



Model 1540

Digital 3-Axis Fluxgate Magnetometer

Features

- Complete 3-axis system
- Low noise level <5 microGauss
- Measures up to ± 0.65 G
- Compact size, rugged construction
- Cylindrical or rectangular design
- Single power input, +4.95V to 12V

Applications

- Fluxgate compass systems
- Magnetic fuses
- Measurement of magnetic signatures
- Measurement of magnetic fields generated by power lines



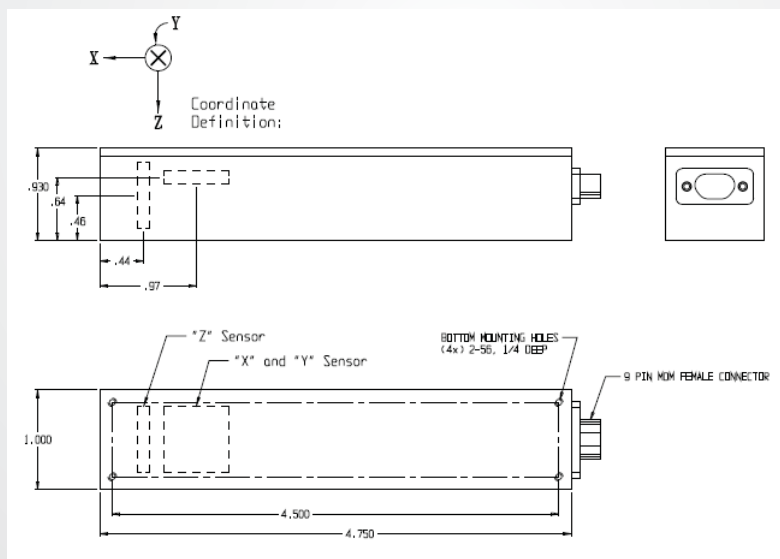
The Model 1540 is a high-speed 3-axis fluxgate magnetometer employing 24-bit analog-to-digital converters. Magnetic field data transmitted by the 1540 is expressed in the units of Gauss (G). The use of 24-bit converters enables the 1540 system to measure magnetic field magnitudes from ± 0.65 G down to the system noise level (5 μ G peak-to-peak) using a single range.

The 1540 is packaged as either a cylinder (1" diameter and 4.725" length) or, optionally, as a rectangular package (1540S).

Power is provided from a single input voltage that ranges from +4.95V to +12V. Input current is 40mA.

The 1540 system communicates over a bi-directional serial interface using TTL logic levels and RS232 levels. The system can be optionally configured to communicate with the RS422 protocol.

An autosend data mode is included in the 1540 software. When this mode is active, data is repeatedly sent out the serial port automatically after power is applied to the system.



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Applied Physics
Systems

PHYSICAL

Cylinder size	4.725" (120 mm) L x 1" (25.4 mm) dia.
Rectangle size (1540S)	4.75" (120.65 mm) x 1.15" (29.2 mm) x .95" (24.1 mm)
Input/Output Connections	Flying leads (Teflon insulated) #28 gauge >6" length or 9-pin nonmagnetic MDM connector

ELECTRICAL

Power Input	+4.95 VDC to +9 VDC @ 55 mA
Data Rate in Autosend Mode	ASCII mode: 10 transmissions/sec Binary mode: 20 transmissions/sec
A to D Communications	24-bit Sigma Delta TTL and RS232 (RS422 optional)
Baud Rate	300, 1200, 4800, 9600, 19200, 38400, 72800

ENVIRONMENTAL

Noise Level	± 0.5 nT (± 5 μ Gauss) peak-to-peak
Dynamic Range	± 65 μ T (± 0.65 Gauss)
Resolution	0.0001 mG
Accuracy	$\pm 0.5\%$ FS
Operating Temperature Range	-25 to 70°C
Scale Stability	$\pm 0.05\%$ FS/°C
Initial Offset	<0.005 mG
Offset vs. Temperature	<0.01 mG/°C
Orthogonality of Axes	Better than $\pm 0.2^\circ$
Alignment of Axes with Package	Better than $\pm 0.2^\circ$
Linearity	$\pm 0.05\%$ FS
Analog Scale	3V/G



Specifications within this document are subject to change without notice.

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www.appliedphysics.com

281 East Java Drive, Sunnyvale, CA 94089 USA • 650.965.0500 • Fax: 650.965.0404 • email: service@appliedphysics.com