

## MDM175T-XE-HR: MicroTesla High-Resolution Digitized Module

The improved electronics and firmware designed and tested in the HDD/Utility Boring HR wireline steering tool application has been revised and improved, and incorporated into the standard MicroTesla Digitized Module (MDM) for use in MWD applications. This enhanced magnetic sensing capability will provide customers with the ability to develop new algorithms for improved survey accuracy, passive magnetic ranging for trajectory control and early intersection, and near well bore magnetic proximity detection. The customer's imagination is the only limitation to the possible uses of this exciting new technology when deployed in an MWD system.

### Physical

- Length: 21.75"
- Diameter: 1.37"
- Compatible with gamma modules
- Proprietary MFE fluxgate magnetometer
- Quartz flexure accelerometers
- Universal chassis, all boards fully covered

### Electrical

- Surfacemount electronics with Ulti-Pak board encapsulation
- Operating voltage range: 12V to 36V
- Power usage: 1.7W peak, 0.6W idle
- Digital interfaces: serial RS-232, serial logic level or SPI
- Dedicated microprocessor and power supply built-in
- Calibration coefficients downloaded directly into module memory
- Sensor power management through firmware

### Environmental

- All boards qualified for high-temp applications, 175°C
- Q-Flex accelerometers, 175°C
- Magnetometers, 200°C
- Ulti-Pak board mounting for improved shock and vibration isolation



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**Mechanical and Environmental Specifications**

Parameter	Minimum	Maximum	Units
Outside Diameter*		1.37	inches
Length*	21.75	29**	inches
		71.1	cm
Operating Temperature	0	175	°C
	+ 32	347	°F
Survival Temperature	- 40	185	°C
	- 40	365	°F
Vibration, Random <sup>#</sup>		20	g RMS, 15-500 Hz
Shock <sup>#</sup>		1000	g 0.5 mSec, half-sine

\* Dimensions do not include running gear, centralizers, or axial shock absorbers

\*\* Customer adapters add length

<sup>#</sup> Limited by accelerometers

**Instrument Accuracy Specifications**

Parameter	Minimum	Units
Inclination accuracy, absolute*	± 0.10	degrees
Inclination spread on axial rotation at 90° Inc	< 0.20	degrees
Azimuth accuracy, absolute, 10° through 90°	± 0.50	degrees
Azimuth spread axial rotation, 10° through 90° Inc	< 1.0	degrees
Tool face accuracy, axial rotation 10° through 90° Inc	± 1.0	degrees
Total g field accuracy	± 3.0	mG
Total H field accuracy, sensitivity	± 1.5	nT

\* Absolute accuracy is achieved when the instrument is tested in a controlled environment using a calibrated and certified reference position

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