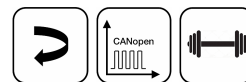


**NOVOHALL
Rotary Sensor
Non-contacting**

RSX-7900
Heavy Duty
CANopen
Mobile Applications



Special Features

- Very robust design for extreme environmental conditions
- High shaft load 300 N
- Non-contacting, magnetic encoder
- Measuring angles up to 360° in one and multi-channel versions
- Enhanced corrosion protection due to anodized aluminum housing and stainless steel shaft, salt spray resistant
- Excellent linearity
- High resolution to 14 bit
- Unlimited mechanical rotation
- Absolutely impermeable to splash-water IP6K9K
- High temperature resistance to -40...+105°C
- Long life > 100 million movements, even in vibration mounting positions
- For highest EMC requirements such as ISO pulses and interference fields according to ISO 11452 and ECE directive

Applications

- Position measurement in steering systems
- Pivotal vehicle bracings
- Transport systems with several steered axes
- Construction and agricultural machinery

The angle sensor RSX-7900 is designed for use in mobile applications under extreme environmental conditions. The sensor is suitable for a continuously ambitious operating.

The robust full metal housing with a double ball bearing stainless steel shaft and a superior seal concept protects the sensor against various environmental influences.

The high accuracy and reliability of the magnetic angle measurement are further features.

The robust but compact design allows direct mounting of the sensor without additional protective measures.

A variety of shaft versions allows guidance via lever arm or other driving elements.

Description

Material	Housing: aluminium, anodized, AlMgSi1, salt spray resistant Shaft: stainless steel X10CrNiS18-9 1.4305
Mounting	With 4 screws M6, screw-in depth 15 mm min.
Fastening torque of mounting	800 ± 100 Ncm
Bearing	Double angular ball bearing
Electrical connection	Connector M12x1, A-coded / Cable with cable screw connection, 4x 0.5 mm ² (AWG 20), TPE, shielded

Mechanical Data

Dimensions	See dimension drawing
Mechanical travel	360° continuous
Permitted shaft load static or dynamic	300 N (axial / radial)
Torque	≤ 4 Ncm Depending on the environmental temperature and standstill time, the necessary force for the initial operating of the shaft may increase
Weight	approx. 500 g

Ordering Specifications

Ordering Specifications

Preferred types printed in bold

Interface

6: CANopen

Interface parameters

1: 1x position, 1x speed

2: 2x position, 2x speed

5: 1x position, 1x speed with bus termination 120 Ω

6: 2x position, 2x speed with bus termination 120 Ω

Baud rate

1: 1000 kBaud

2: 800 kBaud

3: 500 kBaud

4: 250 kBaud

5: 125 kBaud

7: 50 kBaud

Electrical connection

1 Output

201: 1 x cable 4-pole 1.0 m, shielded

511: 1 x connector M12, 5-pole, shielded

2 Outputs (CAN IN/OUT)

301: 2 x cable 4-pole 1.0 m, shielded

611: 2 x connector M12 (male), 5-pole, shielded

R S X - 7 9 1 1 - 2 1 4 - 6 2 4 - 6 1 1

Series

Model / size
79: 79 x 35 mm

Shaft

1: Ø 13x12 mm with cross hole Ø 4,1 mm

3: Ø 10x16 mm with countersink Ø 4.5x90°

7: Ø 13x12 mm with mounted driving plate Z-IPX-M21

Other shaft configurations on request

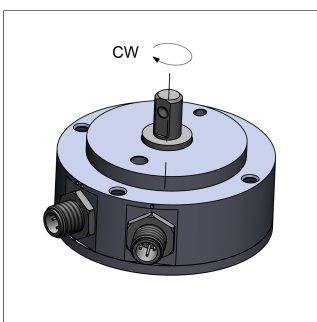
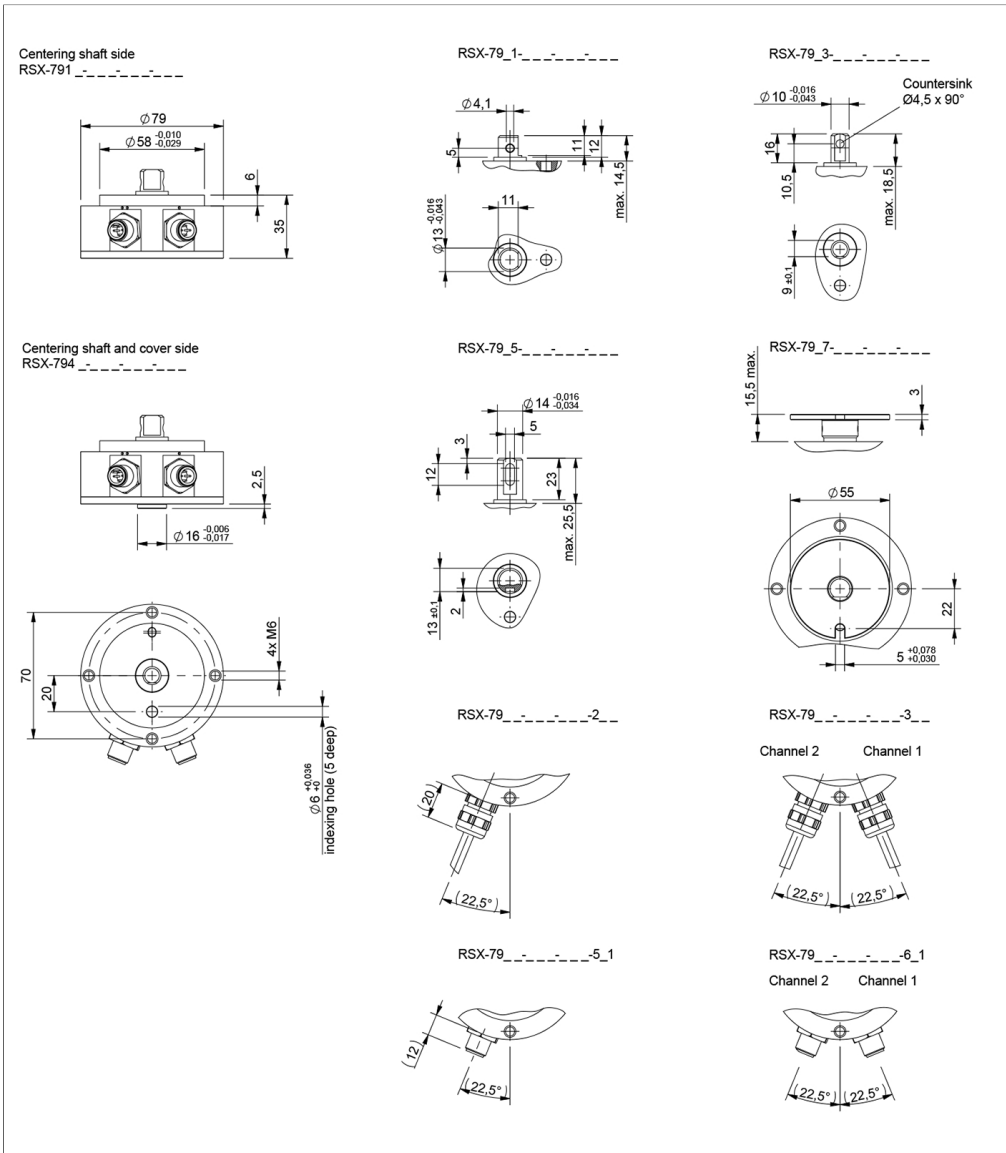
Housing

1: Centering shaft side

4: Centering shaft and cover side

Drawing

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

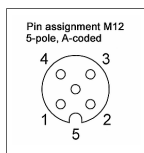


When the flattening of the shaft points towards the indexing hole, the sensor is near the electrical center position.

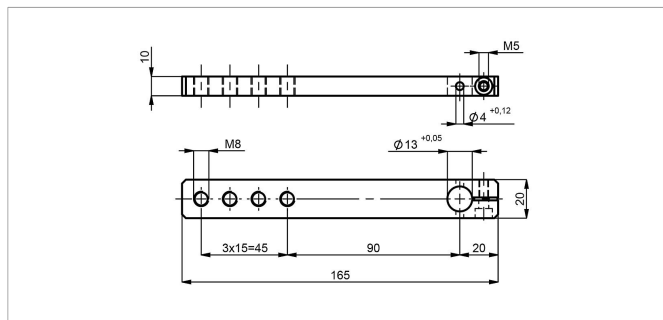
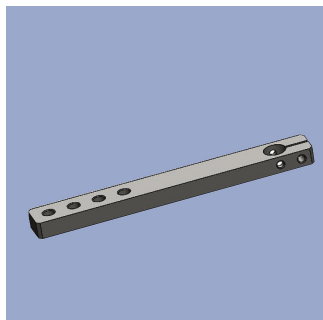
Technical Data



Type	RSX-79_ _-214_6_ _- _ _	
Measured variables	Position and speed	
Measuring range	360°	
Number of channels	1 / 2	
Protocol	CANopen protocol to CiA DS-301 V4.2.0, Device profile DS-406 V3.2 Encoder Class C2, LSS services to CiA DS-305 V1.1.2	
Programmable parameters	Position, speed, cams, working areas, rotating direction, scale, offset, node ID, baud rate	
Node ID	1 ... 127 (default 127)	
Baud rate	50 ... 1000 kBAud	
Update rate	1 kHz	
Resolution position (across 360°)	14 bits	
Resolution speed	$360^\circ/2^{14} \approx 0.022^\circ/\text{ms}$	
Absolute linearity	1 Channel: $\pm 0.5\%$ FS, 2 Channels: $\pm 0.85\%$ FS	
Repeatability	$\leq \pm 0.36^\circ$	
Hysteresis	$\leq \pm 0.36^\circ$	
Temperature error	$\pm 0.2\%$ FS	
Supply voltage Ub	12/24 VDC (8 ... 34 VDC)	
Current consumption w/o load	≤ 100 mA	
Overvoltage protection	45 VDC (permanent)	
Polarity protection	yes (supply lines)	
Short circuit protection	yes (output vs. GND and supply voltage up to 40 VDC)	
Insulation resistance (500 VDC)	≥ 10 M Ω	
Cross section	0.5 mm ² (AWG 20)	
Bus termination internal	120 Ω (optionally)	
Environmental Data		
Max. operational speed	50 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 ISO 20653	IP67 / IP6K9K (connector M12: IP67)	
Operating temperature	-40 ... +105°C	
Life	> 100 Mio. movements	
Functional safety	If you need assistance in using our products in safety-related systems, please contact us	
MTTF (IEC 60050)	413 years (one-channel) or 303 years (two-channel, per channel)	
EMC Compatibility		
ISO 10605 ESD (Handling/Component)	8 kV	
ISO 11452-2 Radiated HF-fields	100 V/m	
ISO 11452-5 Radiated HF-Fields, stripline	200 V/m	
CISPR 25 Radiated emission	Level 4	
ISO 7637-2 Pulses on supply lines	(1, 2a, 2b, 3a, 3b, 4, 5) Level 3	
ISO 7637-2 Transient Emissions	Level 3	
ISO 7637-3 Pulses on output lines	Level 4	
EN 13309 Construction machinery		
Emission/immunity E1	acc. to ECE-R10	
Connection Assignment		
Signal	Connector code 5_ _/6_ _	Cable code 2_ _/3_ _
Supply voltage Ub	Pin 2	BN
GND	Pin 3	WH
CAN_H	Pin 4	GN
CAN_L	Pin 5	YE
CAN_SHLD	Pin 1	Shield
	Connect cable shielding to GND	



Sensor Mounting

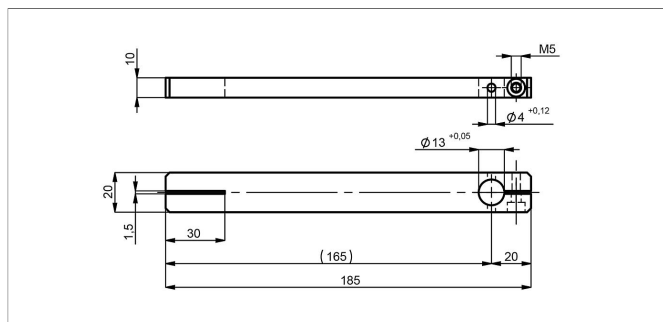
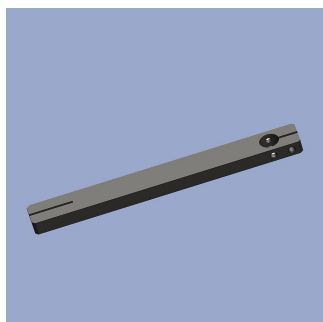


Z-IPX-M01

Lever arm 165 x 20 mm for pivot head drive. Mounted to shaft D = 13 mm with locking pin and screw (both included in delivery)

Material Aluminium, anodized

P/N	Type
400105430	Z-IPX-M01

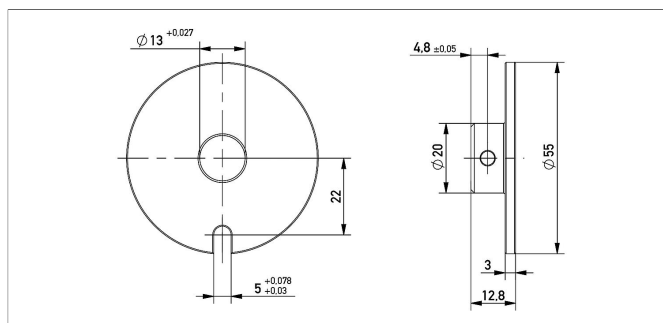
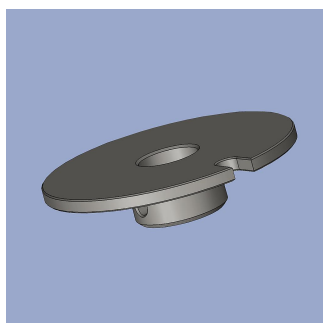


Z-IPX-M11

Lever arm 185 x 20 mm for lever arm drive, clamp connection on dimension 20 mm. Mounted to shaft D = 13 mm with locking pin and screw (both included in delivery)

Material Aluminium, anodized

P/N	Type
400105431	Z-IPX-M11

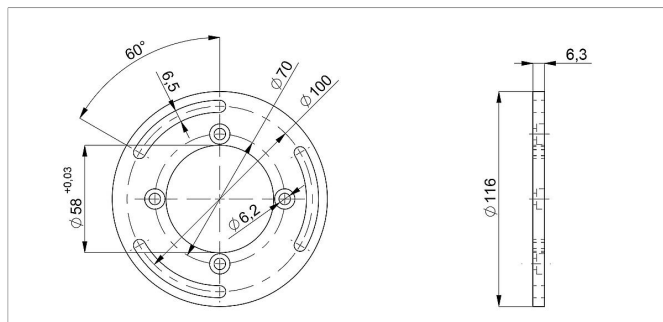
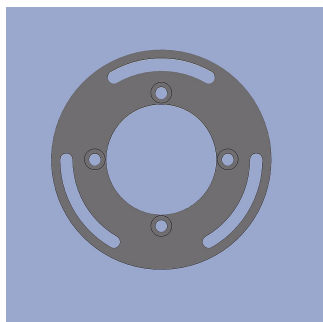


Z-IPX-M21

Driving plate D = 55 mm for lateral shaft drive with locking pin. Mounted to shaft D = 13 mm with locking pin (included in delivery)

Material Aluminium, anodized

P/N	Type
400105433	Z-IPX-M21



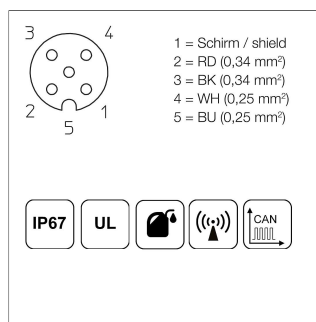
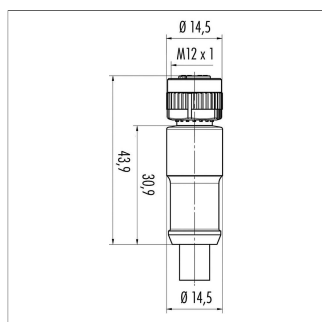
Z-IPX-M31

Mounting plate for adjustable mounting on screw-hole circle 100 mm. Assembly material (4 x cylinder head screws) included in delivery

Material Aluminium, anodized

P/N	Type
400105432	Z-IPX-M31

Connector System M12

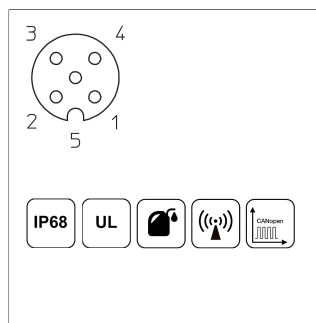
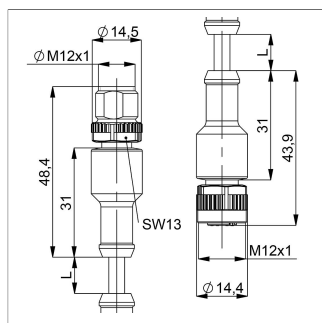


EEM-33-41/42/43

M12x1 Mating female connector, 5-pin, straight, A-coded, with molded cable, IP67, shielded, open ended, CAN-Bus

Plug housing PUR
Cable sheath PUR, Ø = 7.2 mm, -25 ... +85°C (fixed)
Lead wires PP, 2x0.25 mm²+2x0.34 mm²

P/N	Type	Length
400056141	EEM-33-41	2 m
400056142	EEM-33-42	5 m
400056143	EEM-33-43	10 m

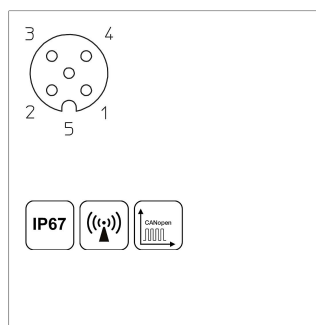
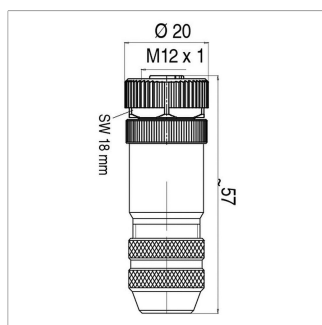


EEM-33-44

M12x1 Mating female/male connector, 5-pin, straight, A-coded, with molded cable, IP68, CAN-Bus

Plug housing PUR
Cable sheath PUR, Ø = 7.2 mm, -25 ... +85°C (fixed)

P/N	Type	Length
400056144	EEM-33-44	5 m

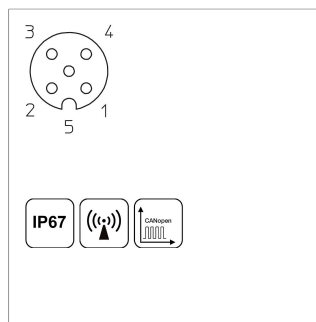
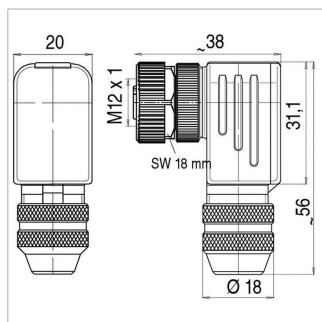


EEM-33-73

M12x1 Mating female connector, 5-pin, straight, A-coded, with coupling nut, screw termination, IP67, shieldable, CAN bus

Plug housing Metal, -40 ... +85°C
For wire gauge 6 ... 8 mm, max. 0.75 mm²

P/N	Type
400005645	EEM-33-73



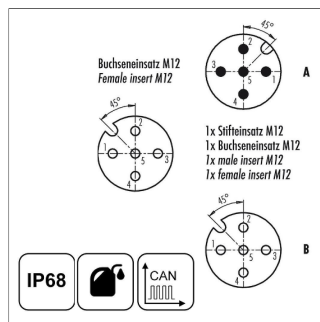
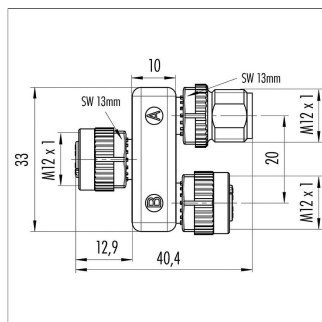
EEM-33-75

M12x1 mating female connector, 5-pin, angled, A-coded, with coupling nut, screw termination, IP67, shieldable, CAN bus, turning and fixing of contact carrier in 90° positions possible.

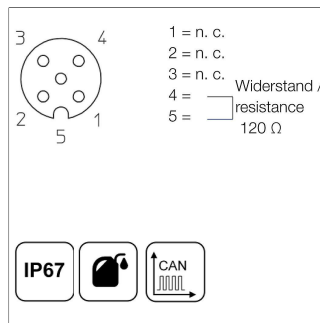
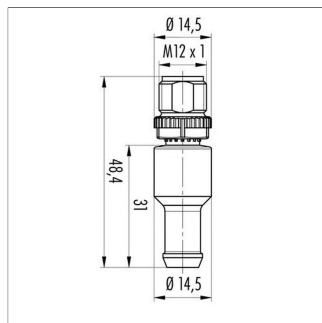
Plug housing Metal, -40 ... +85°C
For wire gauge 6 ... 8 mm, max. 0.75 mm²

P/N	Type
400005646	EEM-33-75

Connector System M12



EEM-33-45
M12x1 splitter / T-connector, 5-pin,
A-coded, IP68, 1:1 connection,
female - male - female, CAN-Bus
Plug housing PUR, -25 ... +85°C
P/N **Type**
400056145 EEM-33-45



EEM-33-47
M12x1 terminating resistor, 5-pin, A-coded,
IP67, 120 Ω resistance, CAN-Bus
Plug housing PUR, -25 ... +85°C
P/N **Type**
400056147 EEM-33-47

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

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