

SERIES 500

# Moisture Analysers

The Absolute Measurement  
For Moisture In Process Gas  
Analysis



# Series 500 Moisture Analysers

## – Utilising the fundamental laws of physics

The Series 500 Moisture Analysers represent our 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 series 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.

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

### Cabinetry & Mounting

The Series 500 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

### Features

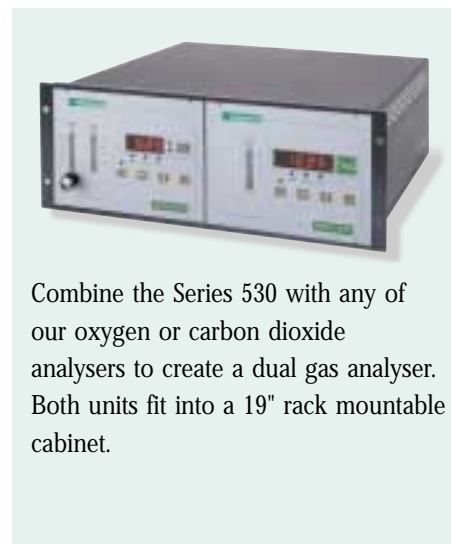
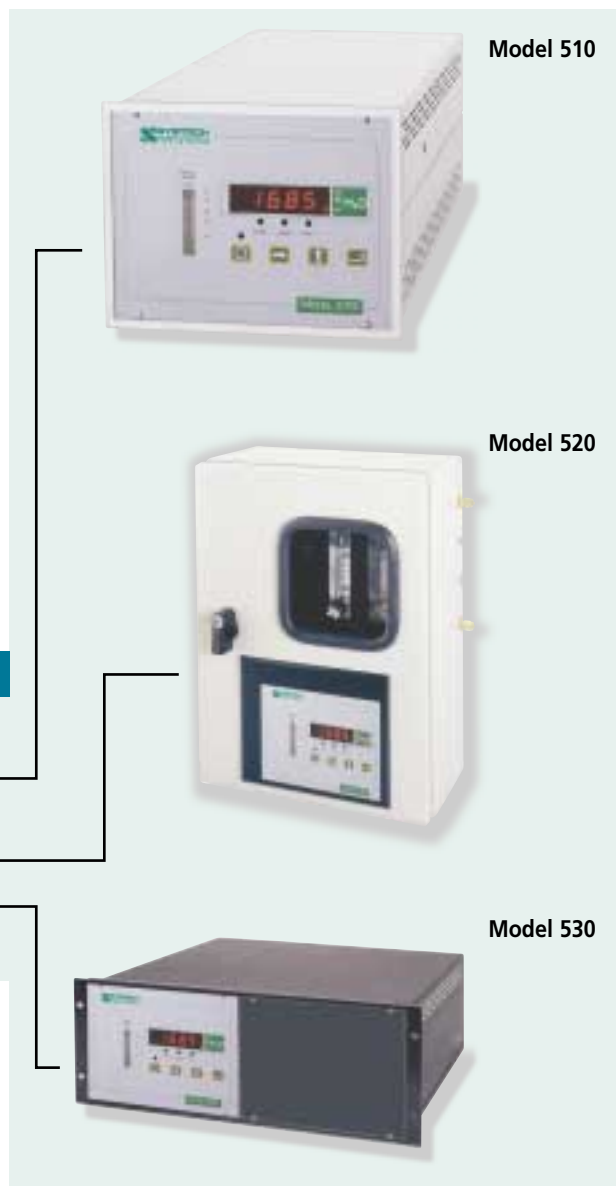
- Autoranging from 0.01 to 1000ppm
- RS232/485 outputs
- ppmv, °C and °F units
- No calibration required
- Remote sensors available
- Fault Alarm

### Options

- Scaleable Analogue Outputs
- High / Low Alarms
- Programmed Calibration Check
- Thermal Mass Flow Control
- Remote Mounted Sensors
- 19 inch Rack Configurations

### Applications

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



Combine the Series 530 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

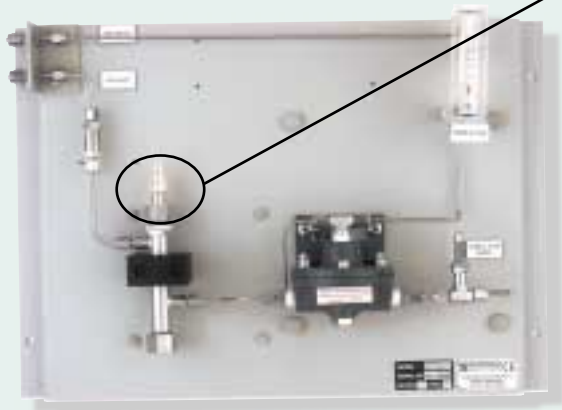
Designed with the user in mind, these instruments are completely configurable including options for Thermal Mass Flow Control, remote mounting sensors, and user selectable units of ppmv or Dew Point (°C or °F). The sample systems for all 500 Series instruments are manufactured using stainless steel throughout.

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.

Remote sensors are available to meet all your needs. The general purpose  $P_2O_5$  sensor includes a wall mounting bracket with flow valves for easy installation. The sensor connects to the analyser using a simple coaxial cable and can be mounted up to 100 metres from the analyser.

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.

General purpose remote sensor assembly



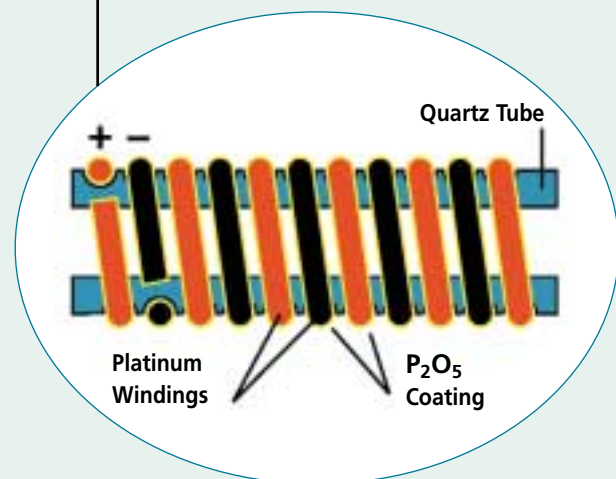
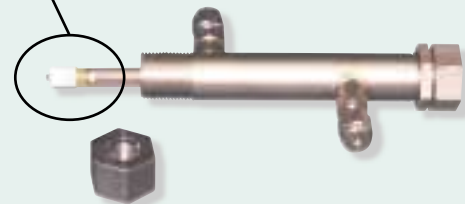
All Systech Instruments' sensors are made to laboratory standards of precision and industrial standards of durability.

Stainless steel housings, lab grade components and controlled environment manufacturing ensure the finest, most consistently precise sensors in the industry.

## Principle of Operation

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

The phosphorus pentoxide ( $P_2O_5$ ) 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  $P_2O_5$ . 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  $P_2O_5$  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.



## Series 500 Enclosure Configurations



### Model 510

Bench/Panel Mount

190H x 237W x 410D (mm)

7.9kg



### Model 520

IP66/NEMA 4X

Wall Mount/Weatherproof

404H x 328W x 180D (mm)

13.1kg



### Model 530

Rack Mount 4U - 19 inch

Houses 1 or 2 analysers

178H x 484W x 410D (mm)

9.7kg (single unit)

## Technical Specification

**Measurement ranges** Autoranging from 0.01ppm to 1000ppm and equivalent in Dew Point

**Accuracy**  $\pm 5\%$  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

**Sample connections** 1/8 in. Swagelock® type, stainless steel

**Maximum sample pressure** 0.25 to 7.0 Barg

**Sample flow** 100 cc/min - controlled

**Operating conditions** Sample and ambient temperature - 0-40°C

**Power requirements** 115/230 VAC, 50/60 Hz

**Acceptable gases** Inert gases

### 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, pressure regulators, bypass flow system



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