

QR series



QR40EMN-360HB-2V-PT-5V

Absolute rotary encoder (contactless) Full Redundant

Output
0 - 5 V / 5 - 0 V (ratiometric)

Supply voltage
5V dc

Measuring range
360°



General specifications v20210419

Housing	Reinforced plastic injection molded (Celanex 2300 GV3/30 - glass filled PBT, black)												
Dimensions (indicative)	40x40x17 mm												
Mounting	Included: 2x M4x25 stainless steel pozidrive pan head screws, self-tapping (PZ DIN7500CZ)												
Ingress Protection (IEC 60529)	IP67												
Relative Humidity	0 - 95% (non condensing, fully potted)												
Weight	approx 50 gr. (cable excluded)												
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)												
Supply voltage	5V dc												
Polarity protection	Yes												
Current consumption	≤ 25 mA												
Operating temperature	-40 to 80°C (fixed, flex -25 to 80°)												
Storage temperature	-40 to 85°C												
Measuring range	360°												
Programmable center position	No												
Accuracy													
Resolution	12 bit over 360° (min. step 0,09°)												
Sensitivity error	±0.5% typ. (@20°C), ±1% typ. (full Temp. range)												
Offset error	Magnet + Sensor: <3° typ. (with perfect external magnet positioning)												
Non linearity	< ± 1,5° in magnet alignment range (both outputs individual)												
Repeatability	0,13°												
Response time	< 4 ms												
Max speed	100 rpm												
Output signal	0 - 5 V / 5 - 0 V (ratiometric to 5 V supply voltage)												
Short circuit protection	Yes (T<55°C), Max 10 s (T>55°C)												
Output load resistor	≥ 20 kΩ												
Connection (length ±10%)	2 m PUR/TPE Li12y11y, black Ø 5,1 mm, wires: 6x0,34 mm ² DIN colors												
Wire coding	<table border="0"> <tr> <td>Green</td> <td>Gnd 1</td> </tr> <tr> <td>Brown</td> <td>+ Supply voltage 1</td> </tr> <tr> <td>Grey</td> <td>Output 1</td> </tr> <tr> <td>White</td> <td>Gnd 2</td> </tr> <tr> <td>Yellow</td> <td>+ Supply voltage 2</td> </tr> <tr> <td>Pink</td> <td>Output 2</td> </tr> </table>	Green	Gnd 1	Brown	+ Supply voltage 1	Grey	Output 1	White	Gnd 2	Yellow	+ Supply voltage 2	Pink	Output 2
Green	Gnd 1												
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Grey	Output 1												
White	Gnd 2												
Yellow	+ Supply voltage 2												
Pink	Output 2												

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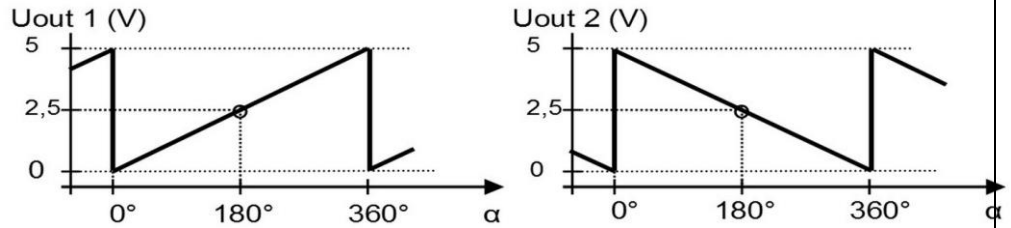


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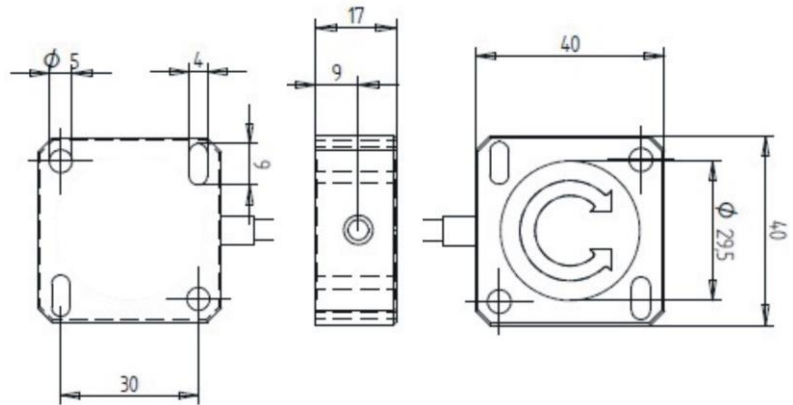
Transfer characteristic

Output approx. 0V when magnetic field outside specifications

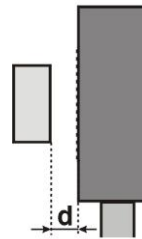
Differences between the outputs <math> < 3^\circ </math>



Dimensions (indicative only)



Magnet distance (side view)



Front view

Magnet drawn in $\alpha=0^\circ$ position
Magnet rotates clockwise: α increases

Magnet North pole is indicated

Magnet surface to sensor: 11,2 x 8mm
Magnet height: 5,5mm

Magnet orientation

