

## Pressure-Temperature-Flow (PTF) Sensor

### Application

The High-Resolution Pressure/Temperature/Flow rate (PTF) Tool is used to measure pressure, temperature, and flow in a wellbore. A silicone fluid buffer is used to isolate wellbore contaminants from direct contact with the pressure transducer bellows.

The tool sends five frequencies:

- Wellbore temperature
- Internal transducer temperature
- Pressure
- Flow rate up
- Flow rate down

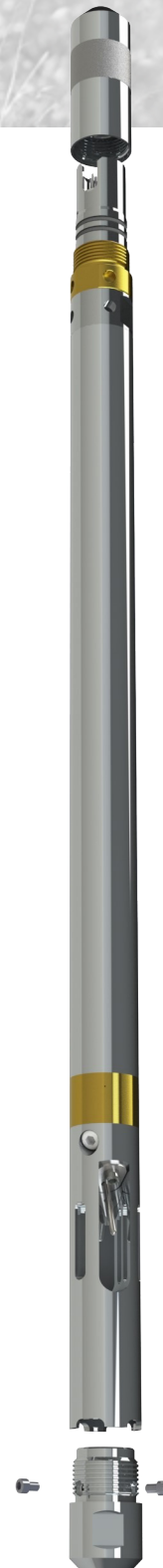
The tool transmits data from the transducer (pressure and internal temperature) serially to a telemetry tool, which transfers data to a surface acquisition system, or to a memory adapter, which stores data within internal memory.

The frequency for temperature is generated on the temperature board and should be approximately 15kHz at room temperature. Flow frequency is generated from a magnetic hub in the head of a flowmeter attached to the bottom of the PTF tool. As these magnets pass sensors inside the PTF, two signals are generated that can be used to decode the direction of fluid flow past the tool. A flowmeter will generate 12 pulses per revolution on the output channels. Only one channel at a time will have an output on it for flow; this changes depending on the direction of fluid flow past tool.

All serial data and flow frequencies are generated on the high-resolution board, but the tool must be connected to a DataCan Services' Lee Specialties Telemetry or Memory Adapter Tool before the serial data will be transmitted.

### Features

- Incorporates a Quartz Pressure Sensor, Temperature sensor, and Bidirectional Flow Sensor
- Pressure Sensor has Built-in Temperature Compensation
- Bellows and Buffer of Silicone Oil Isolates Sensors from Wellbore



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**Fluids**

- RTD Resistor Temperature Sensor
- Flow Rate Sensor Obtains Rotational Direction and Speed from an Attached Spinner
- PTF is Compatible with Both Fullbore and Continuous Spinners

**Benefits**

The PTF tool is designed with a quartz sensor for long-term stability, even in high temperature applications. It also has 18-bit resolution data for improved pressure reading accuracy and resolution.

Pressure Temperature Flow Sensor	
Type	Part No.
Standard Service	AM008WA0010
H2S Service	AM008WB0010

Spare Parts and Accessories	
Spare Parts	
Type	Part No.
Seal Kit	AM008RK0010
Spring Pin	SP1/16SB050 (x2)
Port Plug	PM008SB0029
Socket Cap Screw 8-32x3/16"	SCC8-32SB01875
Socket Head Cap Screw 10-32x0.25"	PE545UU0045
Spacer O-Ring	PM008SA0015
Accessories	
Type	Part No.
PTF Fill Pump and Adapter	AM002UU0005

### Pressure-Temperature-Flow (PTF) Sensor

Specifications	
	Details
OD	1.375 in (34.9 mm)
Length	27.2 in (690 mm)
Weight	7.8 lbs (3.5 kg)
Temperature Rating	350°F (177°C)
Temperature Resolution	0.018°F (0.01°C)
Temperature Accuracy	±1.6°F (±1°C)
Temperature Repeatability	0.36°F (0.2°C)
Pressure Rating	15,000 psi (103.5 MPa)
Pressure Resolution	0.02 psi (0.14 kPa)
Pressure Accuracy	±3.2 psi (±22 kPa) (equivalent to 0.02%)
Flow Resolution	0.083 rps
Flow Accuracy	±2%
18V Power Requirement (Memory String)	41 mA
100V Power Requirement (Telemetry String)	9 mA