



# Incremental rotary encoder

## RHI90N

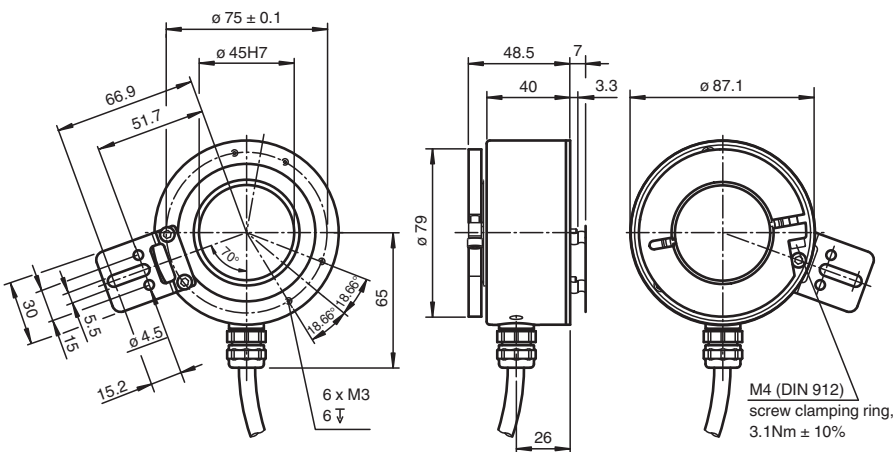
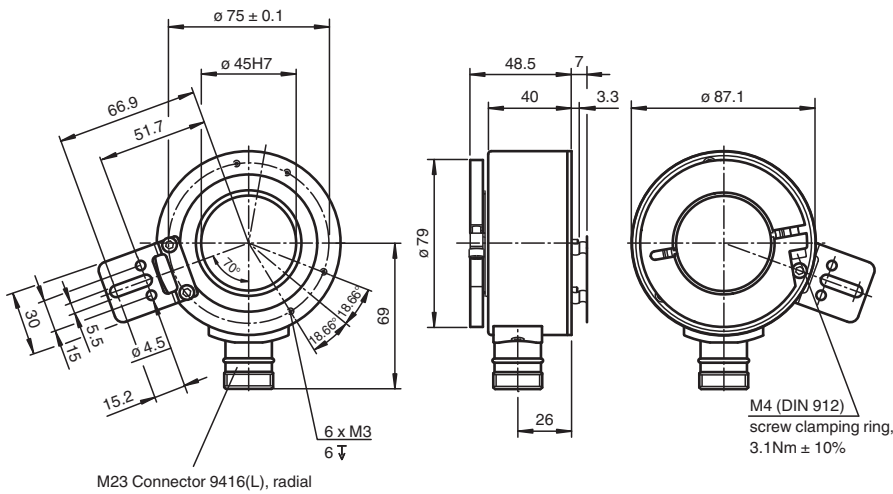
- Compact design housing  $\varnothing 90$  mm
- Hollow shaft  $\varnothing 45$  mm
- Easy shaft clamping
- High resolution and accuracy



### Function

The incremental hollow shaft encoder is available with 45 mm shaft diameter. The compact and highly accurate encoder combines the advantages of modern technics and cost effective design. Thanks to its comparatively small outside diameter the encoder can also be used if only little mounting space is available. The shaft fastening is designed in a way that the shaft of the customer is not being damaged. The shaft fastening is designed in a way that the shaft of the customer is not being damaged.

### Dimensions



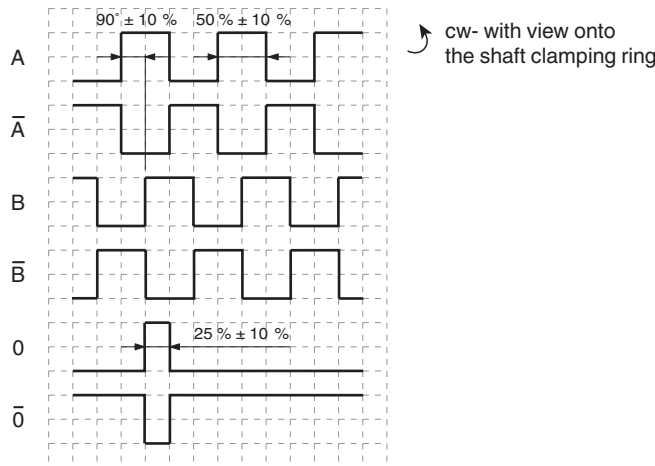
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## Technical Data

General specifications		
Detection type		photoelectric sampling
Pulse count		max. 2500
Functional safety related parameters		
MTTF <sub>d</sub>		140 a
L <sub>10</sub>		50 E+9 at 1750 rpm
Diagnostic Coverage (DC)		0 %
Electrical specifications		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC or 5 V DC ± 5 % (see "Output circuit" in the ordering information)
No-load supply current	I <sub>0</sub>	max. 70 mA
Output		
Output type		push-pull, incremental or RS-422, incremental (see "Output circuit" in the ordering information)
Voltage drop	U <sub>d</sub>	< 2.5 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		600 ns
De-energized delay	t <sub>off</sub>	600 ns
Connection		
Connector		type 9416 (M23), 12-pin, type 9416L (M23), 12-pin
Cable		Ø6.5 mm, 4 x 2 x 0.14 mm <sup>2</sup> , 1 m
Standard conformity		
Degree of protection		DIN EN 60529, IP65
Climatic testing		DIN EN 60068-2-78
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		E223176 , cULus Listed, General Purpose, Class 2 Power Source
Maximum permissible ambient temperature		max. 60 °C (max. 140 °F)
Ambient conditions		
Operating temperature		-5 ... 70 °C (23 ... 158 °F) , cable, movable installation -20 ... 70 °C (-4 ... 158 °F), cable, fixed installation
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Mechanical specifications		
Material		
Housing		aluminum, blank
Flange		3.1645 aluminum
Shaft		Stainless steel 1.4305 / AISI 303
Mass		approx. 900 g
Rotational speed		max. 3500 min <sup>-1</sup>
Starting torque		≤ 18 Ncm
Shaft load		
Angle offset		1 °
Axial offset		max. 1 mm
Dimensions		
Length		48.5 mm
Diameter		87.1 mm

**Operation**

**Signal outputs**



**Type Code**

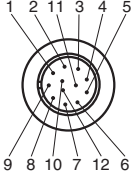
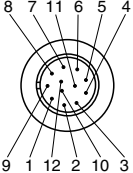
**Structure of the type code**

R	H	I	9	0	N	-	0	N	A	(1)	(1)	R	6	(2)	N	-	(3)	(3)	(3)	(3)	(3)
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<b>RHI</b>	<b>Device type</b>
RHI	Incremental rotary encoder with hollow shaft
<b>90</b>	<b>Size</b>
90	Housing diameter 90 mm
<b>N</b>	<b>Housing material</b>
N	Aluminum, uncoated
<b>0N</b>	<b>Shaft dimension</b>
0N	Hollow shaft Ø 45 mm
<b>A</b>	<b>Flange version</b>
A	Hollow shaft
<b>(1) (1)</b>	<b>Connection</b>
AA	M23 device plug, 12-pin, cw (type 9416)
AB	M23 device plug, 12-pin, ccw (type 9416L)
K1	Cable Ø 6.5 mm, 4 x 2 x 0.14 mm <sup>2</sup> , 1 m
<b>R</b>	<b>Connection alignment</b>
R	Radial
<b>6</b>	<b>Signal output</b>
6	A + B + 0 and A + B + 0 und /A + /B + /0
<b>(2)</b>	<b>Output switching</b>
1	10 V ... 30 V, push-pull)
6	5 V, RS422
X	10 V ... 30 V, RS 422
<b>N</b>	<b>Option</b>
N	Normal
<b>(3) (3) (3) (3) (3)</b>	<b>Pulse count</b>
00100	100 pulses
00125	125 pulses
00360	360 pulses
00500	500 pulses
00512	512 pulses
01000	1000 pulses
01024	1024 pulses
02048	2048 pulses
02500	2500 pulses

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**Connection**

Signal	Cable Ø6.5 mm, 8-core	Connector 9416, 12-pin	Connector 9416L, 12-pin
GND	White	10	10
U <sub>b</sub>	Brown	12	12
A	Green	5	5
B	Grey	8	8
$\bar{A}$	Yellow	6	6
$\bar{B}$	Pink	1	1
0	Blue	3	3
$\bar{0}$	Red	4	4
Shield	-	Housing	Housing
NC	-	2, 7, 9, 11	2, 7, 9, 11
			

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