

Incremental Encoder for special applications

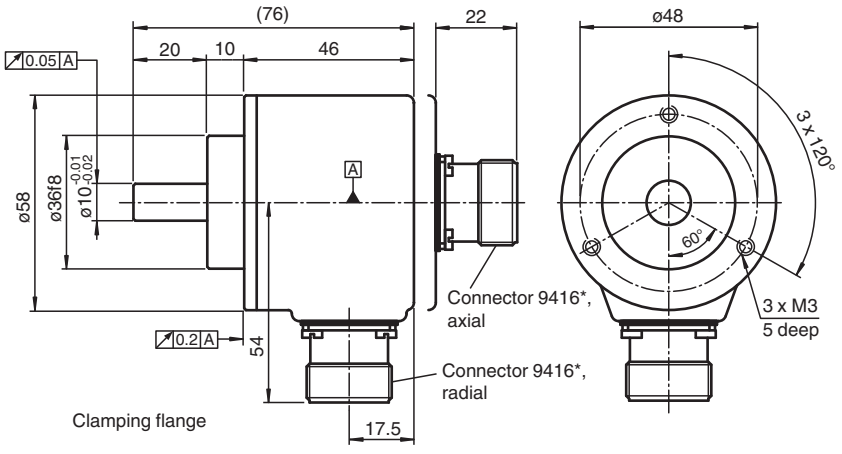
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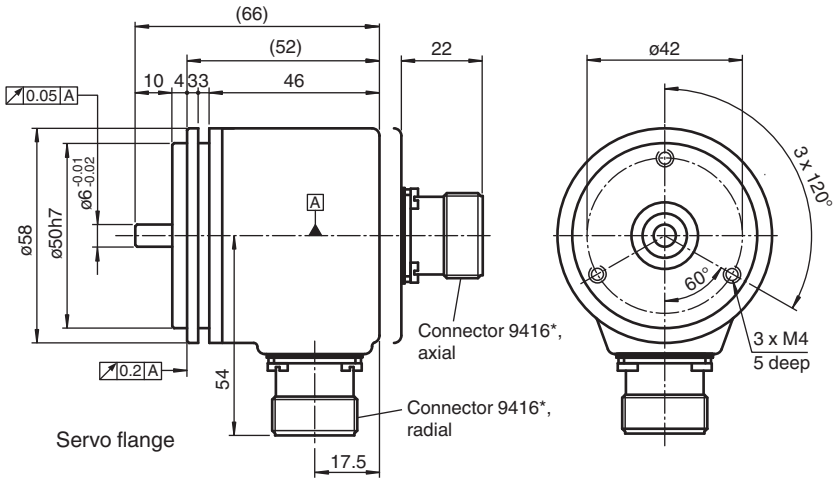
- Up to 50,000 ppr
- Extended temperature range
- Industrial standard housing Ø58 mm
- Servo or clamping flange
- 10 V ... 30 V with short-circuit proof push-pull output

Function

High performance are key words for this rotary encoder. The outstanding features of this encoder include a high angle resolution and an optional extended temperature range.
All six output channels are fitted for this incremental rotary encoder. It can thus be used universally in many different applications.
This incremental rotary encoder is available either in clamping flange design with a shaft 10 mm in diameter x 20 mm or in servo flange design with a shaft 6 mm in diameter x 10 mm.
The electrical connection is made by a 8-pin or a 12-pin round plug connector. It is also possible to obtain a version with a cable connector.

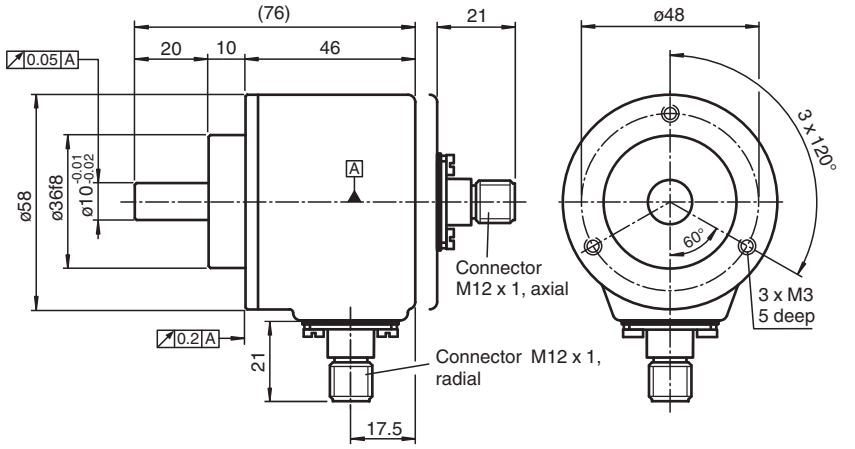
Dimensions



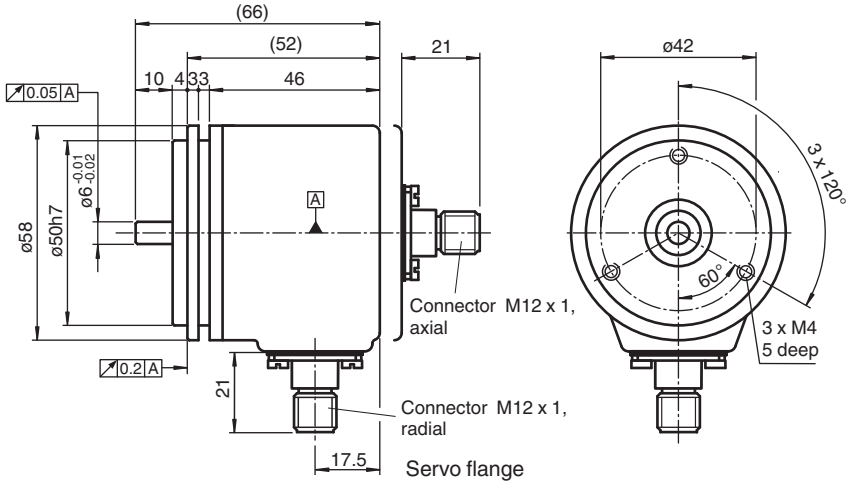


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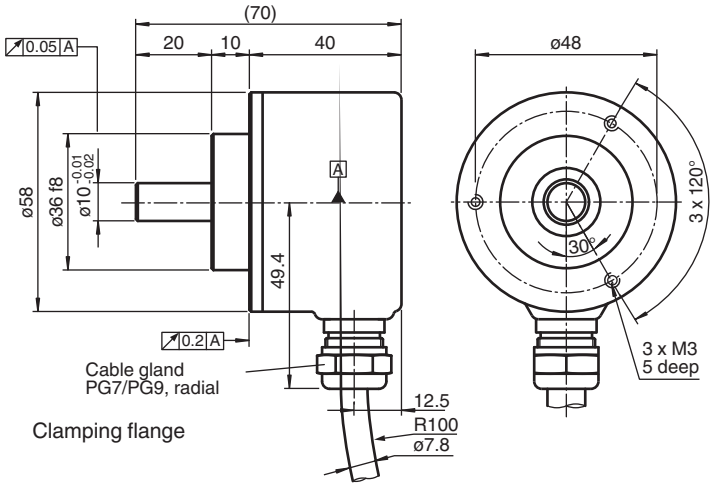
Dimensions



Clamping flange



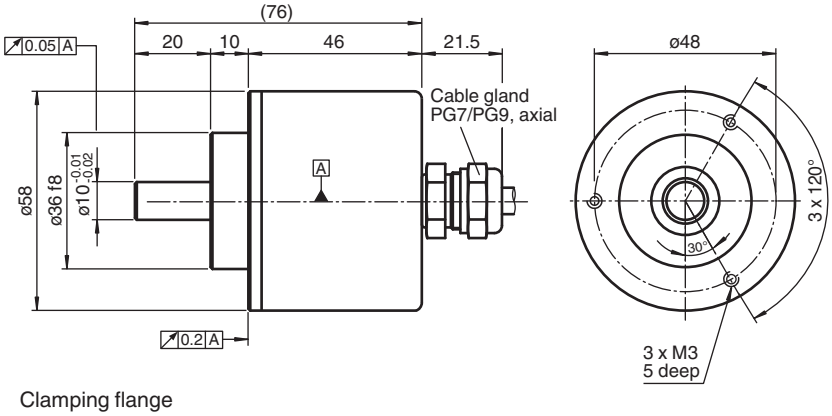
Servo flange



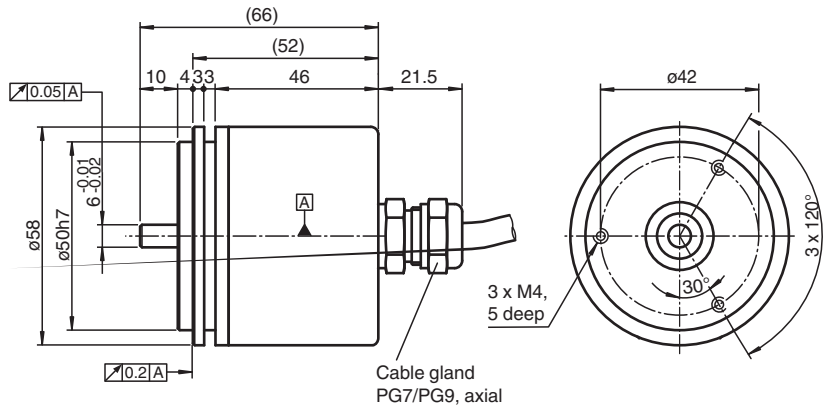
Clamping flange

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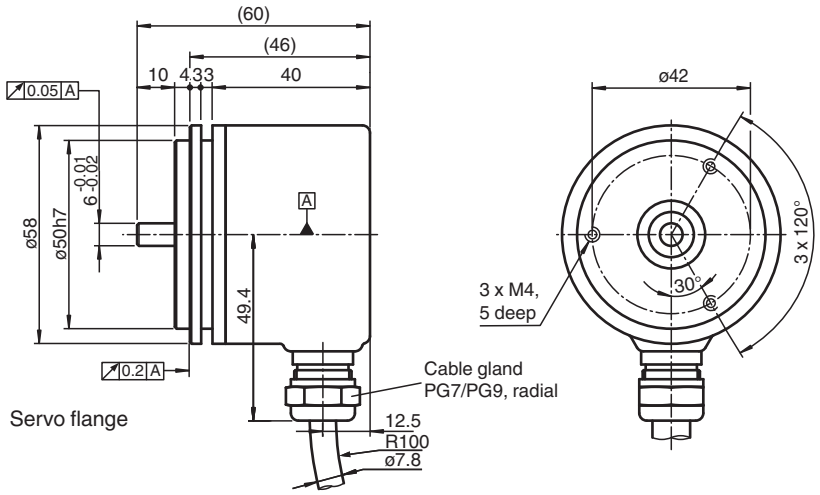
Dimensions



Clamping flange



Servo flange



Servo flange

Technical Data

General specifications		
Detection type		photoelectric sampling
Pulse count		max. 50000
Functional safety related parameters		
$MTTF_d$		140 a
L_{10}		70 E+9 at 6000 rpm
Diagnostic Coverage (DC)		0 %
Electrical specifications		

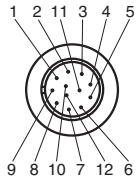
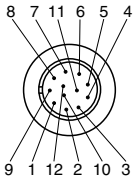
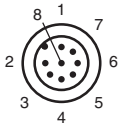
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Technical Data

Operating voltage	U_B	10 ... 30 V DC
No-load supply current	I_0	max. 60 mA
Output		
Output type		push-pull, incremental
Voltage drop	U_d	< 3 V
Load current		max. per channel 40 mA , short-circuit protected, reverse polarity protected
Output frequency		max. 200 kHz
Rise time		400 ns
Connection		
Connector		type 9416 (M23), 12-pin, type 9416L (M23), 12-pin or M12 connector, 8-pin
Cable		Ø7.8 mm, 6 x 2 x 0.14 mm², 1 m
Standard conformity		
Degree of protection		DIN EN 60529, IP65
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
Approvals and certificates		
UL approval		cULus Listed, General Purpose, Class 2 Power Source
Ambient conditions		
Operating temperature		-5 ... 80 °C (23 ... 176 °F) , movable cable -20 ... 80 °C (-4 ... 176 °F) , cable, fixed installation -40 ... 80 °C (-40 ... 176 °F) with Option T , cable, fixed installation
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Material		
Housing		powder coated aluminum
Flange		3.1645 aluminum
Shaft		Stainless steel 1.4305 / AISI 303
Mass		approx. 350 g
Rotational speed		max. 12000 min $^{-1}$
Moment of inertia		≤ 25 gcm²
Starting torque		≤ 1.5 Ncm
Shaft load		
Axial		40 N at max. 6000 min^{-1} 10 N at max. 12000 min^{-1}
Radial		60 N at max. 6000 min^{-1} 20 N at max. 12000 min^{-1}
Dimensions		
Diameter		58 mm

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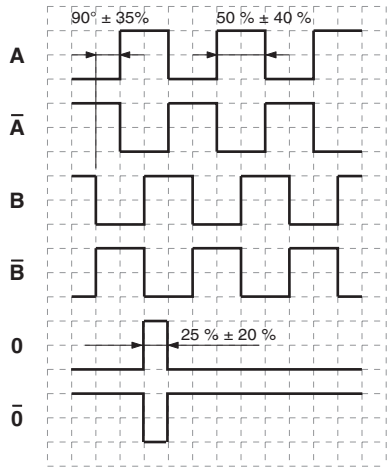
Connection

Signal	Cable	Connector 9416	Connector 9416L	Connector M12 x 1
GND	White	10	10	1
U_b	Brown	12	12	2
A	Green	5	5	3
B	Grey	8	8	5
$\overline{A}$	Yellow	6	6	4
$\overline{B}$	Pink	1	1	6
0	Blue	3	3	7
$\overline{0}$	Red	4	4	8
U_b Sens *)	Violet	2	2	-
NC	Grey/Pink	7	7	-
Screen	-	Housing	Housing	Housing
NC	-	9	9	-
GND Sens *)	Black	11	11	-
				

*) only for devices with 5 V supply and RS 422 interface (output circuit 6)

Operation

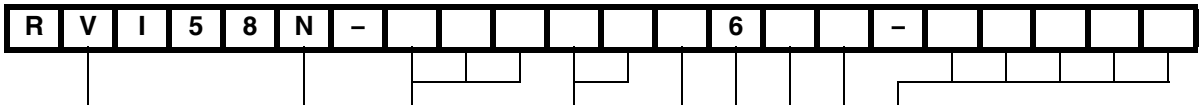
Signal outputs



↻ cw - with view onto the shaft clamping ring

Type Code

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Pulse count 1024, 2048, 2500, 4096, 5000, 8192, 10000, 20000, 50000

Option
- **N** Normal
- **T** Extended temperature range, -40 °C

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

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

Exit position
- **A** Axial
- **R** Radial

Connection type
- **AA** Plug connector type 9416, 12-pin
- **AB** Plug connector type 9416L, 12-pin
- **BE** Plug connector M12 x 1, 8-pin
- **K1** Cable Ø7.8 mm, 6 x 2 x 0.14 mm², 1 m

Shaft dimension/flange version
- **011** Shaft Ø10 mm x 20 mm with clamping flange
- **032** Shaft Ø6 mm x 10 mm with servo flange
- **044** Shaft Ø10 mm x 20 mm (flat 1 mm x 20 mm) with clamping flange

Housing material
- **N** Aluminium, powder coated

Shaft version
- **V** Solid shaft

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