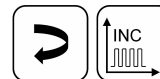


**NOVOHALL  
Rotary Sensor  
Non-contacting**

**RSC-2800  
Incremental  
Industrial**



**Special Features**

- Non-contacting, magnetic technology
- Measuring range 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>
- Other configurations see separate data sheets

**Applications**

- Manufacturing Engineering (textile machinery, packaging machinery, sheet metal and wire machinery)
- Automation technology
- Medical Engineering

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 2x 0.25 mm <sup>2</sup> (AWG 24), TPE, shielded / Connector M12x1, A-coded with cable L = 0.15 m

**Mechanical Data**

Dimensions	See dimension drawing
Mechanical travel	360° 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 (w/o connection)	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

#### Interface

5: Incremental Interface A / B / Z

##### Interface parameters

- 15: Ub = 5 VDC, output RS422, TTL-compatible
- 35: Ub = 24 VDC, output RS422, TTL-compatible
- 39: Ub = 24 VDC, HTL-compatible, push-pull

On request:

High side and low side outputs

UVW signals instead of ABZ signals for motor commutation

Absolute position at Power On (Power on burst)

##### Electrical connection

- 432: Cable, 8-pole, shielded, L = 1 m
  - 436: Cable, 8-pole, shielded, L = 3 m
  - 440: Cable, 8-pole, shielded, L = 5 m
  - 450: Cable, 8-pole, shielded, L = 10 m
  - 531: Connector M12x1, 8-pin, with cable, shielded, L = 0.15 m
- Cable versions and assembled connectors on request

**R S C - 2 8 3 2 - 2 1 2 - 5 3 5 - 4 3 2**

Series

#### Mechanical version

- 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

#### Resolution

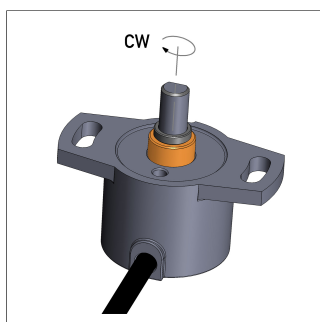
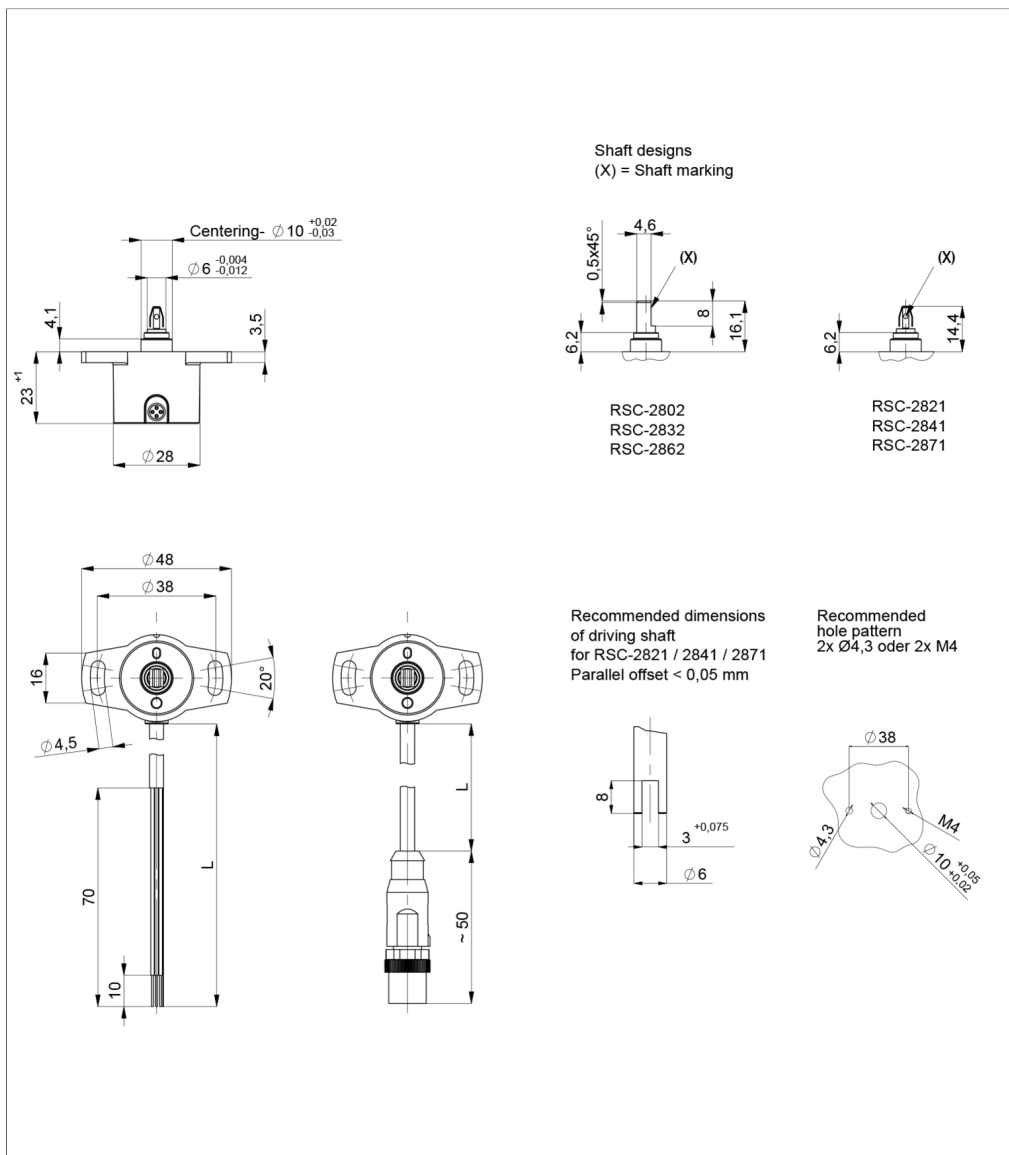
- 12: 1024 ppr - 4096 counts (after quadrature)
  - 11: 512 ppr - 2048 counts (after quadrature)
  - 10: 256 ppr - 1024 counts (after quadrature)
  - 09: 128 ppr - 512 counts (after quadrature)
- Other resolutions on request

#### Interface

2: Digital Interface

**Drawing**

CAD data see  
www.novotechnik.de/en/download/cad-  
data/



When the marking of the shaft is pointing away from the electrical outlet, the output is in the vicinity of the reference pulse (Z).  
Rotational direction CW: A leads before B.

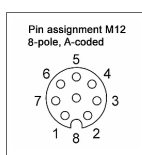
## Technical Data

Type	RSC-28_-2_-51_-	RSC-28_-2_-535_-	RSC-28_-2_-539_-
	<b>Supply Voltage 5 VDC, TTL</b>	<b>Supply Voltage 24 VDC, TTL</b>	<b>Supply Voltage 24 VDC, HTL</b>
Measuring range	360°		
Outputs	A+ / A-, B+ / B-, Z+ / Z-		
Level	RS-422, TTL compatible	RS-422, TTL compatible	HTL compatible, Push-Pull
Length Z-pulse	90° electrical, distance between 2 edges A/B		
Pulses per revolution	1024 / 512 / 256 / 128 ppr		
Counts per revolution	4096 / 2048 / 1024 / 512 after quadrature		
Minimum edge separation	8 µs		
Min. input frequency of counter input	32 kHz		
Independent linearity	typ. ±0.5 %FS		
Repeatability	≤ ±0.2°		
Hysteresis	≤ ±0.7°, lower hysteresis on request		
Temperature error	±0.375 %FS		
Supply voltage Ub	5 VDC (4.5 ... 5.5 VDC)	24 VDC (18 ... 30 VDC)	24 VDC (18 ... 30 VDC)
Current consumption w/o load	typ. 20 mA	typ. 10 mA	typ. 10 mA
Polarity protection	yes (supply lines)		
Short circuit protection	yes (all outputs vs. GND and supply voltage)	yes (all outputs vs. GND)	yes (all outputs vs. GND and supply voltage)
Ohmic load at outputs	≥ 120 Ω per channel A / B / Z	≥ 120 Ω per channel A / B / Z	≥ 120 Ω per channel A / B / Z
Insulation resistance (500 VDC)	≥ 10 MΩ		
<b>Environmental Data</b>			
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 -25 ... +85°C (connector M12)		
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)	246 years	126 years	126 years
<b>EMC Compatibility</b>			
EN 61000-4-2 ESD (contact/air discharge)	4 kV, 8 kV		
EN 61000-4-3 Electromagnetic fields (RFI)	10 V/m		
EN 61000-4-4 Fast transients (burst)	1 kV		
EN 61000-4-6 Cond. disturbances (HF fields)	10 V eff.		
EN 55016-2-3 Radiated disturbances	Industrial and residential area		

### Connection Assignment

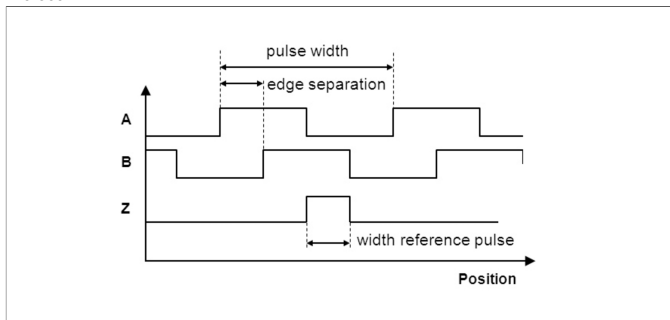
Signal	Cable code 4_ _	Connector code 5_ _
Supply voltage Ub	WH	Pin 1
GND	BN	Pin 2
A-	GN	Pin 3
A+	YE	Pin 4
B-	GY	Pin 5
B+	PK	Pin 6
Z-	RD	Pin 8
Z+	BU	Pin 7

Connect cable shielding to GND

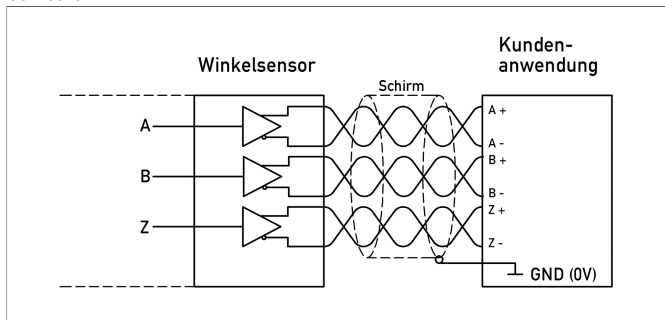


## Technical Data

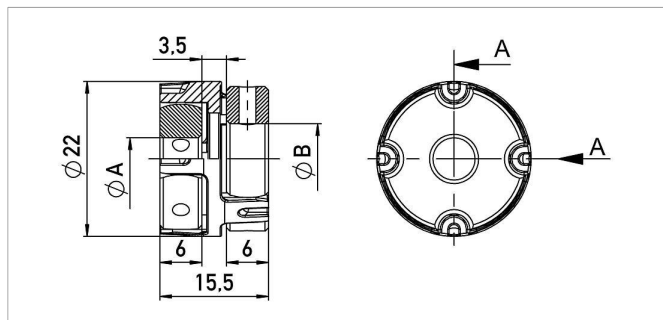
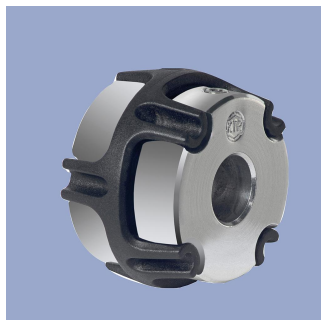
Protocol



Connection



## 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

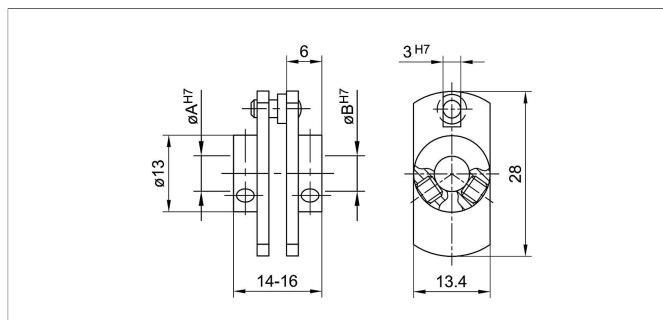
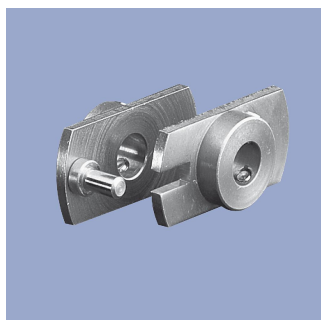
Operating temp.  $-40 \dots +160^\circ\text{C}$

Transferable  $\leq 1$  Nm

torque

Displacement rad.  $\leq 0.1$  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.

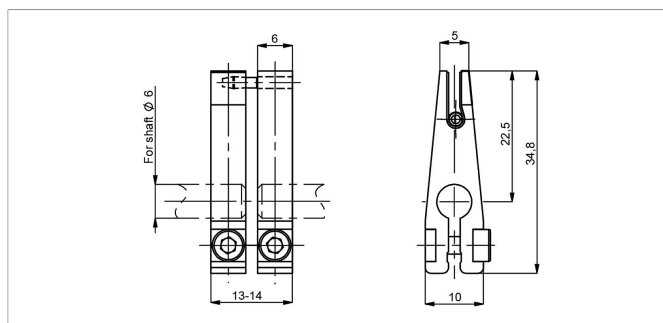
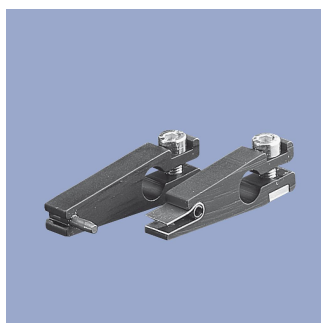
Mounting with 2 cylinder head screws M3 with internal hexagon.

Angle screwdriver DIN 911 AF 1.5 included in delivery.

Material Stainless Steel, driving pin polished

Displacement  $\leq 1$  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

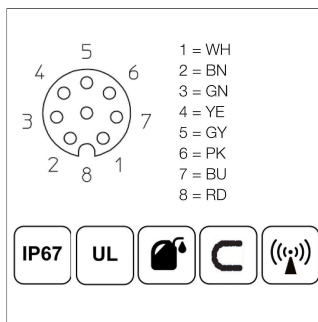
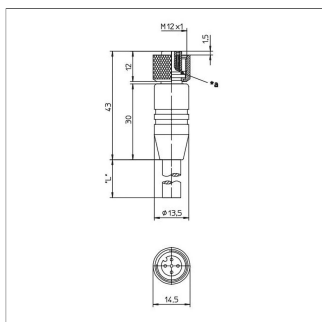
Transferable  $\leq 5$  Ncm

torque

Displacement  $\leq 1$  mm

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

## Connector System M12



**EEM-33-86/90/92**  
M12x1 Mating female connector, 8-pin, straight, A-coded, with molded cable, shielded, IP67, open ended


Plug housing PA  
Cable sheath PUR, Ø = max. 8 mm, -25 ... +80°C (moved), -50 ... +80°C (fixed)


Lead wires PP, 0.25 mm<sup>2</sup>

P/N	Type	Length
400005629	EEM-33-86	2 m
400005635	EEM-33-90	5 m
400005637	EEM-33-92	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

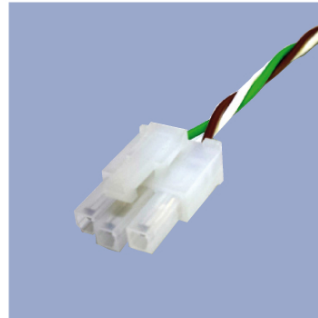
**UL** UL - approved

 CAN-Bus

## 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



Novotechnik  
Messwertaufnehmer OHG  
P.O.Box 4220  
73745 Ostfildern (Germany)  
Horbstrasse 12  
73760 Ostfildern (Germany)  
Phone +49 711 4489-0  
Fax +49 711 4489-118  
info@novotechnik.de  
www.novotechnik.de



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