Metris Eclipse
B-annulus PT monitoring system

Rated to 15,000 psi
[103 MPa]
Rated to 302 degF
[150 degC]
Compatible with Agiliti* modular digital completions

APPLICATIONS
■ Well integrity monitoring in the B-annulus of subsea wells

BENEFITS
■ Cost savings through early detection of leaks or pressure buildup behind the production casing
■ Fast installation via simple space-out below casing and tubing hangers

FEATURES
■ “Slip-on” inductive couplers that maintain full casing and tubing integrity
■ Low power requirements compatible with an interface card that complies with API Standard 17F, previously Intelligent Well Interface Standardisation (IWIS) and ISO 13628-6 standard
■ Slim annulus gauge suitable for 10¾-in casing inside 13¾-in or 13½-in casing
■ Ability to multidrop the annulus gauge and up to six production gauges (12 sensors) belonging to the family of Metris* permanent monitoring systems on one monoconductor electrical cable
■ Bypass channel that enables multiple hydraulic and electric lines to pass through the tubing-mounted inductive coupler
■ Gauge qualification procedures, verification and validation tests, and accelerated life cycle tests compliant with Advanced Well Equipment Standards Recommended Practice (AWES RP)

Metris Eclipse* B-annulus PT monitoring system enables continuous well integrity monitoring behind the production casing. Installed at shallow depths, near the subsea tree, it combines a robust and reliable Metris Evolve* permanent PT gauge with inductive coupler technology that enables wireless power and data transmission. The slip-on design of the inductive couplers maintains full tubing and casing integrity. The system is compatible with 10¾-in casing and up to 7-in tubing.

System configuration
Mounted on the exterior of the production casing, the gauge is connected to a female inductive coupler that is slipped over the casing OD and accurately spaced out below the casing hanger. A male inductive coupler is slipped over the production tubing and spaced out to the tubing hanger. The predetermined space-out enables direct landing of the tubing and casing hangers without need for rotation or additional space-out operations.

The Metris Eclipse system shares a single monoconductor cable, single-pin tubing hanger penetrator, and surface acquisition card with other production gauges belonging to the family of Metris permanent monitoring systems that are located deeper, near the reservoir. Power and telemetry are provided by the surface acquisition card, which is mounted in the subsea tree or canister.

PT gauges
The Metris Eclipse system is compatible with all Metris system production gauges. Up to six of these dual-sensor gauges (12 sensors) can be multidropped from the single monoconductor cable. All the gauges use industry-proven redundant-seal dry-mate connectors. Accelerated life cycle tests at various high temperatures, thermal cycling, and repeated shock and vibration testing at rigorous levels qualify the gauges for real-life operating conditions. Industry-leading accuracy, stability, and resolution ensure superior metrological performance throughout the life of the well.

Track record of more than 45 years
Having installed permanent gauges since 1972, Schlumberger is the recognized industry leader in permanent downhole monitoring, with an established program for continuous product development and performance improvement. All engineering, manufacturing, calibration, and qualification of our permanent monitoring systems is performed at an in-house facility in France, where Schlumberger has been developing downhole electronics since 1959.
### Metris Eclipse B-Annulus PT Monitoring System Specifications

#### General
- **Operating temperature range, degF (degC)**: 37 to 302 [3 to 150]
- **Storage temperature range, degF (degC)**: –40 to 122 [–40 to 50]
- **Operating pressure rating, psi [kPa]**: 15,000 [103,421]
- **Gauge OD, in [mm]**: 0.75 [19.1]
- **Production casing OD, in [mm]**: 10¾ [273.1]
- **Production casing weight, lbm/ft [kg/m]**: Up to 60.7 [up to 90.3]
- **Tubing OD, in [mm]**: Up to 7 [up to 177.8]
- **Casing and tubing material**: Nonmagnetic section for inductive coupler
- **Coupler flow-wetted materials**: INCONEL® 625, INCONEL 718, and MP35N®
- **Cable**: ¼-in [6.4-mm] OD monoconductor
- **Multidrop capability**: One B-annulus gauge and up to 12 sensors on production tubing

#### Female inductive coupler
- **Nominal OD, in [mm]**: 12 [304.8]
- **Max. OD, in [mm]**: 12.2 [309.9]
- **ID, in [mm]**: 10.8 [274.3]
- **Tensile rating**: Same as casing
- **Compression rating**: Same as casing
- **Min. torque rating**: Same as casing
- **Burst pressure rating**: Same as casing
- **Collapse pressure rating**: Same as casing

#### Male inductive coupler
- **Nominal OD, in [mm]**: Up to 8.55 [217.2]
- **Max. OD, in [mm]**: Up to 9.41 [239.0]
- **ID, in [mm]**: Up to 7.09 [180.1]
- **Tensile rating**: Same as tubing
- **Compression rating**: Same as tubing
- **Min. torque rating**: Same as tubing
- **Burst pressure rating**: Same as tubing
- **Collapse pressure rating**: Same as tubing