MM500 Moisture Analyzers

The absolute measurement for moisture in Process Gas Analysis

Applications

- Industrial Specialty Gases
- Heat Treating Furnaces
- Air Dryers
- Plastics Manufacturing
- Chemical Manufacturing
- Metallurgy
- Compressed Air
- Inert Atmosphere Blanketing
- Corrosive Gases*

Features & Benefits

- Autoranging from 0.01 to 1000ppm
- No calibration required
- RS232/485 outputs
- Remote sensors available
- ppmv, Dew Point °F and °C units
- Fault alarm
The Thermal Mass Flow Controller option for the internal sensor model automatically maintains the correct flow for maximum accuracy. An added benefit with this option is flow alarms to ensure the instrument and sample system are always in the correct configuration.

A remote sensor is available in a wall mounted cabinet. The IP66/NEMA 4X cabinet includes the P2O5 sensor along with flow meter and control valve. Wall mounted brackets are provided for easy installation.

For increased peace of mind, an autocalibrate check option is available. The instrument can be connected to certified gas and programmed to perform a calibration check at regular intervals. The instrument displays a warning and fault alarm if the error exceeds preset limits.

To achieve an absolute measure, the technology draws upon a fundamental principle of physics. The phosphorus pentoxide (P2O5) moisture sensor consists of a dual platinum winding formed around a quartz tube about 8 cm long. The extremities of the windings are sealed by a resin coating, and the bare platinum electrodes coated with a thin film of P2O5. PTFE guides are provided at each end of the sensor through which the electrical connections to the windings protrude. A constant voltage is applied across the windings and the resultant current is monitored. As a flow of gas is passed over the sensor, the moisture in the gas stream is attracted to the P2O5 coating, and the resistance of the platinum coil changes due to the electrolysis of the moisture into hydrogen and oxygen gases. This change in resistance creates a change in the measured current, that according to Faraday’s Law is directly proportional to the amount of moisture in the gas stream.

Therefore, a knowledge of the gas flow rate through the sensor and the current in the cell gives an absolute measure of the moisture contained in the sample gas.

All Systech Illinois sensors are made to laboratory standards of precision and industrial standards of durability. Stainless steel housings, lab grade components and controlled environment manufacturing ensure the finest, most consistently precise sensors in the industry.
MM500 Moisture Analyzers

**MM510**
Bench/Panel Mount
7.48H x 9.33W x 16.14D (inches)
17.41 lbs

**MM520**
IP66/NEMA 4X
Wall Mount/Weatherproof
18.11H x 14.96W x 6.3D (inches)
28.8 lbs

**MM530**
Rack Mount 4U - 19 inch
Houses 1 or 2 Analyzers
7H x 19W x 16.14D (inches)
21.3 lbs (single unit)

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**Technical Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Measurement Ranges</td>
<td>Autoranging from 0.01ppm to 1000ppm and equivalent in Dew Point</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±5% of reading or 0.4 ppm(v)</td>
</tr>
<tr>
<td>Response Time</td>
<td>90% within 60 seconds</td>
</tr>
<tr>
<td>Selectable Units</td>
<td>ppm(v) / Dew Point °C / Dew Point °F</td>
</tr>
<tr>
<td>Display Type</td>
<td>5 digit high visibility LED</td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>Sample and ambient temperature: 32–104°F (0–40°C)</td>
</tr>
<tr>
<td>Sample Connections</td>
<td>1/8 in. Swagelock® type, stainless steel</td>
</tr>
<tr>
<td>Maximum Sample Pressure</td>
<td>0.25 – 7.0 Barg</td>
</tr>
<tr>
<td>Sample Flow</td>
<td>100 cc/min -controlled</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>115/230 VAC, 50/60 Hz, selectable. 12 VA</td>
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<tr>
<td>Acceptable Gases</td>
<td>All inert gases, N₂, H₂, O₂, CO₂</td>
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**Options**

- **Analog Outputs**: Scaleable 0 - 10V, 0 - 100mV and 4 - 20mA or 0 - 20mA all isolated
- **High / Low Alarms**: 2 voltage free with changeover contacts rated 240V 3A
- **19” Rack Mount**: Can be combined with many of our other products in a 19” rack mount configuration
- **Remote Mounted Sensors**: General purpose sensors can be remote mounted up to 328.08 ft away
- **Flow Control**: Thermal mass flow control (not available on MMXX3 model for corrosive gases), pressure regulators, bypass flow system

*Note: For corrosive gases please see our brochure, MM500 Moisture Analyzers for corrosive gases.*

Systech Illinois have 30 years experience of providing gas analysis solutions for a wide range of industries. From our manufacturing plants in the U.S. and UK we produce gas analyzers for industrial process industries, headspace analyzers for monitoring gas flushing of food products, and our range of permeation analyzers.