

# Easidew Transmitter

## 2-Wire Dew-Point Transmitter

A rugged impedance dew-point transmitter for continuous measurement in compressed air or process gas.



### Highlights

- 2-wire loop powered connection
- Dew point or ppm moisture content
- NEMA 4, IP66
- Excellent sensor protection
- Measurement range -100 to +20°C (-148 to +68°F)
- Operating temperature -40 to +60°C (-40 to +140°F)
- Fast response

### Applications

- Compressed air dryers
- Plastic moulding dryers
- Ozone generators
- Industrial gas production and distribution
- Medical gases
- Pneumatics
- Welding gases
- ... and many more

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## 2-Wire Dew-Point Transmitter

### Design Simplicity and Economy

The Easidew Transmitter is designed for ease of use, incorporating all the features needed to make installation and operation as simple as possible. For the first time, dew-point measurement is made as accessible as temperature and pressure with this fully configured, calibrated transmitter that can be instantly incorporated into your air or gas management control system.

Easidew Transmitter is easy to install and operate. The costs of installation and operation are minimal due to the ruggedness, simplicity and reliability of the transmitter. The required periodic recertification to maintain your traceability is as easy and simple as the operation of the transmitter when using Michell's unique Service Exchange Programme.

### Advanced Technology and Michell's Service Exchange Program

The key to the Easidew Transmitter's performance is its sensor technology. Michell's Advanced Ceramic Moisture Sensor is coupled with the latest microprocessor-based measurement circuitry to produce a fully calibrated and interchangeable transmitter. All calibration data is stored in flash memory and so exchange or service can be accomplished in seconds. The Easidew Transmitter is simply disconnected, removed from its sampling block and replaced by a new, fully calibrated unit. Ask your local sales representative for further details on the unique Service Exchange Program.

Furthermore, the Easidew Transmitter forms the front-end for both the Easidew On-Line and Portable Hygrometers for total flexibility, interchangeability and low cost of ownership.

### 2-Wire Connection Capability

The Easidew Transmitter can now be connected in a 2-wire loop powered configuration while maintaining complete backwards compatibility with all existing 3-wire installations.

Easidew Transmitter is also fast to respond, ensuring that your process is always monitored in real time. The Easidew Transmitter is calibrated traceable to International Standards in Michell's accredited laboratory at thirteen points over the range -100 to +20°C dew point (-148 to +68°F), to an accuracy of ±2°C dew point (±3.6°F). The inherent stability of our advanced Ceramic Moisture Sensor means that the Easidew Transmitter will give years of reliable operation.

### Simple Operation for Air and Gas Quality Measurement

Easidew Transmitter is easy to install and operate. Powered by any dc source from 12 to 28 volts, it provides the user with a linear 4-20 mA signal. This output can be configured by the customer, using simple software, to represent any range within -100 to +20°C, or -148 to +68°F dew point, or

0 - 3,000 ppm<sub>v</sub>. Once the input and output connection is made, the transmitter only needs a sample of clean air or process gas and measurements can be taken.

As the Easidew Transmitter measures the water vapour pressure in the gas sample, it will give the user an accurate determination of the actual dew-point conditions presented to it – at any pressure up to 45 MPa/450 barg (6500 psig). Flow rate is not critical to measurement accuracy (1 to 5 Nlmin/2.1 to 10.6 scfh), though speed of response will be improved by operating a higher sample flow.

### Rugged yet Lightweight

The Easidew Transmitter is constructed in 316 grade stainless steel. A captive sealed, glanded cable connector offers IP66 (NEMA 4) protection from the environment.

This rugged construction makes it perfectly suited for industrial applications while, weighing only 150g (5.29oz), it is light enough to be supported directly by its connection to a 6 mm or ¼ inch sample pipe without any additional mounting brackets.

### Self-Diagnostics

The microprocessor embedded within Easidew provides you with intelligent information on the failure mode. Sensor fault, under-range and over-range conditions are all signalled by pre-determined output levels so you can easily establish the source of the problem, rectify it and get back to operation as quickly as possible.

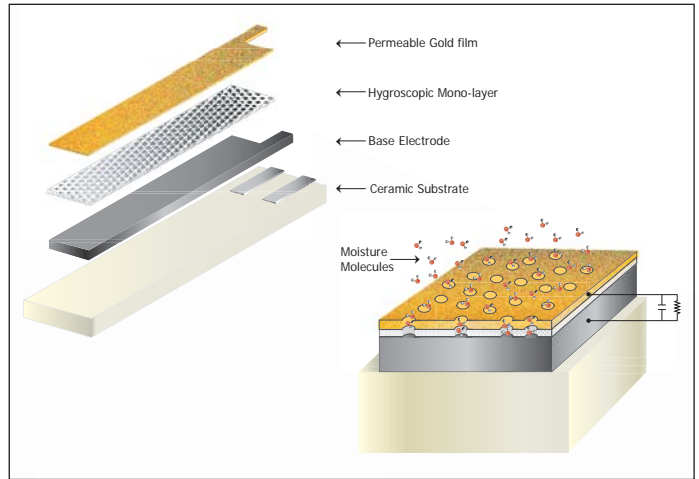
### The Easidew Range

Michell offers a family of reliable hygrometer products based on our Advanced Ceramic Technology providing on-line and portable dew point measurement. All three products use the same transmitter platform for easy interchangeability. If you need to monitor various points in your process – some with local display, others with direct mA feed to a central control system, the Easidew range is ideal. The Easidew Portable Hygrometer allows local spot checks to be carried out at the point of use of the air or process gas. Easidew Online hygrometer provides continuous in-process measurement of gas dew point. In order to maintain traceability, you only need to stock one sensor type for all three products – the Easidew Transmitter. Contact us for further information on the full Easidew Range.

## Technology

The Easidew Transmitters use Impedence technology, based on Michell's ceramic sensor.

The Ceramic Sensor is constructed using state of the art thin and thick film techniques. Operation of the sensor depends upon the adsorption of water vapor onto a porous non-conducting "sandwich" between two conductive layers built on top of a base ceramic substrate. The active sensor layer is very thin - less than one micron (about 0.00004 inches) and the porous top conductor that allows transmission of water vapor into the sensor is even thinner. Therefore the sensor responds very rapidly to changes in applied moisture, both when being dried (on process start-up) and when called into action if there is moisture ingress into a process.



Michell ceramic sensor tile layers

Despite this extreme sensitivity to changes in moisture content, the Michell Ceramic Moisture Sensor is incredibly rugged due to the nature of its construction. To protect the sensor further against contaminants and pipe swarf it is housed in a protective sintered HDPE guard. All Michell Ceramic Moisture Sensors give  $\pm 2^{\circ}\text{C}$  ( $\pm 3.6^{\circ}\text{F}$ ) dew point accuracy and excellent long-term reliability and stability in process applications.

## Ordering Codes

To construct the order code, select the relevant feature from the tables below, starting with the base model, which is {Feature A} and then add on options to create a string: {Feature A}+{Feature B}+{Feature C}

**Order example:** EA2-TX+100+HD

Easidew Transmitter, 2-wire, 4-20 mA output , measurement range -100 to +20°C (-148 to +68°F) dp, HDPE guard

EA2-TX | 100 | HD

### Base Model {Feature A}

Easidew Transmitter EA2-TX

### Range {Feature B}

-100 to +20°C (-148 to +68°F) dp range 100

Non-standard measurement range: v = zero value, w = full scale value, x = unit (C = °Cdp, F = °Fdp, P = ppm<sub>v</sub>) y = Pressure for ppm<sub>v</sub> conversion in bar/psi, z = pressure unit (PG=psig, PA=psia, BG=barg, BA=bara)  
blank = 0 barg/0 psig

### Protection {Feature C}

Standard HDPE guard (with protection against fine particulate (<10µm))	HD
SS sintered guard	SS
SS sintered guard with flanged mounting	FL

## Technical Specifications

### Performance

Measurement range (dp)	-100 to +20°C dew point (-148 to +68°F)
Accuracy (dp)	±2°C dew point (±3.6°F)
Response time	5 mins to T95 (dry to wet)
Repeatability	0.5°C dew point (0.9°F)

### Electrical output/input

Output signal	4-20 mA (2-wire connection, current source) User configurable over range
Output	Dew point, moisture content in ppm <sub>v</sub>
Output range	Dew point: -100 to +20°C (-148 to +68°F) Moisture content in gas: 0-3000 ppm <sub>v</sub>
Supply voltage	12-28 VDC
Load resistance	Max 250 Ω @ 12 V (500 Ω @ 24 V)
Current consumption	20 mA max

### Operating conditions

Operating humidity	0-100% RH
Operating temperature	-40 to +60°C (-40 to +140°F)
Operating pressure	45 MPa (450 barg / 6500 psig) max
Flow rate	1 to 5 NI/min (2.1 to 10.6 scfh) mounted in standard sampling block; 0 to 10 m/sec (0 to 32.8 ft/sec) direct insertion
Temperature coefficient	Temperature compensated across operating temperature range

### Mechanical specification

Ingress protection	IP66 in accordance with standard BS EN 60529:1992, and NEMA 4 in protection accordance with standard NEMA 250-2003	
Housing material	Stainless steel	
Dimensions	132mm x ø27mm (5.19" x ø 1.00")	
Filter	HDPE Guard <10 µm 80µm sintered guard (optional)	
Mounting thread	5/8" - 18 UNF	
Weight	150g (5.29oz)	
Electrical connections	See table	
Interchangeability	Fully interchangeable transmitters	
Diagnostic conditions (factory programmed)	<b>Condition</b>	<b>Output</b>
	Sensor fault	23 mA
	Under-range dew point	4 mA
	Over-range dew point	20 mA

## Electrical Connections

### 4-20mA connections 2-wire

Pin 1	4-20 mA
Pin 3	POWER

## Dimensions

