AMETEK®
PROCESS INSTRUMENTS

MEASURES: $H_2O$

# PRODUCT DATA SHEET

## 3050-DO (Special) for Dryer Outlet Monitoring

### Reduce operational costs and increase plant uptime through feedback control

The 3050-DO monitors the very low moisture levels typically exiting mole sieve dryer systems and provides extremely accurate measurement of trace levels of moisture in a gas using a quartz-crystal oscillator sample cell. The analyzer 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, providing a direct, meaningful reference to benchmark your dryer's performance.

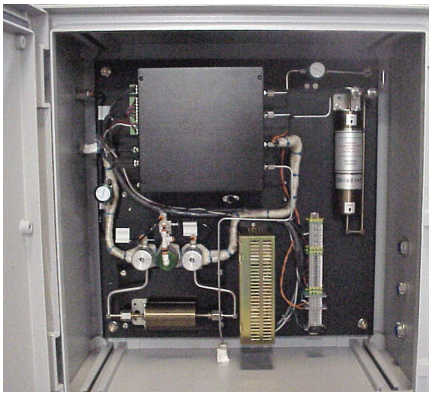
For customers who wish to convert concentration to dew point temperature, the 3050-DO can be programmed with the process pressure. The analyzer is inherently more stable due to its quartz-crystal microbalance (QCM) technology. The stability of the vibrating quartz crystal means that you never need to send the analyzer out for re-calibration.

#### Built-in verification capability

With the built-in zero module and the internal moisture generator, the 3050-DO gives you data you can have confidence in. The 3050-DO automatically zeroes itself and compares its moisture measurement with the NIST-traceable known value of the internal moisture generator. If necessary, the analyzer can make small corrections to its calibration automatically. If a severe calibration problem exists, the analyzer will provide an alarm.

#### Gain peace of mind through active feedback

The 3050-DO constantly monitors itself for frequency of oscillation, sample flow, sample pressure, operating temperature, ambient temperature, and other key parameters. In addition, the QCM sensor is continually challenged with changing moisture levels due to the non-equilibrium nature of its operation.



## KEY BENEFITS

- It is the most accurate trace moisture measurement technology available
- It responds far faster to both increasing and decreasing moisture levels than other measurement techniques
- It is specific to moisture in most applications
- It provides a much more rugged sensor than alternative measurement techniques

## APPLICATIONS

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

## KEY MARKETS

- Petrochemical
- Natural gas
- Refinery
- Chemical

# 3050-DO (Special) for Dryer Outlet Monitoring

# PRODUCT DATA SHEET

## PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| **Technology** | QCM |
| **Range** | 0.02 to 100 ppmv. Readout capability in ppmw, lb/mmscf, mg/Nm$^3$, and dew point temperature in °C or °F (requires process pressure as an input) |
| **Limit of detection** | 0.02 ppmv |
| **Accuracy** | ±0.02 ppmv or ±5% of reading from 0.02 to 100 ppmv, 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 to 3.45 Bar (20 to 50 psi) up to 200 Bar (3000 psi) with optional pressure reducer<br>Analyzer performance is independent of process pressure |
| **Exhaust pressure** | 0 to 1 Bar (0 to 15 psi) |
| **Gas flow requirements** | Approximately 150 sccm. Approximately 1.0 slpm bypass flow for increased speed of response |
| **Sample gas temperature** | 0 to 100°C (32 to 212°F); Analyzer performance is immune to changes in sample gas temperature |
| **Outputs** | Isolated 4-20 mA analog signal, keyboard selectable; 12-bit (0.025%) resolution, RS232 and RS485 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** | 120/240 VAC, 50/60 Hz, 150 Watts instrument air: 5 to 7 Bar (70 to 100 psi) |
| **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** | ±5.0% of reading from 0.2 to 100 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 |
| **Sensitivity** | 0.01 ppmv or 1% of reading, whichever is greater |
| **Weather protection** | System is suitable for outdoor installation. Enclosure is non-metallic and corrosion-resistant |
| **Dimensions (W x H x D)** | 671 x 672 x 339 mm (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<br>Complies with all relevant European Directives, Russian Gosstandart Pattern Approval |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