

MICROTESLA

MAGNETIC FIELD EFFECTS

MDS125T-HR:

MicroTesla Digitized Sensor High-Resolution Wireline Steering Tool

MSM125-HR:

MicroTesla High-Resolution Wireline Steering Pup

MicroTesla has modified the standard MDS directional instrument and the standard MSM steering module so that the magnetic resolution is improved by 400%. When used in conjunction with the True-Gyde software the high-sensitivity wireline steering system can detect Utility or River Crossing coil magnetic fields much farther away than was previously possible. For example, the old system had a tool resolution of 16 nT and now the tool resolution is less than 2 nT. Requires a True-Gyde software license.

Conversely, since the tool resolution is improved and the sensitivity to magnetic gradients has been drastically increased, much smaller coil wire can be used for the tracking coil and a much smaller power supply can be used to drive the coil wires.

MicroTesla Digitized Sensor

Physical

- Length: 32.4" with pup
- Diameter: 1.375"
- Proprietary MFE fluxgate magnetometer
- Quartz flexure accelerometer or SiFlex2 MEMS accelerometer
- Compatible with the existing QDT system

Electrical

- Through-hole boards with SYLGARD encapsulation
- Operating voltage range: $\pm 12V$ to $\pm 15V$
- Power usage nominal: 1.2W peak
- Digital interfaces: serial FSK
- Calibration coefficient downloaded directly into digital interface serial memory
- Switching circuitry provides sensor power control

Environmental

- All boards qualified for high-temp applications, 175°C
- Q-Flex accelerometers, 175°C, SiFlex2 accelerometers, 125°C
- Magnetometers, 200°C



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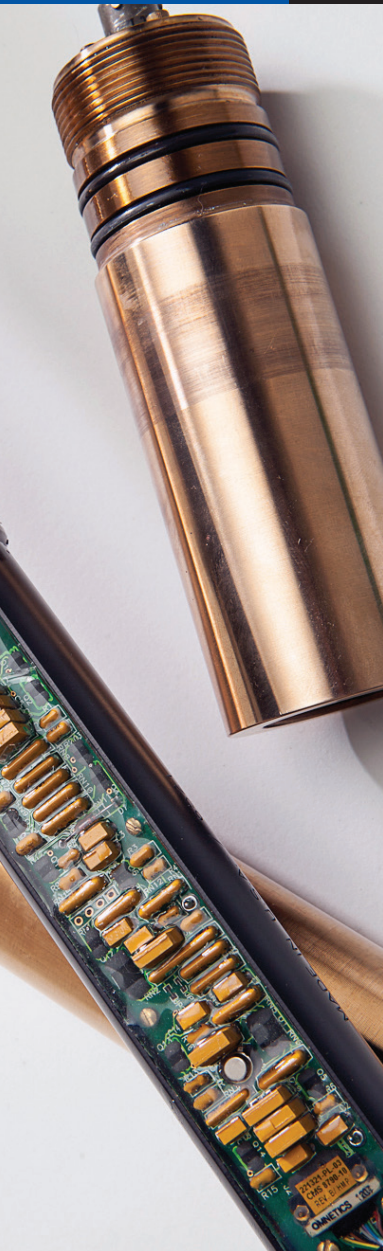
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Mechanical and Environmental Specifications

Parameter	Minimum	Maximum	Units
Outside Diameter*		1.375	inches
		3.5	cm
Length*	24	29	cm
	61	73.6	
Operating Temperature	0	125	°C
	+ 32	257	°F
Survival Temperature	- 40	150	°C
	- 40	302	°F
Vibration, Random#		20	g RMS, 15-500 Hz
Shock#		1000	g 0.5 mSec, half-sine

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

Limited by accelerometers

Instrument Accuracy Specifications

Parameter	Minimum	Units
Inclination accuracy, absolute*	± 0.10	degrees
Inclination spread on axial rotation at 90° Inc	< 0.10	degrees
Azimuth accuracy, absolute, 90° Inc	± 0.5	degrees
Azimuth spread axial rotation, 10° through 90°	< 0.50	degrees
Tool face accuracy, axial rotation 10° through 90° Inc	± 1.0	degrees
Total g field accuracy, absolute	± 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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