

### Geothermal Tools

The geothermal tool (PPS71) is designed for extreme, high temperature downhole conditions. The robust electronics combined with vacuum flask technology allow this product to perform at 350 °C (662 °F) continuously, for four hours.

The tool measures pressure, temperature and flow and can be configured as either a memory or a surface read out (SRO) tool. By combining the downhole measurements with a depth recorder customers have the capability to create synchronised profile logs.

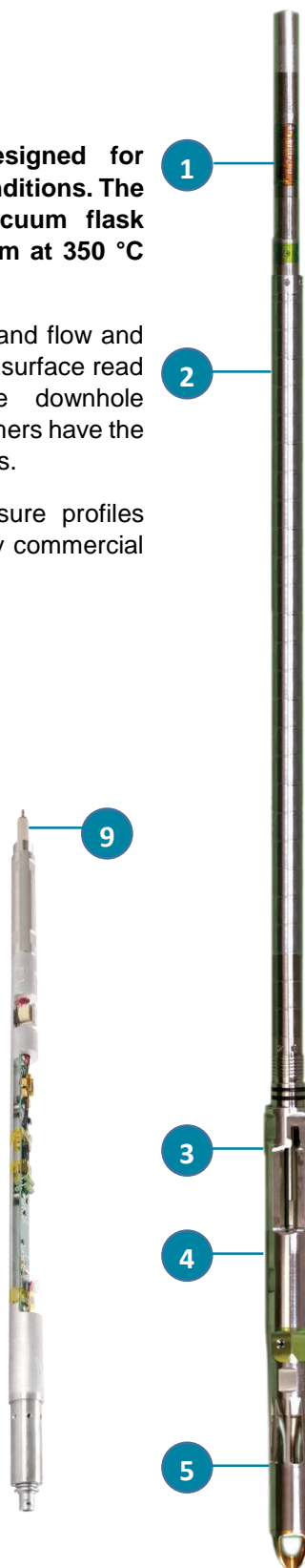
SmartLog creates temperature and pressure profiles based on depth that can be opened in any commercial logging software.

#### Components

1. Casing Collar locator
2. Gamma Ray detector
3. Temperature sensor
4. Pressure sensor
5. Spinner
6. Bowspring centralizer (optional)
7. Flask Housing (Standard housing is optional)
8. Surface Read Out (SRO) interface between the tool and the field laptop
9. SRO module
10. Depth recorder

#### Features

- Operating temperatures up to 350°C
- Fast response RTD temperature sensors
- Continuous or full-bore spinners are available
- Operates in memory or Surface Read Out (SRO) mode
- Can be combined with DepthWatcher if depth measurement is required



### Technical specifications

<b>Pressure measurement</b>	
Sensor type	Piezo silicon sapphire
Pressure range	Up to 10,000 psi
Accuracy	± 0.03% FS
Resolution	0.0003% FS
<b>Temperature Measurement</b>	
Sensor type	RTD (Pt1,000; 4-wire)
Temperature range	0 to 350 °C (662 °F)
Accuracy	± 0.5 °C
Resolution	0.01 °C
<b>Flow measurement</b>	
Sensor type	Reed switch/magnetic
Spinner range	5 – 7,000 RPM
Accuracy	± 0.25 revolution
Resolution	0.25 RPS
<b>Gamma measurement</b>	
Sensor type	Crystal, NaI (scintillation type)
Sensitivity	1.0 CPS/API
<b>Mechanical and material</b>	
Service	H <sub>2</sub> S
Outside diameter	1.56" (39.6 mm) / 1.75" (44.5 mm)
Overall length without Gamma	67.0" (1,702 mm)
Overall length with Gamma	82.5" (2,095mm)
Overall length with SRO	92.0" (2,337 mm) / 109.5" (2,781mm)
Material	Inconel 718/BeCu
<b>Data Store</b>	
Memory sampling rate	0.1 s – 1.8 hrs/per sample
Data sets	Time/Pressure/RTD/Flow Profile/CCL/Gamma Ray
Memory capacity	1,000,000 data sets
<b>Surface Read Out (SRO) module</b>	
Sampling rate	0.1 s – 1.8 hrs/per sample
Communication distance	7000 meters
<b>Environmental</b>	
Gauge temperature rating	177 °C (350 °F) Standard housing 350 °C (662 °F) Flask housing
Electronics rating	177 °C (350 °F)
Downhole time	4 hours at 350 °C (662 °F)/6 hours at 300 °C (572 °F) 8 hours at 250 °C (482 °F)/10 hours at 200 °C (392 °F)/12 hours at 180 °C (356 °F)

### Technical specifications

<b>Power supply (without gamma)</b>	
Operation voltage	2.7 – 3.9 VDC
Battery	180 °C (356 °F) C-size Li-battery (5 A hr./3.6 V)
Power consumption	Operation current 5 mA, idle 3 mA
Connector	Lemo 6 pin with locker
<b>Power supply (with gamma)</b>	
Operation voltage	5.5 – 7.2 VDC
Battery	Two 165°(329°F) SIZE Li-battery (5 A hr/7.2 V)
Power consumption	Operation current 40 mA, idle 35 mA
Connector	Lemo 4 pin with locker
<b>Communication</b>	
Interface	USB
Rate	115,200 bits/s
<b>Surface Read Out (SRO Interface)</b>	
Temperature range	-40 °C (-40 °F) to 85 °C (185 °F)
Power source	100 – 240VAC
Dimensions	7.75" (196.9 mm) x 4" (101.6 mm) x 3.25" (82.6 mm)
Interface	USB 2.0
<b>SRO surface unit</b>	
Downhole data transmitting rate	9600 bps
Downhole data transmitting distance	7000 meter via standard signal conduct electrical cable
Communication port	USB 2.0 to PC
Power input	100 – 240 VAC
Gauge power	+60VDC
Working temperature	-40°C TO 85°C (-40°C TO 85°C (- 40°F to 185°F)
Humidity	90%
Condensation	No
Material	Aluminium
Size	7.87"(H) x 3.94" (W) x 3.15" (L)
Colour	Grey
<b>SRO Surface unit connectors</b>	
AC power	1EA
DC power	1EA
USB port	1EA
Gauge interface	1EA