

# Well Monitoring Gauges

## Down Hole Gauges

Jiach Energy Solutions have partnered with Reservoir group who is Globally acknowledged for delivering advanced well-monitoring solutions, our products are trusted by leading industry operators to provide precise and reliable data across worldwide operations. We focus on the design, manufacture, and maintenance of high-performance downhole gauges, ensuring continuous access to accurate production data that supports effective reservoir management and optimized field performance.

### Types of gauges:

- Quartz Memory Gauges
- Piezo Memory Gauges

## Quartz Memory Gauges

Quartz gauges are advanced pressure and temperature monitoring instruments widely used in the oil and gas industry for accurate downhole data acquisition. These gauges utilize quartz crystal sensor technology, which offers exceptional stability, high resolution, and minimal drift over long-term operations.

Designed for harsh well environments, quartz gauges can withstand high pressure and high temperature (HPHT) conditions while delivering reliable real-time or memory-recorded data. They are commonly deployed for reservoir analysis, production monitoring, well testing, and pressure build-up studies.

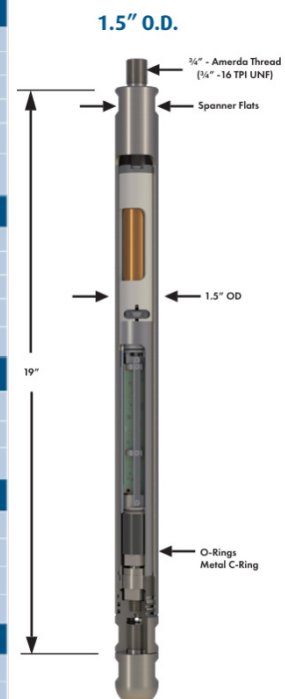
## Elite quartz

The Elite Quartz Memory Gauge from Reservoir Group delivers high-performance pressure and temperature data acquisition with second-level accuracy. This compact memory gauge features large storage capacity, multi-sample rate capability, and proven quartz transducer technology for reliable downhole performance. Robust metal-to-metal seals, including a silver-coated C-Ring, ensure superior leak protection.

Automatic pressure and temperature thresholds enable hands-free start/stop recording based on programmed limits.

- Battery life varies with temperature, sample rate, and battery type.
- 6 million data sets are achievable based on a 1 second sampling interval but may be limited by battery capacity available and temperature of operation (60 million data sets are achievable based on a 0.1 second sampling interval but may be limited by battery capacity available and temperature of operation).

Pressure	
Maximum external pressure	Must not exceed sensor range or 15 ksi max.
Sensor Range	10 ksi and 15 ksi
Sensor type	Quartz Resonator
Accuracy	< ± 0.02% FSO
Accuracy typical	±0.01% FSO
Resolution (0.1 second sampling interval only)	10 ksi, <0.0025psi (°<0.025 psi) 15 ksi, <0.0033psi (°<0.033 psi)
Temperature	
Maximum temperature	Must not exceed range 150°C Max
Range	0°C to 150°C
Accuracy	±1.0°C
Accuracy Typical	±0.5°C
Resolution	0.01°C
Power	
Battery Power	CC Lithium (hardwired), AA, C or CC Lithium
Operating Voltage	3.2 to 3.9 V
Battery Life*	Up to 2 years
Memory	
Sampling interval	0.1 seconds, 1 to 600 seconds
Memory Type	Non-volatile
Capacity**	6 million data sets (60 million data sets)
Record contents	Time, pressure, temperature
Other	
Materials	SS 17-4 PH, Sub K500 Monel
Service	Standard and H <sub>2</sub> S

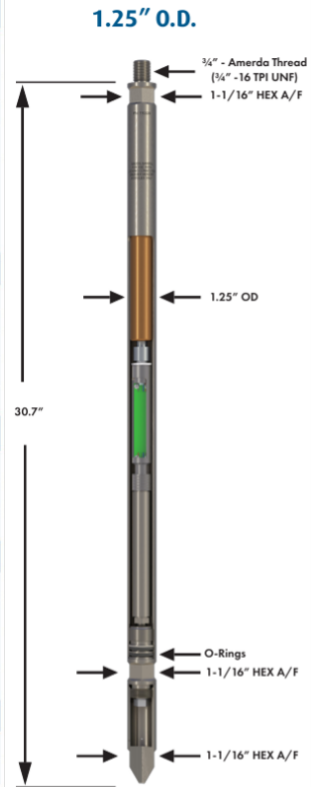


## Quartz 200L – EM

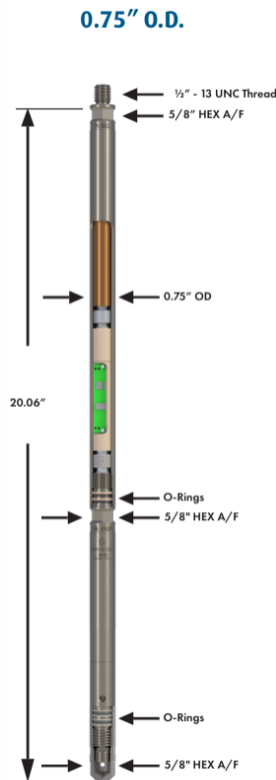
The QM200L-EM quartz memory gauge from Reservoir Group delivers extreme accuracy in HPHT environments using advanced Quartz dyne digital hybrid technology. It features a field-replaceable 200°C memory module with up to 8 million dataset capacity. Built from corrosion-resistant Hastelloy and Inconel, the 1.25" OD gauge includes a lockable battery pack and rugged construction, allowing reliable operation under high shock, vibration, and harsh well conditions.

- Battery life varies with temperature, sample rate.
- Specified at 125°C and 5 second sampling interval

Pressure	
Maximum external pressure	Must not exceed sensor range or 23 ksi max.
Sensor Range	5 options from 5 ksi to 25 ksi
Sensor type	Quartz Resonator
Accuracy	< ± 0.015% FSO
Drift	±0.02% FSO per year
Resolution (*0.1 second sampling interval only)	5 ksi, <0.006psi (*<0.06 psi) 10 ksi, <0.006psi (*<0.06 psi) 16 ksi, <0.008psi (*<0.08 psi) 20 ksi, <0.008psi (*<0.08 psi) 25 ksi, <0.010psi (*<0.10 psi)
Temperature	
Maximum temperature	Must not exceed range 200°C Max
Range	0 to 150°C, 177°C, and 200°C
Accuracy	±0.15°C
Repeatability	<0.01°C
Resolution	<0.05°C (scales directly with sample rate)
Power	
Battery Power	2CC Lithium
Operating Voltage	3.2 to 3.9 V
Battery Life**	Up to 1 year
Memory	
Sampling interval**	0.1 seconds, 1 second to 1 hour
Memory Type	Non-volatile
Capacity	8 million data sets (sequential) 4 millions data sets (redundant)
Record contents	Time, pressure, temperature
Other	
Materials	Inconel 718 and Hastelloy C-276
Service	Standard and H <sub>2</sub> S



Pressure	
Maximum external pressure	Must not exceed sensor range or 25 ksi max.
Sensor Range	4 options from 10 ksi to 25 ksi
Sensor type	Quartz Resonator
Accuracy	< ± 0.015% FSO
Drift	± 0.02% FSO per year
Resolution (*0.1 second sampling interval only)	10 ksi, <0.006psi (*<0.06 psi) 16 ksi, <0.008psi (*<0.08 psi) 20 ksi, <0.008psi (*<0.08 psi) 25 ksi, <0.010psi (*<0.10 psi)
Temperature	
Maximum temperature*	Must not exceed range 200°C Max
Range	0 to 150°C, 177°C, and 200°C
Accuracy	± 0.15°C
Repeatability	< 0.01°C
Resolution	< 0.05°C (scales directly with sample rate)
Power	
Battery Power	2AA or 4AA Lithium
Operating Voltage	3.2 to 3.9 V
Battery Life**	9.9 or 19 days***
Memory	
Sampling interval	0.1 seconds, 1 second to 1 hour
Capacity****	1 million data sets (sequential) 500,000 data sets (redundant)
Record contents	Time, pressure, temperature
Other	
Materials	Inconel 718 and Hastelloy C-276
Service	Standard and H <sub>2</sub> S



## Quartz 200 S

The QM200 Slim quartz memory gauge from Reservoir Group is a rugged 0.75" OD tool designed for HPHT monitoring up to 200°C and 25 ksi using advanced Quartzdyne digital hybrid technology. Its slim design ensures fast response and easy deployment in wireline or tubing carriers. Featuring a field-replaceable memory module and corrosion-resistant Hastelloy and Inconel construction, it delivers reliable performance in harsh well environments.

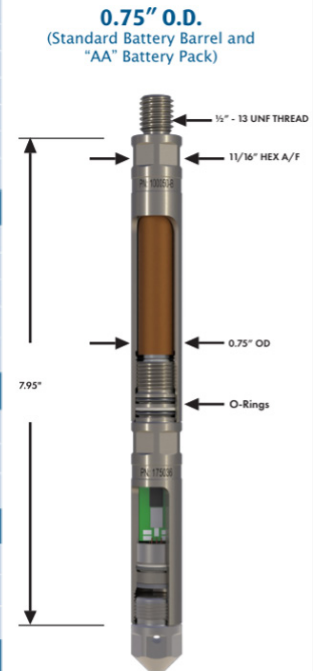
## Piezo Electric gauges

### Piezo Slim Line

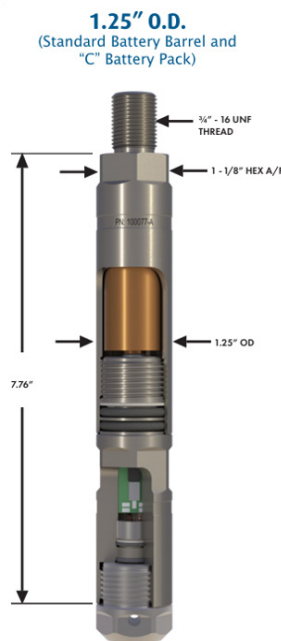
The Slimline Piezo Memory Gauge from Reservoir Group delivers reliable pressure data in tight-bore and flow-critical applications. Measuring 3/4" OD and 7.95" long, it operates on a single AA battery for extended periods, with a detachable, non-dangerous goods battery pack for easy shipping. Configurable for direct external pressure porting, it supports up to 15 ksi differential pressure using robust sealing arrangements.

**Note:** The Slimline gauge can be ported for external pressure directly to the Transducer. This is referred to as 'Slimline 0.75"OD, 15ksi MAX DIFF'. It is configured with a seal on the Transducer housing and seal nose or tandem adapter connection to allow isolation from internal pressure.

Pressure	
Maximum external pressure	Must not exceed sensor range or 25 ksi max.
Sensor range	8 options from 0.75 ksi to 25 ksi
Sensor type	Piezo-resistive
Accuracy	< ± 0.050% FSO
Accuracy typical	± 0.030% FSO
Long-term stability	± 0.1% FSO
Drift	< 3 psi per year
Resolution	± 0.0003% FSO
Temperature	
Maximum temperature	Must not exceed range 177°C Max
Range	4 options from 100°C to 177°C
Accuracy	± 0.6°C
Repeatability	± 2°C
Resolution	± 0.0001% FSO
Power	
Battery Power	AA Lithium
Operating Voltage	3.6 to 3.9 V
Battery Life**	56 or 85 days***
Memory	
Sampling interval	1/100s, 1/10s, ≥1s
Capacity	1,000,000 Data sets
Record contents	Time, pressure, temperature, battery voltage
Other	
Materials	Inconel 718
Service	Standard and H <sub>2</sub> S



Pressure	
Maximum external pressure	Must not exceed sensor range or 25 ksi max.
Sensor range	8 options from 0.75 ksi to 25 ksi*
Sensor type	Piezo-resistive
Accuracy	< ± 0.050% FSO or better
Accuracy typical	± 0.030% FSO
Long-term stability	± 0.1% FSO
Drift	< 3 psi per year
Resolution	± 0.0003% FSO
Temperature	
Maximum temperature	Must not exceed range 177°C Max
Range	4 options from 100°C to 177°C
Accuracy	± 0.6°C
Repeatability	± 0.2°C
Resolution	± 0.0003% FSO
Power	
Battery Power	C or CC Lithium
Operating Voltage	3.6 to 3.9 V
Battery Life	193 days or more than 1 year**
Memory	
Sampling interval	1/10s, ≥1s
Capacity	8,000,000 Data sets
Record contents	Time, pressure, temperature, battery voltage
Other	
Materials	Inconel 718
Service	Standard and H <sub>2</sub> S



### Piezo Short line

Reservoir Group's Shortline-EM Piezo Memory Gauge is the shortest available in its class and is ideal for applications where longer gauges are difficult to use. At only 8.23" long and with a 1.25" diameter, the Shortline is compact, robust and ideal for short rig-up wireline and gauge carrier applications. Using a single detachable 'C' size Battery Pack, it is capable of recording data for up to a year, helping our clients perform longer downhole surveys.

- Battery life varies with temperature and sampling interval. Specified at 125°C & 5 second sampling interval
- Note: The 25ksi version of the Shortline-EM gauge uses a high-pressure battery bar reliable to achieve its maximum external pressure rating. A 'Sub CC' type battery pack is used on this gauge version.