AMETEK®
PROCESS INSTRUMENTS

MEASURES: H_2O

PRODUCT DATA SHEET

3050-TE Moisture Analyzer

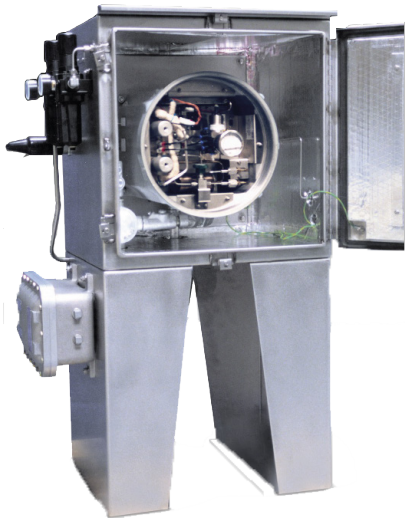
Accurate, reliable and fast-responding moisture analysis for sub 0.1 parts per million by volume (ppmv) applications

The 3050-TE is specifically designed to monitor the sub-0.1 ppmv moisture content of the natural gas feeding turboexpanders and other cryogenic processes. The analyzer is based upon quartz crystal microbalance (QCM) technology, providing the sensitivity, accuracy, and speed of response necessary for this application. It is an active device, constantly monitoring itself for its oscillation frequency, sample flow, sample pressure, operating temperature, ambient temperature, and other parameters.

Lower maintenance costs
The 3050-TE analyzer is inherently more stable due to its QCM technology. The stability of the vibrating quartz-crystal eliminates the need for factory recalibrations, eliminating costly maintenance projects. Additionally, every 3050-TE comes equipped with an internal verification system consisting of zero and span challenges created using actual sample gas.

Built-in verification capability
Through its built-in zero module and internal moisture generator, the 3050-TE inspires confidence in its measurement. On a schedule or whenever necessary, the process gas can be routed through the internal zero gas generator and its internal moisture generator, giving a zero reference and a span calibration standard based upon the actual process gas. The 3050-TE automatically zeroes itself and compares its moisture measurement with the NIST-traceable known value of the internal moisture generator, ensuring reliable moisture readings.

Integrated solution
When detecting and measuring very low concentrations of moisture, the proper selection and use of sample-wetted components is critical. The 3050-TE is an integrated solution package, including analyzer electronics and sampling, which simplifies installation. The analyzer includes all sample-handling components from the sample tap through the analyzer.



KEY BENEFITS

- Fast response to both increasing and decreasing moisture levels
- NIST traceable zero and span verification capability
- High accuracy at low moisture levels
- Excellent lower detectible limit of 0.01 ppmv
- Certified for hazardous area installation
- Integrated sample system removes contaminants

APPLICATIONS

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

KEY MARKETS

- Natural gas
- Petrochemical
- Refinery
- Chemical

PERFORMANCE SPECIFICATIONS

System components	3050-TE analyzer, heated sample probe (pipe thread or flange), 3 meters of special, heat-traced sample line
Technology	QCM
Range	0.01 to 100 ppmv
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
Accuracy	±0.01 ppmv or ±10% of reading, whichever is greater
Reproducibility	±0.005 ppmv or ±5% of reading, whichever is greater
Limits of detection	0.01 ppmv
Moisture generator	1.0 ppmv nominal; calibration is NIST-traceable
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 ppm or 1% of reading, whichever is greater
Allowable inlet pressure	7 to 200 Bar (100 to 3000 psi), with pressure-reducing sample probe providing 3.45 Bar (50 psi) maximum pressure to the analyzer
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 requirements	Approximately 1.0 slpm
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)
Alarms	Two contact closures: system and data valid alarms
Ambient temperature limits	-20 to +60°C (-4 to 140°F); optional -40°C (-40°F)
Utility requirements	120/230 ±10% VAC, 50/60 Hz, 150W maximum. Instrument air: 5 to 7 Bar (70 to 100 psi)
Approvals and certifications	UL/CSA General Safety Requirements. UL/CSA Class I, Division 1, Groups B, C, D T6 Russian Gosstandart Pattern Approval. Russian Ex Proof Certification 1ExdIICT6X Complies with all relevant European Directives

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One of a family of innovative process analyzer solutions from AMETEK Process Instruments. Specifications subject to change without notice.