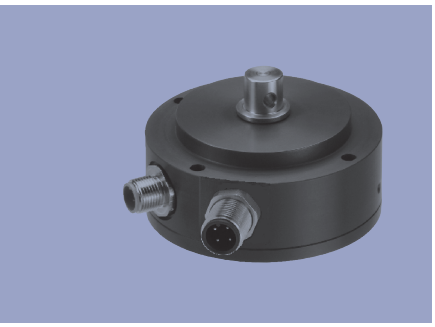
RusAutomation

novotechnik
Siedle Group

NOVOHALL Rotary Sensor non-contacting

Series RSX-7900



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

The robust full metal housing with a double ball bearing stainless steel shaft and a superior seal concept protects the sensor against mechanical and other environmental influences.
The high accuracy and reliability of the magnetic angle measurement are further features, particularly in safety-related applications.

The massive but compact design allows direct mounting of the sensor without additional protective measures.
Various shaft versions allow guidance via lever arm or other driving elements.

The centering of the housing can be done either by direct fitting by a 58 mm diameter frontside or as reverse fitting by a 16 mm diameter in the cover.

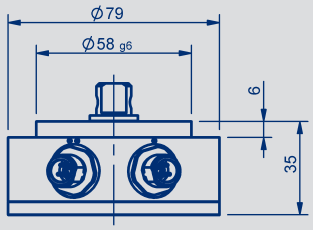
Special features

- very robust design to extreme environmental conditions
- high shaft load 300 N
- non-contacting, magnetic
- measuring angles up to 360° in single and multi-channel versions
- enhanced corrosion protection by anodized aluminum housing and stainless steel shaft, salt spray resistant
- very good linearity
- resolution 12 bit
- unlimited mechanically rotable
- absolutely impermeable to splash-water P6k9k
- high temperature resistance
- long life >100 million movements, even at vibration-loaded mounting positions
- designed for use in safety-related applications according to PLd, ISO 13849
- E1-approval

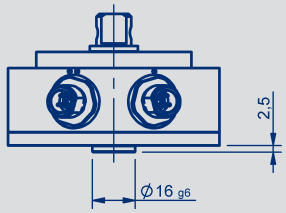
Applications

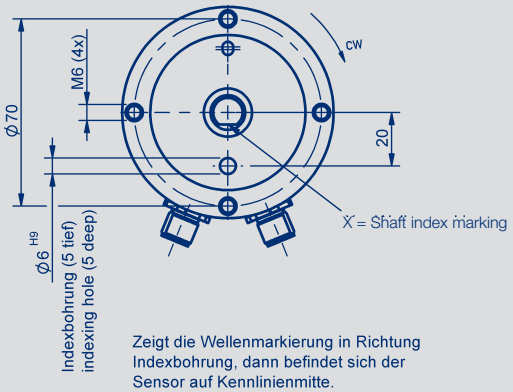
- Position measurement in steering systems
- pivotable vehicle bracings
- Transport systems with several axes
- Construction and agricultural machinery

Zentrierung am Gehäuse an Wellenseite
Centering shaft side
RSX-791 _-_ _ _-_ _ _-_ _ _



Zentrierung am Gehäuse an Wellen- und Deckelseite
Centering shaft and cover side
RSX-794 _-_ _ _-_ _ _-_ _ _



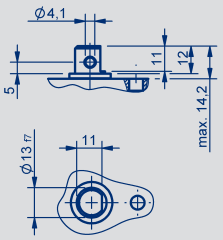


Zeigt die Wellenmarkierung in Richtung Indexbohrung, dann befindet sich der Sensor auf Kennlinienmitte.
When the shaft marking points to the indexing hole, the sensor is located in the electrical center position.

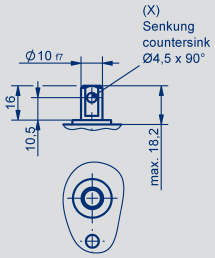
Description	
Housing	anodized aluminum; salt spray resistant
Shaft	stainless steel
Bearing	double angular ball bearing
Electrical connections	cable or M12 connector

Pin Assignment

RSX-79_1- _ _ _ - _ _ _ - _ _ _

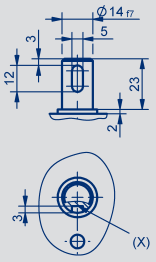


RSX-79_3- _ _ _ - _ _ _ - _ _ _

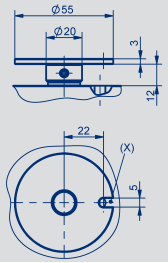


Shaft versions on request

RSX-79_5- _ _ _ - _ _ _ - _ _ _

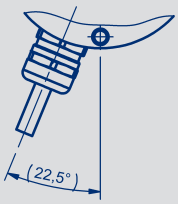


RSX-79_7- _ _ _ - _ _ _ - _ _ _

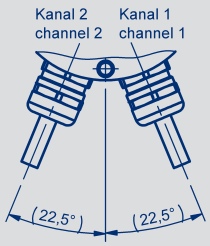


Ausführungen elektrischer Anschlüsse
Versions of electrical connections

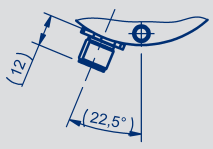
Single / teilredundant
single / partly redundant
RSX-79_ _-_ _ _ _-_ _ _ _-25_



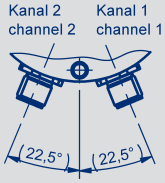
vollredundant
fully redundant
RSX-79_ _-_ _ _ _-_ _ _ _-35_



RSX-79_ _-_ _ _ _-_ _ _ _-5_1



RSX-79_ _-_ _ _ _-_ _ _ _-6_1



Single channel version

	Cable (Code -252)	M12 connector (Code -551)
Supply	# 1	Pin 1
GND	# 2	Pin 3
Signal	# 3	Pin 2
Not assigned	# 4 GN/GE	Pin 4

Partly redundant version

	Cable (Code -252)	M12 connector (Code -551)
Supply	# 1	Pin 1
GND	# 2	Pin 3
Signal 1	# 3	Pin 2
Signal 2	# 4	Pin 4
Not assigned	GN/GE	-

Fully redundant version

	2 x Cable (Code -352)	2 x M12 connector (Code -651)
Supply 1	Channel 1 / # 1	Channel 1 / Pin 1
GND 1	Channel 1 / # 2	Channel 1 / Pin 3
Signal 1	Channel 1 / # 3	Channel 1 / Pin 2
Supply 2	Channel 2 / # 1	Channel 2 / Pin 1
GND 2	Channel 2 / # 2	Channel 2 / Pin 3
Signal 2	Channel 2 / # 4	Channel 2 / Pin 4
Not assigned	Channel 1 / # 4 Channel 1 / GN/GE Channel 2 / # 3 Channel 2 / GN/GE	Channel 1 / Pin 4 Channel 2 / Pin 2

Steckerbelegung

Connector pin assignment

Technical Data

Mechanical Data		
Dimensions	see dimension drawing	
Mounting	with 4 screws M6, screw-in depth 15 mm min.	
Starting torque of mounting screws	8 ±1	Nm
Mechanical travel	360 continuous	°
Permitted shaft loading (axial and radial) static or dynamic force	300 (axial), 300 (radial)	N
Torque *	max. 4	Ncm
Maximum operational speed	50	min-1
Weight	approx. 500	g
Electrical Data		
Supply voltage Ub	12/24 (9...34)	VDC
Current consumption (w/o load)	typical 20	mA
Reverse voltage	yes	
Short circuit protection	yes, all outputs vs. GND and Ub	
Measuring range	60, 120, 180, 240, 300, 360	°
Number of channels	1 / 2	
Update rate	5	kHz
Resolution	12	bit
Repeatability	0.2	°
Hysteresis	0.1	°
Absolute linearity at measuring range < 90° Absolute linearity at measuring range ≥ 90°	2.0 1.0	±%FS ±%FS
Interlinearity at measuring range < 90° Interlinearity at measuring range ≥ 90°	4.0 2.0	±%FS ±%FS
Output signal	4…20 (burden max. 250 Ω)	mA
Temperature error at measuring range < 90° Temperature error at measuring range ≥ 90°	200 160	ppm/K ppm/K
Insulation resistance (500 VDC)	≥ 10	MΩ
Cross-section cable	AWG 20, 0.5	mm^2
Environmental Data		
Temperature range	-40…+85	°C
Vibration (IEC 60068-2-6)	5….2000 Amax = 0.75 amax = 20	Hz mm g
Shock (IEC 60068-2-27)	50 (6 ms)	g
Protection class (DIN EN 60529)	IP67 connector outlet IP6k9k cable outlet	
Life	>100x10^6	movements
EMC Conformity	ISO TR 10605 Packaging and Handling + Component Test (ESD) 8 kV, 15 kV ISO 11452-2 Radiated EM HF-Fields, Absorber Hall: 100 V/m ISO 11452-5 Radiated EM HF-Fields, Stripline 200 V/m CISPR 25 Radiated and conducted emission class 5 ISO 7637-2/3 Transient disturbance emission level 3 Interference emission and immunity according to ECE-R10 (E1)	
Functional safety		
	After validation by customer, redundant versions are suitable for applications according PLd ISO 13849	
MTTF (DIN EN ISO 13849-1 parts count method, w/o load) MTTFd (DIN EN ISO 13849-1 parts count method, w/o load)	46 (per channel) 92 (per channel)	years years

*) Depending on the environmental temperature and standstill time, the necessary force for the inital operating of the shaft may increase

Ordering specifications

Ordering specifications

Preferred types printed in bold.

Supply Ub / interface
3: Ub = 12/24 V (9 ... 34 V)

Output signal
2: 4 mA ... 20 mA
Other characteristics on request

Output characteristic
1: rising CW
2: rising CCW
3: Partly redundant version: crossed output channel 1 rising / channel 2 falling CW
4: Fully redundant version: crossed output channel 1 rising / channel 2 falling CW
Other characteristics on request

Electrical connection
single channel / partly redundant version: 1 output
252: 1 x round cable 4-pole, 2 m, unshielded
551: 1 x connector M12, 4-pin, unshielded
Fully redundant version: 2 outputs
352: 2 x round cable 4-pole, 2 m, unshielded
651: 2 x connector M12, 4-pin, unshielded
Cable versions and assembled connectors on request

R	S	X	–	7	9	1	1	–	8	3	6	–	3	2	4	–	3	5	2

Series

Measuring range
06: 60°
12: 120°
18: 180°
24: 240°
30: 300°
36: 360°
Other angles on request

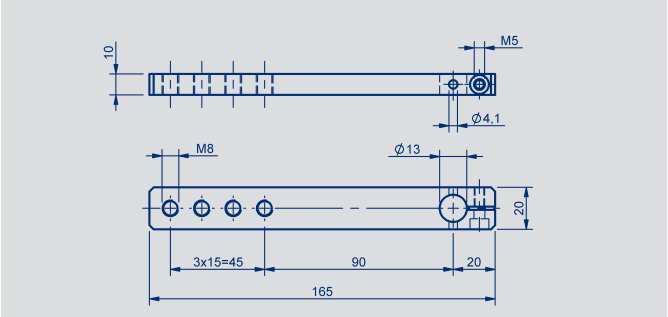
Number of channels
6: single channel version (1 x Ub, 1 x output)
7: partly redundant version (1 x Ub, 2 x output)
8: fully redundant version (2 x Ub, 2 x output)

Shaft
1: steel Ø 13x12 mm with cross hole Ø 4,1 mm
3: steel Ø 10x16 mm with countersink Ø 4,5x90°
Other shaft versions on request

Housing
1: anodized aluminum, centering shaft side
4: anodized aluminum, centering shaft and cover side

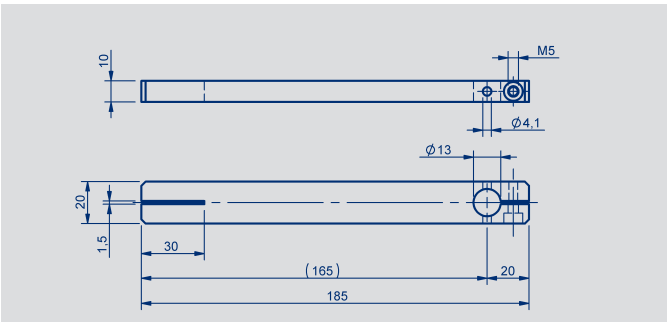
Model / size
79: 79 x 35 mm

Accessories
Sensor mounting



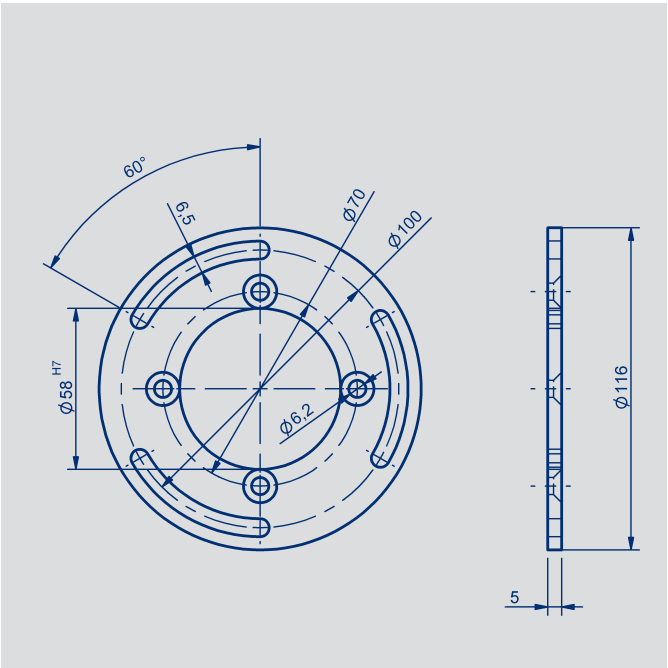
Z-IPX-M01
Lever arm 165 x 20 mm for pivot head drive
- aluminum
- for shaft RSX-79_1-...
- P/N 056501

Assembly material (screw, locking pin) included in delivery



Z-IPX-M11
Lever arm 185 x 20 mm for lever arm drive, clamp connection on dimension 20 mm
- aluminum
- for shaft RSX-79_1-...
- P/N 056502

Assembly material /screw, locking pin) included in delivery



Z-IPX-M31
Mounting plate for adjustable mounting on screw-hole circle 100 mm
- aluminum, anodized
- P/N 056504

Assembly material (4 x countersink screw) included in deilvery

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Accessories
Connector System M12

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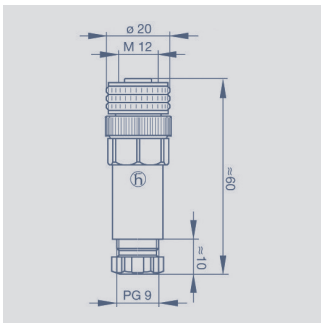
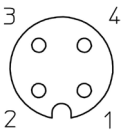


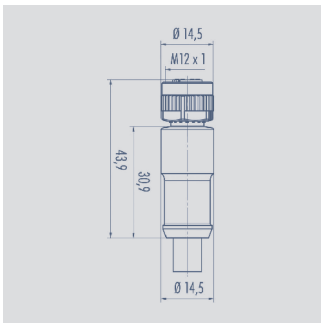
Pin assignment



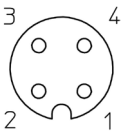
IP67

M12x1 Mating female connector, 4-pin, straight, A-coded, with coupling nut, screw termination, IP67, not shieldable

Connector housing	Plastic PBT -25 °C...+90 °C
For wire gauge	6...8 mm, max. 0,75 mm²
Type EEM 33-88, P/N 005633	



Pin assignment



1 = brown
2 = white
3 = blue
4 = black

IP67 UL

M12x1 Mating female connector, 4-pin, straight, A-coded, with molded cable, not shielded, IP67, open ended

Connector housing	Plastic PA
Cable sheath	PUR; Ø = max. 6 mm, -40 °C...+85 °C (fixed)
Wires	PP, 0,34 mm²

Length	Type	P/N
2 m	EEM 33-35	056135
5 m	EEM 33-36	056136
10 m	EEM 33-37	056137