

WellWatcher Quartz LT

High-resolution PT gauge



Rated to 10,000 psi
[68.947 kPa]



Rated to 130 degC
[266 degF]

APPLICATIONS

- Long-term production and reservoir monitoring
- Injection monitoring
- Single- or multiple-zone monitoring
- Intelligent completions

BENEFITS

- Continuous pressure and temperature measurements enable
 - real-time evaluation
 - immediate corrective actions
- Real-time data minimize the need for costly interventions

FEATURES

- Multidrop capability of up to six gauges on a single cable with standard 1-s sampling rate
- Long-term measurement accuracy with excellent sensor and electronics stability
- High system reliability confirmed by rigorous testing
- Compact gauge design for optimal well integration
- Advanced cable connector technology
- Compatibility with the WellWatcher Neon* DTS, DAS, and PT gauge system
- Hermetically sealed gauge housing, fully welded, with inert gas filling
- Availability of Intelligent Well Interface Standardization (IWIS)–compliant and vendor-specific subsea cards

WellWatcher Quartz LT* high-resolution PT gauge is part of the family of WellWatcher* permanent monitoring systems. WellWatcher systems help operators optimize well productivity and improve hydrocarbon recovery throughout the producing life of a well or field by providing real-time evaluation through accurate downhole measurements.

WellWatcher Quartz LT gauges incorporate quartz transducers and advanced electronic components and cable head connector sealing technology.

Enhanced sealing

The cable head uses the Sealtite* downhole dry-mate connector, which provides two independent seals, including an improved metal-to-metal seal.

Multidrop capabilities

Single gauges can be connected to Y, T, or W connector blocks at the wellsite, depending on the configuration required. These modular systems optimize efficiency and inventory management.

Increased gauge reliability and multidrop capabilities result from

- high-temperature multichip module ceramic electronics and quartz sensors
- advanced connector technology
- cable head with Sealtite connector blocks
- corrosion-resistant alloys.

Stable measurements at reservoir conditions

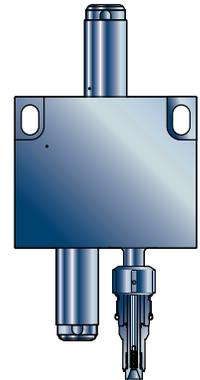
These gauges are engineered to deliver highly accurate and stable pressure measurements, which are critical for long-term reservoir and production monitoring. Gauge performance is validated in controlled test cells where drift stability is measured at simulated reservoir pressures and temperatures.

Rigorous qualification testing

The gauges undergo accelerated aging tests at a high temperature over several months to simulate a 14-year life at the rated temperature. In addition, thermal shock cycle testing and power on-off cycles simulate the most demanding operating conditions. The complete gauge assemblies undergo repeated shock and vibration testing at rigorous levels to qualify them for real-life operational conditions in production and injection wells.

Track record of more than 40 years

Having installed permanent gauges since 1972, Schlumberger is the recognized industry leader in permanent downhole monitoring, with an established program for continuous performance improvement. All engineering, manufacturing, calibration, and qualification of WellWatcher systems is performed at an in-house facility in France, where Schlumberger has been developing downhole electronics since 1959.



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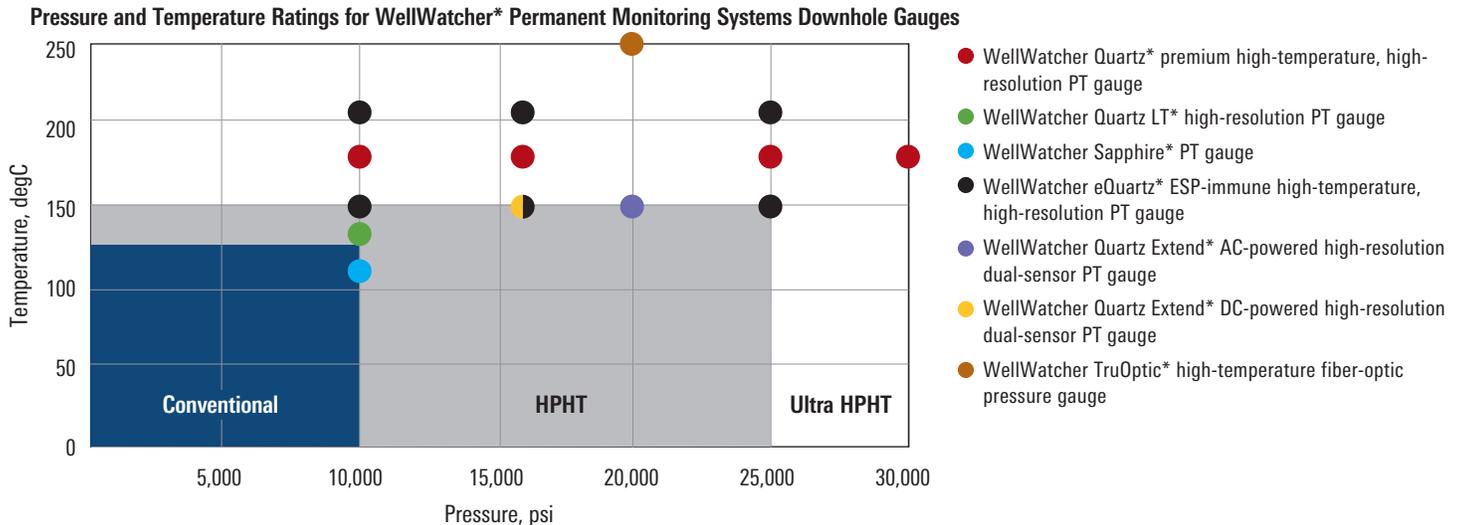
WellWatcher Quartz LT

WellWatcher Quartz LT Gauge Specifications

XLQG Gauge	
Gauge performance	
Sensor type	Quartz
Calibrated working pressure range, psi [kPa]	Atmospheric to 10,000 [68,947]
Calibrated working temperature range, degC [degF]	25 to 130 [77 to 266]
Other calibrated ranges [†]	Available upon request
Pressure accuracy, psi [kPa]	±2 [±13.8] over full scale
Pressure resolution, psi [kPa]	0.005 [0.03] at 1-s sample rate
Drift at max. pressure and temperature, psi [kPa]	0.003% [0.02%] per year over full scale
Temperature accuracy, degC [degF]	±0.15 [±0.27]
Temperature resolution, degC [degF]	0.005 [0.009] at 1-s sample rate
Temperature drift, degC [degF]	< ±0.1 [±0.18] per year at 130 [266]
Max. overtemperature, degC [degF]	150 [302]
Physical characteristics	
Max. housing diameter, in [mm]	0.75 [19]
Cable head connector options	Sealtite connector with metal-to-metal seal
Multigauge connection options	Y, T, and W Sealtite connector block assemblies
Gauge pressure port reading options	Tubing and/or annulus measurement
Storage and shipping temperature, degC [degF]	-40 to 75 [-40 to 167]
Well integration	
Max. number of gauges per single cable [‡]	6 at 1-s sampling rate
Max. cable length, ft [m]	32,800 [10,000]
Max. distance between gauges, ft [m]	3,281 [1,000]
Qualification test data	
	Qualified for a 10-year life at 130 degC [266 degF]
Vibration	10 to 2,000 Hz at up to 4 g _r along any axis
Shock	400 impacts at 250 g _n (2-ms half sine, 4 axes) and 6 drop impacts at 500 g _n (2-ms half sine, 6 axes)

[†]A lower temperature calibration may be required for injection wells.

[‡]Consult a Schlumberger representative for additional specifications.



The graph shows the environmental applications in which WellWatcher system downhole gauges are most appropriate. The WellWatcher Quartz LT gauge is suitable for temperatures as high as 130 degC and pressures as high as 10,000 psi.

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