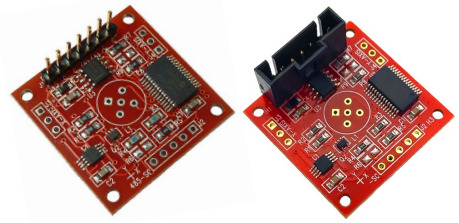


RS-485 Signal Conditioner for Electrolytic Tilt Sensors
Part Numbers: 1-6200-008, 1-6200-008-MV7

Electrical Connections

J1 Pin 1 (+5)	Supply (+)
J1 Pin 2 (C)	Supply (-)
J1 Pin 3 (C)	Ground
J1 Pin 4 (B)	RS-485 B (-)
J1 Pin 5 (A)	RS-485 A (+)
J1 Pin 6 (C)	Ground
J1 Pin 7 (C)	Ground
L1	Dual axis sensor connection
J3	Single axis sensor x axis connection
J4	Single axis sensor y axis connection

Converting Temperature Values

The board temperature output is a 10-bit value (0 to 1023). To convert that value to a temperature in °C, use the following equation:

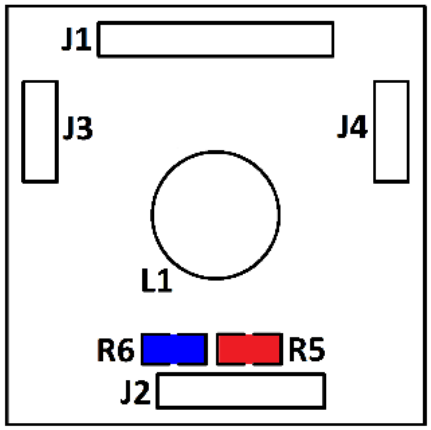
Temperature in °C = (((output/1023)*supply voltage)-0.5)/0.01

Board Configuration

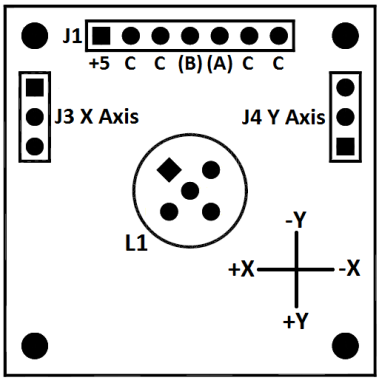
The 1-6200-008 signal conditioner can be configured to operate one dual-axis sensor or two single-axis sensors. Dual-axis sensors can be mounted directly to the board, whereas single-axis sensors must be mounted off the board and connected with wires.

The board must be configured for either dual-axis sensors or single-axis sensors. This configuration is is determined by the resistor values of R5 and R6.

1. For a dual-axis sensor: R5 (red) is 10 kΩ, R6 (blue) is not installed (open circuit). The sensor is connected to L1.
2. For single-axis sensors: R5 (red) is not installed (open circuit), R6 (blue) is 1 kΩ. Sensors are connected to J3 and J4.

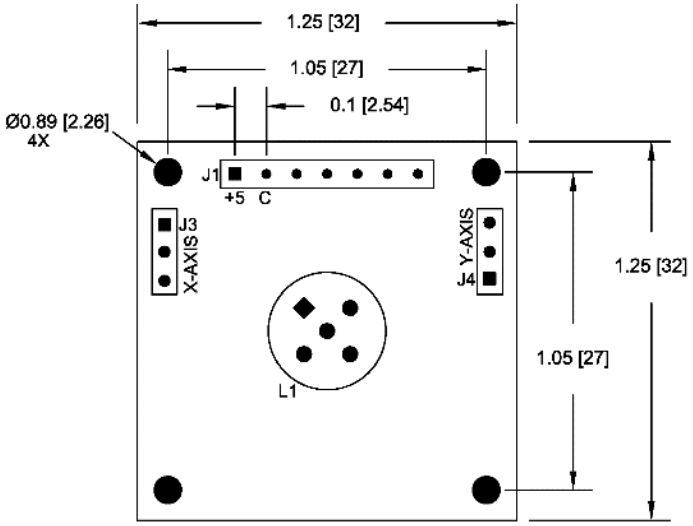


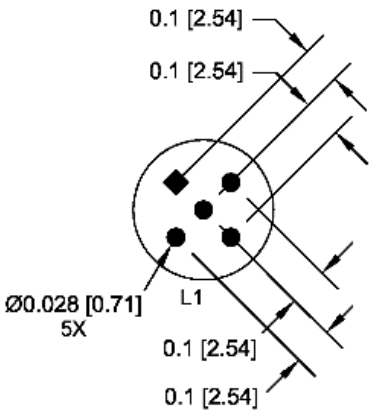
Pin Diagram and Direction of Measurement



Note that the direction of measurement only applies when a dual axis sensor is mounted on the PCB.

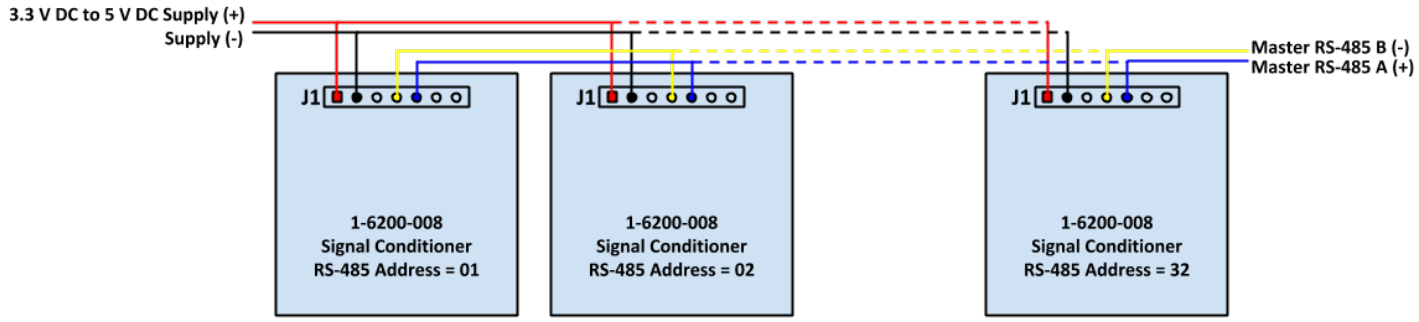
Dimensional Drawings





RS-485 Signal Conditioner for Electrolytic Tilt Sensors
Part Numbers: 1-6200-008, 1-6200-008-MV7

Example RS-485 Bus Configuration



Example RS-485 Command and Response Byte Values

Retrieve X axis tilt value from a signal conditioner with address 99 which returns 32768 (0° tilt):

Command

Byte	0	1	2	3	4	5
ASCII	*	9	9	1	1	#
Hex	0x2A	0x39	0x39	0x31	0x31	0x23

Response

Byte	0	1	2	3	4	5	6
ASCII	3	2	7	6	8	<lf>	<cr>
Hex	0x33	0x32	0x37	0x36	0x38	0x0A	0x0D

Additional Documentation

AN1000	Electrolytic Tilt Sensor Excitation
AN1001	Temperature Compensation of Electrolytic Tilt Sensors
AN1003	Configuring Tera Term to Use with TFC Tilt Products
AN1005	Converting Tilt Angle to Degrees
AN1006	Obtaining Measurements from TFC Signal Conditioners

Certifications and Ratings

- RoHS Compliant

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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