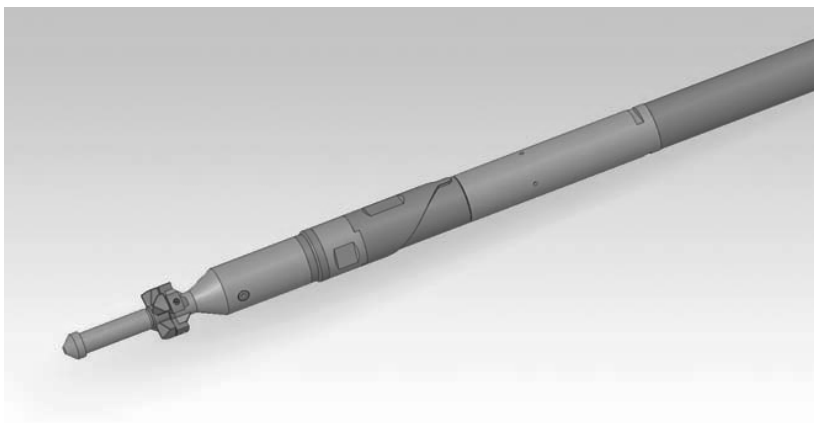




I-PULSE (Rotary) – Top Landing Pulser

I-PULSE is the latest rotary style Pulser utilizing DC brush less technology to provide extended battery life with a direct drive impeller creating the mud pulse signal, LCM (lost circulation material) and solids have very little effect on the operation of this Pulser. Easily handles LCM up to 75 lbm/bbl of medium nut plug or cedar fiber. I-PULSE is fully compensated so drilling deeper uses the same amount of battery power as drilling shallow wells. I-PULSE is a fixed mounted Pulser; with a retrievable option to reduce lost in-hole charges. Pulse amplitudes can be configured easily in the field to accommodate for changing drilling environments. Data rates of up to 3 bits per second can be realized with an impeller style Pulser. I-PULSE can be upgraded to incorporate annular pressure readings and down-hole vibration measurements. Flow surfaces are made out of Tungsten Carbide to prevent erosion and extend component life.

UBHO Sub O.D.	3.5 to 9.5in (larger on request)	89 to 241mmn
Transmission	Positive Mud Pulse	
Amplitude	Field Adjustable	
Sand Content	< 1%	
Maximum Pressure	- 20000 psi	
Minimum Flow Rate	35 US gals/min in water	8 l/sec
Maximum Flow Rate	1100 US gals/min in water	67 l/sec
Temperature	302°F (Hi-Temp to 347°F special order)	
Hydrostatic Pressure	Maximum 20,000 psi	137.9MPa
Operating Voltage	20-29V	
Nominal Current	12mA	
Shock	1000g/0.5millisecond	
Vibration	25g RMS 30-500 Hz Random, 30g 50-300 Hz Sine	
Mud Sand Content	Less than 1% recommended	
Lost Circulation Material	>50 lb/bbl premixed Medium Nut Plug or Cedar Fiber	





Inclination and Gamma @ Bit Flashlight for Directional Drilling

FEATURES

- At bit inclination measurement / At bit gamma measurement
- Adapts to any motor type
- Tri Axle accelerometers / Tri Axle magnetometers
- Continuous at bit inclination measurement
- Vibration measurements / Temperature measurement
- Shock and Vibration management
- Works in oil and water based muds
- All information is real time and memory loggable

SPECIFICATION

- Length: 0.66 meters or 26 inches
- OD: 4.75", 6.5"
- Sensor accuracy inclination: +/-0.2 degree
- Temperature: 300°F/150°C

APPLICATIONS

- Directional Drilling Geo Steering
- All drilling environments (mud, underbalanced, air)

BENEFITS

- 0.3 meter bit to sensor
- Quicker Geo Steering decisions, faster decision process
- Accurate drilling control, Reduced dog legs
- Optimized well placement





Measurement While Drilling (MWD) Directional/Gamma

FEATURES

- Bottom Landing Pulser or Top Landing Pulser depending on the drilling conditions
- Temp 302°F (Hi-Temp to 347°F special order)
- Long battery life
- Variable Pulse Widths
- Field programmable
- Industrial standard Directional sensor
- Real time gamma and focused gamma

BENEFITS

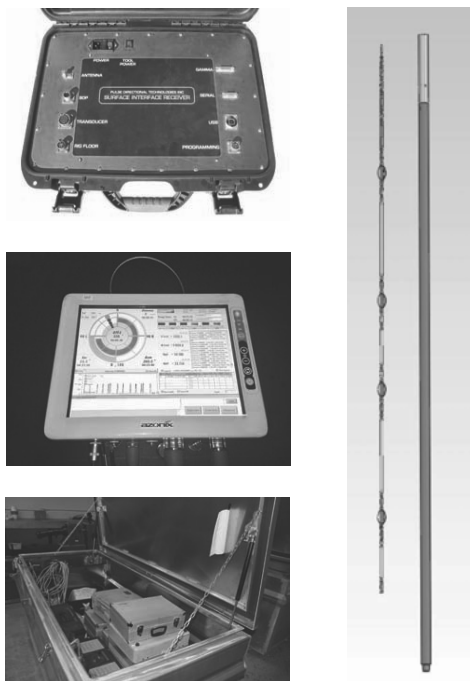
- Fully Wireline retrievable and re-seatable
- Adaptable to other MWD systems
- Ease of Maintenance and operation
- Packaged for field transportation

APPLICATIONS

- Short Radius wells
- Directional and Gamma wells

MWD MODULES – interchangeable

- Pulser (Top or Bottom Landing) Driver/ Battery Pack
- Directional Sensors/Electronics/ Gamma Bowspring or Finned Centralizers





Mud Pulse / EM / PEM ("2-in-1", Mud Pulse and EM MWD tool)

The MWD PEM system provides a rugged reliable solution for the most demanding directional drilling applications. The system can be used with a Positive Pulse or Electromagnetic Transmission. The Pulser and EM transmitter are modular design and can be interchangeable depending on the application. This system is completely adaptable to USDD's complete line of products.

FEATURES

- Bottom Landing Pulser or Top Landing Pulser depending on the drilling conditions
- Downlink switches operating parameters without tripping between Pulse and EM
- Temp 302°F (Hi-Temp to 347°F special order)
- Long battery life
- Variable Pulse Widths
- Field programmable
- Industrial standard Directional sensor
- Real time gamma and focused gamma

BENEFITS

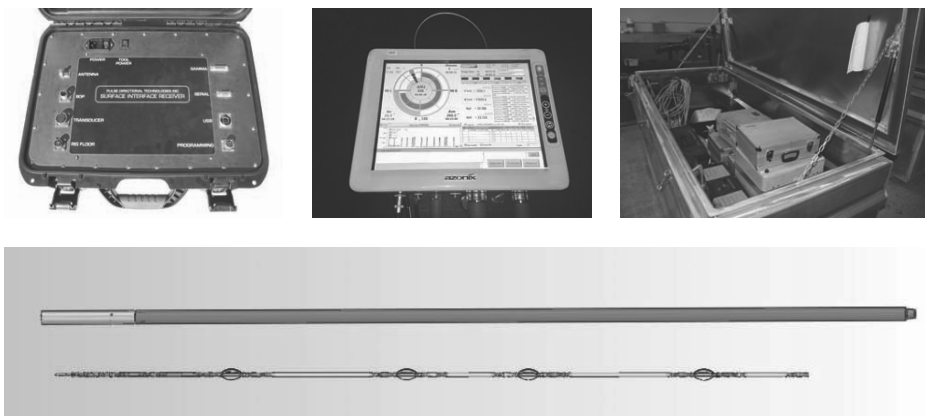
- Fully Wireline retrievable and reseatable
- Adaptable to other MWD systems
- Mud Pulse or EM compatible
- Ease of Maintenance and operation
- Packaged for field transportation

APPLICATIONS

- Short Radius wells
- Directional and Gamma wells

MWD MODULES – interchangeable

- Pulser (Top or Bottom Landing)/Driver Battery
- Directional Sensors/Electronics/Gamma
- Bowspring or Finned Centralizers





Ω Omega - Resistivity Tool

Omega will provide reliable propagation resistivity measurements for hydrocarbon in both high- and low-resistivity formations. Omega will also help to make fast and better real-time decisions while drilling, washing down, reaming, tripping—with minimum lost-in-hole risk.

BENEFITS

- Lower cost than competing resistivity tools
- Fully retrievable reducing LIH exposure for low cost operations
- Modular design for adaptive bit to sensor placement
- Can be used in collar sizes from 4" (102mm) to 8" (204mm) Can be run in water based muds and oil based muds
- Can be used together with Gamma, Directional and Annular Pressure modules in real time
- Will work in water/oil based drilling muds

FEATURES

- Fully Compensated 2 Frequency propagation Resistivity (2 MHz and 400 KHz)
- 4 depths of investigations
- Resistivity Real time updates
- Gamma, Directional and Annular Pressure real time updates
- Memory recordable high resolution logs
- Fully Retrievable

APPLICATIONS

- Bed Boundary Mapping
- Logging while tripping

