

## PRODUCT DATA SHEET

# 3050 Series Moisture Analyzers

Accurate, reliable moisture analysis for ppmv or sub-ppmv in industrial applications

The AMETEK 3050 Series utilizes quartz crystal microbalance (QCM) technology, coupled with online verification, in a robust industrial package. These highly sensitive moisture analyzers offer rapid, accurate, and reliable measurements in low-moisture applications. They are designed to minimize operational costs, enhance process efficiency, and ensure maximum plant productivity.

### Online Verification Ability

The 3050 Series inspires operator confidence with its unique ability to self-verify. Its dual-concentration moisture generator is a NIST-traceable internal permeation device engineered to perform reliably and maintenance-free. It enables scheduled or on-demand, rapid verification of measurement performance by comparing sensor data with known moisture levels at two distinct concentrations.

### Accurate and Responsive

The 3050 Series' proven QCM technology delivers consistent, reliable, and accurate real-time moisture detection. Its wide measurement range provides moisture analysis over the entire process cycle, ensuring the process meets required specifications.

### Rugged Design

The 3050 Series is engineered for harsh industrial environments, making it ideal for monitoring natural gas, hydrocarbon process gases, and other industrial gases while maintaining serviceability. It is capable of operating in environments with up to 30% hydrogen sulfide or 100% carbon dioxide and ambient temperatures up to 50°C, extended to 60°C with the high temperature option. Its integrated display permits access to measurement data, alarms, and configuration settings without the need for a hot-work permit.



### KEY BENEFITS

- Consumable service life exceeding 3 years minimizing operational expenses
- Built-in traceable verification system with multiple setpoints
- Fast response changes in moisture concentration
- Integrated user interface eliminating requirement for hot-work permit
- High accuracy across measurement range
- Certified for IECEx/ATEX Zone 1

### APPLICATIONS

- Natural gas quality in pipelines and custody transfer stations
- Natural gas processing and dehydration
- Feedstock gas quality
- Molecular sieve dryer efficiency
- Cryo-recovery turbo expander inlet and outlet
- Hydrogen recycle gas in continuous catalytic reactor

### KEY MARKETS

- Petrochemical
- Natural Gas
- Refinery
- Chemical
- Industrial Gas

## PERFORMANCE SPECIFICATIONS

| 3050 ANALYZER                  | OLV  | SLR   | DO  | TE  |
|--------------------------------|--|---|---|---|
| <b>Calibrated Range</b>        | 0.1 to 2500 ppmv                                   | 0.1 to 100 ppmv                                     | 0.02 to 100 ppmv                                    | 0.01 to 100 ppmv                                    |
| <b>Accuracy</b>                | ±0.1 ppmv or ±10% of reading, whichever is greater | ±0.03 ppmv or ±10% of reading, whichever is greater | ±0.02 ppmv or ±10% of reading, whichever is greater | ±0.01 ppmv or ±10% of reading, whichever is greater |
| <b>Sensitivity</b>             | 0.1 ppmv or 1% of reading, whichever is greater    | 0.01 ppmv or 1% of reading, whichever is greater    | 0.01 ppmv or 1% of reading, whichever is greater    | 0.005 ppmv or 1% of reading, whichever is greater   |
| <b>Limits of Detection</b>     | 0.1 ppmv   | 0.1 ppmv  | 0.02 ppmv   | 0.01 ppmv   |
| <b>Dual Moisture Generator</b> | 25 ppmv and 75 ppmv                                | 0.5 ppmv and 1.0 ppmv                               | 0.5 ppmv and 1.0 ppmv                               | 0.5 ppmv and 1.0 ppmv                               |
| <b>Zero-Gas Module</b>         | None   | Included  | Included  | Included  |

|                                 |  |
|---------------------------------|--|
| <b>Technology</b>               | Quartz Crystal Microbalance (QCM)  |
| <b>Reference Gas</b>            | Continuously produced using sample gas and reference dryer with +5,000,000 ppm hour capacity   |
| <b>Online Verification</b>      | Internal moisture source with NIST traceable calibration enables on-demand verification of analyzer accuracy without uninstalling the analyzer |
| <b>Reliability</b>              | No routine factory calibration required due to highly stable and reliable nature of QCM sensor   |
| <b>User Interface</b>           | Integrated display with optical keypad   |
| <b>Communications</b>           | RS485 2-wire Modbus RTU, ethernet (10/100MBS, web interface, and Modbus TCP), ethernet (1GBS, web interface, and Modbus TCP), USB              |
| <b>Inputs</b>                   | Two remote isolated digital (triggered by contact closure)<br>One isolated analog (selectable 1-5V or 4-20mA for process pressure)             |
| <b>Outputs</b>                  | Two isolated analog 16-bit, 4-20mA   |
| <b>Alarms</b>                   | Four contact closures: service, data valid, concentration, and user configurable   |
| <b>Allowable Inlet Pressure</b> | 1.3 to 3.3 Bar (20 to 50 psi) gauge; up to 200 Bar (3000 psi) with optional pressure reducer   |
| <b>Exhaust Pressure</b>         | 0 to 1 Bar (0 to 15 psi) gauge   |
| <b>Sample Gas Temperature</b>   | 0 to 100°C (32 to 212°F)   |
| <b>Gas Flow Requirements</b>    | Approximately 200 sccm. Approximately 1.0 slpm bypass flow for increased speed of response   |
| <b>Instrument Air</b>           | Required for SLR/DO versions (ANSI/ISA 7.0.01-1996)  |
| <b>Readout Capability</b>       | ppmv, ppmw, lb/mmscf, mg/Nm <sup>3</sup> , and dew point temperature in C or F   |
| <b>Ambient Temperature</b>      | -20 to +50°C (-4 to 122°F), up to +60°C (140°F) with high temperature option   |
| <b>Power Requirements</b>       | 120 ±10% VAC, 50/60 Hz, 100W maximum; 230 ±10% VAC, 50/60 Hz, 100W maximum   |
| <b>Enclosures</b>               | IP65   |
| <b>Certifications</b>           | ATEX/IECEX Zone 1  |

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