

Inclinometers

**Inclinometer
MEMS / capacitive**

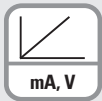
IS40, 2-dimensional

Analog



The inclinometer IS40 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 compact robust construction makes this sensor the ideal device for measuring angles in harsh environments.



Output



High protection level



Shock / vibration resistant



Reverse polarity protection

Innovative

- Rugged construction.
- High resolution and accuracy.
- Current or voltage interface.
- High shock resistance.
- Zero point adjustment.

Compact / Many applications

- Small design – minimal space requirement.
- For use in vehicle technology, solar installations, commercial vehicles, cranes and hoists.

Order code Inclinometer IS40

8.IS40 . 2XXX1
Type

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 1 = 4 ... 20 mA ¹⁾ 3 = 0.1 ... 4.9 V DC ¹⁾ 4 = ratiometric 2 % ... 98 % ²⁾	d Power supply 1 = 5 V DC 2 = 10 ... 30 V DC	e Type of connection 1 = M12 connector
---	--	---	---	--

Connection technology

Order no.

Cordset, pre-assembled

M12 female connector with coupling nut, 5-pin
2 m [6.56'] PVC cable

05.00.6081.2211.002M

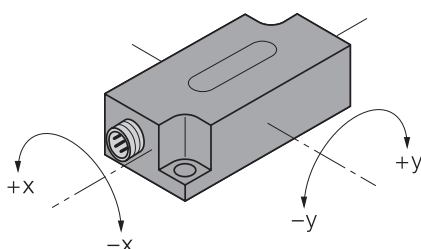
Connector, self-assembly (straight)

M12 female connector with coupling nut, 5-pin

8.0000.5116.0000

Further accessories can be found in the accessories section or in the accessories area of our website at: 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

Direction of inclination



1) Available only in combination with power supply 10 ... 30 V DC
2) In relation to the power supply 5 V DC (available only in combination with power supply 5 V DC)

Inclinometers

Inclinometer MEMS / capacitive	IS40, 2-dimensional	Analog
---	----------------------------	---------------

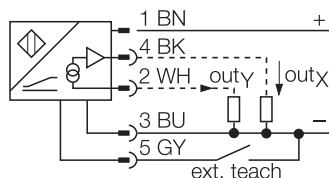
Technical data

Mechanical characteristics	
Connection	M12 connector
Weight	50 g [1.76 oz]
Protection acc. to EN 60529	IP68 / IP69k
Working temperature range	-30°C ... +70°C [-22°F ... +158°F]
Material	plastic PBT-GF20-V0
Shock resistance	300 m/s ² , 11 ms
Vibration resistance	100 m/s ² , 10 ... 2000 Hz
Dimensions	60 x 30 x 20 mm [2.36 x 1.18 x 0.79"]

Interface characteristics	
Voltage output	at +V 10 ... 30 V DC 0.1 ... 4.9 V short-circuit protected to +V at +V 5 V DC 2 ... 98 % ratiometric (in relation to +V)
Load resistance voltage output	≥ 40 kΩ
Output impedance voltage output	99 ... 105 Ω
Current output	4 ... 20 mA
Load resistance current output	≤ 200 Ω

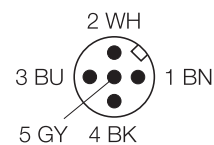
Electrical characteristics	
Power supply	5 V DC ±0.25 V or 10 ... 30 V DC (depending on version)
Power consumption (no load)	≤ 20 mA
Reverse polarity protection	yes
Measuring axes	2 (x/y)
Measuring range	±10°, ±45°, ±60°
Resolution	for version ±10° ≤ 0.05° for version ±45° ≤ 0.1° for version ±60° ≤ 0.15°
Repeat accuracy	≤ 0.2 % of measuring range ≤ 0.1 % after a warm-up period of 30 min
Absolute accuracy	for version ±10° 0.3° for version ±45° and ±60° 0.5°
Cross sensitivity	3 %
Temperature drift	for version ±10° typ. 0.01°/K for version ±45° and ±60° 0.03°/K
Reaction time	0.1 s – time that the output signal requires to reach 90 % full scale, if the angle is changed from -60° to +60°
Zero point adjustment	for version ±10° ±5° for version ±45° and ±60° ±15°
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Connections



ext. teach: if this input is connected to 0 V, then the output of the inclinometer is reset to 0°.

Terminal assignment



Dimensions

Dimensions in mm [inch]

