

# AcuHUM™ RM Series

Room Mount Relative Humidity  
& Temperature Sensor Datasheet



The AcuHUM RM series room mount relative humidity (RH) sensor utilizes advanced digital polymer sensing technology to provide highly precise RH measurement, reduce power consumption, and improve long-term stability. The RH sensor features an optional thermistor, RTD, or transmitter to provide temperature and RH signals in one device. The AcuHUM RM is designed to be wall-mounted indoors with a four-way aspiration enclosure design to minimize self-heating. It can be ordered with an optional LCD to display humidity and temperature in one device.

## Features

- Polycarbonate housing design for easy wall/surface mount or junction box.
- High-accuracy relative humidity & optional temperature measurement output.
- RH temperature compensation correction offering  $\pm 2\%$  accuracy measurement.
- $< 10s$  response time, low drift,  $< \pm 0.5\%$  RH per year, and  $< \pm 1\%$  RH hysteresis.
- Protection against over-voltage, reverse polarity & electromagnetic interference.
- 4-20mA & 0-10VDC output transmitter options for various 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.
- LCD displays RH and optional temperature output sequentially.



## Specifications

### Relative Humidity Measurement

#### ELECTRICAL

Voltage Power	16~28VAC / 16~35VDC
Current Power	18.5~35VDC (RL=500 $\Omega$ ); 8.5~35VDC (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°C, 20~80%RH)
Measurement RH Range	0~100%
Operating RH Range	5~95%RH (Non-Condensing)
Hysteresis	$< \pm 1\%$ RH
Response Time	$< 10s$ (25°C, in Slow Air)
Drift	$< \pm 0.5\%$ RH/Year

### Temperature Measurement

#### ELECTRICAL

Transmitter Voltage Power	16~28VAC / 16~35VDC
Transmitter Current Power	18.5~35VDC (RL=500 $\Omega$ ); 8.5~35VDC (RL=0 $\Omega$ )
Transmitter Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
Output Load	$\leq 500\Omega$ (Current), $\geq 2K\Omega$ (Voltage)

#### TEMPERATURE PERFORMANCE

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

#### ENVIRONMENTAL

Operating Temperature Range	-20~70°C (-4~158°F)
Storage Temperature	-20~80°C (-4~176°F)

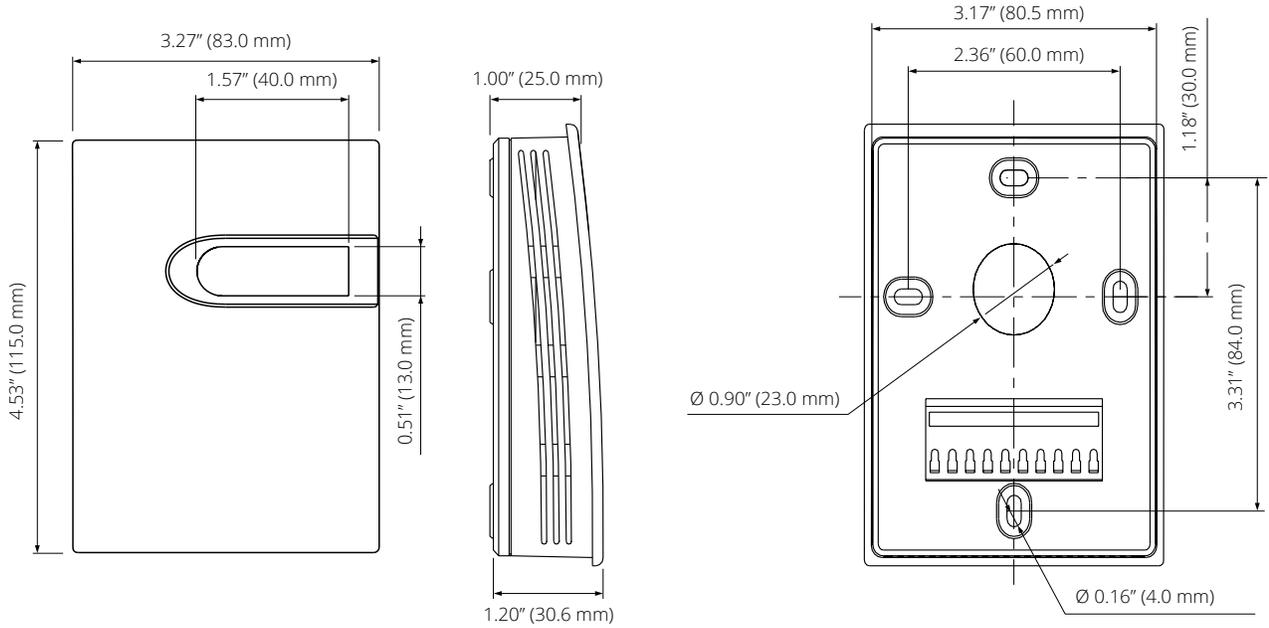
#### MECHANICAL

Mounting	Single Gang Junction Box or Surface Mount
Wiring Connection	Screw Terminal Blocks
Weight	110g (0.24lbs)
Display (Optional)	4-Digit LCD with Unit Indication
Display Resolution	0.1°C (0.1°F), 0.1%RH

#### CERTIFICATIONS/WARRANTY

Enclosure Material	Fire Retardant Polycarbonate (UL94V-0)
Protection	IP30
Agency Approvals	CE
Warranty	5 Years

## Dimensions



## Ordering Information

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

**Ordering Example:** AcuHUM-RM-A-A-02-A

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

**Note:** Selecting the "08 XMTR, 1KΩ RTD Other Span" temperature sensor 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 at the time of ordering.