

# Inclinometers

<b>Inclinometer MEMS / capacitive</b>	<b>IS60, 2-dimensional</b>	<b>CANopen</b>
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The inclinometer IS60 permits 2-dimensional inclinations to be measured. Versions are available for the measuring ranges  $\pm 10^\circ$ ,  $\pm 45^\circ$  or  $\pm 60^\circ$ .

The sensor has a standardised CANopen interface, which enables easy configuration and start-up. All the parameters are stored in the internal permanent memory.

Can be supplied with customer-specific parameterising.



**CANopen**



High protection level



Shock / vibration resistant



Reverse polarity protection

## Robust and reliable

- Protection rating IP68
- Robust plastic housing
- High shock resistance

## User-friendly and accurate

- High resolution and accuracy
- Programmable vibration suppression
- High sampling rate and bandwidth

## Order code Inclinometer IS60

<b>8.IS60</b>	<b>. 2 X 5 2 3</b>
Type	a b c d e

**a** Measuring direction  
2 = 2-dimensional x/y

**b** Measuring range  
1 =  $\pm 10^\circ$   
2 =  $\pm 45^\circ$   
3 =  $\pm 60^\circ$

**c** Interface  
5 = CANopen

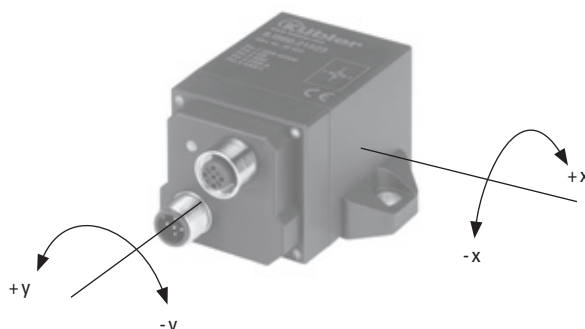
**d** Power supply  
2 = 10 ... 30 V DC

**e** Type of connection  
3 = 2 x M12 connector

Connection technology	Order No.
<b>Connector, self-assembly (straight)</b>	
M12 female connector with coupling, Bus in	<b>05.B-8151-0/9</b>
M12 male connector with external thread, Bus out	<b>05.BS-8151-0/9</b>
<b>Cordset, pre-assembled</b>	
M12 female connector with coupling, 6 m [19.69'] PVC cable, Bus in	<b>05.00.6021.2211.006M</b>
M12 male connector with external thread, 6 m [19.69'] PVC cable, Bus out	<b>05.00.6021.2411.006M</b>

Further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories)  
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: [www.kuebler.com/connection\\_technology](http://www.kuebler.com/connection_technology)

## Direction of inclination



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## Technical data

### Mechanical characteristics

<b>Connection CAN</b>	M12 connector, 5-pin
<b>Weight</b>	approx. 0.2 kg [7.06 oz]
<b>Protection acc. to EN 60529</b>	IP68
<b>Working temperature range</b>	-40°C ... +80°C [-40°F ... +176°F]
<b>Material</b>	plastic PA12-GF30
<b>Shock resistance</b>	30 g, 11 ms
<b>Vibration resistance</b>	55 Hz, 1 mm [0.04]
<b>Dimensions</b>	68 x 42.5 x 42.5 mm [2.68 x 1.67 x 1.67"]

### Interface characteristics CANopen

<b>Interface</b>	CANopen according to CiA DS-301, Profile to CiA DSP-410
<b>Data rates</b>	10 kbit/s, 20 kbit/s, 50 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 800 kbit/s, 1 Mbit/s
<b>Functions</b>	TPDO (RTR, cyclic, event-driven, synchronized), parameterization per SDO and object register, digital filter (Butterworth Low pass, 8th order), SYNC Consumer, EMCY Producer, output and control of internal device temperature ( $\pm 2.0$ K accuracy), failure control with the help of Heartbeat or Nodeguarding / Lifeguarding
<b>Note ID</b>	1...127

### Electrical characteristics

<b>Power supply</b>	10 ... 30 V DC
<b>Power consumption (no load)</b>	40 ... 105 mA
<b>Reverse polarity protection (+V)</b>	yes
<b>Measuring axes</b>	2 (x/y)
<b>Measuring range</b>	$\pm 10^\circ, \pm 45^\circ, \pm 60^\circ$
<b>Resolution</b>	0,1°
<b>Linearity deviation</b>	max. $\pm 0.4^\circ$
<b>Calibration accuracy – at 25°C [77°F]</b>	$\pm 0.1^\circ$ (Zero point and final values)
<b>Temperature drift (Zero point)</b>	typ. $\pm 0.008^\circ/\text{K}$
<b>Sampling rate</b>	100 Hz
<b>CE compliant acc. to</b>	EN 61326-2-3 EMC requirements for transducers
<b>RoHS compliant acc. to</b>	guideline 2011/65/EU

A full description of the technical data can be found in the relevant product manual at [www.kuebler.com](http://www.kuebler.com).

## Terminal assignment

PIN	Signal	Assignment
1	CAN_SHLD	Shield
2	CAN V+	Power supply (+24 V DC)
3	CAN_GND	0 V
4	CAN_H	CAN_H Bus cable
5	CAN_L	CAN_L Bus cable



## Dimensions

Dimensions in mm [inch]

