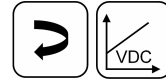


**NOVOHALL  
Rotary Sensor  
Non-contacting**

**RSC-2800**  
Ratiometric  
**Mobile Applications**



**Special Features**

- Non-contacting, magnetic technology
- Measuring range up to 360°
- Available with push-on coupling or marked shaft
- Simple mounting
- Protection class IP54, IP65, IP67
- Long life
- Very small hysteresis
- High resolution 12 bits
- Linearity < ±0.5 %
- Optimized for use in mobile applications with highest EMC requirements such as ISO pulses and high interferences to ISO 11452
- European E1 approved
- Other configurations see separate data sheets

**Applications**

- Mobile working machines (industrial trucks, construction machinery, agricultural and forestry machinery)

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 position information corresponding to the angular position is transmitted via a variety of analog and digital interfaces (see separate data sheets).

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.

**Description**

Material	Housing: high grade, temperature resistant plastic PPS-GF40/SF50 Shaft: SS X8CrNiS18-9 1.4305 / AISI 303
Mounting	With 2 screws M4 and washers
Max. fastening torque of mounting screws	max. 180 Ncm
Bearing	Sintered bronze bushing
Electrical connection	Cable 4x 0.5 mm <sup>2</sup> (AWG 20), TPE, unshielded

**Mechanical Data**

Dimensions	See dimension drawing
Mechanical travel	continuous
Permitted shaft load static or dynamic	20 N (axial / radial)
Torque	0.15 Ncm (IP54), 0.5 Ncm (IP65), 1.0 Ncm (IP67)
Weight	approx. 50 g

Ordering Specifications

Ordering Specifications

Preferred types printed in bold

- Delivery time up to 25 pcs. within 10 working days EXW
- Best low-volume pricing

Supply voltage Ub

2: Ub = 5 VDC

Interface parameters

- 1: **5 ... 95% ratiometric to supply voltage Ub (0.25 ... 4.75 VDC)**  
2: 10 ... 90% ratiometric to supply voltage Ub (0.5 ... 4.5 VDC)

Output characteristic

- 1: **Rising output characteristic cw**  
2: Rising output characteristic ccw  
Other output characteristics on request

Electrical connection

- 252: **Cable, 4-pole, unshielded, L = 1 m**  
256: **Cable, 4-pole, unshielded, L = 3 m**  
Cable versions and assembled connectors on request

R S C - 2 8 3 2 - 6 3 6 - 2 1 1 - 2 5 2

Series

Measuring range

- 03: Angle 0° ... 30° min.  
...  
**06, 12, 18, 24, 36**  
...  
36: Angle 0° ... 360° max.  
Other angles on request

Number of channels

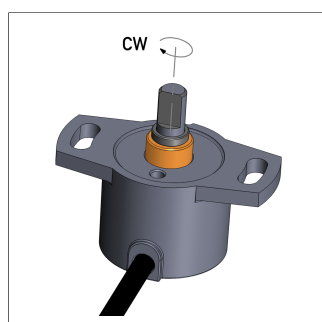
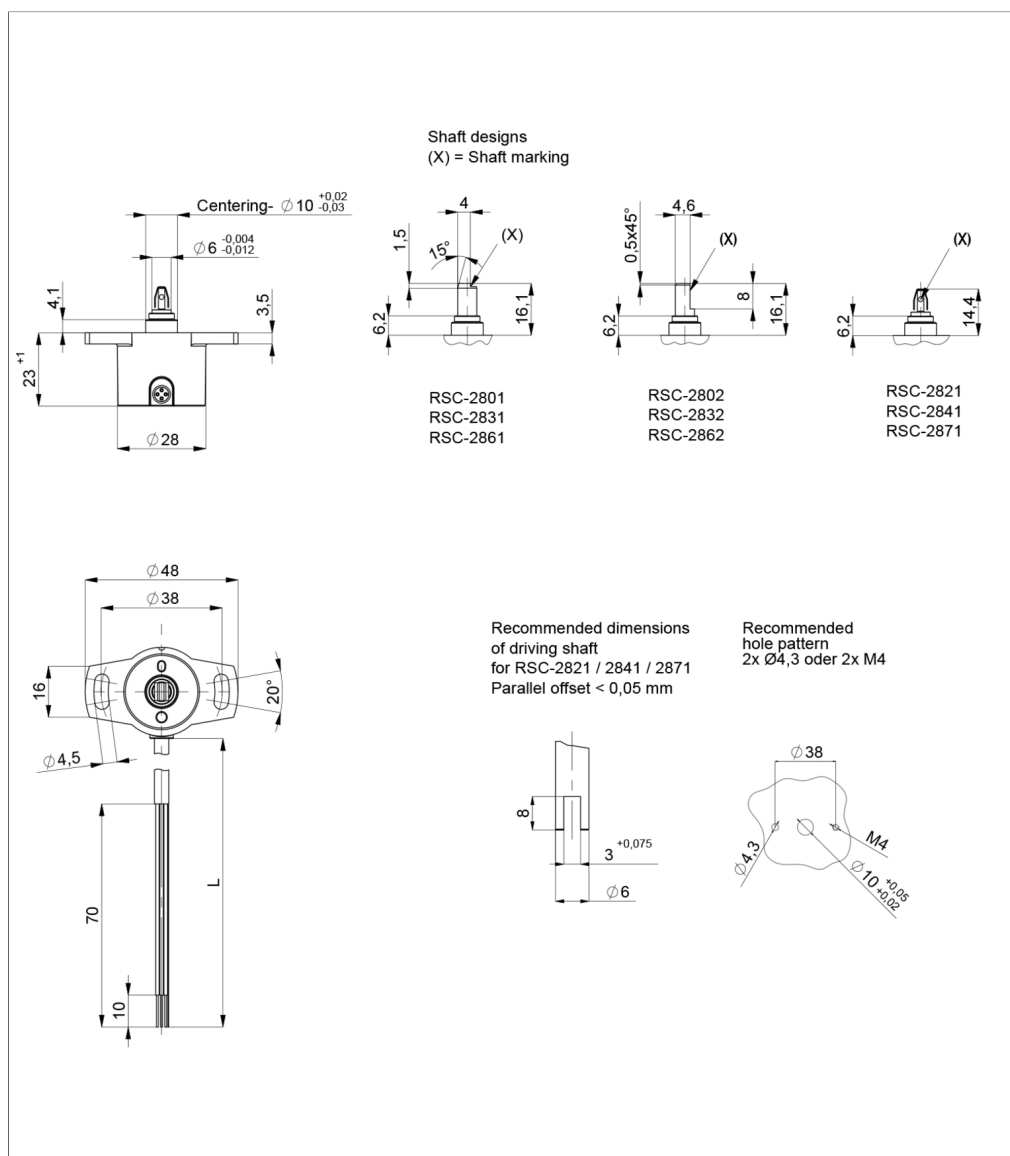
6: **One-channel version (1 x supply voltage Ub / 1 x output)**

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 configurations on request  
\* Not recommended for new designs

## Drawing

CAD data see  
[www.novotechnik.de/en/download/cad-data/](http://www.novotechnik.de/en/download/cad-data/)



When the marking of the  
shaft is pointing towards  
the electrical outlet,  
the sensor output is near  
the electrical center  
position.

## Technical Data

<b>Type</b>	<b>RSC-28 _ _ _ _ -2 _ _ _ _</b>
Output signal	ratiometric to supply voltage Ub 5 ... 95% (0.25 ... 4.75 V) 10 ... 90% (0.5 ... 4.5 V)
Load	≥ 1 kΩ
Number of channels	1
Update rate	typ. 5 kHz
Measuring range	0 ... 30° up to 0 ... 360° in 10°-steps
Independent linearity	≤ ±0.5 %FS
Resolution	12 bits
Repeatability	≤ ±0.1°
Hysteresis	≤ ±0.1°
Temperature error	Measuring range 30 ... 170°: typ. ±0.625 %FS, Measuring range ≥ 180°: typ. ±0.31 %FS
Supply voltage Ub	5 VDC (4.5 ... 5.5 VDC)
Current consumption w/o load	typ. 15 mA (typ. 8 mA on request)
Polarity protection	yes (supply lines)
Short circuit protection	yes (vs. GND and supply voltage)
Insulation resistance (500 VDC)	≥ 10 MΩ
<b>Environmental Data</b>	
Max. operational speed	800 rpm
Vibration IEC 60068-2-6	20 g, 5 ... 2000 Hz, Amax = 0.75 mm
Shock IEC 60068-2-27	50 g, 6 ms
Protection class DIN EN 60529	IP54 / IP65 / IP67
Operating temperature	-40 ... +85°C
Life	> 50 Mio. movements (mechanically)
Functional safety	If you need assistance in using our products in safety-related systems, please contact us
MTTF (IEC 60050)	4166 years
<b>EMC Compatibility</b>	
ISO 11452-2 Radiated HF-fields	30 V/m
ISO 11452-5 Radiated HF-Fields, stripline	60 V/m
CISPR 25 Radiated emission	Level acc. ECE-R10
Emission/Immunity E1	acc. to ECE-R10

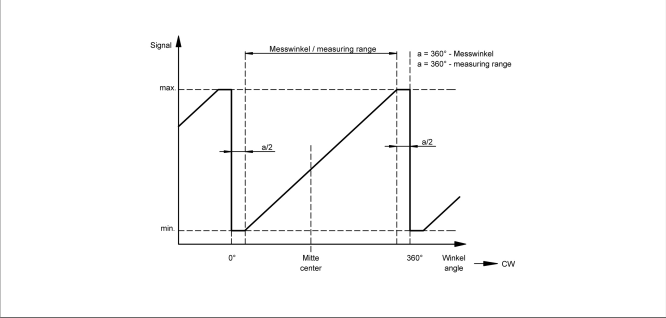
FS = Full scale: Signal span according to electrical measuring range

### Connection Assignment

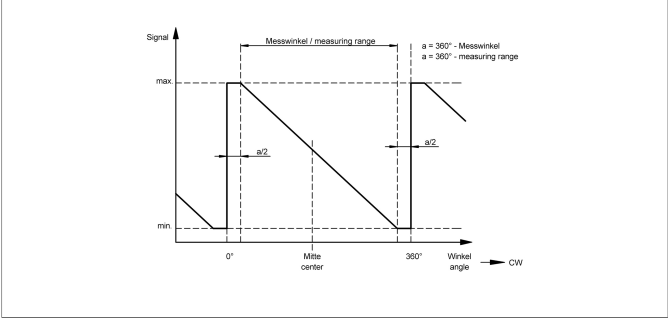
Signal	Cable code 2_ _
Supply voltage Ub	GN
GND	BN
Signal output	WH
Do not connect / not assigned	YE

Technical Data  
Output  
Characteristics

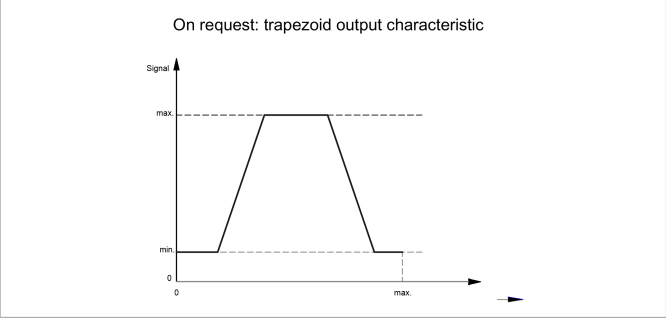
Output characteristic



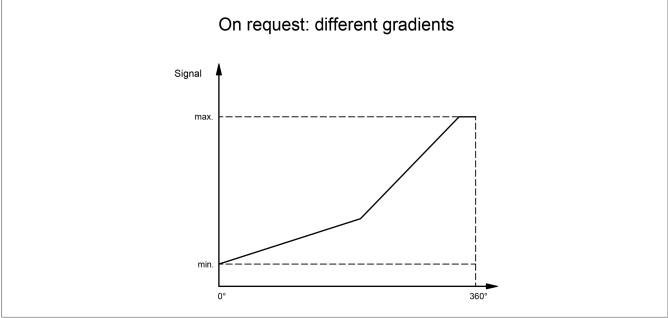
Output characteristic



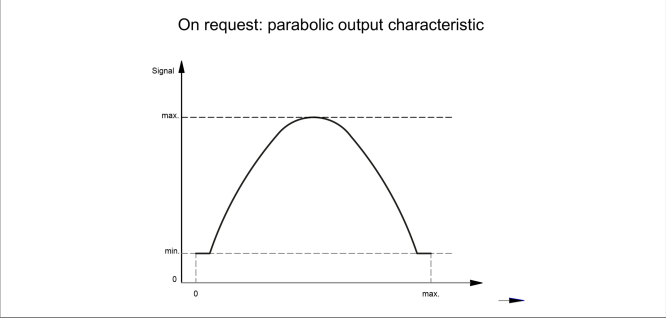
Output characteristic



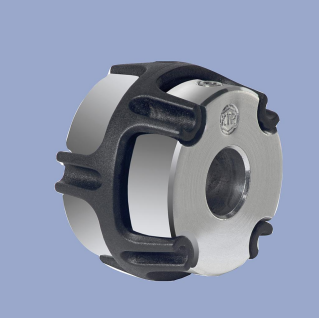
Output characteristic

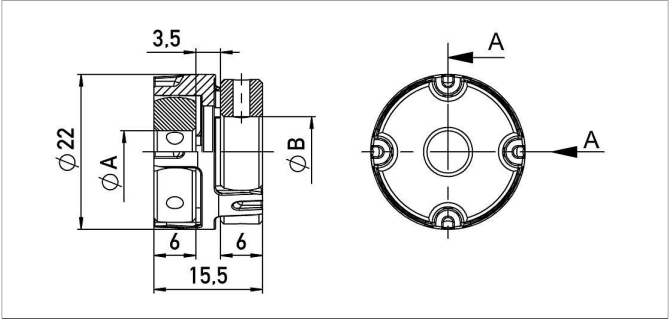


Output characteristic



Sensor Mounting

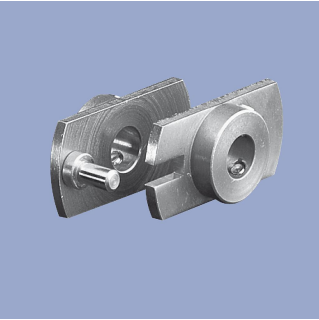


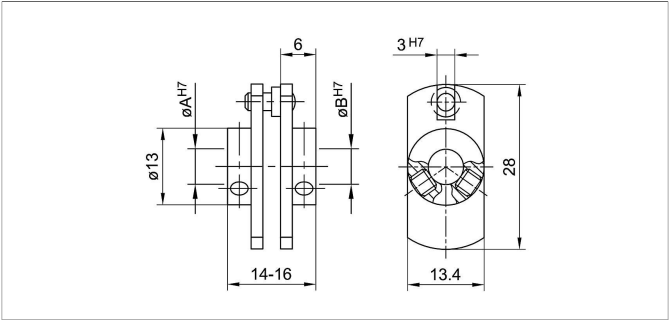


**Z-106-G-**  
Backlash-free, double cardanic shaft coupling for Ø6 mm to Ø6 mm, Ø6.35 mm or Ø10 mm, mounting via 2 threaded pins with internal hexagon

Material                    Aluminium, PEEK  
Operating temp.        -40 ... +160°C  
Transferable torque    ≤ 1 Nm  
Displacement          rad. ≤ 0.1 mm, angl. ≤ 0.45°

P/N	Type	ØA / ØB [mm]
400103910	Z-106-G-6	6 / 6
400103912	Z-106-G-6,35	6 / 6.35
400103913	Z-106-G-10	6 / 10

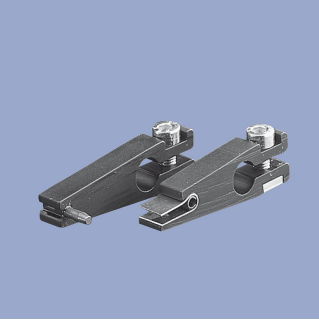


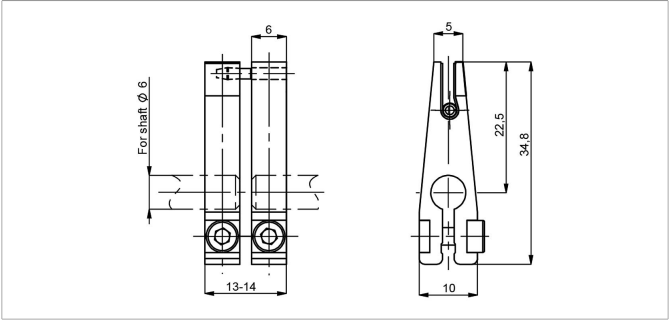


**Z-104-G-6**  
Fork coupling with low backlash for Ø6 mm. Mounting with 2 cylinder head screws M3 with internal hexagon.  
Angle screwdriver DIN 911 AF 1.5 included in delivery.

Material                    SS, ground driving pin  
Displacement          ≤ 1 mm

P/N	Type	ØA / ØB [mm]
400005690	Z-104-G-6	6 / 6





**Z-105-G-6**  
Backlash-free fork coupling for Ø6 mm. Mounting with 1 cylinder head screw M3 with internal hexagon.  
Angle screwdriver DIN 911 AF 2.5 included in delivery.

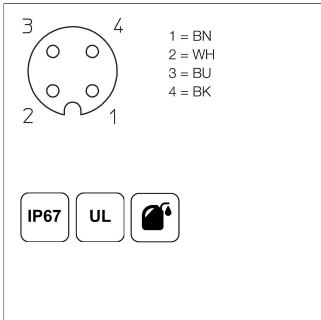
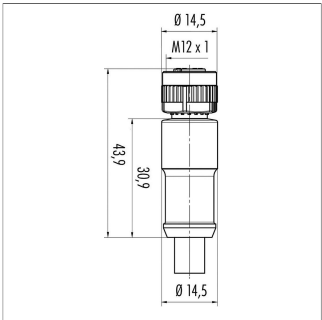
Material                    Aluminium, anodized (black)  
Driving pin and spring hardened

Transferable torque    ≤ 5 Ncm  
Displacement          ≤ 1 mm

P/N	Type
400005691	Z-105-G-6

Connector System

M12



EEM-33-35/36/37

M12x1 Mating female connector, 4-pin, straight, A-coded, with molded cable, not shielded, IP67, open ended

Plug housingPA

Cable sheathPUR, Ø = max. 6 mm, -40 ... +85°C (fixed)

Lead wiresPP, 0.34 mm²

P/N	Type	Length
400056135	EEM-33-35	2 m
400056136	EEM-33-36	5 m
400056137	EEM-33-37	10 m

IP67

Protection class IP67 DIN EN 60529

IP68

Protection class IP68 DIN EN 60529

Very good Electromagnetic Compatibility (EMC) and shield systems

Very good resistance to oils, coolants and lubricants

C

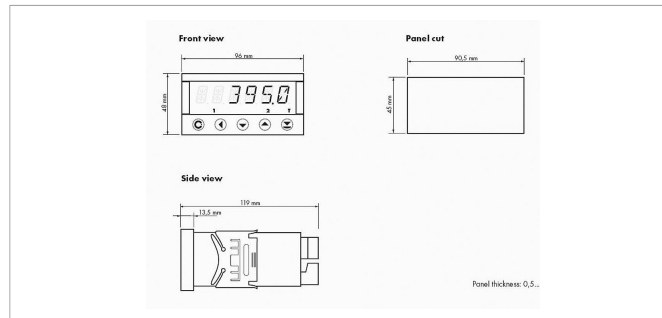
Suited for applications in dragchains

UL

UL - approved

CAN-Bus

## Signal Processing



### MAP-4000

Multifunctional measuring device with digital display for direct connection of potentiometric and normalized signals.

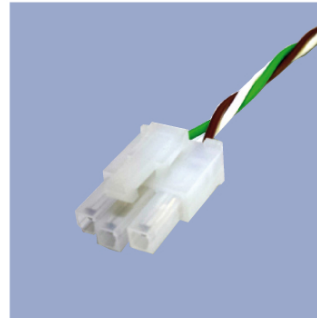
- Supply voltage 10...30 VDC, 80...250 VDC or AC
- High accuracy up to 0.1%
- Adjustable supply voltage for sensors 5...24 V
- Temperature coefficient 100 ppm/K
- Optional RS 232, RS 485, analog output, limited switch
- Complete data see separate data sheet

## Connecting Options on request



**M12 connector**

- Customized lengths
- 3-, 4-, 6- and 8-pole versions
- Protection class IP68
- Ordering codes of standard versions see ordering specifications



**Molex Mini Fit jr.**

- Customized length and lead wires
- 3-, 4- and 6-pole versions
- On request



**Tyco AMP Super Seal**

- Pin- and bushing housing
- Customized lengths
- 3-, 4- and 6-pole versions
- Protection class IP67
- On request



**Molex Mini Fit jr.**

- Customized length and lead wires
- 3-, 4- and 6-pole versions
- On request



**Deutsch DTM 04**

- Pin- and bushing housing
- Customized lengths
- 3-, 4- and 6-pole versions
- Protection class IP67
- On request



**ITT Cannon Sure Seal connector**

- Customized lengths
- 3-, 4- and 6-pole versions
- Protection class IP67
- On request

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