Humidity Sensor/Transmitter Assembly

Humidity sensing combined with an advanced microprocessor

Duct mount (D)

Space mount (S)

Outside air mount (O)

Overview

Mod-tronic humidity and humidity/temperature transmitters are designed using an advanced microprocessor. Digital signal processing allows these transmitters to precisely match the characteristics of the humidity sensor to a wide range of RH and temperature values found in the many applications the product serves.

The humidity sensor is composed of an integrated circuit (IC) with a stable polymer element and platinum RTD that is used for temperature compensation. This sensor offers outstanding resistance to airborne contaminant and chemicals, and is protected by a sintered stainless steel filter which resists condensation.

- Wall/Duct/OSA mounting configurations
- Accuracies of ±1% or ±2% RH
- Temperature compensated
- Temperature output option
- Two-point field calibration
- NIST/SI traceable calibrations

Applications

Building environmental control systems (HVAC), hospitals, food storage, warehouses, clean rooms, pharmaceutical, freezers, drying equipment, and emissions monitoring.

Specifications

Ambient Temperature:

Operating:

Room: -10 to 150°F (-23 to 65°C), non-condensing.

Wall/Duct/OSA: -10 to 185°F (-23 to 85°C), non-condensing.

Storage:

Room: -58 to 150°F (-50 to 65°C), non-condensing.

Wall/Duct/OSA: -58 to 185°F (-50 to 85°C), non-condensing.

Supply voltage: 9.5 to 35 VDC, non-polarized.

Voltage effect: ±.001% of span/volt from 9.5 to 35 VDC.

Loop resistance: The maximum allowable resistance of the signal-carrying loop, including extension wires and load resistors, is given by this formula: Rloopmax = (Vsupply - 9.5)/0.02 AMPS For example, if supply voltage is 24 VDC, the loop resistance must be less than 725 Ω.

Adjustments: Zero and span field adjustments, non-interacting.

Time Constant: 50 seconds in slow moving air.

Connections: Screw terminals (22-14 AWG wire).

Weight:

Room: 0.19 lb (.084 kg).

Wall/Duct/OSA: 1.20 lb (0.55 kg).

Minimum output current: 3.5 mA

Maximum output current: 23 mA.

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Technical details and specifications

Humidity Transmitter AH429 and AH439

Output: 4-20 mA DC = 0% to 100% RH.

Sensing Element: Capacitive monolithic IC.

Accuracy: Includes temperature, linearity, hysteresis, and repeatability.

±1% from 10% to 80% RH @ 25 to 35°C or

±2% from 0% to 90% RH @ 25°C

(±3% from 0% to 90% RH @ 15 to 50°C)

(±5% from 0% to 90% RH @ 0 to 82°C)

Temperature Transmitter (AH439 only)

Output: 4-20 mA DC over the specified temperature range.

Sensing element: 1000 Ω platinum; 2 lead resistance thermometer, 0.00385 TCR.

Accuracy: Includes resistance thermometer tolerance, calibration accuracy, linearity, and ambient temperature effects.

±.75% of Temptran span for 32 to 122°F ambient.

±1.50% of Temptran span for -13 to 185°F ambient.

Specification and order options

AH429	Model number
R	**Enclosure** D: Duct mount, 8" probe length O: Outside Air/Wall mount, 4" probe length with shield, weather resistant enclosure S: Space mount W: Wall mount, 4" probe length, weather resistant enclosure R: Remote probe, 4" probe length
1	Outputs: 4 to 20 mA DC
N10	**Calibration accuracy** (humidity transmitter) N10: ±1% from 10% to 80% (25 to 35°C) with NIST/SI certificate N20: ±2% from 0% to 90% (25 to 35°C) with NIST/SI certificate S20: ±2% from 0% to 90% (25 to 35°C)
T1	**Sensing element cover** (omitted on "S" space mount models) T0= Sintered stainless steel; pressed on cover T1= Sintered stainless steel; screw on cover T2= Slotted stainless steel; screw on cover (NA on "O" outside air models)
To order enclosure D, O, S or W, stop here. To order enclosure R (remote probe), add:	
A	**Probe mounting location** A = Side mounting B = Bottom mounting
48	**Remote probe cable length** (in inches) 48" and 96" are standard lengths
AH429R1N10T1A48 = Sample part number	

AH439	Model number
D	**Enclosure** D: Duct mount, 8" probe length O: Outside Air/Wall mount, 4" probe length with shield, weather resistant enclosure S: Space mount W: Wall mount, 4" probe length, weather resistant enclosure R: Remote probe, 4" probe length
1	Outputs: 4 to 20 mA DC
N10	**Calibration accuracy** (humidity transmitter) N10: ±1% from 10% to 80% (25 to 35°C) with NIST/SI certificate N20: ±2% from 0% to 90% (25 to 35°C) with NIST/SI certificate S20: ±2% from 0% to 90% (25 to 35°C)
A	**Temperature transmitter range** EN: -20°F to 140°F S: 0°F to 100°F A: 20°F to 120°F BI: 30°F to 130°F KK: 30°F to 180°F N: 32°F to 122°F H: 40°F to 90°F *See pages 42-43 or visit mod-tronic.com for additional temperature range codes.*
T1	**Sensing element cover** (omitted on "S" space mount models) T0= Sintered stainless steel; pressed-on cover T1= Sintered stainless steel; screw-on cover T2= Slotted stainless steel; screw-on cover (NA on "O" outside air models)
To order enclosure D, O, S or W, stop here. To order enclosure R (remote probe), add:	
A	**Probe mounting location** A = Side mounting B = Bottom mounting
48	**Remote probe cable length** (in inches) 48" and 96" are standard lengths
AH439D1N10AT1A48 = Sample part number	