novotechnik
Siedle Group

Project item
Please contact your local distributor or our technical support
Phone (+49) 711 4489-250
support@novotechnik.de

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 < ±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: 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 mm² (AWG 24), TPE, shielded / Connector M12x1, A-coded with cable L = 0.15 m

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 (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

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

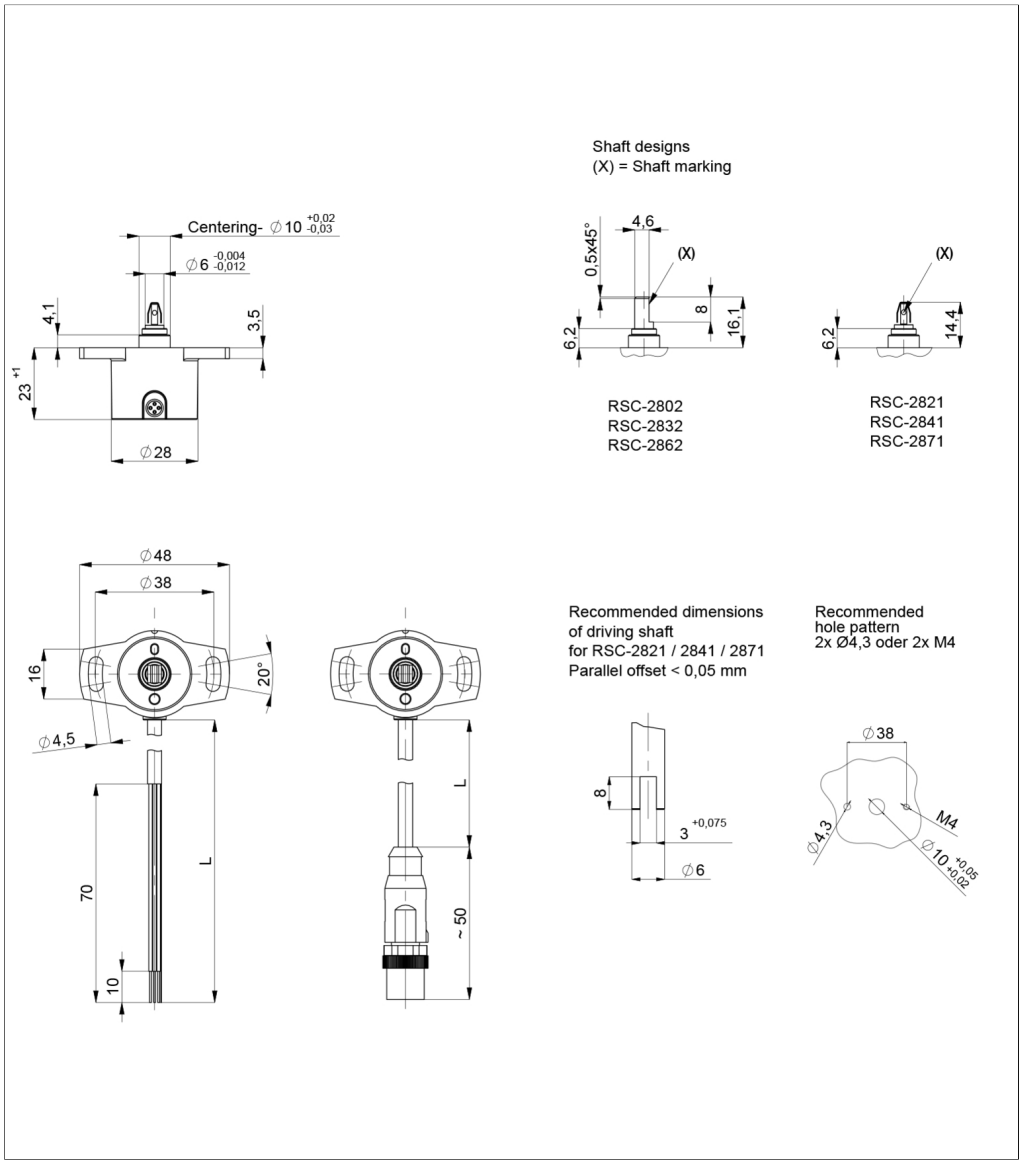
Interface
2: Digital Interface

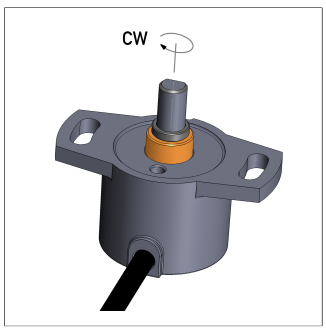
Mechanical version
2802: 6 mm shaft with flattening, IP54
2832: 6 mm shaft with flattening, IP65
2862: 6 mm shaft with flattening, IP67
2821: push-on coupling, IP54
2841: push-on coupling, IP65
2871: push-on coupling, IP67
Other shaft configurations on request

Series

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.

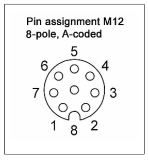
Technical Data

Type	**RSC-28_ _-2_ _-51_-_ _ _** **Supply Voltage 5 VDC, TTL**	**RSC-28_ _-2_ _-535-_ _ _** **Supply Voltage 24 VDC, TTL**	**RSC-28_ _-2_ _-539-_ _ _** **Supply Voltage 24 VDC, HTL**
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		
Environmental Data			
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
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		

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

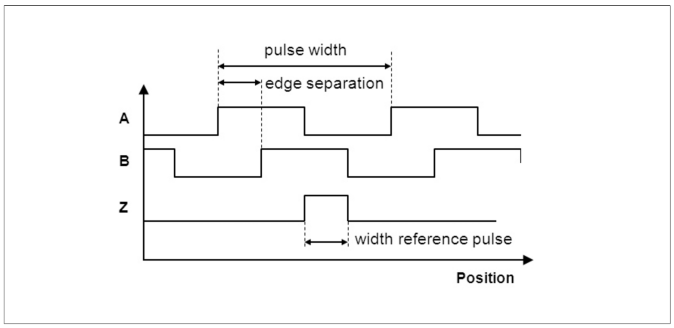
Connection Assignment

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	

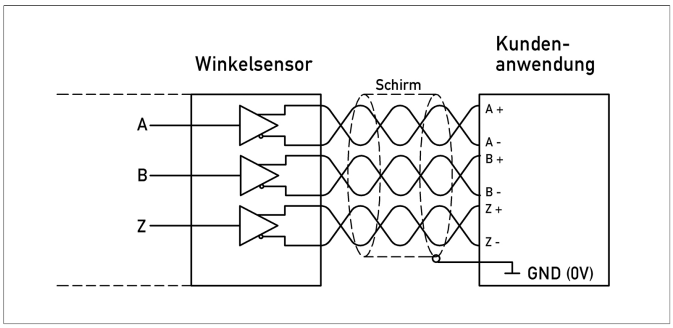


Technical Data

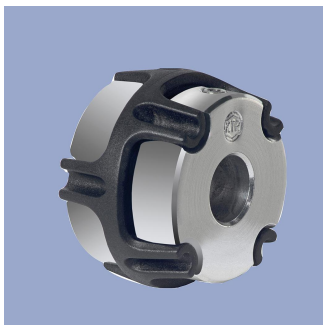
Protocol

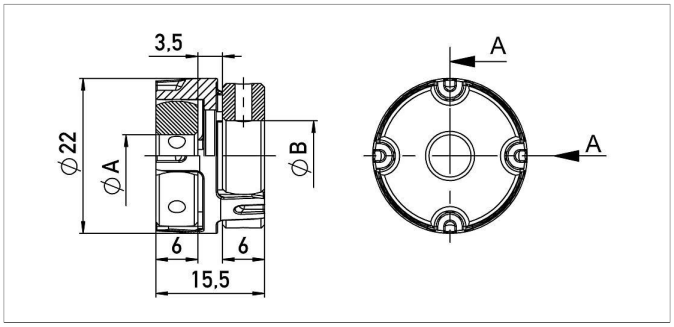


Connection



Sensor Mounting

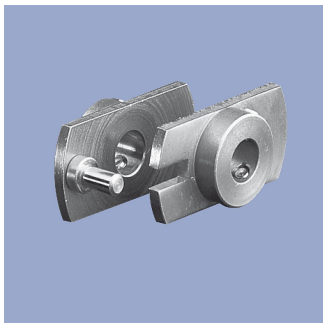


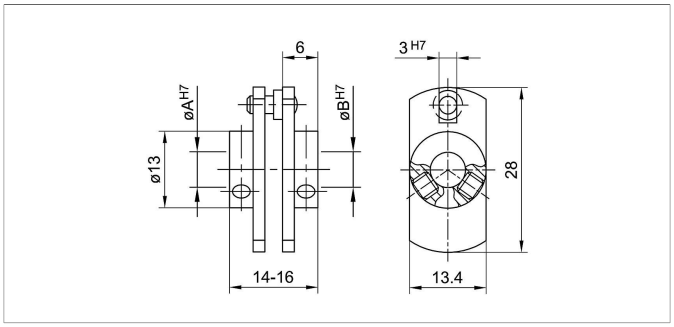


Z-106-G-_
Backlash-free, double cardanic shaft coupling for Ø6 mm to Ø6 mm, Ø6.35 mm or Ø10 mm, mounting via 2 threaded pins with internal hexagon

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

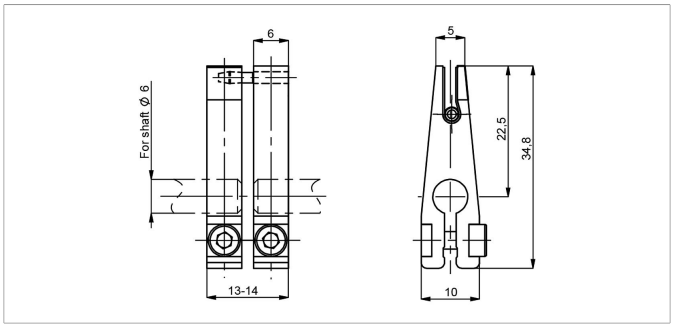




Z-104-G-6
Fork coupling with low backlash for Ø6 mm. Mounting with 2 cylinder head screws M3 with internal hexagon.
Angle screwdriver DIN 911 AF 1.5 included in delivery.

Material	Stainless Steel, driving pin polished
Displacement	≤ 1 mm

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

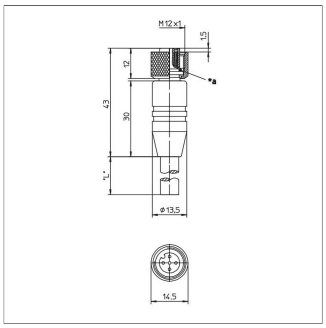


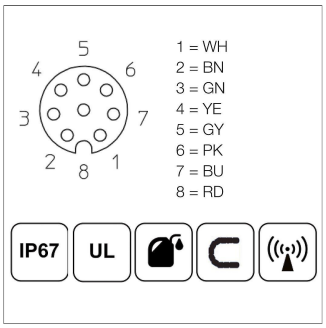
Z-105-G-6
Backlash-free fork coupling for Ø6 mm. Mounting with 1 cylinder head screw M3 with internal hexagon.
Angle screwdriver DIN 911 AF 2.5 included in delivery.

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-33-86/90/92

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 Compatibiliy (EMC) and shield systems

Very good resistance to oils, coolants and lubricants

Suited for applications in dragchains

UL UL - approved

CAN CAN-Bus

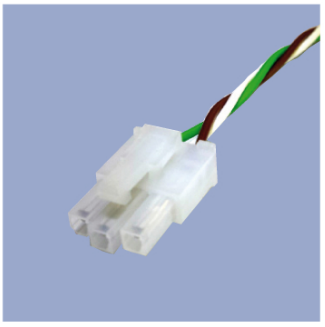
Connecting Options on request

M12 connector
- Customized lengths
- 3-, 4-, 6- and 8-pole versions
- Protection class IP68
- Ordering codes of standard versions see ordering specifications

Tyco AMP Super Seal
- Pin- and bushing housing
- Customized lengths
- 3-, 4- and 6-pole versions
- Protection class IP67
- 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



Molex Mini Fit jr.
- Customized length and lead wires
- 3-, 4- and 6-pole versions
- On request

Molex Mini Fit jr.
- Customized length and lead wires
- 3-, 4- and 6-pole versions
- On request

novotechnik
Siedle Group

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