

Single Gauge Quartz Pressure tool (QPS)

Provides a continuous log of borehole fluid pressure

Application

- Measure shut-in and flowing pressure at prescribed depth levels
- Determine pressure differentials over prescribed intervals
- Accurately locate gas-liquid interfaces (two-phase, three-phase contacts)
- Estimate damage or improvement by skin factor value
- Pressure gradient measurement
- Draw-down and build-up pressure transient analysis

Features

- Combinable with other Sondex **Ultrawire™ production logging tools**
- Precision and accurate measurement
- Fast response to small changes in fluid pressure

The Sondex **Single Gauge Quartz Pressure tool (QPS)** is used to provide a continuous log of borehole fluid pressure and to record reservoir pressure draw-down and build-up data during flowing tests.

The Quartz Pressure tool measures pressure and gauge temperature using an industry standard precision quartz crystal pressure transducer.

A pressure gauge, with removable bellows to isolate the quartz crystal from well fluids, is fitted to the lower tool body. An open pressure port with wire mesh filter allows well pressure into the gauge. A second (flushing) port is plugged whilst running in hole.

The crystal resonance frequency depends on pressure and temperature, hence the gauge incorporates a second “temperature” crystal, thermally coupled to the first, which is not subjected to well pressure.

A 7.2 MHz clock, used to down shift the pressure and temperature crystal frequencies, is output as a time reference for frequency measurement. Drift of this clock is included in the calibration algorithm, resulting in accurate calculation of temperature and pressure. Gauge output pressure and temperature frequencies lie in the range of 15 to 60 kHz.



Specifications

Temperature rating	350°F (177°C)
Pressure rating	15,000 psi (103.4 MPa)
Tool diameter	1 ¹¹ / ₁₆ in. (43 mm)
Tool length	19.01 in. (482 mm)
Tool weight	8.8 lb (4 kg)
Toolbus	Ultrawire production logging tool
Current consumption	20 mA
Pressure	
Maximum total/combined error	0.02% FS
Resolution	0.008 psi (55.16 Pa)
Response time	< 1 sec for 99.5%
Ageing	< 3 psi (20.68 kPa)/year
Temperature	
Accuracy	0.27°F (0.15°C) typical
Resolution	< 0.009°F (0.005°C)
Ageing	< 0.29°F (0.16°C)/year
Reference clock (ageing)	< 2 ppm/year
Materials	Corrosion resistant throughout