

PULSE MWD KIT PACKAGE

CORE CAPABILITIES

Downhole

- ✦ Smart DM Directional Sensor
- ✦ Pulser Driver with memory
- ✦ Linear Pulse Mechanical Section
- ⊕ Military MWD Connection

Optional

- ✦ Digital Gamma While Drilling
- ✦ Pressure While Drilling
- ✦ GYRO While Drilling Controller
- ⊕ At Bit, RSS and Resistivity Compatible



Surface

- ✦ Dual Pulse Decoder with Auto Sync Recovery
- ✦ 21.5" Widescreen display or Optional Safe Area Decoder Interface
- ✦ Dual Transducer Technology
- ✦ At Bit, RSS and Resistivity Compatible
- ✦ All Handling Gear, Operating Equipment, Repair Tools and Replacement Parts for Continual Operation

General Specifications

Data Transmission	Positive Pulse	Bend Radius	25° / 10m
Survival Temperature	-40°C to 195°C	LCM Tolerance	30 – 50 ppb concentration, any size, premixed
Collar Sizes	76mm – 203mm (3.0" – 9-5/8")	Operating Pulse Width	0.250 – 2.00 sec
Operating Flow Rate	0.20 – 5.00 m ³ /min (50–1200+ gpm)	Internal Logging Memory	48 MB
Flow Switch	Vibration located in the Pulser Driver Electronics and Directional Sensor – SDM	Programmable Sequences	4 primary + 2 dynamic downlinkable configurable sequences
Power Supply	Lithium 28 VDC / 3 amp	Shock Limit	500g, 0.5 msec, ½ sine all axes
Battery Capacity	500+ hours (using 2 battery modules)	Vibration Limit	5–30 Hz @ 1" double amplitude, 30–500 Hz, 20g

RIG FLOOR DISPLAY

Hazardous Area Zone 2 Certified

Laversab Widescreen Display Zone 2 Certified with ith Dual Decoder installed. WIFI communication for Remote Drilling Operations.

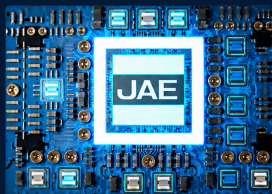
System

- ★ Intel® Core i7™ Skylake CPU @ 1.7 / 4.4 GHz Quad Core
- ★ 1TB Solid State NVMe
- ★ 32 GB DDR RAM
- ★ 21.5" Sunlight readable display with brightness control
- ★ Capacitive touchscreen increased functionality
- ★ Wide ranging 90–260 VAC operation at 50/60 Hz
- ★ Operating temperature: -40°C to 60°C
- ★ Windows 10 Professional (64-bit)



Rig-Ready Accessory Package

- ★ 30' AC Power cable Zone 2 with NEMA locking connector
- ★ 2x Magnetic-Mount antennas
- ★ (1x Type-N connector + 1x SMA connector)
- ★ Mounting options: VESA, Panel & Hanger mount



SMART DECODER

Dual Decoder Technology

Dual Decoder for Enhanced Pulse Recognition. Auto Sync Recovery Technology – ASR

Dual Decoding simultaneously for the best decode in the industry. Auto Pulse Recovery for missed sync correction. Web-based software for optimal Remote Operation compatibility.

- ★ Decode any M-Ary encoded pulse signal.
- ★ Two independent transducer connections with dual capability allowing 4 Signal Inputs.
- ★ Configurable for use Simultaneously or as a Secondary channel for decode.
- ★ Two independent signal processing pipelines, for decoding together or for redundancy.
- ★ Hardware decoder and completely self-sufficient, requiring no additional systems to decode.

- ★ Web application MWD interface, use any device with a modern web browser to view.
- ★ SMART DM and SMART Decoder offer unified programming and downloading logs.
- ★ Auto Sync Recovery Technology does not require a user to edit pulses.
- ★ Less pump cycling and more drilling!

SMART DIRECTIONAL MODULE



Industry leader in accelerometers and magnetic accuracy

- ✦ Highest Temperature Rated Accelerometers in the Industry
- ✦ Best Rotational Inc and Azm available
- ✦ Azimuthal Gamma controller data sensitive Geo Logging
- ⊕ Compatible with RSS and at Bit Technology

Sensor Specs

Accuracy

Typical

Inclination	±0.10° @90° INC ±0.25°	±0.01° ±0.02°
Azimuth	@10° INC ±0.50° @5° INC ±1.0°	±0.10° ±0.20°
DIP ANGLE	±0.20°	±0.02°
Gravity Field	±1.25mG	±0.25mG
Magnetic Field	±125 nT	±20 nT
Tool Face	0° – 360°	±0.20°
Temperature	-35 – 200°C	±0.50°
C-Inclination	±0.2°	
C-Azimuth	±0.5°	

Features

- ✦ Inclination, Azimuth & Qualifiers. Continuous inclination & azimuth.
- ✦ Toolface Orientation (MTF, GTF).
- ✦ Battery statistics, Borehole temperature. Stick-Slip & RPM.
- ✦ Multi-Axial shock & vibration.
- ✦ Babelfish mnemonics.
- ✦ Azimuthal gamma ready, with variables supporting up to 16 bins in a single packed word

Mechanical Specifications

Length	29.2"
Diameter	1.36"
Operating Temp	-20°C to 185°C
Survival Temp	-40°C to 195°C
Vibration	20G RMS, 10–500Hz
Operating Voltage	500G, 1ms. Half-sine
Current Draw @28V	80mA
Memory	48MB

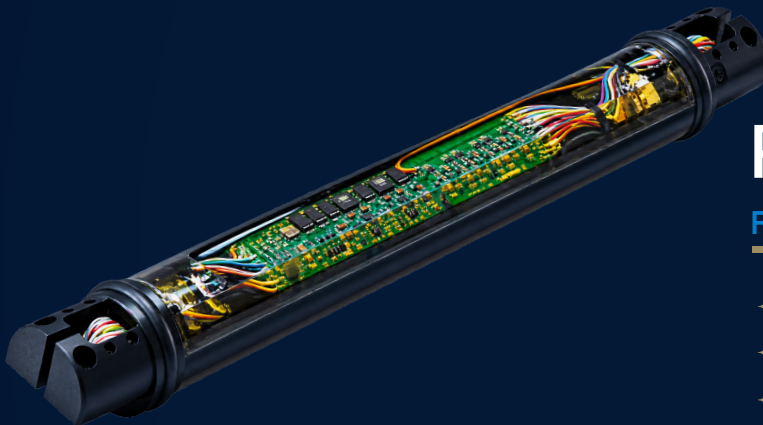
Features

- ✦ Smart power management. Efficient battery switching
- ✦ Directional Module Flow & Rotation Downlink Calibration coefficients stored on-board
- ✦ M-ary Telemetry protocol
- ✦ Integrated Azimuthal Gamma Controller

DUAL TRANSDUCER

Features

- ✦ Two 10K psi Sensors -One Housing
- ✦ Allows for Dual Decoder Signal Processing
- ✦ Noise Isolating Technology
- ✦ Hammer Union Fitting
- ✦ Rugged Design
- ✦ Single, Dual and Triple Sensor Configuration Available



PULSER DRIVER

Features

- ✦ Best Power Efficiency Available
- ✦ On Board Memory with SDM Communication
- ✦ High Temperature Qualified
- ✦ Real Time Driver Data Displayed on Decoder

LINEAR PULSER WITH PULSER DRIVER

Motor Driven Heavy Duty Linear Drive

Features

- ✦ Proven and rugged Linear Drive with Powerful Motor
- ⊖ Short Design for closer to bit readings and At Bit and RSS Communications

