

# AcuDew

## High Performance Aluminum Oxide Moisture Transmitter

### A Top-Performing Moisture Transmitter For Industrial And Process Applications

The Edgetech Instruments AcuDew High-Performance Moisture Transmitter represents an advancement in aluminum oxide moisture sensing. The AcuDew's high capacitance sensing element provides outstanding sensitivity, especially at low moisture content, as well as high speed of response and repeatability. Field Span Verification (FSV) capability allows the user to adjust calibration in the field. The advanced electronic design of the AcuDew uses modern, high speed, high resolution hardware and software techniques for superior performance. The AcuDew is clearly a step forward in aluminum oxide moisture sensing technology.

The aluminum oxide moisture sensor is used in greater numbers globally than any other industrial moisture measurement technique. High sensitivity, compact design, ease of use and versatility make the aluminum oxide moisture transmitter the recognized best choice for continuous moisture measurement in many applications including process gases, high purity gases, glove box environments, compressed air and injection molding.

The Edgetech Instruments AcuDew Moisture Transmitter is a two wire, loop powered transmitter with a linear 4 to 20 mA output signal corresponding to the moisture content. It can be factory configured to provide an output signal corresponding to several moisture parameters including dew/frost point ( $^{\circ}\text{C}$  or  $^{\circ}\text{F}$ ), PPMv, and PPBv. Locally and remotely mounted display and power supply devices are optionally available.

The Field Span Verification (FSV) feature of the AcuDew Moisture Transmitter allows the user to ensure accuracy of the transmitter by correcting for deviations, in between annual factory recalibration. The FSV feature should be used periodically, every 2 to 3 months, or when verification of the AcuDew Transmitter is required.

Each AcuDew Moisture Transmitter is delivered with an ISO/IEC 17025:2005 certificate of calibration, traceable to NIST. The AcuDew is calibrated and supported in the USA, in a modern ISO/IEC 17025:2005 accredited calibration laboratory located in an ISO 9001:2015 registered facility.

#### Features:

- 2-wire loop powered dew/frost point transmitter
- Optional loop powered display module
- Easy to install and operate
- Field Span Verification (FSV)
- Fast response
- Long term stability
- Overall range  $-120^{\circ}\text{C}$  to  $+20^{\circ}\text{C}$  dew/frost point temperature



The AcuDew

#### Applications:

- Compressed air
- Air separation
- Injection molding
- High purity gases
- Glove boxes
- Process gases
- Furnaces
- Pharmaceutical



The AD-LPD



The AD-CAM

 **Edgetech Instruments**

ISO/IEC 17025:2005 Accredited  
ISO 9001:2015 Registered

## The AD-LPD

Unique to the AcuDew is an optional, loop powered, dew/frost point display module, the AcuDew Local Plug-on Display (AD-LPD). The module plugs into the cable connector of the AcuDew for a truly local display. The 4 to 20 mA loop is fed through the AD-LPD module. Its orientation is adjustable allowing it to be rotated for optimum viewing. The AD-LPD can be rotated through 280 degrees on its stem and through 360 degrees at 90-degree increments on its axis for inverted viewing. It is programmable for zero and span. The AD-LPD has a 2¼ inch dial with a ⅜ inch, four-digit LED display, tailoring it perfectly for local viewing.

## The AD-CAM

The Edgetech Instruments' AcuDew Transmitter is offered with an optional Compressed Air Module (CAM) available in stainless steel for low frost points and brass for moderate to high dew points. The CAM comprises an industrial ball valve, probe sample chamber and outlet valve for easy installation at the compressed air sample point. Closing the ball valve isolates the probe sample chamber from high pressure air for service or inspection. The CAM provides a ¼ inch NPT female fitting for simple and safe connection to the compressed air system. Using the CAM, measurements can be made either at full line or atmospheric pressure by adjusting the CAM's inlet and outlet valves.

## Technical Specifications

**Specifications:** (Selection specified in AcuDew P/N)

### Available Ranges:

- 80°C to +20°C (-112°F to +68°F) dew/frost point temperature
- 100°C to 0°C (-148°F to +32°F) dew/frost point temperature
- 120°C to -20°C (-184°F to -4°F) dew/frost point temperature
- 1 to 1000 PPMv (at specified process pressure)
- 0.1 to 100 PPMv (at specified process pressure)
- 0.01 to 10 PPMv (at specified process pressure)
- 1 to 1000 PPBv (at specified process pressure)

### Display:

- Compatible with:
- AcuDew local plug-on display (P/N: AD-LPD)
- AcuVu 100 display
- AcuTrak 1000 display
- Other 4 to 20 mA panel meters

### Output Signal:

- 4 to 20 mA linear in chosen parameter
- Operating Voltage:
- 7 Vdc to 28 Vdc, two wire loop-powered, reverse polarity protected

### Maximum Series Resistance:

$$= \{40 \times (\text{Supply Voltage} - 7)\} \Omega$$

### Sensing Element:

High capacitance aluminum oxide

### Field Calibration:

Field Span Verification/Adjustment (FSV)

### Factory Calibration:

Supplied with ISO/IEC 17025:2005 certificate of calibration traceable to NIST (-80°C to +10°C dew/frost point)

### Accuracy:

- ± 2°C from +20°C to -90°C dew/frost point temperature
- ± 3°C from -90°C to -120°C dew/frost point temperature

### Output Resolution:

5 µA

### Repeatability:

Better than ±0.3°C dew/frost point temperature

### Operating Temperature:

-4°F to 140°F (-20°C to +60°C)

### Storage Temperature:

-4°F to 158°F (-20°C to +70°C)

### Operating Pressure:

From 7.5 mm Hg (0.01 barA) to maximum 5,000 psig (350 barA)

### Operating Humidity (External):

Maximum - 95% RH non-condensing

### Sample Flow Rate:

Independent but ideally 4 to 10 SCFH (2 to 5 l/min.); Max: 50 SCFH (25 l/min.)

### Cable Terminations:

NEMA 4X (IP66) rated, M12 transmitter connectors

### Cable:

Supplied with 6-foot standard cable with connector at transmitter end. Nominal diameter 0.13 inches, 57 ohms/mile

### Maximum Cable Length:

3000 ft. (915 meters)

### Electromagnetic Compatibility (EMC):

BS EN 61326-1

### Warm Up Time:

10 seconds

### Fault Conditions:

- Sensor open circuit: Output drives to 20.50 mA
- Sensor short circuit: Output drives to 20.75 mA

### Isolation:

Sensing element connected to the 4-20 mA loop but isolated from body

### Transmitter Enclosure:

316 stainless steel body with M12 connector

### Sensor Protection:

316 stainless steel filter, 50 micron porosity

### Probe Material (Wetted Parts):

316 stainless steel

### Weatherproof Classification:

NEMA 4X (IP66) with connector mated to transmitter

### Mechanical Connection:

3/4" UNF (16 tpi) with integral Viton "O" ring seal

### Mechanical Warranty:

12 months on workmanship and parts

### Calibration Accuracy Warranty:

6 months subject to usage

### Weight:

0.4 lb. (175g) with connector

