positilt®
Inclination Sensors

PTAM27

Inclination sensor with robust plastic housing

- **Measurement range up to ±180°**
- **Single or dual axis measurement**
- **Protection class IP67**
- **Longitudinal water barrier; potted electronics**
- **Wear-free MEMS technology, shock resistant**

Product versions

V / mA	**Analog output**
V / mA	**Analog output, tare function**

V / mA

PTAM27 - Inclination sensor in MEMS technology

Version with analog output

Specifications

			Order options
Number of axes of inclination	1 axis: Inclination in X axis 2 axes: Inclination in X and Y axes	1	**1** **2**
Measurement range	±15 ... 180° with 1 axis or 2 axes	2	**15 ... 180**
Output	Voltage 0.5 ... 10 V Voltage 0.5 ... 4.5 V Voltage 0.5 ... 4.5 V Current 4 ... 20 mA, 3 wire	3	**U2** **U6** **U8** **I1**
Resolution	0.1°		
Linearity	1 axis: ±0.5° (≤75°), ±1° (>75°) 2 axes: ±1° (≤75°), ±1.5° (>75°)		
Mounting	Screws M4: DIN 912, DIN 6912, DIN 7984		
Protection class	IP67		
Signal characteristics	Signal increasing CW Signal increasing CCW	4	**CW** **CCW**
Output delay	0.1 s ... 10 s / 90%	5	**Tx.x**
Connection	Cable, standard length 2 m Deutsch connector, not shielded	6	**KAB2M**
Housing material	Plastic		
Shock	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks		
Vibration	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles		
Temperature range	-40° ... +85°C		
Weight	approx. 20 g (without cable)		
EMC	DIN EN 61326-1:2013		

Order code

PTAM27 – 1 – 2 – 3 – 4 – 5 – 6

Order example: PTAM27 – 1 – 90 – I1 – CW – T1.0 – KAB2M

PTAM27 - Inclination sensor in MEMS technology

Version with analog output, tare function

Specifications

			Order options
Number of axes of inclination	1 axis: Inclination in X axis 2 axes: Inclination in X and Y axes	1	**1** **2**
Measurement range	±15 ... 180° with 1 axis or 2 axes	2	**15 ... 180**
Output	Voltage 0.5 ... 10 V, tare function Voltage 0.5 ... 4.5 V, tare function Voltage 0.5 ... 4.5 V, tare function Current 4 ... 20 mA, 3 wire, tare fuction	3	**U2/PMZ** **U6/PMZ** **U8/PMZ** **I1/PMZ**
Resolution	0.1°		
Linearity	1 axis: ±0.5° (≤75°), ±1° (>75°) 2 axes: ±1° (≤75°), ±1.5° (>75°)		
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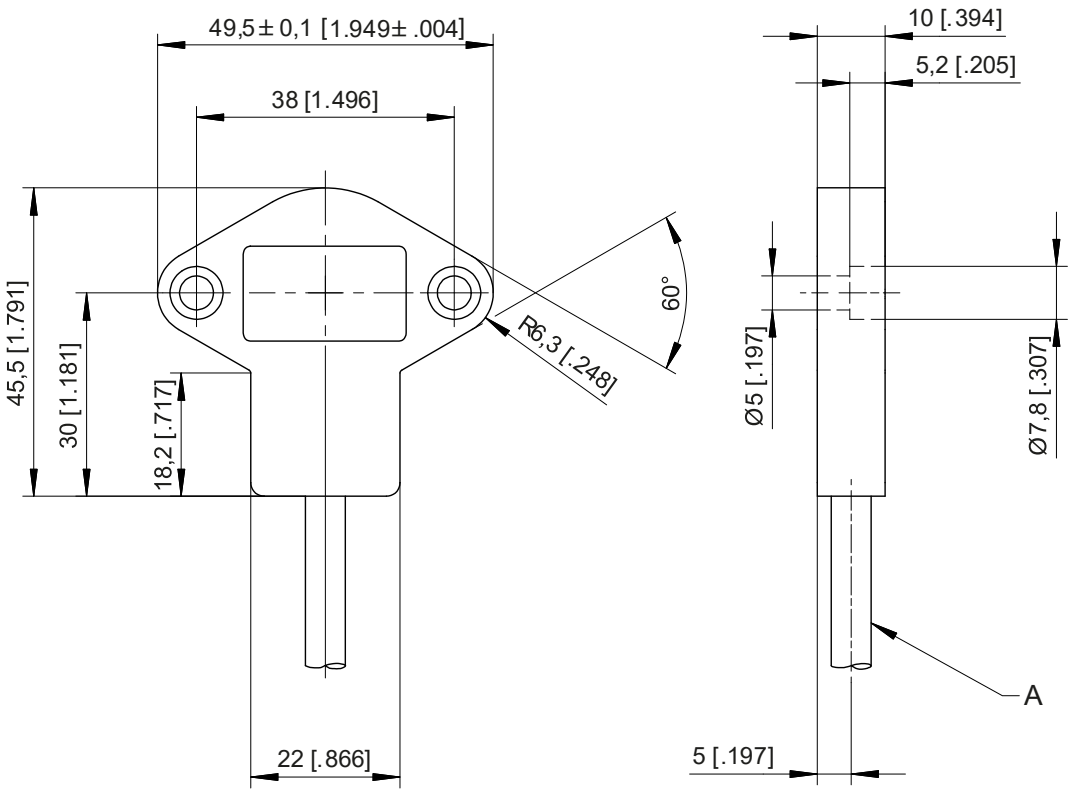
PTAM27 – 1 – 2 – 3 – 4 – 5 – 6

Order example: PTAM27 – 1 – 90 – I1/PMZ – CW – T1.0 – KAB2M

Dimensions



A – Cable

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

Output specification

Analog output

U2 Voltage output 0.5 ... 10 V 	Excitation voltage	18 … 36 V DC
	Excitation current	typical 12 mA max. 16 mA
	Output voltage	0.5 ... 10 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
	EMC	DIN EN 61326-1:2013

U6 Voltage output 0.5 … 4.5 V 	Excitation voltage	5 V DC ±10 %
	Excitation current	typical 13 mA max. 16 mA
	Output voltage	10 … 90 % of the excitation voltage
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
	EMC	DIN EN 61326-1:2013

U8 Voltage output 0.5 … 4,5 V 	Excitation voltage	18 … 36 V DC
	Excitation current	typical 12 mA max. 16 mA
	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. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
	EMC	DIN EN 61326-1:2013

I1 Current output 4 … 20 mA, 3 wires 	Excitation voltage	18 … 36 V DC
	Excitation current	typical 32 mA max. 36 mA
	Load R_L	500 Ω max.
	Output current	4 … 20 mA
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
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Analog output, tare function

U2/PMZ Voltage output 0.5 ... 10 V 	Excitation voltage	18 … 36 V DC
	Excitation current	typical 12 mA max. 16 mA
	Output voltage	0.5 ... 10 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
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U6/PMZ Voltage output 0.5 … 4.5 V 	Excitation volta5ge	5 V DC ±10 %
	Excitation current	typical 13 mA max. 16 mA
	Output voltage	10 … 90 % of the excitation voltage
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	±100 x 10^{-6} / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	-40 … +85 °C
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U8/PMZ Voltage output 0.5 … 4,5 V 	Excitation voltage	18 … 36 V DC
	Excitation current	typical 12 mA max. 16 mA
	Output voltage	0.5 … 4,5 V DC
	Output current	2 mA max.
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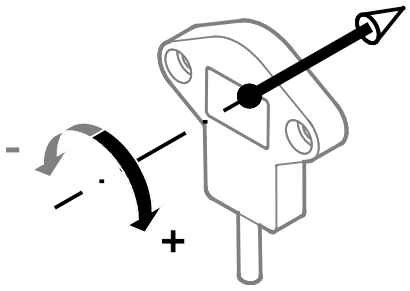
Tare function ZERO (PMZ)

Programming the zero point by the customer:

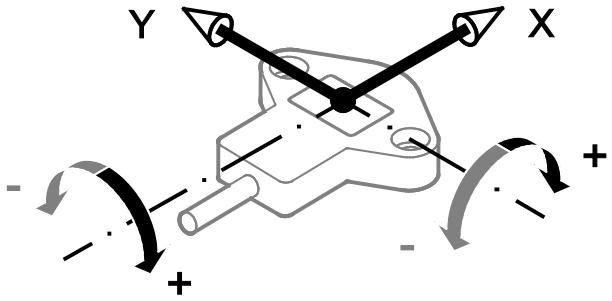
The tare function “ZERO“ allows to program the zero point of the output range by using a signal ZERO available at the connector. This Signal ZERO must be connected with GND via a push button. At first the sensor must be brought into the zero position. Pushing the button for 2 seconds sets the actual position as the zero point. The values are available as well after switching off the sensor.

Position of the inclination axis and characteristic of the linear output PTxM27

PTxM27
1 axis



PTxM27
2 axes



Output signal