

- Contactless, wear-free sensor system according to the Hall principle
- Measuring range 360° (rotatable)
- Output signal: 0 to 5 V (ratiometric)
- Operating temperature range: -40 °C to +125 °C
- Short-circuit-resistant
- Ball bearing or sleeve bushing
- Housing diameter 12.2 mm



Design

Angle position measurement by means of Hall sensors and signal processing including generation of the analogue output signal.

Robust brass housing – stainless steel shaft with sliding bearing – sensor circuit consisting of ASIC with Hall elements – electrical connection via connector.

Electrical data

- Sensor system: ASIC with Hall elements
- Op. voltage range V_S : +4.5 VDC to +5.5 VDC
- Operating current: ≤ 21 mA (16 mA typical)
- Resolution: 10-bit
- Absolute accuracy: $< \pm 0.5^\circ <$ (at 25 °C)
 $< \pm 0.9^\circ <$ (throughout the entire temperature range)
- Output voltage V_O :
 - Maximum value: $(0.95 \text{ to } 1) \times UB$
 - Minimum value: $(0 \text{ to } 0.05) \times UB$
- Load resistance: ≥ 10 k Ω
- Updating rate: Typ. 2.6 kHz (2.3 to 2.9 kHz)
- Power on time: 20 ms

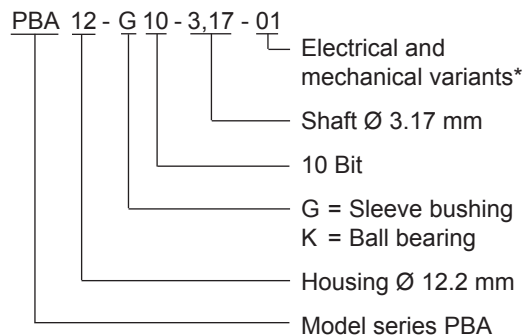
Mechanical data

- Operating speed:
 - Sleeve bushing: 100 rpm max.
 - Ball bearing: 1500 rpm max.
- Torque:
 - Sleeve bushing: 0.35 ± 0.14 Ncm
 - Ball bearing: 0.035 max.
- Weight:
 - Sleeve bushing: Approx. 14 g
 - Ball bearing: Approx. 12 g
- Shaftloading:
 - Sleeve bushing: 9.5 N
 - Ball bearing: 4.75
- Bearing life:
 - Sleeve bushing: $> 10^6$ Umdrehungen
 - Ball bearing: $> 10^9$ Umdrehungen

Environmental data

- Op. temp. range: -40 °C to +125 °C
- Storage temp. range: -55 °C to +125 °C
- ESD: (EN 61000-4-2) 2 kV contact discharge
- Protection type: IP 40 (EN 60529)

Order code format



* The basic versions according to the data sheet bear the number 01. Deviations are identified with a variant number and are documented in the factory.

Scope of delivery

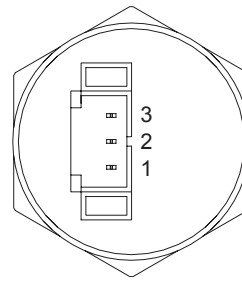
Sensor with washer and securing nut.

Accessories

- STS3GS08 mating connector with 300 mm connection wire 0.14 mm² (to be ordered separately)

Electrical connection

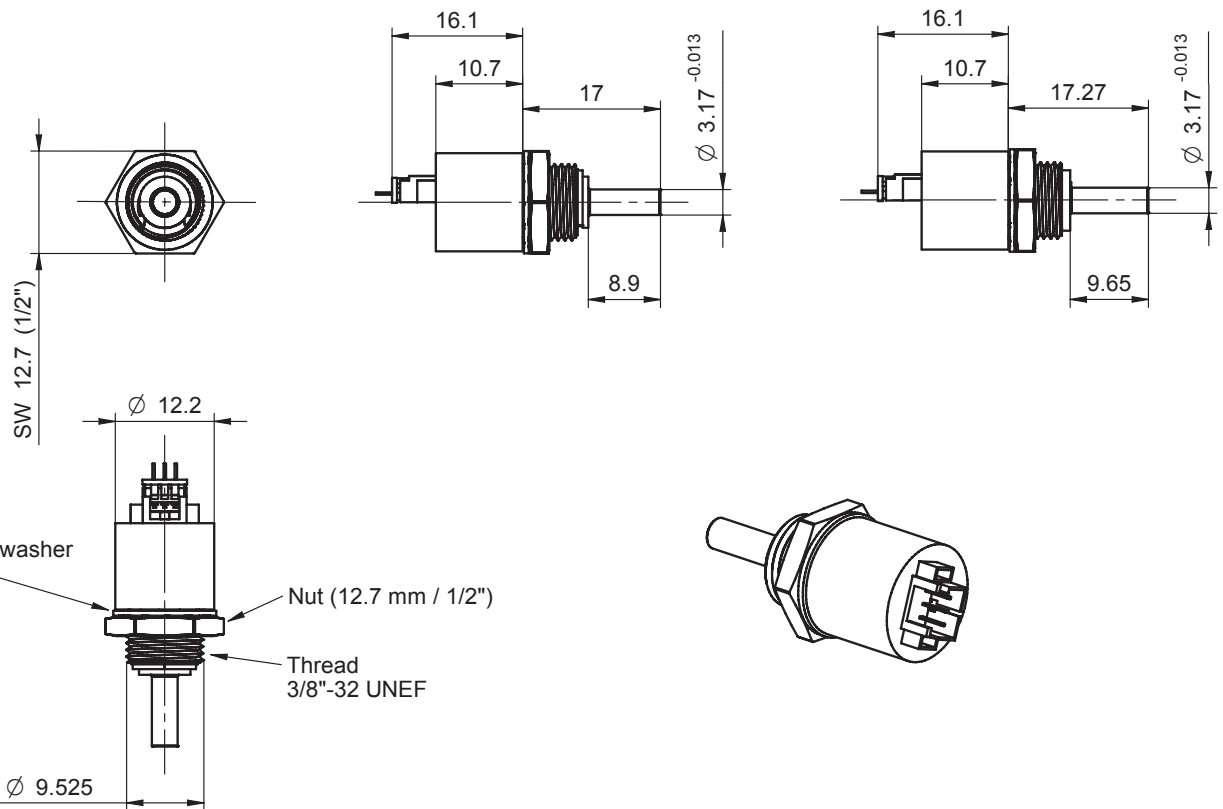
Signal	+ V _s (5 VDC)	Output V _o	- V _s (0 VDC)
Pin	1	2	3
Colour	Red	White	Blue



Dimensions in mm

Sleeve bushing

Ball bearing



Note:

Internally, the PBA12 contains a small magnet. This also generates a weak magnetic field outside of the sensor, which may influence neighbouring sensors. If the distance between two PBA12s is less than 25 mm (distance between axes), magnetic shielding (e.g. an iron plate) must be installed between both sensors.