

MDSS175T-XE-RSS: Drop-In Replacement Tools

In 2002 MicroTesla designed a compatible directional steering instrument for third-party MWD systems. These tools were originally specified as 150°C instruments, but as the drilling activity changed so did our tools. We redesigned our standard (4) board set upgrading from a 150°C to a 175°C capability. We worked alongside innovative vendors and uncompromising, major oil field service companies to improve our tools with surfacemount electronics technology and by incorporating the Ulti-Pak encapsulation method.

This year we are announcing the commercial deployment of a new "Drop In" sensor available as a replacement for yet another third-party MWD system. MWD service providers tired of poor reliability and excessive service down times, complicated by overseas service centers now have an alternative. This tool is fully compatible 175°C, Ulti-Pak encapsulated MicroTesla directional instrument backed by our integrity, service and warranty.

Physical

- Length: 22.0"
- Diameter: 1.375"
- Proprietary MFE fluxgate magnetometer
- Quartz flexure accelerometer
- Compatible with MDM inter-module connector to existing RSS system
- All boards use Ulti-Pak encapsulation
- Universal chassis, all boards fully covered

Electrical

- Surfacemount electronics packaging
- Operating voltage range: $\pm 12V$ to $\pm 15V$
- Power usage: 1.2W peak
- Digital interfaces: SPI and I²C
- Calibration coefficient downloaded directly into digital interface serial memory
- Switching circuitry provides sensor power management

Environmental

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



6830 N. ELDRIDGE PKWY, STE. 110
HOUSTON, TX 77041
OFFICE: 713.856.8111
FAX: 713.856.7979
EMAIL: INFO@MICROTESLA.COM

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Mechanical and Environmental Specifications

Parameter	Minimum	Maximum	Units
Outside Diameter*		1.375	inches
		3.5	cm
Length*	22.0		inches
	56		cm
Operating Temperature	0	150, 175	°C
	+ 32	302, 347	°F
Survival Temperature	- 40	160, 185	°C
	- 40	320, 365	°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°	< 0.5	degrees
Total face accuracy, axial rotation at 90° Inc	± 1.0	degrees
Total g field accuracy	± 3.0	mG
Total H field accuracy, absolute	± 300	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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