

Inclinometer

Specifications

Type	2 axis inclinometer, +85°...-85° for each axis
Range	AX060001, AX060002, AX060003: (180° model): 2 axes, +85°...-85° per axis <i>One axis +85°...-85° or 0...360° available on request</i>
Resolution	0.01°
Accuracy	+/- 0.2°
Interfaces	CAN (CANopen®, DS410) - EDS file available from www.axiomatic.fi <i>A SAEJ1939 version is available on request.</i> <i>A RS-232 version is available on request.</i>
CAN bus transceiver	Philips TJA1050
Operating voltage	9 – 35 VDC
Response time	70-5000 mSec (Depending on user configuration of digital filter)
Operating temperature	-40...+85°C (-40...+185°F)
Electrical connections	In PCB: - Phoenix Contact ZFKKDS-5.08 spring load terminal blocks In Housing, AX060001, AX060002: - 1 PG11 Heyco 3213 TFTL11 black strain relief In Housing, AX060003: - 2 M12 5-pin connectors <i>Other connection styles are available on request.</i>
Dimensions - housing	PCB is encapsulated in a cast aluminum housing 75 x 80 x 52 mm 2.95 x 3.14 x 2.05 inches (L x W x H excluding strain relief)
Weight	Half potted (1 PG-11 strain relief), models AX060001/2: 0.85 lbs (0.39 kg) Half potted (2 M12-5pin connectors), model AX060003: Contact Axiomatic.
Protection Class	AX060001, AX060002: IP65 with suitable cable sized for a PG11 strain relief AX060003: IP67



AX060001, Dual Axis Inclinometer, +85°...-85° for each axis, CANopen®, 1 PG11 Strain Relief

Applications

- off-highway/mobile equipment, vehicles, work machines
- cranes, elevators
- robotics, material handling machines



AX060003, Dual Axis Inclinometer, +85°...-85° for each axis, CANopen®, 2 M12-5 pin Connectors

Description

The inclinometer module is available two measurement axes. In the perpendicular dual axes version, the measurement range is always +85°...-85 degrees in each direction. Accuracy is +/- 0.2 degrees. A single axis version is available with a measurement range of +85°...-85 degrees or a range of 360 degrees, on request.

The module includes configurable filtering for removing the effects of vibration or other interferences in angular measurement. Modules can be configured with an offset and resolution. The inclinometer module also offers angular velocity and acceleration information. Power supply for the module can be in the range of 9 - 35VDC. The module is protected against reverse battery connection, overvoltage, and load-dump situations. The inclinometer module is designed for harsh environments. It is mounted and encapsulated in a cast aluminum housing. The model, P/N: AX060001, has spring-loaded connectors on the circuit board with a PG 11 strain relief to accept a cable (not supplied) and is IP65 rated. An IP67 rated version of the dual axis inclinometer, P/N: AX060003, with 2 M12 connectors (5 pin) is available.

The sensor output is available on CANopen®. The CAN protocol is CANopen and conforms to CiA DSP410 device profile for inclinometers. Settings can be adjusted using commercially available CAN tools for CANopen®. (Refer to the UMAX06000X user manual.) Some settings are adjustable using the RS-232 port on the internal spring-loaded connector. (Refer to the LSS User Manual.)

Order codes

AX060001 – Dual Axis Inclinometer, CANopen, 1 PG11 Strain Relief , +85°...-85° for each axis

AX060003 - Dual Axis Inclinometer, CANopen, 2 M12 Connectors, +85°...-85° for each axis

For other versions, please contact Axiomatic for an ordering p/n.

Connections & Dimensions

AX060001, AX060002

An Heyco Strain Relief, P/N: 3213 TFT11 (PG11) is located in the housing to accept cables with the following minimum and maximum dimensions.

Minimum: 0.230 inches or 5.8 mm

Maximum: 0.395 inches or 10 mm

The PCB connector consists of ZFKKDS-5.08 spring load terminal blocks and which are manufactured by Phoenix Contact. Maximum allowed wire size is 1.5mm² (AWG 16).

Pin	Signal	Type	Function
1	CAN sh	CAN	CAN shield
2	V supply	PWR	Power supply
3	GND	GND	Power supply ground
4	CAN hi	CAN	CAN bus hi signal
5	CAN lo	CAN	CAN bus lo signal

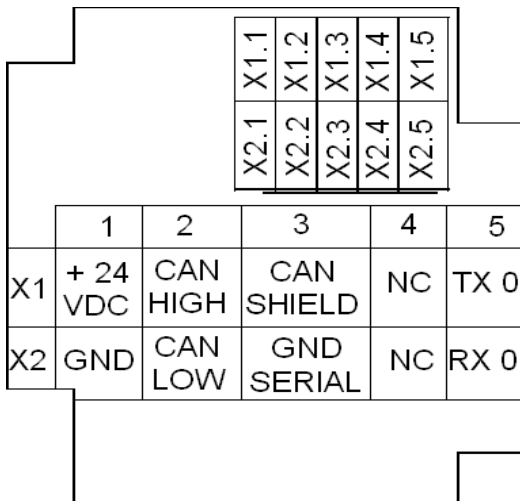
Table 1: Connector J1 signals

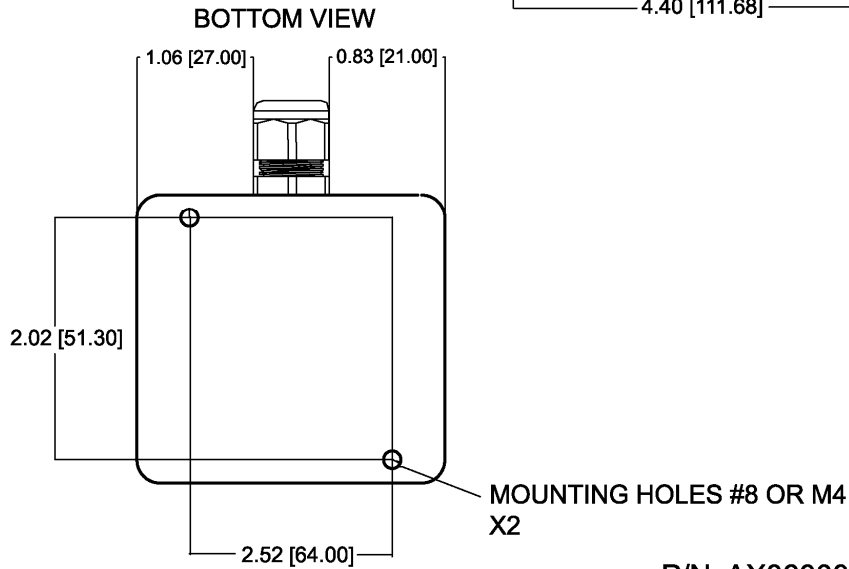
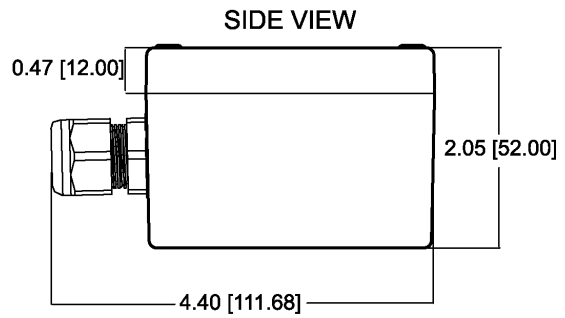
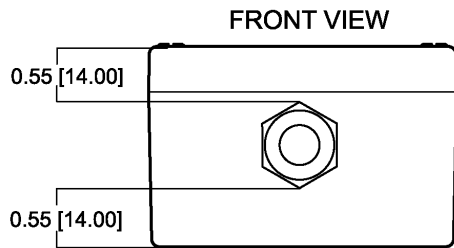
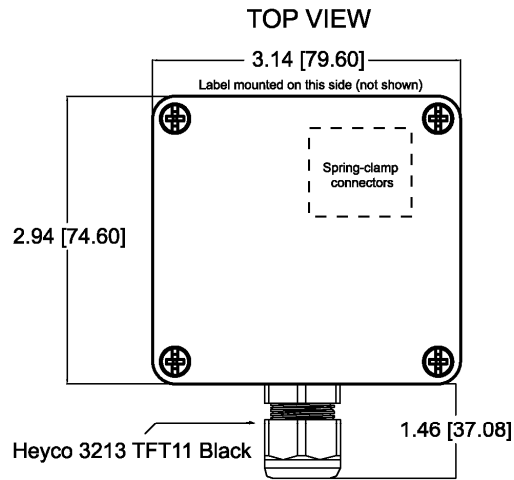
Power supply voltage range is 9...35 V.

CAN bus signals can withstand short circuits to 40V and GND.

The drawing below illustrates the layout of the PCB mounted spring load connector. PCB is seen from above.

Drawing 1: Spring load connector layout (PCB seen from above)

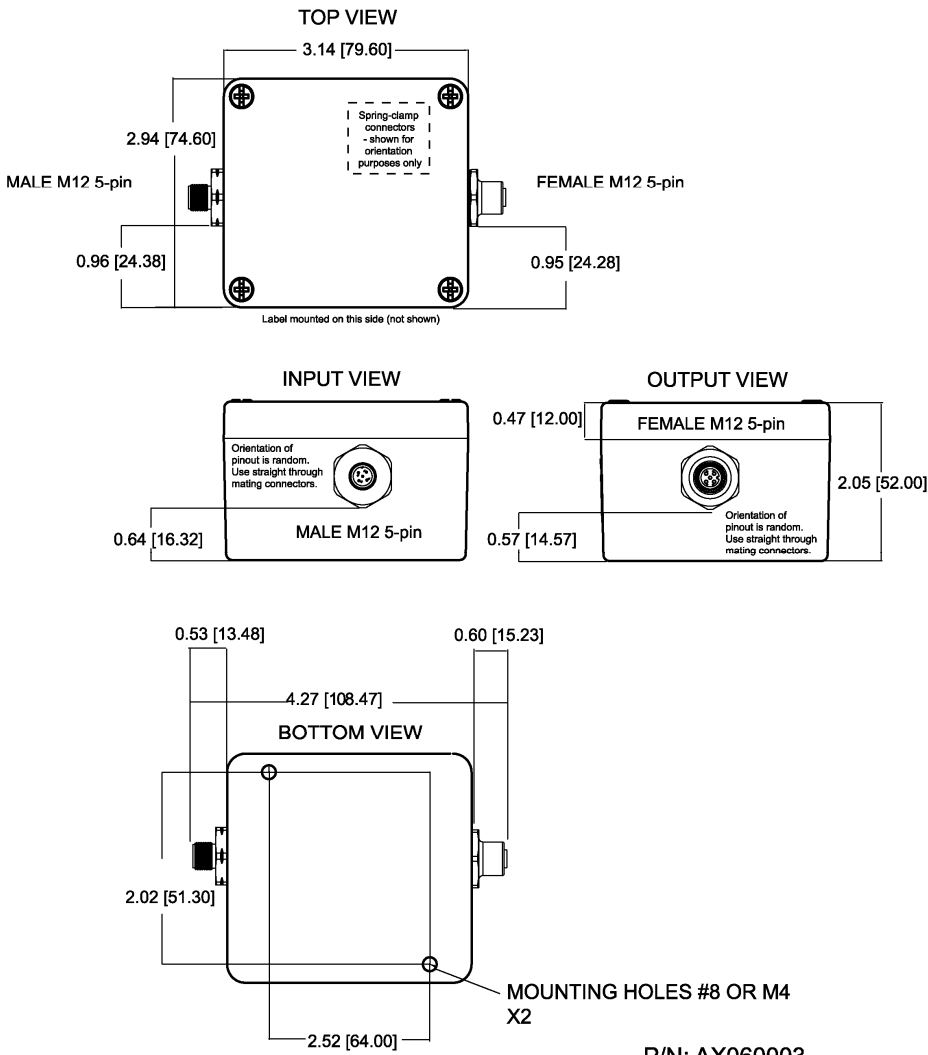
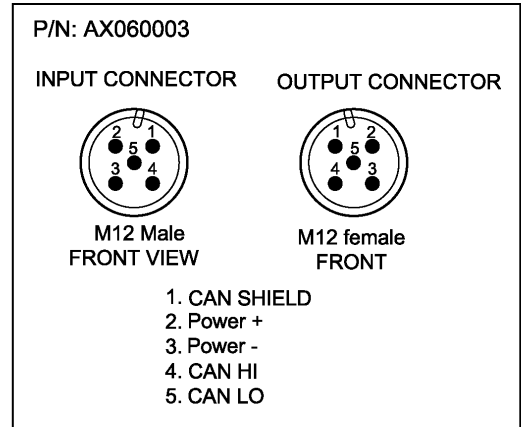




P/N: AX060001, AX060002
Dimensions: inches [mm]

AX060003

The inclinometer has 2 M12 5-pin connectors. The Male M12 is the input connector (right hand side, closest to the housing edge) and the Female M12 is the output connector (left hand side, closest to the housing edge).



P/N: AX060003
Dimensions: inches [mm]

Note: CANopen® is a registered community trade mark of CAN in Automation e.V.

Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on www.axiomatic.com/service.html.
Form: TDAX06000X-11/10/09