

 PRAS26

Angle sensor for indoor applications



- **Protection class IP60**
- **Measurement range 0°... 360°**
- **Overall height 9.5 mm**
- **Contactless with external position magnet, wear-free**
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-

Product versions



Analog output



PRAS26 - Magnetic Angle Sensor Version with Analog output

Specifications

		Order options	
Measurement range	0 ... 15° to 0 ... 360° (in 15° increments)	1	15 / 30 / 45 / ... / 345 / 360
Output	Voltage 0.5 ... 10 V Voltage 0.5 ... 4.5 V ratiometric Current 4 ... 20 mA, 3 wire	2	U2B U6 I1B
Signal characteristics	Signal increasing CW, clockwise Signal increasing CCW, counterclockwise	3	CW CCW
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		
Housing material	Epoxy glass fibre, thermoplastic		
Mounting	Screws M4		
Protection class	IP60		
Connection	3-pin connector, Tyco Electronics, type "SlimSeal"	4	TE3
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		
Temperature range	-40 ... +85°C		
Weight	8 g approx. (without cable)		
EMC	DIN EN 61326-1:2013		

Order code

PRAS26 – **1** – **2** – **3** – **4**

Order example: PRAS26 – 360 – U6 – CW – TE3

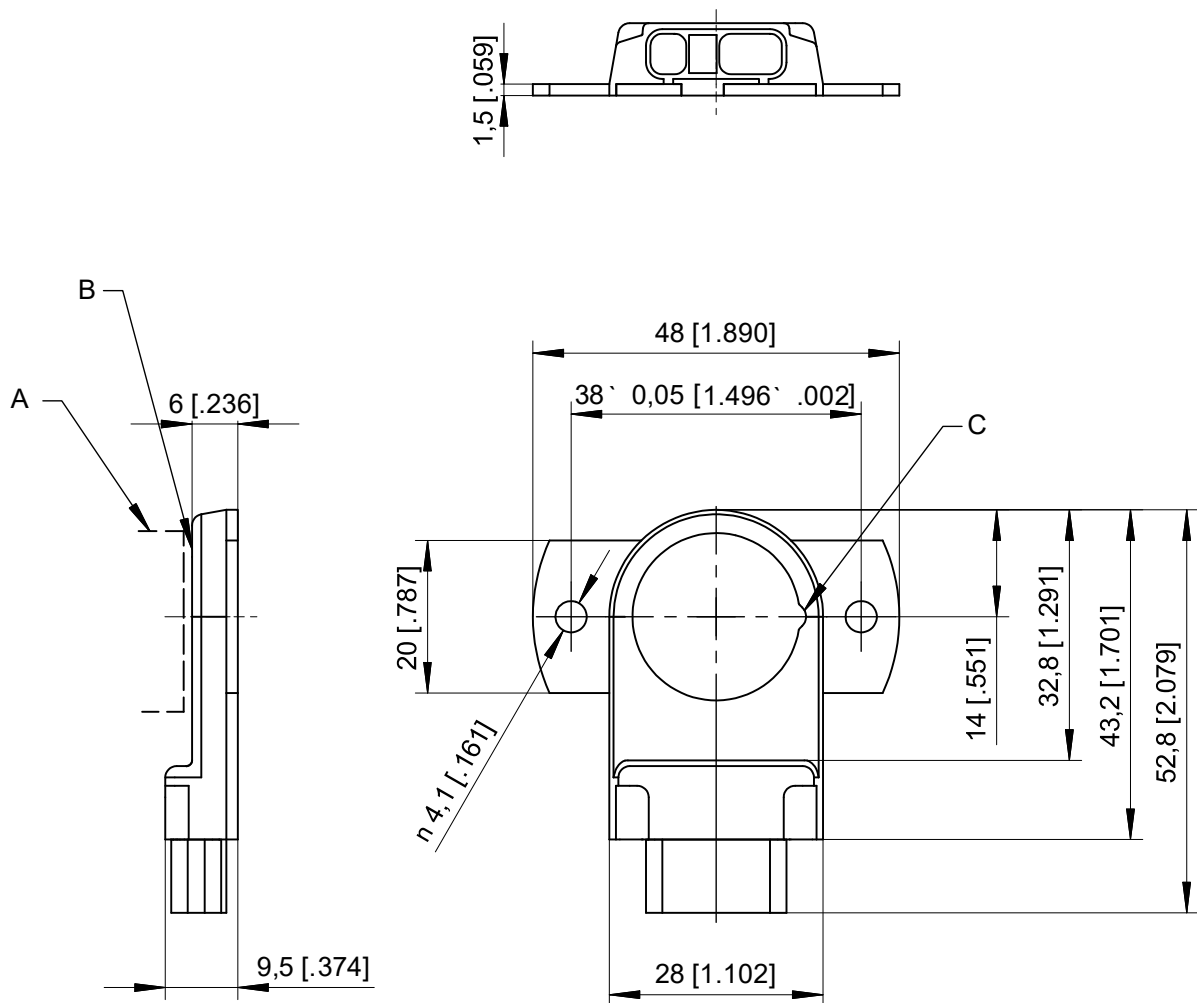
Accessories:

Connector cables (see page 10)

Position magnets (see from page 4)

Magnetic shield(see page 13)

Dimensions



A – Position magnet
B – Measuring area
C – Marking

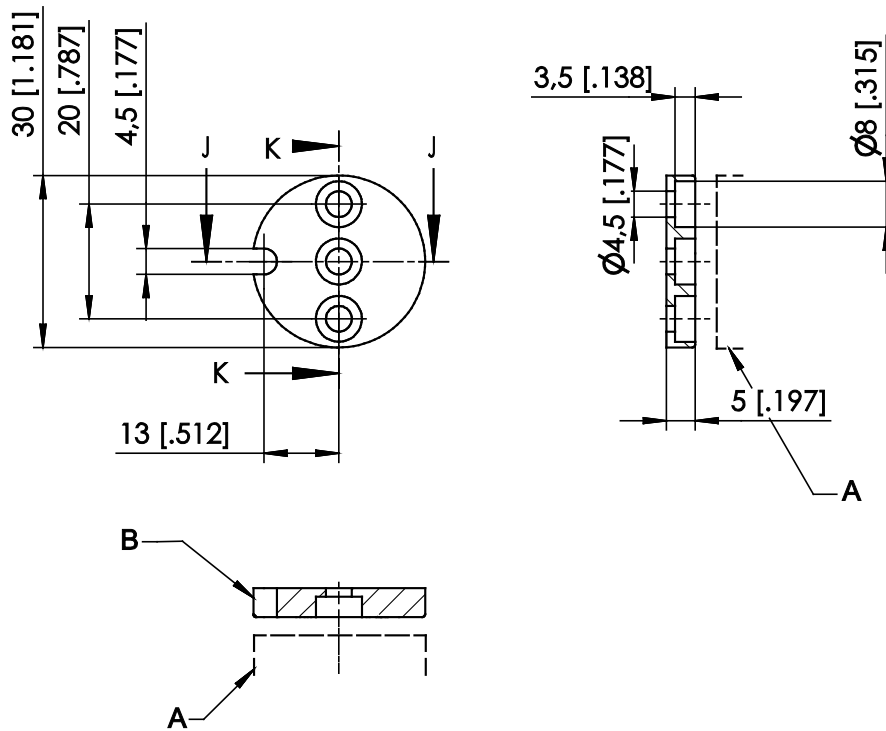
Dimensions in mm [inch]. Weight without cable approx. 8 g.

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

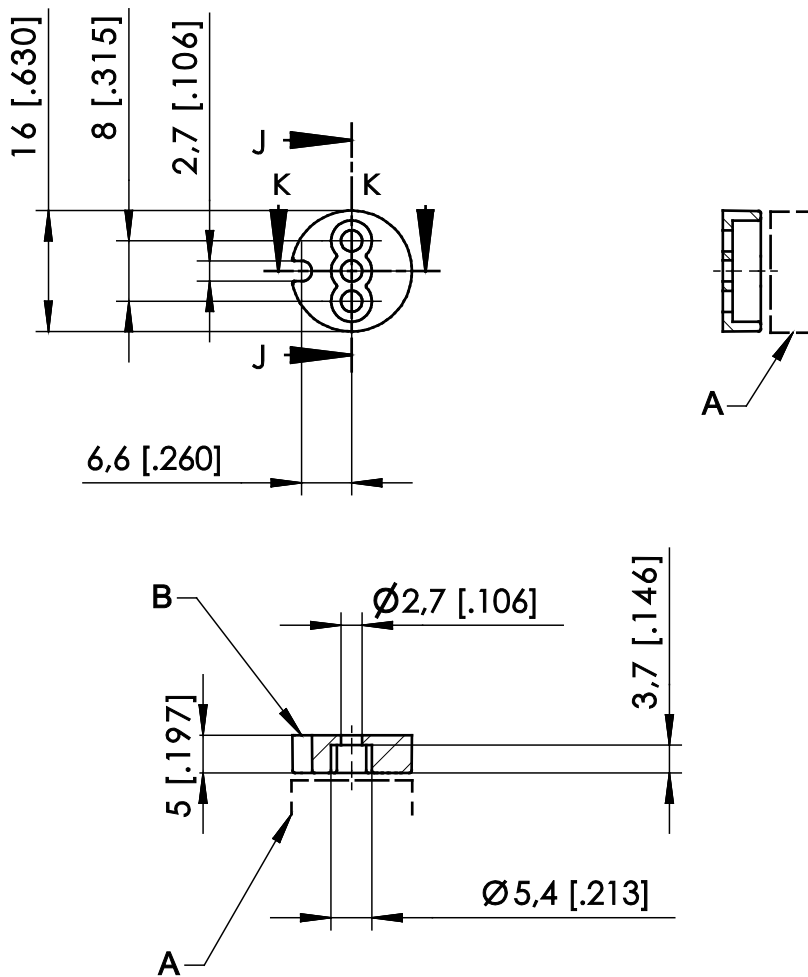
A misalignment of the position magnet has an effect on the linearity.

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

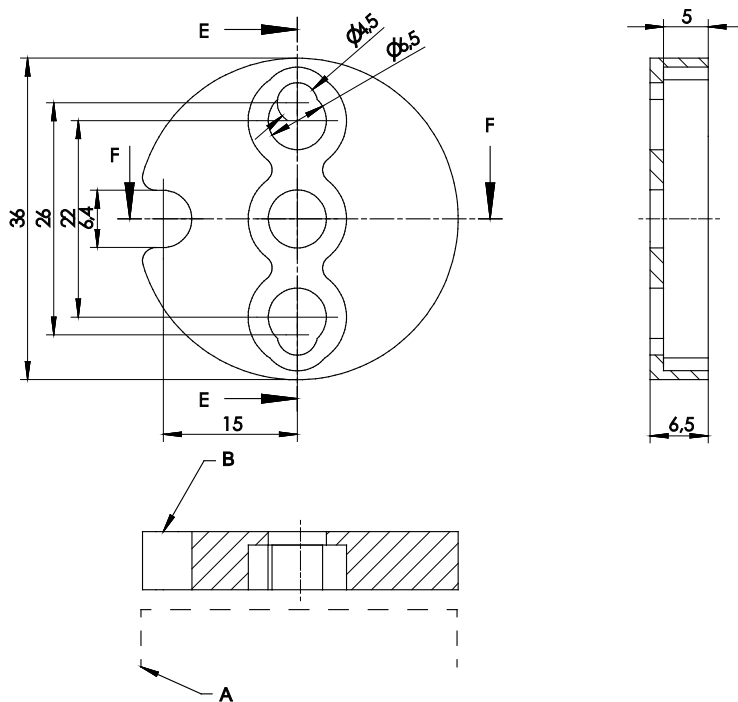
A misalignment of the position magnet has an effect on the linearity.

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

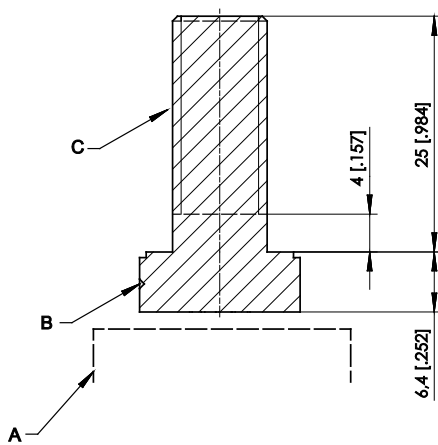
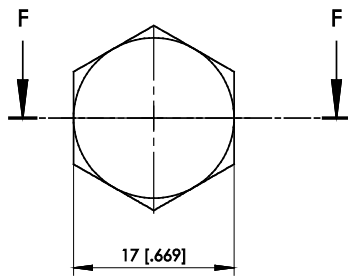
A misalignment of the position magnet has an effect on the linearity.

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 kgmm ²

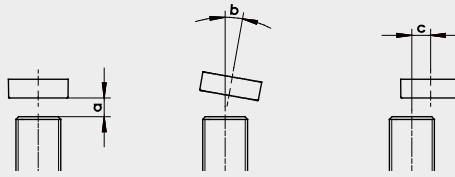
A misalignment of the position magnet has an effect on the linearity.

Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions please consult factory.

Measuring error by misalignment of the position magnet

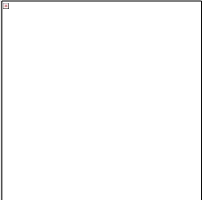


Air gap (a)
Parallelism (b)
Lateral offset (c)

Sensor	Position magnet	Air gap [mm]	Parallelism [°]	Error by lateral offset [°]					
				0.2 mm	0.5 mm	1 mm	2 mm	3 mm	4 mm
PRAS26	PRMAG20	0 ... 7	0 ... 5	0.1	0.3	0.7	2	4.6	–
	PRMAG21	0 ... 2	0 ... 5	0.15	0.3	0.9	3.6	9.6	–
	PRMAG22	0 ... 10	0 ... 5	0	0	0.7	1.5	3.8	7
	PRMAG-M10	0 ... 3	0 ... 5	0.1	0.1	0.5	2	7	–

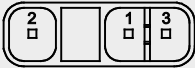
Output specification

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)	$\pm 50 \times 10^{-6} / ^\circ\text{C}$ f.s. (typical for $90^\circ \dots 360^\circ$) $\pm 100 \times 10^{-6} / ^\circ\text{C}$ f.s. (typical for $<90^\circ$)
	Protection	Reverse polarity, short circuit
	Operating temperature	$-40 \dots +85^\circ\text{C}$
	EMC	DIN EN 61326-1:2013
U6 Voltage output 10 ... 90 % ratiometric 	Excitation voltage	5 V DC $\pm 10\%$
	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)	$\pm 50 \times 10^{-6} / ^\circ\text{C}$ f.s. (typical for $90^\circ \dots 360^\circ$) $\pm 100 \times 10^{-6} / ^\circ\text{C}$ f.s. (typical for $<90^\circ$)
	Protection	Reverse polarity, short circuit
	Operating temperature	$-40 \dots +85^\circ\text{C}$
	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)	$\pm 50 \times 10^{-6}$ / °C f.s. (typical for 90° ... 360°) $\pm 100 \times 10^{-6}$ / °C f.s. (typical for <90°)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 ... +85 °C
	EMC	DIN EN 61326-1:2013

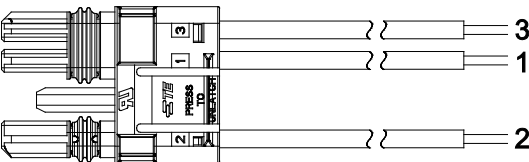
PRAS26 – connector TE3

Signal wiring Connector TE3	Signal	Connector pin no.
 View to sensor connector	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 mm². Wire length 0.5 m.



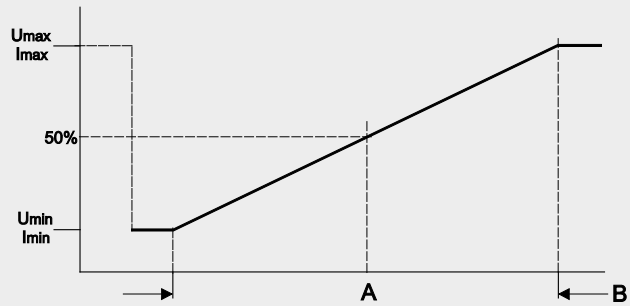
Order code

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

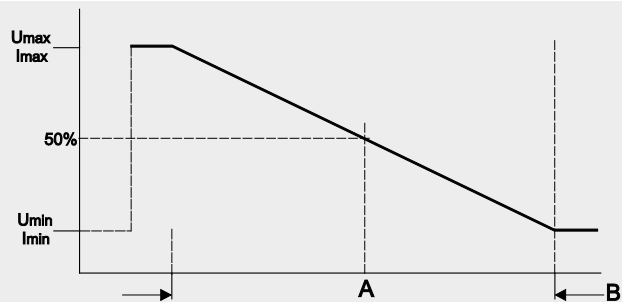
Signal wiring 3-pin connector	Connector pin no. / connecting leads		
	1	2	3
	blue	brown	white

Characteristics for magnetic angle sensors

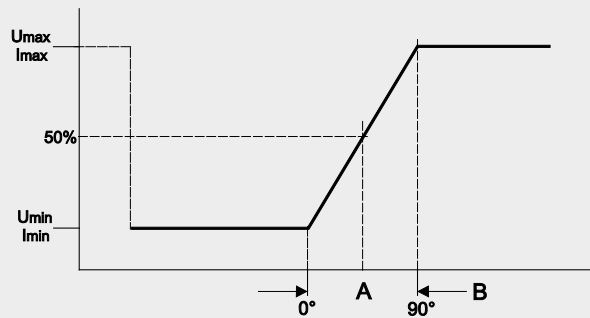
Output signal CW (clockwise increasing)



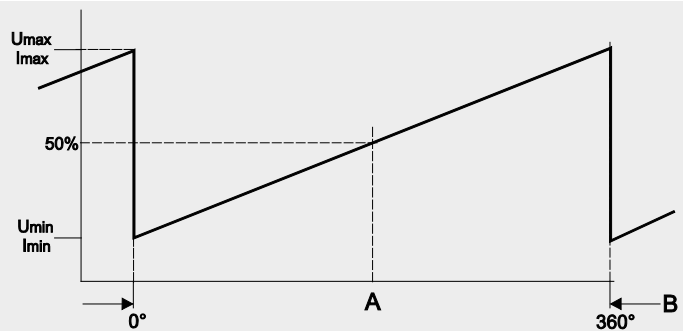
Output signal CCW (counterclockwise increasing)



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

