

# MODEL 113D

## MAGNETOMETER SENSOR

### FEATURES

- Complete 3-axis system
- Low noise level
- Measures up to  $\pm 600$  mG
- High speed digital interface
- Low-cost PC board system
- Single power input, +4.95V to 12V

### APPLICATIONS

- Fluxgate compass systems
- Magnetic anomaly detection
- OEM magnetic field measuring

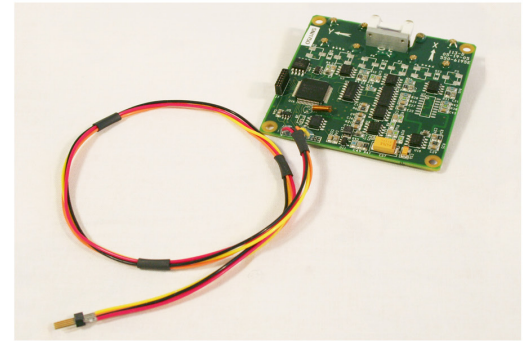
The Model 113D magnetometer is a tri-axial vector magnetometer system with a high-speed digital interface that can transmit XYZ magnetic field values at up to 140 times per second.

The Model 113D contains a microprocessor and a three channel 16-bit analog-to-digital converter. The system microprocessor and A-to-D subsystem:

- convert the sensor analog outputs to digital form
- calibrate the sensor scale, offset and alignment
- implement serial communications between the system and an external computer

J5 TERMINAL	FUNCTION	WIRE COLOR
1	+Voltage In	RED
2	Ground	BLACK
7	RS232 In	ORANGE
8	RS232 Out	YELLOW
9	COM Ground	BLACK
10	TTL Serial In	
11	TTL Serial Out	

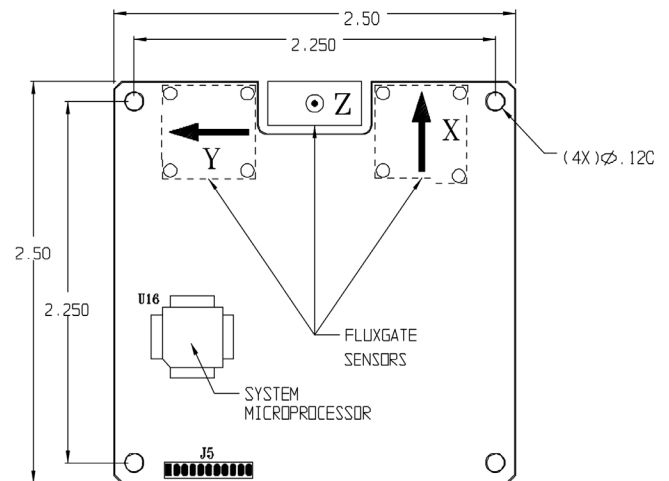
Note: Power and COM ground are connected together on the Model 113D PC board



The Model 113D Magnetometer communicates with an external computer over bi-directional RS232 and TTL serial interfaces. An ASCII character command language facilitates communication with the Model 113D.

An autosend data mode is included in the 113D software. When this mode is active, a continuous data stream is automatically sent out the serial port after power is applied to the system.

The system also contains a temperature sensor. The graphic below shows the placement of the X, Y, and Z axes on the Model 113D.



**ELECTRICAL**

Input Voltage Range	+4.9 to +12 VDC
Current Draw	80 mA @ 5.0VDC
Digital Output Protocols	RS232 and TTL
Digital Output Formats	ASCII and Binary
Baud Rate (User Selectable)	300, 1200, 2400, 4800, 9600 (default)
Data Rate in Autosend Mode	ASCII mode: 70 transmissions/sec Binary mode: 140 transmissions/sec
Analog to Digital	16-bit

**ENVIRONMENTAL**

Operating Temperature Range	0°C to +70°C
Storage Temperature Range	-55°C to +160°C
Shock	1000 G 1 ms half sine wave
Vibration	10 G RMS random 50 Hz to 500 Hz

**PERFORMANCE**

Range	6.0x10 <sup>4</sup> nTesla (0.6 Gauss) 1.0x10 <sup>5</sup> nTesla (1 Gauss) optional
Resolution	2 nT (20 µGauss)
Accuracy @ full scale	± 1%
Noise Level	± 2 nT (± 20 µGauss)
Frequency Response	70 Hz

**PHYSICAL**

Width/Length (PC board)	2.5" (63.5 mm)
Height (PC board)	0.625" (15.88 mm)
Weight	25 g
Input/Output Connections	six #26 gauge insulated wires 6" long

*Specifications are subject to change without notice.*