ASM®

perfect in sensors.

Sensors and Encoders for Angle and Inclination

POSIROT®

Magnetic Angle Sensors

POSIROT®

Magnetic Encoders

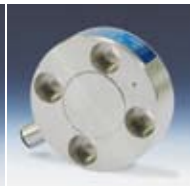
POSITILT®

Inclination Sensors

POSIROT® / POSITILT®
Angle Sensors, Encoders, Inclination Sensors
Contents

Contents

POSIROT®
Angle Sensors, Encoders, Inclination Sensors
Selection Guide

Selection features \ Model						
	PRAS20	PRAS21	PRAS27	PRDS27	PRAS1	PRDS1	PRAS2	PRDS2	PRAS3	PRDS3	PRAS5	PRDS5
Data sheet at page ...	6	8	10	11	14	15/16	18	19/20	26	28/29	34	35/37
Measurement range	A	A	A	D	A	D	A	D	A	D	A	D
0° - 360°	●	●	●	●	●	●	●	●	●	●	●	●
Analog outputs, absolute												
Voltage 0.5 ... 10 V	●	●	●		●		●		●		●	
Voltage 0.5 ... 4.5 V	●	●	●		●		●		●		●	
Current 4 ... 20 mA	●	●	●		●		●		●		●	
Redundant version (optional)			●				●		●		●	
Digital outputs, absolute												
SSI - RSSI5V,RSSI24V						●		●		●		●
CANopen				●				●		●		●
CAN SAE J1939				●				●		●		●
Digital outputs, incremental												
RS5V(F), RS24V (F)						●		●		●		●
HT24V(F)						●		●		●		●
Linearity (standard)	±0,5%		±0,5%	±1°	±0,3%	±1°	±0,3%	±1°	±0,3%	±1°	±0,3%	±1°
Protection class	IP60		IP67		IP67 (IP69K)		IP67 (IP69K)		IP67 (IP69K)		IP67 (IP69K) (IP68)	

POSITILT® - Inclination Sensors
Selection Guide

Dust-Ex-proof versions coming soon!

Selection features \ Model					
	PTAM27	PTDM27	PTAM2	PTDM2	PTAM5	PTDM5	PTAM2EX	PTAM5EX
Data sheet at page ...	68	69	72	73	78	79	76	82
Measurement range	A	D	A	D	A	D	A	A
1 axis ±180°	●	●	●	●	●	●	●	●
2 axes ±60°		●		●		●	●	●
2 axes ±180°	●		●		●			
Analog outputs, absolute								
Voltage 0.5 ... 10 V	●		●		●		●	●
Voltage 0.5 ... 4.5 V	●		●		●		●	●
Current 4 ... 20 mA	●		●		●		●	●
Digital outputs, absolute								
CANopen		●		●		●		
CAN SAE J1939		●		●		●		
Linearity (standard)	±0.5°		±0.5°		±0.5°		±0.5°	±0.5°
Protection class	IP67		IP67 / IP69K		IP67 / IP69K (IP68)		IP65	IP65

POSIROT®
Angle Sensors - Dust-EX-proof
Selection Guide

Selection features / Model			
	PRAS2EX	**PRAS3EX**	**PRAS5EX**
Data sheet at page ...	**24**	**32**	**42**
Measurement range	**A**	**A**	**A**
0° - 360°	●	●	●
Analog outputs, absolute			
Voltage 0.5 ... 10 V	●	●	●
Voltage 0.5 ... 4,5 V	●	●	●
Current 4 ... 20 mA	●	●	●
Linearity (standard)	±0.3%	±0.3%	±0.3%
Protection class	IP65	IP65	IP65

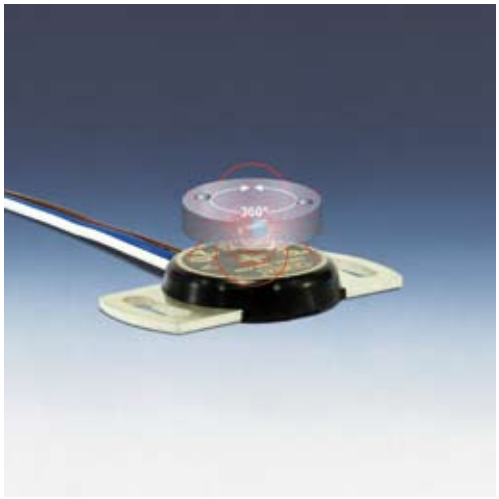
POSIROT®
Magnetic Incremental Encoders
Selection Guide

Selection features / Model				
	PMIS4/PMIR5		**PMIS4/PMIR7(N)**	
Data sheet at page ...	**58**		**64**	
Measurement range				
0° - 360°	●	●	●	●
Digital outputs, incremental				
HTL	●	●	●	●
TTL	●	●	●	●
TTL24V	●	●	●	●
Linearity (standard)	±0.1°	±0.1°	±0.1°	±0.1°
Protection class	IP67		IP67	

A = Analog output D = Digital output

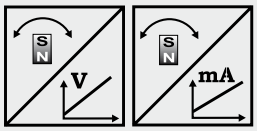
= Instrumentation = Industry = Heavy Duty / Offshore = Dust-EX-proof (3D)

POSIROT®
PRAS20
Magnetic Angle Sensor with Analog Output



Magnetic angle sensor 0 - 360°

- **Measurement range 0 - 360°**
- **Protection class IP60**
- **Analog output**
- **Non-contact with external position magnet**
- **Wear free**
- **Compact, low profile housing**
- **Other outputs available on request**
- **Redundant second channel as option**



Specifications

Outputs	U2B U6 I1B	Tension 0.5 ... 10 V Tension 0.5 ... 4.5 V ratiometr. 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. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP60
Signal characteristics		CW, CCW
Material		Epoxy glass fiber, thermoplastic
Connection		Single wire ETFE 3 x 0.5 mm²
Mounting		Screws M4
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRAS20

PRAS20 – □ – □ – □ – □

Model name

Measurement range 15 ... 360° in 15° increments
15 / 30 / 45 / ... / 345 / 360

Output (see page 46)
U2B = 0.5 ... 10 V
U6 = 0.5 ... 4,5 V ratiometric
I1B = 4 ... 20 mA, 3 wire

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

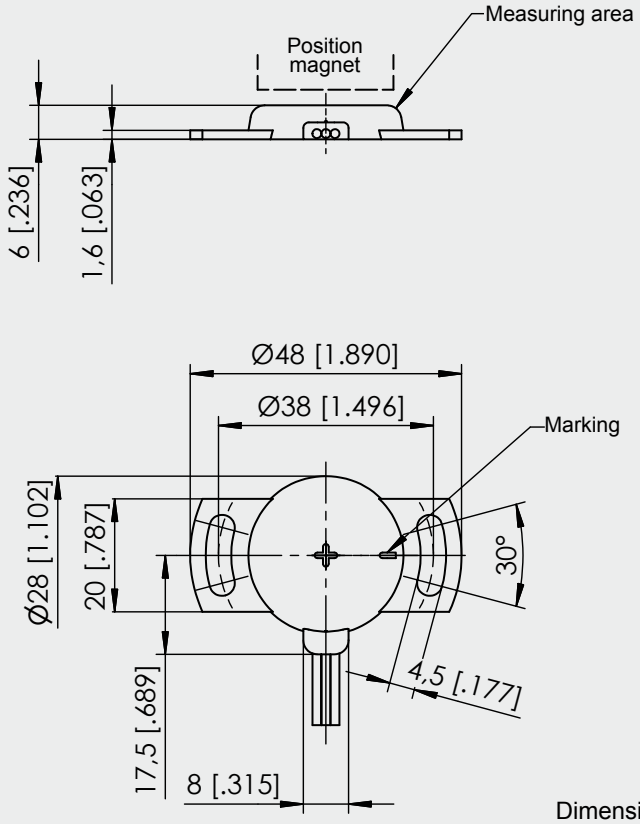
Connection
A300 = Single wire ETFE 3 x 0.5 mm², length 300 mm

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order example: PRAS20 - 360 - U2B - CW - A300

POSIROT®
PRAS20
Dimensions

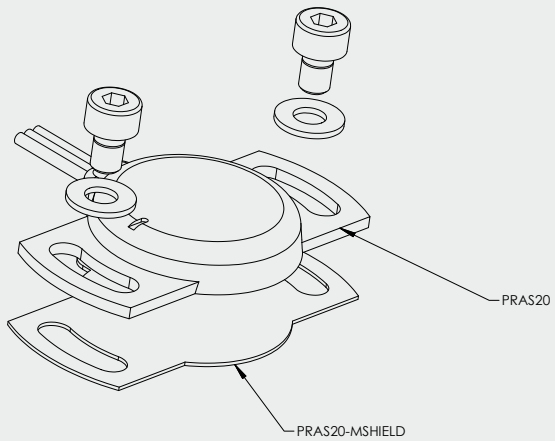
Outline drawing
PRAS20



Dimensions in mm [inch]

Weight without cable approx. 8 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

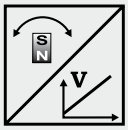
PRAS20
Magnetic shield



POSIROT®
PRAS21
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360°

- **Measurement range 0 - 360°**
- **Protection class IP60**
- **Analog output**
- **Compact, low profile housing**
- **Non-contact with external position magnet**
- **Wear free**
- **Other outputs available on request**



Specifications

Outputs	U6	Voltage 0.5 ... 4.5 V ratiometric
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. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP60
Signal characteristics		CW, CCW
Material		Epoxy glass fiber, thermoplastic
Mounting		Screws M3
Connection		Single wire ETFE 3 x 0.5 mm2
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRAS21

PRAS21 – □ – □ – □ – □

Model name

Measurement range 15 ... 360° in 15° increments
15 / 30 / 45 / ... / 345 / 360

Output (see page 46)
U6 = 0.5 ... 4.5 V ratiometric

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

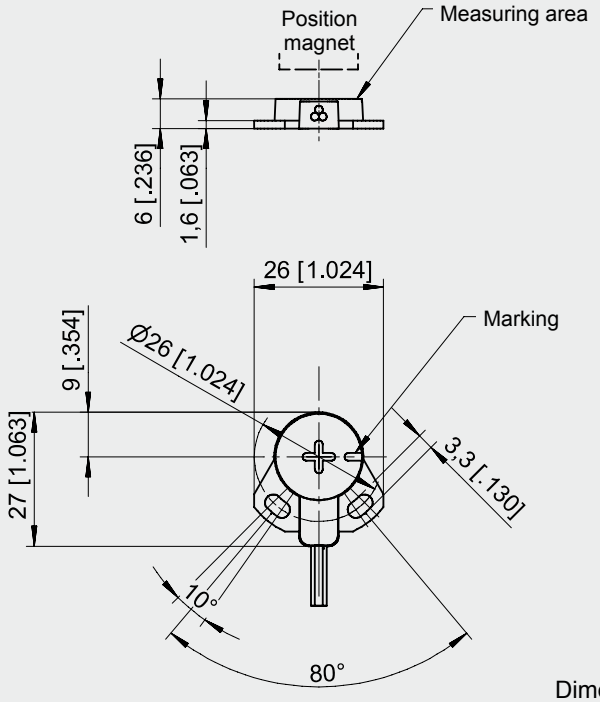
Connection
A300 = Single wire ETFE 3 x 0.5 mm², length 300 mm

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order example: PRAS21 - 360 - U6 - CW - A300

POSIROT®
PRAS21
Dimensions

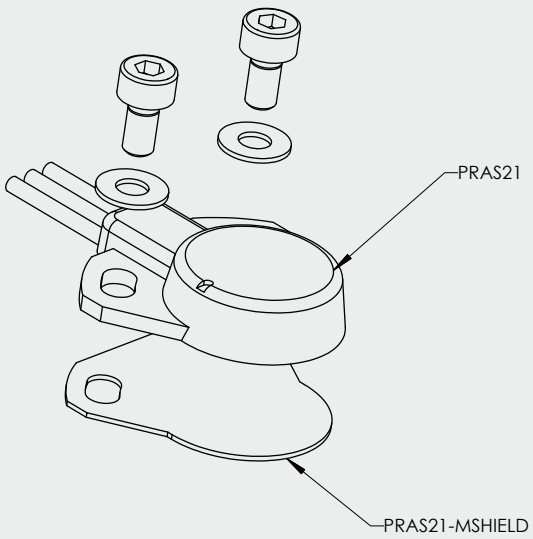
Outline drawing PRAS21



Dimensions in mm [inch]

Weight without cable approx. 5 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

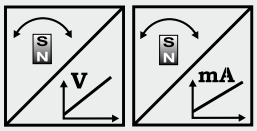
PRAS21 Magnetic shield



POSIROT®
PRAS27
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360°

- **Measurement range 0 to 360°**
- **Protection class IP67**
- **Analog output**
- **Material plastic**
- **Non-contact with external position magnet**
- **No wear**
- **High shock resistance**
- **Redundant second channel as option**



Specifications

Outputs	U2/U2B U6 I1/I1B	Tension 0.5 ... 10 V Tension 0.5 ... 4.5 V ratiometr. 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. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP67
Signal characteristics		CW, CCW
Material		Plastic
Connection		Cable 5 x 0.25 mm²
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRAS27

PRAS27 – □ – □ – □ – □

Model name

Measurement range 15 ... 360° in 15° increments
15 / 30 / 45 / ... / 345 / 360

Output (see page 46)
U2/U2B = 0.5 ... 10 V
U6 = 0.5 ... 4.5 V ratiometr.
I1/I1B = 4 ... 20 mA, 3 wire

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

Connection
KAB2M = Cable, standard length 2 m

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order example: PRAS27 - 360 - U2 - CW - KAB2M

POSIROT®
PRDS27
Magnetic Angle Sensor with CANopen Output

Magnetic angle sensor 0 - 360°

- **Measurement range 0 to 360°**
- **Protection class IP67**
- **CANopen output**
- **Material plastic**
- **Non-contact with external position magnet**
- **No wear**
- **High shock resistance**

Specifications		
	Output	CANopen-Bus (Encoder CiA 406 V 3.2)
	Measurement range	0 to 360°
	Resolution	0.05° max.
	Linearity	±1°
	Rated distance sensor / magnet	Depending on the position magnet
	Protection class	IP67
	Material	Plastic
	Connection	Cable 0.3 m, 5-pin socket M12
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
	EMC, Temperature	Refer to output specification

Order Code PRDS27

PRDS27 – □ – □

Model

Output (see page 50/51)

CANOP	= CANopen
CANJ1939	= CAN SAE J1939

Connection

KAB0.3M-M12/CAN	= Cable (length 0.3 m) with socket M12, 5 pin

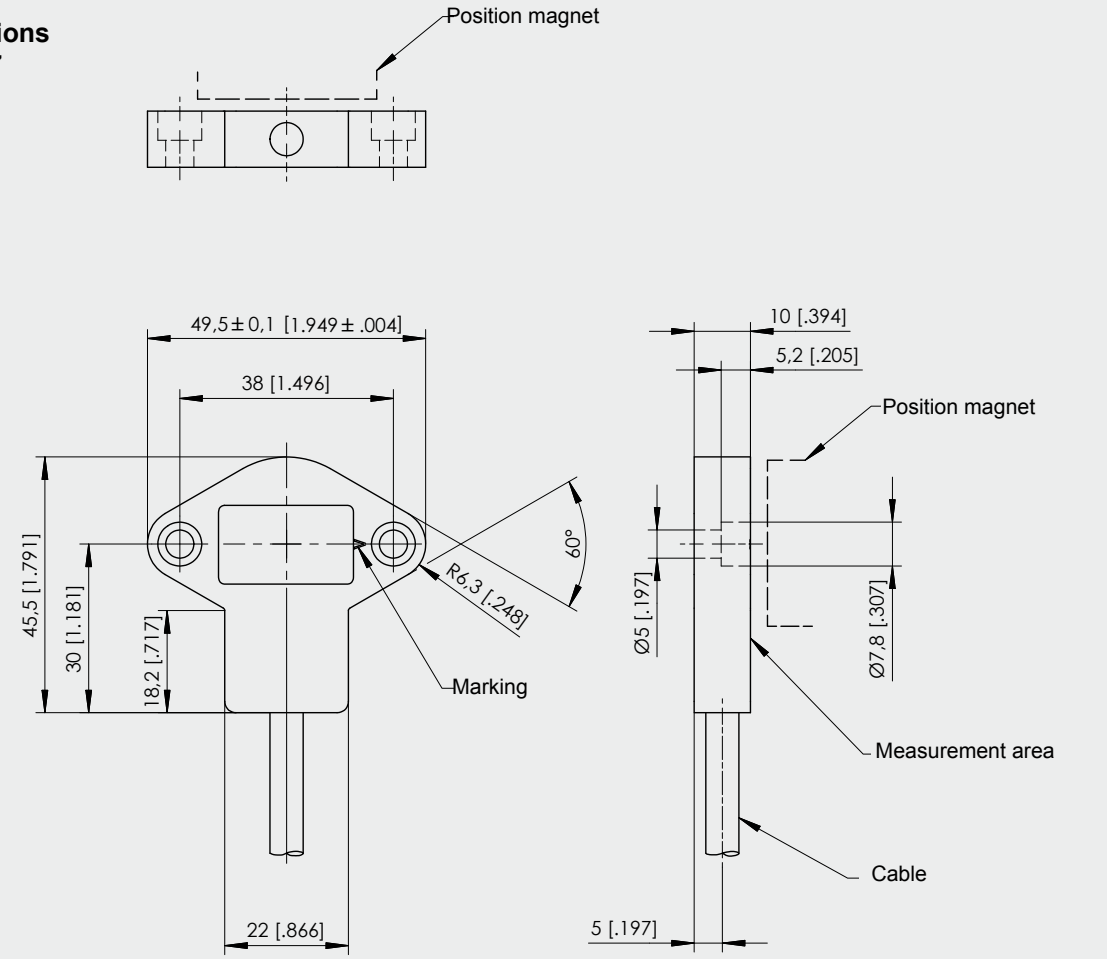
Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

Order example: PRDS27 - CANOP - KAB0,3M - M12/CAN

POSIROT®
PRAS27
Dimensions

Dimensions
PRAS27

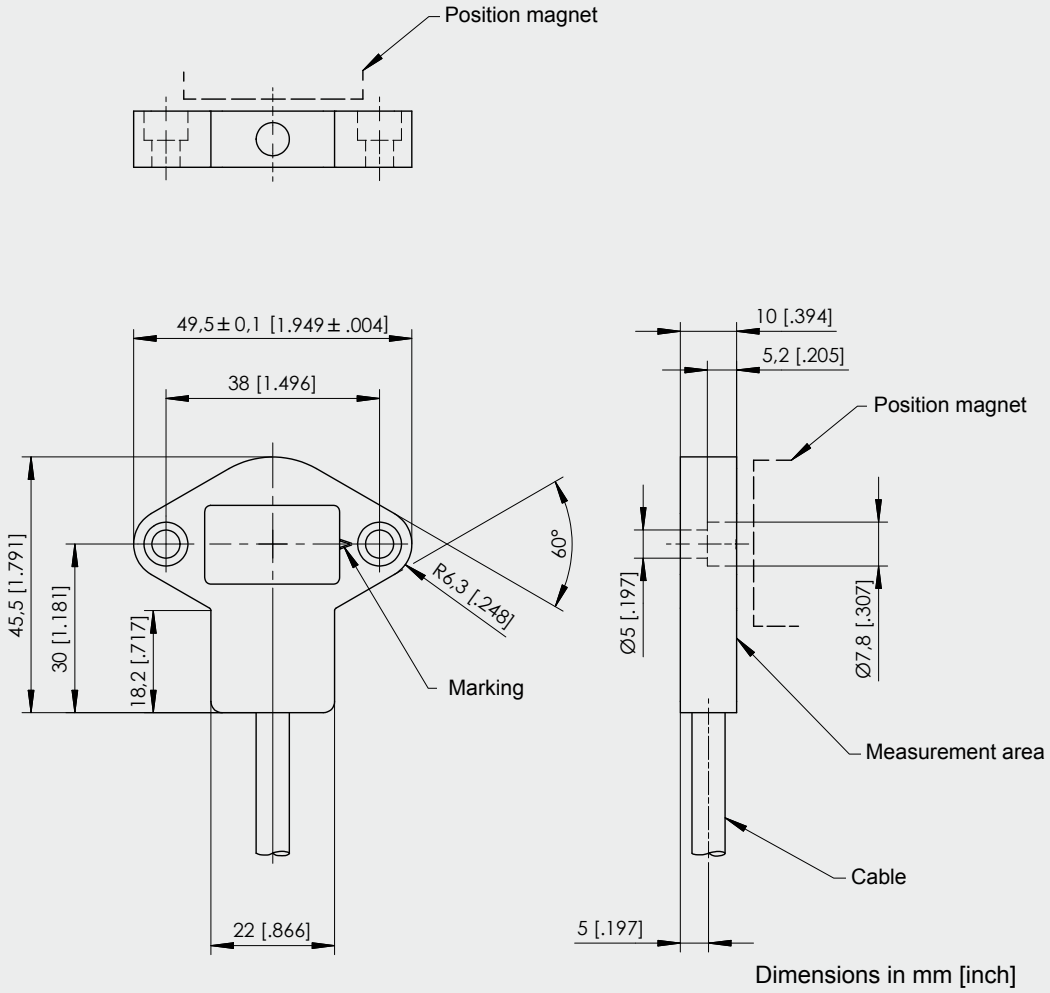


Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRDS27
Dimensions

Dimensions
PRDS27

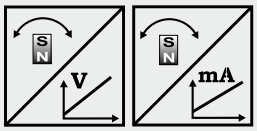


Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRAS1
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in M12 housing

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **Analog output**
- **Stainless steel housing**
- **Non-contact with external position magnet**
- **Wear free**
- **SIL in preparation**



Specifications

Outputs	U6 U2 I1	Voltage 0.5 ... 4.5 V ratiometric Voltage 0.5 ... 10 V 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		±0.3 % f.s. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output)
Signal characteristics		CW, CCW
Material		Stainless steel
Mounting		M12 x 1
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRAS1

PRAS1 – □ – □ – □ – □

Model name

Measurement range 15 ... 360° in 15° increments
15 / 30 / 45 / ... / 345 / 360

Output (see page 46)
U6 = 0.5 ... 4.5 V ratiometric
U2 = 0.5 ... 10 V
I1 = 4 ... 20 mA, 3 wire

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

Connection
KAB2M = Cable, standard length 2 m, IP67
M12A5 = 5-pin socket M12 (compatible to 4-pin connector)

Order code position magnet (see accessories page 53/54) **PRMAG ...**

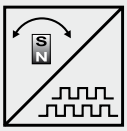
Order code connector cable (see accessories page 90) **KAB-2M-M12/4F/G-LITZE**

Order Example: PRAS1 - 360 - I1 - CW - M12A5

POSIROT®
PRDS1
Magnetic Angle Encoder with Incremental Output

Magnetic angle encoder 0 - 360° in M12 housing

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **Incremental encoder output**
- **Stainless steel housing**
- **Non-contact with external position magnet**
- **Wear free**



Specifications		
	Output	Incremental encoder outputs A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$, RS422 or HTL compatible
	Measurement range	0 ... 360°
	Resolution	1 / 2 / 4 / 8 / 16 / 25 / 32 / 45 / 50 / 64 / 75 / 90 / 100 / 125 / 128 / 256 / 512 / 1024 pulses per revolution
	Linearity	±1°
	Rated distance sensor / magnet	Depending on the position magnet
	Max. revolutions (mechanically)	30,000 r.p.m.
	Protection class	IP67/IP69K (connector output with IP69K connector cable)
	Max. output frequency	200 kHz (the quadrature counter of the subsequent circuit must be able to process >200 kHz)
	Material	Stainless steel
	Mounting	M12 x 1
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRDS1

PRDS1 – □ – □ **KHZ** – □ – □

Model name

Resolution (pulses/revolution)
1 / 2 / 4 / 8 / 16 / 25 / 32 / 45 / 50 / 64 / 75 / 90 / 100 / 125 / 128 / 256 / 512 / 1024

Max. pulse frequency (in kHz, standard 50 kHz)
50 / 200

Output (see page 47/48)
RS5V = RS422 compatible output with excitation 5 V DC
RS24V = RS422 compatible output with excitation 10 ... 36 V DC
HT24V = HTL compatible output with excitation 18 ... 36 V DC

Connection
M12A8 = 8-pin socket M12

Order code position magnet (see accessories page 53/54) **PRMAG ...**

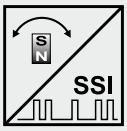
Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS1 - 1024 - 50KHZ - RS5V - M12A8

POSIROT®
PRDS1
Magnetic Angle Encoder with SSI Output

Magnetic angle encoder 0 - 360° in M12 housing

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **Synchronous serial output (SSI)**
- **Stainless steel housing**
- **Non-contact with external position magnet**
- **Wear free**



Specifications

Output	Synchronous serial (SSI)
Measurement range	0 ... 360°
Resolution	12 bit (4096 steps) per revolution
Repeatability	±0.1° (typ.)
Linearity	±1° (typ.)
Rated distance sensor / magnet	Depending on the position magnet
Max. revolutions (mech.)	30,000 r.p.m.
Protection class	IP67/IP69K (connector output with IP69K connector cable)
Code characteristics	CW, CCW
Material	Stainless steel
Mounting	M12 x 1
Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRDS1

PRDS1 – □ – □ – □

Model name

Output (see page 49)
RSSI5V = Synchronous serial output with excitation 5 V DC
RSSI24V = Synchronous serial output with excitation 10 ... 36 V DC

Code characteristics
CW = Code increasing CW
CCW = Code increasing CCW

Connection
M12A8 = 8 pin socket M12 axial

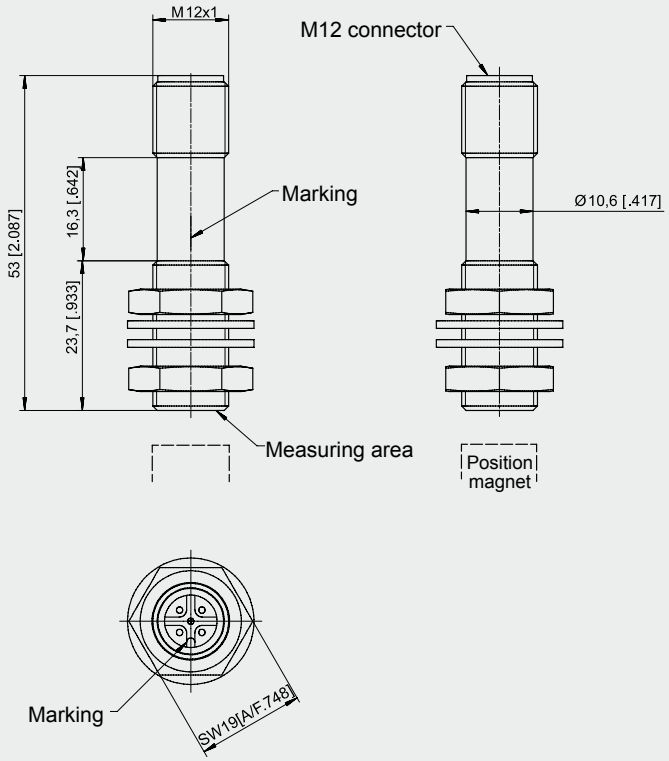
Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS1 - RSSI5V - CW - M12A8

POSIROT®
PRAS1/PRDS1
Dimensions

Outline drawing sensor with connector output



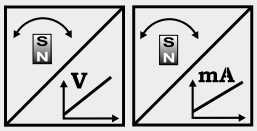
Dimensions in mm [inch]

Weight 35 g approx.
Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRAS2
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in a flat housing with 36 mm dia.

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **Analog output**
- **Flat housing – 20 mm thickness**
- **Non-contact with external position magnet**
- **Wear free**
- **Redundant second channel as option**
- **SIL in preparation**



Specifications

Outputs	U6 U2 I1	Voltage 0.5 ... 4.5 V ratiometric Voltage 0.5 ... 10 V 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		±0.3 % f.s. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output, option IP67/IP69K)
Signal characteristics		CW, CCW
Material		Aluminium
Mounting		Clamps, mounting plate
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRAS2

PRAS2 – □ – □ – □ – □

Model name

Measurement range 15 ... 360° in 15° increments
15 / 30 / 45 / ... / 345 / 360

Output (see page 46)
U6 = 0.5 ... 4.5 V ratiometric
U2 = 0.5 ... 10 V
I1 = 4 ... 20 mA, 3 wire

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

Connection
KAB2M/KAB2M69K = Cable, standard length 2 m, IP67/IP69K
M12A5/M12R5 = 5-pin socket M12 axial/radial (compatible with 4-pin connector)

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

Order code position magnet (see accessories page 53/54) **PRMAG ...**

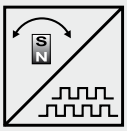
Order code connector cable (see accessories page 90) **KAB-2M-M12/4F/G-LITZE**

Order example: PRAS2 - 360 - I1 - CW - KAB2M

POSIROT®
PRDS2
Magnetic Angle Encoder with Incremental Output

Magnetic angle encoder 0 - 360 degrees in a flat housing with 36 mm dia.

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **Incremental encoder output**
- **Flat housing – 20 mm thickness**
- **Non-contact with external position magnet**
- **Wear free**



Specifications		
	Output	Incremental encoder outputs A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$, RS422 or HTL compatible, filtered output
	Measurement range	0 ... 360°
	Resolution	256 or 1024 pulses per revolution
	Linearity	±1°
	Rated distance sensor / magnet	Depending on the position magnet
	Max. revolutions (mechanical)	30.000 per min
	Protection class	IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output, option IP67/IP69K)
	Material	Aluminium
	Mounting	Clamps, mounting plate
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRDS2

PRDS2 – □ – □ – □

Model name

Resolution (pulses/revolution)
256 / 1024
(other resolutions available on request)

Output (see page 47/48)

RS5VF	= RS422 compatible, U_S= 5 V DC, filtered output
RS24VF	= RS422 compatible, U_S= 10 ... 36 V DC, filtered output
HT24VF	= HTL compatible, U_S= 18 ... 36 V DC, filtered output

Connection

KAB2M/KAB2M69K	= Cable, standard length 2 m (not with RS5VF), IP67/IP69K
M12A8/M12R8	= 8-pin socket M12 axial/radial

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

Order code position magnet (see accessories page 53/54) **PRMAG ...**

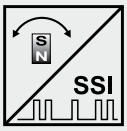
Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS2 - 1024 - RS24VF- M12A8

POSIROT®
PRDS2
Magnetic Angle Encoder with SSI Output

Magnetic angle encoder 0 - 360° in a flat housing with 36 mm dia.

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **Synchronous serial output (SSI)**
- **Flat housing – 20 mm thickness**
- **Non-contact with external position magnet**
- **Wear free**



Specifications		
	Output	Synchronous serial (SSI)
	Measurement range	0 ... 360°
	Resolution	12 bit (4096 steps) per revolution
	Repeatability	±0.1° (typ.)
	Linearity	±1° (typ.)
	Rated distance sensor / magnet	Depending on the position magnet
	Max. revolutions	30,000 r.p.m.
	Protection class	IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output, option IP67/IP69K)
	Code characteristics	CW, CCW
	Material	Aluminium
	Mounting	Clamps, mounting plate
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles

Order Code PRDS2

PRDS2 – □ – □ – □

Model name

Output (see page 49)
RSSI5V = Synchronous serial output with excitation 5 V DC
RSSI24V = Synchronous serial output with excitation 10 ... 36 V DC

Code characteristics
CW = Code increasing CW
CCW = Code increasing CCW

Connection
KAB2M/KAB2M69K = Cable, standard length 2 m (not with RSSI5V), IP67/IP69K
M12A8/M12R8 = 8-pin socket M12 axial/radial

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS2 - RSSI24V - CW - KAB2M

POSIROT®
PRDS2
Magnetic Angle Encoder with CANopen output

Magnetic angle encoder 0 - 360° in a flat housing with 36 mm dia.

- **Measurement range 0 to 360°**
- **Protection class IP67 / IP69K**
- **CANopen output**
- **Flat housing – 20 mm thickness**
- **Non-contact with external position magnet**
- **Wear free**

Specifications		
	Output	CANopen-Bus (Encoder CiA 406 V 3.2)
	Measurement range	0 to 360°
	Resolution	0.05° max.
	Linearity	±1° (typ.)
	Protection class	IP67/IP69K (connector output with IP69K connector cable); IP67 (cable output, option IP67/IP69K)
	Material	Aluminium
	Connection	5-pin socket M12, radial or axial
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
	EMC, Temperature	Refer to output specification

Order Code PRDS2

PRDS2 – □ – □

Model name

Output (see page 50/51)

CANOP	= CANopen
CANJ1939	= CAN SAE J1939

Connection

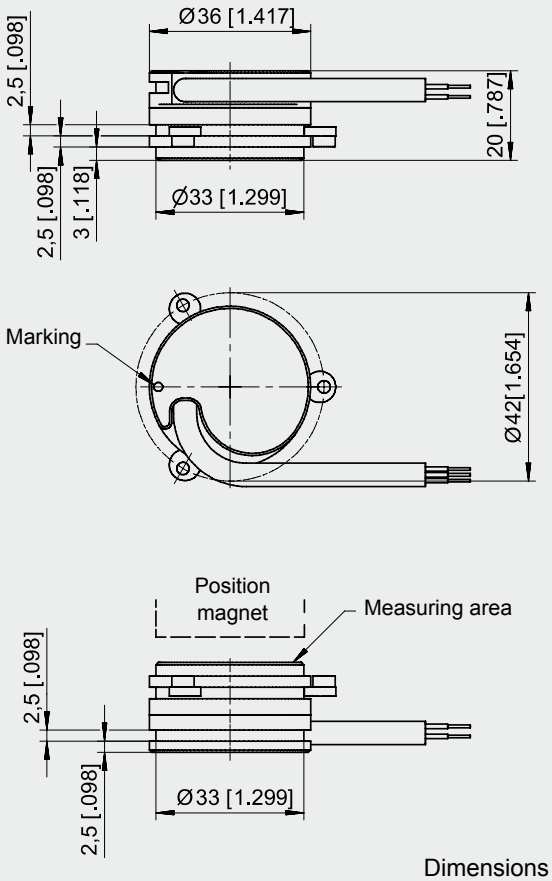
M12R5/CAN	= 5-pin socket M12 radial
M12A5/CAN	= 5-pin socket M12 axial

Order code connector cable (see accessories page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

Order example: PRDS2 - CANOP - M12A5/CAN

POSIROT®
PRAS2/PRDS2
Dimensions

Outline drawing sensor with cable output

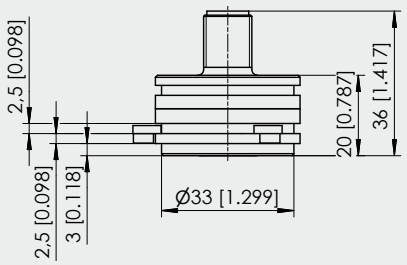


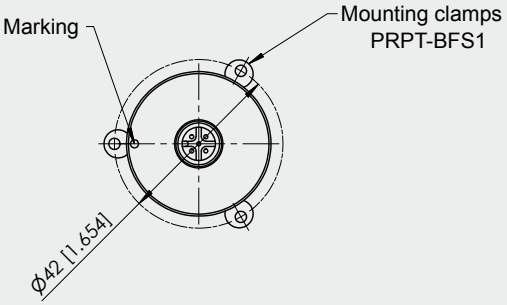
Dimensions in mm [inch]

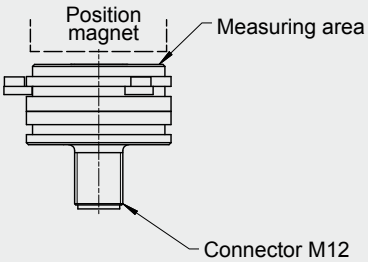
Weight without cable approx. 40 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRAS2/PRDS2
Dimensions

Outline drawing sensor M12 axial



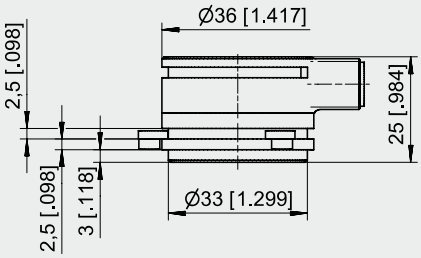


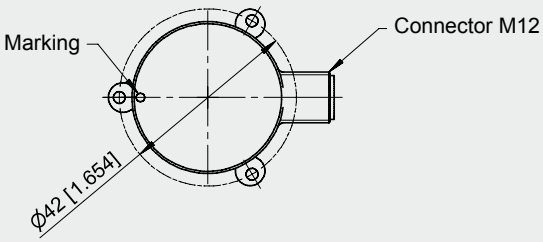


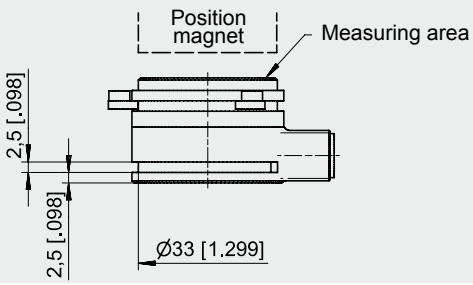
Weight without cable approx. 50 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

Outline drawing sensor M12 radial

Dimensions in mm [inch]





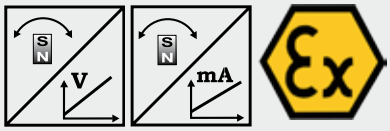


Weight without cable approx. 50 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRAS2EX - Dust-Ex-proof
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in a flat housing with 36 mm dia.

- **Measurement range 0 to 360°**
- **Protection class IP65**
- **Analog output**
- **Flat housing – 20 mm thickness**
- **Non-contact with external position magnet**
- **Dust-Ex-proof: II 3D Ex tD A22 IP65 T80°C X**
- **Wear free**
- **SIL in preparation**



Specifications

Outputs	U6 U2 I1	Voltage 0.5 ... 4.5 V ratiometric Voltage 0.5 ... 10 V Current 4 ... 20 mA, 3 wire
Measurement range		0 ... 15° to 0 ... 360° in increments of 15°
Resolution		0.03 % (60 ... 360); 0.1 % (15 ... 45°)
Repeatability		±0.03 % (60 ... 360°); ±0.1 % (15 ... 45°)
Linearity		±0.3 % f.s. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP65
Signal characteristics		CW, CCW
Material		Stainless steel
Mounting		Clamps, mounting plate
Temperature		-20 to +40 °C
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Dust-Ex-proof standard		DIN EN61241-0, DIN EN61241-1

Order Code PRAS2EX

PRAS2EX – □ – □ – □ – □

Model name

Measurement range 15 ... 360° in increments of 15°
15 / 30 / 45 / ... / 345 / 360

Output (see page 46)
U6 = 0.5 ... 4.5 V ratiometric
U2 = 0.5 ... 10 V
I1 = 4 ... 20 mA, 3 wire

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

Connection
M12A5 = 5-pin socket M12 axial (compatible with 4-pin connector)
M12R5 = 5-pin socket M12 radial (compatible with 4-pin connector)

Dust-Ex-proof explanation (see page 55)

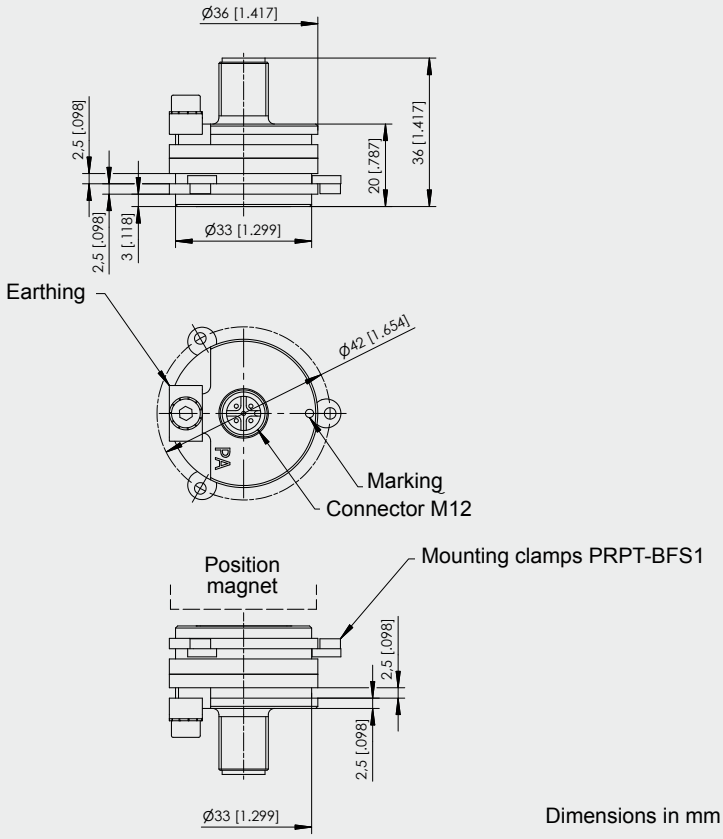
Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

Order code position magnet (see accessories page 55) **PRMAG ...**

Order example: PRAS2EX - 360 - I1 - CW - M12A5

POSIROT®
PRAS2EX - Dust-Ex-proof
Dimensions

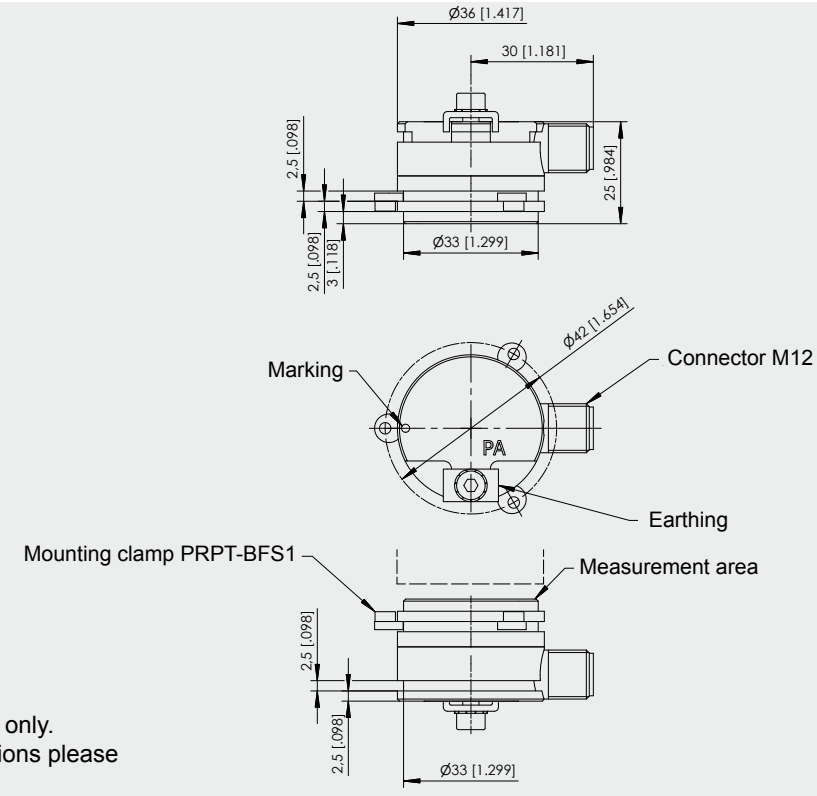
Outline drawing sensor M12 axial



Weight approx. 110 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

Dimensions in mm [inch]

Outline drawing sensor M12 radial



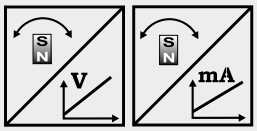
Weight approx. 140 g.
Dimensions informative only.
For guaranteed dimensions please consult factory.

Dimensions in mm [inch]

POSIROT®
PRAS3
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in a 36 mm dia. housing

- **Measurement range 0 - 360°+**
- **Protection class IP67 / IP69K**
- **Analog output**
- **With 10 mm shaft or 6 mm hollow shaft**
- **Magnetic measurement principle**
- **Redundant second channel as option**



Specifications

Outputs	U6 U2 I1	Voltage 0.5 ... 4.5 V ratiometric Voltage 0.5 ... 10 V Current 4 ... 20 mA, 3 wire
Measurement range		0 ... 15° to 0 ... 360° in increments of 15°
Resolution		0.03 % (60 ... 360); 0.1 % (15 ... 45°)
Repeatability		±0.03 % (60 ... 360°); ±0.1 % (15 ... 45°)
Linearity		±0.3 % f.s. (typ.)
Protection class		IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output, option IP67/IP69K)
Signal characteristics		CW, CCW
Material		Aluminium
Mounting		Clamps, mounting plate
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Life cycle of bearings		100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (mech.)		Max. 10,000 r.p.m.
Allowable shaft load		100 N radial, 100 N axial

Order Code PRAS3

PRAS3 – □ – □ – □ – □ – □

Model name

Shaft

V = 10 mm shaft
H = 6 mm hollow shaft

Measurement range 15 ... 360° in increments of 15°

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

Output (see page 46)

U6 = 0.5 ... 4.5 V ratiometric
U2 = 0.5 ... 10 V
I1 = 4 ... 20 mA, 3 wire

Signal characteristics

CW = Signal increasing CW
CCW = Signal increasing CCW

Connection

KAB2M/KAB2M69K = Cable, standard length 2 m, IP67/IP69K
M12A5/M12R5 = 5-pin socket M12 axial/radial (compatible with 4-pin connector)

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

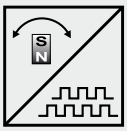
Order code connector cable (see accessories page 90) **KAB-2M-M12/4F/G-LITZE**

Order example: PRAS3 - V - 360 - I1 - CW - KAB2M

POSIROT®
PRDS3
Magnetic Angle Encoder with Incremental Output

Magnetic angle encoder 0 - 360° in a 36 mm dia. housing

- **Measurement range 0 - 360°+**
- **Protection class IP67 / IP69K**
- **Incremental encoder output**
- **With 10 mm shaft or 6 mm hollow shaft**
- **Magnetic measurement principle**



Specifications

Output	Incremental encoder outputs A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$, RS422 or HTL compatible, filtered output
Measurement range	0 ... 360°
Resolution	256 or 1024 pulses per revolution
Linearity	±1°
Protection class	IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output, option IP67/IP69K)
Material	Aluminium
Mounting	Clamps, mounting plate
Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Life cycle of bearings	100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (mech.)	Max. 10,000 r.p.m.
Allowable shaft load	100 N radial, 100 N axial

Order Code PRDS3

PRDS3 – □ – □ – □ – □

Model name

Shaft

V = 10 mm shaft
H = 6 mm hollow shaft

Resolution (pulses/revolution)

256 / 1024
(other resolutions available on request)

Output (see page 47/48)

RS5VF = RS422 compatible, U_S= 5 V DC, filtered output
RS24VF = RS422 compatible, U_S= 10 ... 36 V DC, filtered output
HT24VF = HTL compatible, U_S= 18 ... 36 V DC, filtered output

Connection

KAB2M/KAB2M69K = Cable, standard length 2 m (not with RS5VF), IP67/IP69K
M12A8/M12R8 = 8-pin socket M12 axial/radial

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

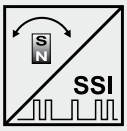
Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS3 - V - 1024 - HT24VF - KAB2M

POSIROT®
PRDS3
Magnetic Angle Encoder with SSI Output

Magnetic angle encoder 0 - 360 degrees in a 36 mm dia. housing

- **Measurement range 0 - 360°**
- **Protection class IP67 / IP69K**
- **Synchronous serial output (SSI)**
- **With 10 mm shaft or 6 mm hollow shaft**
- **Magnetic measurement principle**



Specifications		
	Output	Synchronous serial (SSI)
	Measurement range	0 ... 360°
	Resolution	12 bit (4096 steps) per revolution
	Repeatability	±0.1° (typ.)
	Linearity	±1° (typ.)
	Protection class	IP67/IP69K (connector output with IP69K connector cable) IP67 (cable output, option IP67/IP69K)
	Code characteristics	CW, CCW
	Material	Aluminium
	Mounting	Clamps, mounting plate
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
	Life cycle of bearings	100 x 10^6 revolutions (<1500 r.p.m.)
	Revolutions per minute (mech.)	Max. 10,000 r.p.m.
	Allowable shaft load	100 N radial, 100 N axial

Order Code PRDS3

PRDS3 – □ – □ – □ – □

Model name

Shaft

V	= 10 mm shaft
H	= 6 mm hollow shaft

Output (see page 49)

RSSI5V	= Synchronous serial output with excitation 5 V DC
RSSI24V	= Synchronous serial output with excitation 10 ... 36 V DC

Code characteristics

CW	= Code increasing CW
CCW	= Code increasing CCW

Connection

KAB2M/KAB2M69K	= Cable, standard length 2 m (not with RSSI5V), IP67/IP69K
M12A8/M12RR8	= 8-pin socket M12 axial/radial

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS3 - V - RSSI24V - CW - KAB2M

POSIROT®
PRDS3
Magnetic Angle Encoder with CANopen Output

Magnetic angle encoder 0 - 360 degrees in a 36 mm dia. housing

- **Measurement range 0 - 360°**
- **Protection class IP67 / IP69K**
- **CANopen output**
- **With 10 mm shaft or 6 mm hollow shaft**
- **Magnetic measurement principle**

Specifications

Output	CANopen-Bus (Encoder CiA 406 V 3.2)
Measurement range	0 to 360°
Resolution	0.05° max.
Linearity	±1° (typ.)
Protection class	IP67/IP69K (connector output with IP69K connector cable); IP67 (cable output, option IP67/IP69K)
Material	Aluminium
Mounting	Clamps, mounting plate
Connection	5-pin socket M12 radial or axial
Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
Life cycle of bearings	100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (mech.)	Max. 10,000 r.p.m.
Allowable shaft load	100 N radial, 100 N axial
EMC, Temperature	Refer to output specification

Order Code PRDS3

PRDS3 – □ – □ – □

Model name

Shaft

V	= 10 mm shaft
H	= 6 mm hollow shaft

Output (see page 50/51)

CANOP	= CANopen
CANJ1939	= CAN SAE J1939

Connection

M12R5/CAN	= 5-pin socket M12 radial
M12A5/CAN	= 5-pin socket M12 axial

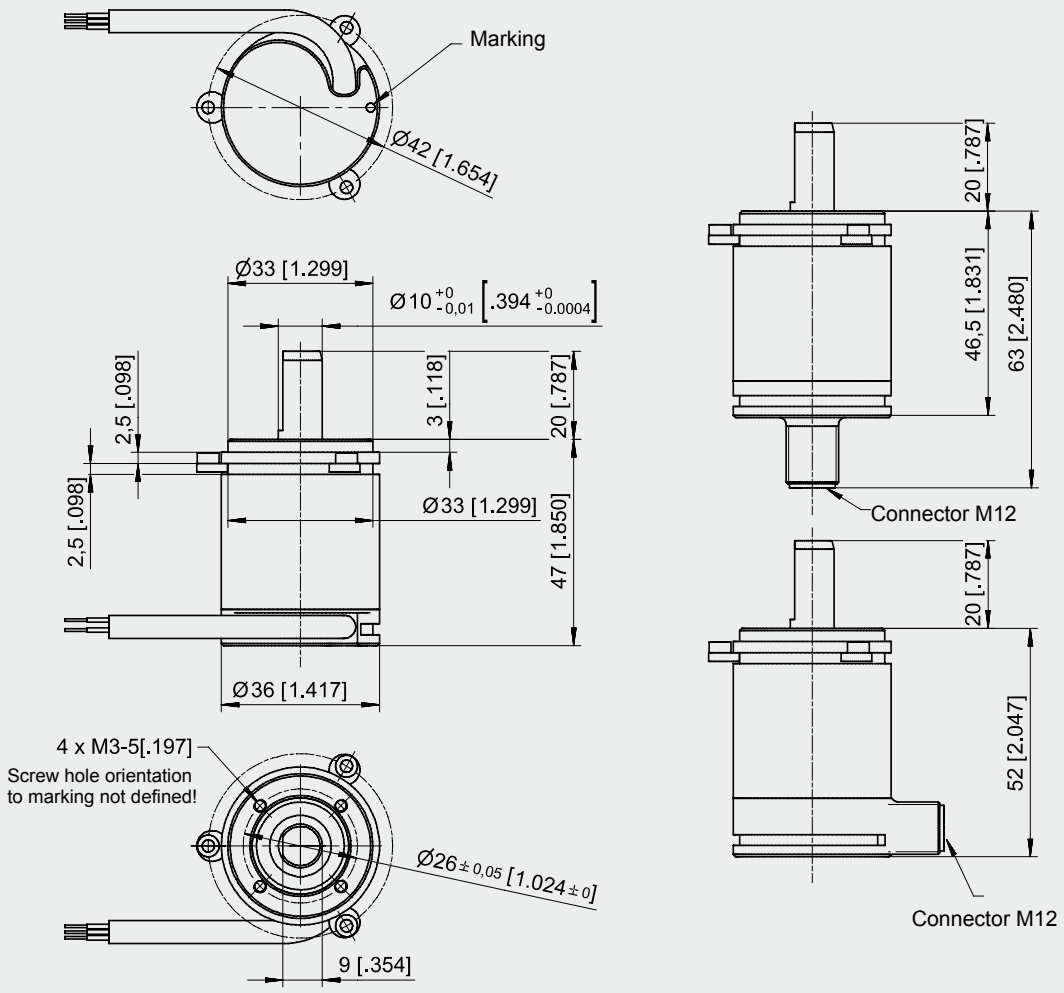
Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

Order code connector cable (see accessories page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

Order example: PRDS3 - V - CANOP - M12A5/CAN

POSIROT®
PRAS3/PRDS3
Dimensions

Outline drawing
sensor with shaft

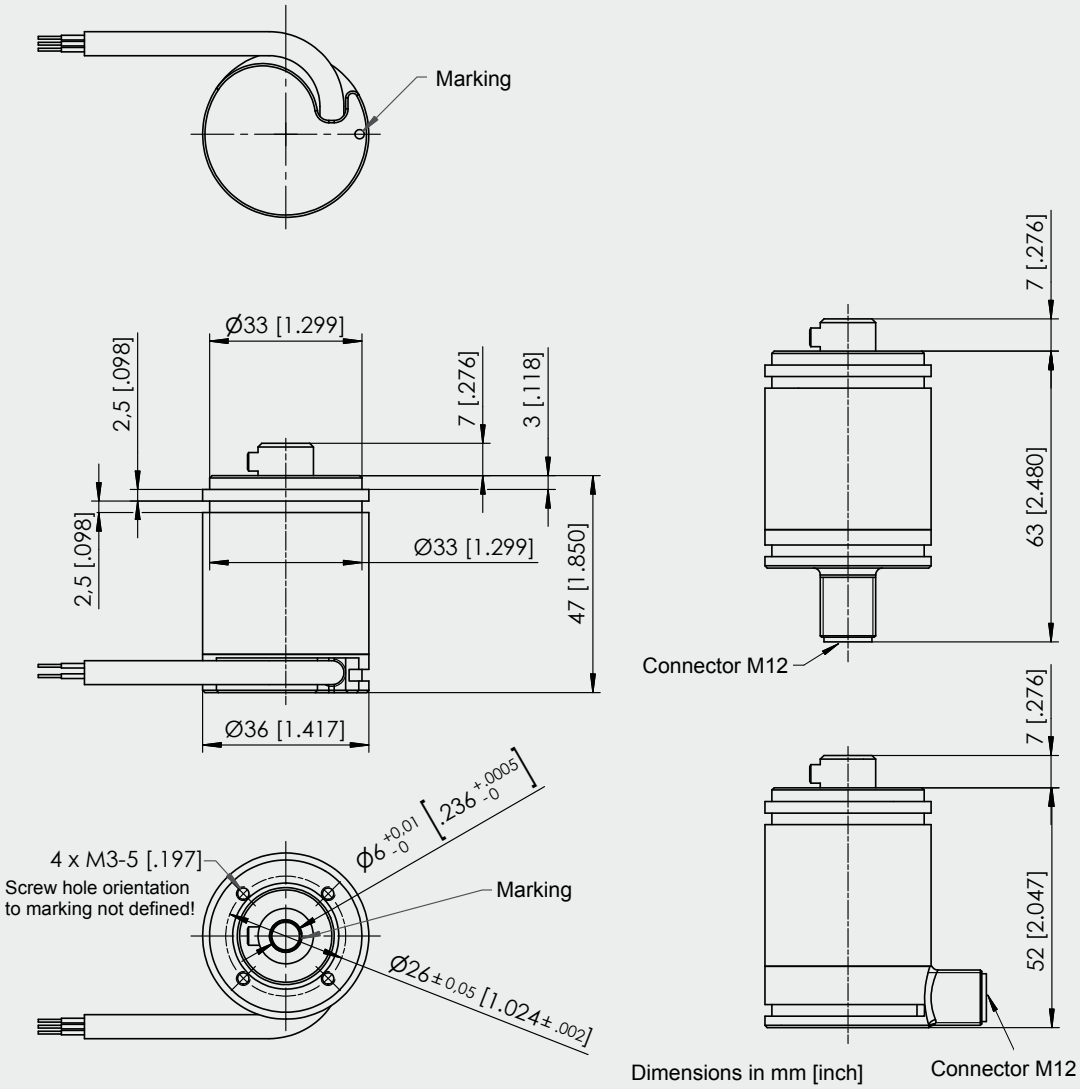


Dimensions in mm [inch]

Weight without cable 250 g approx.
Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRAS3/PRDS3
Dimensions

Outline drawing
sensor with hollow shaft

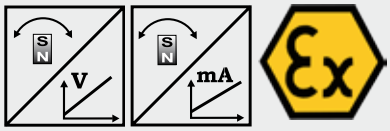


Weight without cable 250 g approx.
Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PRAS3EX - Dust-Ex-proof
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in a 36 mm dia. housing

- **Measurement range 0 - 360°+**
- **Protection class IP65**
- **Analog output**
- **With 10 mm shaft or 6 mm hollow shaft**
- **Magnetic measurement principle**
- **Dust-Ex-proof: II 3D Ex tD A22 IP65 T80°C X**
- **SIL in preparation**



Specifications

Outputs	U6 U2 I1	Voltage 0.5 ... 4.5 V ratiometric Voltage 0.5 ... 10 V 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		±0.3 % f.s. (typ.)
Protection class		IP65
Signal characteristics		CW, CCW
Material		Stainless steel
Mounting		Clamps, mounting plate
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Life cycle of bearings		100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (mech.)		Max. 10,000 r.p.m.
Allowable shaft load		100 N radial, 100 N axial
Temperature		-20 to +40 °C
Dust-Ex-proof standard		DIN EN61241-0, DIN EN61241-1

Order Code PRAS3EX

PRAS3EX – □ – □ – □ – □ – □

Model name

Shaft

V = 10 mm shaft
H = 6 mm hollow shaft

Measurement range 15 ... 360° in steps of 15°

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

Output (see page 46)

U6 = 0.5 ... 4.5 V ratiometric
U2 = 0.5 ... 10 V
I1 = 4 ... 20 mA, 3 wire

Signal characteristics

CW = Signal increasing CW
CCW = Signal increasing CCW

Connection

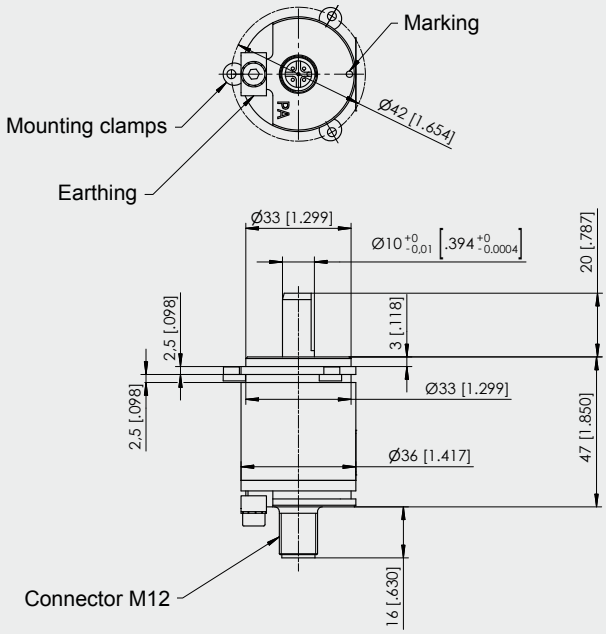
M12A5 = 5-pin socket M12 axial (compatible with 4-pin connector)
M12R5 = 5-pin socket M12 radial (compatible with 4-pin connector)

Order code mounting clamps (set of 3 pieces) **PRPT-BFS1**

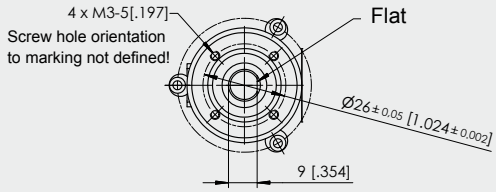
Order example: PRAS3EX - V - 360 - I1 - CW - M12A5

POSIROT®
PRAS3EX - Dust-Ex-proof
Dimensions

Outline drawing sensor M12 axial

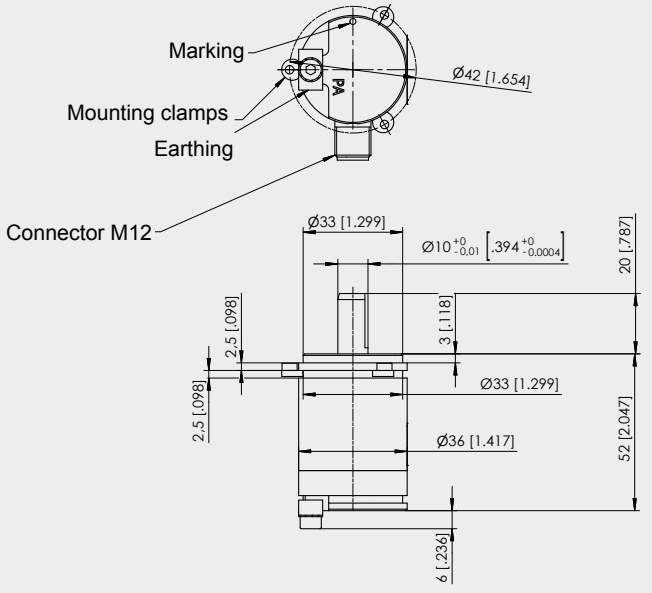


Weight approx. 290 g.

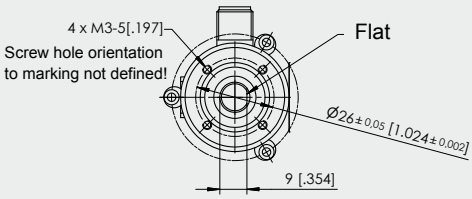


Dimensions in mm [inch].
Dimensions informative only.
For guaranteed dimensions consult factory.

Outline drawing sensor M12 radial



Weight approx. 320 g.



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

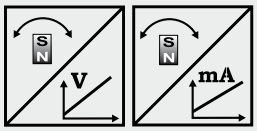
Dust-Ex-proof explanation (see page 55)

POSIROT®
PRAS5
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in a flat housing with 66 mm resp. 68.2 mm dia.

- **Measurement range 0 - 360°**
- **Protection class IP67 / IP69K, optional IP68***
- **Analog output**
- **With 10 mm shaft or non-contact**
- **Magnetic measurement principle**
- **Other outputs available on request**
- **Seawater proof**
- **Suitable for use on ocean-going vessels**

* Depth and duration of immersion must be specified!



Specifications

Outputs	U2 U6 /5/ 8,25 I1	Voltage 0.5 ... 10 V Voltage 0.5 ... 4.5 V / 0.825 ... 7.425 V ratiometr. 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		±0.3 % f.s. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP67/IP69K (connector output with IP69K connector cable); IP68 - on request
Signal characteristics		CW, CCW
Material		Stainless steel
Mounting		Screws M8
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Life cycle of bearings (shaft version)		100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (shaft version)		Max. 10,000 r.p.m.
Allowable shaft load		120 N radial, 120 N axial

Order Code PRAS5

PRAS5 – □ – □ – □ – □ – □

Model name

Mechanical connection

V = Shaft 10 mm
K = Non-contact with external magnet

Measurement range 15 ... 360° in 15° increments

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

Outputs (see page 46)

U6/5 = 0.5 ... 4.5 V ratiometric, U_B = 5 V ±10%
U6/8,25 = 0.825 ... 7.425 V ratiometric, U_B = 8.25 V ±10%
U2 = 0.5 ... 10 V
I1 = 4 ... 20 mA, 3 wire

Signal characteristics

CW = Signal increasing CW
CCW = Signal increasing CCW

Connection

M12A5/M12R5 = 5-pin socket M12 axial/radial (compatible to 4-pin connector)

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 90) **KAB-2M-M12/4F/G-LITZE**

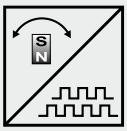
Order example: PRAS5 - V - 360 - U6/5 - CW - M12R5

POSIROT®
PRDS5
Magnetic Angle Sensor with Incremental Output

Magnetic angle sensor 0 - 360° in a flat housing with 66 mm resp. 68.2 mm dia.

- **Measurement range 0 - 360°**
- **Protection class IP67 / IP69K, optional IP68***
- **Incremental encoder output**
- **With 10 mm shaft or non-contact**
- **Magnetic measurement principle**
- **Seawater proof**
- **Suitable for use on ocean-going vessels**

* Depth and duration of immersion must be specified!



Specifications

Output	Incremental encoder outputs A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$, RS422 compatible, filtered output
Measurement range	0 ... 360°
Resolution	256 or 1024 pulses per revolution
Linearity	±1°
Rated distance sensor / magnet	Depending on the position magnet
Protection class	IP67/IP69K (connector output with IP69K connector cable); IP68 - on request
Material	Stainless steel
Mounting	Screws M8
Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Life cycle of bearings (shaft version)	100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (shaft version)	Max. 10,000 r.p.m.
Allowable shaft load	120 N radial, 120 N axial

Order Code PRDS5

PRDS5 – □ – □ – □ – □

Model name

Mechanical connection

V	= Shaft 10 mm
K	= Non-contact with external magnet

Resolution (pulses/revolution)

256 / 1024
(other resolutions available on request)

Output (see page 47/48)

RS5VF	= RS422 compatible, U_s= 5 V DC, filtered output
RS24VF	= RS422 compatible, U_s= 10 ... 36 V DC, filtered output
HT24VF	= HTL compatible, U_s= 18 ... 36 V DC, filtered output

Connection

M12A8/M12R8	= 8-pin socket M12 axial/radial

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

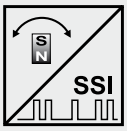
Order example: PRDS5 - V - 1024 - RS24VF - M12A8

POSIROT®
PRDS5
Magnetic Angle Encoder with SSI Output

Magnetic angle sensor 0 - 360° in a flat housing with 66 mm resp. 68.2 mm dia.

- **Measurement range 0 - 360°**
- **Protection class IP67 / IP69K, optional IP68***
- **Synchronous serial output (SSI)**
- **With 10 mm shaft or non-contact**
- **Magnetic measurement principle**
- **Seawater proof**
- **Suitable for use on ocean-going vessels**

* Depth and duration of immersion must be specified!



Specifications		
	Output	Synchronous serial (SSI)
	Measurement range	0 to 360°
	Resolution	12 bit (4096 steps) per revolution
	Repeatability	±0.1° (typ.)
	Linearity	±1°(typ.)
	Rated distance sensor / magnet	Depending on the position magnet
	Protection class	IP67/IP69K (connector output with IP69K connector cable); IP68 - on request
	Code characteristics	CW, CCW
	Material	Stainless steel
	Mounting	Screws M8
	Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration	EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
	Life cycle of bearings (shaft version)	100 x 10^6 revolutions (<1500 r.p.m.)
	Revolutions per minute (shaft version)	Max. 10,000 r.p.m.
	Allowable shaft load	120 N radial, 120 N axial

Order Code PRDS5

PRDS5 – □ – □ – □ – □

Model name

Shaft
V = Shaft 10 mm
K = Non-contact with external magnet

Output (see page 49)
RSSI5V = Synchronous serial output with excitation 5 V DC
RSSI24V = Synchronous serial output with excitation 10 ... 36 V DC

Code characteristics
CW = Code increasing CW
CCW = Code increasing CCW

Connection
M12A8/R8 = 8-pin socket M12 axial/radial

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 90) **KAB-2M-M12/8F/G-LITZE**

Order example: PRDS5 - K - RSSI24V - CW - M12R8

POSIROT®
PRDS5
Magnetic Angle Encoder with CANopen Output

Magnetic angle encoder 0 - 360° in a flat housing with 66 mm resp. 68.2 mm dia.

- **Measurement range 0 - 360°**
- **Protection class IP67 / IP69K, optional IP68***
- **CANopen output**
- **With 10 mm shaft or non-contact**
- **Magnetic measurement principle**
- **Seawater proof**
- **Suitable for use on ocean-going vessels**

* Depth and duration of immersion must be specified!

Specifications

Output	CANopen-Bus (Encoder CiA 406 V 3.2)
Measurement range	0 ... 360°
Resolution	0.05° max.
Linearity	±1° (typ.)
Protection class	IP67/IP69K (connector output with IP69K connector cable); IP68 - on request
Material	Stainless steel
Mounting	Screws M8
Connection	Connector M12 5 pin, radial or axial
Shock	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
Life cycle of bearings (shaft version)	100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (shaft version)	Max. 10,000 r.p.m.
Allowable shaft load	120 N radial, 120 N axial
EMC, Temperature	Refer to output specification

Order Code PRDS5

PRDS5 – □ – □ – □

Model

Shaft

V	= Shaft 10 mm
K	= Non-contact with external magnet

Output (see page 50/51)

CANOP	= CANopen
CANJ1939	= CAN SAE J1939

Connection

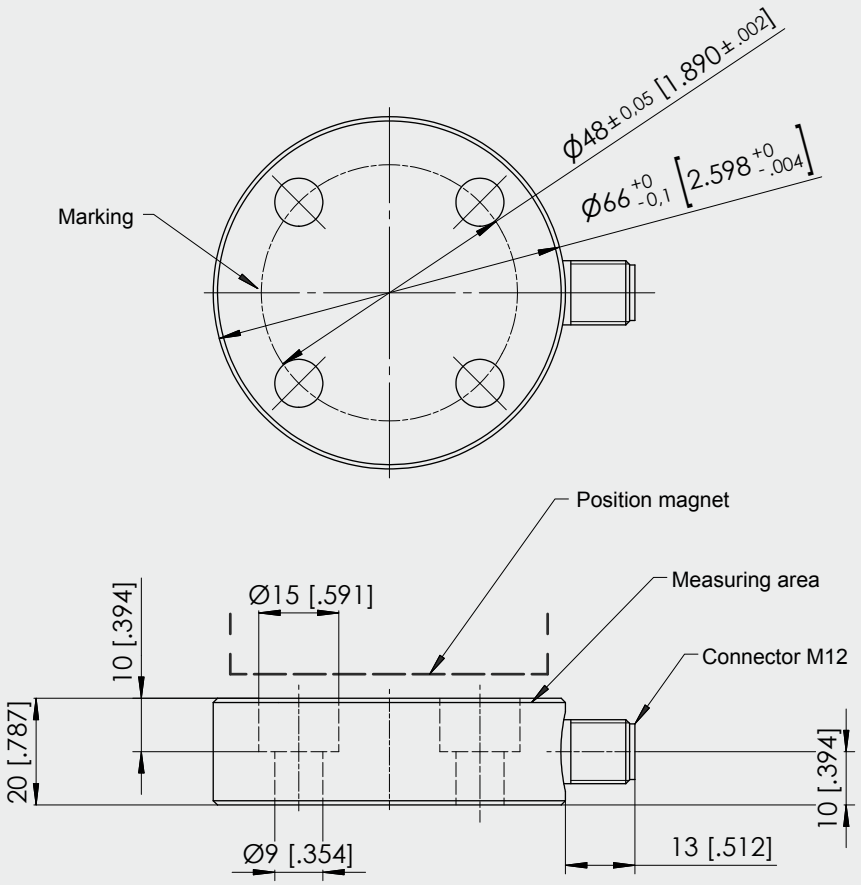
M12R5/CAN	= Connector M12 radial, 5 pin
M12A5/CAN	= Connector M12 axial, 5 pin

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order code connector cable (see accessories page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

Order example: PRDS5 - K - CANOP - M12A5/CAN

Outline drawing
PRAS5-K/PRDS5-K
M12 radial

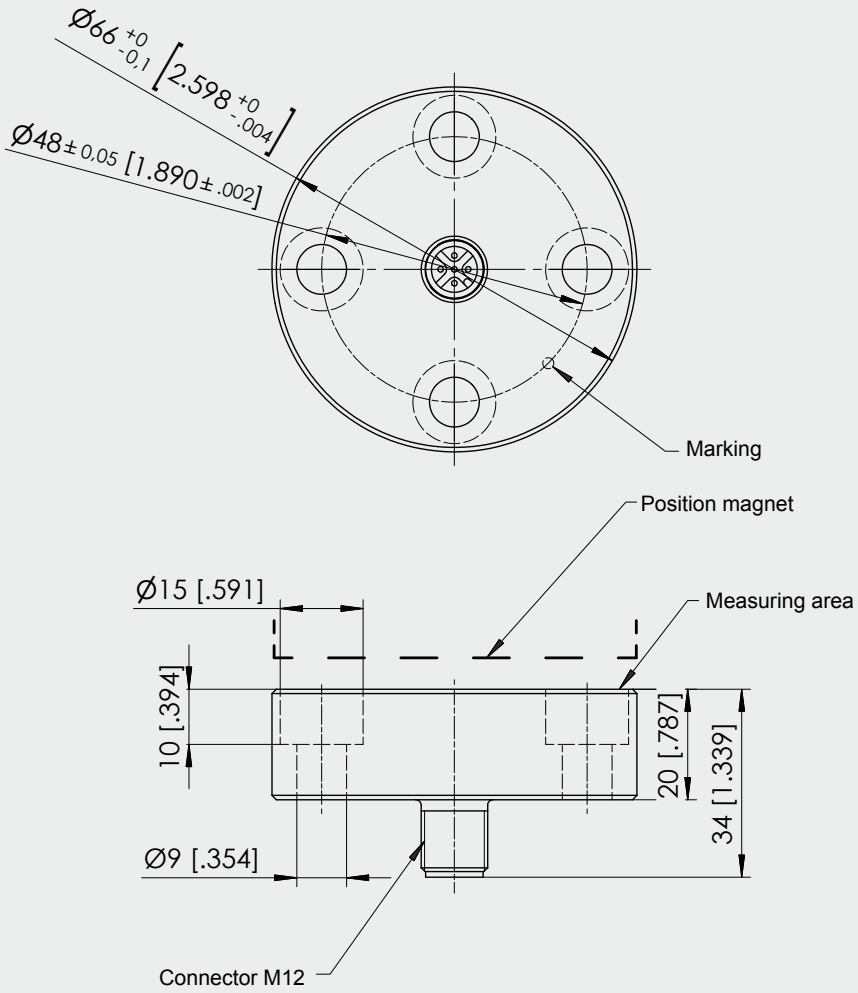


Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PRAS5/PRDS5
Dimensions

Outline drawing
PRAS5-K/PRDS5-K
M12 axial



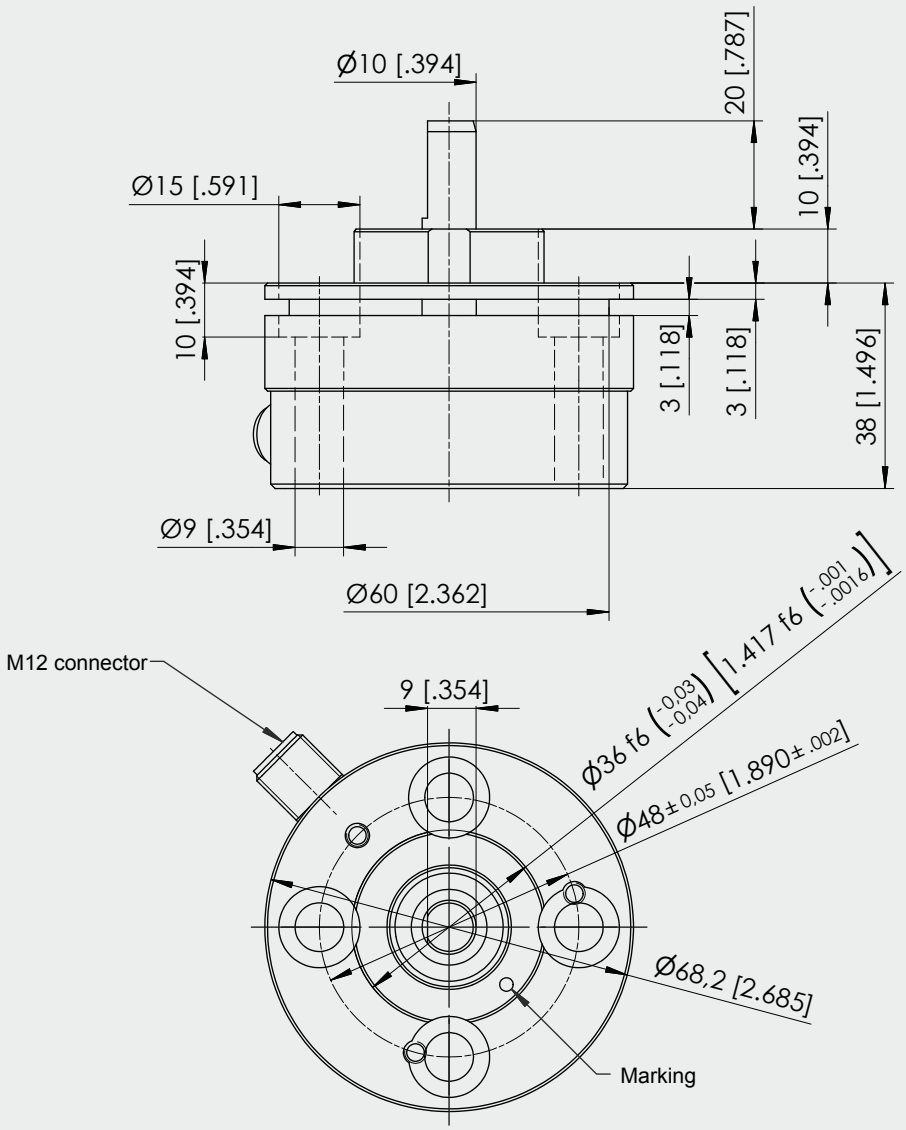
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PRAS5/PRDS5
Dimensions

Outline drawing
PRAS5-V, PRDS5-V
M12 radial

(flange mechanically compatible to the analog angle sensor AWS1)



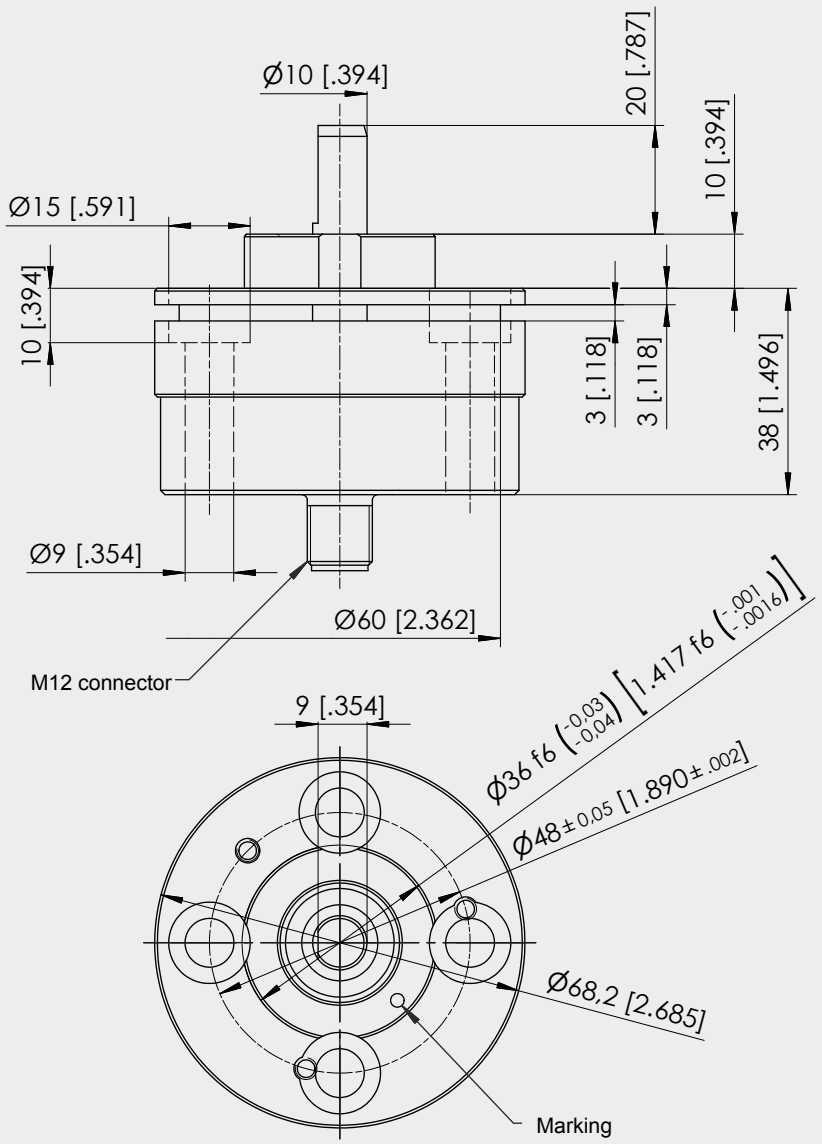
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PRAS5/PRDS5
Dimensions

Outline drawing
PRAS5-V, PRDS5-V
M12 axial

(flange mechanically compatible to the analog angle sensor AWS1)



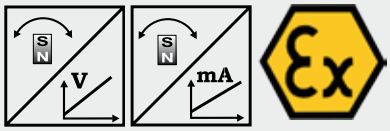
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PRAS5EX - Dust-Ex-proof
Magnetic Angle Sensor with Analog Output

Magnetic angle sensor 0 - 360° in a flat housing with 66 mm resp. 68.2 mm dia.

- **Measurement range 0 - 360°**
- **Protection class IP65**
- **Analog output**
- **With 10 mm shaft or non-contact**
- **Magnetic measurement principle**
- **Other outputs available on request**
- **Dust-Ex-proof: II 3D Ex tD A22 IP65 T80°C X**
- **SIL in preparation**



Specifications

Outputs	U2 U6 /5/ 8,25 I1	Voltage 0.5 ... 10 V Voltage 0.5 ... 4.5 V / 0.825 ... 7.425 V ratiometr. Current 4 ... 20 mA, 3 wire
Measurement range		0 ... 15° to 0 ... 360° in increments of 15°
Resolution		0.03 % (60 ... 360); 0.1 % (15 ... 45°)
Repeatability		±0.03 % (60 ... 360°); ±0.1 % (15 ... 45°)
Linearity		±0.3 % f.s. (typ.)
Rated distance sensor / magnet		Depending on the position magnet
Protection class		IP65
Signal characteristics		CW, CCW
Material		Stainless steel
Mounting		Screws M8
Shock		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration		EN60068-2-6:1995, 20 g 10 Hz-2 kHz, 10 cycles
Life cycle of bearings (shaft version)		100 x 10^6 revolutions (<1500 r.p.m.)
Revolutions per minute (shaft version)		Max. 10,000 r.p.m.
Allowable shaft load		120 N radial, 120 N axial
Temperature		-20 to +40 °C
Dust-Ex-proof standard		DIN EN61241-0, DIN EN61241-1

Order Code PRAS5EX

PRAS5EX – □ – □ – □ – □ – □

Model name

Mechanical connection
V = Shaft 10 mm
K = Non-contact with external magnet

Measurement range 15 ... 360° in increments of 15°
15 / 30 / 45 / ... / 345 / 360

Outputs (see page 46)
U2 = 0.5 ... 10 V
U6/5 = 0.5 ... 4.5 V ratiometric, U_B = 5 V ±10%
I1 = 4 ... 20 mA, 3 wire

Signal characteristics
CW = Signal increasing CW
CCW = Signal increasing CCW

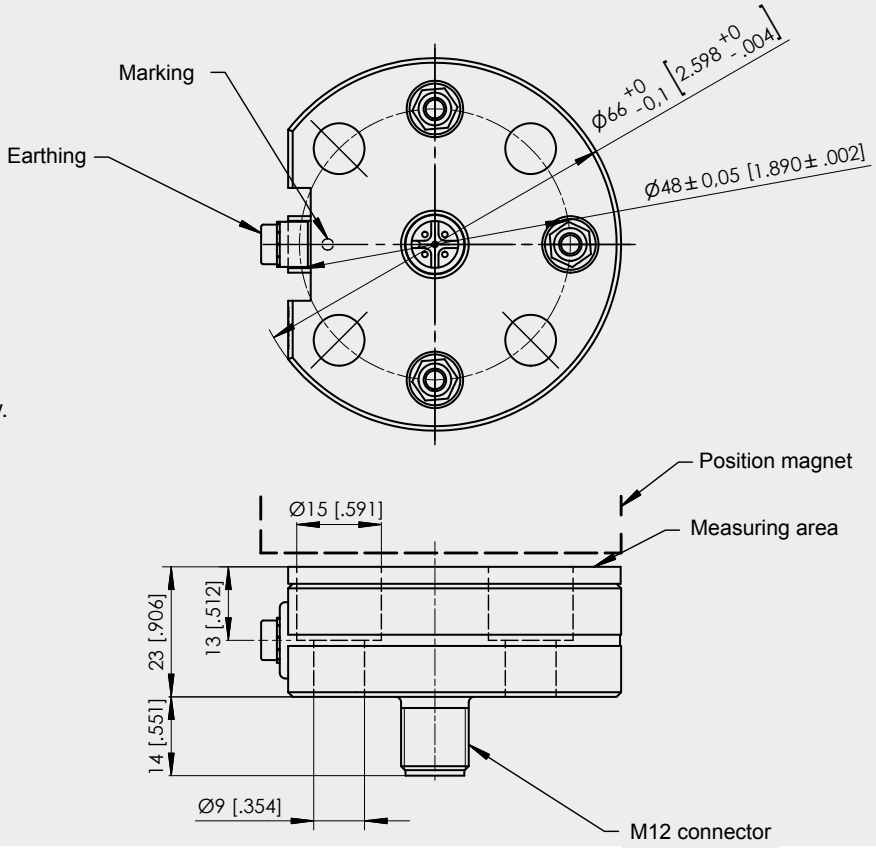
Connection
M12A5/M12R5 = 5-pin socket M12 axial/radial (compatible to 4-pin connector)

Order code position magnet (see accessories page 53/54) **PRMAG ...**

Order example: PRAS5EX - V - 360 - U6/5 - CW - M12R5

POSIROT®
PRAS5EX - Dust-Ex-proof
Dimensions

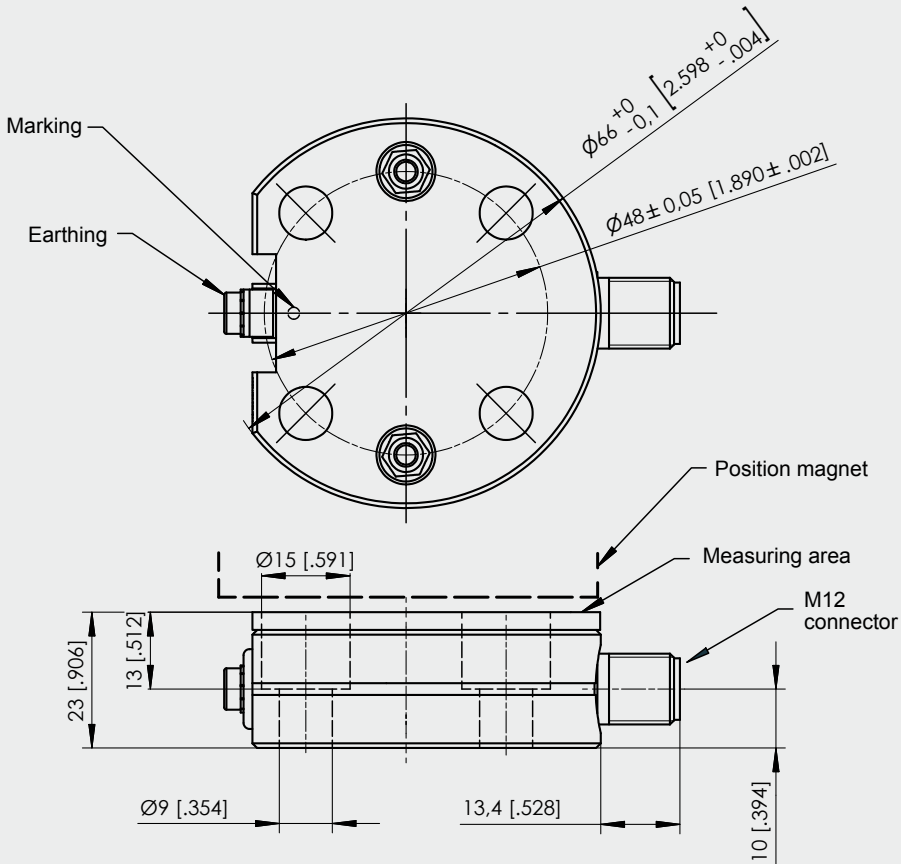
Outline drawing
Sensor PRAS5EX-K
M12, axial



Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions
consult factory.

Outline drawing
Sensor PRAS5EX-K
M12, radial

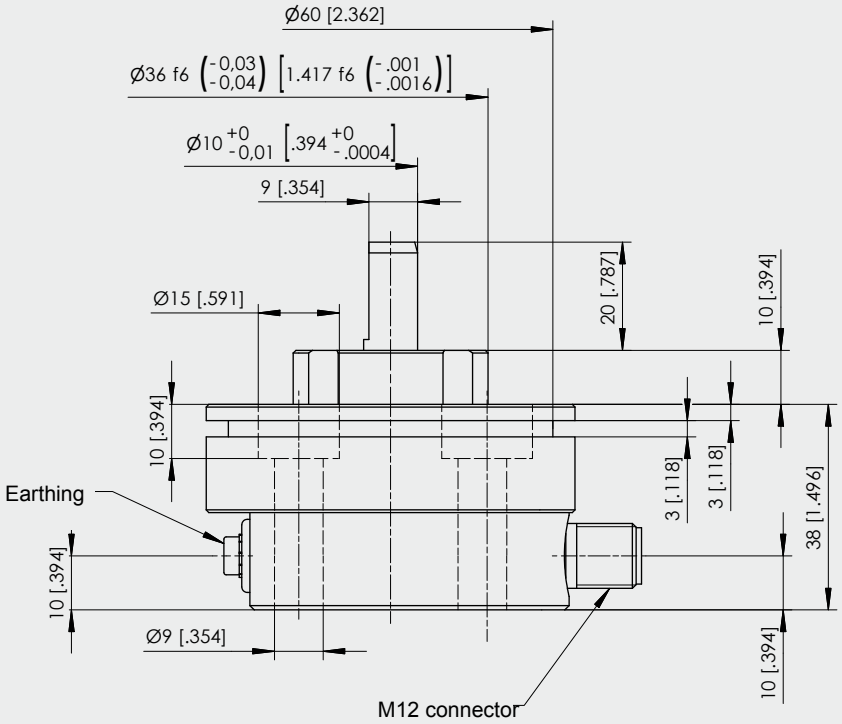


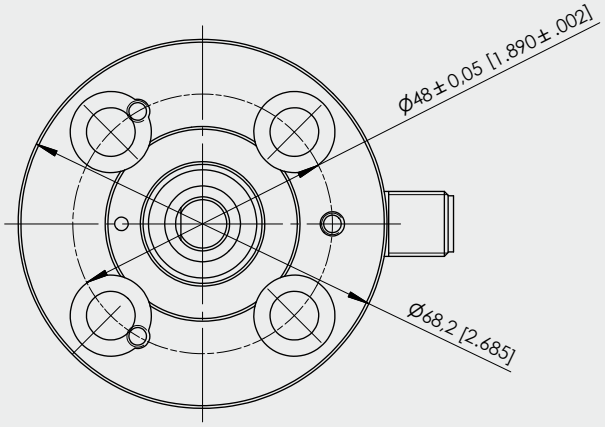
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions
consult factory.

POSIROT®
PRAS5EX - Dust-Ex-proof
Dimensions

Outline drawing
Sensor PRAS5EX-V
M12, radial



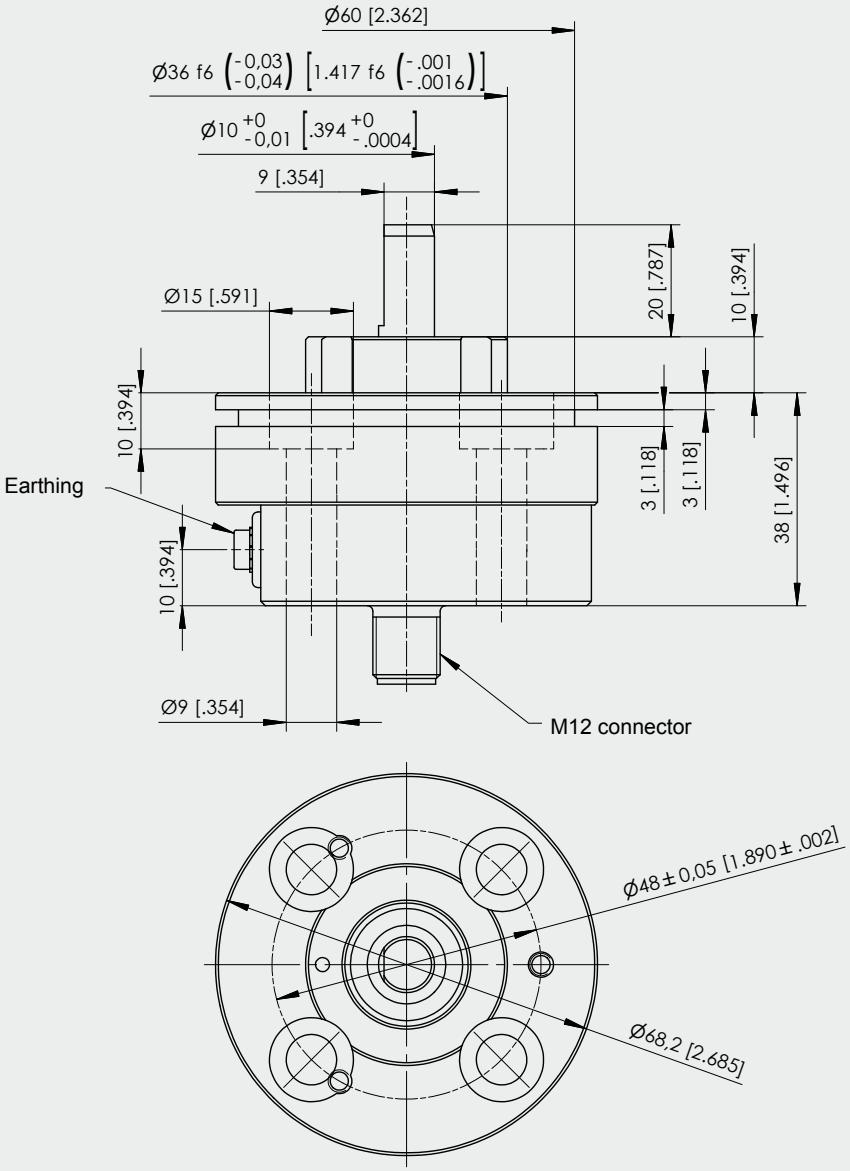


Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PRAS5EX - Dust-Ex-proof
Dimensions

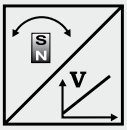
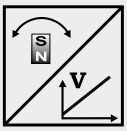
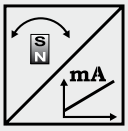
Outline drawing
Sensor PRAS5EX-V
M12, axial



Dimensions in mm [inch]

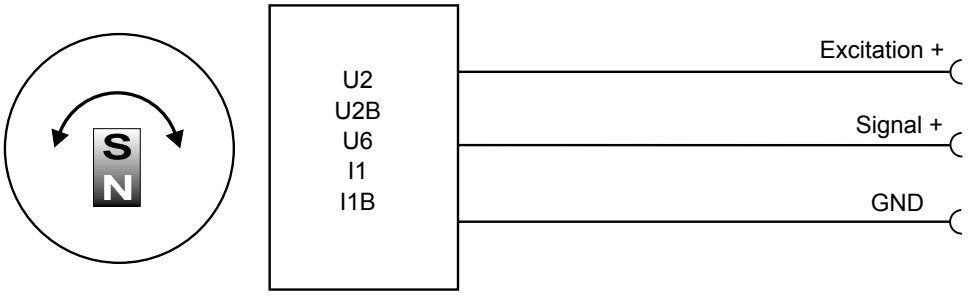
Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PRAS
Analog outputs U2(B), U6 and I1(B)

U2; U2B Voltage Output 0.5 ... 10 V 	Excitation voltage	U2: 18 ... 36 V DC; U2B: 11.5 ... 27 V DC
	Excitation current	12 mA typ., 16 mA max.
	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. (typ.) for 90°...360° ±100 x 10^{-6} / °C f.s. (typ.) for <90°
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006
U6/5; U6/8,25 Voltage Output 10 ... 90% ratiometr. 	Excitation voltage	5V DC ±10 % / 8.25 V DC ±10 %
	Excitation current	8 mA typ., 12 mA max.
	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. (typ.) for 90°...360° ±100 x 10^{-6} / °C f.s. (typ.) for <90°
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006
I1; I1B Current Output 4 ... 20 mA, 3 wire 	Excitation voltage	I1: 18 ... 36 V DC; I1B: 10 ... 18 V DC
	Excitation current	32 mA typ., 36 mA max.
	Load resistor	I1: 500 Ω max.; I1B: 250 Ω max.
	Output current	4 ... 20 mA
	Measuring rate	1 kHz standard
	Stability (temperature)	±50 x 10^{-6} / °C f.s. (typ.) for 90°...360° ±100 x 10^{-6} / °C f.s. (typ.) for <90°
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006

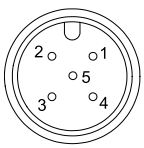
Other outputs available on request.

Output signals



Signal Wiring	Output signals	Connector pin	Cable color
	Excitation +	1	brown
	Signal	2	white
	GND	3	blue
	Do not connect!	4	black
	Do not connect!	5	–

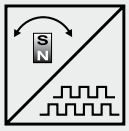
Connection



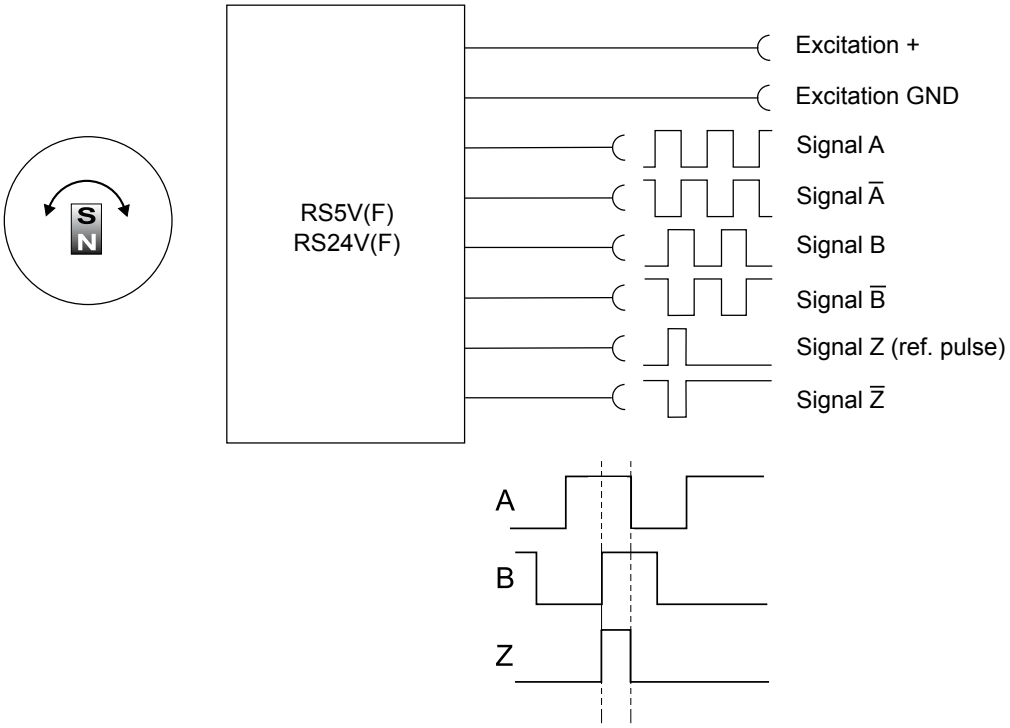
M12A5 / M12R5

View to sensor connector

POSIROT®
PRDS
Output RS5V(F) / RS24V(F)

RS5V(F)/RS24V(F) Incremental 	Interface	EIA RS-422
	Excitation voltage	RS5V(F): 5 V DC ±10 %; RS24V(F): 10 ... 36 V DC
	Excitation current	100 mA max., depending on the load
	Pulse frequency	<500 kHz
	Output signals	A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$ Push-Pull
	Output current	10 mA max.
	Stability (temperature)	±50 x 10^{-6} / °C f.s. (typ.)
	Operating temperature	-40 ... +85 °C
	Protection	Short circuit
	EMC	EN61326-1:2006

Output signals



Unfiltered output RS5V / RS24V
A preferred maximum pulse frequency has to be defined within the product code. This will take account for limited bandwidth of downstream counter.

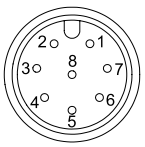
Filtered output RS5VF / RS24VF
Option for filtered jitterfree position value. The filter does not introduce velocity or acceleration error.

Signal wiring

Output signals	Connector pin	Wire color
Excitation +	1	White
GND	2	Brown
A	4	Yellow
$\overline{A}$	6	Pink
B	3	Green
$\overline{B}$	5	Grey
Z	7	Blue
$\overline{Z}$	8	Red

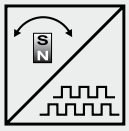
Connection

View to sensor connector

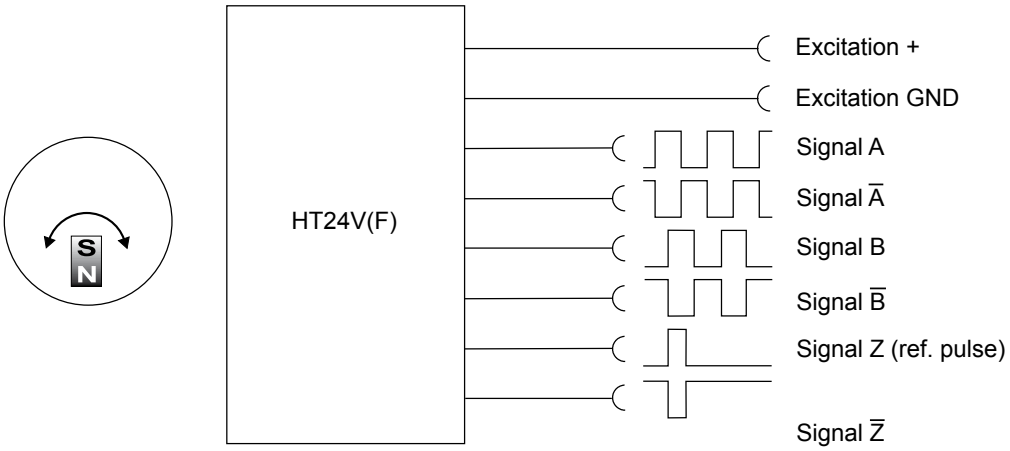


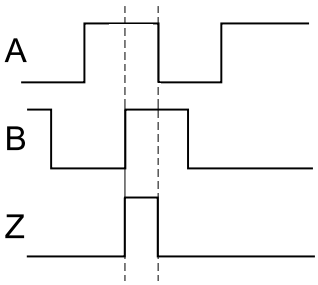
M12A8 / M12R8

POSIROT®
PRDS
Output HT24V(F)

HT24V(F) Incremental 	Interface	24 V-HTL
	Excitation voltage	18 ... 36 V DC
	Excitation current	100 mA max., depending on the load
	Pulse frequency	<500 kHz
	Output signals	A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$ Push-Pull
	Output current	50 mA max.
	Stability (temperature)	±50 x 10^{-6} / °C f.s. (typ.)
	Operating temperature	-40 ... +85 °C
	Protection	Short circuit
	EMC	EN61326-1:2006

Output signals





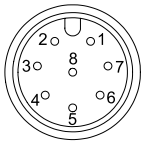
HT24V: unfiltered output

HT24VF: filtered output

Signal wiring

Output signals	Connector pin	Cable color
Excitation +	1	white
GND	2	brown
A	4	yellow
$\overline{A}$	6	pink
B	3	green
$\overline{B}$	5	grey
Z	7	blue
$\overline{Z}$	8	red

Connection



View to sensor connector

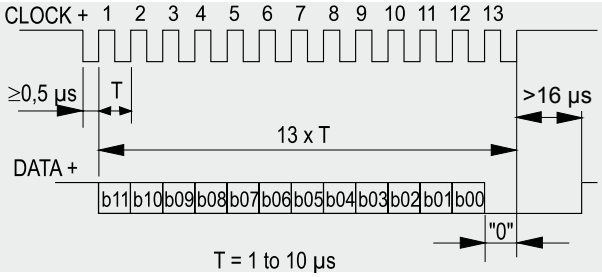
M12A8 / M12R8

POSIROT®
PRDS
Output RSSI5V / RSSI24V

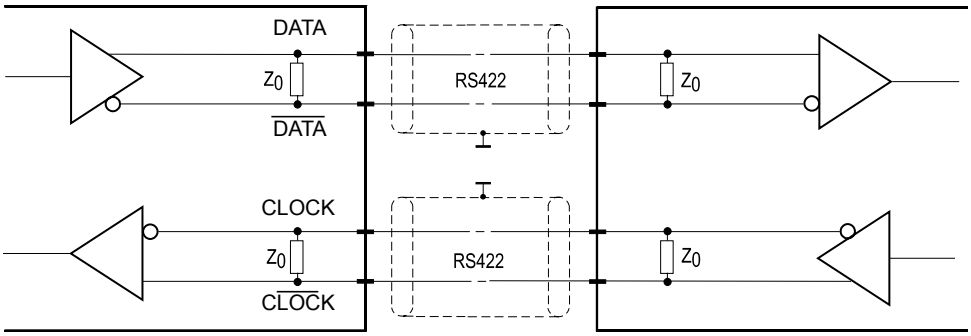
RSSI5V / RSSI24V
Synchronous serial

Interface	EIA RS-422
Excitation voltage	RSSI5V: 5 V DC ±10 %; RSSI24V: 10 ... 36 V DC
Excitation current	100 mA max. without load
Clock frequency	100 kHz ... 1 MHz
Code	Single step Gray code 12 Bit
Resolution	12 Bit
Delay between pulse trains	20 µs min.
Stability (temperature)	±50 x 10^{-6} / °C f.s. (typ.)
Operating temperature	-40 ... +85 °C
Protection	Short circuit
EMC	EN61326-1:2006

Data format
(Train of 13 pulses)



Recommended processing input circuit



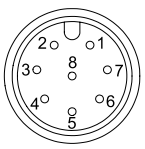
Cable length	Baud rate
50 m	100-1000 kHz
100 m	100-300 kHz

Note:
Extension of the cable length will reduce the maximum transmission rate. The signals CLOCK /$\overline{\text{CLOCK}}$ and DATA/$\overline{\text{DATA}}$ must be connected in a twisted pair cable, shielded per pair and common.

Signal wiring

Signal name	Connector pin no.	Cable color
Excitation +	1	white
Excitation GND	2	brown
CLOCK	3	green
$\overline{\text{CLOCK}}$	4	yellow
DATA	5	grey
$\overline{\text{DATA}}$	6	pink

Connection



View to sensor connector

M12A8 / M12R8

POSIROT®
PRDS
Output CANopen

Description Magnetic angle encoder with CANopen interface according to CiA 406.

CANopen	Communication profile	CANopen CiA 301 V 4.02, Slave
	Device profile	Encoder CiA 406 V 3.2
	Configuration services	Layer Setting Service (LSS), CiA Draft Standard 305 (transmission rate, node id)
	Error Control	Node Guarding, Heartbeat, Emergency Message
	Node ID	Default: 127; programmable via LSS or SDO
	PDO	3 TxPDO, 0 RxPDO, static mapping
	PDO Modes	Event-/Time triggered, Remote-request, Sync cyclic/acyclic
	SDO	1 server, 0 Client
	CAM	8 cams
	Certified	Yes
	Transmission rates	50 kBaud to 1 MBaud, default: 125 kBaud; programmable via LSS or SDO
	Bus connection	M12 connector, 5 ping
	Integrated bus terminating resistor	Optional
	Bus, galvanic isolated	No

Specifications	Excitation voltage	8 ... 36 V DC
	Excitation current	Typ. 15/30 mA for 24/12 V, max. 100 mA
	Measuring rate	1 kHz (asynchronous)
	Stability (temperature)	±50 x 10^{-6} / °C f.s.
	Repeatability	1 LSB
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	Dielectric strength	1 kV (V AC, 50 Hz, 1 min.)
	EMC Automation	EN61326-1:2006

POSIROT®
PRDS
Output CAN SAE J1939

Description

Angle encoder according to standard SAE J1939. Customer configuration of operating parameters by Peer-to-Peer. Process data exchange by Broadcast message. Node-Id distribution by address claiming (ACL).

Interface J1939

CAN specification	ISO 11898, Basic and Full CAN 2.0 B
Transceiver	24V-compliant, not isolated
Communication profile	SAE J1939
Baud rate	250 kbit/s
Internal temination resistor	120 Ω
Address	Default 247d, configurable

NAME Fields

Arbitrary address capable	1	Yes
Industry group	0	Global
Vehicle system	7Fh (127d)	Non specific
Vehicle system instance	0	
Function	FFh (255d)	Non specific
Function instance	0	
ECU instance	0	
Manufacturer	145h (325d)	Manufacturer ID
Identity number	0nnn	Serial number 21 bit

Parameter Group Numbers (PGN)

Configuration data	PGN EF00h	Proprietary-A (PDU1 peer-to-peer)
Process data	PGN FFnnh	Proprietary-B (PDU2 broadcast); nn Group Extension (PS) configurable

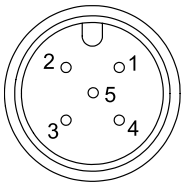
Specifications

Excitation voltage	8 ... 36 V DC
Excitation current	Typ. 15/30 mA for 24/12 V, max. 100 mA
Measuring rate	1 kHz (asynchronous)
Stability (temperature)	±50 x 10^{-6} / °C f.s.
Repeatability	1 LSB
Operating temperature	-40 ... +85 °C
Protection	Reverse polarity, short circuit
Dielectric strength	1 kV (V AC, 50 Hz, 1 min.)
EMC	EN61326-1:2006

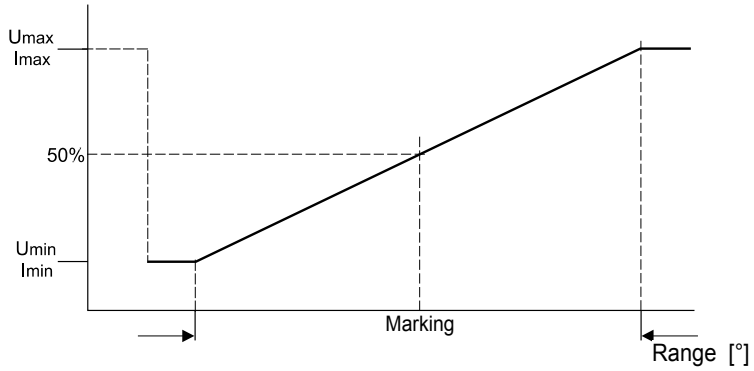
Signal wiring / connection

Signal name	Connector pin	Wire color
Shield	1	Black+grey
Excitation +	2	White
GND	3	Brown
CAN-H	4	Green
CAN-L	5	Yellow

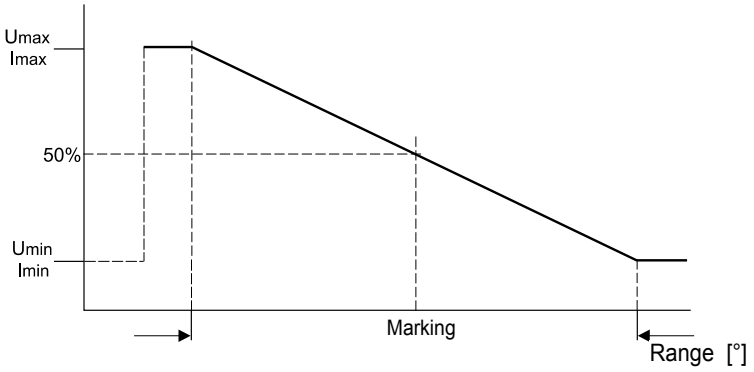
View to sensor connector



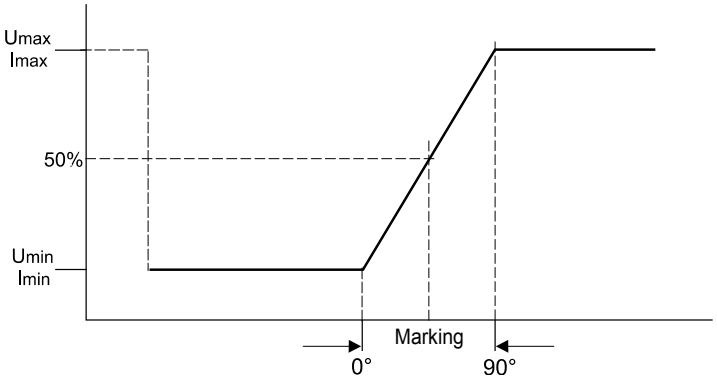
Output signal
(CW increasing)



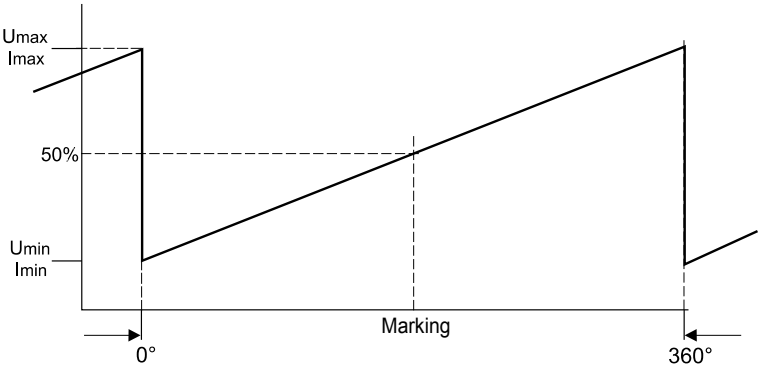
Output signal
(CCW increasing)



Example angular range 90°

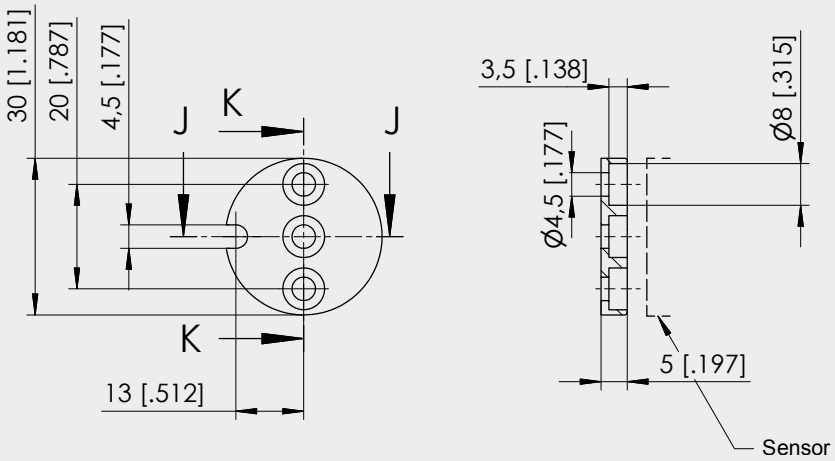


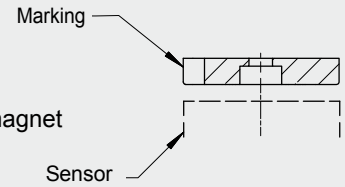
Example angular range 360°



POSIROT®
Accessories
Position magnets

PRMAG20

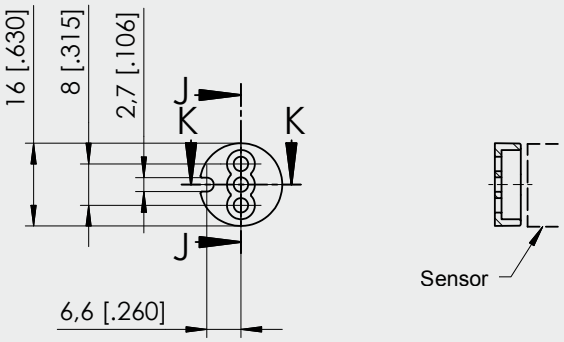


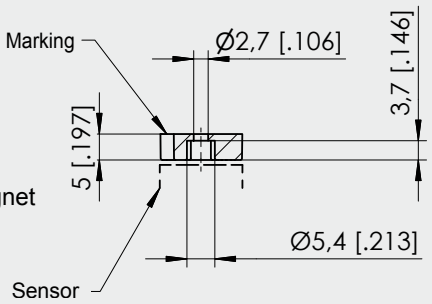


Weight 11 g approx.,
moment of inertia 1.2 kgmm²

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

PRMAG21





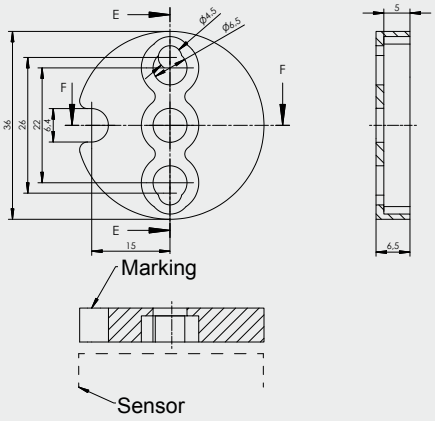
Weight 3 g approx.,
moment of inertia 0.1 kgmm²

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

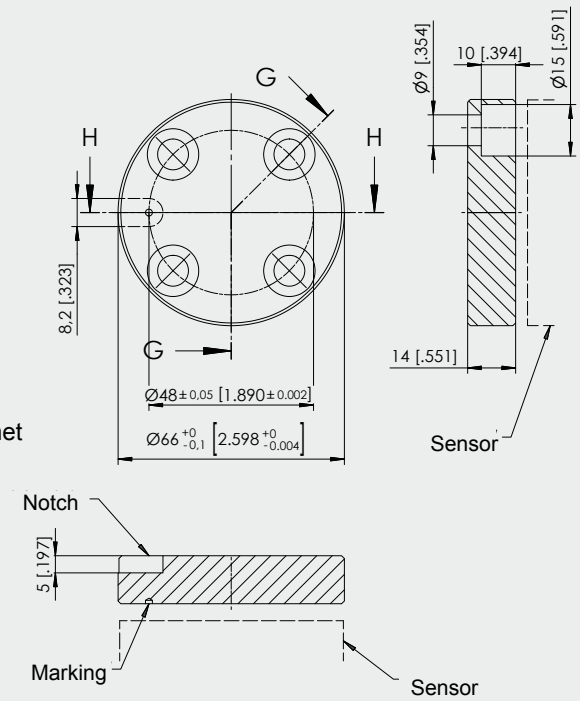
PRMAG22



Weight 17 g approx.,
moment of inertia 3 kgmm²

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

PRMAG5Z



Weight 100 g approx.,
moment of inertia 55 kgmm²

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

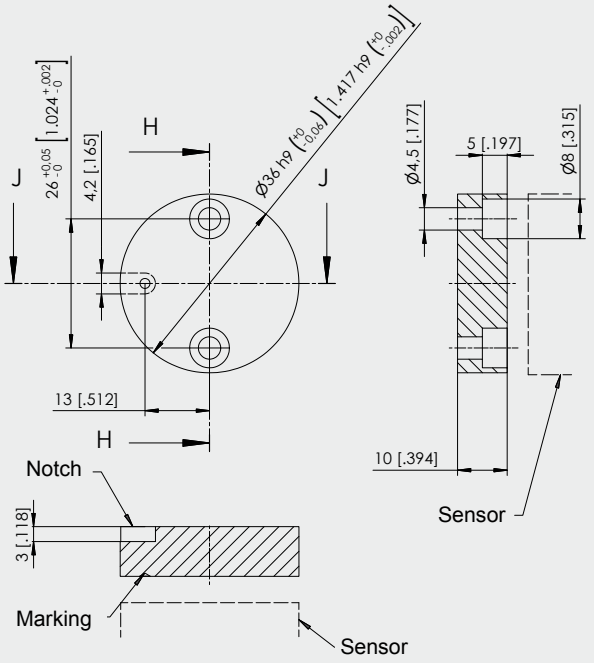
Dimensions in mm [inch]

Dimensions informative only
For guaranteed dimensions please consult factory

PRMAG2Z-EX

Weight ca. 22 g approx.
moment of inertia 4.5 kgmm²

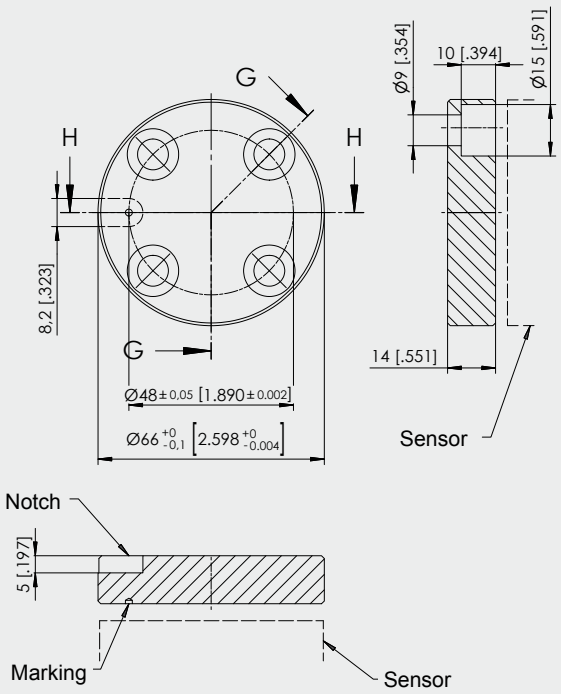
A misalignment of the position magnet has an effect on the linearity



PRMAG5-EX

Weight ca. 275 g approx.
moment of inertia 150 kgmm²

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



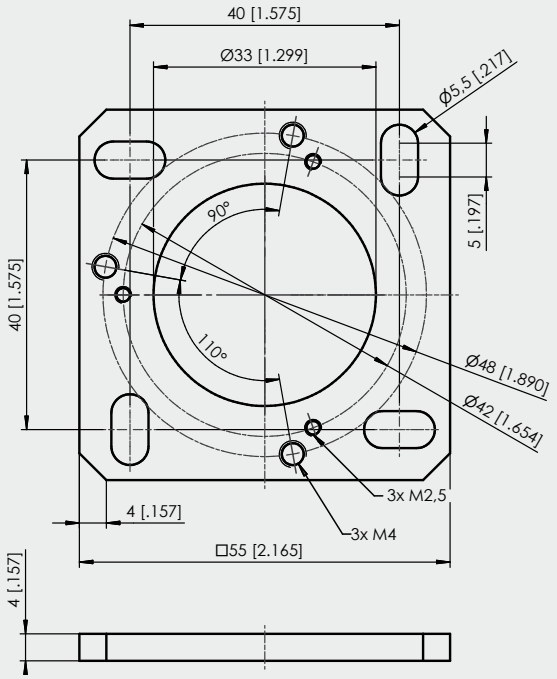
EX - Explanation (II 3D Ex tD A22 IP65 T80°C X)

II	= for all Explosive Areas, excluding Surface and Underground Mining Systems
3D	= Equipment Category 3, applicable in Zone 22; D = dust
Ex	= meets the requirements of the European Ex-Directive
tD	= type of ignition protection: protection by enclosure “tD”
A22	= measurement of the surface temperature acc. to procedure A for applications in Zone 22
IP65	= IP Protection Class
T80°C	= maximum surface temperature
X	= tested with low impact energy

POSIROT®
Accessories
Mounting Plates

PRPT-BPL1

(screw mounting)
For PRAS2, PRDS2,
PRAS3, PRDS3



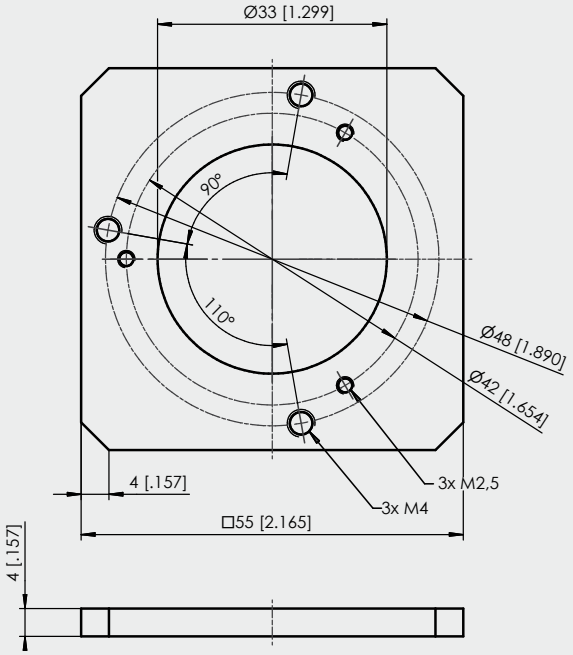
In combination with the mounting clamps PRPT-BFS1 (3 x M2.5) or in combination with the mounting bracket PRPT-BFS2 (3 x M4).

Dimensions in mm [inch]

Weight 30 g approx.
Dimensions informative only.
For guaranteed dimensions please consult factory.

PRPT-BPL2

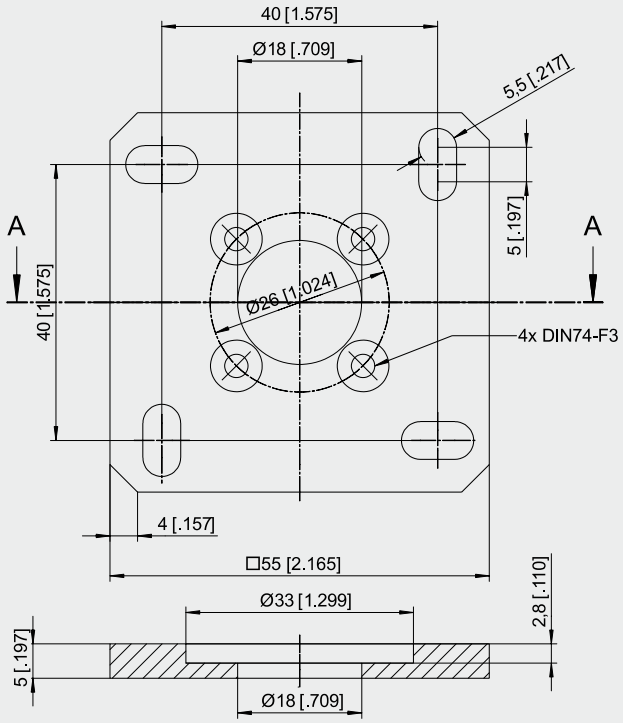
(welding assembly)
For PRAS2, PRDS2,
PRAS3, PRDS3



In combination with the mounting clamps PRPT-BFS1 (3 x M2.5) or in combination with the mounting bracket PRPT-BFS2 (3 x M4).

PRPT-BPL3

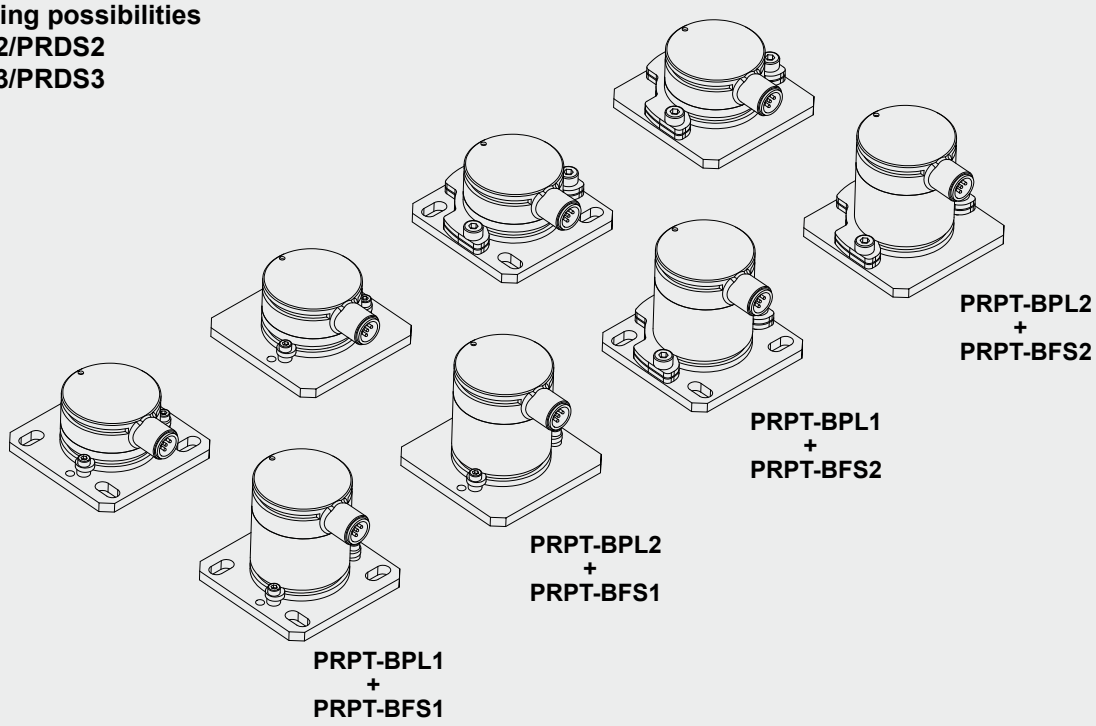
For PRAS3, PRDS3



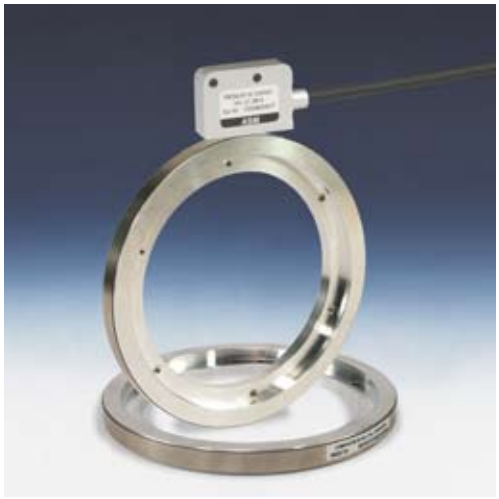
Dimensions in mm [inch]

Weight 30 g approx.
Dimensions informative only.
For guaranteed dimensions please consult factory.

Mounting possibilities
PRAS2/PRDS2
PRAS3/PRDS3



POSIROT®
PMIS4, PMIR5
Magnetic incremental encoder



Magnetic wheels for rotative applications with POSIROT® position sensor PMIS4

- **All metal housing**
- **Protection class IP67**
- **Highest EMC protection**
- **Large guiding distance of ±1 mm**
- **Suitable for harsh environments**
- **Up to 327,680 pulses/360°**

Order Code PMIR5
(magnetic ring)

PMIR5 – □ – □ – □ – □ – □

Model name

Magnetic period
50 = 5 mm

Number of poles
64 / 96 / 160 (other pole numbers on request)

Z signal mark
O = without / M = with

Inner diameter (mounting)
83/133/233 (depending on the number of poles, see page 62/63)

Option
AB = Masking tape

Oder Code PMIS4
(sensor head)

PMIS4 – □ – □ – □ KHZ – □ – □ – □ M – □

Model name

Magnetic period
50 = 5 mm

Scaling factor
See table page 61

Maximum pulse frequency (in kHz, standard 50 kHz)
50 / 20 / 10 (other frequencies on request, max. 480 kHz)

Output
HTL = HTL output with excitation 24 V DC, output 24 V
TTL = TTL output with excitation 5 V DC, output TTL/RS422
TTL24V = TTL output with excitation 24 V DC, output TTL/10 mA

Signal Z / status signal
Z0 = A/B w/o signal Z
Z1 = A/B with signal Z
Z3 = A/B with signal Z and status signal, only for non-differential (single-ended) outputs

Cable length (in m, standard 2 m)

Connection
S = Open cable end
P15 = D-Sub connector at the cable end,15 poles

Order example position magnet ring: PMIR5 - 50 - 64 - M - 83 - AB

Order example sensor: PMIS4 - 50 - 100 - 50KHZ - HTL - Z0 - 2M - S

POSIROT®
PMIS4
Magnetic incremental encoder

Specifications

Output	Incremental encoder output A/B with differential push-pull output, TTL/24 V-, TTL/RS-422- or HTL-compatible	
Excitation voltage	10 ... 30 V DC or 5 V DC ±5 %	
Excitation current	50 mA to 300 mA, depending on pulse frequency, cable length and load	
Magnetic period of the sensor	2 mm	5 mm
Guided spacing between sensor and wheel x_Z	0.1 ... 0.8 mm	0.1 ... 2 mm
Side tracking tolerance of the sensor	±1 mm	±1 mm
Linearity (sensor with magnetic wheel PMIR4)	±0.1°	±0.1°
Repeatability	±1 digit	±1 digit
Maximum pulse frequency f_P	50, 20, 10 kHz (standard 50 kHz, max. 480 kHz)	
Output signals	A, $\overline{A}$, B, $\overline{B}$ signal Z, $\overline{Z}$ (optional) status signal $\overline{ERR}$ (optional)	
Material of housing	Zinc die casting	
Connection	Cable 8 wire, dia. 5 mm, open cable end. 15 pin D-Sub conn. at the cable end as option. Max. length of the integrated sensor cable: output TTL: 3 m; HTL/TTL24V: 20 m	
Weight (w/o cable and connector)	30 ±5 g	
Protection class (EN 60529)	IP67	
Environmental		
Shock	EN60068-2-27:1993, 50 g 6 ms, 100 shocks	
Vibration	EN60068-2-6:1995, 20 g, 10-2000 Hz, 10 cycles	
EMC	EN61326-1:2006	
Temperature	-40 ... +85 °C (-40 ... +185 °F)	

The subsequent counting device must be able to process the specified maximum pulse frequency of the sensor.

Output signals

Saturation voltage	UH, UL = 0.2 V UH, UL = 0.4 V C_{last} < 10 nF	I_{out} = ±10 mA I_{out} = ±30 mA	(UH = UB - U_{out})
Short circuit current	ISL, ISH < 800 mA ISL, ISH < 90 mA	(UH, UL = 0 V) (UH, UL = 1.5 V)	
Rise time	t_r, t_f < 200 ns	with cable length 1 m, 10 % … 90 %	

Pulse frequency in dependence on the cable length

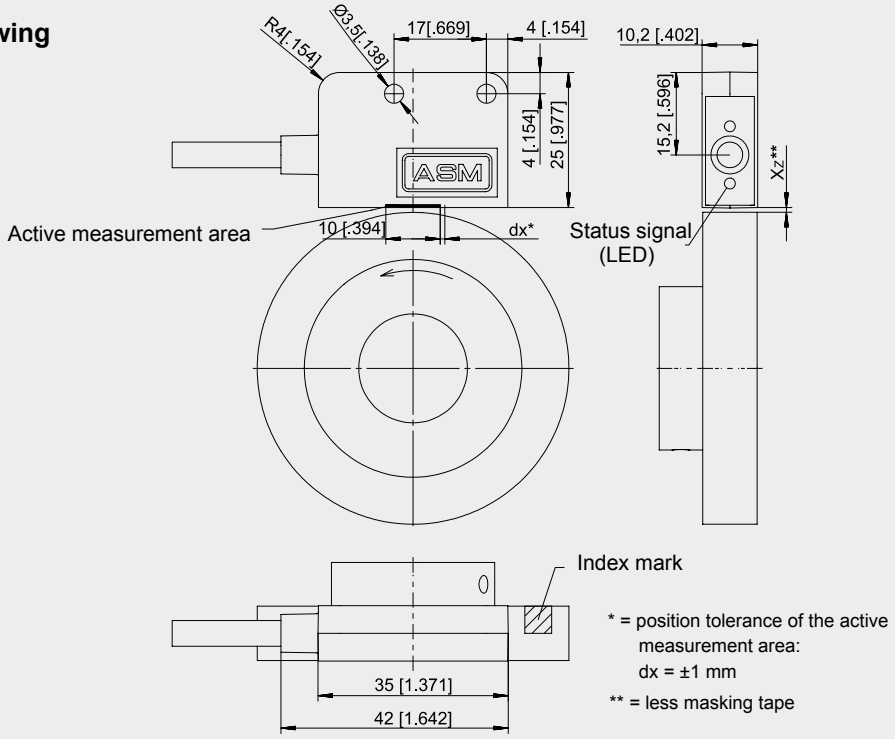
Load/cable length	**Load/pulse frequency fp**		
	HTL single ended UB = 24 V	**TTL/RS422 differential** UB = 5 V *	**TTL/24 V** UB = 24 V
Max. output current	50 mA	50 mA	10 mA
R_{last} min.	500 Ω	100 Ω	500 Ω
C_{last} max.	10 nF	10 nF	1 nF
200 m	15 kHz	—	—
100 m	25 kHz	100 kHz	—
50 m	50 kHz	200 kHz	50 kHz
10 m	100 kHz	300 kHz	100 kHz

* = consider the voltage loss of the cable; the excitation voltage 5 V ± 5% of the sensor must be guaranteed.
Note: For longer distances (see specification above) you must use min. 0.5 mm² wire for „Excitation+“ and „Excitation GND“ (see signal wiring next page), all signal wires must be min. 0.14 mm²!

POSIROT®
PMIS4
Dimensions

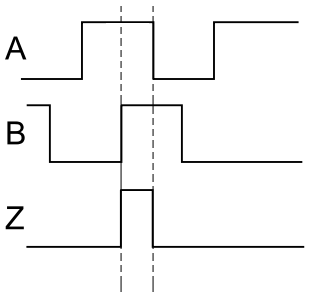
Outline drawing

PMIS4



Output signals

Option Z1
(signal Z)



Dimensions in mm [inch]

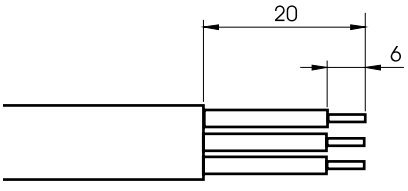
Dimensions informative only.
For guaranteed dimensions please consult factory.

Signal wiring

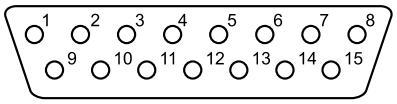
Signal name				Cable with open end, cable color	Connector D-Sub, pin no.
Option	**Z0**	**Z1**	**Z3 ***		**15 poles**
Excitation +				white	1
Excitation GND (0 V)				brown	2
	B	B	B	green	6
	A	A	A	yellow	4
	$\overline{B}$	$\overline{B}$	$\overline{ERR}$	grey	7
	$\overline{A}$	$\overline{A}$	–	pink	5
	–	Z	Z	blue	8
	–	$\overline{Z}$	–	red	9
Shield				black	12

Z = reference pulse
ERR = status signal, periodical approx. 16 Hz, for side tracking and velocity errors
* = status signal ERR available only with HTL (single ended) output

Connection



Cable output dimensions



Connector D-Sub (Pin)
View to connector pins

POSIROT®
PMIR5
Incremental magnetic wheels

Specifications	Material	Plastic bonded magnetic scale
	Base material	Aluminium, stainless steel
	Signal periods per revolution	64 / 96 / 160 poles per revolution
	Magnetic period	5 mm
	Temperature range	-40 ...+120°C (-40 ... -248 °F)
	Linearity with sensor PMIS4	Approx. ± 0.1°

Standard magnet rings

Type	Poles	∅	Width	Signal periods/revolution	Inner diameter ∅
PMIR5-50-64-O/M-83	64	102.3	14	Divisions see table below	Ø83 H7
PMIR5-50-96-O/M-133	96	153.2	14	Divisions see table below	Ø133 H7
PMIR5-50-160-O/M-233	160	255.1	14	Divisions see table below	Ø233 H7

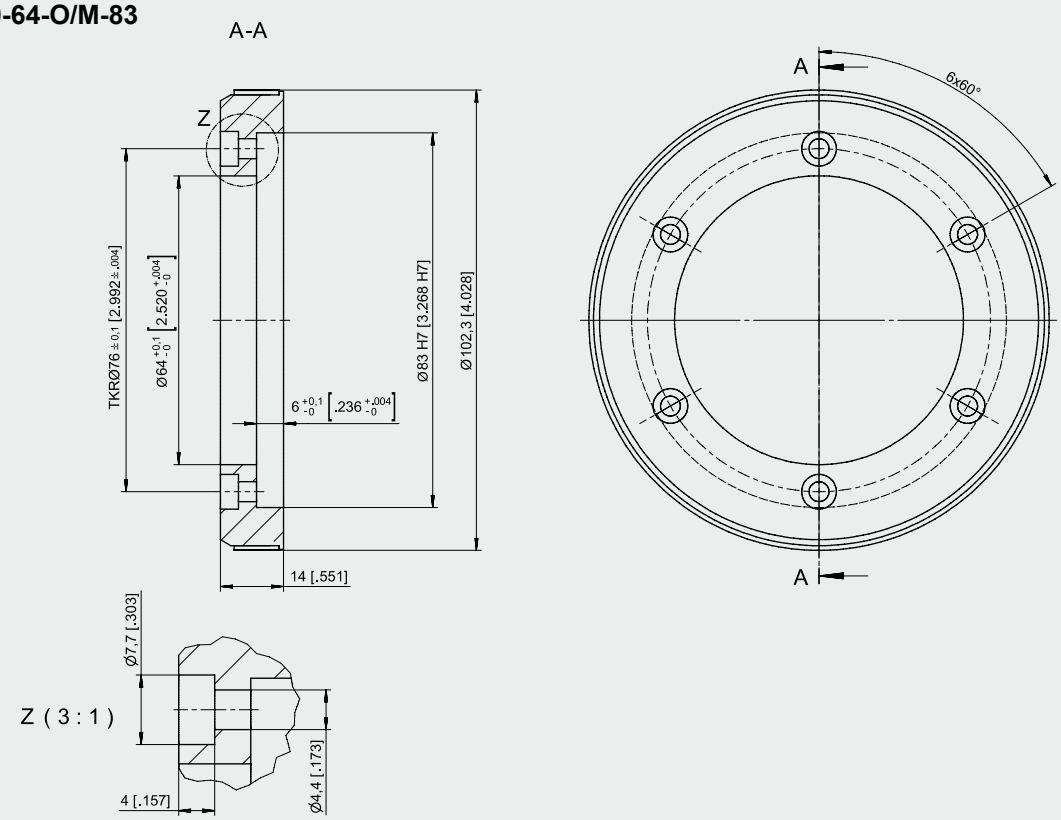
Position magnet rings with other number of poles, diameters or magnetic periods on request.

Scaling factor sensor PMIS4-50- ...	PMIR5-50-64-O/M-83		PMIR5-50-96-O/M-133		PMIR5-50-160-O/M-233	
	Signal periods	R.p.m. * (at 480 kHz)	Signal periods	R.p.m. * (at 480 kHz)	Signal periods	R.p.m. * (at 480 kHz)
1	64	3000	96	3000	160	3000
2	128	3000	192	3000	320	3000
4	256	3000	384	3000	640	3000
8	512	3000	768	3000	1280	3000
10	640	3000	960	3000	1600	1800
16	1024	3000	1536	3000	2560	3000
20	1280	3000	1920	3000	3200	1800
25	1600	3000	2400	3000	4000	2880
32	2048	3000	3072	3000	5120	3000
40	2560	3000	3840	3000	6400	1800
50	3200	3000	4800	3000	8000	2880
64	4096	3000	6144	3000	10 240	2250
80	5120	3000	7680	3000	12 800	1800
100	6400	3000	9600	2400	16 000	1440
125	8000	2880	12 000	1920	20 000	1152
128	8192	2813	12 288	1875	20 480	1125
200	12 800	1800	19 200	1200	32 000	720
250	16 000	1440	24 000	960	40 000	576
256	16 384	1406	24 576	938	40 960	563
400	25 600	900	38 400	600	64 000	360
500	32 000	720	48 000	480	80 000	288
512	32 768	703	49 152	469	81 920	281
1024	65 536	352	98 304	234	163 840	141
2048	131 072	176	196 608	117	327 680	70

* Maximum r.p.m. mechanically 3.000 U/min

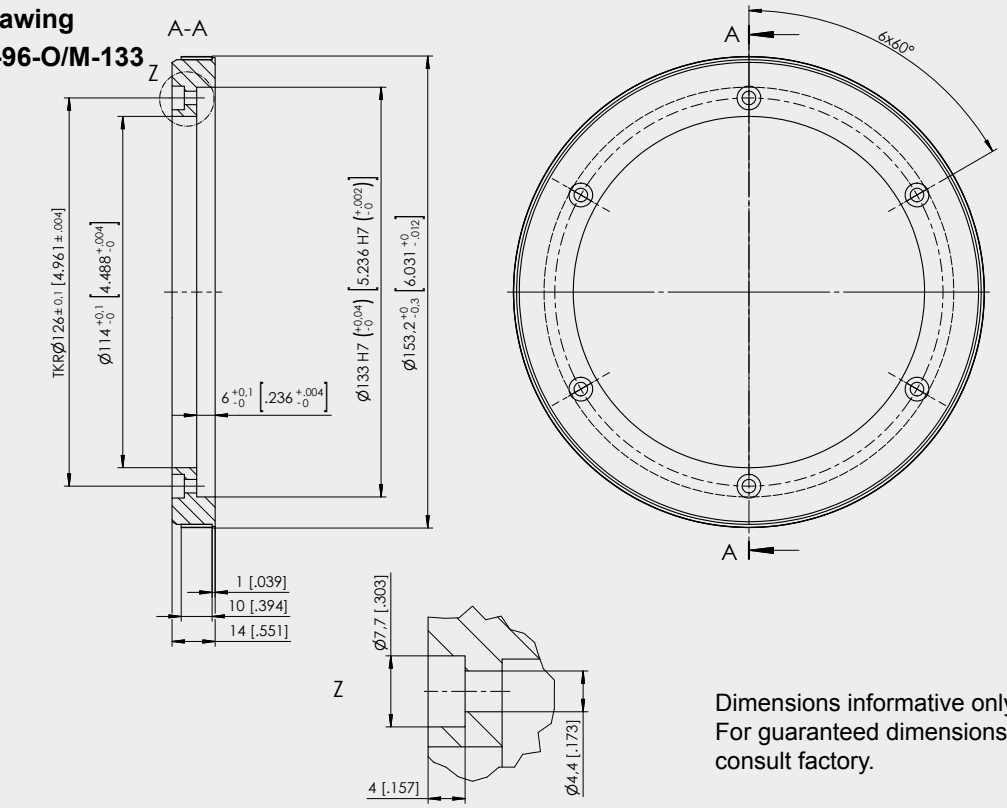
POSIROT®
PMIR5
Dimensions

Outline drawing
PMIR5-50-64-O/M-83



Dimensions in mm [inch]

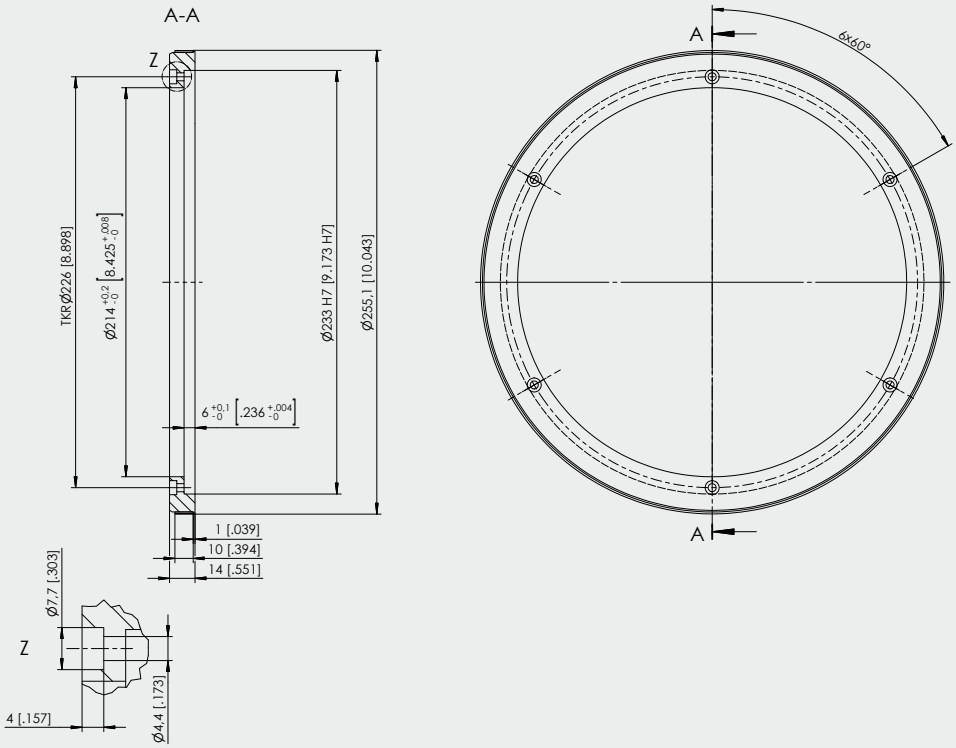
Outline drawing
PMIR5-50-96-O/M-133



Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PMIR5
Dimensions

Outline drawing
PMIR5-50-160-O/M-233



Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions please consult factory.

POSIROT®
PMIS4, PMIR7, PMIR7N
Incremental magnetic encoder rings

Magnetic rings for rotative applications with POSIROT® position sensor PMIS4

- **All metal housing (sensor head PMIS4)**
- **Protection class IP67**
- **Highest EMC protection**
- **Large guiding distance of ±1 mm**
- **Suitable for harsh environments**
- **Up to 184,320 pulses/360°**
- **For shaft diameters of 20, 27, 35 and 50 mm**
- **Magnet rings with index mark**

Order Code PMIR7, PMIR7N
(magnetic ring)

PMIR7(N) – □ – □

Model name
PMIR7
PMIR7N
Magnetic period
20 = 2 mm
Number of poles and inner diameter [in mm]

PMIR7:	50 - M - 27	**PMIR7N:**	50 - M - 20
	64 - M - 35		64 - M - 20
	90 - M - 50		90 - M - 20

Order Code PMIS4
(sensor head)

For specifications see page 59

PMIS4 – □ – □ – □ KHZ – □ – □ – □ M – □

Model name
Magnetic period
20 = 2 mm
Scaling factor
See table page 65
Maximum pulse frequency (in kHz, standard 50 kHz)
50 / 20 / 10 (other frequencies on request, max. 480 kHz)
Output
HTL = HTL output with excitation 24 V DC, output 24 V
TTL = TTL output with excitation 5 V DC, output TTL/RS422
TTL24V = TTL output with excitation 24 V DC, output TTL/10 mA
Signal Z / status signal
Z0 = A/B w/o signal Z
Z1 = A/B with signal Z
Z3 = A/B with signal Z and status signal, only for non-differential (single-ended) outputs
Cable length (in m, standard 2 m)
Connection
S = Open cable end

Order example magnet ring: PMIR7 - 20 - 64 - M - 35

Order example sensor head: PMIS4 - 20 - 100 - 50KHZ - HTL - Z0 - 2M - S

POSIROT®
PMIR7, PMIR7N
Incremental magnetic encoder rings

Specification	Material	Elastomer bonded hard ferrite
	Base material	PMIR7: stainless steel, PMIR7N: aluminium
	Poles per revolution	50 / 64 / 90 poles/360°
	Magnetic period	2 mm
	Temperature range	-40 ...+85°C
	Linearity with sensor PMIS4	Approx. ± 0.1°

Standard magnetic wheels

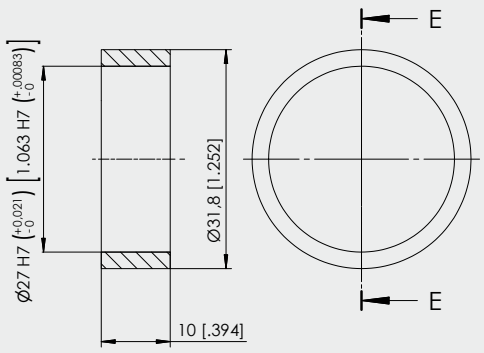
Type	Poles	∅	Width	Signal periods/rotation	Inside diameter
PMIR7(N)-20-50-M-27(20)	50	31.8	10	decade division (refer to the table below)	27H7 (20H7)
PMIR7(N)-20-64-M-35(20)	64	40.7	10	binary division (refer to the table below)	35H7 (20H7)
PMIR7(N)-20-90-M-50(20)	90	57.3	10	vernier (refer to the table below)	50H7 (20H7)

Scaling factor Sensor PMIS4-20- ...	PMIR7(N)-20-50-M-27(20)		PMIR7(N)-20-64-M-35(20)		PMIR7(N)-20-90-M-50(20)	
	Signal periods	R.p.m.* (at 480 kHz)	Signal periods	R.p.m. * (at 480 kHz)	Signal periods	R.p.m. * (at 480 kHz)
1	50	6000	64	6000	90	6000
2	100	6000	128	6000	180	6000
4	200	6000	256	6000	360	6000
8	400	6000	512	6000	720	6000
10	500	5760	640	4500	900	3200
16	800	6000	1024	6000	1440	6000
20	1000	5760	1280	4500	1800	3200
25	1250	6000	1600	6000	2250	5120
32	1600	6000	2048	6000	2880	6000
40	2000	5760	2560	4500	3600	3200
50	2500	6000	3200	6000	4500	5120
64	3200	6000	4096	5625	5760	4000
80	4000	5760	5120	4500	7200	3200
100	5000	4608	6400	3600	9000	2560
125	6250	3686	8000	2880	11 250	2048
128	6400	3600	8192	2813	11 520	2000
200	10 000	2304	12 800	1800	18 000	1280
250	12 500	1843	16 000	1440	22 500	1024
256	12 800	1800	16 384	1406	23 040	1000
400	20 000	1152	25 600	900	36 000	640
500	25 000	922	32 000	720	45 000	512
512	25 600	900	32 768	703	46 080	500
1024	51 200	450	65 536	352	92 160	250
2048	102 400	225	131 072	176	184 320	125

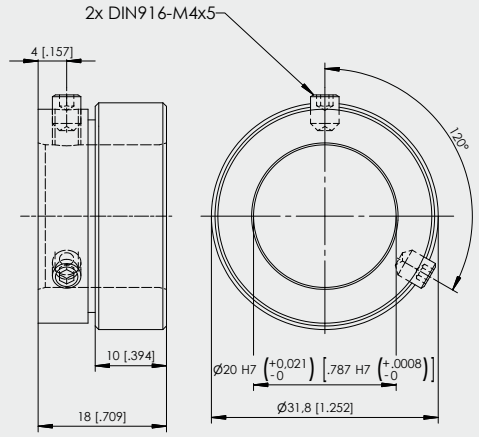
* Maximum revolution per minute mechanically 6.000 R.p.m.

POSIROT®
PMIR7, PMIR7N
Dimensions

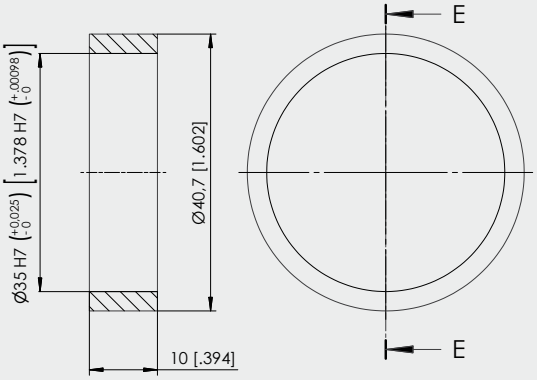
PMIR7-20-50-M-27



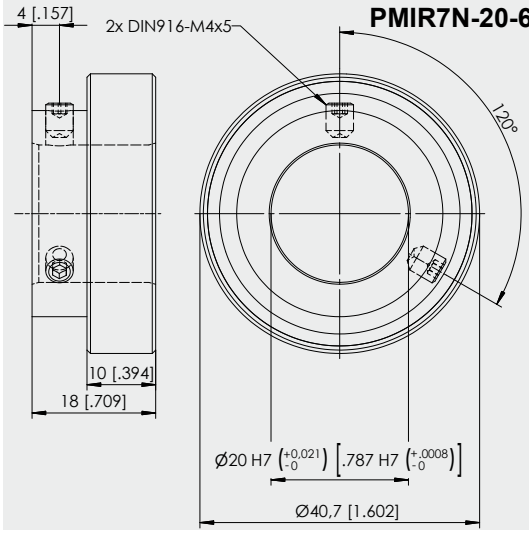
PMIR7N-20-50-M-20



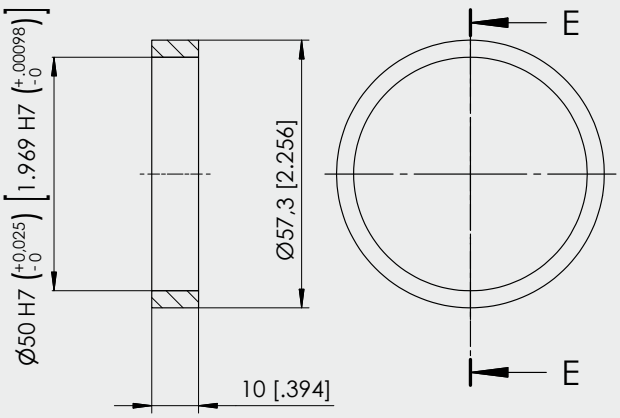
PMIR7-20-64-M-35



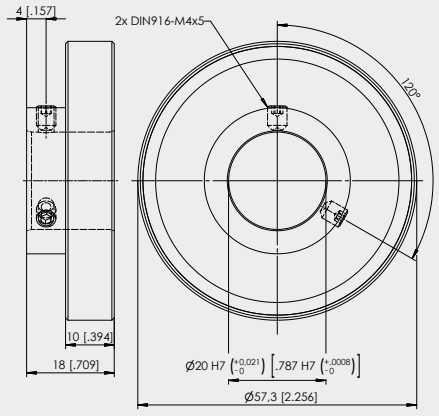
PMIR7N-20-64-M-20



PMIR7-20-90-M-50



PMIR7N-20-90-M-20



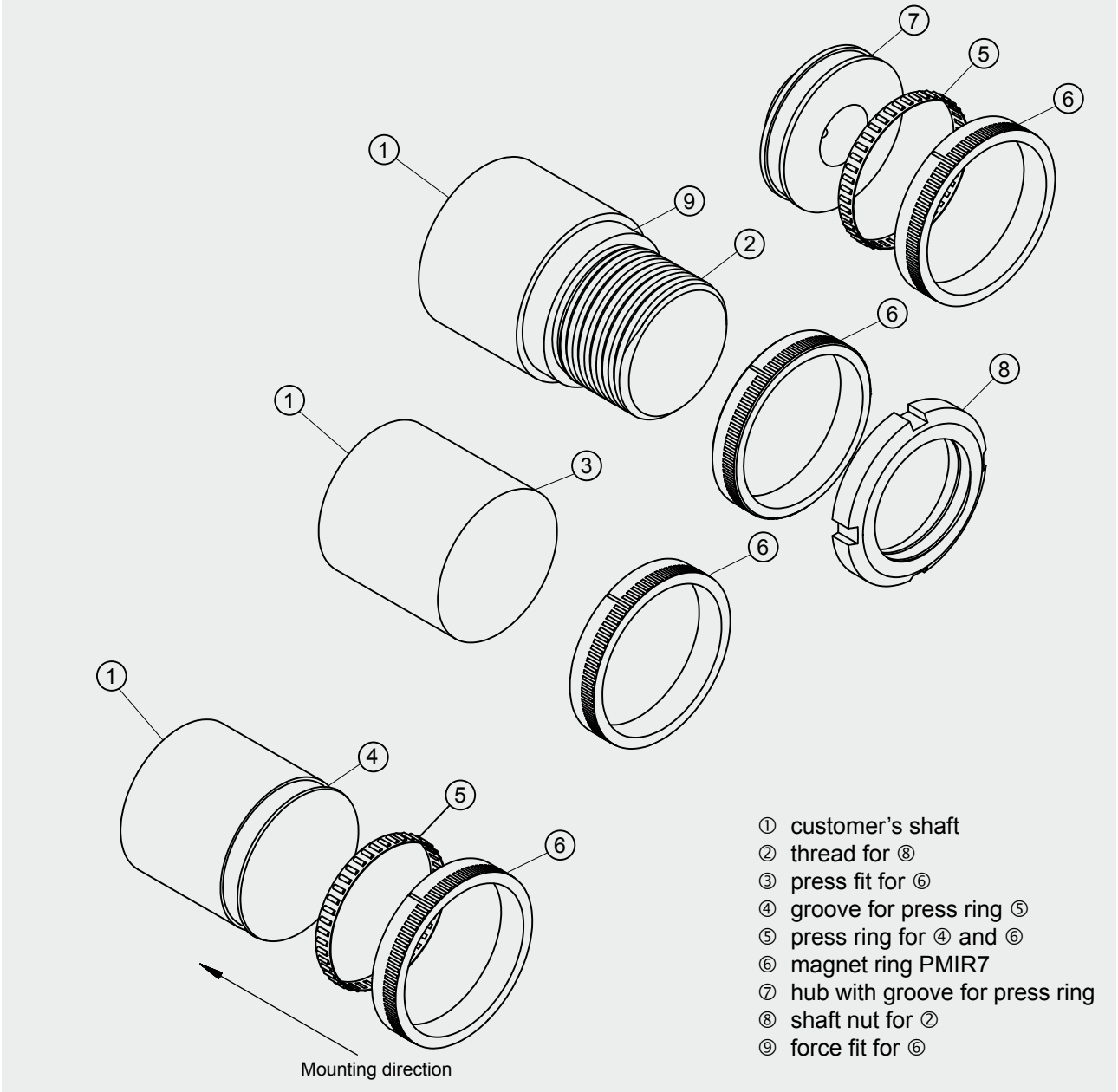
Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions consult factory.

POSIROT®
PMIR7, PMIR7N
Incremental magnetic encoder rings

How to mount the PMIR7/PMIR7N magnet rings

The PMIR7/PMIR7N magnet rings can be mounted in several ways on the customer's shaft resp. hub:

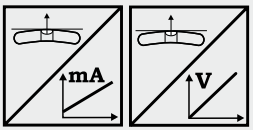
- press ring
- press fit
- bonding
- shaft nut



POSITILT®
PTAM27
Universal MEMS Inclination Sensor with Analog Output

Analog Inclination Sensor with 1 axis or 2 axes in MEMS technology

- **Measurement range ±180° with 1 axis or 2 axes**
- **Protection class IP67**
- **Linear analog ouput**
- **Plastic housing**
- **Wear free, high resolution**
- **High shock resistance**



Specifications

Output /Excitation	U2	Voltage 0.5 ... 10 V / U_B = 18 ... 36 V
	U6	Voltage 0.5 ... 4.5 V / U_B = 5 V DC ±5%
	U8	Voltage 0.5 ... 4.5 V / U_B = 18 ... 36 V
	I1	Current 4 ... 20 mA / U_B = 18 ... 36 V, 10 ... 36 V
Measurement range		±15 ... ±180° with 1 axis or 2 axes
Resolution		0.1°
Linearity		1 axis : ±0.5° (≤±75°), ±1° (>±75°) 2 axes : ±1° (≤±75°), ±1.5° (>±75°)
Settling time		0.1 ... 10 s / 90 %, configurable
Protection class		IP67
Material		Plastic
Connection		Cable 5 x 0.25 mm²
Shock (non-operational)		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration (non-operational)		EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
EMC, temperature		Refer to output specification

Order code PTAM27

PTAM27 – □ – □ – □ – □ – □ – □

Model name

Number of axes
1 = Inclination in X axis (mounting X)
2 = Inclination in X and Y axes (mounting XY)

Measurement range [in °]
15 ... 180 = ±15°... ±180° in 15° increments

Output
U2 = 0.5 ... 10 V
U6 = 0.5 ... 4.5 V
U8 = 0.5 ... 4.5 V
I1 = 4 ... 20 mA

Characteristic
CW = Increasing signal for CW inclination
CCW = Increasing signal for CCW inclination

Output delay 0 ... 90 %
Tx.x = 0.1 s ... 10 s

Connection
KAB2M = Cable, standard length 2 m

Order example: PTAM27 - 1 - 90 - U6 - CCW - T1.0 - KAB2M

POSITILT®
PTDM27
Universal MEMS Inclination Sensor with CANopen Output

Digital Inclination Sensor with 1 axis or 2 axes in MEMS technology

- **Measurement range ±180° with 1 axis or ±60° with 2 axes**
- **Protection class IP67**
- **CANopen output**
- **Plastic housing**
- **Wear free, high resolution**
- **High shock resistance**

Specifications		
	Output	CANopen (profile „Inclination Sensor“)
	Measurement range	±180° with 1 axis or ±60° with 2 axes
	Resolution	0.05 °
	Linearity	±0.5°
	Settling time	0.1 s ... 10 s / 90%, configurable
	Protection class	IP67
	Material	Plastic
	Connection	5 pin connector M12 with cable, fixed length 0.3 m
	Shock (non-operational)	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration (non-operational)	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
	EMC, temperature	Refer to output specification

Order code PTDM27

PTDM27 – □ – □

Model name

Output

CANOP = CANopen
CANJ1939 = CAN SAE J1939

Connection

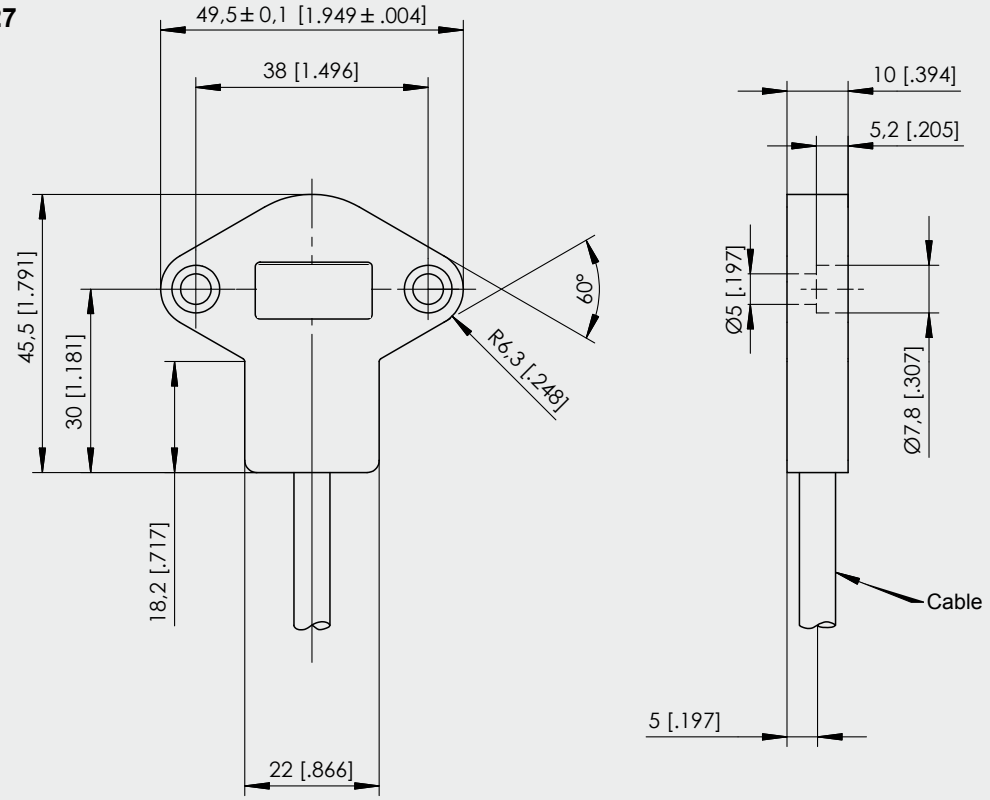
KAB0.3M-M12/CAN = Cable (length 0.3 m) with connector M12, 5 pin

Order code connector cable (see accessoires page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

Order example: PTDM27 - CANOP - KAB0,3M-M12/CAN

POSITILT®
PTAM27/PTDM27
Dimensions

Outline drawing
PTAM27/PTDM27

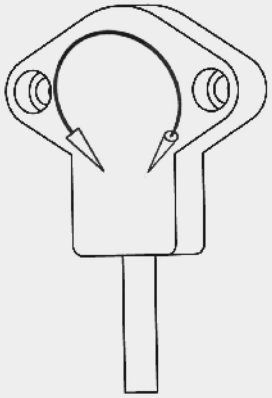


Dimensions in mm [inch]

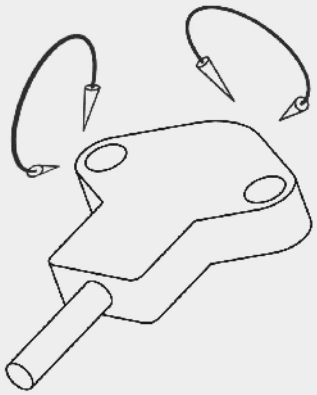
Dimensions informative only.
For guaranteed dimensions consult factory.

POSITILT®
PTAM27/PTDM27
Dimensions

Orientation of the inclination axes



1 axis

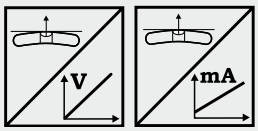


2 axes

POSITILT®
PTAM2
Robust Inclination Sensor with Analog Output

Analog Inclination Sensor for 1 axis or 2 axes in MEMS technology

- **Measurement range ±180° for 1 axis or ±60° for 2 axes**
- **Protection class IP67 / IP69K**
- **Analog output linear**
- **Aluminium housing**
- **Wear free, high resolution**
- **High shock resistance**
- **Servo flange mounting**



Specifications

Output	U2 U8 I1	Voltage 0.5 ... 10 V / U_B = 18 ... 36 V Voltage 0.5 ... 4.5 V / U_B = 18 ... 36 V Current 4 ... 20 mA / U_B = 18 ... 36 V, 10 ... 36 V
Measurement range		±15 ... ±180° for 1 axis or ±60° for 2 axes
Resolution		0.05°
Linearity		±0.5 °
Settling time		0.1 s ... 10 s / 90 %, configurable
Protection class		IP67/IP69K (connector output with IP69K connector cable)
Material		Aluminium
Connection		5 pin connector M12 axial or radial
Shock (non-operational)		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration (non-operational)		EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
EMC, temperature		Refer to output specification

Order code PTAM2

PTAM2 – □ – □ – □ – □ – □ – □

Model name

Axis of inclination

1 = Inclination in X axis (mounting X) ≤ ±180°
2 = Inclination in X and Y axis (mounting XY) ≤ ±60°

Measuring range [in °]

15 ... 180 = ±15°... ±180° in increments of 15°

Output

U2 = 0.5 ... 10 V
U8 = 0.5 ... 4,5 V
I1 = 4 ... 20 mA

Characteristic

CW = Increasing signal for CW inclination
CCW = Increasing signal for CCW inclination

Output delay 0 ... 90 %

Tx.x = 0.1 s ... 10 s

Connection

M12R5 = 5-pin socket M12, radial (compatible with 4 pin mating connector)
M12A5 = 5-pin socket M12, axial (compatible with 4 pin mating connector)

Order code connector cable (see page 90) **KAB-...M-M12/4F/G-LITZE**

Order example: PTAM2 - 1 - 180 - I1 - CW - T1.0 - M12R5

POSITILT®
PTDM2
Robust Inclination Sensor with CANopen Output

Digital Inclination Sensor with 1 or 2 axes in MEMS technology

- **Measurement range ±180° for 1 axis or ±60° for 2 axes**
- **Protection class IP67 / IP69K**
- **CANopen output**
- **Aluminium housing**
- **Wear free, high resolution**
- **High shock resistance**
- **Servo flange mounting**

CAN

Specifications		
	Output	CANopen (profile „Inclination Sensor“)
	Measurement range	±180° for 1 axis or ±60° for 2 axes
	Resolution	0.05 °
	Linearity	±0.5°
	Settling time	0.1 s ... 10 s / 90%, configurable
	Protection class	IP67/IP69K (connector output with IP69K connector cable)
	Material	Aluminium
	Connection	5 pin connector M12 axial or radial
	Shock (non-operational)	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration (non-operational)	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
	EMC, temperature	Refer to output specification

Order code PTDM2

PTDM2 – □ – □

Model name

Output

CANOP	= CANopen
CANJ1939	= CAN SAE J1939

Connection

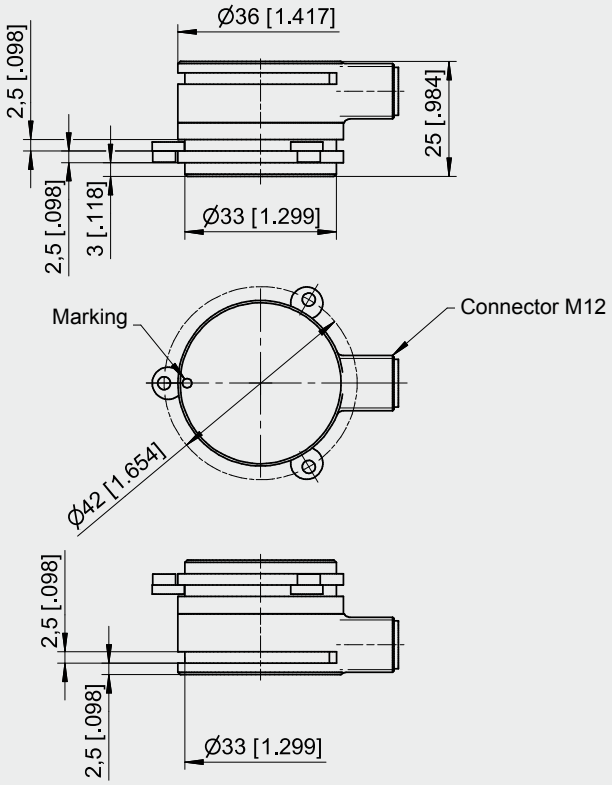
M12R5/CAN	= 5-pin socket M12, radial
M12A5/CAN	= 5-pin socket M12, axial

Order code connector cable (see page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

Order example: PTDM2 - CANOP - M12R5/CAN

POSITILT®
PTAM2/PTDM2
Dimensions

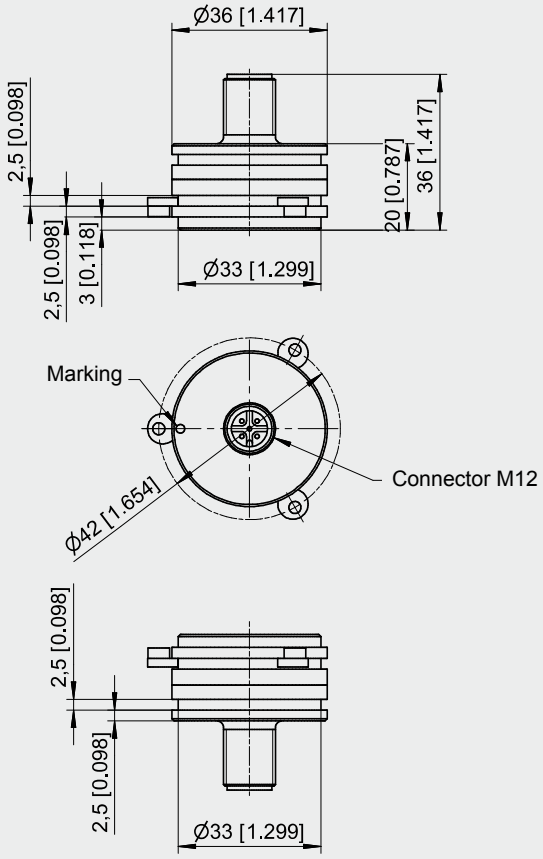
Outline drawing
M12 radial



Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

Outline drawing
M12 axial

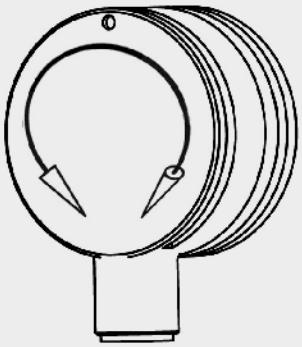


Dimensions in mm [inch]

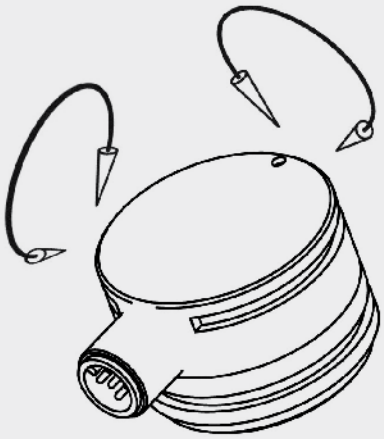
Dimensions informative only.
For guaranteed dimensions consult factory.

POSITILT®
PTAM2/PTDM2
Dimensions

Orientation of the inclination axes



1 axis

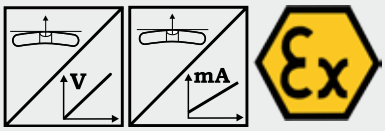


2 axes

POSITILT®
PTAM2EX - Dust EX-proof
Robust Inclination Sensor with Analog Output

Analog Inclination Sensor for 1 axis or 2 axes in MEMS technology

- **Measurement range ±180° for 1 axis or ±60° for 2 axes**
- **Protection class IP65**
- **Analog output linear**
- **Stainless steel housing**
- **Wear free, high resolution**
- **High shock resistance**
- **Servo flange mounting**
- **Dust EX-proof: II 3D Ex tD A22 IP65 T80°C X**



Specifications

Output	U2	Voltage 0.5 ... 10 V / U_B = 18 ... 36 V
	U8	Voltage 0.5 ... 4.5 V / U_B = 18 ... 36 V
	I1	Current 4 ... 20 mA / U_B = 18 ... 36 V, 10 ... 36 V
Measurement range		±15° ... ±180° for 1 axis or ±60° for 2 axes
Resolution		0.05°
Linearity		±0.5 °
Settling time		0.1 s ... 10 s / 90 %, configurable
Protection class		IP65
Material		Stainless steel
Connection		5 pin connector M12 axial or radial
Shock (non-operational)		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration (non-operational)		EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
Temperature		-20 to +40 °C
Dust-Ex-proof standard		DIN EN61241-0, DIN EN61241-1

Order code PTAM2EX

PTAM2EX – □ – □ – □ – □ – □ – □

Model name

Axis of inclination

1	= Inclination in X axis (mounting X) ≤ ±180°
2	= Inclination in X and Y axis (mounting XY) ≤ ±60°

Measuring range [in °]

15 ... 180	= ±15°... ±180° in increments of 15°

Output

U2	= 0.5 ... 10 V
U8	= 0.5 ... 4,5 V
I1	= 4 ... 20 mA

Characteristic

CW	= Increasing signal for CW inclination
CCW	= Increasing signal for CCW inclination

Output delay 0 ... 90 %

Tx.x	= 0.1 s ... 10 s

Connection

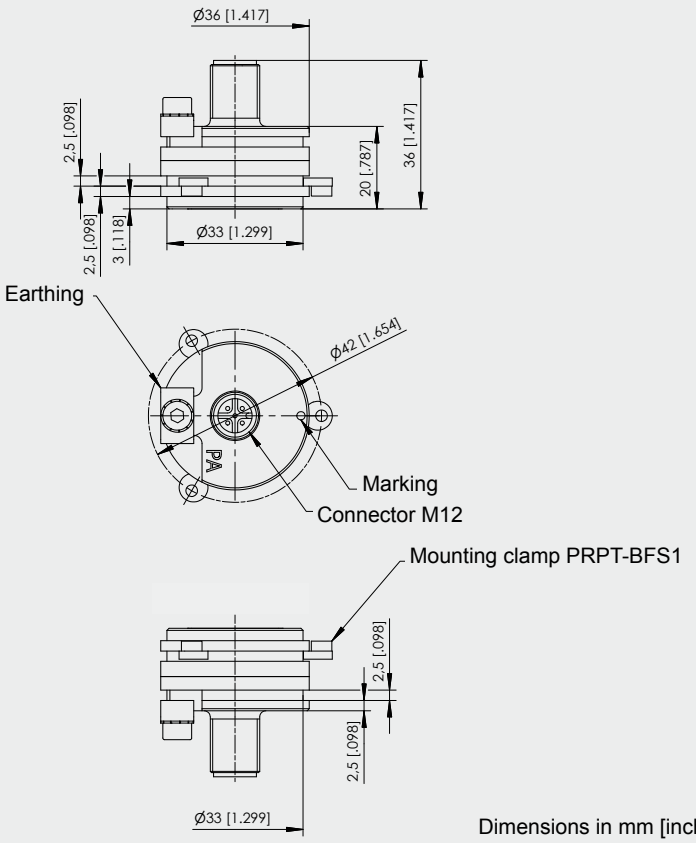
M12R5	= 5-pin socket M12, radial (compatible with 4 pin mating connector)
M12A5	= 5-pin socket M12, axial (compatible with 4 pin mating connector)

Dust-Ex-proof explanation (see page 55)

Order example: PTAM2EX - 1 - 180 - I1 - CW - T1.0 - M12R5

POSITILT®
PTAM2EX - Dust-EX-proof
Dimensions

Outline drawing
Sensor with
connector M12, axial

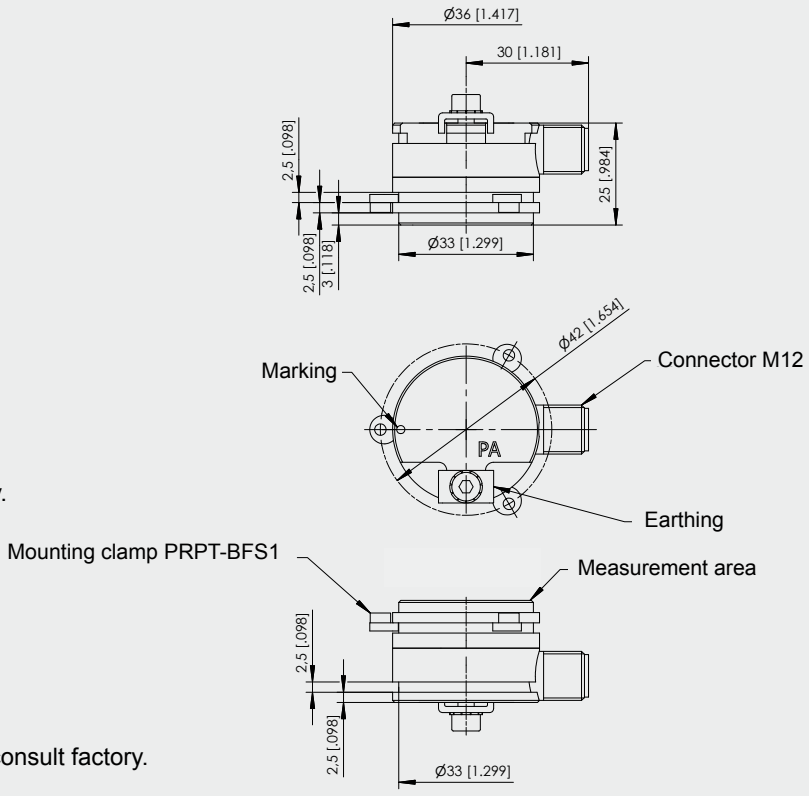


Consult factory for availability.

Weight 50 g approx.
Dimensions informative only.
For guaranteed dimensions consult factory.

Dimensions in mm [inch]

Outline drawing
Sensor with
connector M12,
radial



Consult factory for availability.

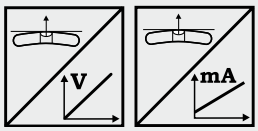
Weight 50 g approx.
Dimensions informative only.
For guaranteed dimensions consult factory.

POSITILT®
PTAM5
Extremely robust Inclination Sensor with Analog Output

Analog Inclination Sensor with 1 or 2 axes in MEMS technology

- **Measurement range ±180° for 1 axis or ±60° for 2 axes**
- **Protection class IP67 / IP69K, optional IP68***
- **Analog output linear**
- **Stainless steel housing**
- **Wear free, high resolution**
- **High shock resistance**
- **Seawater proof**
- **Suitable for use on ocean-going vessels**

* Depth and duration of immersion must be specified!



Specifications

Output	U2 U8 I1	Voltage 0.5 ... 10 V / U_B = 18 ... 36 V Voltage 0.5 ... 4.5 V / U_B = 18 ... 36 V Current 4 ... 20 mA / U_B = 18 ... 36 V, 10 ... 36 V
Measurement range		±180° for 1 axis or ±60° for 2 axes
Resolution		0.05°
Linearity		±0.5 °
Settling time		0.1 s ... 10 s / 90 %, configurable
Protection class		IP67 / IP69K (connector output with IP69K connector cable), optional IP68*
Material		Stainless steel
Mounting		Screws M8
Connection		5 pin connector M12 axial or radial
Shock (non-operational)		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration (non-operational)		EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
EMC, temperature		Refer to output specification

Order code PTAM5

PTAM5 – □ – □ – □ – □ – □ – □ – □

Model name

Axis of inclination
1 = Inclination in X axis (mounting X) ≤ ±180°
2 = Inclination in X and Y axis (mounting XY) ≤ ±60°

Measuring range [in °]
15 ... 180 = ±15°... ±180° in 15° increments

Output
U2 = 0.5 ... 10 V
U8 = 0.5 ... 4,5 V
I1 = 4 ... 20 mA

Characteristic
CW = Increasing signal for CW inclination
CCW = Increasing signal for CCW inclination

Output delay 0 ... 90 %
Tx.x = 0.1 s ... 10 s

Connection
M12R5 = 5-pin socket M12, radial (compatible with 4 pin mating connector)
M12A5 = 5-pin socket M12, axial (compatible with 4 pin mating connector)

Order code connector cable (see accessories page 90) **KAB-...M-M12/4F/G-LITZE**

Order example: PTAM5 - 1 - 180 - I1 - CW - T1.0 - M12R5

POSITILT®
PTDM5
Extremely robust Inclination Sensor with CANopen Output

Digital Inclination Sensor with 1 or 2 axes in MEMS technology

- **Measurement range ±180° for 1 axis or ±60° for 2 axes**
- **Protection class IP67 / IP69K, optional IP68 (bar)**
- **CANopen output**
- **Stainless steel housing**
- **Wear free, high resolution**
- **High shock resistance**
- **Seawaterproof**
- **Suitable for use on ocean-going vessels**

* Depth and duration of immersion must be specified!

CAN

Specifications		
	Output	CANopen (profile „Inclination Sensor“)
	Measurement range	±180° for 1 axis or ±60° for 2 axes
	Resolution	0.05 °
	Linearity	±0.5°
	Settling time	0.1 s ... 10 s / 90% configurable
	Protection class	IP67 / IP69K (connector output with IP69K connector cable), optional IP68*
	Material	Stainless steel
	Mounting	Screws M8
	Connection	5 pin connector M12 axial or radial
	Shock (non-operational)	EN60068-2-27:1993, 100 g/11 ms, 100 shocks
	Vibration (non-operational)	EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
	EMV, temperature	Refer to output specification

Order code PTDM5

PTDM5 – □ – □

Model name

Output

CANOP	= CANopen
CANJ1939	= CAN SAE J1939

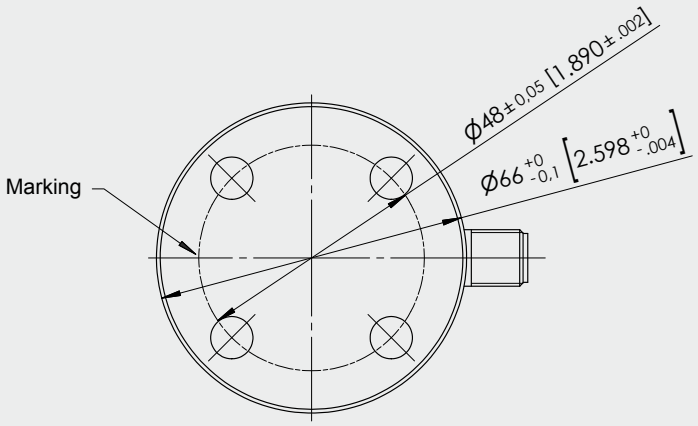
Connection

M12R5/CAN	= 5-pin socket M12, radial
M12A5/CAN	= 5-pin socket M12, axial

Order code connector cable (see accessories page 91) **KAB - XM - M12/5F/G - M12/5M/G - CAN**

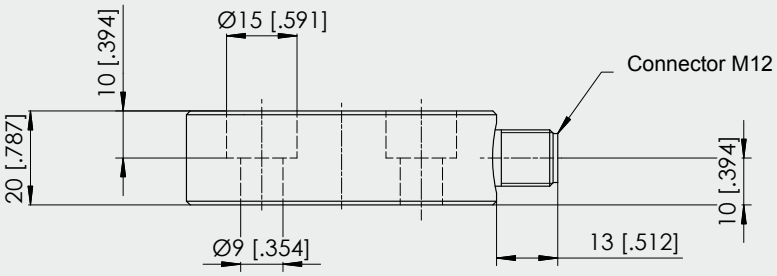
Order example: PTDM5 - CANOP - M12R5/CAN

Outline drawing
M12 radial

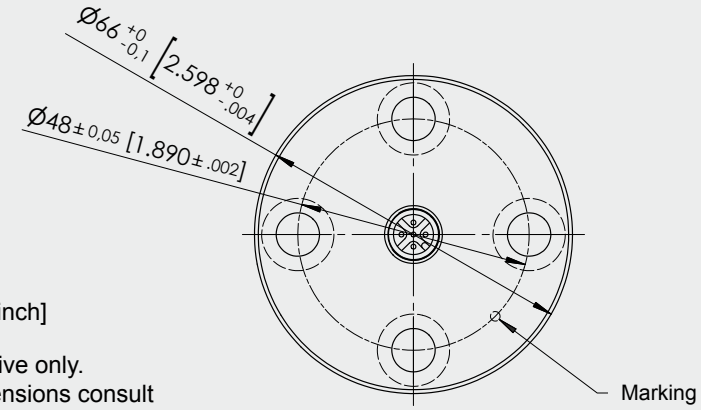


Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

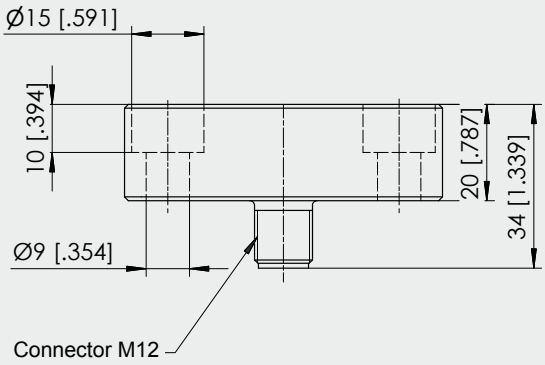


Outline drawing
M12 axial



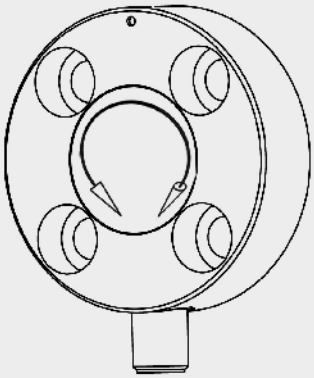
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

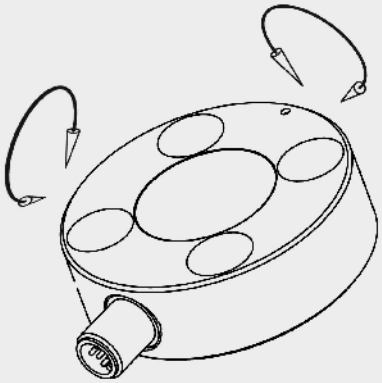


POSITILT®
PTAM5/PTDM5
Dimensions

Orientation of the inclination axes



1 axis

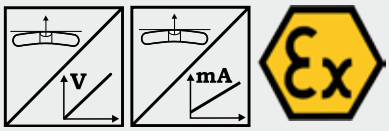


2 axes

POSITILT®
PTAM5EX - Dust EX-proof
Extremely robust Inclination Sensor with Analog Output

Analog Inclination Sensor with 1 or 2 axes in MEMS technology

- **Measurement range ±180° for 1 axis or ±60° for 2 axes**
- **Protection class IP65**
- **Analog output linear**
- **Stainless steel housing**
- **Wear free, high resolution**
- **High shock resistance**
- **Seawater proof, suitable for use on ocean-going vessels**
- **Dust EX-proof: II 3D Ex tD A22 IP65 T80°C X**



Specifications

Output	U2 U8 I1	Voltage 0.5 ... 10 V / U_B = 18 ... 36 V Voltage 0.5 ... 4.5 V / U_B = 18 ... 36 V Current 4 ... 20 mA / U_B = 18 ... 36 V, 10 ... 36 V
Measurement range		±15°... ±180° for 1 axis or ±60° for 2 axes
Resolution		0.05°
Linearity		0.5 °
Settling time		0.1 s ... 10 s / 90 %, configurable
Protection class		IP65
Material		Stainless steel
Connection		5 pin connector M12 axial or radial
Shock (non-operational)		EN60068-2-27:1993, 100 g/11 ms, 100 shocks
Vibration (non-operational)		EN60068-2-6:1995, 20 g/10 Hz-2 kHz, 10 cycles
Temperature		-20 to +40 °C
Dust-Ex-proof standard		DIN EN61241-0, DIN EN61241-1

Order code PTAM5EX

PTAM5EX – □ – □ – □ – □ – □ – □

Model name

Axis of inclination
1 = Inclination in X axis (mounting X) ≤ ±180°
2 = Inclination in X and Y axis (mounting XY) ≤ ±60°

Measuring range [in °]
15 ... 180 = ±15°... ±180° in increments of 15°

Output
U2 = 0.5 ... 10 V
U8 = 0.5 ... 4,5 V
I1 = 4 ... 20 mA

Characteristic
CW = Increasing signal for CW inclination
CCW = Increasing signal for CCW inclination

Output delay 0 ... 90 %
Tx.x = 0.1 s ... 10 s

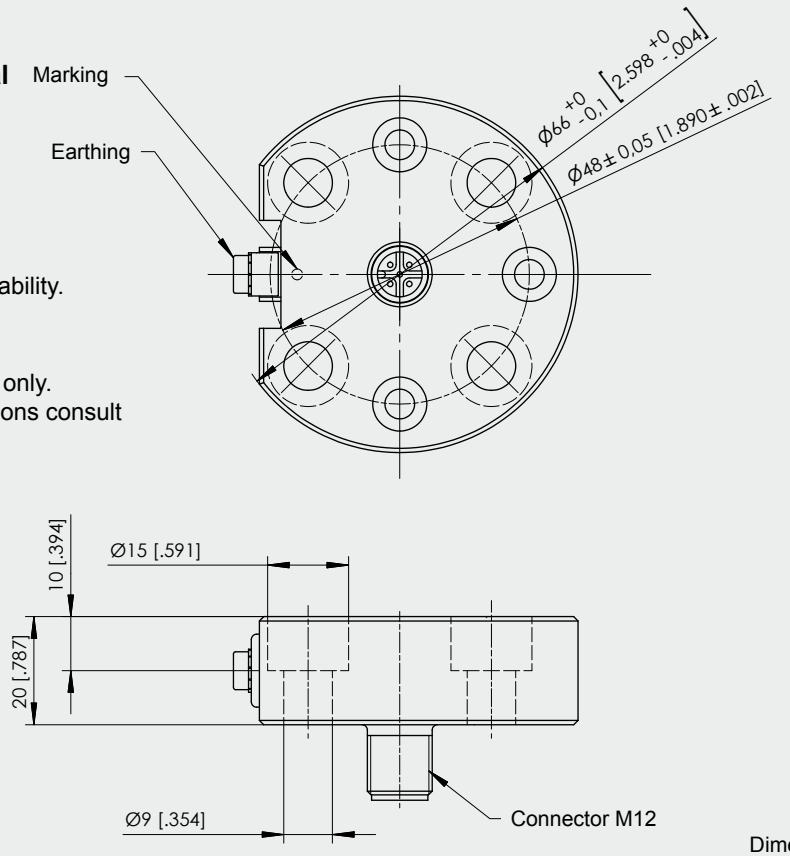
Connection
M12R5 = 5-pin socket M12, radial (compatible with 4 pin mating connector)
M12A5 = 5-pin socket M12, axial (compatible with 4 pin mating connector)

Dust-Ex-proof explanation (see page 55)

Order example: PTAM5EX - 1 - 180 - I1 - CW - T1.0 - M12R5

POSITILT®
PTAM5EX - Dust-EX-proof
Dimensions

Outline drawing Sensor with connector M12, axial

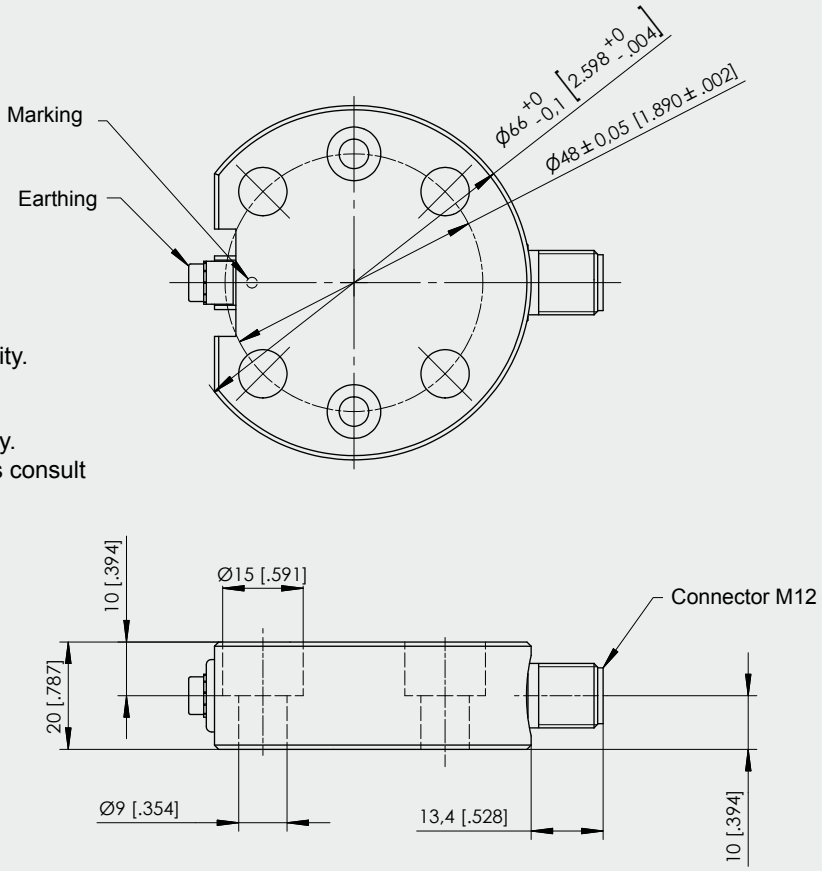


Consult factory for availability.

Weight 50 g approx.
Dimensions informative only.
For guaranteed dimensions consult factory.

Dimensions in mm [inch]

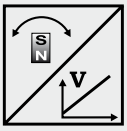
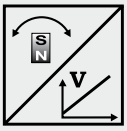
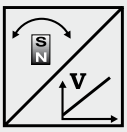
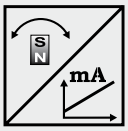
Outline drawing Sensor with connector M12, radial



Consult factory for availability.

Weight 50 g approx.
Dimensions informative only.
For guaranteed dimensions consult factory.

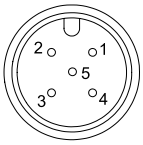
POSITILT®
PTAM
Analog outputs U2, U6, U8 and I1

U2 Voltage Output 0.5 ... 10 V 	Excitation voltage	18 ... 36 V DC
	Excitation current	12 mA typ., 16 mA max.
	Output voltage	0.5 ... 10 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typ.)
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006
U6 Voltage Output 0.5 ... 4.5 V DC 	Excitation voltage	5V DC ±5 %
	Excitation current	16 mA typ., 20 mA max.
	Output voltage	0.5 ... 4.5 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typ.)
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006
U8 Voltage output 0.5 ... 4.5 V 	Excitation voltage	18 ... 36 V DC
	Excitation current	12 mA typ., 16 mA max.
	Output voltage	0.5 ... 4.5 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typ.)
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006
I1 Current Output 4 ... 20 mA 	Excitation voltage	18 ... 36 V DC; 10 ... 36 V for R<250Ω
	Excitation current	32 mA typ., 36 mA max..
	Load resistor	500 Ω max.
	Output current	4 ... 20 mA
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typ.)
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006

Other outputs available on request.

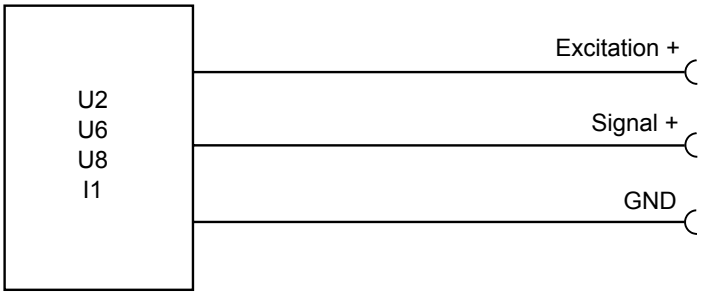
Output signals

Connection



M12A5 / M12R5

View to sensor connector



Signal Wiring

Output signals	Connector pin	Cable color
Excitation +	1	brown
Output X	2	white
GND	3	blue
Output Y	4	black
Do not connect!	5	gray

POSITILT®
PTDM
Output CANopen

Description Inclination sensor with CANopen interface according to CiA 410.

CANopen Interface 	Communication profile	CANopen CiA 301 V 4.02, Slave
	Device profile	Encoder CiA 410 V 1.2
	Configuration services	LSS, CiA Draft Standard 305 (transmission rate, node ID)
	Error Control	Node Guarding, Heartbeat, Emergency Message
	Node ID	Adjustable via LSS or via object dictionary, default: 127
	PDO	1 TxPDO, 0 RxPDO, static mapping
	PDO Modes	Event-/Time triggered, Remote-request, Sync cyclic/acyclic
	SDO	1 Server, 0 Client
	Certified	Yes
	Transmission rate	50 kBaud to 1 MBaud, adjustable via LSS or via object dictionary, default: 125 kBaud
	Bus connection	M12 connector, 5 pin
	Integrated bus terminating resistor	Optional
	Bus, galvanic isolation	No

Specifications	Excitation voltage	8 ... 36 V DC
	Excitation current	15/30 mA typical for 24/12 V, 100 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s.
	Repeatability	1 LSB
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	EN61326-1:2006

POSITILT®
PTDM
Output CAN SAE J1939

Description

Inclination sensor according to standard SAE J1939. Configuration of operating parameters by proprietary-A-Message (peer-to-peer connection). Process data exchange by proprietary-B-Message (broadcast).

Interface J1939

CAN specification	ISO 11898, Basic and Full CAN 2.0 B
Transceiver	24V-compliant, not isolated
Communication profile	SAE J1939
Baud rate	250 kbit/s
Internal temination resistor	120 Ω
Address	Default 247d, configurable

NAME Fields

Arbitrary address capable	1	Yes
Industry group	0	Global
Vehicle system	7Fh (127d)	Non specific
Vehicle system instance	0	
Function	FFh (255d)	Non specific
Function instance	0	
ECU instance	0	
Manufacturer	145h (325d)	Manufacturer ID
Identity number	0nnn	Serial number 21 bit

Parameter Group Numbers (PGN)

Configuration data	PGN EF00h	Proprietary-A (PDU1 peer-to-peer)
Process data	PGN FFnnh	Proprietary-B (PDU2 broadcast); nn Group Extension (PS) configurable

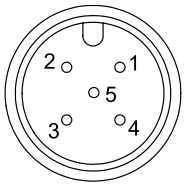
Specifications

Excitation voltage	8 ... 36 V DC
Excitation current	15/30 mA typical for 24/12 V, 100 mA max.
Measuring rate	1 kHz standard
Stability (temperature)	±100 x 10^{-6} / °C f.s.
Repeatability	1 LSB
Operating temperature	-40 ... +85 °C
Protection	Reverse polarity, short circuit
EMC	EN61326-1:2006

Signal wiring / connection

Signal name	Connector pin
Shield	1
Excitation +	2
GND	3
CAN-H	4
CAN-L	5

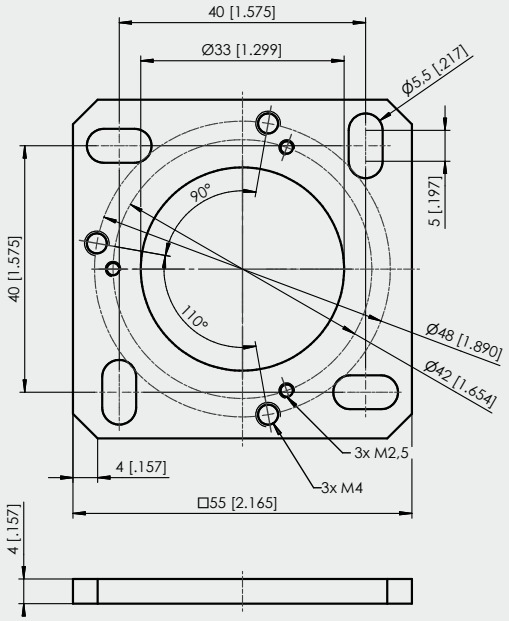
View to sensor connector



POSITILT®
Accessories
Mounting Plates

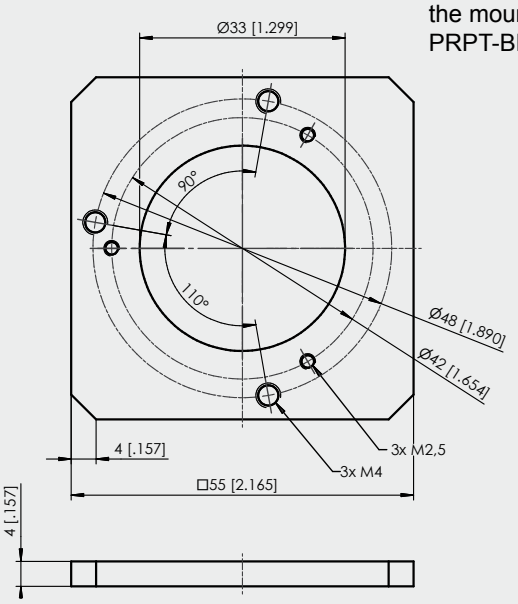
PRPT-BPL1

(screw mounting)
For PTAM2 / PTDM2



PRPT-BPL2

(welding assembly)
For PTAM2 / PTDM2

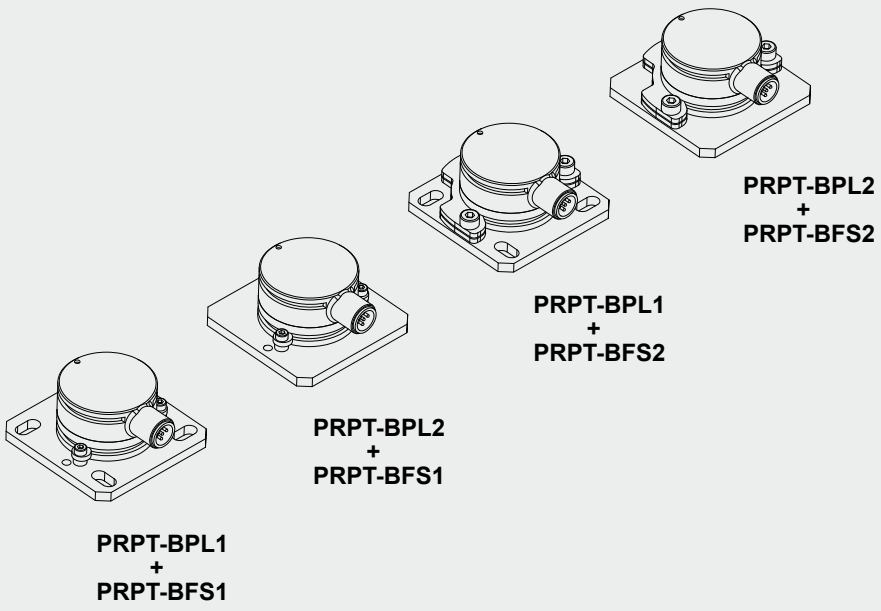


In combination with the mounting clamps PRPT-BFS1 (3 x M2.5) or in combination with the mounting brackets PRPT-BFS2 (3 x M4)

Dimensions in mm [inch]

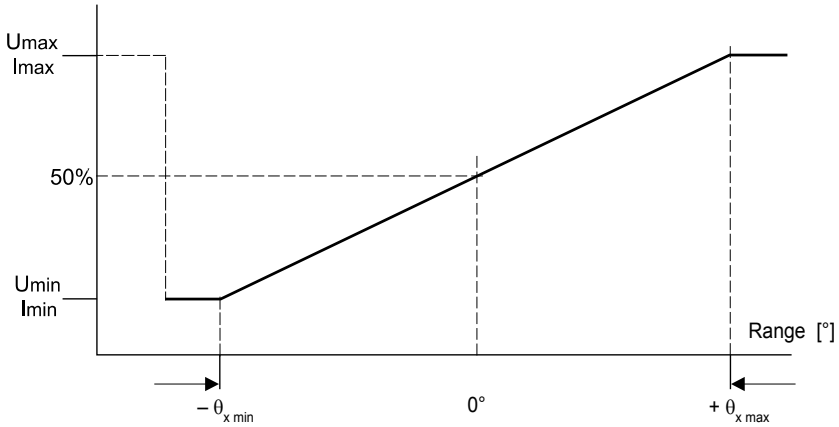
Weight 30 g approx.
Dimensions informative only.
For guaranteed dimensions please consult factory.

Mounting possibilities PTAM2/PTDM2



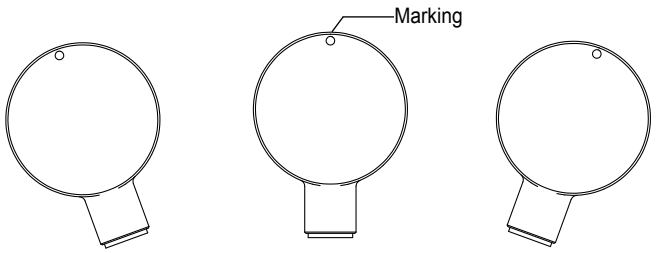
POSITILT®
PTAM/PTDM
Characteristic of the linear output

Output signal



PTAM2/PTDM2

Radial, 1 axis

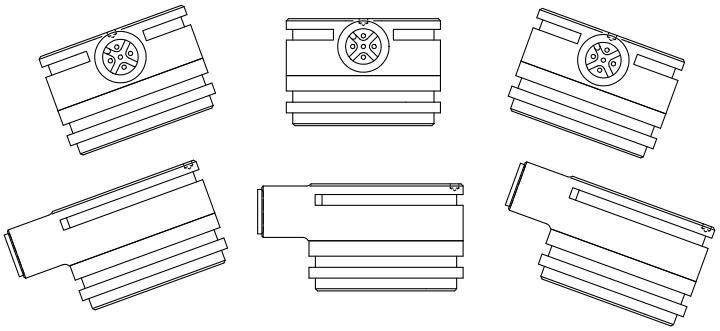


PTAM2/PTDM2

Radial, 2 axes

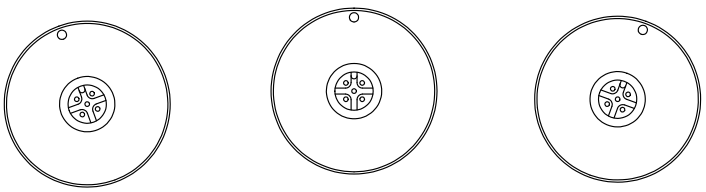
X

Y



PTAM2/PTDM2

Axial, 1 axis

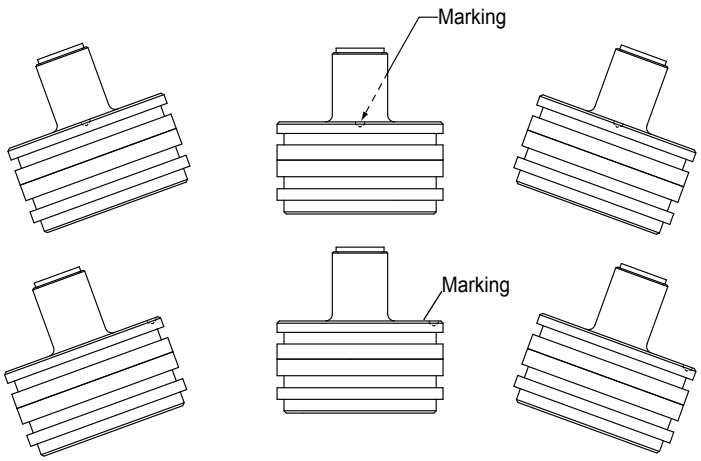


PTAM2/PTDM2

Axial, 2 axes

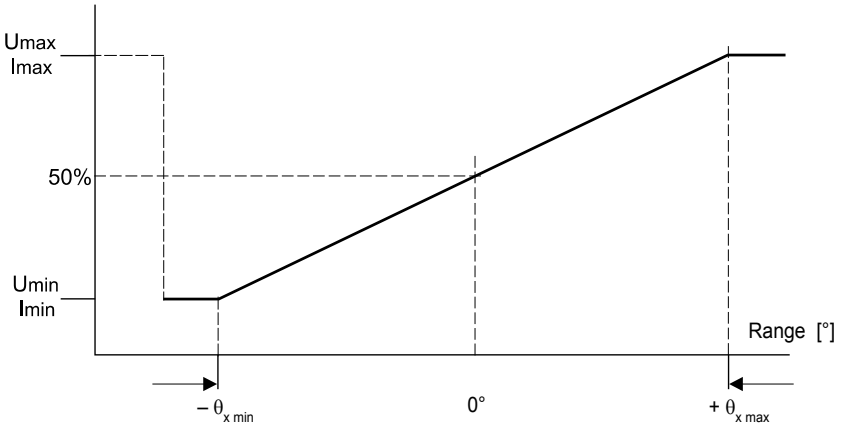
X

Y



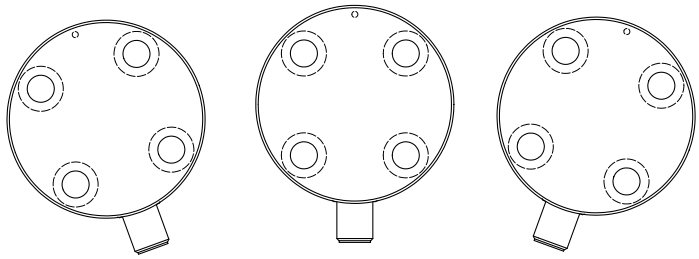
POSITILT®
PTAM/PTDM
Characteristic of the linear output

Output signal



PTAM5/PTDM5

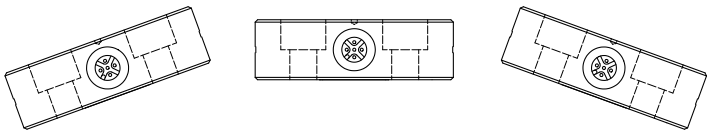
1 axis



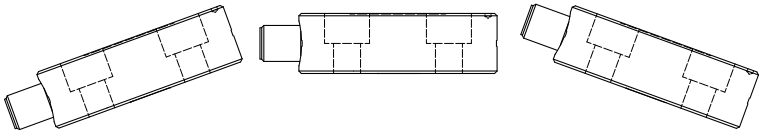
PTAM5/PTDM5

2 axes

X

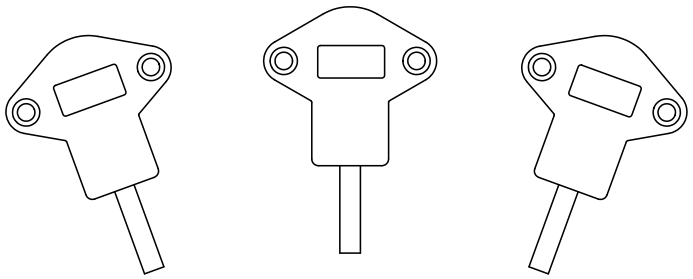


Y



PTAM27/PTDM27

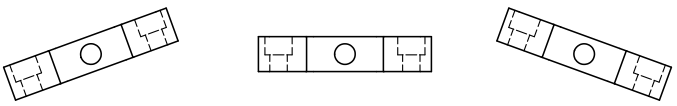
1 axis



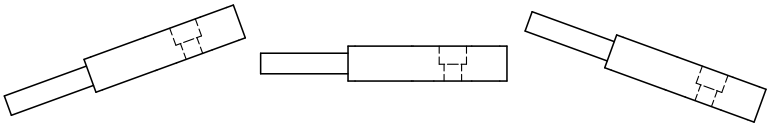
PTAM27/PTDM27

2 axes

X



Y



POSIROT® / POSITILT®
Accessories
Connector Cables

Connector cable for POSIROT®-POSITILT® sensors
4 pins M12

Suitable for 5-pin sensor connectors M12A5 and M12R5

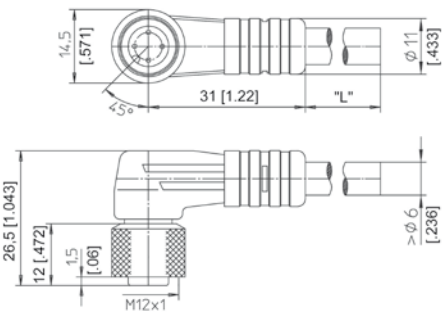
The 4-core screened cable is supplied with a mating 4-pin 90° M12 connector at one end and 4 wires at the other end. Available lengths are 2, 5 and 10 m.

Order code:

KAB - XM - M12/4F/W - LITZE

IP69K: **KAB - XM - M12/4F/W/69K - LITZE**

Length in m



Connector cable for POSIROT®-POSITILT® sensors
4 pins M12

Suitable for 5-pin sensor connectors M12A5 and M12R5

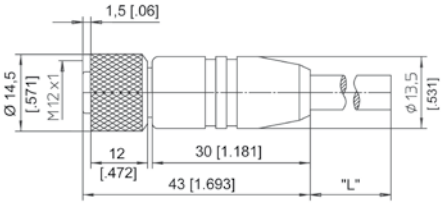
The 4-core screened cable is supplied with a mating 4-pin M12 connector at one end and 4 wires at the other end. Available lengths are 2, 5 and 10 m.

Order code:

KAB - XM - M12/4F/G - LITZE

IP69K: **KAB - XM - M12/4F/G/69K - LITZE**

Length in m



Signal wiring M12, 4 pin

Connector pin / cable color			
1	2	3	4
Brown	White	Blue	Black

Connector cable for POSIROT®-POSITILT® sensors
8 pins M12

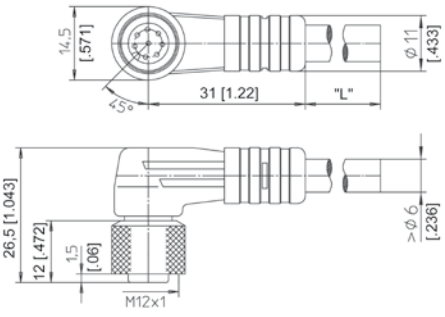
The 8-core screened cable is supplied with a mating 8-pin 90° M12 connector at one end and 8 wires at the other end. Available lengths are 2, 5 and 10 m.

Order code:

KAB - XM - M12/8F/W - LITZE

IP69K: **KAB - XM - M12/8F/W/69K - LITZE**

Length in m



Connector cable for POSIROT®-POSITILT® sensors
8 pins M12

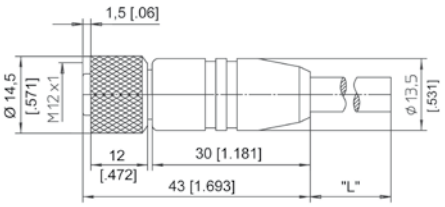
The 8-core screened cable is supplied with a mating 8-pin M12 connector at one end and 8 wires at the other end. Available lengths are 2, 5 and 10 m.

Order code:

KAB - XM - M12/8F/G - LITZE

IP69K: **KAB - XM - M12/8F/G/69K - LITZE**

Length in m



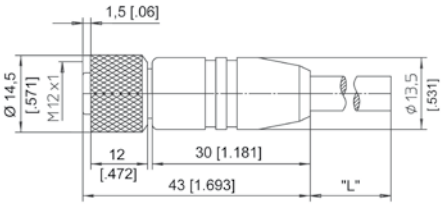
Signal wiring M12, 8 pin

Connector pin / cable color							
1	2	3	4	5	6	7	8
White	Brown	Green	Yellow	Grey	Pink	Blue	Red

POSIROT® / POSITILT®
Accessories
Connector Cables

Connector/bus cable for POSIROT®-POSITILT® sensors
5 pin M12
CAN bus

The 5-lead shielded cable is supplied with a female 5-pin M12 connector at one end and a male 5-pin M12 connector at the other end. Available lengths are 2, 5 and 10 m.



Order code:

KAB - XM - M12/5F/G - M12/5M/G - CAN

IP69K: **KAB - XM - M12/5F/G/69K - M12/5M/G/69K - CAN**

Length in m

T-piece for bus cable
5 pin M12
CAN bus

Order code:

KAB - TCONN - M12/5M - 2M12/5F - CAN

Terminating resistance
5 pin M12
CAN bus

Order code:

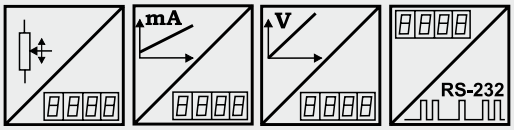
KAB - RTERM - M12/5M/G - CAN

PRODIS®
PD-ADC
Digital process meter for analog sensors

For POSIROT® and POSITILT® sensors with analog outputs

Voltage 0 ... 10 V; 0.5 ... 10V; 0.5 ... 4.5 V
Current 4 ... 20 mA
Potentiometer (voltage divider)

- **Integrated sensor supply (24 V DC)**
- **6-digit LED display**
- **RS-232 interface**
- **Optional 4 comparator outputs**
- **Easy programming**



Description

PRODIS-ADC is designed for use with analog position sensors to display angles and displacements. A high resolution A/D converter processes signals from sensors with voltage output 0 ... 10 V, current output 0/4 ... 20 mA or voltage divider (potentiometer).
The meter is programmable to display values within preset start/end range or values in units as inches, mm or degrees. A tare function or programming lock can be activated with two control terminals.
Sensor excitation is supplied by the meter. With four membrane keys all parameters can be programmed for the special applications. Optional comparator functions with 4 NPN open-collector outputs are available, additional 2 of them have relay output.

Specifications

Display		6-digit, 7-segment LED, height 14 mm, decimal point programmable
Counting rate		1 ... 25/s programmable
Measurement accuracy		±0.05 % f.s.
Excitation voltage/current		24 V DC ±10%/150 mA, residual ripple 1%$_{PP}$; 85-250 V AC, 50-60 Hz/180 mA max.
Sensor excitation		24 V DC/300 mA; 5 V/10 mA
Input		Two channels, each for: Voltage 10V; U1; U2; U3; max. 24V Current I1, load 100 Ω, I_{max}<30 mA Voltage divider R_{min}=500 Ω, 0 ... 5 V One input or the difference between both inputs can be chosen by programming
Control input		2 control inputs 24 V, active low
Comparator Output (option)	Relay NPN	250 V AC/5 A, 30 V DC/5 A 24 V max./50 mA to GND
Connection		Terminal strip 12 pole, excitation 3 pole
Temperature coefficient		±20 x 10^{-6} / °C
Operating temperature		-10...+40 °C
Storage temperature		-20...+85 °C

Order Code PRODIS-ADC

PD-ADC – □ – □

Model Name

Excitation Voltage
24VDC = 24 V DC
230VAC = 85...250 V AC

Options
REL2 = Comparator
DT = Desktop version

Order example: PD - ADC - 24VDC - REL2

PRODIS®
PD-ADC
Digital process meter for analog sensors

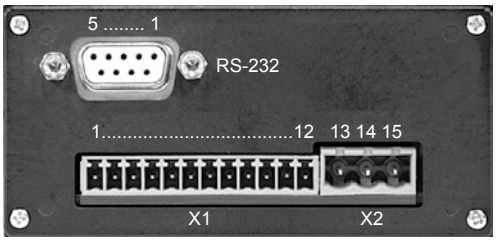
Specifications (Cont´d)	Weight	24 V DC: approx. 250 g; 230 V AC: approx.. 400 g
	Protection class	Front IP60, rear IP40
	Humidity	Max. 80 % R. H., non condensing
	Safety of equipment	EN61010:2002-03
	Electromagnetic compatibility, EMC	EN61326-1:2006

Programmable parameters / value range	Value range offset, limit values	-999999 to +999999
	Divisor, multiplier	0 to 999999
	Other programmable parameters	Decimal point position, display brightness
	Control input terminals	Key lock, display value hold, tare function

Wiring basic unit

Signals	**Connector X1 pin no.**	**Connector X2 pin no.**
Sensor excitation +U_B 24 V	1	
Sensor excitation 0 V (GND)	2	
Control input terminal 1	3	
Control input terminal 2	4	
Voltage input terminal 0 ... 10 V, channel 1	5	
Voltage input terminal 0 ... 10 V, channel 2	6	
Current input terminal 0/4 ... 20 mA, channel 1	7	
Current input terminal 0/4 ... 20 mA, channel 2	8	
Voltage divider input terminal R1K, channel 1	9	
Voltage divider input terminal R1K, channel 2	10	
Reference voltage output terminal 5 V for R1K	11	
GND	12	
PD-ADC-24VDC		
Excitation +24 V		13
Excitation 0 V (GND)		14
PD-ADC-230VAC		
Excitation		13, 15
Protective ground		14

Rear view without comparator outputs



RS-232 interface

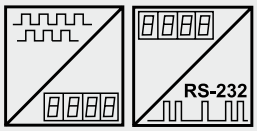
Level	RS-232: ±8 V, galvanically isolated	
Data format	1 start bit, 8 data bits, 1 stop bit, no parity	
Transmission rate	9600 Baud	
Signals	**Connector X3 Pin No.**	**D-Sub Pin No.**
TxD	17	2
RxD	16	3
GND	18	5

Rear view with comparator outputs and outline drawings see pages 98 and 99.

PRODIS®
PD-INC
Digital process meter for incremental sensors

For POSIROT® sensors with incremental outputs

- **Integrated sensor supply**
- **Counting rate up to 250 kHz (<1 MHz edge frequency)**
- **6-digit LED display**
- **RS-232 interface**
- **Optional 4 comparator outputs**
- **Easy programming**



Description

PRODIS-INC is designed for use with incremental position sensors to display angles. The fast counter processes 90° phase shifted A,B signals (quadrature signals) for direction and counting information. Sensor excitation is supplied from the meter. With four membrane keys all parameters can be programmed for the special application. An zero signal and a reference signal can be used for calibration of the measurement system. Optional comparator functions with 4 NPN open-collector outputs are available, additional 2 of them have relay output.

Specifications

Display		6-digit, 7-segment LED, height 14 mm, decimal point programmable
Excitation voltage/current		24 V DC ±10%/150 mA, residual ripple 1%$_{ss}$; 85-250 V AC, 50-60 Hz/180 mA max.
Counting frequency		250 kHz max., 1 MHz edge frequency
Sensor excitation		24 V DC/300 mA or 5V DC/500 mA
Inputs		A, B, Z, T (reference signal)
Connection		Terminal strip 12-pole, excitation 3-pole
Operating temperature		-10 ... +40 °C [14 ... +104 °F]
Storage temperature		-20 ... +85 °C [-4 ... +185 °F]
Weight		24 V DC: approx. 250 g; 230 V AC: approx. 400 g
Protection class		Front IP60, rear IP40
Humidity		Max. 80 % R.H., non condensing
Comparator outputs (option)	Relay NPN	250 V AC/5 A, 30 V DC/5 A 24 V max./50 mA to GND
Safety of equipment		EN61010:2002-03
EMC		EN61326-1:2006

Order Code PRODIS-INC

PD-INC – □ – □ – □ – □

Model name

Excitation voltage
24VDC = 24 V DC
230VAC = 85...250 V AC

Sensor excitation voltage
G24V = 24 V DC
G5V = 5 V DC

Sensor signal
HTL = HTL level with excitation voltage G24V
TTL = TTL level with excitation voltage G5V or G24V

Options
REL2 = Comparator
DT = Desktop version

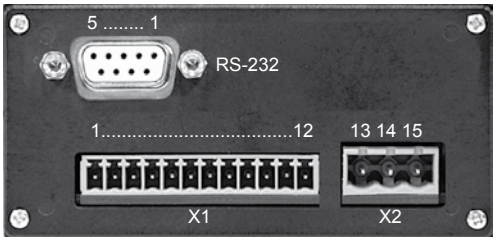
Order example: PD - INC - 24VDC - G24V - HTL - REL2

PRODIS®
PD-INC
Digital process meter for incremental sensors

Programmable parameters / value range	Value range display, offset, limit values	-999999 to +999999
	Divisor, Multiplier	0 to 999999
	Other programmable parameters	Counting direction, decimal point position, last-value memory, Z signal evaluation, display brightness
	Signal T	Manual zero, key lock, display value hold, Z release, relative measurement activation

Wiring basic unit	**Signals**	**Connector X1 pin no.**	**Connector X2 pin no.**
	Sensor $+U_B$	1	
	Sensor 0 V (GND)	2	
	Signal A	4	
	Signal $\overline{A}$	5	
	Signal B	6	
	Signal $\overline{B}$	7	
	Signal Z (zero signal)	8	
	Signal $\overline{Z}$ (zero signal)	9	
	Signal T (reference signal)	10	
	Signal $\overline{T}$ (reference signal)	11	
	GND	12	
	PD-INC-24VDC Excitation +24 V Excitation 0 V (GND)		 13 14
	PD-INC-230VAC Excitation Protective ground		 13, 15 14

Rear view without comparator outputs



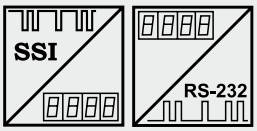
RS-232 interface	Level	RS-232: ±8 V, galvanically isolated	
	Data format	1 start bit, 8 data bits, 1 stop bit, no parity	
	Transmission rate	4800 / 9600 / ... / 115200 Baud	
	Signals	**Connector X3 Pin No.**	**D-Sub Pin No.**
	TxD	17	2
	RxD	16	3
	GND	18	5

Rear view with comparator outputs and outline drawings see pages 98 and 99.

PRODIS®
PD-SSI
Digital process meter for sensors with SSI output

For POSIROT® sensors with SSI output

- **Integrated sensor supply**
- **6-digit LED display**
- **RS-232 interface**
- **Easy programming**



PRODIS-SSI is designed for use with SSI position sensors to display angle and displacement. Via the CLOCK lines, a sequence of pulses will be transmitted, the input DATA lines will read the sensor´s serial bit sequence. The meter is programmable to display values within preset start/end range or values in units as inches, mm or degrees. A tare function or programming lock can be activated with two control terminals.
Sensor excitation is supplied by the meter. With four membrane keys, all parameters can be programmed for the special applications.

Specifications

Display	6-digit, 7-segment LED, 14 mm high, decimal point programmable
Sampling rate	100/s
Excitation voltage/current	24 V DC ±10%/150 mA, residual ripple 1%$_{PP}$; 85-250 V AC, 50-60 Hz/180 mA max.
Sensor excitation	24 V DC/200 mA or 5 V DC/200 mA
Inputs	DATA, $\overline{\text{DATA}}$ (RS-422)
Outputs	CLOCK, $\overline{\text{CLOCK}}$ (RS-422)
Control inputs	2 control inputs 24 V, active low
Connection	Terminal strip 12-pole, excitation 3-pole
Operating temperature	-10 ... +40 °C [14 ... +104 °F]
Storage temperature	-20 ... +85 °C [-4 ... +185 °F]
Weight	24 V DC: approx. 250 g; 230 V AC: approx. 400 g

Order Code PRODIS-SSI

PD-SSI – □ – □ – □

Model name

Excitation Voltage
24VDC = 24 V DC
230VAC = 85...250 V AC

Sensor Excitation
G24V = 24 V DC
G5V = 5 V DC

Options
DT = Desktop version

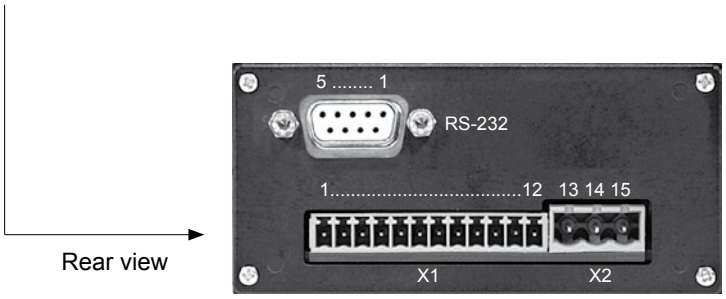
Order example: PD - SSI - 230VAC - G5V

PRODIS®
PD-SSI
Digital process meter for sensors with SSI output

Specifications (continuation)	Protection class	Front IP60, back IP40
	Humidity	Max. 80 % r.h., non condensing
	Safety of equipment	DIN EN61010:2002-03
	Electromagnetic compatibility, EMC	EN61326-1:2006

Programmable Parameters / Value range	Value range offset, limit values	-999999 to +999999
	Divisor, multiplier	0 to 999999
	Other programmable parameters	Decimal point position, display brightness
	Programmable SSI parameters	Gray/dual code, sign, sampling rate, data format
	Control inputs	Key lock, display value hold, tare function

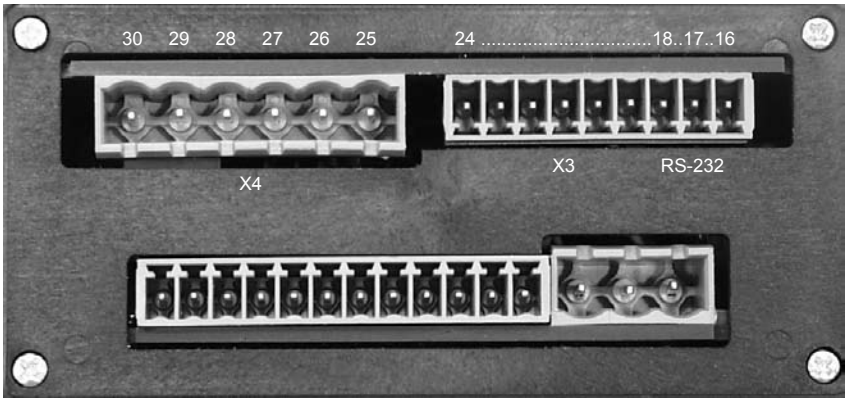
	Signals	**Connector X1 pin no.**	**Connector X2 pin no.**
Wiring basic unit	Sensor excitation $+U_B$ (24 V or 5 V)	1	
	Sensor excitation 0 V (GND)	2	
	Control input 1: tare function	3	
	Control input 2: programming lock	4	
	Not used	5 / 6	
	Output CLOCK	7	
	Output $\overline{\text{CLOCK}}$	8	
	Input DATA	9	
	Input $\overline{\text{DATA}}$	10	
	Do not connect!	11	
	GND	12	
	PD-SSI-24VDC Excitation +24 V Excitation 0 V (GND)		 13 14
	PD-SSI-230VAC Excitation Protective ground		 13, 15 14



RS-232 interface	Level	RS-232: ±8 V, galvanically isolated	
	Data format	1 start bit, 8 data bits, 1 stop bit, no parity	
	Transmission rate	9600 Baud	
	Signals	**Connector X3 pin no.**	**D-Sub pin no.**
	TxD	17	2
	RxD	16	3
	GND	18	5

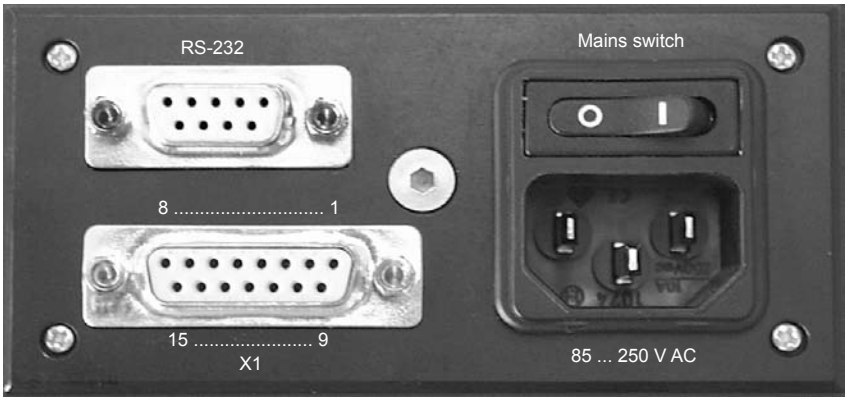
Outline drawings see the following pages.

Rear view with comparator outputs



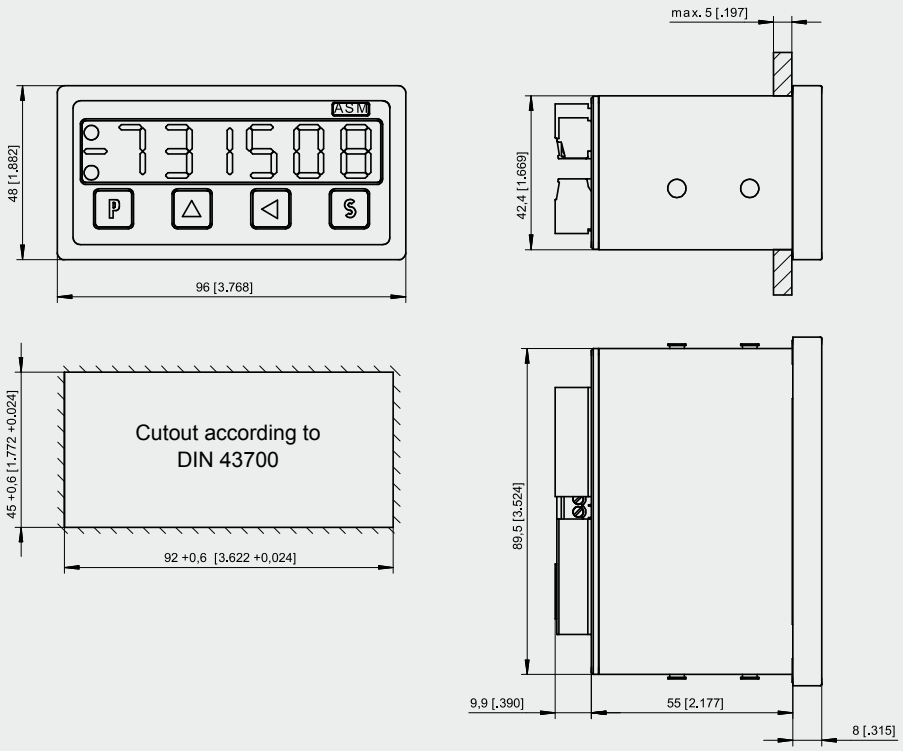
Comparator function (option)	Comparator	Comparator output				
		NPN Collector	Connector X3 pin no.	Relay	Connector X4 pin no.	LED
	Comparator 1	NPN1	20	Relay 1 NO NC Common	 25 27 26	LED1
	Comparator 2	NPN2	21	Relay 2 NO NC Common	 28 30 29	LED2
	Comparator 3	NPN3	22			
	Comparator 4	NPN4	23			
		NPN GND NPN U_B (+24V)	24 19			

Desktop version (option)



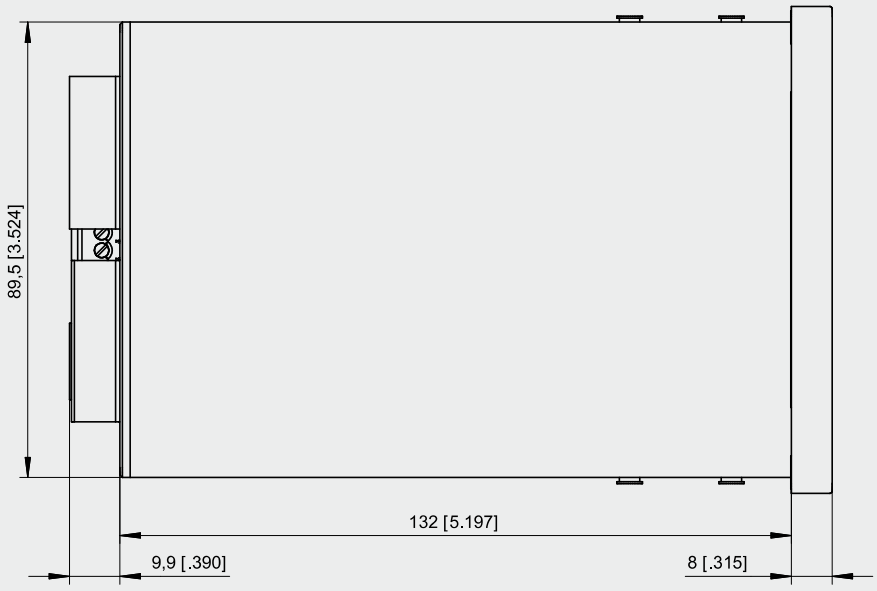
Wiring of connector X1 see table at page 93 (PD-ADC), page 95 (PD-INC) resp. page 97 (PD-SSI).

Outline drawing



Dimensions in mm [inch]

PD-XXX-24VDC



Dimensions in mm [inch]

PD-XXX-230VAC

Dimensions informative only.
For guaranteed dimensions please consult factory.

The Company and the Products

ASM is a leading company in the development and production of linear and angular position sensors. ASM sensors are used in industrial and commercial applications, where angle, inclination, displacement or position measurements are used to automate, test or monitor processes.

Innovative Technologies that Solve Your Measuring Requirements

Our product range consists of various technologies to measure linear and rotative positions. With over 25 years of experience in the position sensor market, ASM offers innovative solutions for the most demanding applications.

ASM Products Represent Quality and Reliability

The quality and precision of our products ensures consistent productivity. Our continuous research and development in our laboratories as well as our DIN EN 9001:2000 certified quality management system guarantees these high standards.

ASM – Global Supplier of Position Sensors

ASM products are sold world-wide through sales offices, subsidiaries and a network of 50 distributors. With this global presence we ensure being close to our customers and provide quick product availability wherever ASM sensors are needed.

The product range

- **POSIROT®** Magnetic Angle Sensors / Encoders
- **POSITILT®** Inclination Sensors
- **POSIWIRE®** Cable Actuated Position Sensors WS
- **POSITAPE®** Tape Actuated Position Sensors WB
- **POSICHRON®** Magnetostrictive Position Sensors
- **POSIMAG®** Magnetic Scale Position Sensors
- **PRODIS®** Digital Process Meters

ASM Product Catalogs

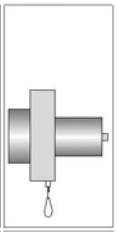
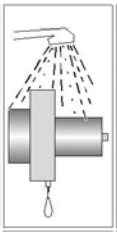
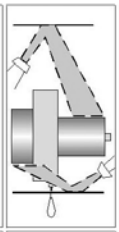
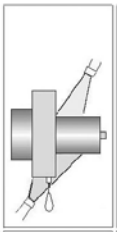
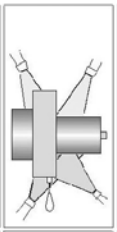
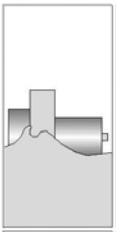
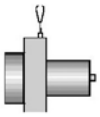
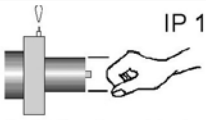
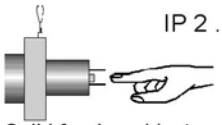
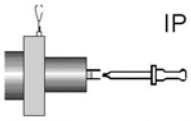
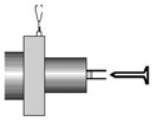
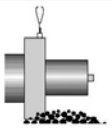
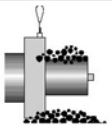
- Please send me detailed information/catalog on the following products:

☐ POSIWIRE®	Cable Actuated Position Sensors
☐ POSITAPE®	Tape Actuated Position Sensors
☐ POSICHRON®	Magnetostrictive Position Sensors
☐ POSIMAG®	Magnetic Scale Position Sensors

Fax +49-(0)8123-986-500
for UK: +44-(0)845-1222-124

Company: _____
Mr./Ms.: _____
Department: _____
Street: _____
City: _____
Tel. / Fax: _____
e-mail: _____
Website: _____

Protection classes according to EN 60529

2nd char. numeral: Protection against ingress of water / 1st char.numeral: Protection against solid foreign objects									
Protection against ...	Non protected	Falling water drops vertical / 15°		Spraying water	Splashing water	Water jets	Powerful water jets	Temporary immersion	Continuous Immersion
IEC 529 DIN 40050	IP .. 0	IP .. 1	IP .. 2	IP .. 3	IP .. 4	IP .. 5	IP .. 6	IP .. 7	IP .. 8
 IP 0 .. Non protected	IP 00								
 IP 1 .. Solid foreign objects diameter ≥ 50 mm	IP 10	IP 11	IP 12						
 IP 2 .. Solid foreign objects diameter ≥ 12,5 mm	IP 20	IP 21	IP 22	IP 23					
 IP 3 .. Solid foreign objects diameter ≥ 2,5 mm	IP 30	IP 31	IP 32	IP 33	IP 34				
 IP 4 .. Solid foreign objects diameter ≥ 1 mm	IP 40	IP 41	IP 42	IP 43	IP 44				
 IP 5 .. Dust-protected	IP 50		IP 52	IP 53	IP 54	IP 55	IP 56		
 IP 6 .. Dust-tight	IP 60				IP 64	IP 65	IP 66	IP 67	IP 68*

* Depth and duration of immersion must be specified!

IP69K - Water at high pressure / steam jet cleaning

perfect in sensors.

ASM GmbH
Am Bleichbach 18 - 22
85452 Moosinning
Germany
Tel. +49-(0)8123-986-0
Fax +49-(0)8123-986-500
info@asm-sensor.de
www.asm-sensor.de

ASM Sales Office UK
Tanyard House, High Street
Measham, Derbs DE12 7HR
United Kingdom
Tel. +44-(0)845-1222-123
Fax +44-(0)845-1222-124
uk@asm-sensor.com
www.asm-sensor.com

ASM Agence France
1, rue du Neuland
67560 Rosheim
France
Tel. +33-(0)3-88 49 25 35
Fax +33-(0)3-88 48 06 23
france@asm-sensor.com
www.asm-sensor.com

ASM Sensors, Inc.
650 W. Grand Ave., Unit 205
Elmhurst, IL 60126
USA
Tel. +1-(630)-832 3202
Fax +1-(630)-832 3204
info@asmsensors.com
www.asmsensors.com

 03.2011