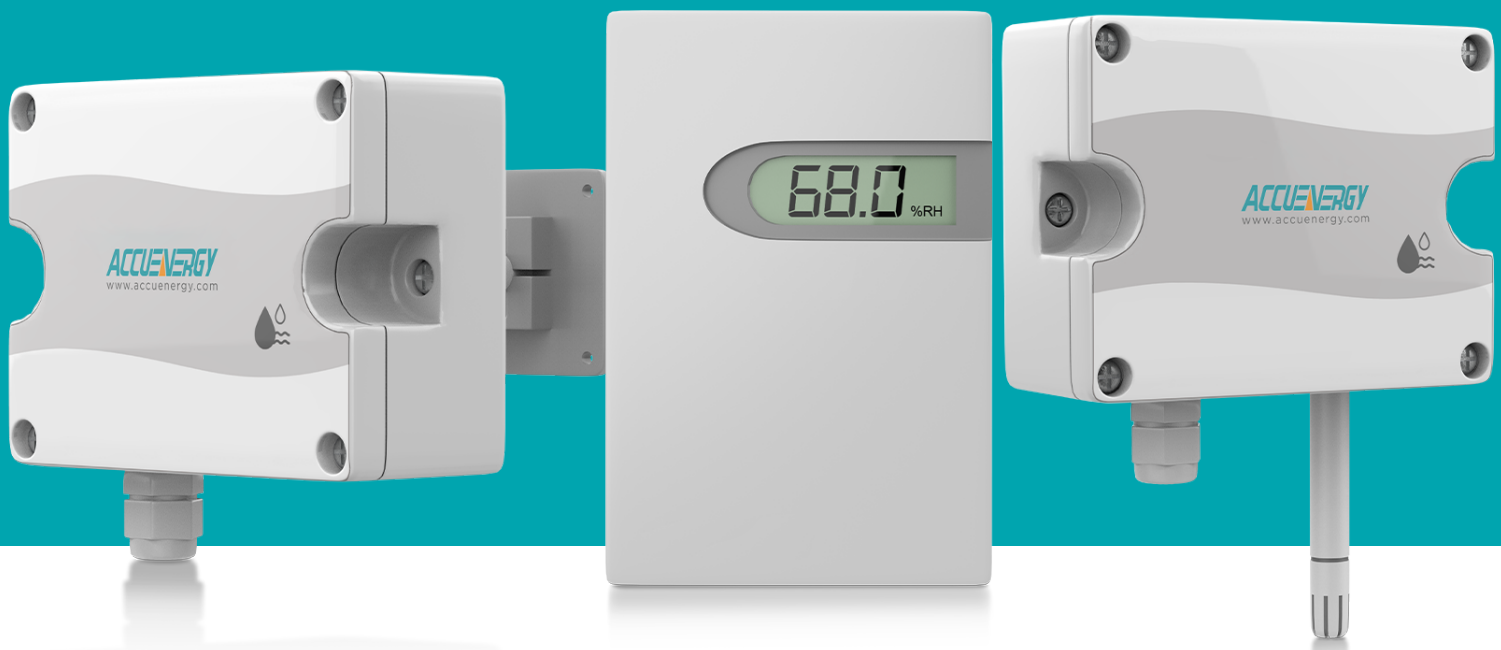
ACCUENERGY

AcuHUM™ Series

Relative Humidity & Temperature Sensors



DATASHEET

AcuHUM™ DM Series

Duct Mount Relative Humidity & Temperature Sensor Datasheet

CE

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.
- ±2% high-accuracy RH measurement. Temperature measurement up to 0.2°C (0.36°F) accuracy.
- <10s response time, low drift, <±0.5% RH/year, and <±1% RH hysteresis.
- 4-20mA and 0-10VDC output options for different BAS controllers.
- 100Ω Platinum, 1KΩ Platinum/Nickel RTDs & 10KΩ Type II/Type III, 20KΩ thermistors available.
- Optional custom configuration for temperature measurement.

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Specifications

Relative Humidity Measurement

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

RELATIVE HUMIDITY PERFORMANCE	
RH Sensor Type	Digital Polymer
Accuracy	+/-2% (25°C, 20~80%RH); +/-3% (0~95%RH)
Measurement RH Range	0~100%
Operating RH Range	0~95%RH (Non-Condensing)
Hysteresis	<±1%RH
Response Time	<10s (25°C, in Slow Air)
Drift	<±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=500Ω); 8.5~35 VDC (RL=0Ω)
Transmitter Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
Output Load	≤500Ω (Current), ≥2KΩ (Voltage)

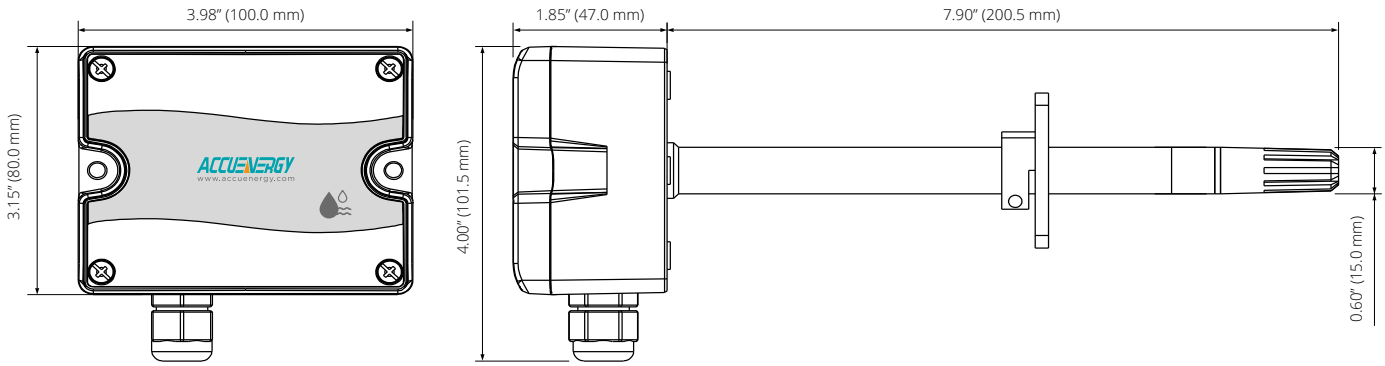
TEMPERATURE PERFORMANCE	
Temperature Sensor Type	RTD or Thermistor, See Ordering Information
Transmitter Accuracy (If Applicable)	<±0.3°C @ 5~60°C (<±0.54°F @ 41~140°F)
Thermistor Accuracy (If Applicable)	10K Ω, Type III - ±0.3°C @ 25°C (0.54°F @ 77°F) 10K Ω, Type II - ±0.2°C @ 25°C (0.36°F @ 77°F) 20K Ω - ±0.2°C @ 25°C (0.36°F @ 77°F)
RTD Accuracy (If Applicable)	1K Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 100 Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 1KΩ Nickel - ±0.5°C @ 25°C (0.9°F @ 77°F)
Temperature Transmitter Measurement Range	0~50°C (32~122°F) or 0-100°C (32-212°F)
Response Time	<10s

ENVIRONMENTAL	
Operating Temperature Range	-20~70°C (-4~158°F)
Storage Temperature	-30~80°C (-22~176°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
	B: 0-10 VDC Transmitter		**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)
			09: Transmitter, 1KΩ Platinum RTD Special Order †
	B: 0-10VDC Transmitter	**C**: 0-10VDC Output	**07**: Transmitter, 1KΩ Platinum RTD 0-50°C (32-122°F)
			08: Transmitter, 1KΩ Platinum RTD 0-100°C (32-212°F)
			09: Transmitter, 1KΩ Platinum RTD Special Order †
	A: 4-20mA Transmitter	**D**: No Temperature Output	**00**: No Temperature Output
	B: 0-10VDC Transmitter		

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

† **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.

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AcuHUM™ RM Series

Room Mount Relative Humidity & Temperature Sensor Datasheet

CE

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 ±2% accuracy measurement.
- <10s response time, low drift, <±0.5% RH per year, and <±1% RH hysteresis.
- Protection against over-voltage, reverse polarity & electromagnetic interference.
- 4-20mA & 0-10VDC output transmitter options for various BAS controllers.
- 100Ω Platinum, 1KΩ Platinum/Nickel RTDs & 10KΩ Type II/Type III, 20KΩ thermistors available.
- Optional custom configuration for temperature measurement.
- LCD displays RH and optional temperature output sequentially.

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Specifications

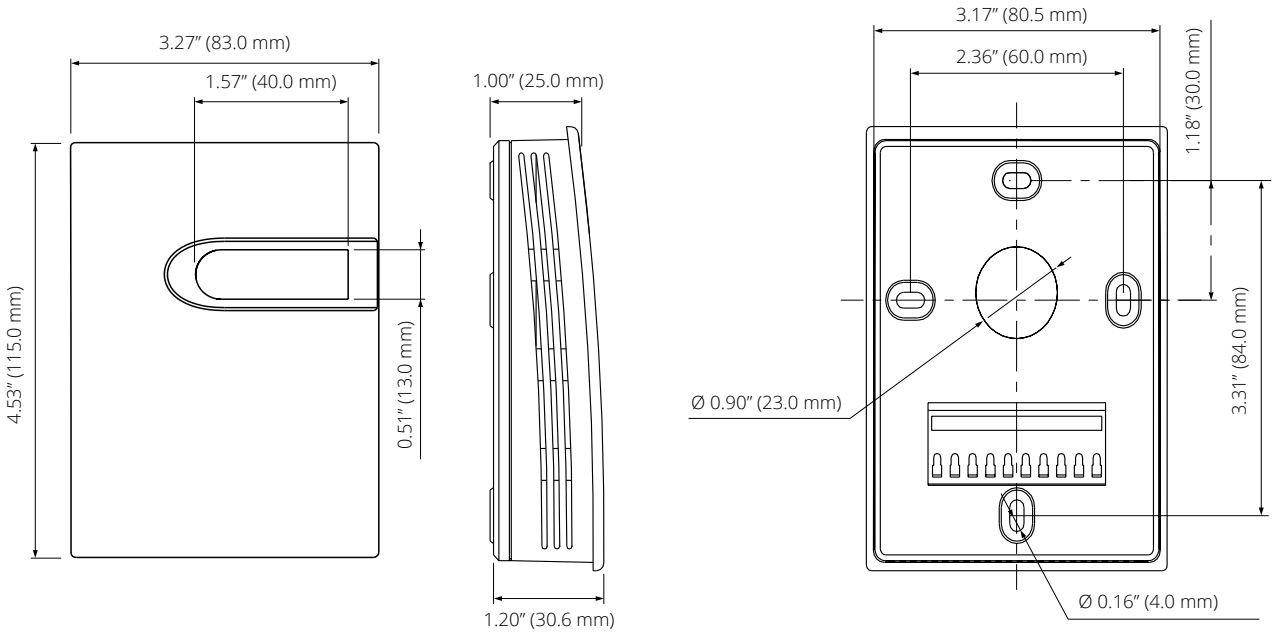
Relative Humidity Measurement

ELECTRICAL	
Voltage Power	16~28VAC / 16~35VDC
Current Power	18.5~35VDC (RL=500Ω); 8.5~35VDC (RL=0Ω)
Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
RELATIVE HUMIDITY PERFORMANCE	
RH Sensor Type	Digital Polymer
Accuracy	±2% (25°C, 20~80%RH)
Measurement RH Range	0~100%
Operating RH Range	5~95%RH (Non-Condensing)
Hysteresis	<±1%RH
Response Time	<10s (25°C, in Slow Air)
Drift	<±0.5%RH/Year

Temperature Measurement

ELECTRICAL	
Transmitter Voltage Power	16~28VAC / 16~35VDC
Transmitter Current Power	18.5~35VDC (RL=500Ω); 8.5~35VDC (RL=0Ω)
Transmitter Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
Output Load	≤500Ω (Current), ≥2KΩ (Voltage)
TEMPERATURE PERFORMANCE	
Temperature Sensor Type	RTD or Thermistor, See Ordering Information
Transmitter Accuracy (If Applicable)	<±0.3°C @ 5~60°C (<±0.54°F @ 41~140°F)
Thermistor Accuracy (If Applicable)	10KΩ, Type III - ±0.3°C @ 25°C (0.54°F @ 77°F) 10KΩ, Type II - ±0.2°C @ 25°C (0.36°F @ 77°F) 20KΩ - ±0.2°C @ 25°C (0.36°F @ 77°F)
RTD Accuracy (If Applicable)	1K Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 100 Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 1K Ni Ω Nickel - ±0.5°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
AcuHUM-RM	**A**: 4-20 mA Transmitter	**A**: Resistive Output	**01**: 10KΩ, Type III Thermistor	**A**: With Display, Fahrenheit
	B: 0-10 VDC Transmitter		**02**: 10KΩ, Type II Thermistor	**B**: With Display, Celsius
			03: 20KΩ Thermistor	**C**: No Display
			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)	**A**: With Display, Fahrenheit[†]
			08: Transmitter, 1KΩ Platinum RTD Special Order [†]	**B**: With Display, Celsius
				C: No Display
	B: 0-10VDC Transmitter	**C**: 0-10VDC Output	**07**: Transmitter, 1KΩ Platinum RTD 0-50°C (32-122°F)	**A**: With Display, Fahrenheit
			08: Transmitter, 1KΩ Platinum RTD Special Order [†]	**B**: With Display, Celsius
				C: No Display
	A: 4-20mA Transmitter	**D**: No Temperature Output	**00**: No Temperature Output	**A**: With Display, RH Only
	B: 0-10VDC Transmitter			**C**: No Display

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

[†] **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.

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AcuHUM™ OA Series

Outdoor Air Relative Humidity & Temperature Sensor Datasheet

CE

Advanced digital polymer sensing technology provides precise relative humidity (RH) measurement, the AcuHUM OA series outdoor air relative humidity sensor offers long-term stability, fast response time, and ability to recover from condensation. The RH sensor can be mounted onto a vertical surface for monitoring outdoor RH/temperature. With an IP65 rated enclosure, it is suitable for sheltered outdoor locations and protect against dust ingress and water. The AcuHUM OA sensor also features an optional thermistor, RTD, or transmitter to conveniently provide a temperature and RH measurement in a single device.

Features

- IP65 enclosure protects RH sensor from ingress dust & water moisture, ideal for outdoor applications.
- ±2% high-accuracy RH measurement with optional temperature measurement up to 0.2°C (0.36°F) accuracy.
- Quick installation with push button terminal blocks and quick release screws.
- Fast response time of <10 seconds & small humidity drift <±0.5% RH/year.
- 4-20mA and 0-10VDC output options are an ideal fit with various BAS controllers.
- 100Ω Platinum, 1KΩ Platinum/Nickel RTDs & 10KΩ Type II/Type III, 20KΩ thermistors available.
- Optional custom configuration for temperature measurement.

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Specifications

Relative Humidity Measurement

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

RELATIVE HUMIDITY PERFORMANCE	
RH Sensor Type	Digital Polymer
Accuracy	±2% (25°C, 20~80%RH); +/-3% (0~95%RH)
Measurement RH Range	0~100%
Operating RH Range	0~95%RH (Non-Condensing)
Hysteresis	<±1%RH
Response Time	<10s (25°C, in Slow Air)
Drift	<±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=500Ω); 8.5~35 VDC (RL=0Ω)
Transmitter Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
Output Load	≤500Ω (Current), ≥2KΩ (Voltage)

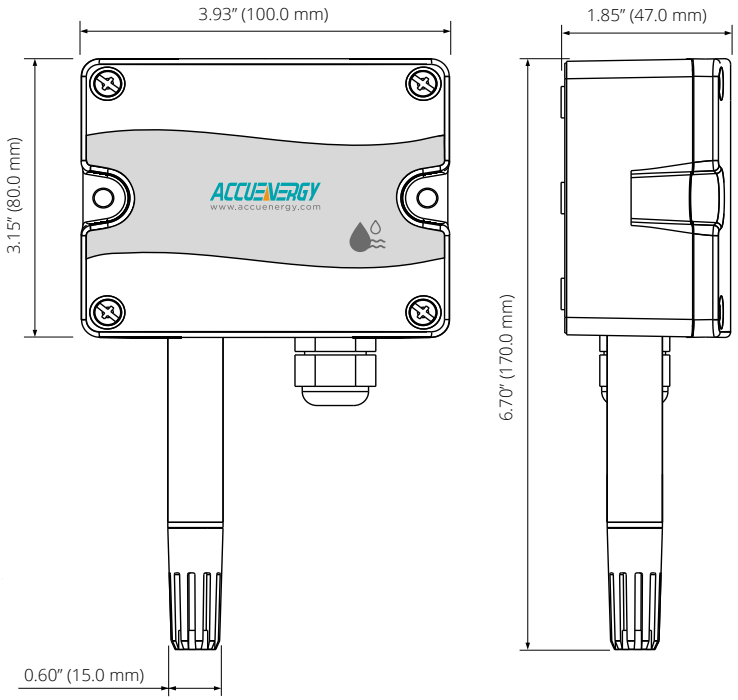
TEMPERATURE PERFORMANCE	
Temperature Sensor Type	RTD or Thermistor, See Ordering Information
Transmitter Accuracy (If Applicable)	<±0.3°C @ 5~60°C (<±0.54°F @ 41~140°F)
Thermistor Accuracy (If Applicable)	10K Ω, Type III - ±0.3°C @ 25°C (0.54°F @ 77°F) 10K Ω, Type II - ±0.2°C @ 25°C (0.36°F @ 77°F) 20K Ω - ±0.2°C @ 25°C (0.36°F @ 77°F)
RTD Accuracy (If Applicable)	1K Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 100 Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 1K Ni Ω Nickel - ±0.5°C @ 25°C (0.9°F @ 77°F)
Temperature Transmitter Measurement Range	-40~60°C (-40~140°F)
Response Time	<10s

ENVIRONMENTAL	
Operating Temperature Range	-20~70°C (-4~158°F)
Storage Temperature	-30~80°C (-22~176°F)

MECHANICAL	
Mounting	Screw Surface Mount
Wiring Connection	Push Button Terminal Blocks
Weight	240g (0.53 lbs)

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 Analog Output	- Temperature Sensor
AcuHUM-OA	**A**: 4-20 mA Transmitter	**A**: Resistive Thermistor or RTD	**01**: 10KΩ, Type III Thermistor
	B: 0-10 VDC Transmitter		**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 Transmitter	**07**: XMTR, 1KΩ Platinum RTD -40-60°C (-40-140°F)
			08: XMTR, 1KΩ Platinum RTD Special Order †
	B: 0-10VDC Transmitter	**C**: 0-10VDC Transmitter	**07**: XMTR, 1KΩ Platinum RTD -40-60°C (-40-140°F)
			08: XMTR, 1KΩ Platinum RTD Special Order †
	A: 4-20mA Transmitter	**D**: No Temperature Output	**00**: No Temperature Output
	B: 0-10VDC Transmitter		

Ordering Example: AcuHUM-OA-B-C-07

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

Note: Selecting the "08 XMTR, 1K Ω 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.

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AcuHUM™ OAW Series

Outdoor Air Relative Humidity & Temperature Sensor with Weather Shield Datasheet

The AcuHUM OAW outdoor air humidity and temperature sensors is IP65 rated and reinforced with a weather shield to protect against harsh weather exposure for more accurate readings. The six-layered weather shield features natural ventilation, reducing the thermal effect of UV radiation, snow, and rain, improving response time, and producing accurate measurement for long-term outdoor conditions. The AcuHUM OAW sensors offer optional thermistor, RTD, or transmitter to provide temperature and RH readings in a single device.

Features

- Weather shield for enhanced humidity sensor protection from harsh environmental conditions while directing air flow for more accurate measurements.
- IP65 enclosure protects RH sensor from ingress dust & water moisture, ideal for outdoor applications.
- ±2% (25°C, 20~80% RH) high-accuracy relative humidity measurement with optional temperature measurement up to 0.2°C (0.36°F) accuracy.
- Fast response of <10 seconds, and small humidity drift <±0.5% RH/year.
- 4-20mA and 0-10VDC output transmitter options ideal for different BAS controllers.
- 100Ω Platinum, 1KΩ Platinum/Nickel RTDs & 10KΩ Type II/Type III, 20KΩ thermistors available.
- Optional custom configuration for temperature measurement.

Specifications

Relative Humidity Measurement

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

RELATIVE HUMIDITY PERFORMANCE	
RH Sensor Type	Digital Polymer
Accuracy	+/-2% (25°C, 20~80%RH); +/-3% (0~95%RH)
Measurement RH Range	0~100%
Operating RH Range	0~95%RH (Non Condensing)
Hysteresis	<±1%RH
Response Time	<10s (25°C, in Slow Air)
Drift	<±0.5%RH/year

Temperature Measurement

ELECTRICAL	
Transmitter Voltage Power	19.2~28.8VAC or VDC
Transmitter Current Power	19.2~28.8VDC (RL=500Ω); 8.5~35 VDC (RL=0Ω)
Transmitter Output	4~20mA (2 Wires) or 0~10VDC (3 Wires)
Output Load	≤500Ω (Current), ≥2KΩ (Voltage)

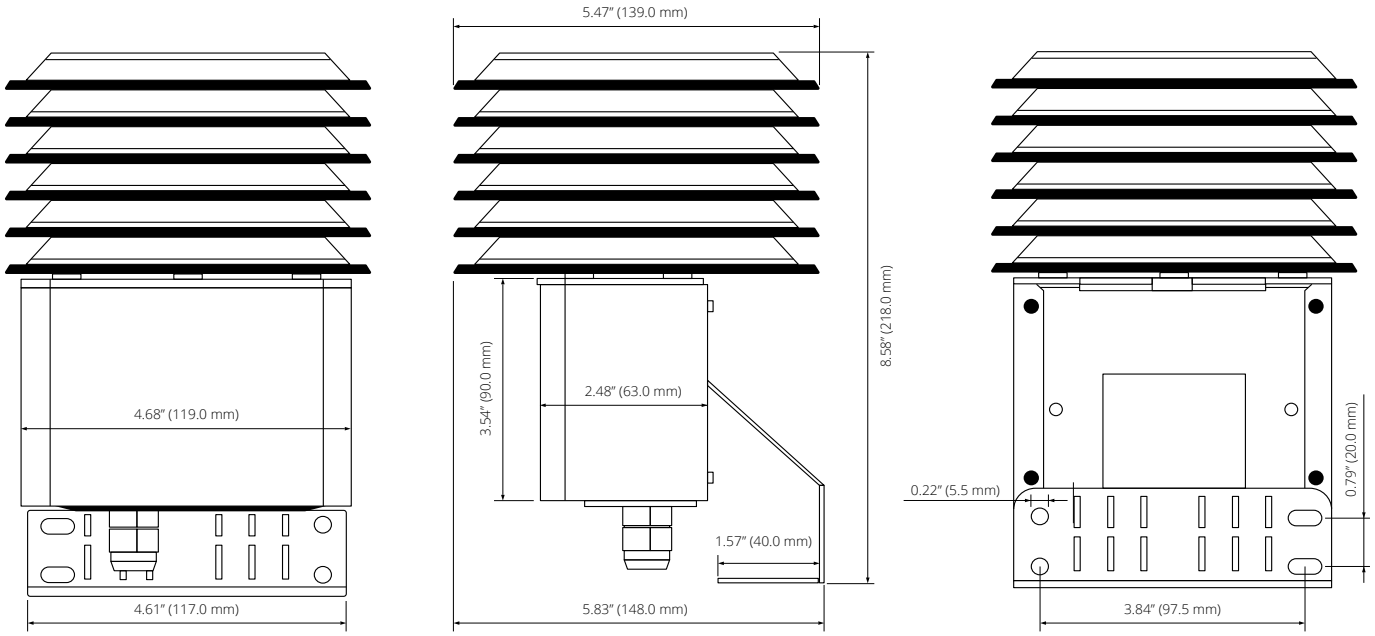
TEMPERATURE PERFORMANCE	
Temperature Sensor Type	RTD or Thermistor, See Ordering Information
Transmitter Accuracy (If Applicable)	<±0.4°C @ 5~60°C (<±0.72°F @ 41~140°F)
Thermistor Accuracy (If Applicable)	10KΩ, Type III - ±0.3°C@25°C (0.54°F @ 77°F) 10KΩ, Type II - ±0.2°C @ 25°C (0.36°F @ 77°F) 20KΩ - ±0.2°C @ 25°C (0.36°F @ 77°F)
RTD Accuracy (If Applicable)	1KΩ Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 100Ω Platinum - ±0.2°C @ 25°C (0.36°F @ 77°F) 1KΩ Nickel - ±0.5°C @ 25°C (0.9°F @ 77°F)
Temperature Transmitter Measurement Range	-40~60°C (-40~140°F)
Response Time	<10s

ENVIRONMENTAL	
Operating Temperature Range	-20~70°C (-4~158°F)
Storage Temperature	-30~80°C (-22~176°F)

MECHANICAL	
Mounting	4-Screw L-Shape bracket for surface installation on vertical wall, flat roof, or round column with worm gear clamps (gear clamps not provided).
Wiring Connection	Push Button Terminal Blocks
Weight	910g (2.00lbs)

CERTIFICATIONS/WARRANTY	
Enclosure Material	6-layer anti-radiation weather shield: flame retardant, anti-ultraviolet, anti-oxidation PC+ABS UL94V-0
Protection	IP65
Agency Approvals	CE
Warranty	5 Years

Dimensions



Ordering Information

Model	RH Analog Output	Temperature Output	Temperature Sensor
AcuHUM-OAW	**A**: 4-20 mA Transmitter	**A**: Resistive Thermistor or RTD	**01**: 10KΩ, Type III Thermistor
	B: 0-10 VDC Transmitter		**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 Transmitter	**07**: XMTR, 1KΩ RTD -40-60°C (-40-140°F)
			08: XMTR, 1KΩ RTD Special Order †
	B: 0-10VDC Transmitter	**C**: 0-10VDC Transmitter	**07**: XMTR, 1KΩ RTD -40-60°C (-40-140°F)
			08: XMTR, 1KΩ RTD Special Order †
	A: 4-20mA Transmitter	**D**: No Temperature Output	**00**: No Temperature Output
	B: 0-10VDC Transmitter		

Ordering Example: AcuHUM-OAW-A-A-02

† **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.

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