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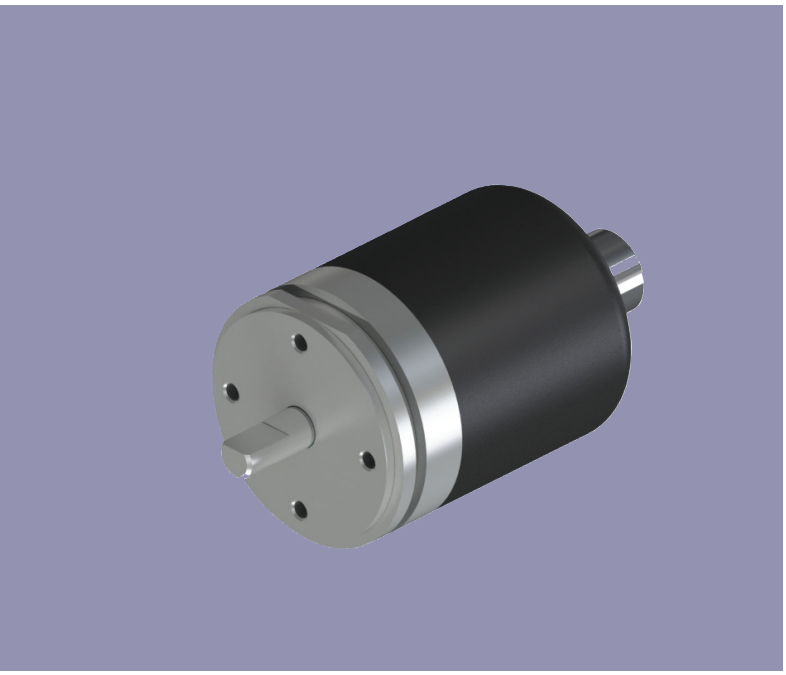
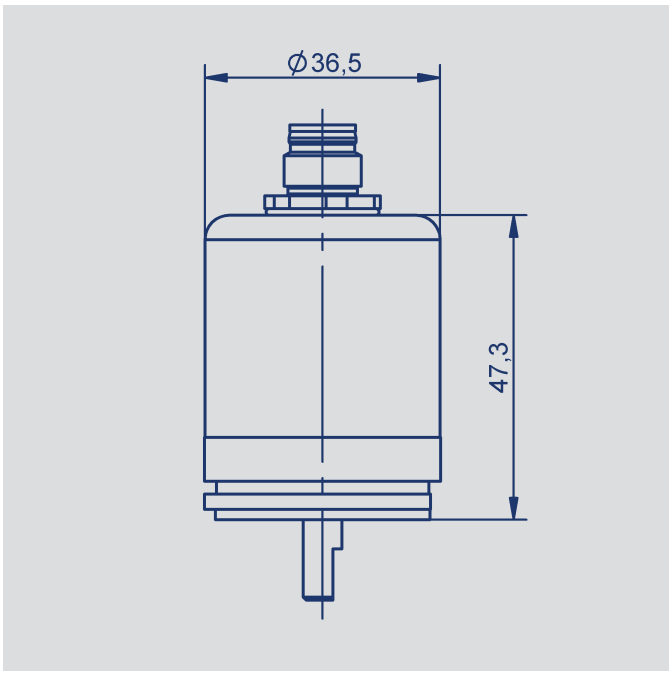
Siedle Group

NOVOHALL
Rotary Sensor
non-contacting

Series RSB-3600
Series RMB-3600





Special features
- Non-contacting, hall technology
- Measuring range up to 5760°
- Single- and multiturn
- True-power-on system: counts turns even when not powered. Patented non-volatile technology does not require gears or batteries
- Solid shaft or hollow shaft
- Protection class IP67, IP6K9K
- Optimized for industrial and mobile applications
- Resolution 12 bit (single turn)
- Absolute linearity up to ±0.03 %
- One and multi-channel versions

Applications
- Mechanical engineering
  Textile machinery
  Packing machinery
  Sheet metal and wire working machinery
- Medical appliances
- Mobile machinery
  Industrial trucks
  Construction machinery
  Agricultural and forestry machinery
- Marine applications

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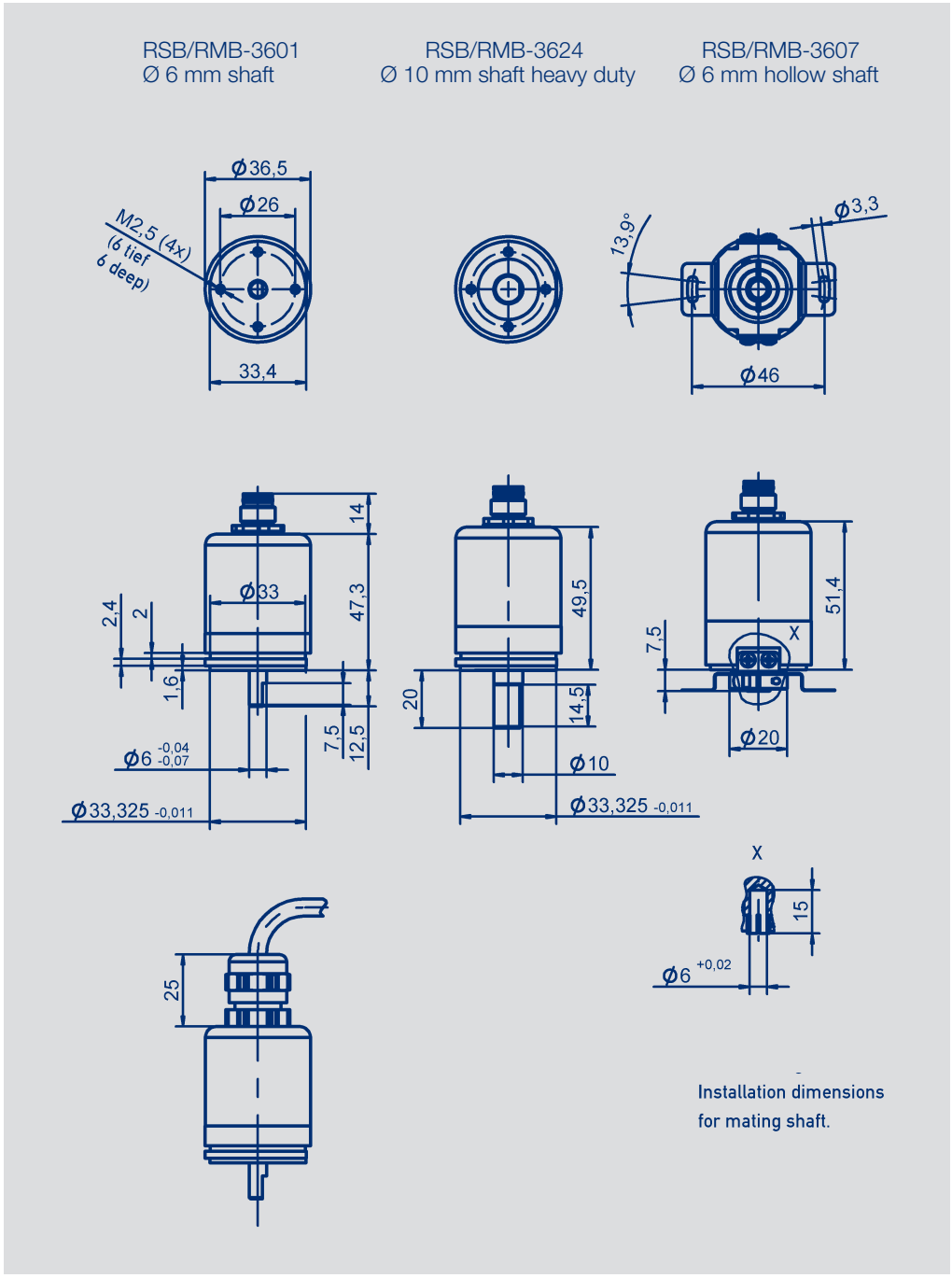
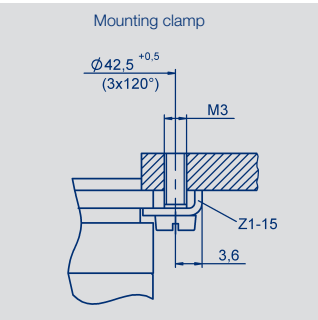
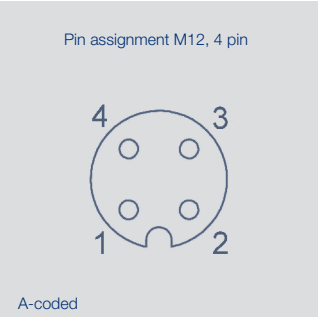
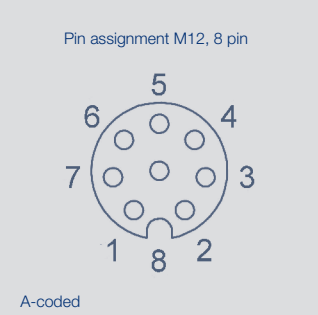
Contents

Dimension Drawing









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

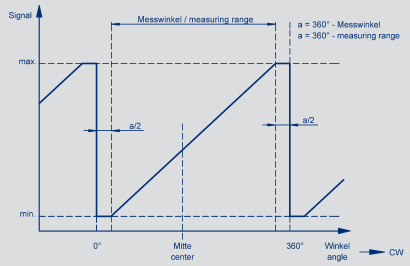
Mechanical Data

Description	Ø 6 mm shaft RSB-/RMB3601-_ _ _ - _ _ _ - _ _ _	Ø 10 mm shaft heavy duty RSB-/RMB3624-_ _ _ - _ _ _ - _ _ _	Ø 6 mm hollow shaft RSB-/RMB3607-_ _ _ - _ _ _ - _ _ _	
Material	Flange: anodized aluminum, AlSiMgBi Cover: galvanized steel, St 12 1.0330 Shaft: stainless steel, X10CrNiS18-9 1.4305		Coupling: stainless steel, X10CrNi 18-8 1.4310	
Electrical connections	Cable 4 x 0.5 mm², AWG 20, shielded, cable connection, length 1 m, 3 m, 5 m, 10 m Cable 4 x 2 x 0.25 mm², AWG 24, twisted pair, shielded, cable gland, length 1 m, 3 m, 5 m, 10 m Connector M12x1 4 pin / 8 pin			
Mechanical Data				
Dimensions	see dimension drawing			
Mounting	with 3 fixing clamps Z1-15 (included in delivery) or via frontal thread 4 x M3		Stator coupling	
Mechanical travel	360 continuous			°
Permitted operating speed (mechanical) *	12 000	6000	12 000	min^{-1}
Bearing lifetime	100 million movements			
Permitted shaft load (axial / radial) static or dynamic	40 / 50	100 / 100	40 / 50	N
Starting torque (RT) typ. / max.	0.3 / 0.5	6 / 12	0.5 / 0.7	Ncm
Weight (without connection)	ca. 100			g
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 (ISO 20653) housing side shaft side	 IP67 IP65	 IP6K9K IP67	 IP67 IP65	
Operating temperature range	-30 ... +85 (connector), -40 ... +85 (cable), higher temperatures on request			°C
Operating humidity range	0 ... 98 (no condensation)			% R.H.

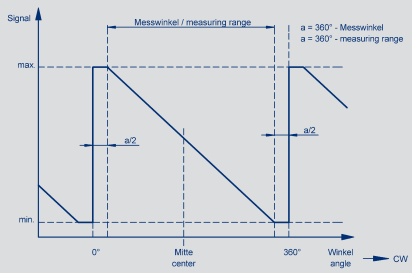
*) Multiturn sensor RMB: permitted operating speed with valid output signal max. 800 min^{-1}

Output Characteristics Singleturn

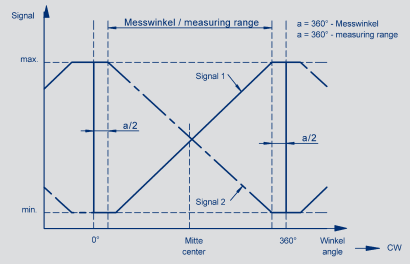
One-channel, cw



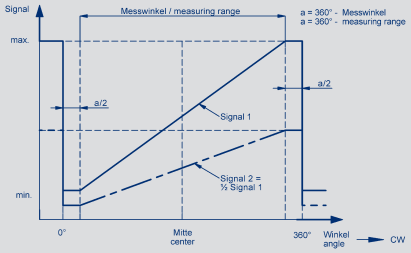
One-channel, ccw



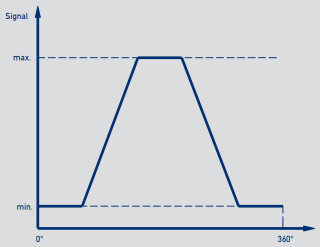
Two channel, crossed characteristics, channel 1 cw



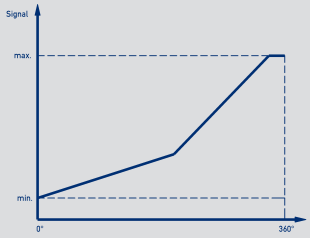
On request: Two channel, signal 2 = 0.5 x signal 1



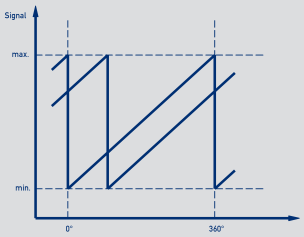
On request: Trapezoid chara



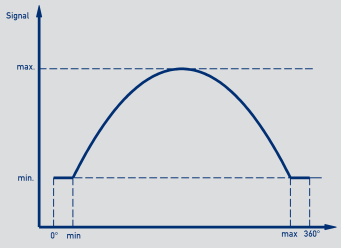
On request: Different gradients



On request: 2 offset characteristics



On request: Parabolic ch



Technical Data
Analog Versions
- Voltage
- Current
Singleturn RSB-3600

Technical Data				
Type designations	**RSB-3601- _ _ _ - 2 _ _ - _ _ _ ratiometric**	**RSB-3601- _ _ _ - 1 1 _ - _ _ _ analog voltage**	**RSB-3601- _ _ _ - 1 2 _ - _ _ _ analog current**	
Electrical Data				
Supply voltage	5 (4.5 ... 5.5)	24 (18 ... 30)	24 (18 ... 30)	VDC
Current consumption (w/o load)	typical 15 (typ. 8 on request) per channel			mA
Reverse voltage	yes, supply lines			
Short circuit protection	yes (vs. GND and supply voltage)			
Measuring range	0 ... 30 up to 0 ... 360 (10°-steps)			°
Number of channels	1 / 2	1	1	
Update rate	typical 5			kHz
Resolution	12			Bit
Repeatability	≤ 0.1			°
Hysteresis	≤ 0.1			°
Absolute linearity at measuring range 360°	≤ 0.8			±% FS
Output signal	ratiometric to supply voltage 0.25 ... 4.75 V 0.5 ... 4.5 V (load ≥1 kΩ)	0.1 ... 10 V (load ≥10 kΩ)	4 ... 20 mA (burden ≤ 500 Ω)	
Temperature error at measuring range 360°	≤ 0.6	≤ 1.6	≤ 1.9	±% FS
Insulation resistance (500 VDC)	≥ 10			MΩ
Cross-section cable	0.5 (AWG 20)			mm²
Environmental Data				
MTTF (DIN EN ISO 13849-1 parts count method, w/o load, wc)	356 (one-channel) 210 (per channel) partly redundant 388 (per channel) fully redundant	107	105	Years Years Years
Functional safety	If you need assistance in using our products in safety-related systems, please contact us			
EMC compatibility CE	EN 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV EN 61000-4-3 Electromagnetic fields 10 V/m EN 61000-4-4 Fast transients (Burst) 1 kV EN 61000-4-6 Conducted disturbances, induced by RF-fields 10 V eff. EN 61000-4-8 Power frequency magnetic fields 30 A/m EN 55016-2-3 Radiated disturbances class B			

Pin assignment

One-channel versions

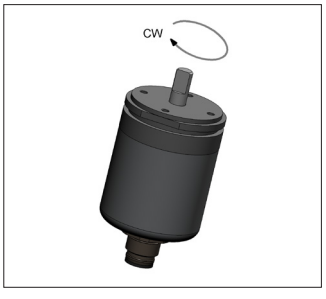
Signal	Cable	Connector M12	Connector with cable (see accessories)
Supply voltage	BN	Pin 1	BN
GND	WH	Pin 3	WH
Signal output	GN	Pin 2	BU
Not assigned	YE	Pin 4	BK
Shield	Shield	Shield	-

Fully redundant versions

Signal	Cable	Connector M12	Connector with cable (see accessories)
GND 1	WH	Pin 1	WH
Supply voltage 1	BN	Pin 2	BN
Signal output 1	GN	Pin 3	GN
Not assigned	YE	Pin 4	YE
Signal output 2	GY	Pin 5	GY
Not assigned	PK	Pin 6	PK
GND 2	BU	Pin 7	BU
Supply voltage 2	RD	Pin 8	RD

Partly redundant versions

Signal	Cable	Connector M12	Connector with cable (see accessories)
Supply voltage 1	BN	Pin 1	BN
GND 1	WH	Pin 3	WH
Signal output 1	GN	Pin 2	BU
Supply voltage 2	-	-	-
GND 2	-	-	-
Signal output 2	YE	Pin 4	BK
Shield	Shield	Shield	



When the shaft marking is pointing towards the flattening on the housing flange, the sensor output is near of the electrical center position.

Ordering Specifications
Analog Versions
- Voltage
- Current
Singleturn RSB-3600

Ordering specifications
Preferred types printed in bold

Supply voltage
1: Supply voltage = 24 V (18 ... 30 V)
2: Supply voltage = 5 V (4.5 ... 5.5 V)

Output signal at supply voltage = 24 V
1: 0.1 ... 10 V
2: 4 ... 20 mA

Output signal at supply voltage = 5 V
1: 0.25 ... 4.75 V ratiometric to supply voltage
2: 0.5 ... 4.5 V ratiometric to supply voltage

Characteristics
1: Rising cw
2: Rising ccw
3: Crossed outputs channel 1 rising cw (partly redundant)
4: Crossed outputs channel 1 rising cw (fully redundant)

Electrical connection cable
B4x: Single and partly redundant, length x = 1 (1 m), 3 (3 m), 5 (5 m), 0 (10 m)
B8x: Fully redundant, length x = 1 (1 m), 3 (3 m), 5 (5 m), 0 (10 m)

Electrical connection
FM4: M12x1, single and partly redundant
FM8: M12x1, fully redundant

R	S	B	–	3	6	0	1	–	6	3	6	–	2	1	1	–	F	M	4

Measuring range
03: Measuring range 0° ... 30° min.
...
06, 12, 18, 24, 36
...
36: Measuring range 0° ... 360° max.
other angles on rquest

Number of channels
6: Single output (1x supply voltage; 1x output)
7: Partly redundant (1x supply voltage ; 2x output) (only supply voltage = 5 V)
8: Fully redundant (2x supply voltage; 2x output) (only supply voltage = 5 V)

Series
RSB-3600 (Singleturn)

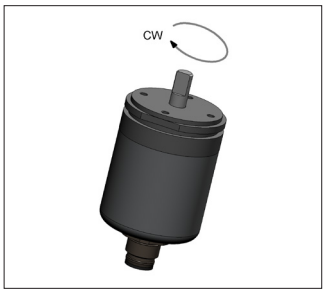
Mechanical version
3601: Synchro flange, shaft Ø 6 mm x 12.5 mm
3624: Synchro flange, heavy duty version, shaft Ø 10 mm x 20 mm
3607: Round flange, hollow shaft Ø 6 mm
other flange and shaft designs on request

Technical Data Incremental-Interface
Singleturn RSB-3600

Type designations	RSB-36_ _-2 _ _-51_- _ _ _ supply voltage 5 VDC	
Electrical Data		
Outputs	A+ / A- B+ / B- Z+ / Z-	
Level	RS-422, TTL-compatible	
Length Z-pulse	Distance between 2 edges A / B	
Pulses per turn	1024, other resolutions see page 12	ppr
Counts per turn (after quadrature)	4096	
Option Low Speed - Minimum edge spearation - Minimum input frequency of counter input - Maximum operational speed	 8 32 1 800	 µs kHz min^{-1}
Option High Speed - Minimum edge spearation - Minimum input frequency of counter input - Maximum operational speed	 0.5 500 Limited due to rotation speed of bearing (see mechanical data)	 µs kHz
Measuring range	360	°
Absolute linearity	≤ 1	±% FS
Repeatability	≤ 0.1	°
Hysteresis	≤ 0.7	°
Temperature error	≤ 0.375	±% FS
Supply voltage	5 (4.5 ... 5.5)	VDC
Current consumption (w/o load)	typical 20	mA
Reverse voltage	yes, supply lines and outputs	
Short circuit protection	yes, (vs. GND and supply voltage)	
Ohmic load at ouputs	≥ 120 per channel A / B / Z	Ω
Insulation resistance (500 VDC)	≥ 10	MΩ
Cross-section Cable	0.25 (AWG 24)	mm^2
Environmental Data		
MTTF (DIN EN ISO 13849-1 parts count method, w/o load, wc)	246	Years
Functional safety	If you need assistance in using our products in safety-related systems, please contact us	
EMC compatibility CE	EN 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV EN 61000-4-3 Electromagnetic fields 10 V/m EN 61000-4-4 Fast transients (Burst) 1 kV EN 61000-4-6 Conducted disturbances, induced by RF fields 10 V eff. EN 61000-4-8 Power frequency magnetic fields 30 A/m EN 55016-2-3 Radiated disturbances class B	

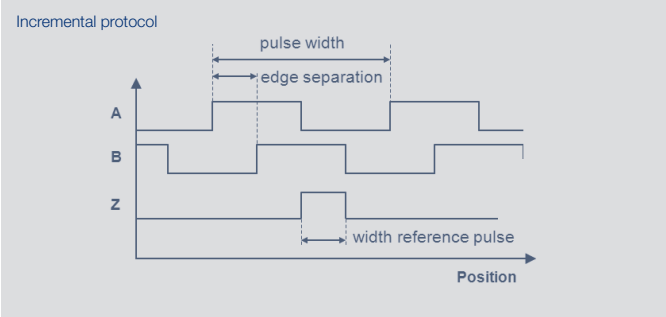
Pin assignment

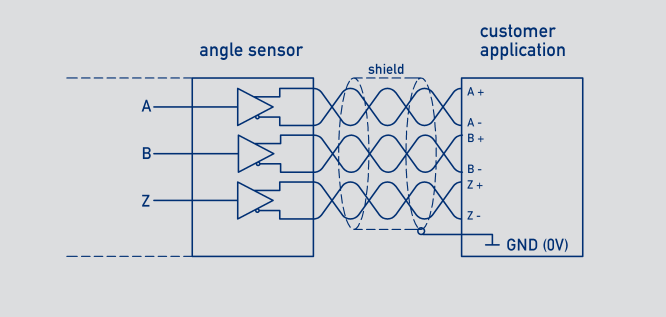
Signal	Cable / Connector with cable (see accessories)	Connector M12
Supply voltage	BN	Pin 2
GND	WH	Pin 1
A-	YE	Pin 4
A+	GN	Pin 3
B-	PK	Pin 6
B+	GY	Pin 5
Z+	BU	Pin 7
Z-	RD	Pin 8



When the shaft marking is pointing away from the flattening on the housing flange, the sensor is at reference pulse (Z). Rotational direction cw: A leads before B.

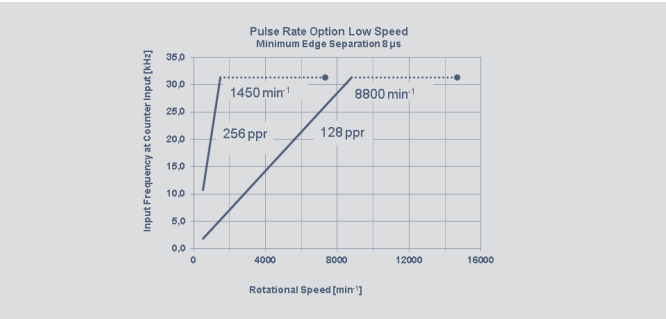
Technical Data
Incremental-Interface
Singleturn RSB-3600

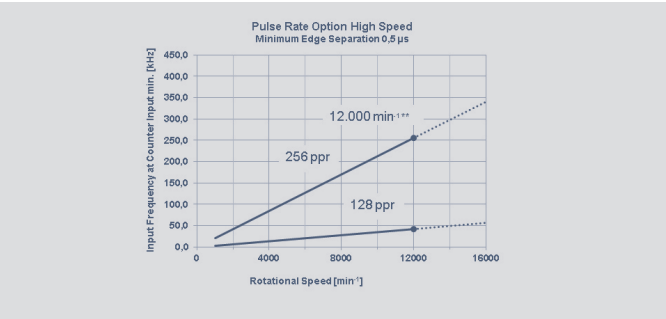




Electrical Data					
Pulse per turn	1024	512	256	128	ppr
Counts per turn (after quadrature)	4096	2048	1024	512	
Option Low Speed					
- Minimal edge separation	8				µs
- Minimum input frequency of counter input	32	32	32*	32*	kHz
- Maximum operational speed	1800	3600	7200**	14400**	min^{-1}
Option High Speed					
- Minimal edge separation	0.5				µs
- Minimum input frequency of counter input	500	500	500*	105*	kHz
- Maximum operational speed	see note **				

*) The requirement for the minimum input frequency of counter input is reduced at lower speed (see charts below)
**) Maximum operating speed is limited by maximum rotation speed of bearing (see Mechanical Data)





Ordering Specifications Digital Versions - Incremental
Singleturn RSB-3600

Ordering specifications
Preferred types printed in bold

Interface
5: Incremental interface A / B / Z

Interface parameter for Incremental interface 5 _ _
Low Speed Mode (Minimum edge distance 8 µs)
15: 5 V (4.5 ... 5.5 V) Supply voltage, output RS422, TTL- compatible

High Speed Mode (Minimum edge distance 0.5 µs)
10: 5 V (4.5 ... 5.5 V) Supply voltage, output RS422, TTL-compatible

24 V supply voltage on request.
UVW signals instead of ABZ signals for motor commutation on request
Absolute position at Power On (Power on Burst) on request
High side and low side outputs on request.

Electrical connection cable
B8x: Length x = 1 (1 m), 3 (3 m), 5 (5 m), 0 (10 m)

Electrical connection
FM8: M12x1

R	S	B	–	3	6	0	1	–	2	1	2	–	5	1	5	–	F	M	8

Series
RSB-3600 (Singleturn)

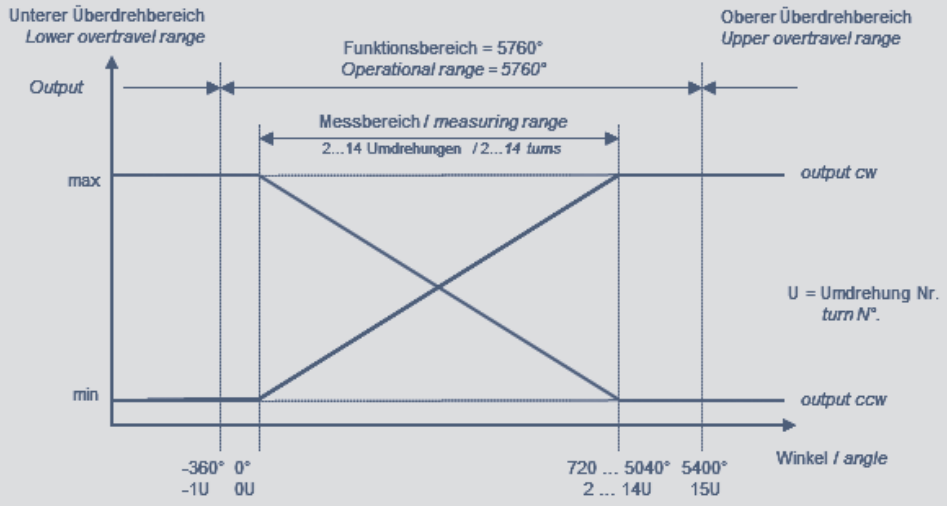
Resolution Incremental interface 5 _ _
12: 1024 ppr - 4096 counts (after quadrature)
11: 512 ppr - 2048 counts (after quadrature)
10: 256 ppr - 1024 counts (after quadrature)
09: 128 ppr - 512 counts (after quadrature)
other resolutions on request

Interface
2: Digital interface

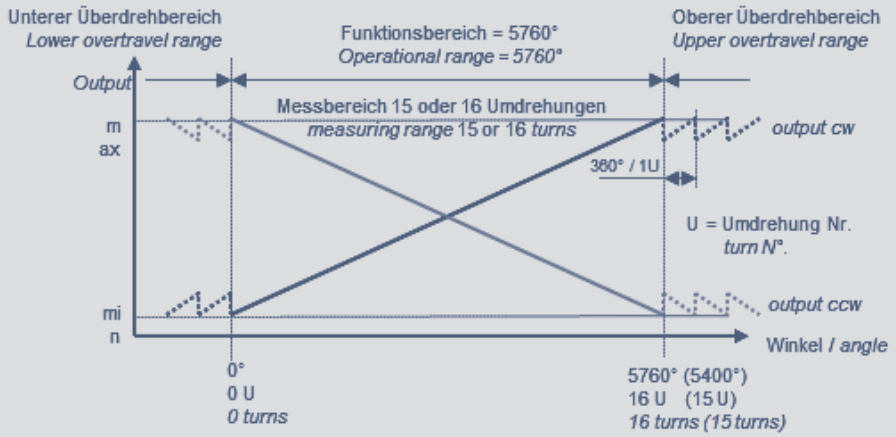
Mechanical version
3601: Synchro flange, shaft ∅ 6 mm x 12.5 mm
3624: Synchro flange, heavy duty version, shaft ∅ 10 mm x 20 mm
3607: Round flange, hollow shaft ∅ 6 mm
other flanges and shaft designs on request

Output Characteristics Multiturn

Output signals measuring range 2 ... 14 turns



Output signals measuring range 15 ... 16 turns



Technical Data
Analog Versions
- Voltage
- Current
Multiturn RMB-3600

Technical Data			
Type designations	**RMB-3601- _ _ _ -2 _ _ - _ _ _ ratiometric**	**RMB-3601- _ _ _ -11_ - _ _ _ analog voltage**	**RMB-3601- _ _ _ -12 _ - _ _ _ analog current**
Electrical Data			
Supply voltage	5 (4.5 ... 5.5)	24 (18 ... 30)	24 (18 ... 30) VDC
Number of channels	1 / 2	1 / 2	1
Output signal	ratiometric (load ≥ 10 kΩ)	0.1 ... 10 V (load ≥ 10 kΩ)	4 ... 20 mA (burden ≤ 500 Ω)
Current consumption (w/o load)	typical 30		mA
Reverse voltage	yes, supply lines		
Short circuit protection	yes (vs. GND and supply voltage)		
Measuring range	0 ... 720 up to 0 ... 5760 (360°-steps)		°
Resolution	16		Bit
Repeatability	≤ 0.5		°
Hysteresis	≤ 1		°
Linearity	see table below		
Start time	typical 10		ms
Response time	≤ 2		ms
Temperature error output signal	≤ 0.15	≤ 0.31	≤ 0.625 ±% FS
Insulation resistance (500 VDC)	≥ 10		MΩ
Cross-section cable	0.5 (AWG 20)		mm^2
Environmental Data			
MTTF (DIN EN ISO 13849-1 parts count method. w/o load. wc)	175 one-channel 175 (per channel) redundant	184 one-channel 184 (per channel) redundant	186 one-channel Years Years
Functional safety	If you need assistance in using our products in safety-related systems, please contact us		
EMC compatibility CE	EN 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV EN 61000-4-3 Electromagnetic fields 10 V/m EN 61000-4-4 Fast transients (Burst) 1 kV EN 61000-4-6 Conducted disturbances, induced by RF fields 10 V eff. EN 61000-4-8 Power frequency magnetic fields 30 A/m EN 55016-2-3 Radiated disturbances class B		

Linearities

Measuring range	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Turns
Absolute linearity max.	0.5	0.417	0.375	0.350	0.333	0.321	0.313	0.306	0.300	0.295	0.292	0.288	0.286	0.283	0.281	±% FS
Independent linearity typ.	0.250	0.167	0.125	0.100	0.083	0.071	0.063	0.056	0.050	0.045	0.042	0.039	0.036	0.033	0.031	±% FS
Independent linearity max.	0.350	0.267	0.225	0.200	0.183	0.171	0.163	0.156	0.150	0.145	0.142	0.138	0.136	0.133	0.131	±% FS

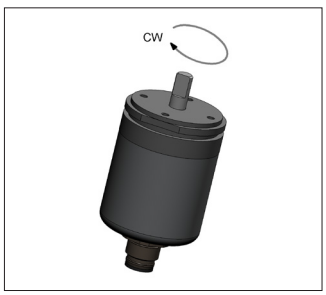
Pin assignment

One-channel versions

Signal	Cable	Connector M12	Connector with cable (see accessories)
Supply voltage	BN	Pin 1	BN
GND	WH	Pin 3	WH
Signal output	GN	Pin 2	BU
Not assigned	YE	Pin 4	BK
Shield	Shield	Shield	-

Redundant Versions

Signal	Cable	Connector M12	Connector with cable (see accessories)
Supply voltage 1	BN	Pin 1	BN
GND 1	WH	Pin 3	WH
Signal output 1	GN	Pin 2	BU
Signal output 2	YE	Pin 4	BK
Shield	Shield	Shield	-



When the shaft marking is pointing towards the flattening on the housing flange, the sensor is located on an integer turn position.

Ordering Specifications Analog Versions - Voltage - Current

Multiturn RMB-3600

Ordering specifications

Preferred types printed in bold

Supply voltage
1: Supply voltage = 24 V (18 ... 30 V)
2: Supply voltage = 5 V (4.5 ... 5.5 V)

Output signal at supply voltage = 5 V
1: 0.25 ... 4.75 V ratiometric
2: 0.5 ... 4.5 V ratiometric

Output signal at supply voltage = 24 V
1: 0.1 ... 10 V
2: 4... 20 mA (only one-channel)

Characteristics
1: Rising cw
2: Rising ccw
3: Crossed outputs channel 1 rising cw (redundant)
other characteristics on request

Electrical connection cable
B4x: Single and partly redundant, length x = 1 (1 m), 3 (3 m), 5 (5 m), 0 (10 m)

Electrical connection
FM4: M12x1, single and partly redundant

R	M	B	–	3	6	0	1	–	0	1	0	–	2	1	1	–	F	M	4

Number of turns for output characteristic
From 002 = 2 turns up to 016 = 16 turns, increment 1 turn
003, 006, 010, 016
other measuring ranges on request

Series
RMB-3600 (Multiturn)

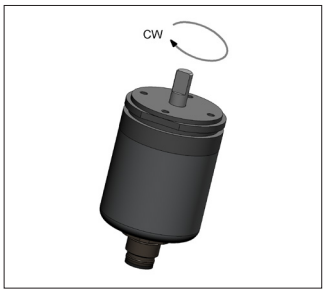
Mechanical version
3601: Synchro flange, shaft Ø 6 mm x 12.5 mm
3624: Synchro flange, heavy duty version, shaft Ø 10 mm x 20 mm
3607: Round flange, hollow shaft Ø 6 mm
other flange and shaft designs on request

Technical Data
Digital Versions
- SSI
Multiturn RMB-3600

Type designations	**RMB-36_ _-2_ _-44 _- _ _ _** **supply voltage 24 VDC**	
Electrical Data		
Protocol	SSI	
Inputs	RS422-compatible, CLK-lines via optocoupler galvanically isolated	
Monoflop time (tm)	20 ±1	µs
Coding	Gray, Binary	
Update rate (internal)	1	kHz
Resolution	16 or 18 across the whole measuring range	Bit
Measuring range	see ordering specifications	
Absolute linearity	14 turns: ≤ 0.036 16 turns: ≤ 0.031	±% FS ±% FS
Repeatability	≤ 0.5	°
Hysteresis	≤ 1	°
Temperature error	≤ 0.1	±% FS
Supply voltage	24 (10 ... 32)	VDC
Current consumption (w/o load)	typical 10	mA
Reverse voltage	yes, supply lines	
Short circuit protection	yes (vs. GND, max. 1 min)	
Ohmic load at ouputs	≥ 120	Ω
Maximum clock rate	1	MHz
Insulation resistance (500 VDC)	≥ 10	MΩ
Cross-section cable	0.25 (AWG 24)	mm^2
Environmental Data		
MTTF (DIN EN ISO 13849-1 parts count method, w/o load, wc)	173	Years
Functional safety	If you need assistance in using our products in safety-related systems, please contact us	
EMC compatibility CE	EN 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV EN 61000-4-3 Electromagnetic fields 10 V/m EN 61000-4-4 Fast transients (Burst) 1 kV EN 61000-4-6 Conducted disturbances, induced by RF fields 10 V eff. EN 61000-4-8 Power frequency magnetic fields 30 A/m EN 55016-2-3 Radiated disturbances class B	

Pin assignment

Signal	**Cable / Connector with cable (see accessories)**	**Connector M12**
Supply voltage	BN	Pin 2
GND	WH	Pin 1
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



When the shaft marking is pointing towards the flattening on the housing flange, the sensor is located on an integer turn position.

Ordering Specifications Digital Versions
Multiturn RMB-3600

Ordering specifications
Preferred types printed in bold

Supply voltage
4: Ub = 24 V (10 ... 32 V)

Interface parameters
41: SSI 16 bit, Gray code, rising cw
43: SSI 25 bit (18 bit data), Gray code, rising cw
45: SSI 16 bit, Binary code, rising cw
47: SSI 25 bit (18 bit data), Binary code, rising cw

Electrical connection cable
B8x: Length x = 1 (1 m), 3 (3 m), 5 (5 m), 0 (10 m)

Electrical connection
FM8: M12x1

R	M	B	–	3	6	0	1	–	2	1	4	–	4	4	1	–	F	M	8

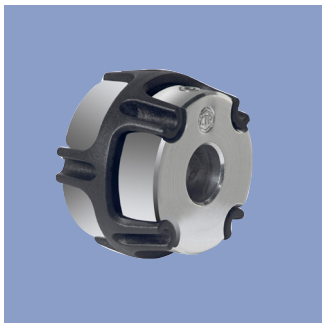
Number of turns for output characteristic
14: 14 turns = 5040°, measuring range controlled
16: 16 turns = 5760°, measruing range not controlled

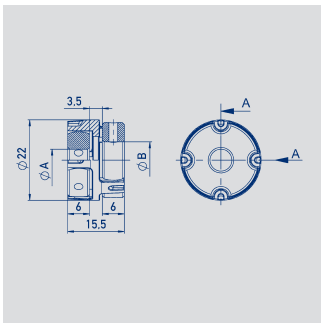
Interface
2: digital interface

Series
RMB-3600 (Multiturn)

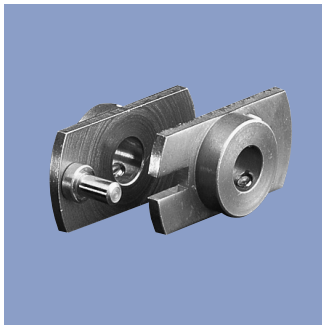
Mechanical version
3601: Synchro flange, shaft Ø 6 mm x 12.5 mm
3624: Synchro flange, heavy duty version, shaft Ø 10 mm x 20 mm
3607: Round flange, hollow shaft Ø 6 mm
Other flanges and shaft designs on request

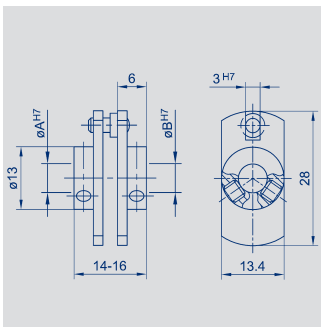
Shaft couplings



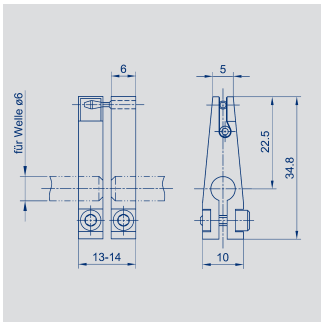


Shaft coupling for 6 up to 10 mm shaft diameters, backlash-free, double cardanic			
Material	Aluminum, PEEK		
Max. torque	1 Nm		
Operating temperature	-40 ... +160° C		
Max. displacements	radial 0.1 mm, angular 0.45 °		
Mounting	2 threaded pins with internal hexagon		
Type	**ØA**	**ØB**	**P/N**
Z-106-G6	6	6	103910
Z-106-G-6,35	6	6,35	103912
Z-106-G10	6	10	103913



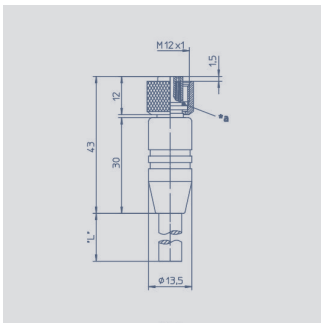


Fork coupling for 6 mm shaft diameters, low backlash			
Material	stainless steel, ground driving pin		
Max. displacement	1 mm		
Mounting	2 fillister head screws M3 each with internal hexagon. Angle screwdriver SW 1.5 in delivery included.		
Type	**ØA**	**ØB**	**P/N**
Z-104-G-6	6	6	005690

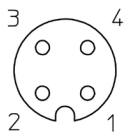


Fork coupling for 6 mm shaft diameters, backlash-free	
Material	anodized aluminum, black, driving pin and spring hardened
Max. displacement	1 mm
Max. transferable torque	5 Ncm
Mounting	1 fillister head screw M3 each with intenal hexagon. Angle screwdriver SW 2.5 in delivery included.
Type	**P/N**
Z-105-G-6	005691

Connector System M12



Pin assignment



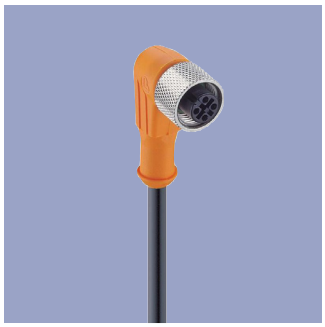
1 = brown
2 = white
3 = blue
4 = black

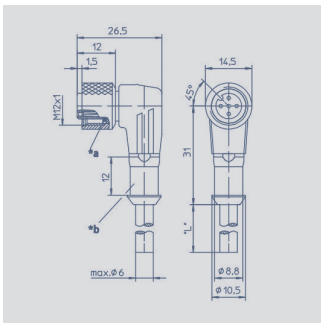
IP67 UL

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

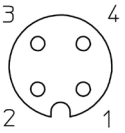
Connector housing	Plastic PA
Cable sheath	PUR; Ø = max. 6 mm, -25 °C...+80 °C (moved) -50 °C...+80 °C (fixed)
Wires	PP, 0.34 mm²

Length	Type	P/N
2 m	EEM 33-32	005600
5 m	EEM 33-62	005609
10 m	EEM 33-97	005650





Pin assignment



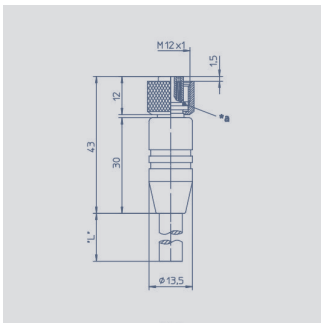
1 = brown
2 = white
3 = blue
4 = black

IP67 UL

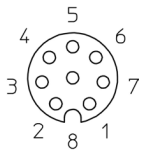
M12x1 Mating female connector, 4-pin, angled, A-coded, with molded cable, shielded, IP67, open ended

Connector housing	Plastic PA
Cable sheath	PUR; Ø = max. 6 mm, -25 °C...+80 °C (moved) -50 °C...+80 °C (fixed)
Wires	PP, 0.34 mm²

Length	Type	P/N
2 m	EEM 33-33	005601
5 m	EEM 33-63	005610
10 m	EEM 33-99	005696



Pin assignment



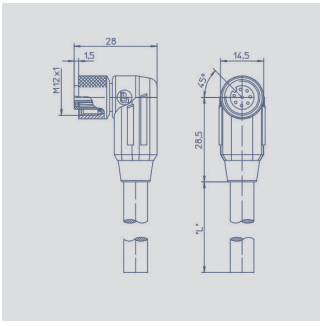
1 = white
2 = brown
3 = green
4 = yellow
5 = grey
6 = pink
7 = blue
8 = red

IP67 UL

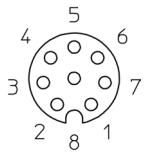
M12x1 Mating female connector, 8-pin, straight, A-coded, with molded cable, shielded, IP67, open ended

Connector housing	Plastic PA
Cable sheath	PUR; Ø = max. 8 mm, -25 °C...+80 °C (moved) -50 °C...+80 °C (fixed)
Wires	PP, 0.25 mm²

Length	Type	P/N
2 m	EEM 33-86	005629
5 m	EEM 33-90	005635
10 m	EEM 33-92	005637



Pin assignment



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4 = yellow
5 = grey
6 = pink
7 = blue
8 = red

IP67 UL

M12x1 Mating female connector, 8-pin, angled, A-coded, with molded cable, shielded, IP67, open ended

Connector housing	Plastic PA
Cable sheath	PUR; Ø = max. 8 mm, -25 °C...+80 °C (moved) -50 °C...+80 °C (fixed)
Wires	PP, 0.25 mm²

Length	Type	P/N
2 m	EEM 33-87	005630
5 m	EEM 33-91	005636
10 m	EEM 33-93	005638

Connector System M12

IP67 Protection class to DIN EN 60529

UL UL - approved


Very good Electromagnetic Compatibility (EMC) and shield systems

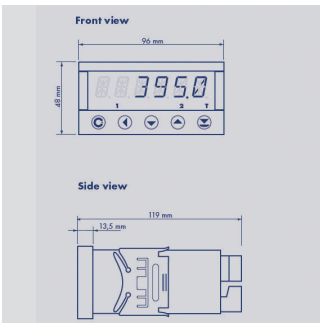

Very good resistance to oils, coolants und lubricants


Suited for applications in dragchains

Note: The protection class is valid only in locked position with its plugs. The application of these products in harsh environments must be checked in particular cases.

Multifunctional Measuring Device with Display

Novotechnik U.S., Inc.
155 Northboro Road
Southborough, MA 01772
Phone: 508-485-2244
Fax: 508-485-2430
Email: info@novotechnik.com



Special features

- Supply voltage 10 ... 30 VDC, 80 ... 250 V DC or AC
- high accuracy
- direct connection of potentiometric and standardized signals
- adjustable supply voltage for sensoren 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

Ordering specifications

M	A	P	–	4	0	1	0	–	0	0	0	–	1	0	1

- Number comparator relays: 0: none; 2: 2 relays; 4: 4 relays
- Analog output: 0: no analog output; 1: analog output present
- Interface: 0: no interface; 1: RS 232; 2: RS 485
- Series
- Supply voltage: 00: 10 ... 30 V AC/DC; 10: 80 ... 250 V AC
- Adjustable supply voltage (5 ... 24 V/Max. 1,2 W): 1: with supply voltage
- Data storage (only with interface): 0: not storage; 1: RTC storage; 2: FAST storage
- Display colour: 1: red