The absolute measurement for moisture in
Process Gas Analysis

Applications

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

Features & Benefits

- Autoranging from 0.01 to 1000ppm
- No calibration required
- RS232/485 outputs
- Remote sensors available
- ppmv, Dewpoint °C and °F units
- Fault alarm
The MM500 Moisture Analysers represent the latest advance in moisture analysis – designed to be customised to your application giving precise measurements while providing a simple, yet affordable analyser.

Cabinetry & Mounting

The MM500 can be configured in 3 different cabinets.

The sensor can be remote mounted from any of these configurations:

- Panel or bench mount
- NEMA 4X / IP66 waterproof and weatherproof
- 19 in. rack mount

Options

- Scaleable Analogue outputs
- High / Low Alarms
- Programmed Calibration Check
- Thermal Mass Flow Control (not available for MMXX3, model for corrosive gases)
- Remote Mounted Sensors
- Fault Alarm

Versatile Configurations

Combine the MM530 with any of our oxygen or carbon dioxide analysers to create a dual gas analyser. Both units fit into a 19" rack mountable cabinet.

Custom Configuration

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.

Principle of Operation

To achieve an absolute measure, the technology draws upon a fundamental principle of physics.

The phosphorous 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 Analysers**

**MM510**  
Bench/Panel Mount  
190H x 237W x 410D (mm)  
7.9kg

**MM520**  
IP66/NEMA 4X  
Wall Mount/Weatherproof  
404H x 328W x 180D (mm)  
13.1kg

**MM530**  
Rack Mount 4U - 19 inch  
Houses 1 or 2 analysers  
178H x 484W x 410D (mm)  
9.7kg (single unit)

**Technical Specifications**

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

**Options**

- **Analogue 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 100m 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 Analysers 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 UK and U.S. we produce gas analysers for industrial process industries, headspace analysers for monitoring gas flushing of food products, and our range of permeation analysers.