

QMA2020

Process Moisture Analyzer

Fast, high-precision moisture measurements for hazardous areas



Advanced Quartz Crystal Microbalance Technology from Michell

Michell's Quartz Crystal Microbalance sensors are designed to provide highly reliable, fast and accurate measurement of trace levels of moisture content in a wide variety of industrial applications where direct measurement of the true concentration of water molecules is of concern. The applied quartz crystal microbalance technology directly measures the volume concentration of water as an impurity in a process gas.

Quartz crystal microbalance technology is well established and recognized for its high performance and reliability. Michell's experienced engineers have improved its accuracy, sensitivity and interference effects to create the new generation of Michell quartz crystal microbalance sensor – at the forefront of moisture measurement technology.

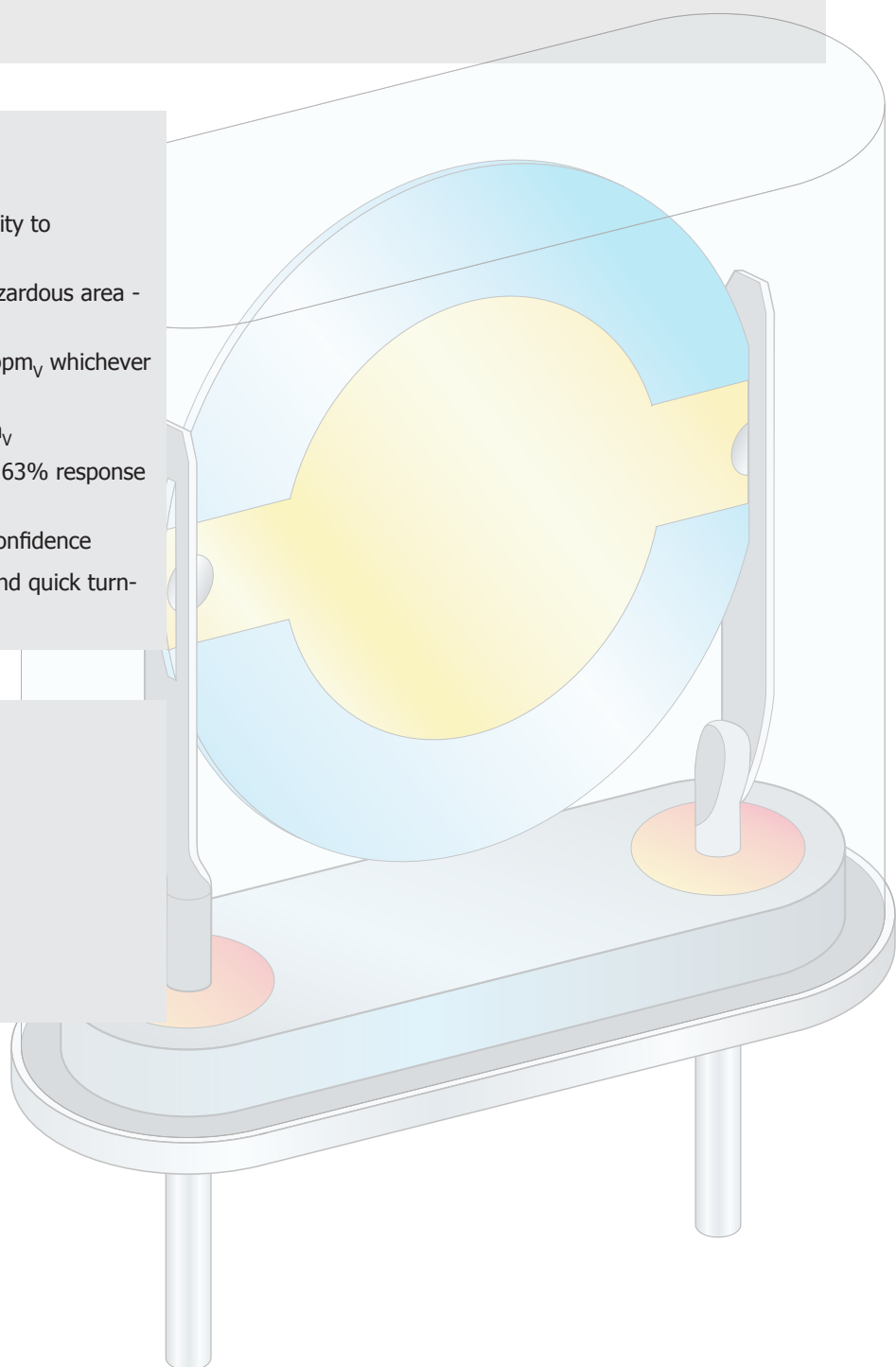
Highlights

- EExd certified
- Drift-free measurements and low sensitivity to contamination
- Local user interface for ease of use in hazardous area - no 'Hot Permit' required
- High accuracy ($\pm 10\%$ of reading or 0.1 ppm_v whichever is greater)
- Wide operational range; 0.1 to 2000 ppm_v
- Fast response: less than two minutes for 63% response to a step-change in either direction
- Automatic calibration for measurement confidence
- Easy access for simplified maintenance and quick turn-around time

Applications

- Moisture in natural gas
- Industrial gas production
- Catalytic reformer recycle gas
- Olefins/ Ethylene/ Propylene production
- LNG production
- And many more...

For more information, contact Michell Instruments:
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Wide operating range for more flexibility

With an operating range of 0.1 to 2000 ppm_v, the analyzer can be used in a wide variety of applications. The most accurate trace moisture content measurements are achievable within the calibrated range 0.5 to 700 ppm_v.

Simple flameproof installation

Analyzers are available ATEX certified Exd IIC / Extb IIIC for use in Zone 1 & 2 and Zone 21 & 22 hazardous areas. The main unit (electronics and sensing) and associated sampling system may be mounted at a convenient location next to the pipeline or process, with gas sample and vent connections. A single, low power single phase AC supply is required for both the analyzer and sampling system. No barrier unit or safety earth are required, saving the user both cost and inconvenience.

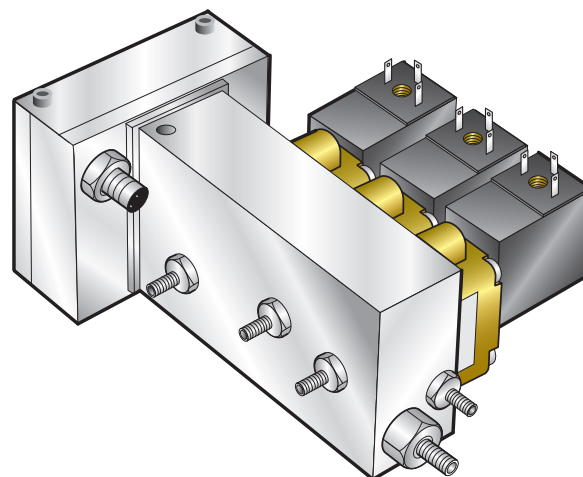
Display

The user interface, which comprises an LCD display and four magnetic induction keys, enables control of the analyzer at the point of measurement, without the need for a "hot permit".

The magnetic induction keys allow users to interact with the analyzer through the glass cover of the enclosure during operation. This is achieved without compromising the EExd integrity of the analyzer. All main operating and calibration functions can be accessed through this interface whilst the instrument is fully operational.

Built-in calibration

The quartz crystal microbalance analyzers incorporate fully automatic, self-contained calibration systems for complete user confidence. Periodic calibration checks of sensor performance can be initiated automatically (at user defined intervals and time of day) or manually on demand, providing a span verification of instrument performance and automatically adjusting out any change. The moisture generator is calibrated traceable to NPL and NIST.



Expert sampling design for optimum performance

Correct sample conditioning is crucial for getting the optimum performance from a moisture analyzer. All Michell analyzers are available with sampling systems to suit particular applications, which ensure that the sample gas is at the correct pressure and temperature and that all dust and other contaminants have been removed.

Other sampling options include enclosures for indoor or outdoor use: these provide protection to the sensitive equipment. Heating and cooling options prevent misreadings and damage to the analyzers in hot or cold climates as the sampling system keeps the temperature inside the enclosure within the operating range of the equipment.

Because we design and build all the sampling systems at our UK factory, we are able to ensure the quality of all designs and update these to match the latest industry standards. Our team of specialist sampling engineers also design sampling systems to match particular needs of clients. This could involve something as simple as developing a system to retrofit into an existing plant or designing a system to combine various analyzers into a sampling house.

Michell's experienced sales engineers and world-class technical consultants work with you to select the best sampling options for your application, with site surveys as required. We have dedicated commissioning engineers who work closely with your teams to install and commission the analyzer and will train your engineers to operate and carry out routine maintenance.

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

Dew-Point Transmitters

Michell offers the widest range of dew-point sensors and transmitters on the market. From the industry standard Easidew 2-wire transmitter to the rugged Easidew PRO IS for hazardous areas, all are supplied with sensors traceable to national standards.

Portable Instruments

Michell's range of easy-to-operate portable instruments provides fast, accurate and stable measurement of dew point, relative humidity and moisture concentration. They are designed to satisfy the most demanding industrial conditions, and are unique in the market for giving repeatedly fast response to low dew points.

Chilled Mirror Instruments

Chilled Mirror is a fundamental measuring technology offering the user exceptionally accurate, reliable and repeatable measurements from trace moisture to high humidity. Michell offers a range of instruments 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 has a wide offering of calibration equipment for the verification of trace moisture, dew-point and relative humidity sensors. A modular concept means that Michell's engineers can build for you a customised calibration solution that meets your exact needs. Components may include air compressor and dryer; low range or high range humidity generator; simple sensor housing or environmentally controlled test chamber and finally, verification using a traceable Michell Chilled Mirror Hygrometer.

Oxygen Analyzers

Michell brings you the very latest technologies in oxygen measurement, designed to give years of reliable and accurate service in laboratory, process and flue gas applications. From instruments featuring a unique sealed reference zirconia sensor to a transmitter with the latest generation thermo-paramagnetic oxygen technology, all Michell oxygen analyzers are available in a range of different configurations.

Relative Humidity Instruments

Michell's own RH sensing technology provides excellent resolution, long term stability and speed of response. We offer a wide range of humidity and temperature measuring sensors and instruments, including relative humidity transmitters, humidity and temperature transmitters as well as handheld indicators. The humidity generator range includes the most stable humidity generator on the market.

Process Analyzers

Michell's range of analyzers is specifically designed to provide reliable online measurement in process applications such as dedicated water and hydrocarbon dew-point determination in natural gas. Three sensing technologies are used: the Ceramic Impedance sensor for measurements in gas and liquid phase; Quartz Crystal Microbalance for trace moisture in process gases and the Dark Spot Chilled Mirror for hydrocarbon dew point.

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Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.
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