

# Inclinometers

<b>Inclinometer</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.



**CANopen**



High IP value



Shock / vibration resistant



Reverse polarity protection

### Robust and reliable

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

### User-friendly and accurate

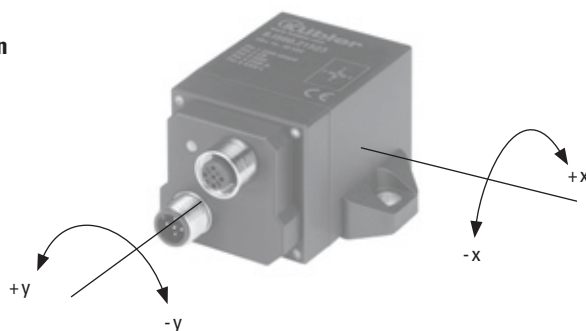
- High resolution and accuracy
- Programmable vibration suppression
- High sampling rate and bandwidth

<b>Order code</b> <b>Inclinometer IS60</b>	<b>8.IS60</b> Type	<b>. 2 X 5 2 3</b> a b c d e			
<b>a</b> Measuring direction 2 = 2-dimensional X/Y	<b>b</b> Measuring range 1 = $\pm 10^\circ$ 2 = $\pm 45^\circ$ 3 = $\pm 60^\circ$	<b>c</b> Interface 5 = CANopen	<b>d</b> Supply voltage 2 = 10 ... 30 V DC	<b>e</b> Type of connection 1 = 2 x M12 connector	

Connection Technology		
<b>Connectors, self-assembly</b> (straight)	Coupling M12 for Bus in Connector M12 for Bus out	<b>05.B-8151/9</b> <b>05.BS-8151-0/9</b>
<b>Cordset, pre-assembled with 6 m PVC cable</b>	Coupling M12 for Bus in Connector M12 for Bus out	<b>05.00.6021.2211.006M</b> <b>05.00.6021.2411.006M</b>

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



1) In relation to the supply voltage 5 V DC  
2) Only in combination with interface 4

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Mechanical characteristics	
<b>Connection CAN</b>	M12 connector, 5-pin
<b>Weight</b>	approx. 0.2 kg
<b>Protection EN 60 529</b>	IP68
<b>Working temperature range</b>	-40°C ... +80°C
<b>Materials</b>	plastic PBT-GF20-V0
<b>Shock resistance</b>	30 g 11ms
<b>Vibration resistance</b>	55Hz (1mm)
<b>Dimensions</b>	68 x 42.5 x 42.5 mm

Interface characteristics CANopen	
<b>Interface</b>	CANopen according to CiA DS-301, Profile to CiA DSP-410
<b>Data rates</b>	10k, 20k, 50k, 125k, 250k, 500k, 800k bit/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

General electrical characteristics	
<b>Supply voltage</b>	10 ... 30 V DC
<b>Power consumption (no load)</b>	40 ... 105 mA
<b>Reverse polarity protection (<math>U_B</math>)</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>	for version $\pm 10^\circ$ 0.05° for version $\pm 45^\circ$ and $\pm 60^\circ$ 0.1°
<b>Absolute accuracy</b>	for version $\pm 10^\circ$ 0.2° for version $\pm 45^\circ$ 0.3° for version $\pm 60^\circ$ 0.4°
<b>Calibration accuracy (at 25°C)</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>	EU guideline 2002/95/EG

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+	Supply voltage (+24 V DC)
3	CAN_GND	GND
4	CAN_H	CAN_H Bus cable
5	CAN_L	CAN_L-Bus cable



### Dimensions

