

PRODUCT DATA SHEET

3050-TE Moisture Analyzer (Casting Only)

Quartz-crystal microbalance (QCM) technology: accurate, reliable, verifiable and responsive

The 3050-TE provides an extremely accurate measurement of trace levels of moisture in a gas through the use of a quartz-crystal oscillator sample cell. This analyzer brings the benefits of quartz-crystal technology to a broad spectrum of low-range moisture measurement applications.

Direct measurement of concentration

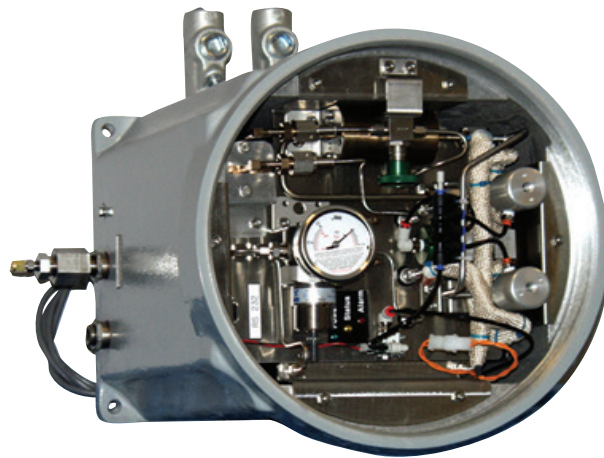
The 3050-TE measures moisture concentration directly in parts per million by volume (ppmv), parts per million by weight (ppmw), or mass of water per standard volume without additional pressure or temperature compensation. For customers who wish to convert concentration to dew/frost point, the 3050-TE can be programmed for a live process pressure input or a fixed process pressure.

Accurate and responsive

The accuracy of the 3050-TE is ± 0.01 ppmv or $\pm 10\%$ of reading, whichever is greater, over the calibrated range of 0.01 to 100 ppmv. The design of the 3050-TE enables a speed of response that is far superior to other analyzers, while consuming as little as 150 standard cubic centimeters per minute (sccm) of sample gas. The reliability and stability of the QCM sensor eliminates the need for routine factory recalibration requirements.

On-line verification ability

The 3050-TE is equipped with the ability to self-verify its accuracy and sensitivity to moisture. This can be done on a programmed schedule, or whenever necessary. With a built-in zero module and internal moisture generator, the 3050-TE provides data you will have confidence in. If necessary, the analyzer can make small corrections to its calibration automatically. If a severe calibration problem exists, the analyzer will provide an alarm.



KEY BENEFITS

- Most accurate trace moisture measurement technology available
- Fast response to changing moisture levels
- Specific to moisture in most applications
- Rugged sensor



APPLICATIONS

- Inlet and outlet to the turbo expander in a cryo-recovery plant
- Outlet of molecular sieve dryer



KEY MARKETS

- Petrochemical
- Natural gas
- Refinery

PERFORMANCE SPECIFICATIONS

Technology	QCM
Range	0.01 to 100 ppmv. Readout capability in ppmw, lb/mm ³ , mg/Nm ³ , and dew point temperature in °C or °F (requires process pressure as an input)
Reference gas	Continuously produced using actual sample gas
Online verifications	Internal moisture source with NIST-traceable calibration enables on-demand verification of analyzer accuracy and responsiveness without uninstalling the analyzer. Verification function can be triggered remotely with a voltage signal
Accuracy	±0.01 ppmv or ±10% of reading from 0.01 to 100 ppmv, whichever is greater
Reproducibility	±0.005 ppm or ±5.0% of reading, whichever is greater
Limits of detection	0.01 ppmv
Moisture generator	1.0 ppmv nominal, calibration is NIST traceable
Reliability	No routine factory calibration required due to highly stable and reliable nature of QCM sensor
QCM response time	Near real time. Computer-enhanced response, which may lead to errors, is not required to obtain quick wet-up or dry-down response
Sensitivity	0.005 ppmv or 1% of reading, whichever is greater
Allowable inlet pressure	1.38 to 3.45 Bar (20 to 50 psi) gauge (up to 200 Bar (3000 psi)) with optional pressure reducer; analyzer performance is independent of process pressure
Exhaust pressure	0 to 1 Bar (0 to 15 psi)
Sample gas temperature	0 to 100°C (32 to 212°F); analyzer performance is immune to changes in sample gas temperature
Gas flow temperature	Approx. 150 sccm. Approx. 1.0 L/min bypass flow for increased speed of response
Alarms	Two contact closures: system and data valid alarms
Outputs	Isolated 4-20 mA analog signal, keyboard selectable; 12-bit (0.025%) resolution, RS-232 and RS-485 serial communication ports (supports Modbus RTU)
Ambient temperature limits	-20 to 50°C (-4 to 122°F)
Utility requirements	120/240 VAC, 50/60 Hz, 150 Watts Instrument Air: 70 to 100 psi (5 to 7 Bar)
Approvals and certifications	UL/CSA General Safety Requirements UL/CSA Class I, Division 1, Groups B, C, D T6 Electromagnetic compatibility directive; EN61326-1 Industrial low voltage directive; EN61010-1 pressure equipment directive ATEX & IECEx: Ex db eb IIB+H2 T* Gb (T6 = -20C to +40C, T5 = -20C to +50C) Russian Gosstandart Pattern Approval Russian Ex Proof Certification: 1ExdIICT6X
Enclosure	IP65

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