

## PRODUCT DATA SHEET

# 3050-AP Moisture Analyzer

**Quartz-Crystal Microbalance (QCM) technology: accurate, reliable, durable**

The 3050-AP measures trace levels of moisture in a gas through the use of a quartz-crystal oscillator sample cell – the industry standard for applications ranging from ultra-high purity semiconductor gases to natural gas streams containing 30% hydrogen sulfide (H<sub>2</sub>S).

Moisture concentration is measured 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. To convert concentration to dew point temperature, the 3050-AP can be programmed for a live process pressure input or a fixed pressure.

### The quartz-crystal sensor

The heart of the 3050-AP analyzer is a QCM sensor, a quartz-crystal disc coated with a hygroscopic polymer. As the amount of moisture absorbed onto the polymer varies, the mass of the QCM changes, producing a corresponding change in the frequency of oscillation. The accuracy of the 3050-AP is an amazing 0.1 ppmv or 10% of reading, whichever is greater.

### Unique sampling system

The 3050-AP delivers a fast-response, accurate analysis of the sample gas's moisture concentration while consuming less than 100 standard cubic centimeters per minute (sccm) sample gas. If contaminants are a concern, the 3050-AP can be operated in sensor-saver mode and equipped with a contaminant trap prior to the dryer. This configuration allows the sensor to see the contaminant-free reference gas for an extended period, exposing it to less contamination and resulting in a longer sensor life.

### Long-term stability and reliability

Quartz crystal oscillators are resistant to contamination and inherently very stable, delivering a longer sensor life with more stable, more accurate performance.



## KEY BENEFITS

- Most accurate trace moisture measurement technology available
- Fast response to both increasing and decreasing moisture levels
- Specific to moisture in most applications
- Provides a much more rugged sensor



## KEY MARKETS

- Industrial gas
- Petrochemical
- Refinery
- Chemical

## PERFORMANCE SPECIFICATIONS

<b>Technology</b>	QCM
<b>Range</b>	Calibrated from 0.1 to 2500 ppmv. Readout capability in ppmw, lb/mmscf, mg/Nm <sup>3</sup> , and dewpoint temperature in °C or °F (requires process pressure as an input)
<b>Reference gas</b>	Continuously produced using actual sample gas
<b>Accuracy</b>	±0.1 ppmv or 10% of reading from 1 to 2500 ppmv with standard calibration; Special calibration ranges not required
<b>Reproducibility</b>	±5.0% of reading from 1 to 2500 ppmv
<b>Limits of detection</b>	0.1 ppmv
<b>Reliability</b>	No routine factory calibration required due to highly stable and reliable nature of QCM sensor
<b>QCM response time</b>	Near real-time. Computer-enhanced response, which may lead to errors, is not required to obtain quick wet-up or dry-down response
<b>Sensitivity</b>	0.1 ppmv or 1% of reading, whichever is greater
<b>Allowable inlet pressure</b>	1.3 to 3.3 Bar (20 to 50 psig) up to 200 Barg (3000 psig) with optional pressure reducer. Analyzer performance is independent of process pressure
<b>Exhaust pressure</b>	Atmospheric
<b>Sample gas temperature</b>	0 to 100°C (32 to 212°F); analyzer performance is immune to changes in sample gas temperature
<b>Gas flow requirements</b>	Approximately 50 sccm Approximately 900 sccm @ 50 psig inlet with bypass option
<b>Outputs</b>	Isolated 4-20 mA analog signal keyboard selectable; 12-bit (0.025%) resolution, RS232 and RS485 serial communication ports
<b>Alarms</b>	Three contact closures: System, data invalid and concentration
<b>Ambient temperature limits</b>	Analyzer: 5 to 50 C (11 to 122°F)
<b>Voltage/Power requirements</b>	Analyzer: 24 VDC, 60 watts
<b>Approvals and certifications</b>	UL/CSA/CE for non-hazardous areas. Other approvals pending at time of printing

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