

Dew Point Measurement Solutions



Dew-Point Transmitters

Background to Michell Instruments

Michell Instruments is the international leader in the field of moisture and humidity measurement solutions. With over 30 years experience, Michell designs and manufactures a wide range of transmitters, instruments and system solutions capable of measuring trace moisture, humidity and dew point in a vast range of applications and industries ranging from compressed air, power generation, process, oil and gas, pharmaceutical and many more.

With a fast growing international subsidiary and distribution network, the Michell Group provides solutions in moisture and humidity for the most demanding applications worldwide.

Michell uses three key dew point measurement technologies in their products:

- Impedance method using a ceramic tile which delivers unrivalled speed of response and robustness.
- Cooled Mirror method which has been incorporated into advanced, precision instruments for industrial and laboratory use.
- Dark spot technology, which was developed in partnership with Shell, to offer a world-class solution for the measurement of hydrocarbon dew point.

Special Features

- **No downtime** - Michell instruments offer a unique sensor exchange programme, which means that you will never need to be without fast and accurate humidity measurement.
- **Speed** - Ceramic Sensors yield the fastest response time.
- **Resilience** - Ceramic Sensors are very robust and offer excellent corrosion resistance as well as being highly resistant to sudden pressure changes.
- **Safety** - Michell's Impedance range offers intrinsically safe versions of each instrument.
- **Low Cost** - Michell's Easidew range of hygrometers is one of the most affordable on the market.
- **Calibration** - All Michell's instruments are supplied complete with calibration certificates traceable to national standards, to ensure accurate and stable measurements.

www.michell.com

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Transmitters

- Fast response time (T90 in 4 min)
- High accuracy ($\pm 1^{\circ}\text{C}$)
- Unique Michell calibration exchange programme - no downtime
- Linear 0-20 and 4-20 mA output
- Multiple ranges within the total range of -100 to $+20^{\circ}\text{C}$ (-120 to -40°C for Pura)
- Work in pressures from vacuum to 35 MPa (350 Barg)
- FM, CSA and ATEX certified
- Small and easy to install
- Semiconductor industry surface preparation (Pura)



On-line Hygrometers

- Deg $^{\circ}\text{C}$, dew point & ppm, moisture content
- User configurable alarms and outputs
- Analog and digital outputs
- 4 or 5-Digit red sunlight readable display
- For additional specifications, request a specific data sheet



Sampling Systems

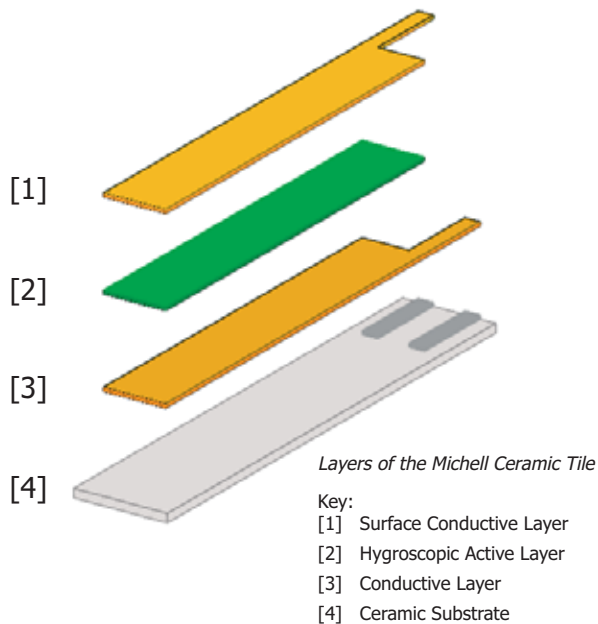
- Sample filtration to avoid contamination and ensure reliable measurements
- Flow Control
- IP66 enclosures
- Pressure or atmospheric dew point



Sensor Technology

All Michell dew-point transmitters use the **Advanced Ceramic Moisture Sensor**. The operation of this sensor depends on the dielectric property of water molecules absorbing onto an active porous insulating layer sandwiched between two layers of conductive material deposited on a ceramic substrate.

Water has a very high dielectric compared to the dielectric of the active layer and the background of the carrier gas so it can be detected easily. The active layer is very thin – less than one micron and the porous top conductor that allows water molecules to penetrate into the active layer is less than 0.1 micron thick. This allows the sensor to respond very rapidly to changes in the moisture surrounding it both when moisture decreases (drying) and increases in the sensor environment.



Applications



- Air Dryers
- Environmental Chambers
- Power Generation
- Natural Gas
- Pure Gases
- Metrology Laboratories
- Plastics
- Aerospace
- Food / Beverage Processes
- Chemical
- Metallurgy / Heat Treating
- Petrochemical
- Automotive
- Drying Processes
- Semiconductor Fabs
- Fuel Cells
- ... and many more

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Michell Instruments operates in the following markets:

- Compressed Air Dryers
- Pharmaceutical
- Standards Laboratories and Metrology
- Semiconductors
- Natural Gas and Petrochemicals
- Industrial and Pure Gas Production
- Power Generation

Other Product Ranges

Portable Instruments

Michell offers a group of easy to operate instruments designed for fast, accurate and stable measurement of dew point, relative humidity and moisture concentration rugged enough for demanding industrial applications.

Cooled Mirror Instruments

Michell offers a collection of exceptionally accurate and repeatable humidity instruments for measurement from trace moisture to high humidities using a fundamental measuring technology. This group is based on a rugged sensor design that is equally suitable for installation in demanding process environments or for use as an accurate reference instrument in a National Standards Laboratory.

Calibration Instruments

Michell offers a complete group of calibration systems for the certification of trace moisture, dew-point and relative humidity sensors. From generators for producing a dry gas supply through the transfer standard reference instruments, the complete collection includes modular components for building a system to meet specific performance requirements.

Process Analysers

Michell offers a collection of analysers specifically designed to provide reliable measurements in process applications such as dedicated water and hydrocarbon dew point measurements in natural gas.

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Please note: The accuracy stated represents the typical variation between the instruments under test and a calibrated and corrected reference.

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