

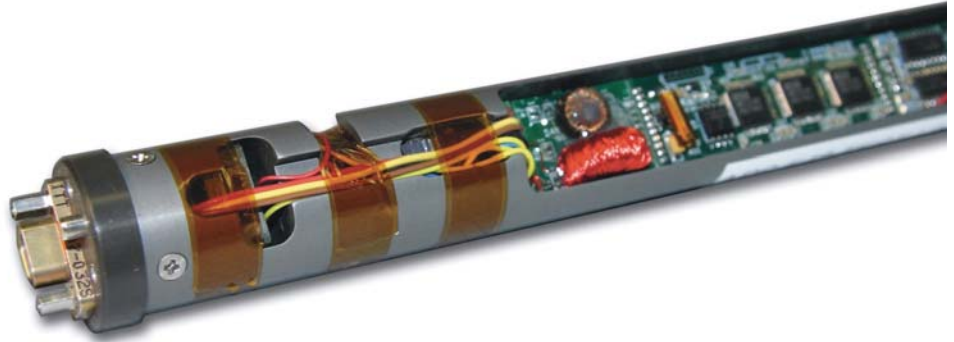


Features

- Small size: 1.0" OD x 10.5" length
- High accuracy: $\pm 0.4^\circ$ for inclination
- Digital serial input/output
- Internally stored calibration data
- Direct angular output

Applications

- Directional drilling steering tools
- Short radius drilling steering tools
- Orientation of borehole logging instruments
- Towed sonar arrays



The Model 547 provides orientation information for borehole logging and directional drilling systems. It is also used in vehicular orientation and sonar array applications. Because of its small size, it is well-suited to short radius drilling applications. It is extremely rugged and can be used in drilling and wireline logging situations with high shock and vibration. It powers from +5V @ 80mA.

The Model 547 contains both a 3-axis fluxgate magnetometer and a 3-axis accelerometer. The microprocessor corrects all sensor outputs for temperature drift and alignment factors before transmitting data on a serial data link. In addition to magnetometer and accelerometer outputs, it provides digital output for azimuth, inclination, and roll (toolface).

The Model 547 communicates digitally using a bi-directional TTL level serial data link using ASCII characters. A compact high-speed binary communications protocol can also be configured.

The Model 547 has an autosend option to enable repeated output of data upon power-on. It has two auxiliary inputs:

- Analog input with voltage range ± 2.5 V
- TTL count input

These inputs can be used to monitor sensors external to the unit, such as gamma ray detectors and pressure measuring systems.

System calibration can be performed over two temperature ranges:

- 0°C to 70°C
- 0°C to 125°C

When the system is calibrated over a temperature range, data is read from the system at temperature intervals between the minimum and maximum temperature specification. For example, for calibration over the interval of 0°C to 125°C , data is read at 25°C increments between 0°C and 125°C . The data taken at each temperature includes scale, offset, and sensor alignment data.

Model 547

Micro Orientation Sensor



Applied Physics
Systems

PHYSICAL

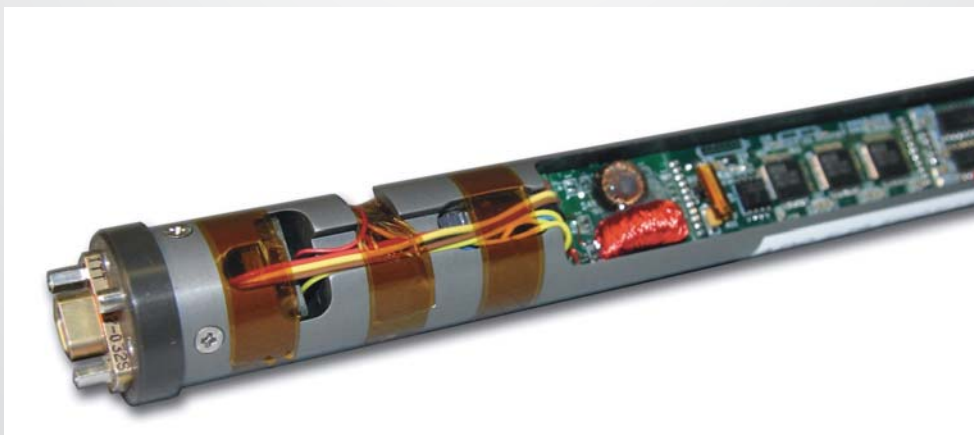
Outside Diameter (OD)	1.0" (25.4 mm)
Length	10.375" (263.525 mm)
Weight	1.25 lbs. (566.99 g)
Main Connector	MDM9SH003P (ITT Cannon)
Mating Connector	MDM9PH003L (ITT Cannon)

ELECTRICAL

Input Voltage Range	+5 VDC \pm 0.05 VDC or +7 to +12 VDC
Logic level	TTL/CMOS
Baud Rate	User Programmable to 9600 Baud
Protocol	User Selectable ASCII or Binary

ENVIRONMENTAL

Calibration Temperature Ranges	0°C to 70°C or 0°C to 125°C
Storage Temperature Range	-55°C to +150°C
Shock	1000G 1ms half sine wave
Vibration	20G rms 5 - 1,000 Hz
Azimuth Accuracy	(latitude < \pm 40°): \pm 1.2°
Toolface (Roll) Accuracy	\pm 0.4°
Inclination Accuracy	\pm 0.4°



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