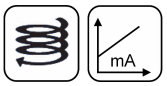
novotechnik
Siedle Group

NOVOTURN
Multiturn Sensor
Non-contacting

RSM-2800
Current
Industrial



Special Features
- Non-contacting, magnetic
- Long life
- Measuring range 720° up to 5760° in 360°-steps (2 to 16 turns)
- True-Power-On system: counts turns even when not powered. Patented non-volatile technology does not require gears or batteries
- Available with push-on coupling or marked shaft
- Easy mounting
- Protection class IP54 up to IP67
- Resolution 16 bits
- Linearity up to ±0,03 %
- Other configurations see separate data sheets

Applications
- Mechanical engineering
- Mobile machinery
- Driveline or steering systems
- Wire-actuated encoders
- Gate drives
- Motor sports

Multiturn sensors that use the GMR technology (giant magneto resistance), provide absolute position values, do not require any reference signals and need no power supply or buffer battery for detecting the revolutions. The fact that rotations are detected even unpowered and the sensor does not lose its position information during a power failure, makes the RSM-2800 with its diameter of only 28 mm an extremely compact real True-Power-On rotary sensor.
The sensor operates magnetically and thus contactless allowing an extremely long life.
The sensor is able to detect angular positions over 2 to 16 revolutions with a high resolution of 16 bits.

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
Fastening torque of mounting	max. 180 Ncm
Bearing	Sintered bronze bushing
Electrical connection	Cable 4x 0.5 mm² (AWG 20), TPE, shielded

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	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
1: Ub = 24 VDC

Interface parameters
2: 4 ... 20 mA

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

Electrical connection
201: Cable, 4-pole, shielded, L = 0.5 m
202: Cable, 4-pole, shielded, L = 1 m
206: Cable, 4-pole, shielded, L = 3 m
210: Cable, 4-pole, shielded, L = 5 m
220: Cable, 4-pole, shielded, L = 10 m
501: Conector M12x1, 4-pin, with cable, shielded, L = 0.15 m
Cable versions and assembled connectors on request

R S M – 2 8 3 2 – 0 1 0 – 1 2 1 – 2 0 2

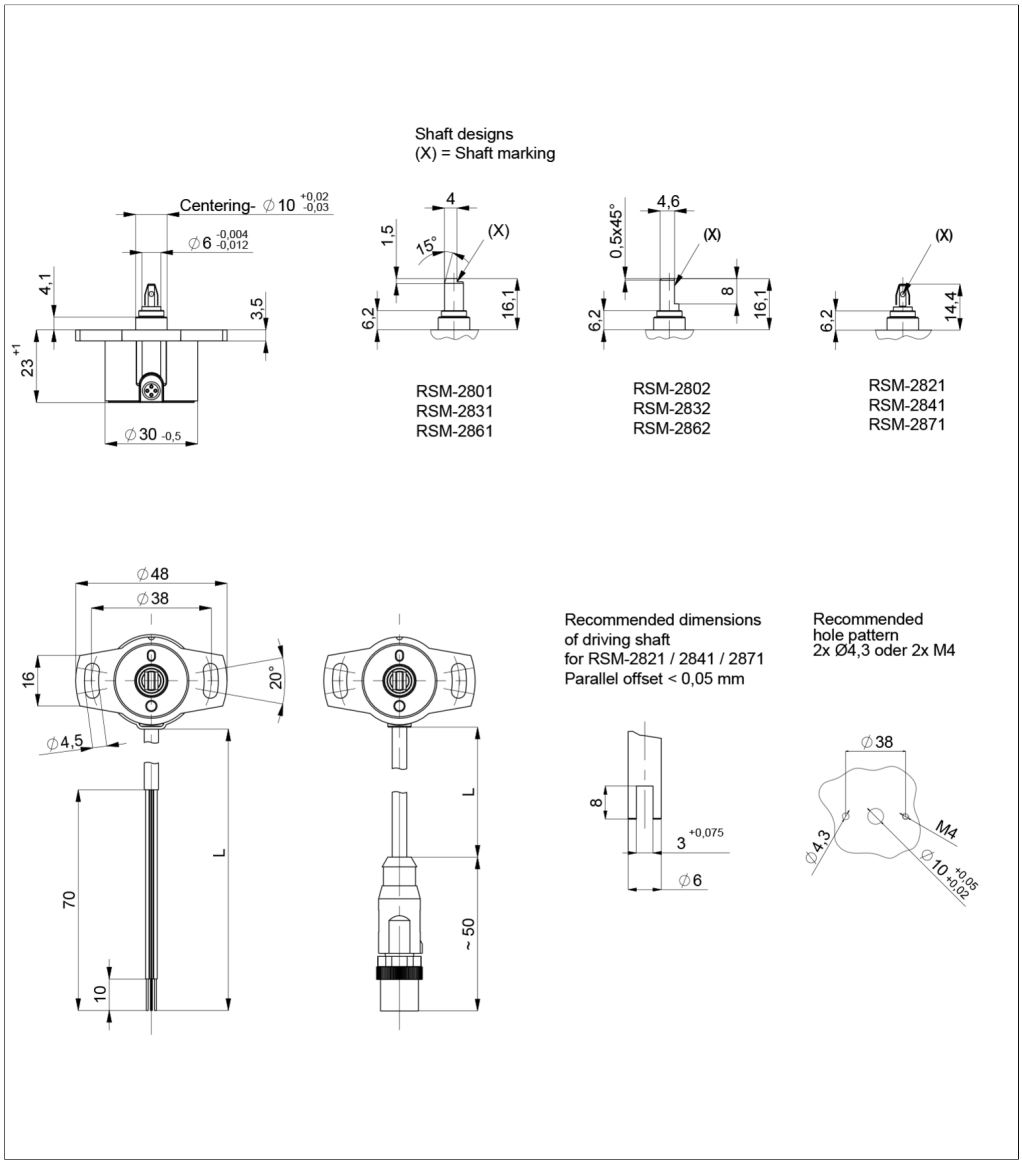
Series

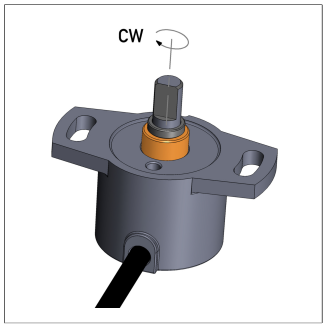
Mechanical version
2801: 6 mm shaft with marking, IP54*
2831: 6 mm shaft with marking, IP65*
2861: 6 mm shaft with marking, IP67*
2802: 6 mm shaft with flattening, IP54
2832: 6 mm shaft with flattening, IP65
2862: 6 mm shaft with flattening, IP67
2821: push-on coupling, IP54
2841: push-on coupling, IP65
2871: push-on coupling, IP67
Other shaft configurations on request
* Not recommended for new designs

Number of turns for output characteristic
002 ... 016: 2 up to 16 turns
Increment 1 turn, X turns correspond to a measuring angle of X • 360°
003, 006, 010, 016: 3, 6, 10, 16 turns
Other measuring angles on request

Drawing

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





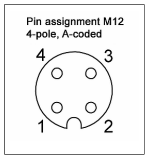
When the marking of the shaft is pointing towards the electrical outlet, the sensor output is located on an integer turn position.

Technical Data

Type	**RSM-28_ _-_ _ _-12_-_ _ _**
Output signal	4 ... 20 mA
Burden	≤ 500 Ω
Number of channels	1
Start-up time	typ. 10 ms
Response time	max. 2 ms
Measuring range	0 ... 720° up to 0 ... 5760° in 360°-steps
Independent linearity	2 turns: typ. ≤ ±0.25 %FS, max. ≤ ±0.35 %FS
	3 turns: typ. ≤ ±0.167 %FS, max. ≤ ±0.267 %FS
	6 turns: typ. ≤ ±0.083 %FS, max. ≤ ±0.183 %FS
	10 turns: typ. ≤ ±0.05 %FS, max. ≤ ±0.15 %FS
	16 turns: typ. ≤ ±0.031 %FS, max. ≤ ±0.131 %FS
Resolution	16 bits
Repeatability	≤ ±0.5°
Hysteresis	≤ ±1°
Temperature error	±0.625 %FS
Supply voltage Ub	24 VDC (18 ... 30 VDC)
Current consumption w/o load	typ. 30 mA
Polarity protection	yes (supply lines and outputs)
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
	-25 ... +85°C (connector M12)
Insensitivity to magnetic DC fields	< 15 mT
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)	186 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 61000-4-8 Magnetic fields	30 A/m
EN 55011 Noise radiation	Class B

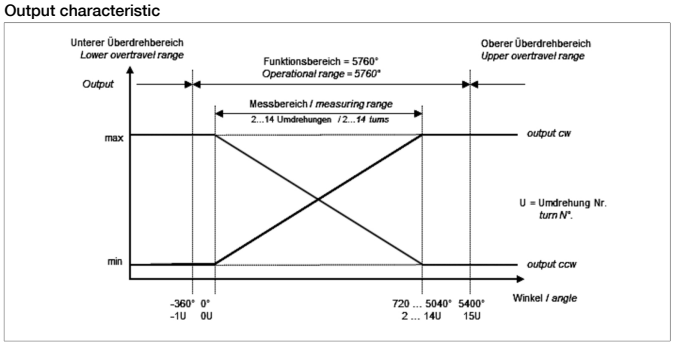
Connection Assignment

Signal	Cable code 2_ _	Connector code 5_ _
Supply voltage Ub	GN	Pin 1
GND	BN	Pin 3
Signal output	WH	Pin 2
Do not connect / not assigned	YE	Pin 4
	Connect cable shielding to GND	

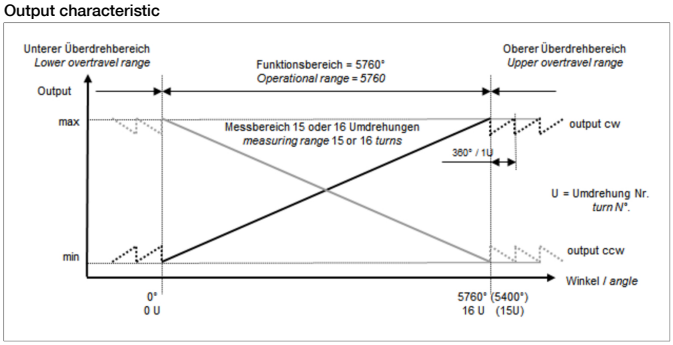


Technical Data
Output Characteristics

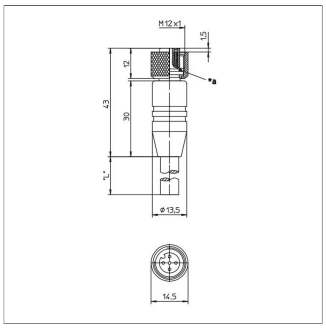
Output characteristic

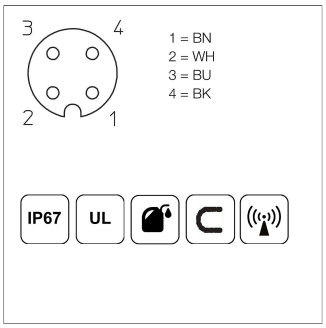


Output characteristic



Connector System M12





EEM-33-32/62/97

M12x1 Mating female connector, 4-pin, straight, A-coded, with molded cable, shielded, IP67, open ended

Plug housing	PA
Cable sheath	PUR, Ø = max. 6 mm, -25 ... +80°C (moved) -50 ... +80°C (fixed)
Lead wires	PP, 0.34 mm²

P/N	Type	Length
400005600	EEM-33-32	2 m
400005609	EEM-33-62	5 m
400005650	EEM-33-97	10 m

IP67 Protection class IP67 DIN EN 60529

IP68 Protection class IP68 DIN EN 60529

Very good Electromagnetic Compatibiliy (EMC) and shield systems

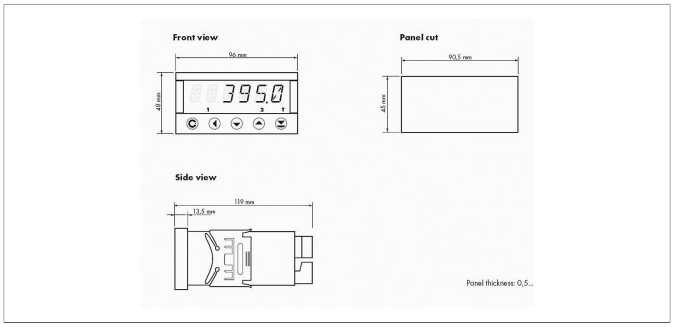
Very good resistance to oils, coolants and lubricants

Suited for applications in dragchains

UL UL - approved

CAN CAN-Bus

Signal Processing



MAP-4000
Multifunctional measuring device with digital display for direct connnection 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 MAP-4000

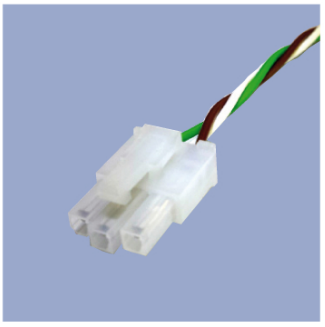
Connecting Options on request

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

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