

The absolute measurement for moisture in Process Gas Analysis



Applications

Industrial Specialty Gases
Plastics Manufacturing
Compressed Air

Heat Treating Furnaces
Chemical Manufacturing
Inert Atmosphere Blanketing

Air Dryers
Metallurgy
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

Utilising the fundamental laws of physics

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.

All instruments in the range incorporate microprocessor control, with our high quality electrolytic moisture sensor, to bring flexibility to your process environment. These analysers provide an absolute measurement, with accurate dependable results over a wide range from 0.01ppm to 1000ppm. Unit of measurement can be selected from ppmv or dew point (°C or °F).

The sample systems for all MM500 instruments are manufactured using stainless steel throughout.

Simply select the instrument configuration and sensor location and let the analyser do the rest.

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

- Scalable 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.



MM510



MM520



MM530

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.

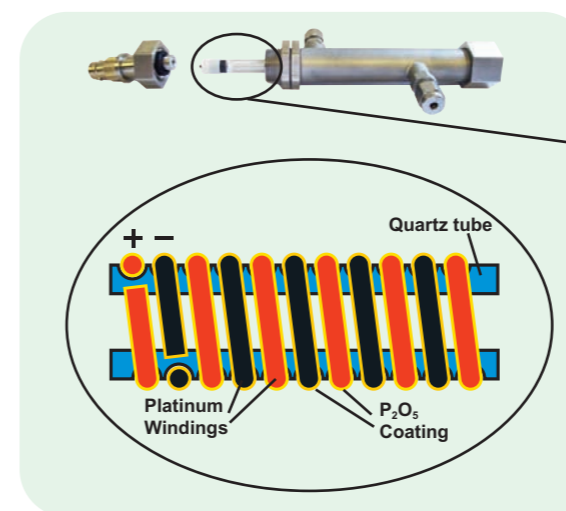
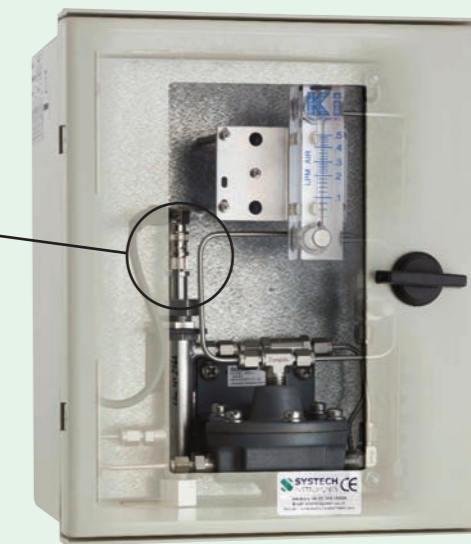
| Model | MMXX0 | MMXX1 | MMXX2 | MMXX3* |
|---------------------------|---------------------------|---------------------------|---------------------------|-------------------------|
| Sensor Configuration | Integral | Remote | Integral | Remote |
| Flow Controller | Differential Pressure | Differential Pressure | Mass Flow control | Pressure Regulator |
| Materials of Construction | s/steel / platinum / ptfе | s/steel / platinum / ptfе | s/steel / platinum / ptfе | glass / platinum / ptfе |
| Application | General purpose | General purpose | General purpose | Corrosive gases |

Principle of Operation

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.

Remote sensor assembly (IP66/NEMA 4X)



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 |
| Acceptable Gases | All inert gases, N ₂ , H ₂ , O ₂ , CO ₂ |

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.

System 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.

System Instruments Ltd (UK)
17 Thame Park Business Centre,
Wenman Road,
Thame, Oxfordshire OX9 3XA
Tel: +44 (0)1844 216838
Fax: +44 (0)1844 217220
E-mail: sales.uk@systechillinois.com
www.systechillinois.com

Illinois Instruments, Inc (U.S)
2401 Hiller Ridge Road
Johnsburg, Illinois 60051
U.S.A.
Tel: +1 815 344 6212
Fax: +1 815 344 6332
E-mail: sales.usa@systechillinois.com
www.systechillinois.com

Illinois Instruments (Thailand)
6th fl Nopnarong Bldg No7
Ladprao23, Jatujak, Bangkok 10900
Thailand
Tel: +66 (0)2938 0798
Fax: +66 (0)2938 1058
E-mail: sales.ap@systechillinois.com
www.systechillinois.com

System Illinois (China)
Room 1105 Forte Building
No. 910 Quyang Rd, Hongkou district,
Shanghai, China 200434
Tel: +86 21 65533022
Fax: +86 21 65539651
Email: info@systechillinois.cn
www.systechillinois.cn