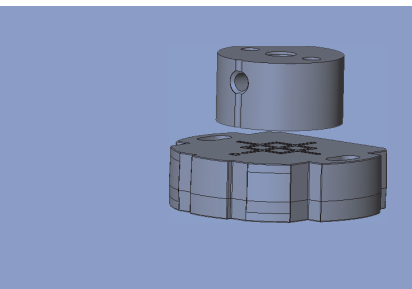
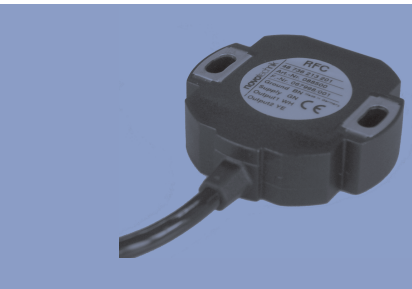


**Angle Sensor**  
**touchless technology**  
**transmissive**

Series RFC4800  
Model 600



**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 %

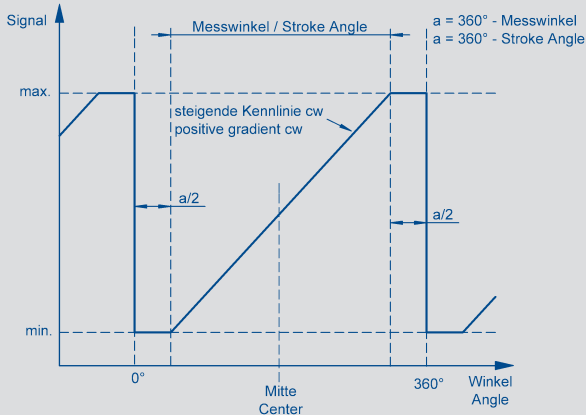
The sensor utilizes the orientation of a magnetic field for the determination of the measurement angle. Therefore, a magnet is attached to the rotating shaft. The magnetic field orientation is captured with an integrated circuit. An analogue output signal represents the calculated angle.

The housing is made of high grade temperature-resistant plastic material. Fixings are in the form of elongated slots which allow for 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.

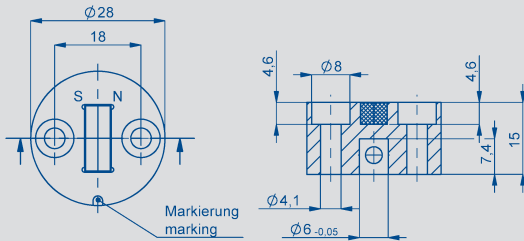
Electrical connection is made via a shielded cable or lead wires which are sealed into the housing.

Description	
Housing	high grade, temperature resistant plastic
Electrical connections	shielded cable AWG 26 (0.14 mm <sup>2</sup> ) unshielded cable AWG 26 (0.14 mm <sup>2</sup> ) alternative lead wires AWG 20 (0.5 mm <sup>2</sup> )

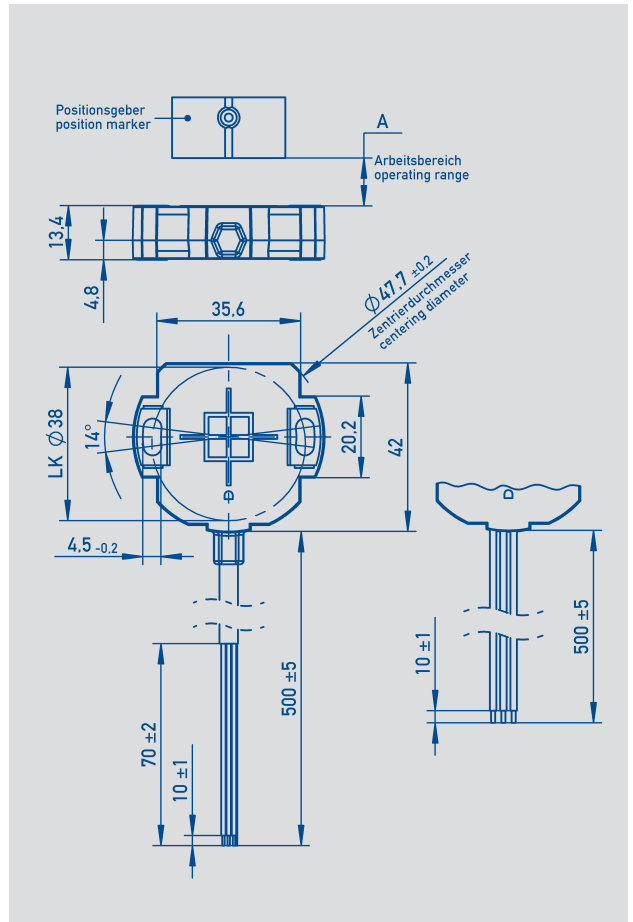


CW: With view on sensor through position marker

Position marker Z-RFC-P02



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



**Connector pin**

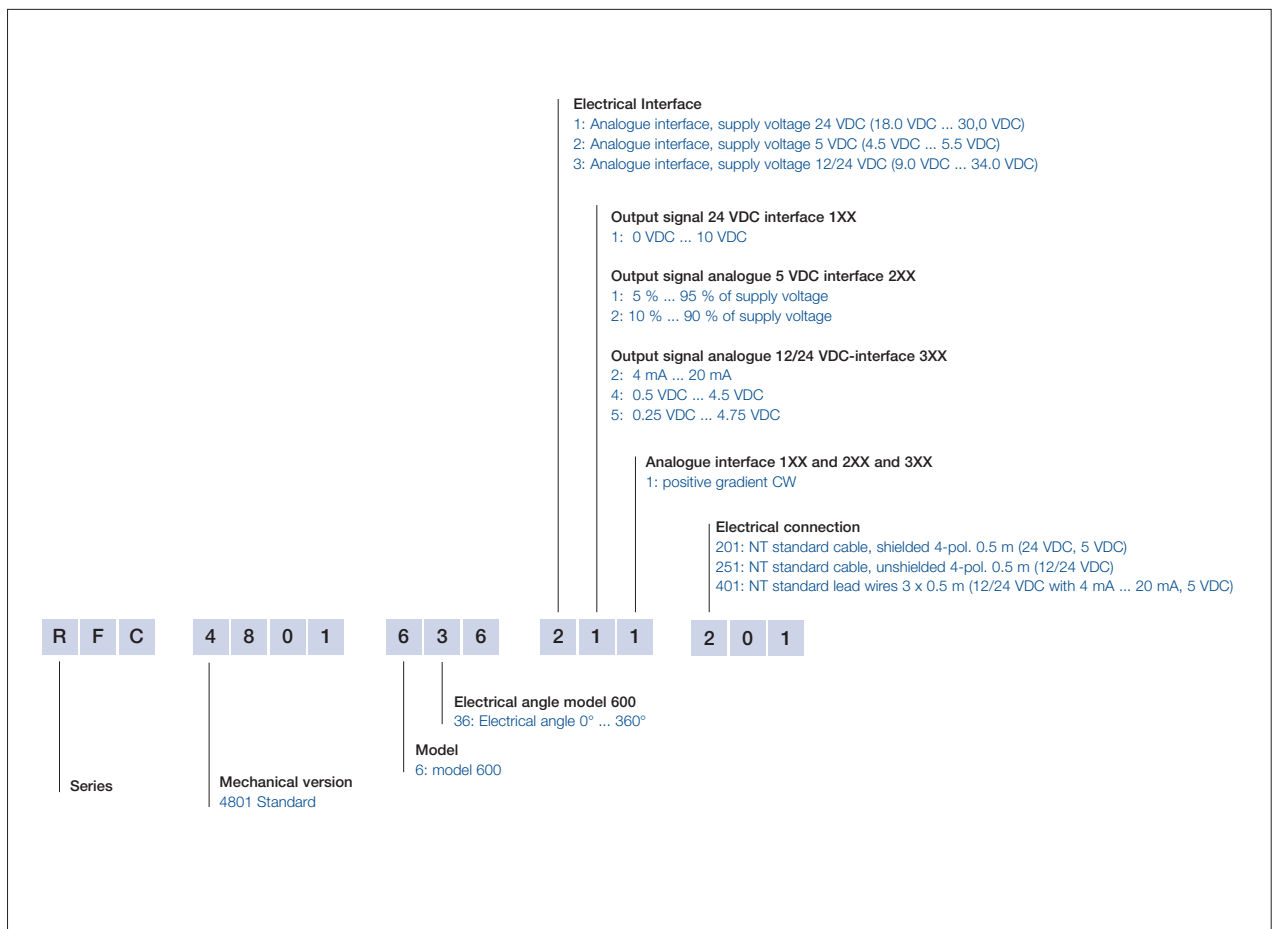
Signal	Lead wires	Cable
Supply voltage	Red	Green
GND	Black	Brown
Signal output	Blue	White

Type designations	RFC 4801 636 2XX XXX supply voltage 5 V	RFC 4801 636 1XX XXX supply voltage 24 V	RFC 4801 636 3XX XXX supply voltage 12/24 V		
<b>Mechanical Data</b>					
Dimensions	see dimension drawing				
Mounting	with 2 M4 screws (included)				
Mechanical travel	360 continuous				°
Maximum operational speed	unlimited				min <sup>-1</sup>
Weight	ca. 50				g
<b>Electrical Data</b>					
Supply voltage Ub	5 (4.5 ... 5.5)	24 (18 ... 30)	12 / 24 (9 ... 34)		VDC
No-load supply current	15 typical				mA
Reverse voltage	yes, only supply lines	yes	yes		
Short circuit protection, vs. GND and +Ub	yes	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)	0.1 ... 10 V (load ≥ 10 kΩ)	0.25 ... 4.75 V 0.5 ... 4.5 V (load ≥ 5 kΩ)	4 ... 20 mA (burden max. 250 Ω)	
TC at electr. angle 30 up to 170°	typical 100	typical 150	typical 100	typical 150	ppm/K
TC at electr. angle 180 up to 360°	typical 50	typical 80	typical 50	typical 80	ppm/K
Insulation resistance (500 VDC, 1 bar, 2s)	≥ 10				MΩ
Cable length, bare, tinned	ca. 500				mm
Cross-section cable	ca. 0.14	ca. 0.14	ca. 0.14		mm <sup>2</sup>
Cross-section lead wires	0.5	-	0.5		mm <sup>2</sup>
<b>Environmental Data</b>					
Temperature range	-40...+125	-40 ... +125	-40 ... +125	-40 ... +105 -40 ... +125, if Ub ≤ 28V	°C °C
Vibration (IEC 68T2-6)	5...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 20				Hz 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 EN 55011	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 55011	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 <sup>2</sup> ] Z-RFC-P02: A = 0 ... 4 mm / magnet constant = 0.8 [°/mm <sup>2</sup> ]				
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]) <sup>2</sup> The magnet constant depends from the position marker. Example: Z-RFC-P02: magnet constant = 0.8 °/mm <sup>2</sup> ; offset = 0,5 mm Error [°] = 0.8°/mm <sup>2</sup> x (0.5 mm) <sup>2</sup> = 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