

# AcuHUM™ DM Series

Duct Mount Relative Humidity  
& Temperature Sensor Datasheet



The AcuHUM DM series duct mount relative humidity (RH) sensor utilizes advanced digital polymer sensing technology for high-precision RH measurement, long-term stability, and fast response time. Ideal for HVAC systems, the AcuHUM DM is tightly sealed in an IP65 rated enclosure and includes a PE polymer filter providing protection against dust, condensation & particulates. The RH sensor is secured with a 4-screw mounting flange with set screw, enabling adjustable probe depth. The AcuHUM DM provides thermistor, RTD, and transmitter options, enabling temperature and RH readings in one device.

## Features

- IP65 enclosure & PE polymer filter offer superior protection.
- Quick installation with push button terminal blocks and quick release screws.
- $\pm 2\%$  high-accuracy RH measurement. Temperature measurement up to  $0.2^{\circ}\text{C}$  ( $0.36^{\circ}\text{F}$ ) accuracy.
- $<10\text{s}$  response time, low drift,  $<\pm 0.5\%$  RH/year, and  $<\pm 1\%$  RH hysteresis.
- 4-20mA and 0-10VDC output options for different BAS controllers.
- 100 $\Omega$  Platinum, 1K $\Omega$  Platinum/Nickel RTDs & 10K $\Omega$  Type II/Type III, 20K $\Omega$  thermistors available.
- Optional custom configuration for temperature measurement.



## Specifications

### Relative Humidity Measurement

#### ELECTRICAL

Voltage Power	19.2~28.8 VAC or VDC
Current Power	19.2~28.8 VDC (RL=500 $\Omega$ ); 8.5~35 VDC (RL=0 $\Omega$ )
Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)

#### RELATIVE HUMIDITY PERFORMANCE

RH Sensor Type	Digital Polymer
Accuracy	$\pm 2\%$ ( $25^{\circ}\text{C}$ , 20~80%RH); $\pm 3\%$ (0~95%RH)
Measurement RH Range	0~100%
Operating RH Range	0~95%RH (Non-Condensing)
Hysteresis	$<\pm 1\%$ RH
Response Time	$<10\text{s}$ ( $25^{\circ}\text{C}$ , in Slow Air)
Drift	$<\pm 0.5\%$ RH/Year

### Temperature Measurement

#### ELECTRICAL

Transmitter Voltage Power	19.2~28.8 VAC or VDC
Transmitter Current Power	19.2~28.8 VDC (RL=500 $\Omega$ ); 8.5~35 VDC (RL=0 $\Omega$ )
Transmitter Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
Output Load	$\leq 500\Omega$ (Current), $\geq 2\text{K}\Omega$ (Voltage)

#### TEMPERATURE PERFORMANCE

Temperature Sensor Type	RTD or Thermistor, See Ordering Information
Transmitter Accuracy (If Applicable)	$<\pm 0.3^{\circ}\text{C}$ @ $5\sim 60^{\circ}\text{C}$ ( $<\pm 0.54^{\circ}\text{F}$ @ $41\sim 140^{\circ}\text{F}$ )
Thermistor Accuracy (If Applicable)	10K $\Omega$ , Type III - $\pm 0.3^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ( $0.54^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ ) 10K $\Omega$ , Type II - $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ( $0.36^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ ) 20K $\Omega$ - $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ( $0.36^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ )
RTD Accuracy (If Applicable)	1K $\Omega$ Platinum - $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ( $0.36^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ ) 100 $\Omega$ Platinum - $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ( $0.36^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ ) 1K $\Omega$ Nickel - $\pm 0.5^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ( $0.9^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ )
Temperature Transmitter Measurement Range	0~ $50^{\circ}\text{C}$ ( $32\sim 122^{\circ}\text{F}$ ) or 0- $100^{\circ}\text{C}$ ( $32\sim 212^{\circ}\text{F}$ )
Response Time	$<10\text{s}$

#### ENVIRONMENTAL

Operating Temperature Range	$-20\sim 70^{\circ}\text{C}$ ( $-4\sim 158^{\circ}\text{F}$ )
Storage Temperature	$-30\sim 80^{\circ}\text{C}$ ( $-22\sim 176^{\circ}\text{F}$ )

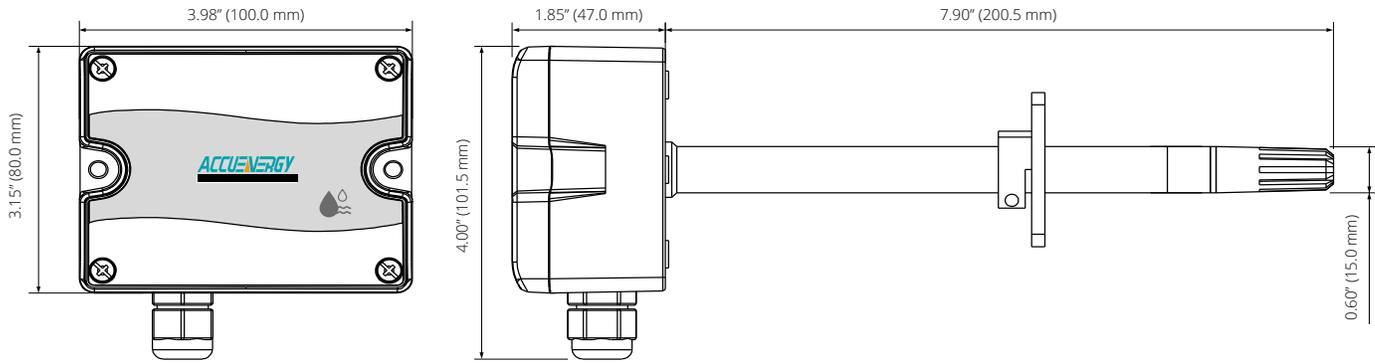
#### MECHANICAL

Mounting	4-Screw Duct Mount Flange with Adjustable Probe and Set Screw
Wiring Connection	Push Button Terminal Blocks
Weight	340g (0.75lbs)

#### CERTIFICATIONS/WARRANTY

Enclosure Material	Fire Retardant Polycarbonate (UL94V-0)
Protection	IP65
Agency Approvals	CE
Warranty	5 Years

## Dimensions



## Ordering Information

Model	RH Analog Output	Temperature Output	Temperature Sensor
AcuHUM-DM	A: 4-20 mA Transmitter	A: Resistive Output	01: 10KΩ, Type III Thermistor
			02: 10KΩ, Type II Thermistor
			03: 20KΩ Thermistor
			04: 1KΩ Platinum RTD, 2 Wires
			05: 100Ω Platinum RTD, 2 Wires
			06: 1KΩ Nickel RTD, 2 Wires
	A: 4-20 mA Transmitter	B: 4-20mA Output	07: Transmitter, 1KΩ Platinum RTD 0-50°C (32-122°F)
			08: Transmitter, 1KΩ Platinum RTD 0-100°C (32-212°F)
	B: 0-10VDC Transmitter	C: 0-10VDC Output	09: Transmitter, 1KΩ Platinum RTD Special Order <sup>†</sup>
			07: Transmitter, 1KΩ Platinum RTD 0-50°C (32-122°F)
A: 4-20mA Transmitter	D: No Temperature Output	08: Transmitter, 1KΩ Platinum RTD 0-100°C (32-212°F)	
		09: Transmitter, 1KΩ Platinum RTD Special Order <sup>†</sup>	
B: 0-10VDC Transmitter		00: No Temperature Output	

**Ordering Example:** AcuHUM-DM-B-C-08

<sup>†</sup> **Important:** Special Order Span will increase lead times and may be subject to minimum order requirements.

**Note:** Selecting the "09 XMTR, 1K Ω RTD Platinum Other Span" option allows the transmitter to be calibrated within a -40°C to +100°C (-40°F to 212°F) measurement range. The custom range must be specified when ordering.