

## Analog/RS-232 Signal Conditioner for Electrolytic Tilt Sensors

Part Number: 1-6200-012

### Operating Specifications

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

### Physical Characteristics

<b>Housing</b>	None
<b>Electrical Connections</b>	8 Pin, 0.1" spacing
<b>Weight</b>	20 grams
<b>Length</b>	45 mm (1.77")
<b>Width</b>	45 mm (1.77")
<b>Height</b>	12 mm (0.46")

### Ordering Information

Part Number	Description
1-6200-012	Signal Conditioner, 1 or 2 Axis, Analog/RS-232

### Compatible With

Part Number	Description
0717-4313-99	Tilt Sensor, ±50°, 2 Axis
0717-4315-99	Tilt Sensor, ±60°, 2 Axis
0717-4318-99	Tilt Sensor, ±60°, 2 Axis
0717-4319-99	Tilt Sensor, ±50°, 2 Axis
0717-4321-99	Tilt Sensor, ±40°, 2 Axis
0717-4322-99	Tilt Sensor, ±45°, 2 Axis
0717-4323-99	Tilt Sensor, ±50°, 2 Axis
0703-1602-99	Tilt Sensor, ±25°, 1 Axis
0703-0711-99	Tilt Sensor, ±3°, 1 Axis

### Related Products

Part Number	Description
1-6200-005	Signal Conditioner, 1 or 2 Axis, SPI
1-6200-006	Signal Conditioner, 1 or 2 Axis, RS-232
1-6200-007	Signal Conditioner, 1 or 2 Axis, Analog/PWM
1-6200-008	Signal Conditioner, 1 or 2 Axis, RS-485

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### 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.

### Key Features and Benefits

- Very low power consumption
- Simple integration into a new or existing design
- Excellent resolution and repeatability of measurements
- -40 °C to 85 °C operating temperature for industrial applications
- Live text and video chat technical support

### Applications

- [Geotechnical and structural monitoring](#)
- [Construction tools, laser leveling](#)
- [Construction machinery and equipment](#)

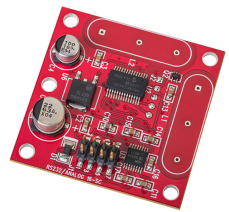
View the full list at [www.frederickscompany.com/markets](http://www.frederickscompany.com/markets).

### RS-232 Settings

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

### 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'	Product information and version
'B1' to 'B5'	Set baud rate to: 'B1' – 9600
	'B2' – 19200
	'B3' – 38400
	'B4' – 57600
	'B5' – 115200
'?'	List all commands

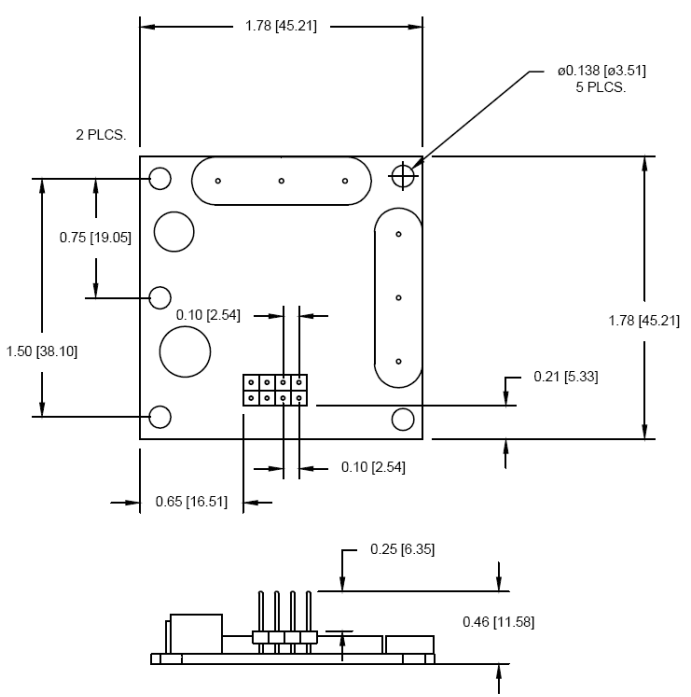


**Analog/RS-232 Signal Conditioner for Electrolytic Tilt Sensors**  
**Part Number: 1-6200-012**

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

**Pin Diagram and Direction of Measurement**

**Dimensional Drawings**



Additional Documentation	
AN1000	<a href="#">Electrolytic Tilt Sensor Excitation</a>
AN1001	<a href="#">Temperature Compensation of Electrolytic Tilt Sensors</a>
AN1003	<a href="#">Configuring Tera Term to Use with TFC Tilt Products</a>
AN1005	<a href="#">Converting Tilt Angle to Degrees</a>
AN1006	<a href="#">Obtaining Measurements from TFC Signal Conditioners</a>

Certifications and Ratings	
•	None (PCB sub-assembly)

**Company Information**

**Specialty Manufacturing Services That Promise Precision** - Since 1935, The Fredericks Company has been a global provider and U.S. designer and manufacturer of the highest performance tilt and vacuum measurement products on the market, with manufacturing processes that ensure the reliability of our products.

**Tilt Measurement Products and Sensors That Set Standards** - Fredericks' comprehensive tilt measurement product portfolio offers [electrolytic tilt sensors](#), [inclinometers](#), and [tilt switches](#). Engineered to outperform competing technology, our tilt sensors are accurate and repeatable with excellent resolution. Our tilt measurement products have no planned obsolescence and serve industries ranging from [construction](#) and [RV leveling](#) to aerospace applications and everything in between.

**A Partnership That Prioritizes Uptime, Lead Time, and Service** - Fredericks guarantees customer satisfaction and our "not too big, not too small" operation is what enables us to offer a true partnership experience. Our dedicated representatives and engineers offer exceptionally responsive service and the fastest lead times in the industry, knowing that uptime is the key to your success. With anytime access to our leadership team and solutions that enhance your products, you will feel the Fredericks difference.

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