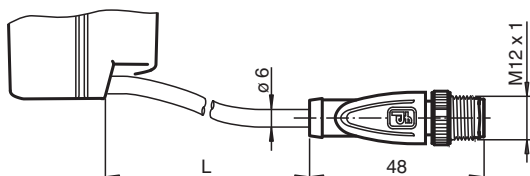
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## Technical Data

### General specifications

Detection type	photoelectric sampling
Pulse count	max. 1024

### Functional safety related parameters

MTTF <sub>d</sub>	140 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Electrical specifications

Operating voltage	U <sub>B</sub>	4.75 ... 30 V DC 5 V DC for RS-422
No-load supply current	I <sub>0</sub>	max. 55 mA

### Output

Output type	push-pull, incremental or RS-422, incremental
Voltage drop	U <sub>d</sub> ≤ 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 <sub>off</sub> 980 ns (225 ns)

### Connection

Cable	Ø6 mm, 8 x 0,128 mm <sup>2</sup> connection with plug M12, 8-pin, L = 0.2 m
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### 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	-25 ... 85 °C (-13 ... 185 °F)

### Mechanical specifications

Material	
Housing	Polycarbonate
Flange	3.1645 aluminum

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## Technical Data

Shaft	Stainless steel 1.4305 / AISI 303
Mass	approx. 180 g
Rotational speed	max. 6000 min <sup>-1</sup>
Moment of inertia	≤ 4.3 gcm <sup>2</sup>
Starting torque	≤ 0.2 Ncm
Shaft load	
Axial	max. 20 N
Radial	max. 30 N
Life span	≥ 2 x 10 <sup>9</sup> revolutions (max. shaft loading)

## Accessories

	<b>9401 6*6</b>	Spring steel coupling
	<b>9401 6*10</b>	Spring steel coupling
	<b>9401 8*10</b>	Spring steel coupling
	<b>9401 8*8</b>	Spring steel coupling
	<b>9402 6*6</b>	Spring steel coupling
	<b>9402 8*8</b>	Spring steel coupling
	<b>9404 6*6</b>	Spring disk coupling
	<b>9409 6*10</b>	Bellows coupling
	<b>9409 6*6</b>	Bellows coupling
	<b>9409 6*8</b>	Bellows coupling
	<b>9409 8*8</b>	Bellows coupling
	<b>9410 6*6</b>	Precision coupling
	<b>9460 6*6</b>	Stainless steel bellows coupling
	<b>KW-6/10</b>	Helical coupling
	<b>KW-6/6</b>	Helical coupling
	<b>KW-6/8</b>	Helical coupling















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## Accessories

	<b>KW-8/10</b>	Helical coupling
	<b>KW-8/8</b>	Helical coupling
	<b>9108, 6</b>	Measuring wheel
	<b>9109, 6</b>	Measuring wheel for shaft diameter 6 mm
	<b>9110, 6</b>	Measuring wheel for shaft diameter 6 mm
	<b>9113, 6</b>	Measuring wheel for shaft diameter 6 mm
	<b>9101, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9102, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9103, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9108, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9109, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9110, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9112, 8</b>	Measuring wheel for shaft diameter 8 mm
	<b>9113, 8</b>	Measuring wheel for shaft diameter 8 mm

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**Shaft version**  
**V** Solid shaft

**Housing material**  
**N** Plastic

**Shaft dimension**  
**19** Shaft Ø1/8" x 15 mm  
**23** Shaft Ø5 mm x 15 mm  
**14** Shaft Ø6 mm x 15 mm  
**17** Shaft Ø1/4" x 15 mm  
**09** Shaft Ø8 mm x 15 mm

**T** Clamping flange

**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

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