

# Inclinometers

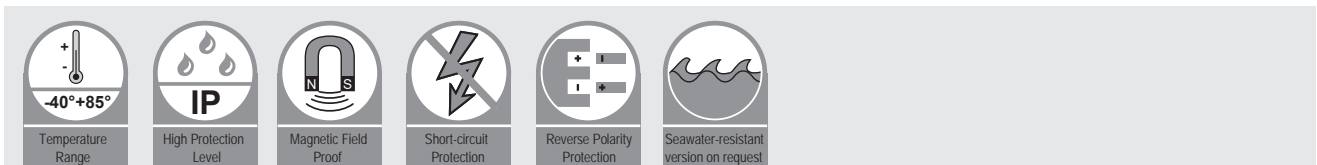
MEMS 1-Axis CANopen

91 -2 XXXX



Inclination sensors offer an easy and efficient way of monitoring spatial orientation without the need for mechanical linkages – a real advantage for design engineers.

- MEMS Micro Electro Mechanical Systems
- High Accuracy of 0.1° and Resolution of 0.01°
- Measurement range: 80° (2- axis)
- CANopen interface



## Highlight:

- Small design, minimal space requirement
- CANopen interface
- IP69K Rated for Harsh Environments
- Optional metal housing or PBT housing
- Having a cable outlet and M12 plug connection

### Mechanical characteristics

Weight	200 g
Protection Class	IP 68 / IP 69K
Work temperature	- 40 C° ... 80 C°
Storage temperature	- 40 C° ... 85 C°
Housing material	Aluminum or PBT
Shock Resistance(EN 60068-2-27)	100 g, 6ms
Vibration resistance	1,5 mm (10 Hz – 58 Hz) ≤ 20 g (58 Hz to 2000 Hz)
MTTF	300 year

### CANopen Interface

Interface	CANopen Profil DS 410
Code	Binary
Transmission Rate	Max. 1 M(Default 125 K )
Node ID	Default 1h (1 ... 127) Can be programmed to set
Termination resistors	Default off,
Transmission cycle	≥ 1 ms

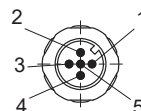
### Electrical characteristics

Power supply	10 ... 30 VDC
Consumption(no load)	60 mA (at 24 V)
Measurement	2-axis (X/Y)
Measurement range	10°, 20°, 40°, 60°, 80°,
Accuracy	0,1°
Resolution	0,01°
Temperature gradient	0,004°/ K
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
Electrical Lifetime	>100000h
Conforms to CE requirements	EN 61000-6-2: 2005; acc. to EN 61000-6-4: 2007-09
RoHS acc.to	2011/65/EU

- CANopen Profile according to DS-410  
The following parameters can be programmable
- Resolution
  - Preset
  - Baud Rate and Node ID
  - Heart
  - Moving average-Filter

## Terminal assignment

Signal	+V	0 V	CAN(GND)	CAN(Low)	CAN(High)
M12	2	3	1	5	4
Cable	RD	YE	GN	BN	WH

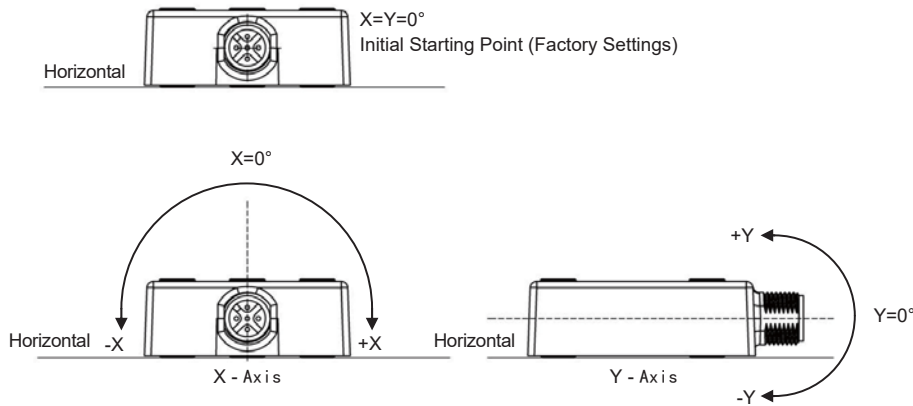


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## Measurement Axes



Order code

91 - 2 X X X X  
Type a b c d

**a** Measuring range

- 1 = ± 10°
- 2 = ± 20°
- 3 = ± 40°
- 4 = ± 60°
- 5 = ± 80°

**b** Output circuit / Power supply

- 4 = CANopen / 10 ... 30 VDC

**c** Housing Material

- 1 = PBT
- 2 = Aluminum

**d** Type of connection

- 1 = Cable
- 2 = M12 5 pin (without mating connector)
- 3 = 2 x M12 5 pin (without mating connector)

## Accessories

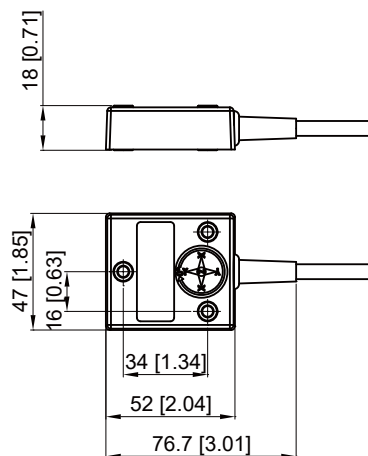
Connector

M12 Connectors, self-assembly (Female)

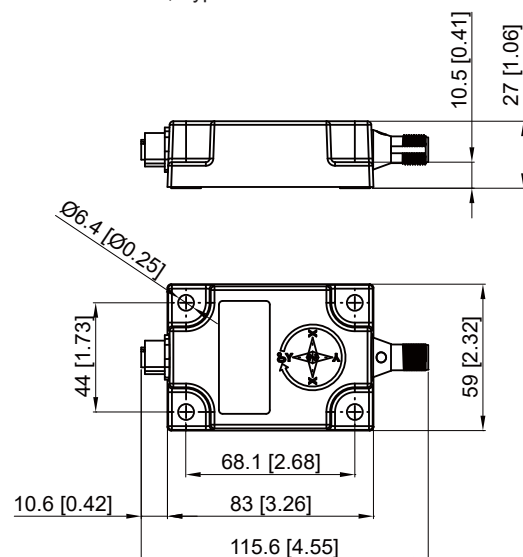
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## Dimensions

PBT, Type of Connection 1



Aluminum, Type of connection 3



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