

PRODUCT DATA SHEET

3050-DO Quartz-crystal-based moisture analyzer

Accurate and reliable measurements for mole sieve dryer regeneration

Designed specifically to monitor the very low moisture levels typically exiting mole sieve dryer systems, the 3050-DO helps deliver significant cost savings.

By providing precise, stable analysis, the 3050-DO enables feedback control of dryer regeneration, which optimizes the regeneration cycle, reduces operational expenses and extends plant uptime.

Reduced maintenance

The stability of the vibrating quartz crystal means the sensor never needs to be sent out for recalibration. Unlike aluminum oxide sensors which require removal from service or an exchange program for routine calibration at the manufacturer, the vibrating quartz crystal continually verifies itself against an internal reference eliminating the on-going maintenance cost for calibration.

Increased uptime

QCM technology delivers precision accuracy, within 0.02ppmv or 10% of the reading. This level of control minimizes the frequency of bed regeneration, which keeps the plant running longer, extends the operating life of the mole sieve bed, and results in lower overall costs.

Peace of mind

Active feedback ensures the 3050-DO constantly monitors itself for key parameters including oscillation frequency, sample pressure, and operating temperature. Combined with the built-in verification function, you can be confident the analyzer is providing the right readings to protect and optimize your process.



KEY BENEFITS

- Most accurate trace moisture measurement technology available
- Fastest response to changing moisture levels
- Specific to moisture in most applications
- Internal verification system for trusted, stable and accurate readings

APPLICATIONS

The 3050-DO is specifically designed to monitor trace moisture levels exiting mole sieve dryer systems.

KEY MARKETS

- Petrochemical
- Natural gas
- Refinery
- Chemical

PERFORMANCE SPECIFICATIONS

Technology	Quartz-Crystal Microbalance (QCM)
Range	0.02-100 ppmv. Indicates trend to 2500 ppmv. Readout capability in ppmv, lb/mm ³ scf, mg/Nm ³ and dew point in °F or °C (requires process pressure as an input).
Limit of detection	0.02ppmv
Accuracy	±0.02ppmv or ±10% of reading from 0.02-100ppmv, whichever is greater.
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.
Allowable inlet pressure	1.38-3.45bar (20-50psi) – up to 200bar (3000psi) with optional pressure reducer. Analyzer performance is independent of process pressure.
Exhaust pressure	0-1bar (0-15psi)
Gas flow requirements	Approximately 150sccm. Approximately 1.0slpm bypass flow for increased speed of response.
Sample gas temperature	0-100°C (32-212°F); analyzer performance is immune to changes in sample gas temperature.
Outputs	Isolated 4-20mA analog signal, keyboard selectable; 12-bit (0.025%) resolution, RS-232 and RS-485 serial communication ports (supports Modbus RTU).
Alarms	Two contact closures; system and data-valid alarms
Ambient temperature limits	-20 to 45°C (-4 to 113°F)
Utility requirements	120/240V AC, 50/60Hz, 150W.
Reference gas	Continuously produced using actual sample gas.
Online verification	Internal zero gas generator, plus an internal moisture source with NIST-traceable calibration. These systems enable on-demand verification of analyzer accuracy and responsiveness without uninstalling the analyzer. Verification function can be triggered remotely with a voltage signal.
Reproducibility	±5% of reading from 0.2 to 100ppmv.
Moisture generator	1.0ppmv nominal; calibration is NIST-traceable.
Reliability	No routine factory calibration required due to highly stable and reliable nature of QCM sensor.
Sensitivity	0.01ppmv or 1% of reading, whichever is greater.
Weather protection	System suitable for outdoor installation. Enclosure is non-metallic and corrosion-resistant.
Dimensions (W x H x D)	67.1 x 67.2 x 33.9 cm (26.4 x 26.5 x 13.34 in)
Approvals and certifications	UL/CSA General Safety Requirements. UL/CSA Class I, Division 2, Groups ABCD T4. Complies with all relevant European Directives. Russian Gosstandart Pattern Approval.

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