ASM®
perfect in sensors.

POSIROT®

Magnetic Angle Sensors

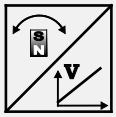
PRAS26
Magnetic Angle Sensor

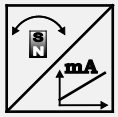
Datasheet

Analog output

Sensor features

- **Measurement range 0 ... 360°**
- **Protection class IP60**
- **Analog output**
- **Compact, low profile housing**
- **Non-contact with external position magnet, no wear**
- **Housing: Epoxy glass fibre, thermoplastic**





Specifications

Output	Voltage 0.5 ... 10 V Voltage 0.5 ... 4.5 V, ratiometric Current 4 ... 20 mA, 3 wire
Measurement range	0 ... 15° to 0 ... 360° (in 15° increments)
Resolution	0.03% (60 ... 360°); 0.1% (15 ... 45°)
Repeatability	±0.03% (60 ... 360°); ±0.1% (15 ... 45°)
Linearity	±0.5% f.s. (typical)
Rated distance sensor / magnet	Depending on the position magnet
Protection class	IP60
Housing material	Epoxy glass fibre, thermoplastic
Mounting	Screws M4
Connection	3-pin connector, Tyco Electronics, type "SlimSeal"
Temperature range	-40 ... +85°C
Shock	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks
Vibration	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles
Weight	8 g approx. (without cable)
EMC	DIN EN 61326-1:2013

Order code

PRAS26	–	1	–	2	–	3	–	4

1 Measurement range (0 ... 15° to 0 ... 360°, in 15° increments)

15 / 30 / 45 / ... / 345 / 360

2 Output

U2B	= Voltage 0.5 ... 10 V (excitation voltage 11.5 ... 27 V DC)
U6	= Voltage 0.5 ... 4.5 V ratiometric (excitation voltage 5 V DC)
I1B	= Current 4 ... 20 mA, 3 wire (excitation voltage 10 ... 27 V DC)

3 Signal characteristics

CW	= Signal increasing CW, clockwise
CCW	= Signal increasing CCW, counterclockwise

4 Connection

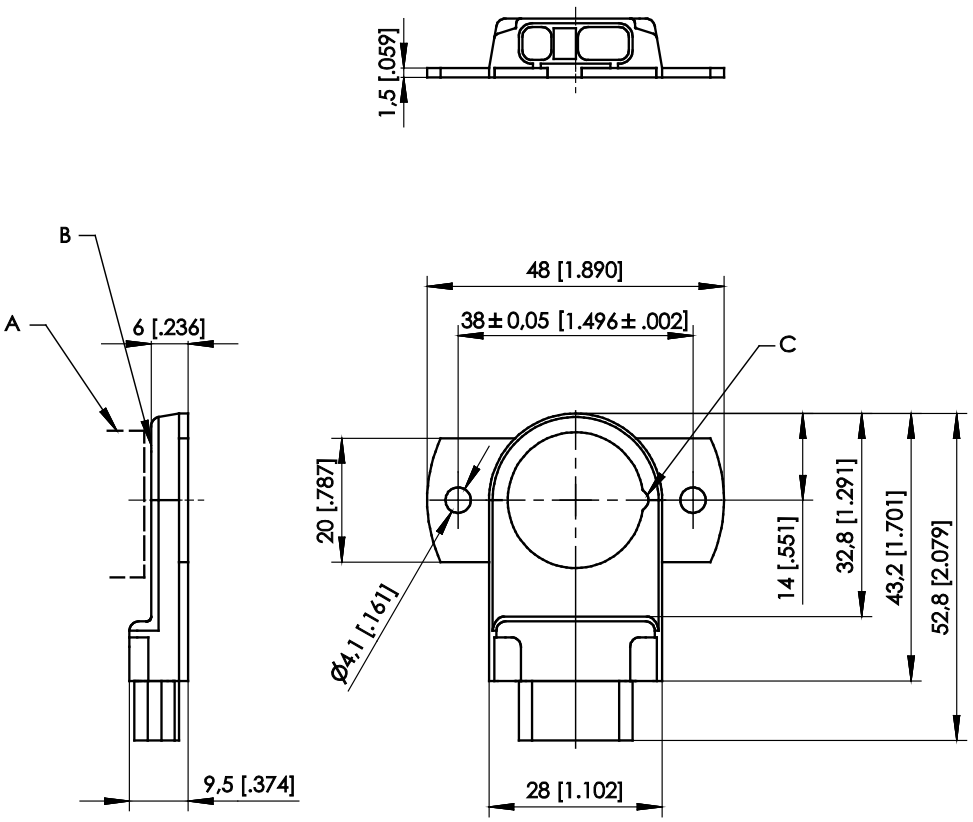
TE3	= 3-pin connector, Tyco Electronics, type "SlimSeal"

Order example

PRAS26 – 360 – U6 – CW – TE3

Accessories:
Connector cables (see page 12)
Position magnets (see from page 7)
Magnetic shield (see page 14)

Dimensions

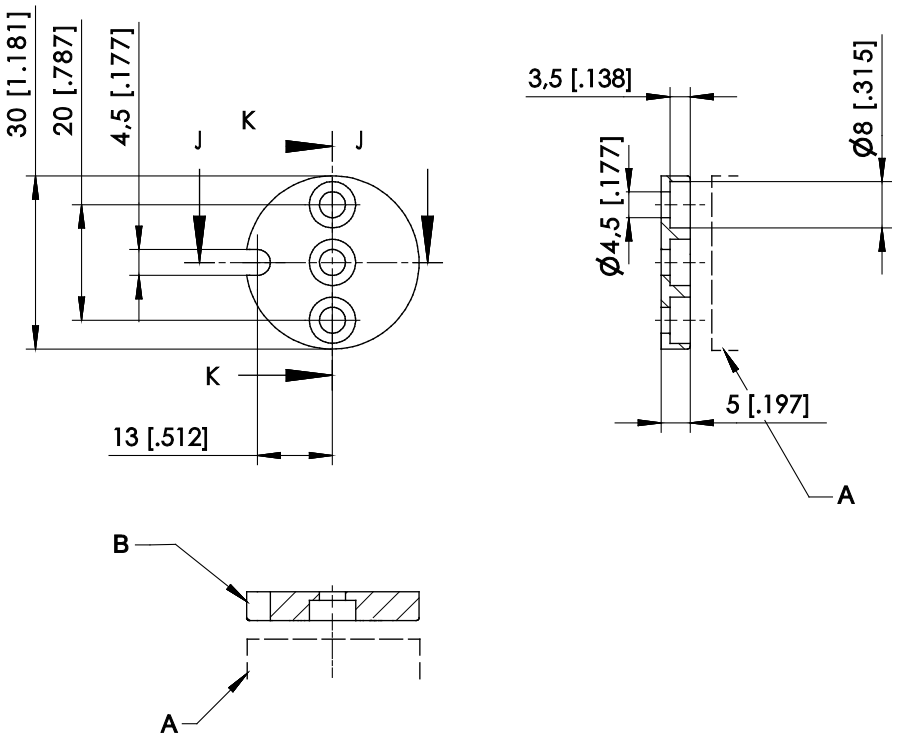


A – Position magnet
B – Measuring area
C – Marking

Dimensions in mm [inch]. Weight without cable approx. 8 g.
Dimensions informative only.
For guaranteed dimensions consult factory.

Position magnets

PRMAG20



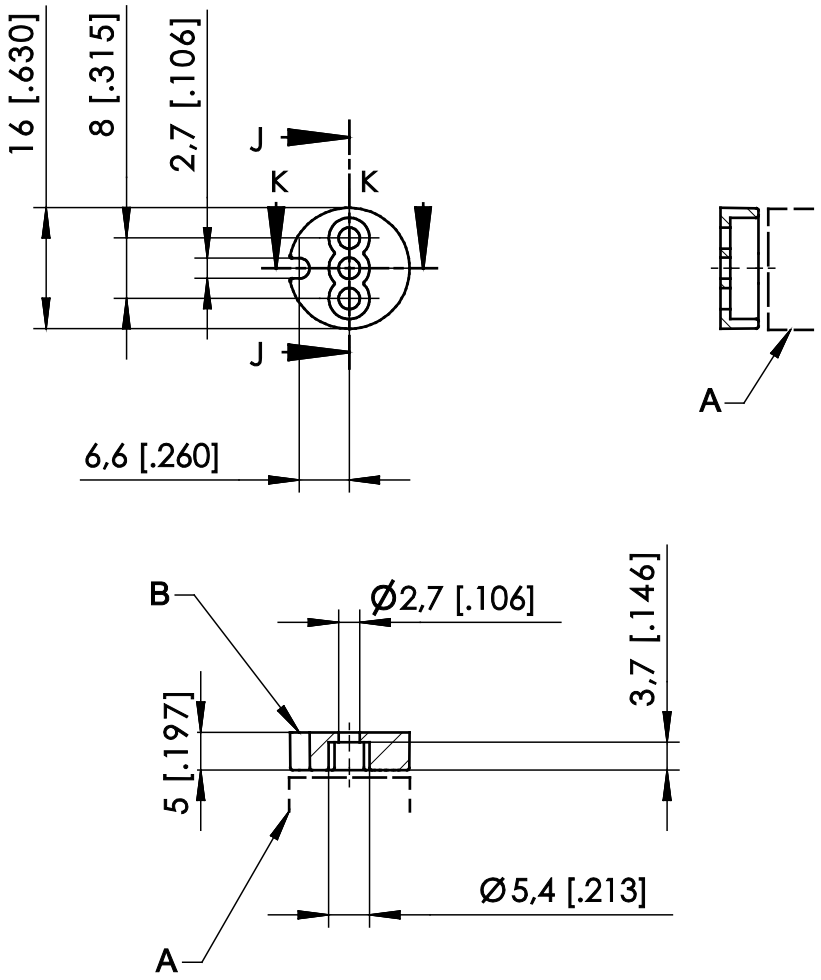
A – Sensor
B – Marking

Order code	Weight	Material	Moment of inertia
PRMAG20	approx. 12 g	zinc coated steel, plastic	1.3 kgmm^2

A misalignment of the position magnet has an effect on the linearity.

Dimensions in mm [inch].
Dimensions informative only.
For guaranteed dimensions please consult factory.

PRMAG21



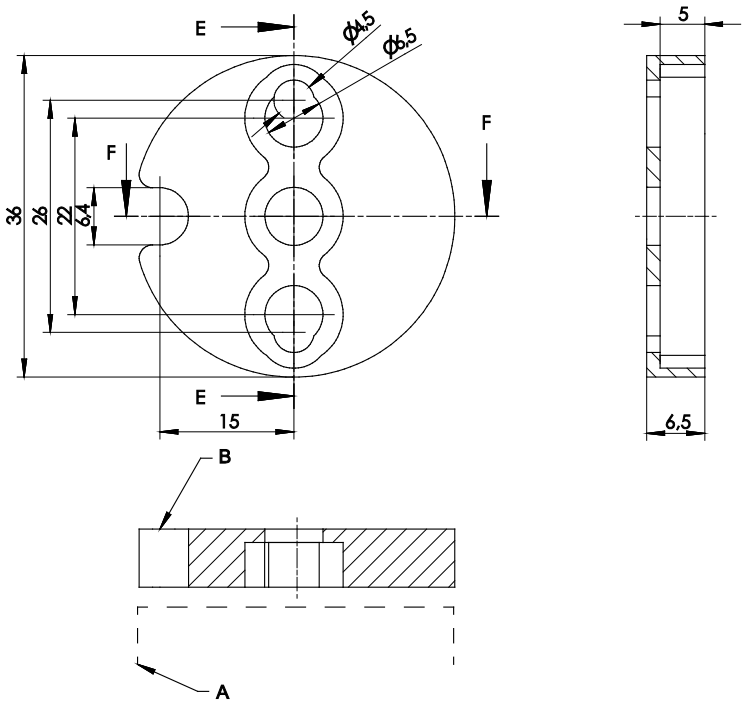
A – Sensor
B – Marking

Order code	Weight	Material	Moment of inertia
PRMAG21	approx. 3 g	zinc coated steel; plastic	0.1 kgmm^2

A misalignment of the position magnet has an effect on the linearity.

Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions please consult factory.

PRMAG22



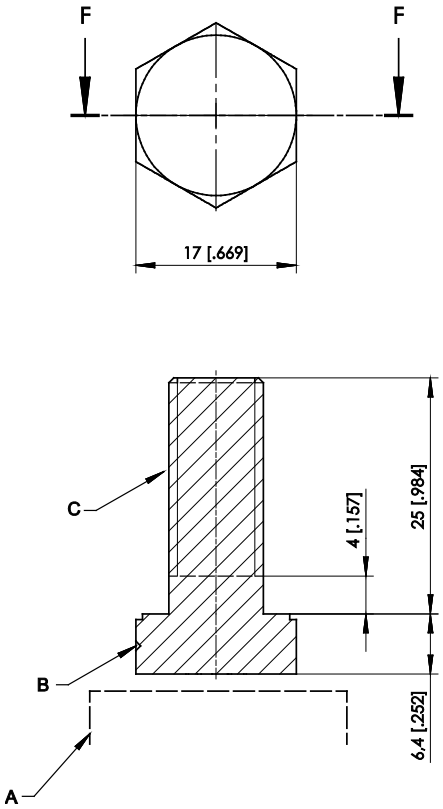
A – Sensor
B – Marking

Order code	Weight	Material	Moment of inertia
PRMAG22	approx. 19 g	zinc coated steel, plastic	3 kgmm^2

A misalignment of the position magnet has an effect on the linearity.

Dimensions in mm [inch].
Dimensions informative only
For guaranteed dimensions please consult factory.

PRMAG-M10



A – Sensor
B – Marking
C – Thread M10

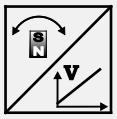
Order code	Weight	Material	Moment of inertia
PRMAG-M10	approx. 30 g	stainless steel A2	1.3 kgmm2

A misalignment of the position magnet has an effect on the linearity.

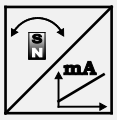
Dimensions in mm [inch].
Dimensions informative only.
For guaranteed dimensions please consult factory.

Output specification

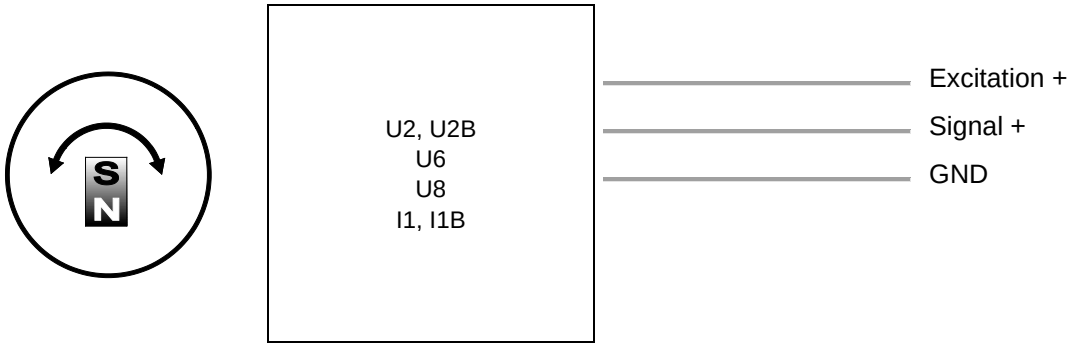
Analog output

U2B Voltage output 0.5 ... 10 V 	Excitation voltage	11.5 … 27 V DC
	Excitation current	typical 12 mA max. 16 mA
	Output voltage	0,5 ... 10 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±50 x 10^{-6} / °C f.s. (typical for 90° … 360°) ±100 x 10^{-6} / °C f.s. (typical for <90°)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
	EMC	DIN EN 61326-1:2013

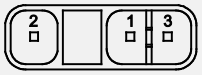
U6 Voltage output 10 … 90 % ratiometric 	Excitation voltage	5 V DC ±10 %
	Excitation current	typical 8 mA max. 12 mA
	Output voltage	10 … 90 % of the excitation voltage
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±50 x 10^{-6} / °C f.s. (typical for 90° … 360°) ±100 x 10^{-6} / °C f.s. (typical for <90°)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
	EMC	DIN EN 61326-1:2013

I1B Current output 4 … 20 mA, 3 wires 	Excitation voltage	10 … 27 V DC
	Excitation current	typical 32 mA max. 36 mA
	Load R_L	250 Ω max.
	Output current	4 … 20 mA
	Measuring rate	1 kHz standard
	Stability (temperature)	±50 x 10^{-6} / °C f.s. (typical for 90° … 360°) ±100 x 10^{-6} / °C f.s. (typical for <90°)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
	EMC	DIN EN 61326-1:2013

Signal diagram



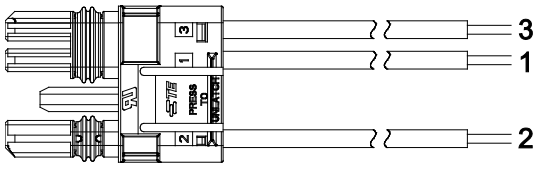
PRAS26 – connector TE3
Signal wiring

Signal	Connector pin no.	View to sensor connector TE3
GND	1	
Excitation +	2	
Signal	3	

Mating connector: Tyco Electronics,
SlimSeal, Part-Nr. 2106135-3, 3-pin

PRAS26 – connector 3-pin with connecting leads

This cable is supplied with a male 3-pin connector at one end and 3 wires at the other end.
Cross section 0.32 mm^2. Wire length 0.5 m.



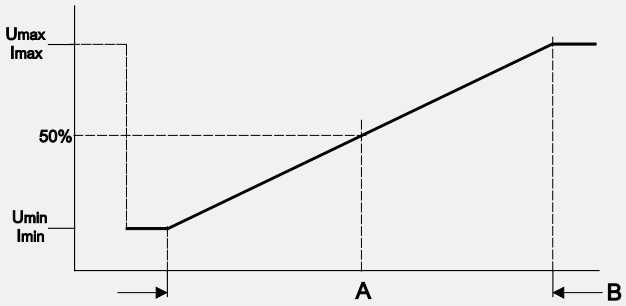
Order code

CONN-TE-3F-G-LITZE-0,5M

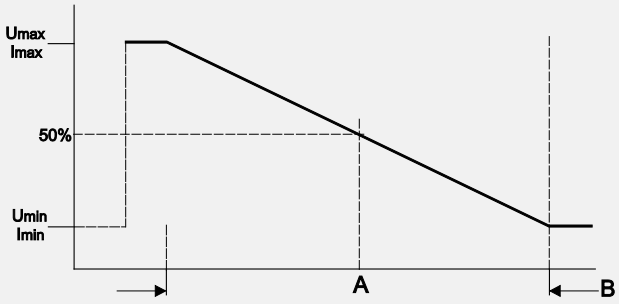
Signal wiring 3-pin connector	Connector pin no. / connecting leads		
	1	2	3
	blue	brown	white

Characteristics for magnetic angle sensors

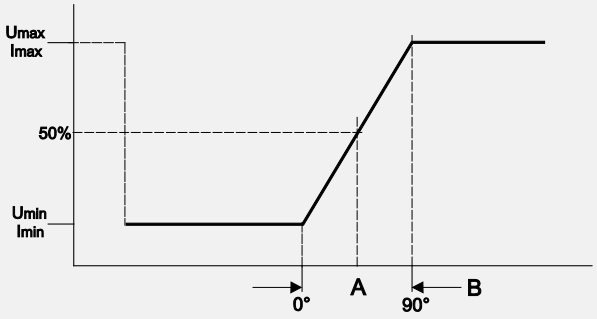
Output signal CW
(clockwise increasing)



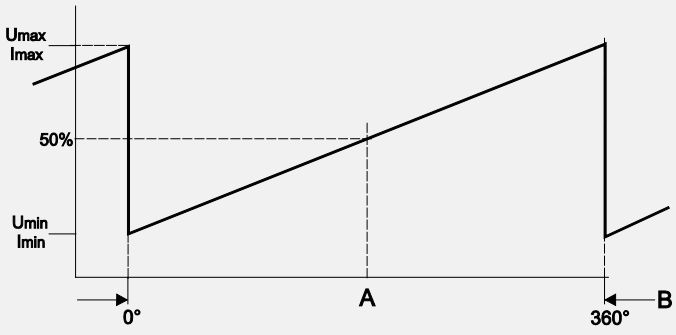
Output signal CCW
(counterclockwise increasing)



Example angular range 90°



Example angular range 360°



A – Marking
B – Measurement range [°]

Accessories

PRAS26 Magnetic shield

An optional shield plate is available for the angle sensor PRAS26. It can reduce the effect of residual magnetizing in case the sensor has to be mounted on a ferromagnetic material.

Order code magnetic shield:

PRAS20/26-MSHIELD