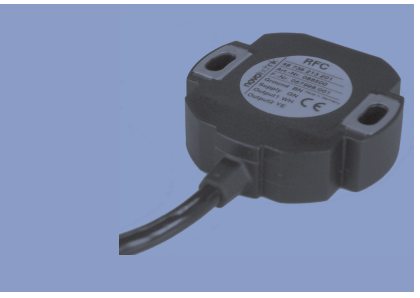
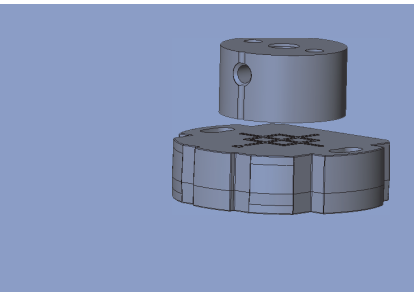
novotechnik
Siedle Group

Angle Sensor touchless technology transmissive

Series RFC4800
Model 700 redundant





Special features
- touchless technology, magnetic measurement
- enables for transmissive measurements
- electrical range up to 360°
- simple mounting
- lateral magnet offset up to ±3 mm
- protection class IP67
- unlimited mechanical lifetime
- resolution 0.1°
- independent linearity ±0.3 %
- full-redundant version or redundant output signal

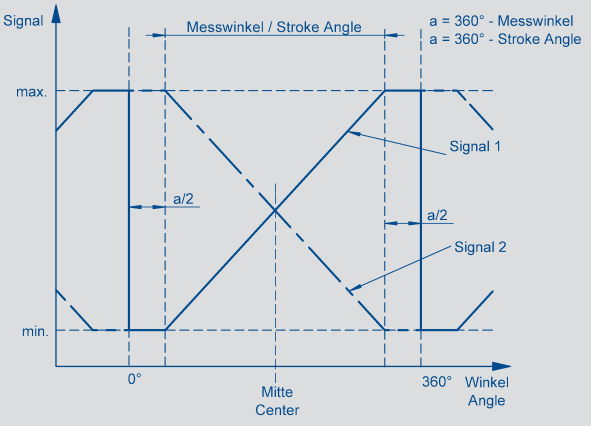
The sensor utilizes the orientation of a magnetic field for the determination of the measurement angle. Therefore, a magnet is attached to the rotating shaft. The magnetic field orientation is captured with an integrated circuit. An analogue output signal represents the calculated angle.

The housing is made of high grade temperature-resistant plastic material. Fixings are in the form of elongated slots which allow simple mounting together with easy mechanical adjustment.
The sensor is totally sealed and therefore is not sensitive to dust, dirt or moisture.

The two-part design of the sensor Series RFC and its position marker offers the customer maximal variability when mounting the sensor. The absence of shaft and bearing makes the assembly insensitive for customer application tolerances.
Measurements can be made transmissive through various (non-magnetic) materials.

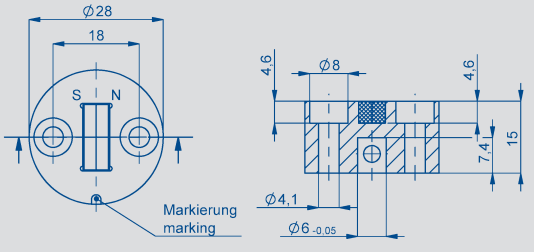
Electrical connection is made via a shielded cable or lead wires which are sealed into the housing.

Description	
Housing	high grade, temperature resistant plastic
Electrical connections	shielded cable AWG 26 (0.14 mm^2) lead wires AWG 20 (0.5 mm^2)

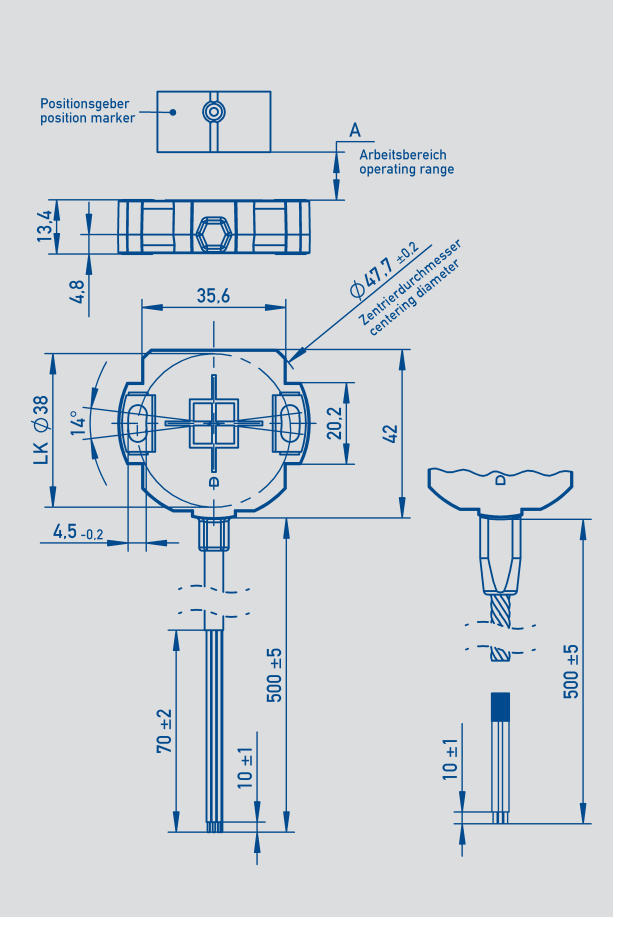


CW: With view on sensor through position marker

Position marker Z-RFC-P02



When the shaft marking is pointing to cable, the sensor is located in the electrical center position.



Connector pin		
Signal	**Lead wires**	**Cable**
Supply voltage 1	Red	Green
GND 1	Black	Brown
Signal output 1	Blue	White
Supply voltage 2	Red/White	-
GND 2	Black/White	-
Signal output 2	Blue/White	Yellow

Type designations	**RFC 4801 736 2XX XXX** **suply voltage 5 V**	**RFC 4801 736 3XX XXX** **supply voltage 12/24 V**	
Mechanical Data			
Dimensions	see dimension drawing		
Mounting	2 M4 screws (included)		
Mechanical travel	360 continuous		°
Maximum operational speed	unlimited		min^{-1}
Weight	ca. 50		g
Electrical Data			
Supply voltage Ub	5 (4.5 ... 5.5)	12 / 24 (9 ... 34)	 VDC
No-load supply current	30 typical		mA
Reverse voltage	yes, only supply lines	yes	
Short circuit protection (vs. GND and +Ub)	yes	yes	
Measuring range	0 ... 30 up to 0 ... 360, in 10°-steps		°
Update rate	5000 typ.		measur./s
Resolution	0.1		°
Repeatability	0.2		°
Independent linearity	≤ ±0.3 typ. (≤ ±0.5 max) of signal range		%
Output signal	ratiometric 5 % ... 95 % Ub 10 % ... 90 % Ub (load ≥1 kΩ)	0.25 ... 4.75 V 0.5 ... 4.5 V (load ≥5 kΩ)	
TC at electr. angle 30 up to 170° TC at electr. angle 180 up to 360°	typical 100 typical 50		ppm/K ppm/K
Insulation resistance (500 VDC, 1 bar, 2s)	≥ 10		MΩ
Cable length, bare, tinned	ca. 500		mm
Cross-section cable Cross-section lead wires	ca. 0.14 0.5	ca. 0.14	mm^2 mm^2
Environmental Data			
Temperature range	-40...+125	-40 ... +85 -40 ... +105, if Ub ≤ 28V	°C °C
Vibration (IEC 68T2-6)	5...2000 A_{max} = 0.75 a_{max} = 20		Hz mm g
Shock (IEC 68T2-27)	100 (11 ms)		g
Life	mechanical unlimited; > 50 000 h MTBF		
Protection class (DIN 40050 / IEC 529)	IP67		
EMC compatibility	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN55011	ISO 11452-5 ISO 11452-2 ISO 7637-1/2/3 ISO TR10605 CISPR25 ISO 14982	
Working distance A / magnet constant	Z-RFC-P01: A = 0 ... 1.5 mm / magnet constant = 1.85 [°/mm^2] Z-RFC-P02: A = 0 ... 4 mm / magnet constant = 0.8 [°/mm^2]		
Lateral magnet offset (will cause additional linearity error)	max. ±3 mm (Z-RFC-P02), max. ±1.5 mm (Z-RFC-P01) The maximum error which is caused by lateral offset between sensor and position marker may be approximated as follows: Error [°] = magnet constant x (offset [mm])^2 The magnet constant depends from the position marker. Example: Z-RFC-P02: magnet constant = 0.8 °/mm^2; offset = 0,5 mm Error [°] = 0.8°/mm^2 x (0.5 mm)^2 = 0,2°		

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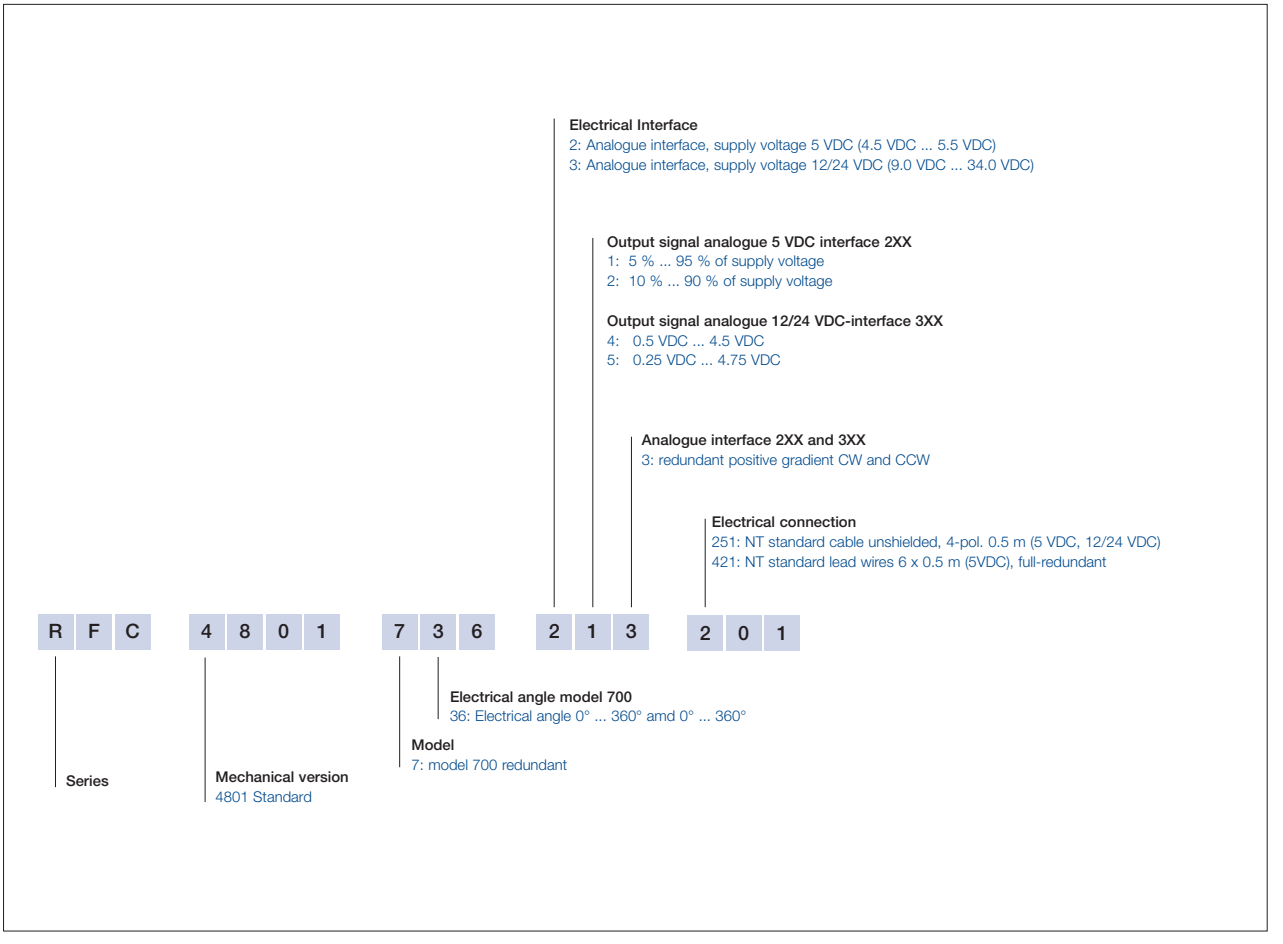
Ordering specifications



Required accessories
Position marker Z-RFC-P01, Art.No. 005660;
Position marker Z-RFC-P02, Art.No. 005661
(see separate data sheet RFC position markers)

Available on request
Cable versions
Customized connectors
Specific angle ranges / characteristics
Other interfaces