

**NOVOHALL
Rotary Sensor
Non-contacting**

**RSC-2800
SSI
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 < $\pm 0.5\%$
- 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: 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 2x 0.25 mm ² (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

4: Synchronous-Serial Interface (SSI)

Interface parameters

- 11: Ub = 5 VDC, rising output characteristic cw**
- 12: Ub = 5 VDC, rising output characteristic ccw
- 41: Ub = 24 VDC, rising output characteristic cw**
- 42: Ub = 24 VDC, rising output characteristic ccw

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 - 4 4 1 - 4 3 2

Series

Mechanical version

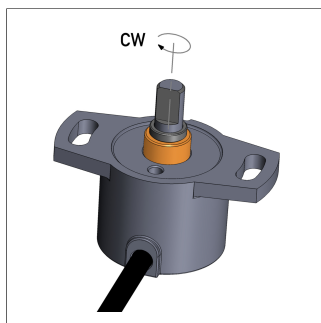
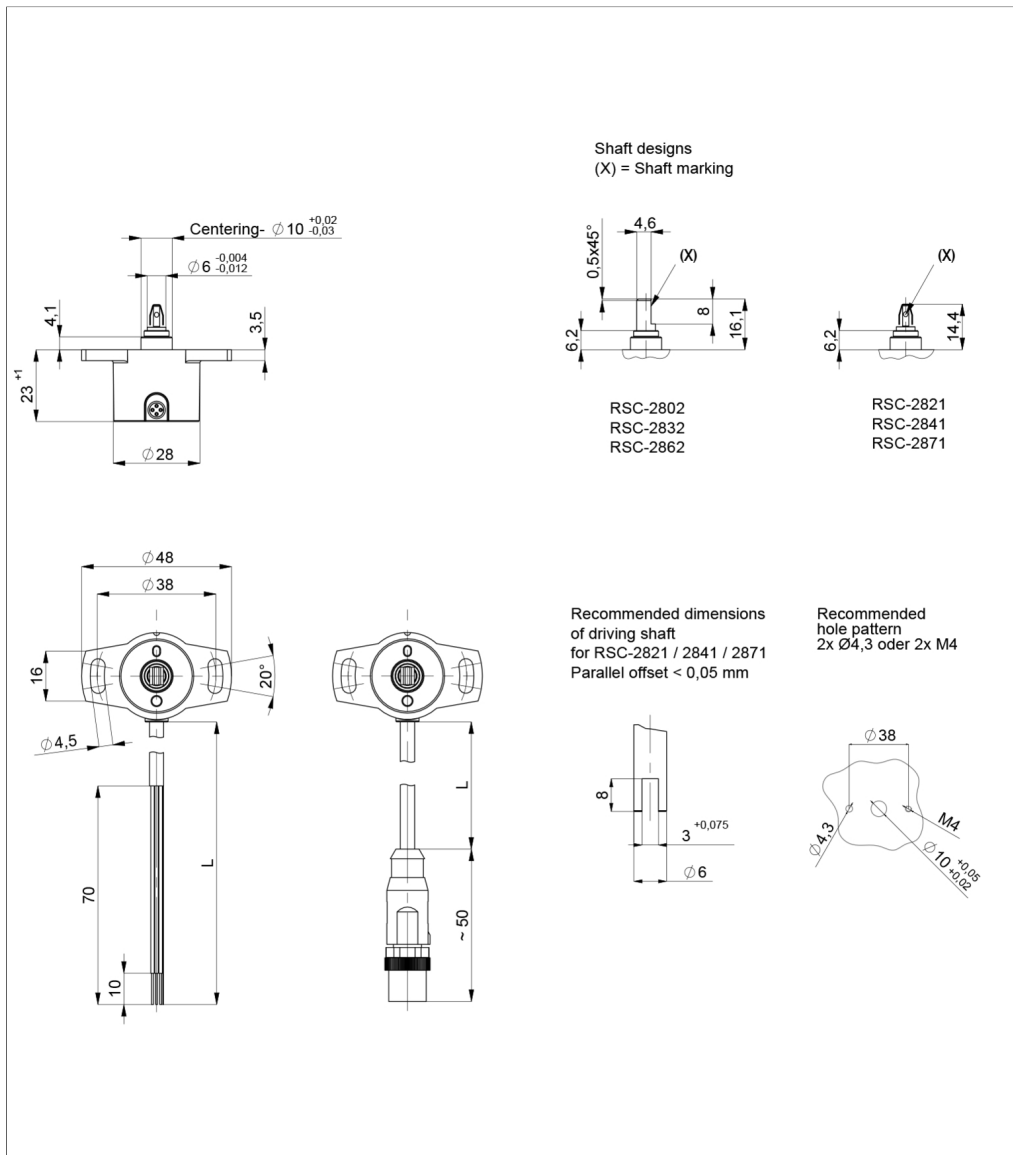
- 2802: 6 mm shaft with flattening, IP54
 - 2832: 6 mm shaft with flattening, IP65**
 - 2862: 6 mm shaft with flattening, IP67
 - 2821: push-on coupling, IP54
 - 2841: push-on coupling, IP65**
 - 2871: push-on coupling, IP67
- Other shaft configurations on request

Resolution

- 212: 12 bits**
- Other resolutions on request

Drawing

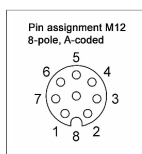
CAD data see
www.novotechnik.de/en/download/cad-
data/



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

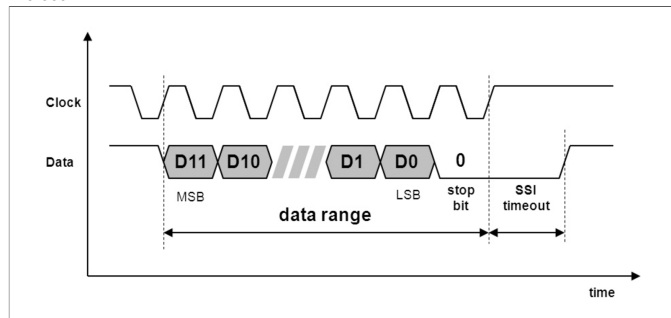
Technical Data

| Type | RSC-28 _-212-41 _- _- _- Supply voltage 5 VDC | RSC-28 _-212-44 _- _- _- Supply voltage 24 VDC |
|---|---|---|
| Measuring range | 360° | |
| Protocol | SSI 13 bits (12 bits data + 1 stop bit) | |
| Coding | Gray | |
| Inputs | RS-422 compatible, CLK lines via optocoupler galvanically isolated | |
| Monoflop time (tm) | 16 µs | |
| Update rate (internal) | 2 000 kHz | |
| Resolution (across 360°) | 12 bits | |
| 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) |
| Current consumption w/o load | typ. 27 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) |
| Ohmic load at outputs | ≥ 120 Ω | |
| Max. clock rate | 1 MHz | |
| 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 -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) | 148 years | 104 years |
| EMC Compatibility | | |
| 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 |
| CLK - | GN | Pin 3 |
| CLK + | YE | Pin 4 |
| Data - | GY | Pin 5 |
| Data + | PK | Pin 6 |
| Do not connect | BU | Pin 7 |
| Do not connect | RD | Pin 8 |
| Connect cable shielding to GND | | |

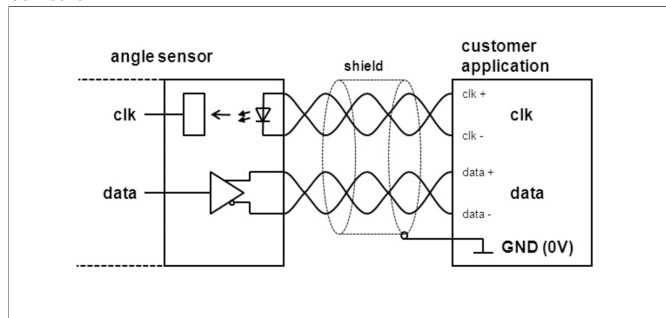


Technical Data

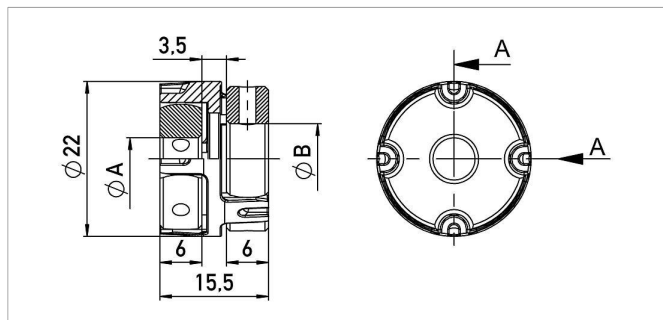
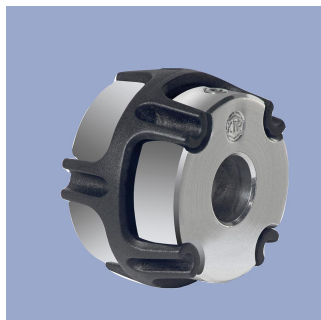
Protocol



Connection



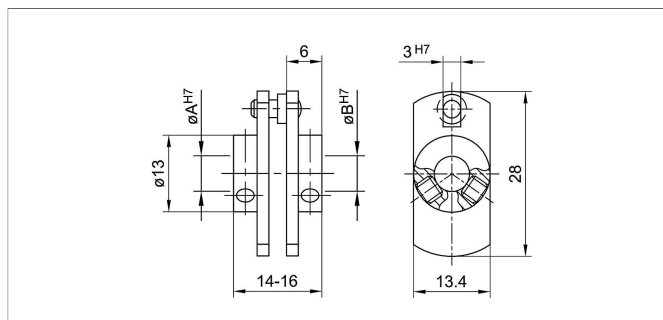
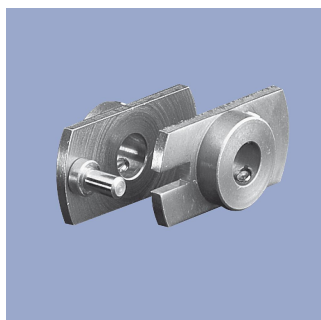
Sensor Mounting



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 torque ≤ 1 Nm
Displacement rad. ≤ 0.1 mm, angl. $\leq 0.45^\circ$

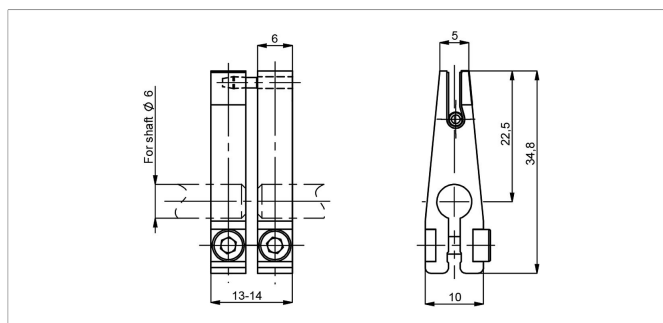
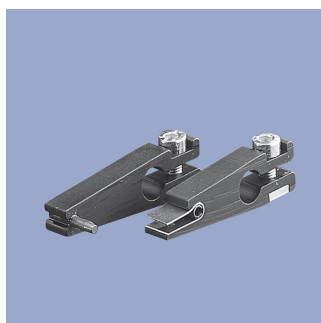
| P/N | Type | $\varnothing A / \varnothing B$ [mm] |
|-----------|--------------|--------------------------------------|
| 400103910 | Z-106-G-6 | 6 / 6 |
| 400103912 | Z-106-G-6,35 | 6 / 6.35 |
| 400103913 | Z-106-G-10 | 6 / 10 |



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 SS, ground driving pin
Displacement ≤ 1 mm

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

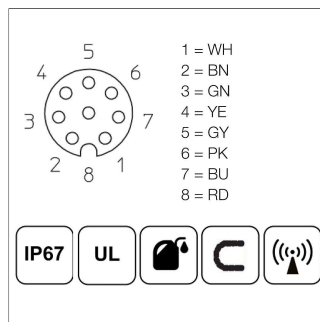
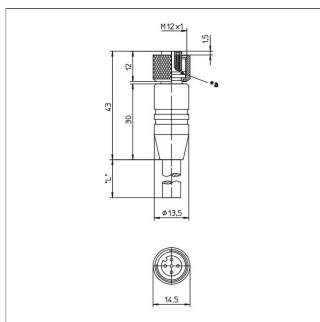


Z-105-G-6
Backlash-free fork coupling for $\varnothing 6$ mm. Mounting with 1 cylinder head screw M3 with internal hexagon. Angle screwdriver DIN 911 AF 2.5 included in delivery.

Material Aluminium, anodized (black)
Driving pin and spring hardened
Transferable torque ≤ 5 Ncm
Displacement ≤ 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 mm²

| 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

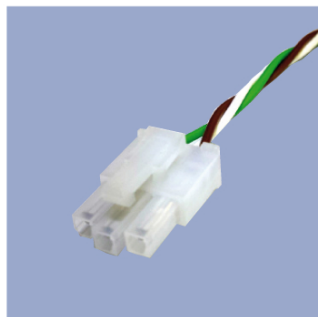
UL UL - approved

 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 U.S., Inc.
155 Northboro Road

Southborough, MA 01772
Phone 508 485 2244
Fax 508 485 2430
info@novotechnik.com
www.novotechnik.com



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