



Incremental rotary encoder

RVI70E Mining

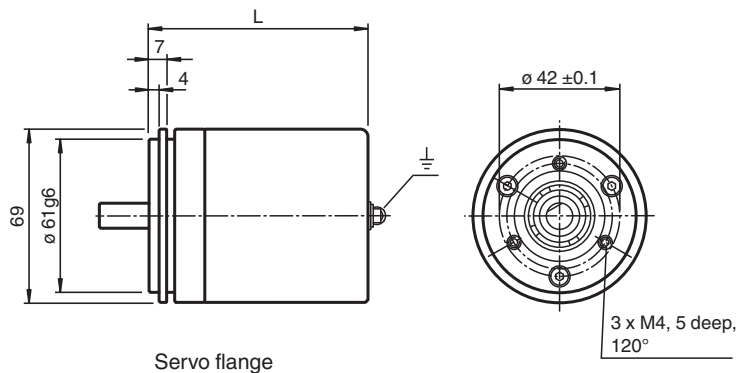
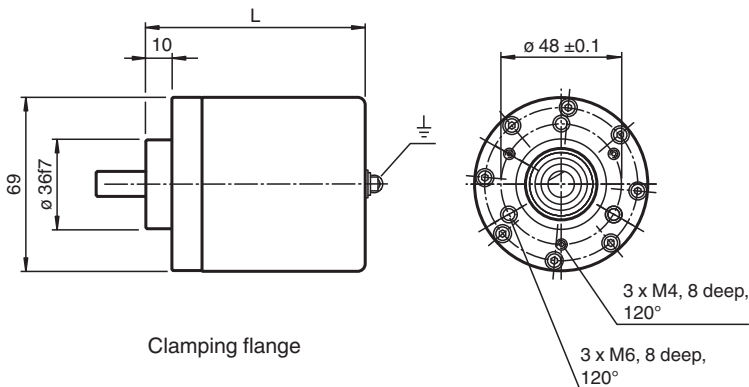
- Up to 5000 ppr
- Flameproof enclosure
- Worldwide certification: ATEX, IECEx
- EX-approval for mining
- Degree of protection IP66 / IP67
- High shaft load capacity
- Temperature range -40 ... 158 °F (-40°C to 70°C)



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.

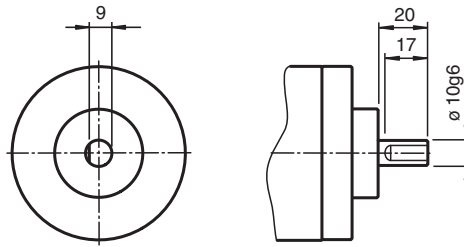
Dimensions



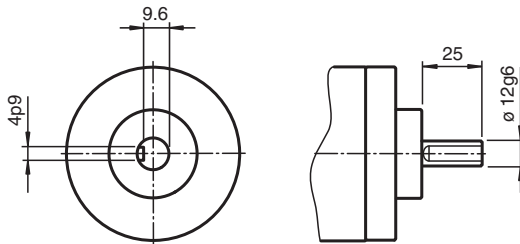
Release date: 2024-10-24 Date of issue: 2024-10-24 Filename: t184211_eng.pdf

Dimensions

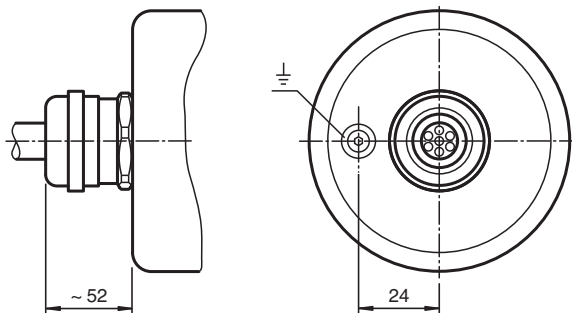
Flange	L [mm]	
	Axial output	Radial output
Servo flange	80	87
Euro flange	80,2	87,2



Shaft: 10 mm



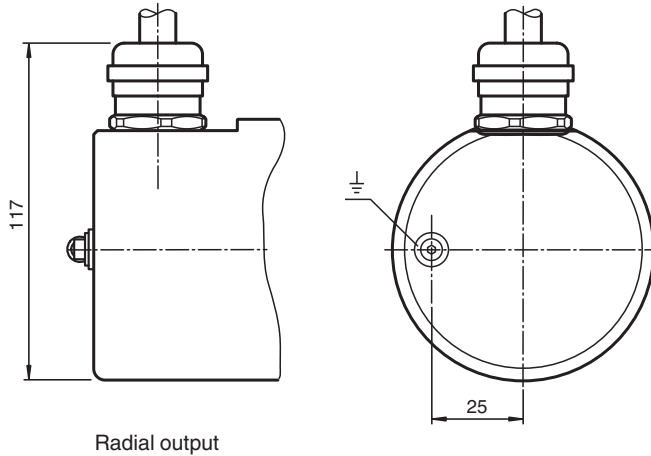
Shaft: 12 mm



Axial output

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Dimensions



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
L ₁₀	1.6 E+9 at 3000 rpm
Electrical specifications	
Operating voltage	U _B 10 ... 30 V DC or 5 V DC ± 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 35 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 ° ± 18 °
Duty cycle	1/2 ± 20 %
De-energized delay	t _{off} 250 ns
Connection	
Cable	Ø 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 IEC 61000-6-4:2019
Noise immunity	EN IEC 61000-6-2:2019
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	
IECEx approval	
Equipment protection level Mb	IECEx ZLM 14.0003X
ATEX approval	
Equipment protection level Mb	ZELM 14 ATEX 0519 X
Ambient conditions	

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Technical Data

Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications	
Material	
Combination 1	housing: Stainless steel 1.4305 / AISI 303 flange: Stainless steel 1.4305 / AISI 303 shaft: Stainless steel 1.4305 / AISI 303
Combination 2	housing: Stainless steel 1.4401 / AISI 316 flange: Stainless steel 1.4401 / AISI 316 shaft: Stainless steel 1.4401 / AISI 316
Mass	approx. 2300 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
General information	
Use in the hazardous area	see instruction manuals

Installation

Note for use in hazardous areas

For use in hazardous areas, observe the instruction manual with the information on specific conditions of use and protective measures. For a safe ground connection, connect the corresponding equipotential bonding conductor to the grounding screw and tighten it with 4.5 Nm.

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)
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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

(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

Type Code

(5)	Housing material
2	Stainless steel 1.4305 / AISI 303 (V2A)
4	Stainless steel 1.4401 / AISI 316 (V4A)

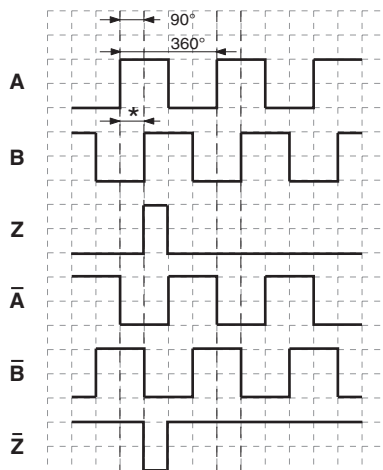
(6) (6) (6) (6)	Pulse count
0512	512 pulse
1000	1000 pulse
1024	1024 pulse
1800	1800 pulse
2000	2000 pulse
2048	2048 pulse
3600	3600 pulse
4096	4096 pulse
5000	5000 pulse

Connection

Signal	Cable, 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