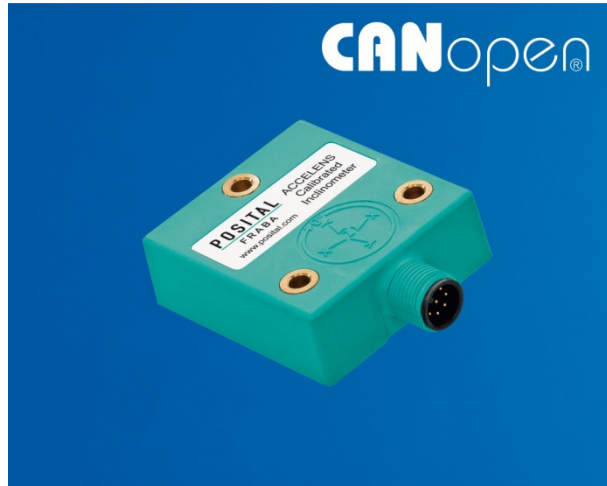


ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE



The ACS industrial inclinometers are compact solutions for determining the inclination in both single and dual axes with remarkable precision and at a lower expense. The molded housing provides the mechanical stability and the fully encapsulated sensor has a high environmental protection making it ideal for measuring tilt / slope in industrial environments.

Main Features

- Dual Axis Inclinometer $\pm 80^\circ$
- Single Axis Inclinometer 360°
- High Resolution: 0.01°
- High Accuracy: 0.1°
- Rugged Glass Fiber Reinforced PBT Housing
- High Mechanical Stability
- Active Linearization
- Temperature Compensation
- Interface: CANopen
- Housing Protection Class: IP69K, IP68, IP67

Programmable Parameters

- Resolution
- Preset
- Baud Rate
- Software Filters

Electrical Features

- Highly Integrated Circuit in SMD-Technology
- Polarity Inversion Protection
- Over-Voltage-Peak Protection
- Termination Resistor

Applications

- Measurement of Inclinations and Rotational Movements
- Cranes and Construction Machines
- Robotic Arms & Positioning Systems
- Mobile Platforms
- Marine & Offshore Machinery

ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE

Technical Data

Electrical Data

Model	ACS-080	ACS-360
Measurement Range	± 80°	360°
Number of Axes	2	1
Resolution	0.01°	
Accuracy (T = -10 °C to +40 °C)*	0.1°	
Sensor Response Time	10 ms (without filter)	
Recommended Measurement Rate	Up to 10 Hz	
Interface	CANopen (In Conformance to DS410) Transceiver According ISO 11898, Galvanically Isolated by Opto-Couplers	
Transmission Rate	Adjustable: Max. 1 MBaud (Factory Setting : 125 kBaud)	
Addressing	Programmable Node-id from 1 to 127 (Factory Setting: 1)	
Supply Voltage	10 to 30 VDC (Absolute Maximum Ratings)	
Current Consumption	Max. 57 mA at 10 V DC; Max. 53 mA at 24 V DC	
EMC	Emitted Interference: EN 61000-6-4	
	Noise Immunity: EN 61000-6-2	
Connection	Connector Output, 5 Pin M12 male (A-coded)	

Mechanical Data

Housing Material	Glass Fiber Reinforced PBT (Polybutylene Terephthalate)
Potting Material	Polyurethane
Shock (EN 60068-2-27)*	≤ 100 g (half sine, 6 ms)
Vibration (EN 60068-2-6)*	1.5 mm (10Hz to 58Hz) & ≤ 20 g (58 Hz to 2000 Hz)
Weight	75 gm / 3 oz

Environmental Conditions

Operating Temperature	-40 °C to +85 °C / -40 °F to 185 °F
Humidity	98 % Relative Humidity, Non-Condensing
Protection Class (EN 60529) *further data available on request	IP 69K (With Appropriate Counter Connector) , IP68, IP67

ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE

MTBF Data

Failure Rate [FIT]	759
MTBF [Hours]	1,317,822
MTBF [Years]	150

The above mentioned data were calculated for ACS' electronics under the following conditions:

SNA: Non-mobile operation

Tu: 40°C - Mean component of ambient temperature

Zf: Continuous operation for 8760 h per year

Programmable Parameters

Resolution per 1°	The resolution parameter per 1° is used to program the desired number (1°, 0.1° and 0.01°) of steps per 1°.
Preset Value	The Preset value is the desired position value, which should be reached at a certain physical position of the axis. The position value is set to the desired process value by the preset parameter.
Moving Average-Filter	This filter can be used to adjust the bandwidth of measuring values to minimize the influence of vibration. Factory Setting: Moving average filter activated for 20 subsequent readouts.
Digital Recursive Filter	This filter can be used for weighting the last measured value with the last previous value. This is useful to suppress sudden peaks in the angle measurement.
Transmission Rate	Adjustable - Min. 20 kBaud; Max. 1 MBaud Factory Setting : 125 kBaud
Address (Node ID)	Adjustable from 1 to 127 Factory setting: Node ID=1

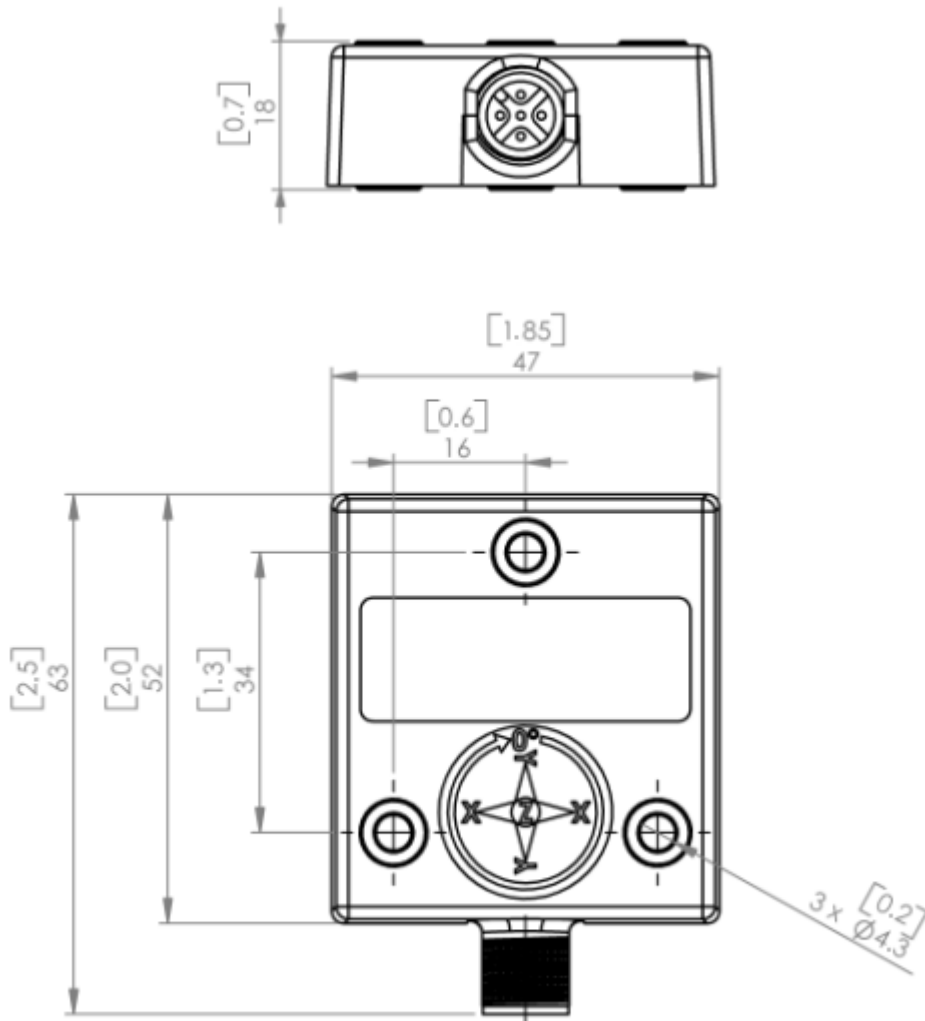
ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE

Programmable CAN Transmission Modes

Polled Mode	By a remote-transmission-request telegram, the connected host calls for the current process value. The inclinometer reads the current position value, calculates eventually set-parameters and sends back the obtained process value by the same identifier.
Cyclic Mode	The inclinometer transmits cyclically the current process value, without being called by the host. The cycle time can be programmed in milliseconds for values between 1 ms and 65536 ms.
Sync Mode	The inclinometer answers with current process value after receiving a sync telegram. The parameter sync counter can be programmed to skip a certain number of sync telegrams before answering again.
Heartbeat Function	A node signals its communication status by cyclically transmitting a heartbeat message. This message is received by one or any number of members (Heartbeat Consumers) in the bus and so they can control the dedicated node (Heartbeat Producer).

ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE

Mechanical Drawing – Industrial Housing



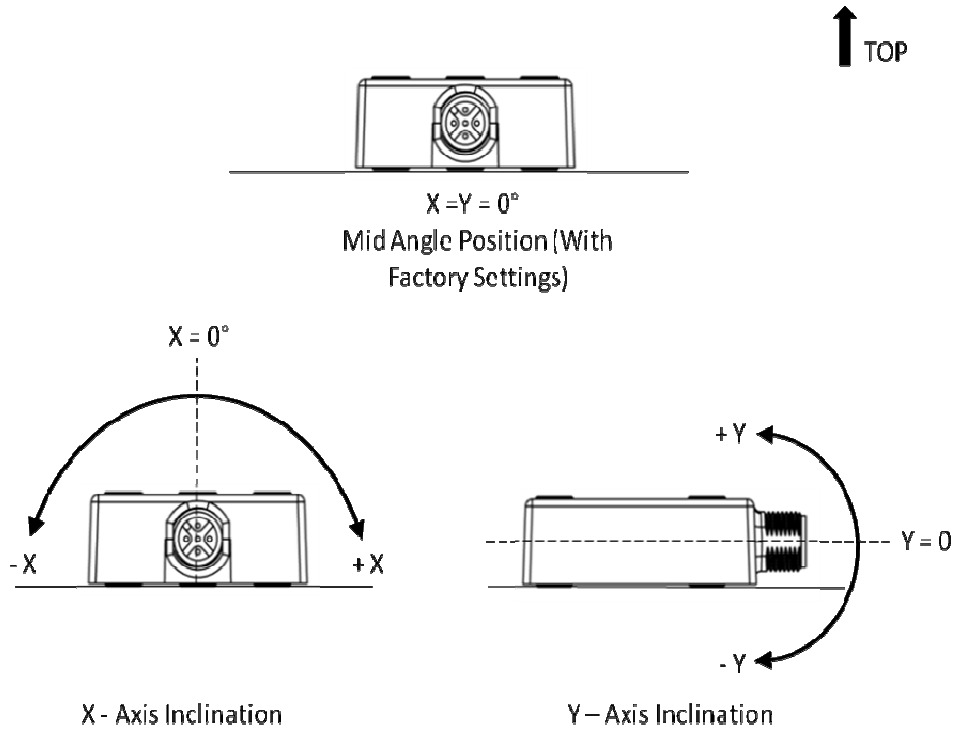
Dimensions in mm and [inches]

For more detailed drawings please refer website.

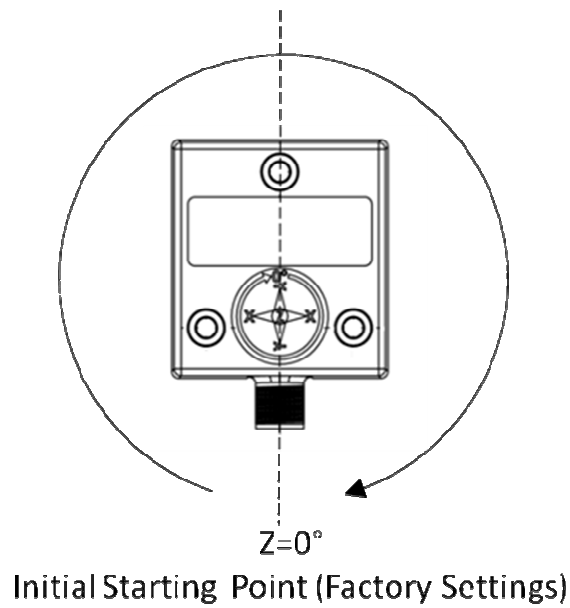
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Measurement Axes

ACS-080 – Dual Axis Inclinometer



ACS-360 – Single Axis Inclinometer



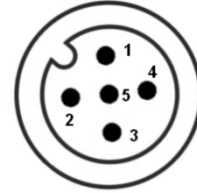
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Pin Assignment

The inclinometer is connected via a 5 pin M12 A-coded round connector.

(Standard M12, Male side at sensor, Female at connector counterpart or connection cable)

Signal	5 pin round connector pin number
CAN Ground	1
+Vs: Supply Voltage	2
0 V Supply voltage	3
CAN High	4
CAN Low	5

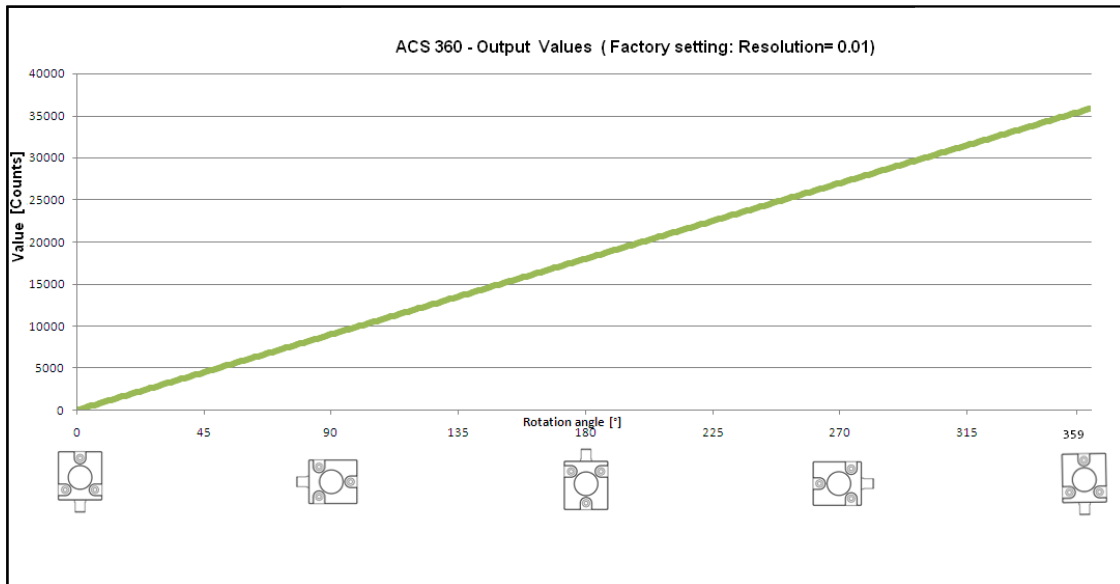


For more detailed information about setup, measurement axes and programming, refer ACS CANopen Manual. [Click here](#)

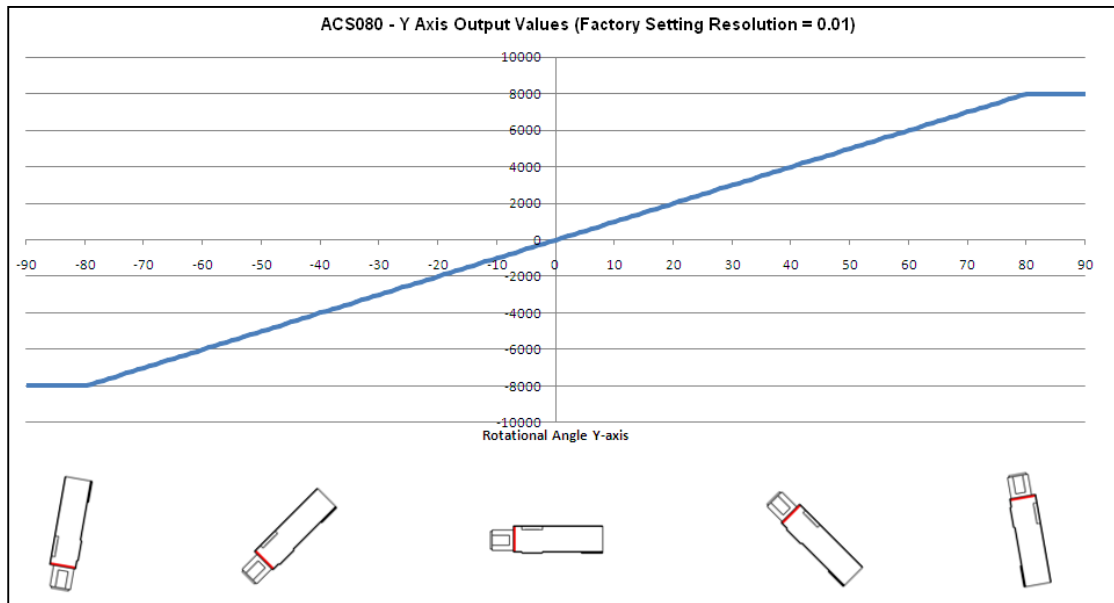
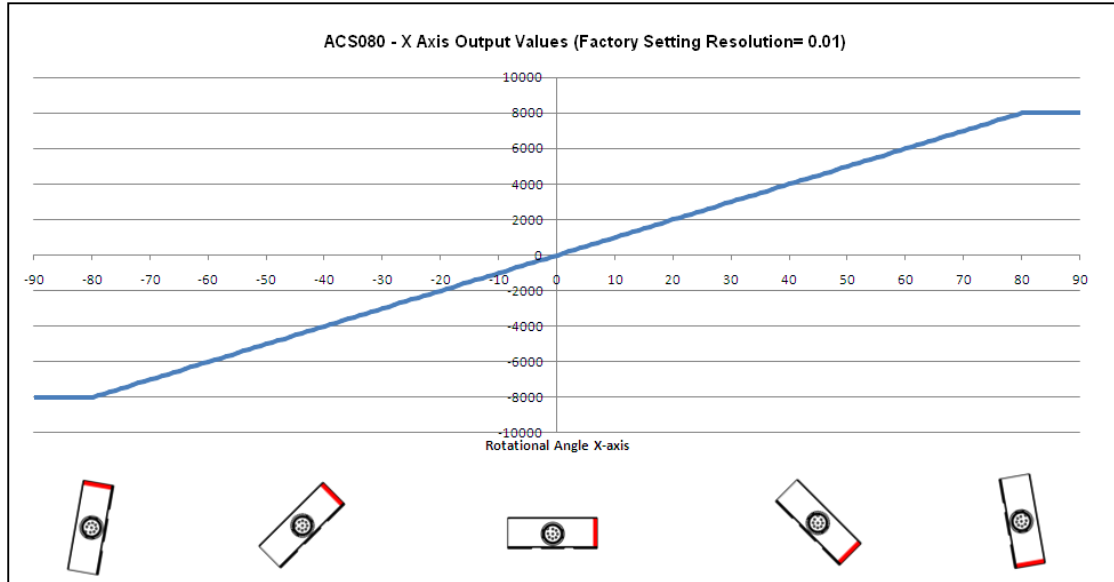


Please read the instruction leaflet carefully prior to installation. [Click here](#)

ACS CANopen Output



ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE



ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE

Models/Ordering Description

Description	Type key	ACS-	XXX-	X-	XX	XX-	X	X	X-	XX
Range	360° (1 axis) ± 80° (2 axis)	360 080								
Number of axis	One for 360° Version Two for ± 80° Version			1 2						
Interface	CANopen				CA					
Version	Software Version					01				
Mounting	Vertical for 360° Version Horizontal for ± 80° Version						V H			
Housing Material	Industrial (PBT)							E		
Inclinometer Series	ACS II								2	
Connection	Connector									PM

Accessories

Article No	Description
10001978	Female M12, 5pin A-coded connector, with 2m PUR shielded cable
10012182	Female M12, 5pin A-coded connector, with 5m PUR shielded cable
10005631	External terminal resistors for higher baud rate transmissions

Disclaimer

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ACCELENS INDUSTRIAL INCLINOMETER CANOPEN INTERFACE

Check out some of the other POSITAL products

Draw Wire Sensor to Measure Linear Displacements



To measure rotary movements or rotary displacements, an absolute magnetic rotary encoder can be used. The contact-free measuring sensor stage of the MCD Sensor does not have any abrasion. The Sensor can be connected directly to digital control units via SSI, CANopen or Analog Interface.

[More Information](#)

Heavy Duty Magnetic Encoder Line for Toughest Environments



To measure linear movements or linear displacements, an absolute magnetic rotary encoder can be combined with a draw wire sensor. The contact-free measuring sensor stage of the MCD Sensor doesn't have any abrasion. The sensor can directly be connected to digital control units via SSI- or CANopen or Analog Interface.

[More Information](#)

Tilt Sensors to Measure Inclinations up to 360°



ACS is developed on advanced MEMS technology based capacitance measurement. The sensor is a pre-calibrated device which can be put into immediate operation, upon simple and easy installation with a three point mount and setting of preset. Its compact design, installation "anywhere" and other versatile features makes it an ideal choice for very genuine and accurate measurement.

[More Information](#)

ACCELENS INDUSTRIAL INCLINOMETER
CANOPEN INTERFACE

Typical Type-Keys

ACS-360-1-CA01-VE2-PM

ACS-080-2-CA01-HE2-PM