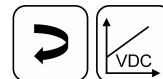


**NOVOHALL
Rotary Sensor
Non-contacting**

**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 <math>< \pm 0.5 \%</math>
- 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: stainless steel, X8CrNiS18-9 1.4305
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 ² (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

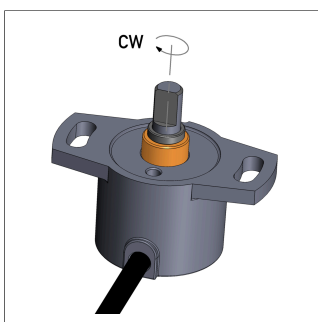
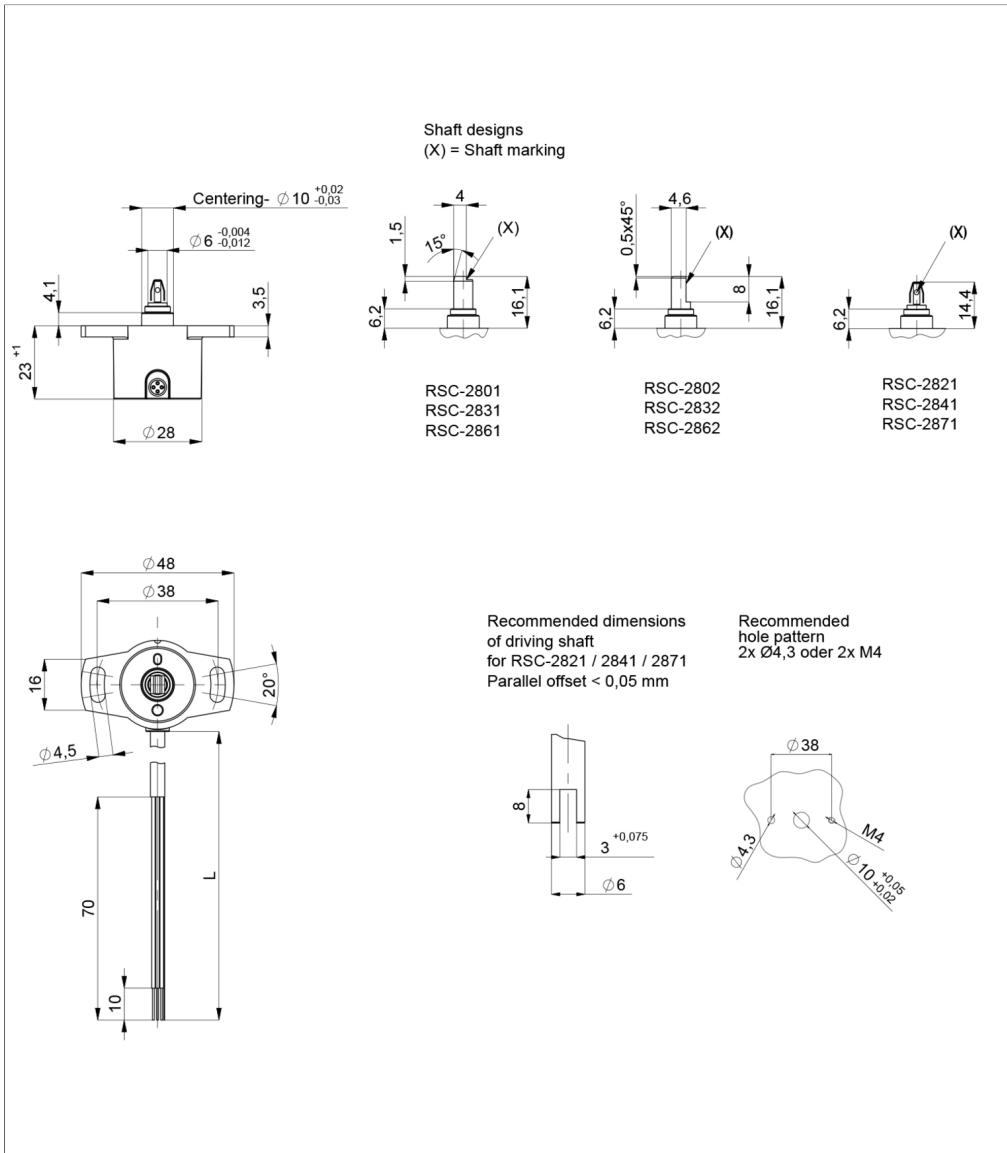
6: One-channel version (1 x supply voltage Ub / 1 x output)

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/



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

Technical Data

Type	RSC-28 _ _ _ _ -2_ _ _ _
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 Ub)
Insulation resistance (500 VDC)	≥ 10 MΩ
Environmental Data	
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
EMC Compatibility	
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

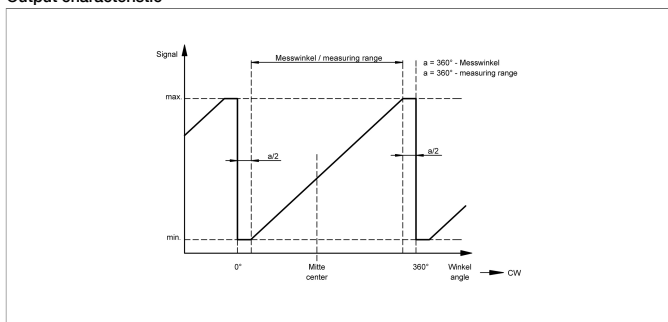
FS = Full scale: Signal span according to electrical measuring range

Connection Assignment

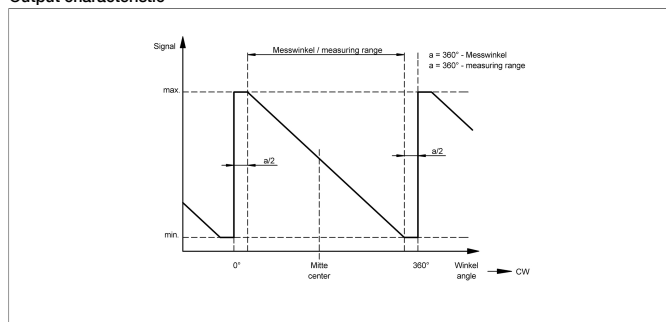
Signal	Cable code 2_ _
Supply voltage Ub	GN
GND	BN
Signal output	WH
Do not connect / not assigned	YE

**Technical Data
Output
Characteristics**

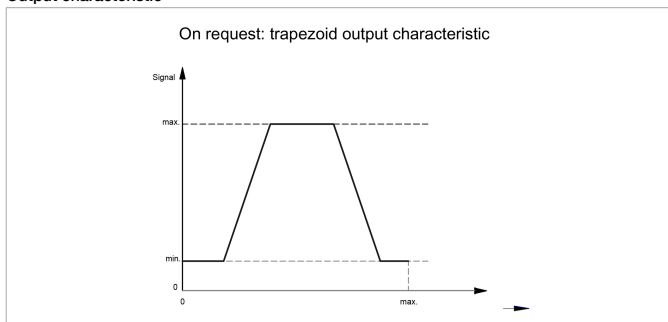
Output characteristic



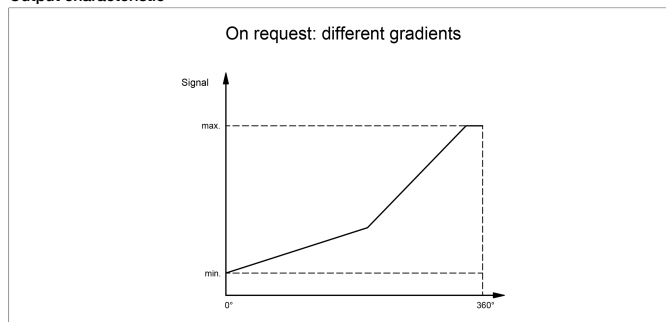
Output characteristic



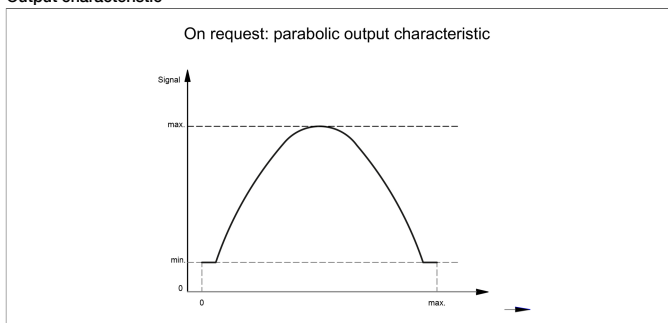
Output characteristic



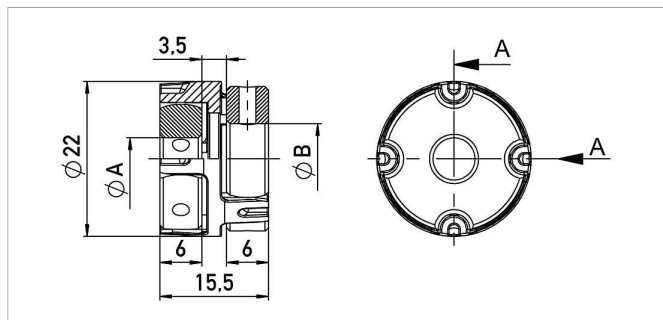
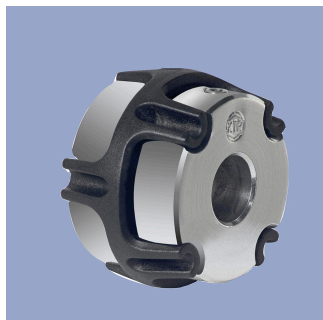
Output characteristic



Output characteristic



Sensor Mounting



Z-106-G_

Backlash-free, double cardanic shaft coupling for $\varnothing 6$ mm to $\varnothing 6$ mm, $\varnothing 6.35$ mm or $\varnothing 10$ mm, mounting via 2 threaded pins with internal hexagon

Material Aluminium, PEEK

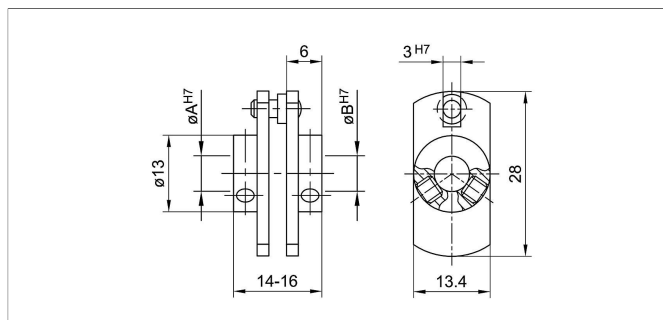
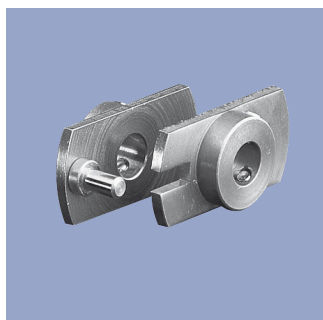
Operating temp. $-40 \dots +160^\circ\text{C}$

Transferable ≤ 1 Nm

torque

Displacement rad. ≤ 0.1 mm, angl. $\leq 0.45^\circ$

P/N	Type	$\varnothing A / \varnothing B$ [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 $\varnothing 6$ mm.

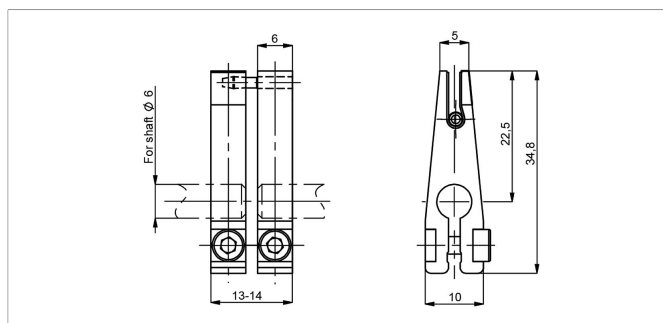
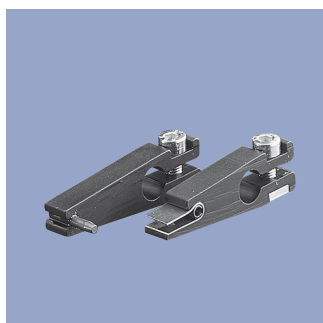
Mounting with 2 cylinder head screws M3 with internal hexagon.

Angle screwdriver DIN 911 AF 1.5 included in delivery.

Material Stainless Steel, driving pin polished

Displacement ≤ 1 mm

P/N	Type	$\varnothing A / \varnothing B$ [mm]
400005690	Z-104-G-6	6 / 6



Z-105-G-6

Backlash-free fork coupling for $\varnothing 6$ 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

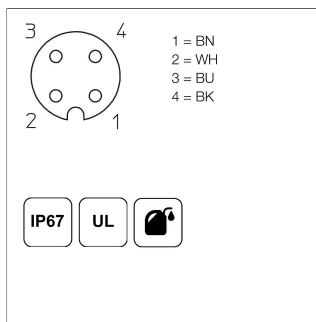
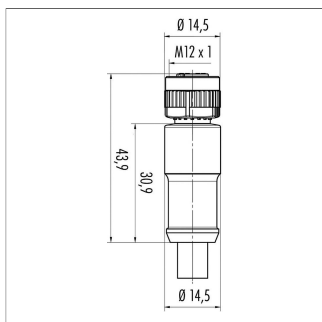
Transferable ≤ 5 Ncm

torque

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 housing PA
Cable sheath PUR, Ø = max. 6 mm, -40 ... +85°C (fixed)
Lead wires PP, 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

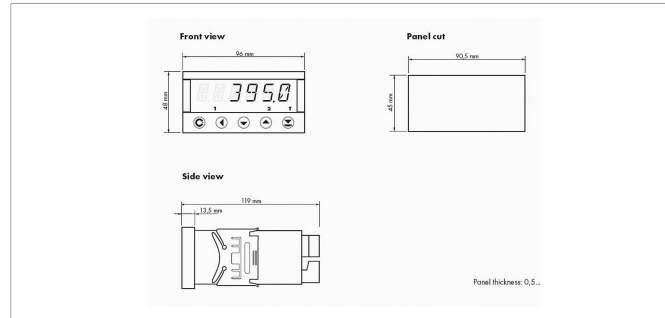
 Very good resistance to oils, coolants and lubricants

 Suited for applications in dragchains

UL UL - approved

 CAN-Bus

Signal Processing



MAP-4000

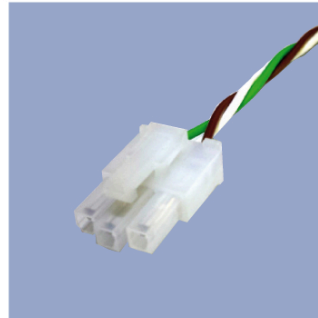
Multifunctional measuring device with digital display for direct connection of potentiometric and normalized signals.

- 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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