



CASED HOLE LOGGING

HTHP - Production Logging Instrumentation

Spartek Systems specializes in providing the oil and gas industry with high quality data to monitor well performance and diagnose potential problems. Founded in 1994, Spartek Systems leads the industry in providing cost effective solutions for acquiring reliable production data.

Product Overview

The HTHP Production Logging System is based on the industry proven SS8000 series Production Logging System. All temperature sensitive component are packaged in a high pressure thermal heat shield. This special pressure housing provides both an improved pressure rating, 20,000 psi and protects the electronics and key sensors from temperatures up to 300°C for 6 hours. The system can be configured for memory or SRO operations.

For memory operations, the main electronics section is connected to the memory module which includes a separate thermal housing for the battery pack. This provides two key benefits; the batteries are not subject to any electronic heat dissipation and it isolates the electronics from any damage related to venting of the lithium cells.

For SRO operations, the main electronics section is connected to the Telemetry module. The Telemetry tool's bi-directional, high-speed, digital communications allows the operator to log, record and view downhole data from all sensors in real-time over conventional, single conductor wireline.

The following sensors are available:

- ▶ Accelerometer
- ▶ Gamma Ray
- ▶ Casing Collar Locator
- ▶ Quartz Pressure
- ▶ Fast Response Temperature
- ▶ Fluid Dielectric (Capacitance)
- ▶ Acoustic Density
- ▶ Fullbore Folding Flowmeter
- ▶ Caged Flowmeter

The Capacitance and Acoustic Density sensors are limited to just over 200°C as these are exposed to the full wellbore temperatures. The other sensors are either protected by the thermal pressure housing or are designed for operations up to 300°C.

The HPHT production Logging Systems is fully compatible with SparWorks and the Warrior Logging System.



Applications

- ▶ Hostile Environment Production Monitoring
- ▶ Monitor well efficiency
- ▶ Production Diagnostics
- ▶ Analyze production profile by zone
- ▶ Monitor well stimulations
- ▶ Well mechanical integrity analysis
- ▶ Time lapse logging
- ▶ Well treatment verification
- ▶ Analyze injection profile by zone

SPARTEK SYSTEMS

Providing Our Customers With "Best In Class" Technology

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Specifications:

Operating Specifications			
Pressure Rating	20,000 psi (max)	Temperature Range	-40°F to 572°F [-40°C to 300°C]
Housing Material	Inconel 718* (sour)	Dimensions	1.689" OD
Master Controllers	Power Requirements	<u>Master Controllers</u> HPHT Memory Controller HPHT SRO Controller	4.40 ft 6.53 ft
Memory Voltage Current (max)	10.0 - 11.7 V (3 cell pack) 200 mA	<u>Sensors</u> Sensor Electronics Cartridge Casing Collar Locator Gamma Ray Quartz Pressure Temperature Capacitance* Acoustic Density* Caged Flowmeter Full Bore Flowmeter Roller Centralizer	9.55 ft Inc. Inc. Inc. Inc. 1.39 ft 1.39 ft 1.09 ft 2.25 ft 2.58 ft
Surface Read Out Voltage Current (max)	125 V - 175V @ Cable head 100 mA	* Capacitance and Acoustic Density limited to 200°C	
Communications	USB		
Data Acquisition <u>Memory PLT</u> Memory Size Sample Rate Logging Time <u>SRO PLT</u> Sample Rate	128 Mb 1, 2, 5, or 10 samples/sec Standard PLT (8 sensors) at 1 sec sample for 135 hours 10 samples/sec		
Performance Specifications			
Spinner Range Operating Diameter Resolution Accuracy Threshold In Line Caged Fullbore	+/- 200 rps 1.81" minimum Caged Spinner 0.125 rps +/- 2% 8 ft/min (oil flow) 4 ft/min (oil flow) 2 ft/min (oil flow)	Pressure Range Resolution Accuracy	<u>Sapphire</u> 20,000 psi 0.003% F.S. 0.05% F.S. <u>Quartz</u> 20,000 psi 0.00006% F.S. 0.024% F.S.
		Acoustic Density Sensor Range Resolution Accuracy	Vibrating Element 0 - 2 g/cc 0.01 g/cc 0.03 g/cc
Temperature Range Resolution Accuracy	-40°C to 300°C 0.01°C +/- 1°C	Fluid Capacitance Resolution WHI Accuracy	0.1% 2% (range 0% - 30%) 5% (range 30% - 60%)
Gamma Ray Detector Type Range	Scintillation 0 - 10,000 API	Casing Collar Locator Detector Type	Electromagnetic
Accelerometer Range Resolution	+/- 5 g 0.01 g	Roller Centralizer Range	1.4 to 8.2 inches

Specifications subject to change without notice

For More Information, Pricing, and Technical Support Contact:


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