

QR series



QR40EMN-090HB-V-CM-UL

Absolute rotary encoder (contactless)

Output
0 - 5 V

Supply voltage
10 - 30 Vdc

Measuring range
90° (out of 360°)



General specifications v20170629

Plastic injection molded housing (PBTP black)

40x40x17 mm

2x stainless M4x25 mm screws

IP67, IP69K

approx 50 gr

11,2 x 5,5 x 8 mm Neodymium/N35/nickel coated/remanention 1,2 T

0 to 10 mm, magnet at front side

1 mm Radial Off Axis (< 0,3 mm for minimum non-linearity)

Axial in 8 mm (Northpole marked with red dot)

10 - 30 Vdc

Yes

≤ 25 mA

-40 to 85°C, 0 to 100% RH

-40 to 85°C

90° (out of 360°)

No

12 bit over 360° (min. step 0,09°)

Not applicable

< ± 1° in magnet alignment range

0,13°

< 4 ms

30 rpm

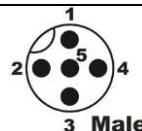
0 - 5 V

Yes (max 10 s)

≥ 20 kΩ

M12 5p male connector (Glass fibre reinforced grade, contacts CuZn pre-nickeled galv. Au)

Pin 1: + Supply voltage
Pin 2: not connected
Pin 3: Gnd
Pin 4: Output
Pin 5: not connected

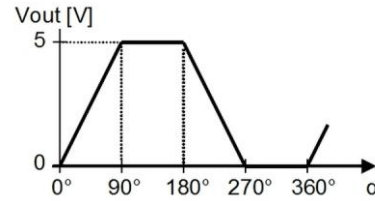


Housing	Plastic injection molded housing (PBTP black)
Dimensions (indicative)	40x40x17 mm
Mounting	2x stainless M4x25 mm screws
Ingress Protection (IEC 60529)	IP67, IP69K
Weight	approx 50 gr
Magnet type	11,2 x 5,5 x 8 mm Neodymium/N35/nickel coated/remanention 1,2 T
Magnet distance to sensor	0 to 10 mm, magnet at front side
Max. radial magnet misalignment	1 mm Radial Off Axis (< 0,3 mm for minimum non-linearity)
Direction of magnetization	Axial in 8 mm (Northpole marked with red dot)
Supply voltage	10 - 30 Vdc
Polarity protection	Yes
Current consumption	≤ 25 mA
Operating temperature & humidity	-40 to 85°C, 0 to 100% RH
Storage temperature	-40 to 85°C
Measuring range	90° (out of 360°)
Programmable center position	No
Accuracy @20°C (2σ)	
Resolution	12 bit over 360° (min. step 0,09°)
Max offset error	Not applicable
Non linearity	< ± 1° in magnet alignment range
Repeatability	0,13°
Response time	< 4 ms
Max speed	30 rpm
Output signal	0 - 5 V
Short circuit protection	Yes (max 10 s)
Output load resistor	≥ 20 kΩ
Connection (length ±10%)	M12 5p male connector (Glass fibre reinforced grade, contacts CuZn pre-nickeled galv. Au)
Pinout M12 connector	<p>Pin 1: + Supply voltage Pin 2: not connected Pin 3: Gnd Pin 4: Output Pin 5: not connected</p> <p>3 Male</p>

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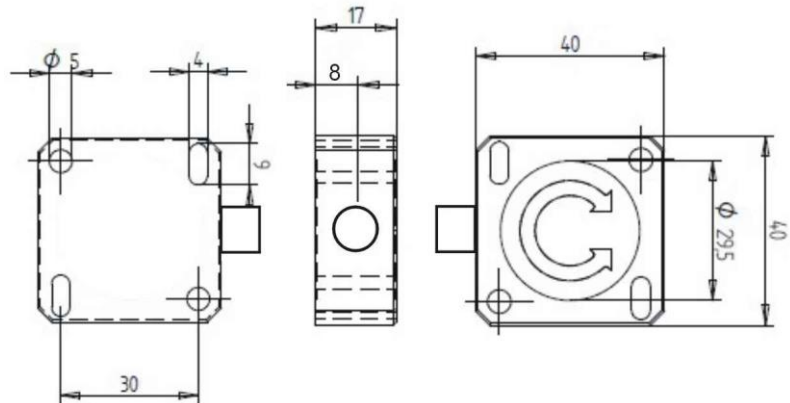
Output approx. 0V when magnetic field outside specifications

Transfer characteristic



QR40EMN-090HB-V-CM-UL

Dimensions (indicative only)



QR40EMN-090HB-V-CM-UL

Intended use & UL

Intended use:

QR series sensors are intended to measure rotation after installing in machines, equipment and systems. Flawless function in accordance with the specifications is ensured only when the device is used within its specifications.

This device is not a safety component according to the EU Machine Directive (ISO13849). Modifications or non-approved use are not permitted and will result in loss of warranty and void any claims against the manufacturer.

UL:

UL certificate: UL File number: E312057

UL & c-UL listed product (standards UL60947-5-2 & CSA-C22.2 No. 14)

Product Identity / Category Code Number (CCN): Industrial Control Equipment / NRKH & NRKH7

Enclosure / Temperature rating: Enclosure type 1 / Temperature -25° . . $+85^{\circ}$ C

Electrical rating: Intended to be used with a Class 2 power source in accordance with UL1310

Electrical ratings: max. input Voltage 30V dc, max. current 50mA

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Magnet orientation

Magnet drawn in $\alpha=0^{\circ}$ position.

While rotating the magnet clockwise α increases.

The magnet's north pole (N) is indicated with a red dot on the magnet.

