

## NOVOHALL Rotary Sensor non-contacting

Series RSC2800  
analog



### Special features

- non-contacting technology
- angular range from 30° to full 360°
- internal resolution 12 bit
- independent linearity  $\pm 0.5\%$
- protection class IP54, IP65, IP67
- long life
- very small hysteresis
- single output and redundant versions
- available with push-on coupling or marked shaft
- simple mounting
- digital interface versions - see separate data sheet

The RSC 2800 sensor utilizes a contactless magnetic measurement technology to determine the measured angle. Unlike conventional Hall sensors, the orientation of the magnetic field is measured. The output is available as either analog voltage or current.

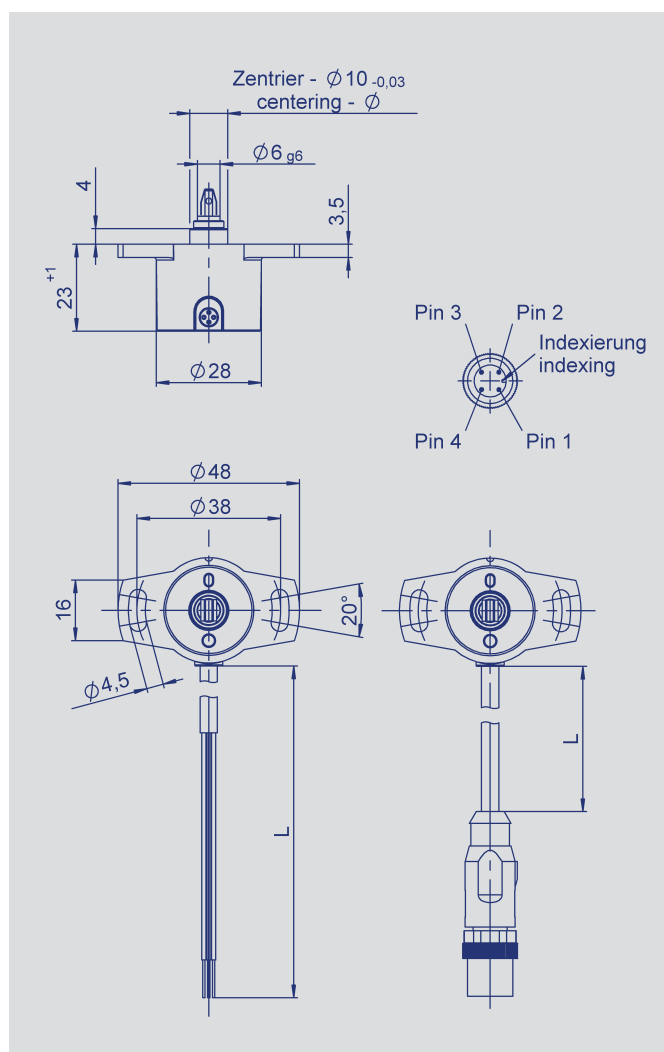
The housing is made of a special high grade temperature-resistant plastic material. Elongated slots allow simplicity in mounting together with ease of mechanical adjustment.

Three shaft options are available, including a push-on coupling option that ensures fast and simple installation. The transducer is not sensitive to either dirt or humidity.

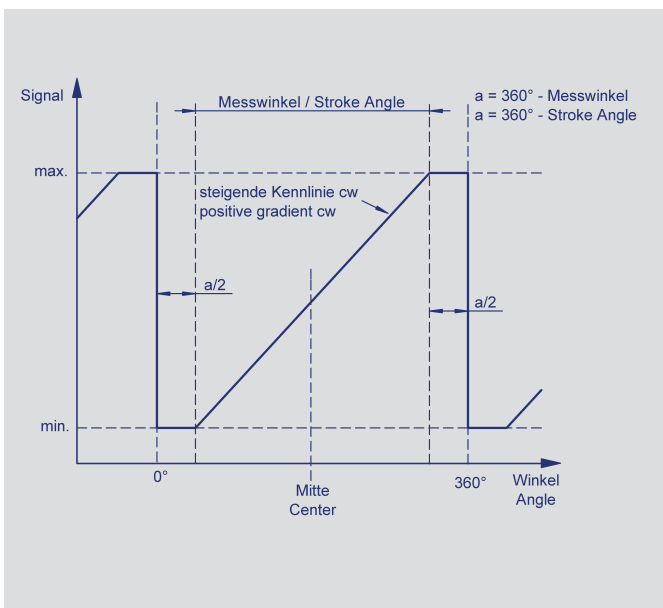
Electrical connection is made via a shielded cable which is sealed into the housing. An M12 connector is available as an option.

### Description

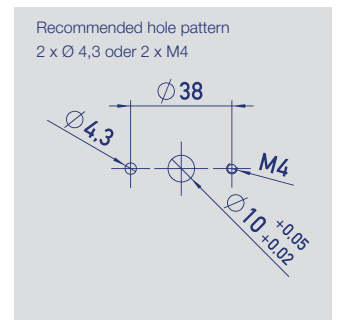
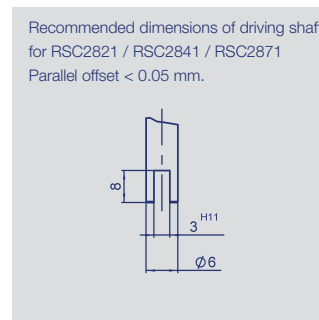
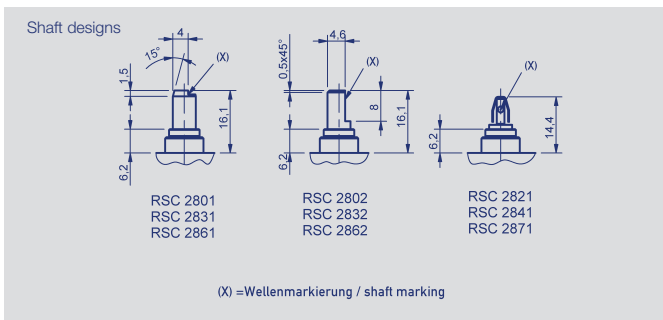
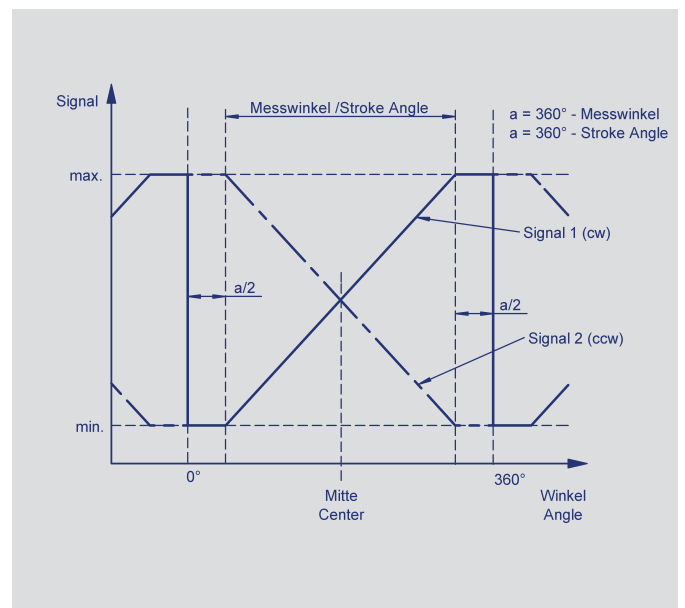
Housing	high grade, temperature resistant plastic
Shaft	stainless steel
Bearings	bronze sleeve bearing
Electrical connections	shielded cable AWG 26 (0.14 mm <sup>2</sup> ) with optional M12 connector



### Output characteristic one-channel versions

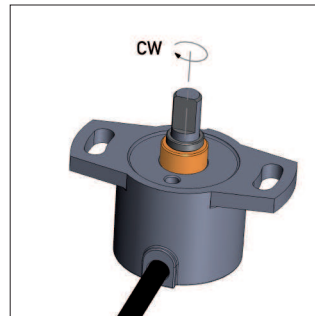


### Output characteristics multi-channel versions



Connection assignment	M12 connector	Cable
GND	pin 3	brown
Supply voltage U <sub>b</sub>	pin 1	green
Output 1	pin 2	white
Not assigned / output 2	pin 4	yellow

Cable shielding connect to GND.



When the shaft marking points toward the cable outlet, the sensor is located in the electrical center position.

Type designations	RSC - 28 _ _ _ _ - 2 _ _ _ _ ratiometric	RSC - 28 _ _ _ _ - 1 1 _ _ _ _ analog voltage	RSC - 28 _ _ _ _ - 1 2 _ _ _ _ analog current	
<b>Mechanical Data</b>				
Dimensions	see dimension drawing			
Mounting	2 screws M4 and washer			
Starting torque of mounting screws with washer at housing flange	180			Ncm
Mechanical travel	360 continuous			°
Permitted shaft loading (axial and radial) static or dynamic force	20			N
Torque	1.0 (IP67); 0.5 (IP65); 0.15 (IP54)			Ncm
Maximum operational speed	800 (120, if T > 85°C)			min <sup>-1</sup>
Weight	~ 50			g
<b>Electrical Data</b>				
Supply voltage Ub	5 (4.5 ... 5.5)	24 (18 ... 30)	24 (18 ... 30)	VDC
Current consumption (w/o load)	typical 15 (typ. 8 on request) per channel			mA
Reverse voltage	yes, supply lines			
Short circuit protection	yes (vs. GND and supply)			
Measuring range	0 to 30° up to 0 to 360, oprogrammed in 10° steps			°
Number of channels	1 or 2	1	1	
Update rate	typ. 5			kHz
Resolution	12			bit
Repeatability	0.1			°
Hysteresis	< 0.1			°
Independent linearity	≤ 0.5			± % FS
Output signal	ratiometric to supply voltage 0.25...4.75 VDC 0.5...4.5 VDC (load >1 kΩ)	0.1...10 VDC (load >10 kΩ)	4...20 mA (load < minimum 500 Ω)	
Temperature error at measuring range 30 up to 170°	0.625	0.94	0.94	± % FS
Temperature error at measuring range 180 up to 360°	0.31	0.5	0.5	± % FS
Insulation resistance (500 VDC)	≥ 10			MΩ
Cross-section cable	AWG 26, 0.14			mm <sup>2</sup>
<b>Environmental Data</b>				
Temperature range	-40...+85 (generally -25...+85 with M12 connector)			°C
Vibration (IEC 60068-2-6)	5...2000 Hz Amax = 0.75 mm amax = 20 g			
Shock (IEC 60068-2-27)	50 (6 ms)			g
Life	> 50x10 <sup>6</sup>			movements
MTTF (DIN EN ISO 13849-1 parts count method, w/o load)	356 (single) 210 (per channel) partly redundant 388 (per channel) fully redundant	107	105	years years years
Functional Safety	When using our products in safety-related systems, please contact us			
Protection class (DIN EN 60529)	IP54 / IP65 / IP67			
EMC compatibility	EN 61000-4-2 electrostatic discharges (ESD) 4 kV, 8 kV EN 61000-4-3 electromagnetic fields 10 V/m EN 61000-4-4 electrical fast transients (burst) 1 kV EN 61000-4-6 conducted disturbances, induced by RF fields 10 V/m eff. EN 61000-4-8 power frequency magnetic fields 3 A/m EN 55011/EN 55022/A1 radiated disturbances class B			

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Subject to change.

## Ordering specifications

### Preferred types printed in bold:

- reduced delivery time for up to 25 pieces
- best low-volume pricing

### Supply voltage

- 1: 24 V (18 ... 30 V)  
2: 5 V (4.5 ... 5.5 V)

### Output signal - Supply = 24 V

- 1: 0.1 ... 10 V  
2: 4 ... 20 mA

### Output signal - Supply = 5 V

- 1: 0.25 ... 4.75 V ratiometric to Ub  
2: 0.5 ... 4.5 V ratiometric to Ub

### Output characteristics

- 1: rising CW  
2: rising CCW  
3: **crossed output channel 1 rising / channel 2 falling CW (Supply = +5 V only)**  
Other characteristics on request

### Electrical connection

- 201: round cable 4-conductor, 0.5 m shielded  
**202: round cable 4-conductor, 1 m shielded**  
**206: round cable 4-conductor, 3 m shielded**  
210: round cable 4-conductor, 5 m shielded  
220: round cable 4-conductor, 10 m shielded  
**501: connector M12 with round cable, L = 0.15 m, shielded**  
Cable versions and assembled connectors on request

R S C - 2 8 3 2 - 6 3 6 - 2 1 1 - 2 0 2

Series

### Mechanical version

- 2801: 6 mm shaft with marking, IP54  
2831: 6 mm, shaft with marking, IP65  
2861: 6 mm shaft with marking, IP67  
2802: 6 mm shaft with flattening, IP54  
**2832: 6 mm shaft with flattening, IP65**  
2862: 6 mm shaft with flattening, IP67  
2821: push-on coupling, IP54  
**2841: push-on coupling, IP65**  
2871: push-on coupling, IP67  
Other shaft designs on request

### Measuring range

- Example: 03 = 30° (min.,)  
Example: 36 = 360° (max.)  
... **06, 12, 18, 24, 36**  
Other angles on request

### Numbers of channels

- 6: one-channel**  
**7: redundant (two-channel) +5 V supply only**

## Recommended accessories

MAP process control  
indicators with display.