

PRODUCTION LOGGING TOOLS

1 11/16 in (4.29 cm)

Currently Available:

Wireline Telemetry

CCL

Gamma Ray

Temperature

Fluid Capacitance

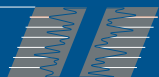
Flow Meter Spinner

Strain Gauge Pressure

Additional Tools Available Soon

Titan[®]

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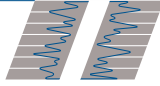


**Your Worldwide
Logging Solution**





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SPECIFICATIONS

MODEL NUMBER

8160-16852PLXXX-XX-00

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH / WEIGHT

19.88" (50.49 cm) / 7 lb (3.2 kg)

OPERATING POWER

60 - 100 VDC @ 7 mA

(Alone)

60 - 100 VDC @ 18 mA

(With tools attached)

FEATURES

Tool Connections

Top: 1 3/16-12 GOI

**Bottom: 1 3/16-12 GOI or
Reverse pin / receptacle GOI**

H₂S Resistant Material



Provides two-way serial communication between the surface equipment and the Production Logging tool string through a standard single conductor wireline. Data from surface equipment to tool string encoded into 8 bit word. Data from tool string to surface equipment encoded into either 12 bit or 24 bit word. Data verification provided by a transmission of a checksum word with every data frame. 20 12 bit channels available for data*. One channel used to provide a control word echo from tool string to surface equipment – providing operator with immediate confirmation that the tool string has received a control command.

*The 20 12 bit data channels can be combined to produce 10 channels of 24 bit data, or any other combination available for logging tool data.

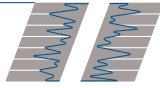
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INSTRUMENT
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SPECIFICATIONS

MODEL NUMBER

8161-16852PL129-02-00

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH

Coil Center to Bottom:

8.55" (21.72 cm)

Total: 22" (55.88 cm)

WEIGHT

11 lb (4.9 kg)

OPERATING POWER

12 VDC @ 8 mA

FEATURES

Tool Connections

Standard: 1 3/16-12 GOI

**Optional: Reverse pin / receptacle
GOI**

H₂S Resistant Material



The Casing Collar Locator (CCL) responds to metallic mass changes in the borehole such as at tubing collars and perforations. Two versions are available: one that transmits data to the surface as line voltage modulation, and one that sends digital data to the telemetry section. The line voltage modulation CCL must be run above and the digital CCL must be run below the PL Wireline Telemetry tool. The CCL may be run simultaneously with all other Titan Production Logging Tools.

Applications:

- Depth correlation
- Locating perforations, packers, nipples, and other mechanical components of the borehole

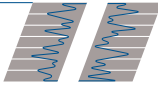
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PRODUCTION LOGGING TOOL

610B16A0 May-06



INSTRUMENT
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SPECIFICATIONS

MODEL NUMBER

8162-16852PL087-04-00

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH / WEIGHT

25.06" (63.66 cm) / 8.5 lb (3.9 kg)

OPERATING POWER

12 VDC @ 26 mA

FEATURES

Tool Connections
Standard: 1 3/16-12 GOI
Optional: Reverse pin / receptacle GOI

H₂S Resistant Material



The Gamma Ray Tool uses a sensitive Scintillation detector and measures natural radioactivity of well formations. The Gamma Ray Tool is run below a Telemetry Section which supplies power to the tool and transmits the gamma ray data to the surface. The tool may be run simultaneously with all other Titan Production Logging Tools.

Applications:

- Depth correlation
- Evaluation of shale content of formations
- Locating radioactive frac sand
- Locating radioactive markers in casing collars

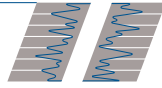
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INSTRUMENT
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SPECIFICATIONS

MODEL NUMBER

8163-16852PL016-01-00

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH

Top to Sensor: 13.28" (33.73 cm)

Total: 15.38" (39.07 cm)

WEIGHT

7 lb (3.2 kg)

OPERATING POWER

12 VDC @ 10 mA

FEATURES

Tool Connections

Standard: 1 3/16-12 GOI

**Optional: Reverse pin / receptacle
GOI**

H₂S Resistant Material



The Temperature Tool uses a platinum RTD sensor that has a fast response to temperature changes. The Temperature Tool is run below a Telemetry Section which supplies power to the tool and transmits the temperature data to the surface. The Temperature Tool may be run simultaneously with all other Titan Production Logging Tools.

Applications:

- Defining cement placement and tops
- Find a lost circulation zone in a currently drilling well
- Finding fluid entry and exit points in production and injection wells
- Indicate flow behind casing or tubing

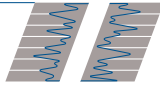
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INSTRUMENT
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SPECIFICATIONS

MODEL NUMBER

8164-16852PL040-05-00

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH / WEIGHT

27.38" (69.53 cm) / 13 lb (5.9 kg)

OPERATING POWER

12 VDC @ 10 mA

FEATURES

**Tool Connections
Standard: 1 3/16-12 GOI
Optional: Reverse pin / receptacle
GOI**

H₂S Resistant Material



The Fluid Capacitance Tool (also sometimes referred to as a Water Hold-Up Tool) measures the dielectric constant of bore hole fluid. The tool distinguishes between water and hydrocarbon by measuring the difference between the dielectric constant of water (~80) and that of oil and gas (~2-6). The Fluid Capacitance Tool is run below a Telemetry Section which supplies power to the tool and transmits the tool data to the surface. The tool may be run simultaneously with all other Titan Production Logging Tools.

Applications:

- Hydrocarbon / Water Hold-Up calculations
- Multi-Phase Production Profiling
- Analysis of water loaded up wells.

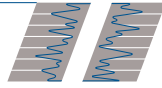
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INSTRUMENT
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SPECIFICATIONS

MODEL NUMBER

8166-16852PL
shown with 1.687" (4.29 cm) cage

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH / WEIGHT

as shown
24" (60.96 cm) / 8 lb (3.6 kg)

OPERATING POWER

12 VDC @ 22 mA

OUTPUT

12 pulses / revolution
Flow direction indicated

THRESHOLD

approx 5 ft / min

FEATURES

Cage sizes available
1.68" (4.29 cm)
2.125" (5.40 cm) & 3.00" (7.62 cm)

Tool Connections
Standard: 1 3/16-12 GOI
Optional: Reverse pin / receptacle GOI

H₂S Resistant Material



The Continuous Flow Meter Spinner incorporates an impeller rotated by moving fluid. The impeller is mounted on precision bearings. Rotation is detected with three zero drag Hall Effect devices. The Flow Meter is run below a Telemetry Section which supplies power to the tool and transmits flow data to the surface. The Flow Meter operates in vertical or horizontal positions and outputs both up and down flow. The Flow Meter may be run simultaneously with all other Titan Production Logging Tools.

Applications:

- Production profiles
- Injection profiles
- Casing and tubing leak detection
- Gauging effectiveness of well treatments

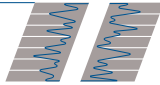
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INSTRUMENT
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SPECIFICATIONS

MODEL NUMBER

816F-16852PL057-01-00

TEMPERATURE RATING

350° F (176.7° C)

PRESSURE RATING

18,000 PSI (124 MPa)

LENGTH / WEIGHT

20" (50.80 cm) / 8 lb (3.6 kg)

OPERATING POWER

12 VDC @ 14 mA

FEATURES

Tool Connections
Standard: 1 3/16-12 GOI
Optional: Reverse pin / receptacle
GOI

H₂S Resistant Material



The Pressure Tool uses an accurate Strain gauge sensor to measure pressure in the bore hole. The tool is run below a Telemetry Section which supplies power to the tool and transmits the tool data to the surface. The tool may be run simultaneously with all other Titan Production Logging Tools.

Applications:

- Down-Hole Pressure Gradient Measurement
- Build-Up Pressure Transient Analysis

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