



Incremental rotary encoder RVI70E

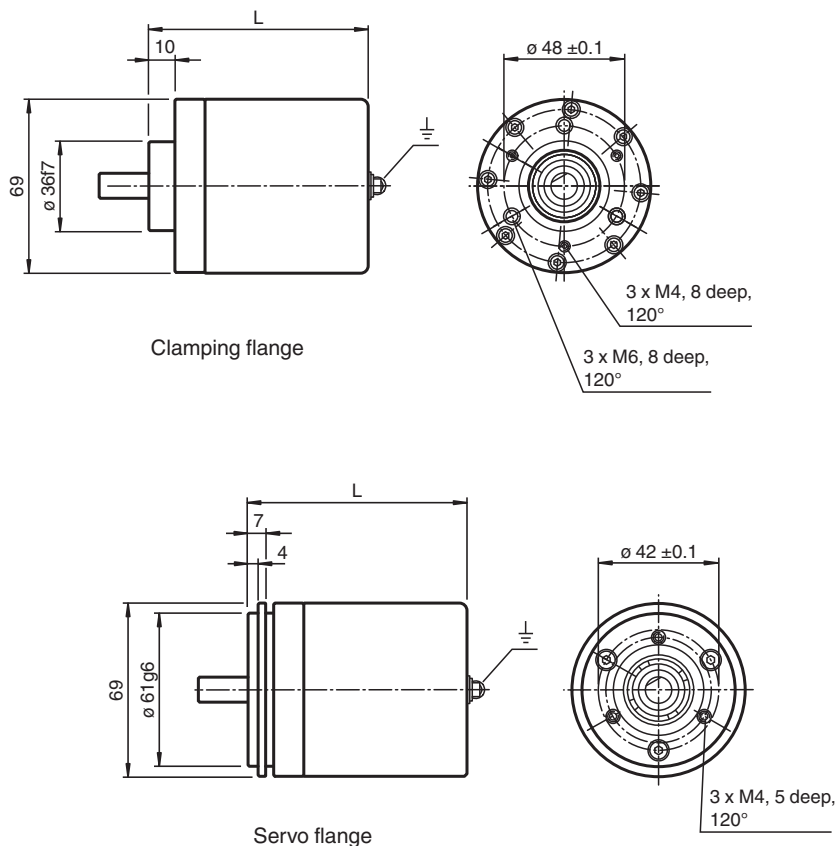
- Up to 5000 ppr
- Flameproof enclosure
- Worldwide certification: ATEX, IECEx, KOSHA, NEPSI
- Degree of protection IP66 / IP67
- High shaft load capacity
- Temperature range -40 ... 158 °F (-40°C to 70°C)
- Suitable for offshore applications



Function

RVI70E Series incremental rotary encoders are enclosed in a pressure-resistant housing. The robust bearing design allows high shaft loads to be absorbed, enabling this series of rotary encoder to deliver reliability and precision over its full service life. The compact design ensures efficient use of installation space. The high degree of protection along with the seawater-resistant housing make the RVI70E ideal for use in tough environmental conditions. The temperature range of -40 °C to +70 °C allows the encoder to be used in a wide variety of climatic conditions. The wide range of variants available mean the RVI70E Series is suitable for use in a host of applications.

Dimensions



Release date: 2021-08-03 Date of issue: 2021-08-03 Filename: t164178_eng.pdf

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

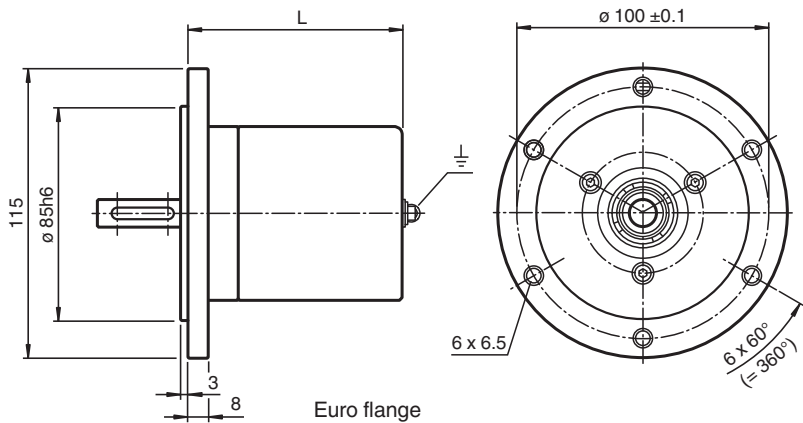
Pepperl+Fuchs Group
www.pepperl-fuchs.com

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

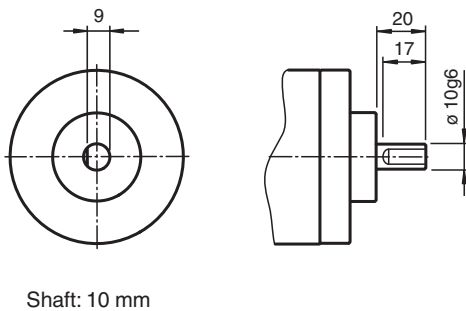
Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

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

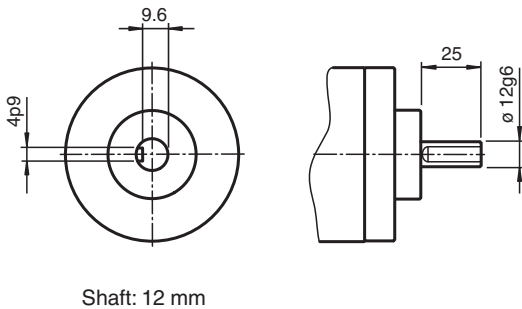
PEPPERL+FUCHS



Flange	L [mm]	
	Axial output	Radial output
Clamping flange	80	87
Servo flange	80.2	87.2
Euro flange	78	85

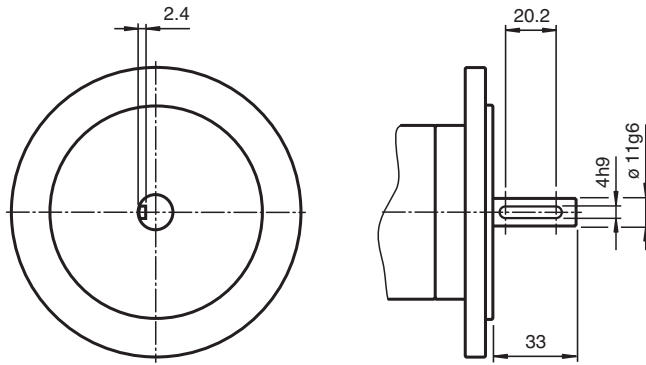


Shaft: 10 mm

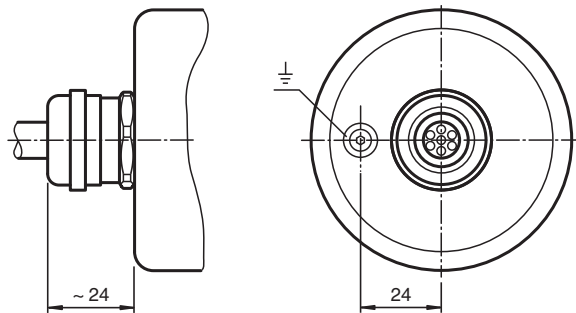


Shaft: 12 mm

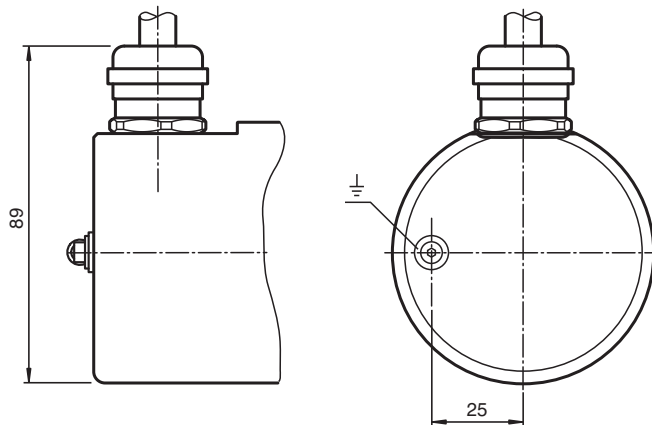
Release date: 2021-08-03 Date of issue: 2021-08-03 Filename: t164178_eng.pdf



Shaft: 11 mm



Axial output



Radial output

Technical Data

General specifications

Detection type	photoelectric sampling
Device type	Incremental rotary encoder
Pulse count	max. 5000

Functional safety related parameters

MTTF _d	140 a
Mission Time (T _M)	20 a
L ₁₀	1.6 E+9 at 3000 rpm
Diagnostic Coverage (DC)	0 %

Technical Data

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC or 5 V DC $\pm$ 5 % (see "Output circuit" in the ordering information)
No-load supply current	I_0	max. 60 mA

Output

Output type		push-pull, incremental or RS 422, incremental (see "Output circuit" in the ordering information)
Voltage drop	U_d	< 4 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		250 ns
Phase position A to B		$90^\circ \pm 18^\circ$
Duty cycle		$1/2 \pm 20\%$
De-energized delay	t_{off}	250 ns

Connection

Cable		$\varnothing$ 10.2 mm, Radox 9 x 0.5 mm ²
-------	--	--

Standard conformity

Degree of protection		DIN EN 60529, IP66 DIN EN 60529, IP67
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, 100 g, 3 ms
Vibration resistance		DIN EN 60068-2-6, 10 g, 10 ... 2000 Hz

Ambient conditions

Operating temperature		
Gas Ex-area		-40 ... 70 °C (-40 ... 158 °F)
Dust Ex-area		-40 ... 70 °C (-40 ... 158 °F)
Storage temperature		
Gas Ex-area		-40 ... 70 °C (-40 ... 158 °F)
Dust Ex-area		-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Material		
Combination 1		housing: anodized aluminum flange: anodized aluminum shaft: Stainless steel 1.4401 / AISI 316
Combination 2 (Inox)		housing: Stainless steel 1.4401 / AISI 316 flange: Stainless steel 1.4401 / AISI 316 shaft: Stainless steel 1.4401 / AISI 316
Mass		approx. 1300 g (combination 1) approx. 2300 g (combination 2)
Rotational speed		max. 6000 min ⁻¹
Moment of inertia		400 gcm ²
Starting torque		< 5 Ncm
Shaft load		
Axial		110 N
Radial		150 N

Data for application in connection with hazardous areas

EU-type examination certificate		ZELM 14 ATEX 0519 X IECEx ZLM 14.0003X
Marking		Ⓔ II 2G Ex db IIC T6 - T4 Gb Ⓔ II 2D Ex tb IIIC T80°C Db
Directive conformity		
Directive 2014/34/EU		IEC 60079-0:2011 , EN 60079-0:2018 , IEC 60079-1:2014 , EN 60079-1:2014 , IEC 60079-31:2013 , EN 60079-31:2014

Release date: 2021-08-03 Date of issue: 2021-08-03 Filename: t164178_eng.pdf

Type Code

Structure of the Type Code

R	V	I	7	0	E	-	(1)	(1)	(1)	(2)	(2)	(3)	6	(4)	(5)	-	(6)	(6)	(6)	(6)
---	---	---	---	---	---	---	-----	-----	-----	-----	-----	-----	---	-----	-----	---	-----	-----	-----	-----

RVI	Type of sensor
RVI	Incremental rotary encoder with solid shaft

70	Size
70	Housing diameter 70 mm

E	Special properties
E	Explosion proof

(1) (1) (1)	Shaft dimension/flange version
011	Shaft Ø10 mm x 20 mm with clamping flange
012	Shaft Ø10 mm x 20 mm with servo flange
021	Shaft Ø12 mm x 25 mm with clamping flange
022	Shaft Ø12 mm x 25 mm with servo flange
033	Shaft Ø11 mm x 30 mm with euro flange

(2) (2)	Connection type
K2	Cable, 2 m
K5	Cable, 5 m
KA	Cable, 10 m

(3)	Exit position
A	Axial
R	Radial

6	Signal output
6	A + B + 0 und A\ + B\ + 0\

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

(5)	Housing material
N	Aluminum
I	Inox

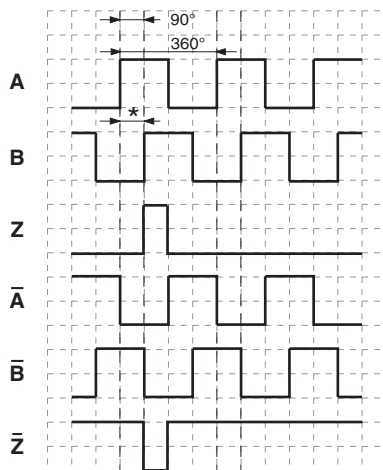
(6) (6) (6) (6)	Pulse count
0512	512 pulse
1000	1000 pulse
1024	1024 pulse
1800	1800 pulse
2000	2000 pulse
2048	2048 pulse
3600	3600 pulse
4096	4096 pulse
5000	5000 pulse

Connection

Signal	Cable Ø11.2 mm, 9-core
GND	1
+U _b	2
A	3
B	4
$\bar{A}$	5
$\bar{B}$	6
Z	7
$\bar{Z}$	8
PE	Green/Yellow

Operation

Signal outputs



↻ cw - with view onto
the shaft
phase relationships
electrical
* 1 Measuring step is
90° electrical