

16-bit RS-232/Analog Signal Conditioner

Part Number: **1-6200-012**



Operating Specifications¹

Communications	RS-232
Analog Output	0 V DC to 5 V DC
Analog Input Resolution	16 bits
Analog Output Resolution	16 bits
Operating Range	0% to 100% of sensor range
Supply Voltage	7 V DC to 16 V DC
Supply Current	20 mA @ 7 V DC
Operating Temperature	-40 °C to 85 °C
Storage Temperature	-40 °C to 125 °C
Sensors Controlled	1 or 2
Axes of Measurement	1 or 2
Temperature Sensor Range	-40 °C to 125 °C

Dimensions

Housing	None
Electrical Connections	8 Pin, 0.1" spacing
Weight	20 grams
Length	45 mm (1.77")
Width	45 mm (1.77")
Height	12 mm (0.46")
Hole Center	38 mm (1.50")

RS-232 Commands

'x' or 'X'	X axis output (0 to 65535)
'y' or 'Y'	Y axis output (0 to 65535)
't' or 'T'	Temperature output (0 to 1023)
's' or 'S'	Output X, Y, temperature at set intervals
'r' or 'R'	Stop timed interval output
'1' to '5'	Set delay (in seconds) for set intervals
'v' or 'V' ²	Product information and version
'B1' to 'B5' ²	Set baud rate to: 'B1' – 9600
	'B2' – 19200
	'B3' – 38400
	'B4' – 57600
	'B5' – 115200
'?' ²	List all commands

Electrical Connections

J1 Pin 1	RS-232 ground
J1 Pin 2	Analog output ground
J1 Pin 3	Supply voltage (+)
J1 Pin 4	Supply voltage (-)
J1 Pin 5	RS-232 receive (in)
J1 Pin 6	X axis analog out
J1 Pin 7	Y axis analog out
J1 Pin 8	RS-232 transmit (out)
L1 and L2	Single axis sensor connections

Certifications and Ratings

- None (PCB sub-assembly)

Description

The **1-6200-012** RS-232/analog 16-bit signal conditioner can be used with any Fredericks single axis electrolytic tilt sensor. This signal conditioner can be connected to 1 or 2 single axis tilt sensors to provide dual axis position measurement over the sensors' range.

Fredericks **0703-1602-99** mid-range and **0703-0711-99** narrow range sensors can be mounted directly to the PCB for a complete inclinometer solution. The 16-bit ADC input and 16-bit DAC output resolution allow this signal conditioner to provide exceptional accuracy in a variety of applications.

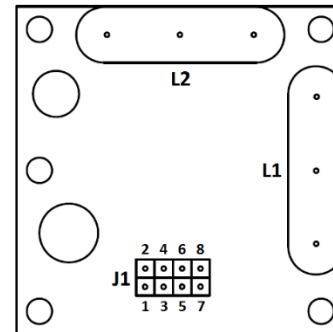
A detailed list of compatible sensors can be found on page 2 in the Related Products section.

Applications

- Geotechnical and structural monitoring
- Laser leveling
- Machine tool leveling
- Rail track monitoring
- Satellite positioning

View a full list of applications at www.frederickscompany.com.

Pin Diagram



Benefits

- Very low power consumption
- Extremely long life
- Minimal drift over lifetime compared to MEMS devices
- Excellent resolution and repeatability
- Superior performance in extreme temperatures and environments
- Excellent customer support

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¹ See [application note AN 1002](#) for operating specification definitions.

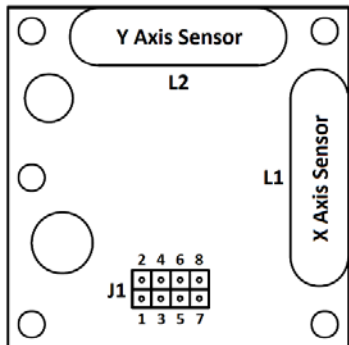
² Firmware v2.1.0+ only

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Direction of Measurement



RS-232 Settings

Baud Rate	9600 (default, selectable up to 115200)
Data Bits	8
Parity	None
Stop Bits	1

Related Products

Single Axis Electrolytic Sensors - Metal, PCB Mountable

[0703-0711-99](#) ±3° range, ±0.001° repeatability

[0703-1602-99](#) ±25° range, ±0.005° repeatability

Single Axis Electrolytic Sensors - Glass, Not PCB Mountable

[0737-0101-99](#) ±10° range, ±0.0006° repeatability

[0737-1203-99](#) ±0.5° range, ±0.0001° repeatability

[0711-0763-99](#) ±1° range, ±0.0008° repeatability

[0711-0768-99](#) ±3° range, ±0.0008° repeatability

Single Axis Electrolytic Sensors - Glass Encapsulated

[0719-3705-99](#) ±10° range, ±0.0006° repeatability

[0719-3703-99](#) ±0.5° range, ±0.0001° repeatability

[0719-1138-99](#) ±1° range, ±0.0008° repeatability

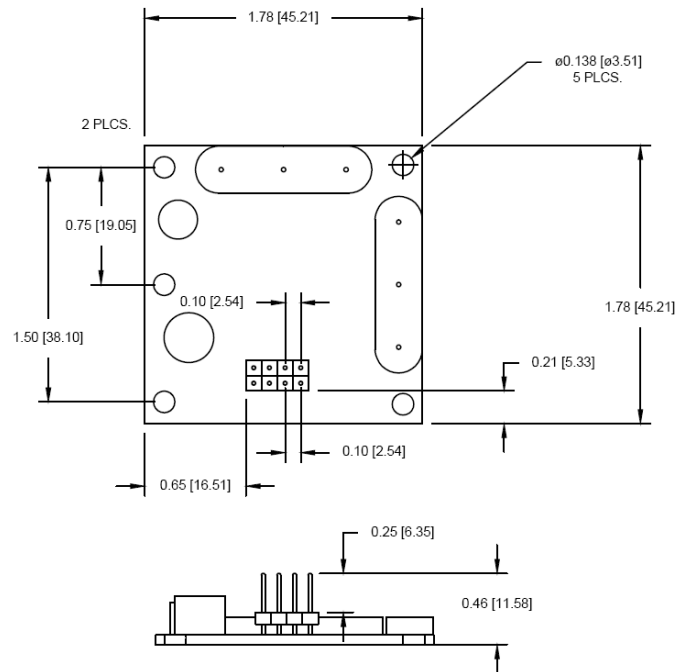
[0719-1143-99](#) ±3° range, ±0.0008° repeatability

Additional Documentation

- [AN 1001 – Temperature Compensation of Electrolytic Tilt Sensors](#)
- [AN 1005 – Converting Tilt Angle to Degrees](#)
- [AN 1006 – Obtaining Measurements from TFC Signal Conditioners](#)

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Dimensional Drawings



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