



## Precision angle sensor PWG series

Current output 4...20mA

### PWG 79 I

#### Technical description

The angle sensor is developed for rough operation under extreme environmental conditions in mobile applications. The main application is the measurement of the steering angle in safety related electronic-hydraulic steering systems direct on the wheel boogie.

The sensor is equipped with a precision transducer which provides a 4...20 mA norm signal. With this signal angle ranges up to  $\pm 170^\circ$  can be recorded.

Equipped with a conductive plastic resistance element and a long term stabile multiple finger wiper, the angle sensor is suitable for durable operation even under challenging conditions.

A tough full metal housing, continuous stainless steel shaft with double ball bearing and a large distance of the bearing places as well as an interlocking top cover protect the wiper from outer force effects. Hermetic sealing as well as the accuracy and reliability of the absolute analog angle measurement are further special characteristics.

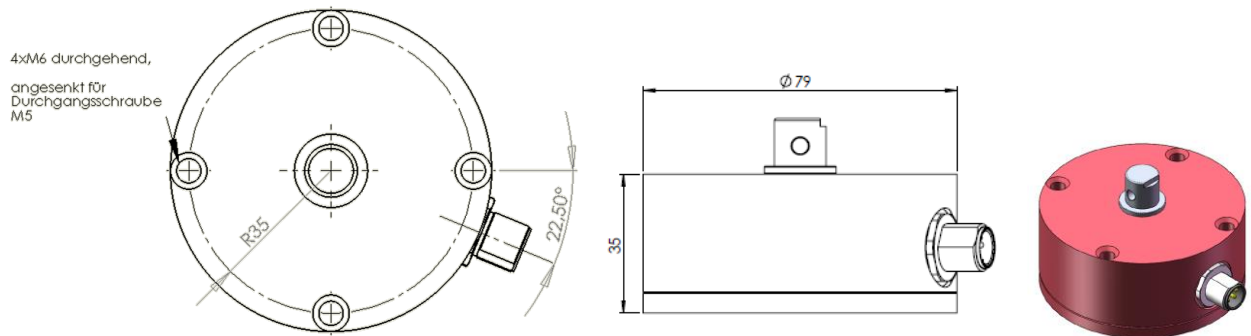
The massive and compact construction allows the direct installation at the axle without additional protective measures. The stabile shaft allows a direct steering via a strong lever or tappet.

#### Special features

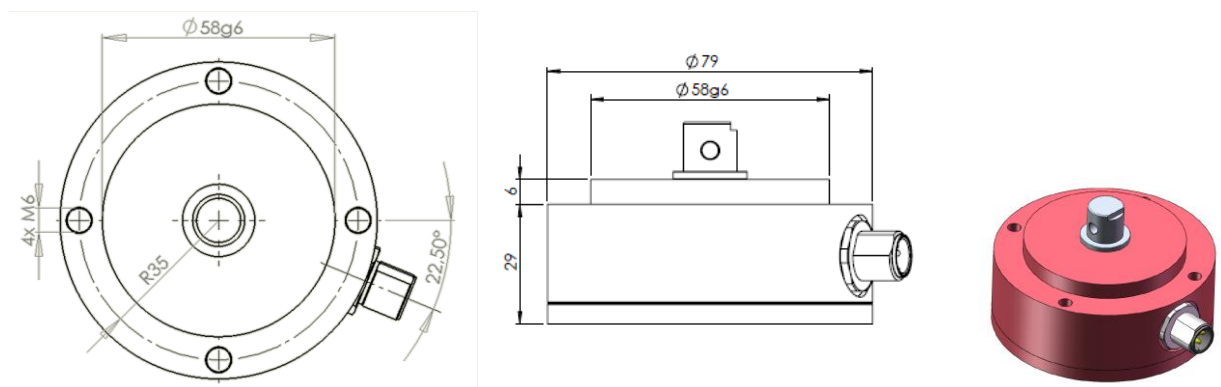
- Current output 4...20 mA
- Extreme tough design
- Absolute potentiometric measuring system with highest life time.
- Increased corrosion protection by shaft made of stainless steel and anodized housing made out of massive aluminum.
- Accurate execution with very good linearity and temperature reliability.
- Absolute splash-proof
- With connector or PG gland available.
- Very high life time even at vibration-rich places.
- High resolution
- No mechanical turning limit

## Housing variants

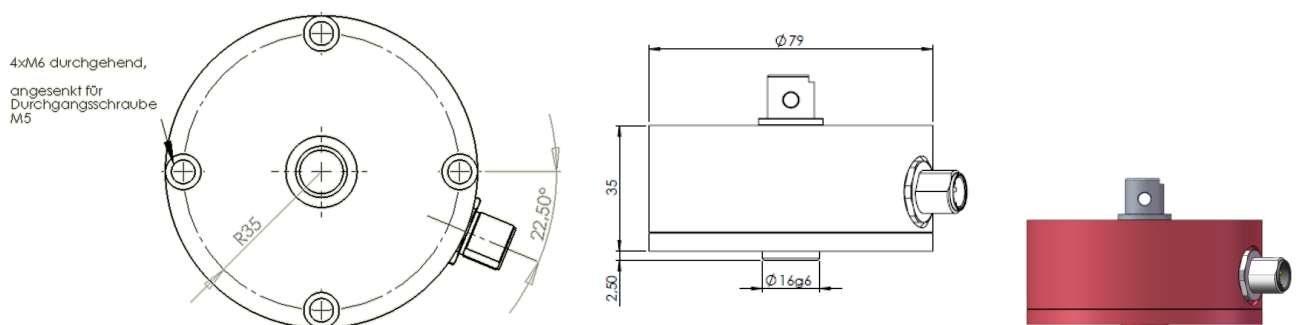
### Standard



### Centring flange Ø58g6

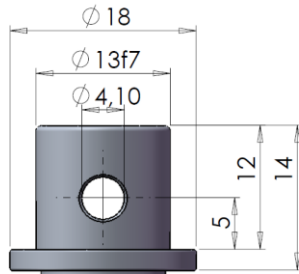


### Spigot Ø16g6

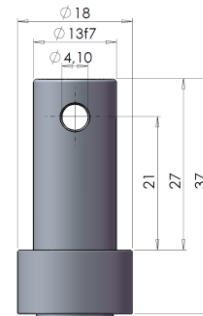


## Shaft types

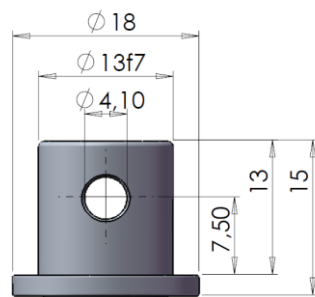
Shaft 1



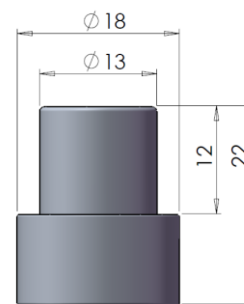
Shaft 2



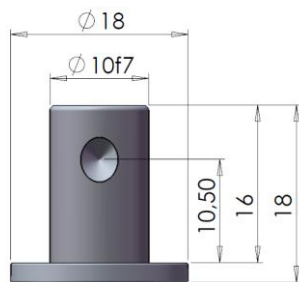
Shaft 3



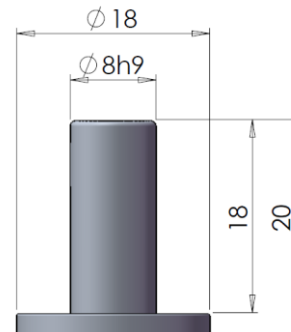
Shaft 4



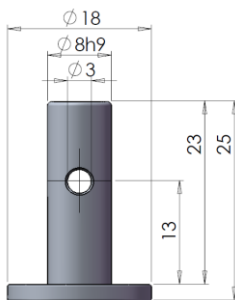
Shaft 5



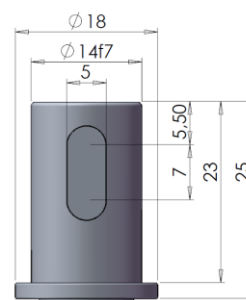
Shaft 6



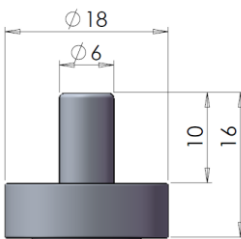
Shaft 7



Shaft 8



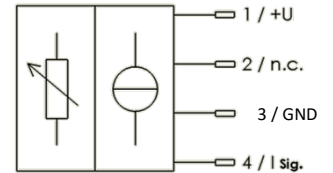
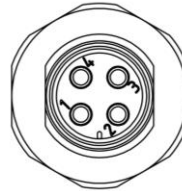
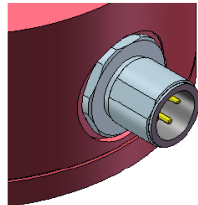
Shaft 9



## Electrical connections / accessories

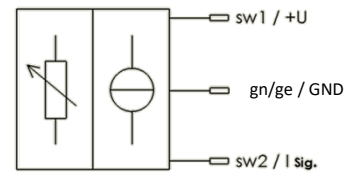
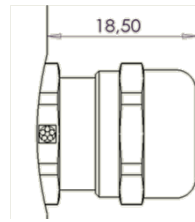
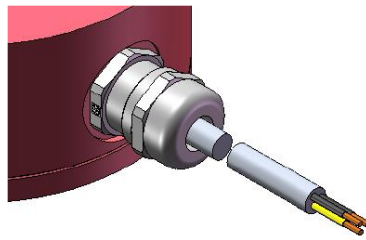
### Connector M12

Line type A,  
connector 07



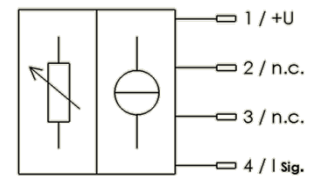
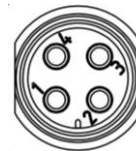
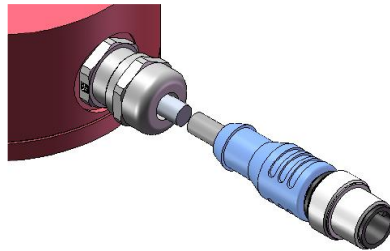
### Cable

Line type C,  
connector 00



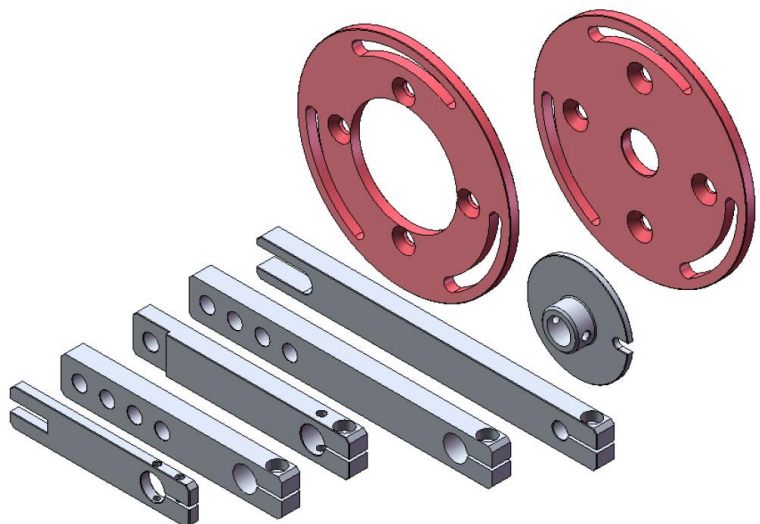
### Cable + M12 connector

Line type F,  
connector 07



## Accessory

An extensive program of accessories enables a professional assembling in all imaginable installation circumstances



## Technical data

### Electrical data

Output	4...20mA
Electrical function angle	60°, 80°, 120°, 175°, 200°, 340°
Absolute linearity	≤±0,2%
Micro linearity	≤±0,1%
Resolution	practically infinite
Temperature coefficient	20 ppm/°C (typ.)
Max. permissible supply voltage	36 VDC
Min. supply voltage at extern load resistor	0Ω    150Ω    240Ω    500Ω 6V    9V    11V    16V
Isolation resistance	>100 MΩ at 500VDC
Disruptive strength	1000 Vrms, 3000Vrms with POM-shaft

### Mechanical data

Permissible operation and storage temp.	-40°C to +80°C
Protection mode	IP 67 with connector IP 69 with PG gland
Life time	>100 Mio. revolutions
Mechanical angle	360° rotatable
Max. adjustment speed	50Hz
Oscillation strength (5...2000Hz)	$A_{max} = 0,75mm$ , $a_{max} = 20G$
Impact strength	50G/11ms
Max. axial load	300N
Max. radial load	400N
Max. torque	4Ncm (0,04Nm)
Corrosion resistance shaft	Stainless steel V2A (1.4305)
Corrosion resistance housing	Red anodized aluminum, sea water resistant
Weight	0,5kg

## Order code

PWG      -    -    -

**housing**  
79 - Ø79x35

**type**  
I - current output 4...20mA

**electrical function angle**  
030 - 30°      175 - 175°  
060 - 60°      200 - 200°  
080 - 80°      340 - 340°  
120 - 120°

**centering**  
0 - without centering  
1 - centering flange  
2 - spigot

**shaft**  
01 - Ø13x12    06 - Ø8x18  
02 - Ø13x27    07 - Ø8x23  
03 - Ø13x13    08 - Ø14x23 (flute)  
04 - Ø13x12    09 - Ø6x10  
05 - Ø10x16

**shaft material**  
0 - stainless steel V2A (1.4305)  
1 - POM

**cable length**  
01 - 1m  
02 - 2m  
05 - 5m  
08 - 8m  
10 - 10m  
15 - 15m

**cable protection**  
0 - without cable protection  
1 - corrugated tube, NW10  
2 - hydraulic hose, DN12  
3 - armored conduit

**connector**  
00 - without connector  
07 - M12 (Pin 1-3(GND)-4)

**Line type**  
A - without cable (connector on housing)  
B - Ölflex FD 810 CY (3x0,5mm<sup>2</sup>), permanently laid  
C - Ölflex FD 855 CP (3x0,5mm<sup>2</sup>), flexible  
D - Ölflex FD 855 CP (3x0,5mm<sup>2</sup>), flexible, shield on housing  
E - LiFQ-PUR lengthwise waterproof (6x0,5mm<sup>2</sup>)  
F - WASS-PUR (4x0,34mm<sup>2</sup>)  
G - Ployflex FLRY11Y (6x0,5mm<sup>2</sup>)