

# Model 547

## Micro Orientation Sensor



### Datasheet

## Features

- Small size 1.0" OD x 10.5" length
- Operation to 80°C
- 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

## Description

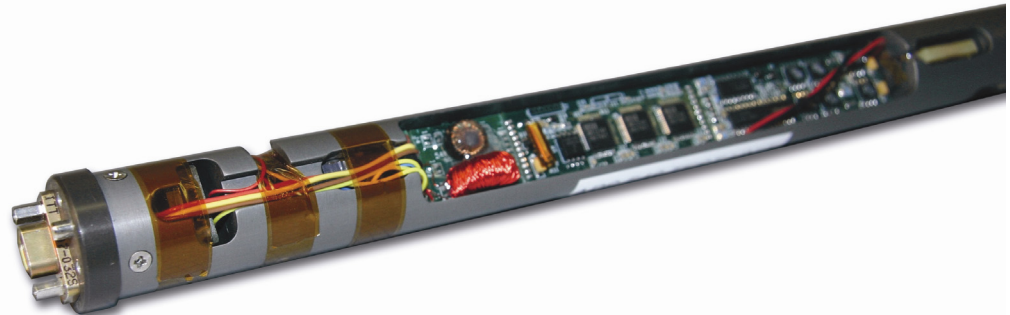
The Model 547 Micro Orientation Sensor has been designed to provide orientation information in borehole logging and directional drilling applications. It is also useful in vehicular orientation and sonar towed array applications. Because of the small size, it is well suited to short radius drilling applications. The unit is extremely rugged and can be used in drilling and wireline logging situations where high shock and vibration are present. The Model 547 powers from +5V @ 80mA.

The Model 547 system contains both a 3-axis fluxgate magnetometer and a 3-axis accelerometer. These sensors are sampled by an internal A to D and microprocessor system. 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, the Model 547 can provide digital outputs for azimuth, inclination and roll (toolface).

Digital communication with the 547 is accomplished by means of a bi-directional TTL level serial data link and is in the form of ASCII characters. A compact high speed binary communications protocol can also be activated. The Model 547 is equipped with an autosend option to enable repetitious outputting of data upon power turn on. Two auxiliary inputs to the 547 are present: 1) an analog input with voltage range  $\pm 2.5$  and 2) a TTL count input.

These inputs can be used to monitor sensors external to the Model 547 such as gamma ray detectors, pressure measuring systems, etc.



### Model 547 Specifications

<b>Angular Accuracy (0-125°C)</b>
Azimuth (latitude < $\pm 40^\circ$ ): $\pm 1.2^\circ$ Inclination: $\pm 0.4^\circ$ Toolface: $\pm 0.4^\circ$
<b>Temperature Range</b>
Operating: 0 to 70°C (0 - 125°C optional) Storage: -55° to +150°C
<b>Power</b>
+5 VDC $\pm 0.05$ VDC or +7 to +12 VDC
<b>Physical</b>
Size: 1.0" OD x 10.375" long
<b>Shock</b>
1000 G 1ms half sine wave
<b>Vibration</b>
20G rms 5 - 1,000 Hz
<b>Digital Interface</b>
Logic Level: TTL Baud Rate: User Programmable, up to 9600 Baud Protocol: User Selectable, ASCII or Binary
<b>Connector</b>
Cannon MDM-9 pin MDM9SH003P or flying leads