



# ESM Logger

Downhole Shock, Vibration and Rotation Data Logger



## The **ULTIMATE** in Environmental Severity Measurements

Shock and vibration is increasingly acknowledged to be the source of unnecessary expense when drilling a well. The ESM (Environmental Severity Measurement) Logger is designed to put reliable shock and vibration data in the hands of drilling experts so that they can use this vital information to effectively implement procedures and practices which will control these costs. Shock and vibration analysis will aid in providing a better understanding of drilling dynamics.

### Benefits & Features

- ◆ The ESM Logger measures and records data using temperature, vibration & shock multi axis accelerometers (X,Y, and Z) and a gyro for the measurement of multi-axis rotation (X, Y and Z). The data is stored in non-volatile memory for post well analysis.
- ◆ The rugged and compact design allows one or more ESM Loggers unaffected by magnetic environment, to be installed anywhere in the drill string or bottom hole assembly.
- ◆ The ESM logger may be mounted within a high-strength double-shouldered connection to allow placement flexibility. In addition, the hanger assembly can be adapted for placement at a drill bit or within customers existing equipment, where possible.
- ◆ Multiple ESM Loggers can be run in the drill string at the same time.
- ◆ Due to the low power design, the ESM Logger runs on a single AA battery cell with long operational lifetime.
- ◆ The ESM Logger may be installed at a service location with user friendly, highly configurable options to setup periodic or event logging (such as excessive shock up to +/- 200G or vibration up to +/-40G). Each recorded log includes timestamp which allows easy tracking of in-hole drilling time.
- ◆ Logger recordings can be viewed in proprietary software or exported to a .csv file for easy analysis in any software.
- ◆ The ESM Logger provides a better understanding of drilling efficiencies through shock, vibration and rotation data collection and analysis.
- ◆ The ESM Logger is used to correlate rotation, shock and vibration characteristics to drilling parameters such as drilling performance or downhole failures.
- ◆ USB interface for exceptionally fast logging memory transfer to Windows based laptop.



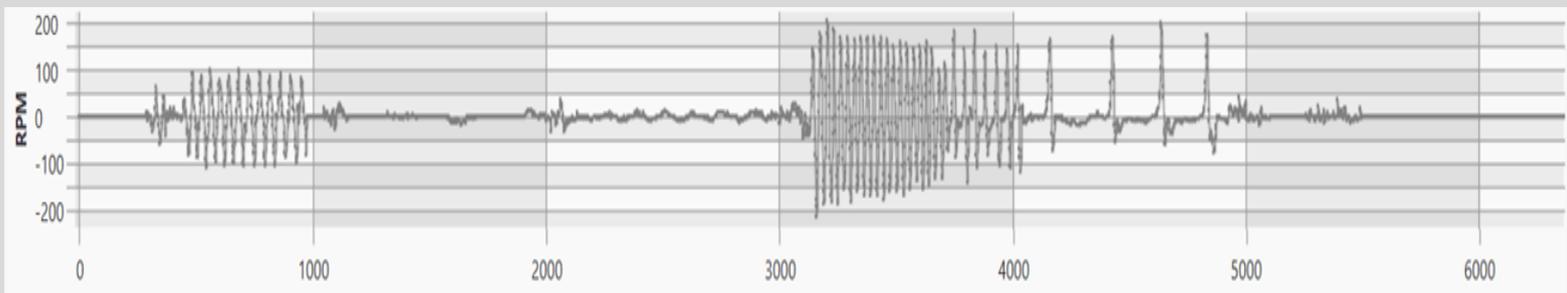
Patent 14,094,304



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Innovative engineering. Downhole excellence.

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### Technical specifications

Mechanical	
Length x Diameter of Logger Housing	9.5"x0.875" (241mmx022.2mm).
Pressure	Max 20KPSI.
Power	
Battery	Single AA Lithium Battery, Replaceable via Shop or Field.
Configurable Logging Time	Up to 90 Days.
Temperature	
Operating Range	-30 to 150°C (-22 to 302°F).
Survival Temperature	-50 to 165°C (-58 to 329°F).
Temperature Logging Resolution	+/-1°C or +/-1.8°F.
Software	
	Window OS App.
	Featuring Logger Configuration, Data Transfer and Logging charts for quick analysis.
	Import/Export logging data with a filename.
Data Collection and Handling	
Vibration Measurement	X, Y and Z axis measurement range is configurable up to +/-40G. Resolution: +/-0.8% or +/-0.003% (Low and High resolution mode). Configurable Sample Rate up to 1000 Sample/Sec. Configurable Periodic logging interval and duration. Configurable activation/deactivation levels.
Shock Measurement	X,Y and Z axis measurement range set at +/-200G. Resolution: +/-0.8%. Event based capture as well as trigger Vibration/Gyro logging. Configurable Logging interval and trigger event threshold.
Gyro Measurement	X, Y and Z / RPM logs based with measurement range of +/-333 RPM. Resolution +/-0.5 RPM. Configurable Sample Rate up to 100 Sample/Sec. Configurable Periodic logging interval and duration. Configurable activation/deactivation levels.
Logging Memory	1Gbits or 128Mbyte capacity. Fast USB logging data transfer based on USB (12Mb/sec). All logged data are referenced with a timestamp in sync with Laptop/PC clock.