

# MICROTESLA

## MAGNETIC FIELD EFFECTS

### PRODUCT SELECTION GUIDE

Product	*Magnetometer / Accelerometers	Analog to Digital Converter	3x Power Supply	MWD System Board	Features
<b>Analog Sensors</b>					
<b>MASS</b> Analog Sensor (Surfacemount)**					Raw Voltage Output
<b>MAS</b> Through-Hole					
<b>Digitized Sensors</b>					
<b>MDSS</b> Digitized Sensor (Surfacemount)**					Digitized Output
<b>MDS</b> Through-Hole					
<b>Smart Modules</b>					
<b>MDM</b> Digitized Sensor (Surfacemount)**					   Raw Voltage, Corrected Data & Angles
<b>MRM</b> Advanced Magnetics Technology Module					 Magnetic Position & Rotation Data
<b>Future Products</b>					
<b>MDME</b> Digitized Module w/ Expansion					   Raw Voltage, Corrected Data, Angles, Data Logging & Telemetry Control
<b>MWM</b> Wireline Steering Module					   Wireline Steering Telemetry Module
<b>MLM</b> Environ. & Logging Module					   Temperature, Shock & Vibration

\*All boards and magnetometers are qualified at 175°C, 150°C accelerometers are available.

\*\*All surfacemount tools use Ulti-Pak technology for increased durability.

## SERVICES

### Calibration

MicroTesla Magnetic Field Effects (MFE) operates a calibration facility that has (2) three-meter, three-axis Helmholtz coils. We continuously monitor the Earth's magnetic field and the local environment to ensure that our calibrations are as accurate as possible. If significant disturbances of the Earth's magnetic field occur, the calibration activities are briefly suspended.

Although we can calibrate any magnetic directional instrument, we specialize in MicroTesla Magnetic Field Effects sensors and modules. Instruments can be calibrated up to 200°C as specified by the customer.

### Repair

The troubleshooting and repair of MFE directional steering instruments is performed by trained, experienced technicians. Repair and rework is done to the original equipment specifications. MicroTesla Magnetic Field Effects is committed to reducing repair and calibration cycle times to levels unheard of in the directional industry. The MFE normal repair and calibration cycle time is 30 days or less for all tools, pending customer approval. Our electronics assembly technicians are qualified and certified for a wide variety of soldering techniques including SN63, SN96, HMP and Gold solder.

### Environmental Testing

MicroTesla Magnetic Field Effects uses a detailed qualification and instrument testing program to quantify our directional instrument performance. We qualify every product design with thermal soak, thermal cycling, vibration and vibration-at-temperature testing. Every tool sold by MicroTesla Magnetic Field Effects is rated at 175°C, unless the customer specifies the use of 150°C accelerometers.



MDM

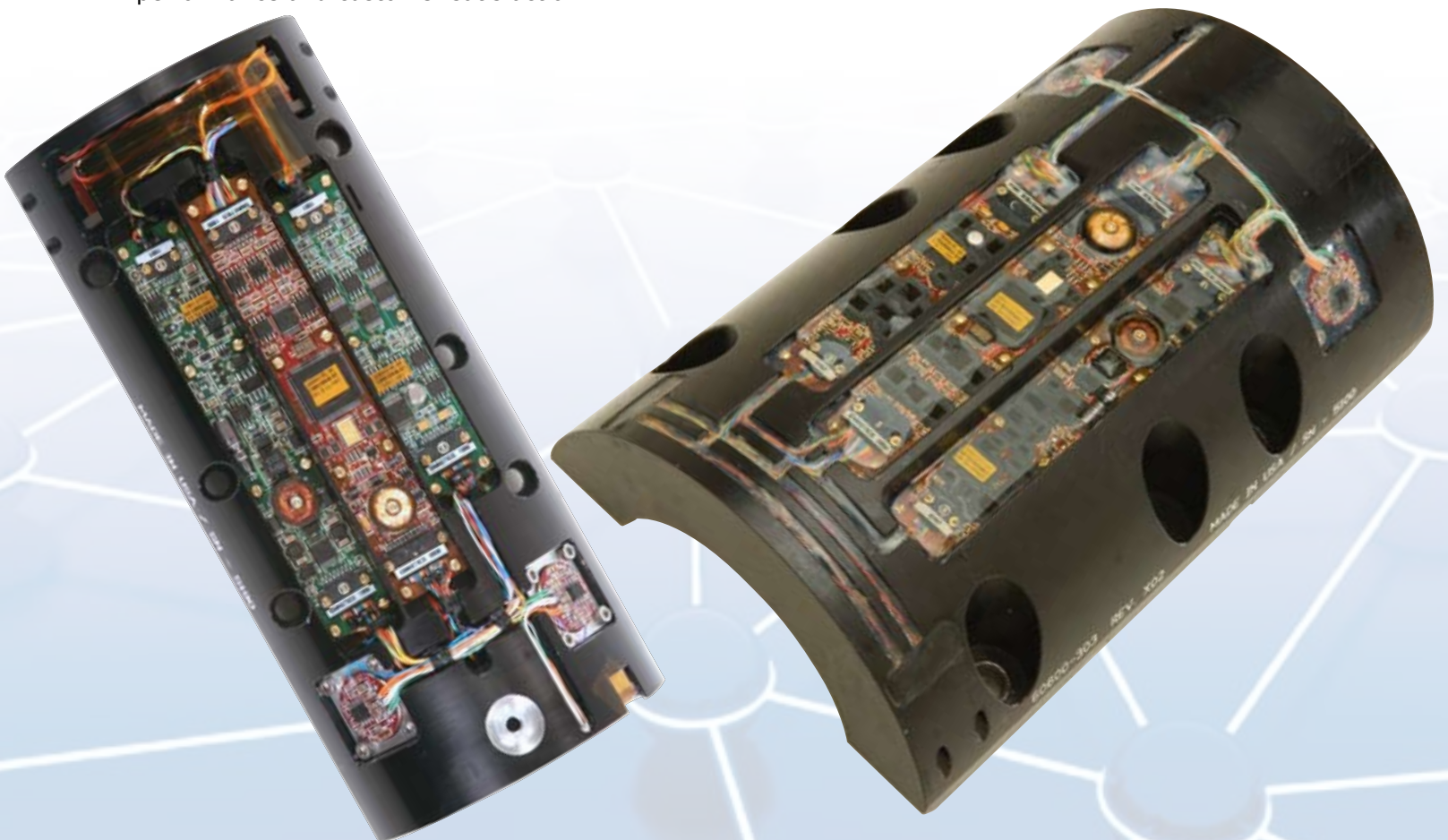
## ENGINEERING

The MicroTesla Magnetic Field Effects (MFE) engineering team is dedicated to developing technology designs that are reliable, accurate and durable. These designs are optimized to ensure reliable manufacturing, accurate calibration and timely service.

MicroTesla Magnetic Field Effects engineering capabilities include:

- Experienced downhole directional instrument design
- Surface and embedded software application programming
- Solid model mechanical design
- Calibration modeling theory and programming
- Environmental qualification and testing

If a product performance anomaly or failure occurs we immediately focus our engineering resources to duplicate and quantify the problem. As soon as the problem is identified and understood, a collateral effect study is completed. A detailed summary of corrective action options is developed and then an "Optimal System" course of action is determined. These corrective actions are quickly implemented and qualified to ensure the instrument performance and customer satisfaction.



## HISTORY

MicroTesla LTD. started in 2000, providing directional instrument repair and calibration services to companies using MWD, Measurement While Drilling tools.

We grew from a repair and calibration service to a subcontract manufacturer of directional steering instruments. From there, our expertise and business grew to include the design of a drop in replacement directional sensor and from there to the development of the industry standard magnetometer and our own directional steering instruments.

In 2008 MicroTesla Magnetic Field Effects was started and we became an oilfield "service" company not just a directional steering instrument manufacturer. We are committed to providing the oil and gas industry with the very highest level of directional instrument performance. Our performance criteria are quite simple and includes **reliability**, **accuracy** and **value**.

MicroTesla Magnetic Field Effects now provides the industry with magnetometers, analog directional sensors, digitized directional sensors and fully optimized directional steering modules.

We are proud to maintain our ISO 9001 Certification and actively follow the process goals to achieve continuous improvement in our designs and in our engineering and manufacturing practices.



MDS