

# Metris Express single-sensor permanent PT gauge

Noise-immune gauges with advanced bidirectional telemetry



## Pressure:

Rated up to 8,000 psi [55 MPa]



## Temperature:

Rated up to 250 degF [121 degC]

## Enhanced metrology

Metris Express\* single-sensor permanent PT gauges use proprietary enhanced silicon-on-insulator sensors for high-quality measurements in the tubing or annulus.

## How it improves wells

The gauges enable real-time evaluation and prompt corrective actions by delivering continuous pressure and temperature (PT) measurements. Acquired data is used for

- long-term production, injection, and reservoir monitoring in real time
- production allocation and management
- production and injection optimization
- well productivity, pressure transient, and decline analysis
- workover and intervention planning
- improved field development via interwell connectivity identification and offset well placement and completion design optimization
- reservoir model improvement and validation
- artificial lift optimization
- hydraulic fracture monitoring.

## How it works

The telemetry used by the gauge and surface acquisition unit is immune to external electrical noise and electromagnetic field interference (e.g., from ESP power cables or motor drives).

Metris Express gauges use the field-proven Sealtite\* downhole dry-mate connector and the Radial Lower Tip connector, both of which are qualified past the pressure and temperature ratings of the gauge. The Radial connection is V0-qualified per ISO 1998, and the gauge metallurgy is H<sub>2</sub>S resistant per NACE MR015/ISO 15156.

## Bidirectional telemetry

Unlike conventional permanent downhole systems, Metris Express gauges use advanced bidirectional telemetry. This not only transmits PT data but also enables users to update gauge firmware if needed.

## What else I should know

These permanent gauges are engineered to deliver stable PT measurements at downhole conditions, a quality that is essential for long-term reservoir and production monitoring. Performance is validated in a controlled test cell, where drift stability is measured at simulated reservoir PT conditions. Every gauge is calibrated in-house at a Schlumberger manufacturing center to maximize performance.

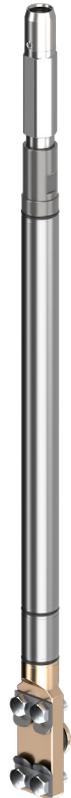
The gauges are also subjected to power on-off cycles and temperature cycling to simulate the most demanding operating conditions. They are qualified for a lifetime in excess of 30 years at 250 degF [121 degC]. Repeated shock and vibration testing at rigorous levels ensures that they meet the environmental qualifications for production and injection wells. Qualifications meet or exceed the Advanced Well Equipment Standards (AWES) recommended practice for the qualification of downhole instrumentation and sensors.

The Metris Express gauges transmit more than 30 system health tags to surface for diagnostic and prognostic system health monitoring.

## Part of an integrated system

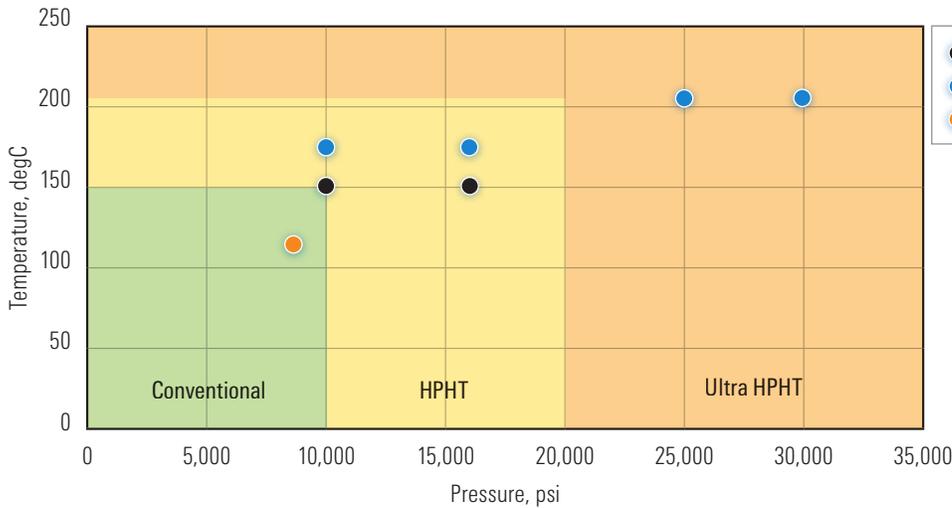
Metris Express gauges belong to the family of [Metris\\* permanent monitoring systems](#). These systems have been specifically designed to be fully compatible with each other on a single cable as well as being interchangeable in the Metris gauge mandrels.

When used together with [WellWatcher Advisor\\* real-time intelligent completion software](#), the gauge becomes part of a monitoring solution that includes downhole surveillance, data analysis, and reservoir interpretation. These technologies are supported and deployed by a specialized group of scientists, engineers, and technicians who are highly trained and experienced in permanent monitoring systems and intelligent completion technology. This specific central support for project preparation and operations contributes to the delivery of best-in-class service quality worldwide.



*Metris Express gauge with Sealtite connector.*

# Metris Express



- Metris Evolve\* permanent PT gauge
- Metris Extreme HPHT permanent PT gauge
- Metris Express\* single-sensor permanent PT gauge

*Metris Evolve and Metris Extreme gauges are available with various pressure and temperature ratings to suit the application.*

## Metris Express Single-Sensor Permanent PT Gauge Specifications

Maximum pressure, psi [MPa]	8,000 [55]
Maximum temperature, degF [degC]	250 [121]
Cablehead connector	Sealtite connector
Feedthrough connector (for multidropped gauges)	Radial Lower Tip connector
Shock and vibration	AWES standard or beyond
H <sub>2</sub> S resistance	NACE MR0175
Scanning rate	One dataset (pressure and temperature) per second
Tool power	Voltage: 9 V–70 V Current: 14 mA

## Metrology

Pressure calibration range, <sup>†</sup> psi [MPa]	1,000 to 8,000 [6.9 to 55]
Temperature calibration range, <sup>†</sup> degF [degC]	77–250 [25–121]
Initial pressure accuracy, psi [kPa]	±3.0 [±20.6]
Pressure resolution, 1-s gate time, psi [kPa]	0.035 [0.24]
Pressure drift over full range, psi/year [kPa/year]	±3.0 [±20.6]
Temperature accuracy, degF [degC]	±0.27 [±0.15]
Temperature resolution, 1-s gate time, degF [degC]	0.009 [0.005]
Temperature drift at 302 degF, degF/year [150 degC, degC/year]	±0.18 [±0.1]

## Dimensions

Outer diameter, in [mm]	0.75 [19.1]
Single-sensor length, in [mm]	18.1 [459.7]

<sup>†</sup> Custom calibration ranges are available if required.

[slb.com/Metris](http://slb.com/Metris)