

Relative Humidity Sensor Unit, Analog, PCB Mount

ARH5C

FEATURES

- No Calibration Required
- Complete Self-Contained Humidity Sensor
- Wide Measurement Range of 5% to 95% RH
- Linear Analog Output Signal of +10mV/%RH
- +/-5% Accuracy
- Operating Temperature Range of +41°F to +113°F
- Single, +5Vdc Supply Operation

APPLICATIONS

- HVAC
- Humidifiers
- Dehumidifiers
- Automation
- Energy Conservation
- Process Control
- Electronics Projects

DESCRIPTION

The ARH5C is a complete, calibrated Relative Humidity Sensor unit. A humidity sensing element, support circuitry and filter membrane are all contained in a round, compact, white, plastic enclosure ready for direct PCB (printed circuit board) mounting. Multiple topside vents serve to expose the sensing elements to the surrounding air. Support circuitry, provides for temperature compensation and a linearized output signal with a scale factor of 10mV per percent relative humidity (10mV/%RH). Three pins on the bottom of the unit allow it to be hand-soldered to a through-hole PCB footprint.

The ARH5C features stable operation over a temperature range from +41°F (+5°C) to +113°F (+45°C) with a regulated +5Vdc power supply powering the unit.

DIMENSIONS

Plastic enclosure dimensions do not exceed 0.788" (20mm) in diameter and 0.355" (9mm) in height. The three pins are 0.0193" (0.49mm) in diameter and are spaced at 0.197" (5mm) intervals in a triangular pattern. Typical unit weight is just 0.06 oz. or 1.68g.

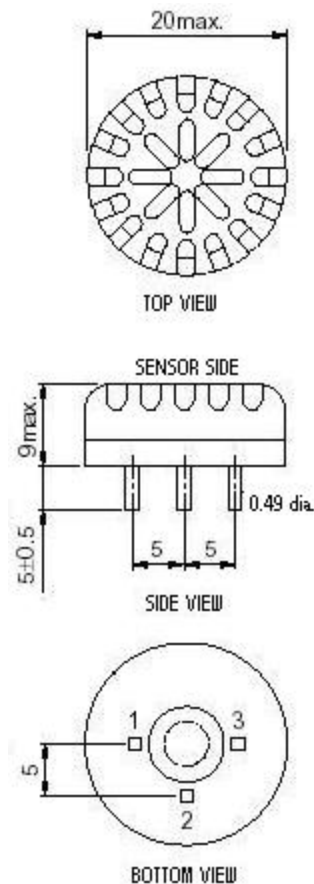
ANALOG OUTPUT

An analog output signal voltage available on pin 1 provides a direct reading of relative humidity using a common digital voltmeter. For example, a voltage of 0.500Vdc, as measured between pins 1 and 2, indicates a relative humidity of 50%. This reading is obtained by dividing the signal voltage by the scale factor as shown: $0.500\text{Vdc}/10\text{mVdc} = 0.500\text{V}/0.010\text{V} = 50\%\text{RH}$.



ARH5C Relative Humidity Sensor Unit

Dimensions below are shown in millimeters:

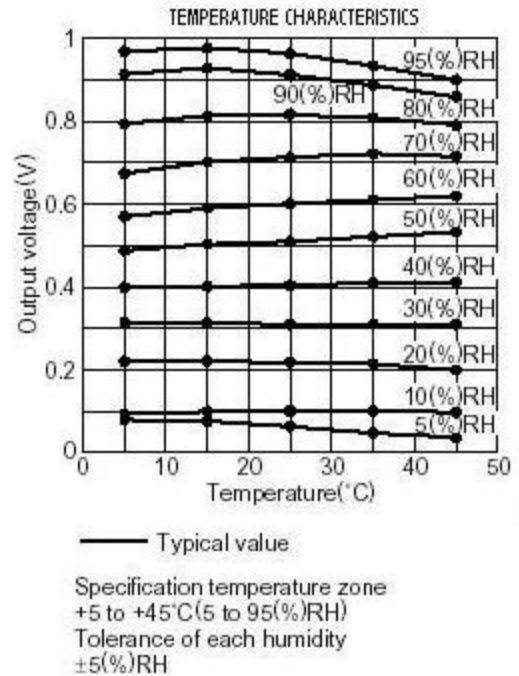
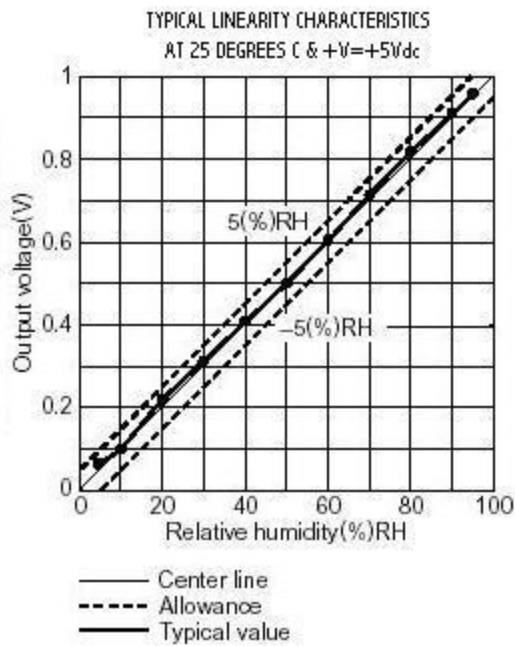


PIN NO.	Signal	I/O	Description
1	OUT	I	Analog Output Voltage
2	GND	I	Power Supply/Signal Ground
3	+V	I	+5Vdc Power Supply Voltage

Automated Environmental Systems

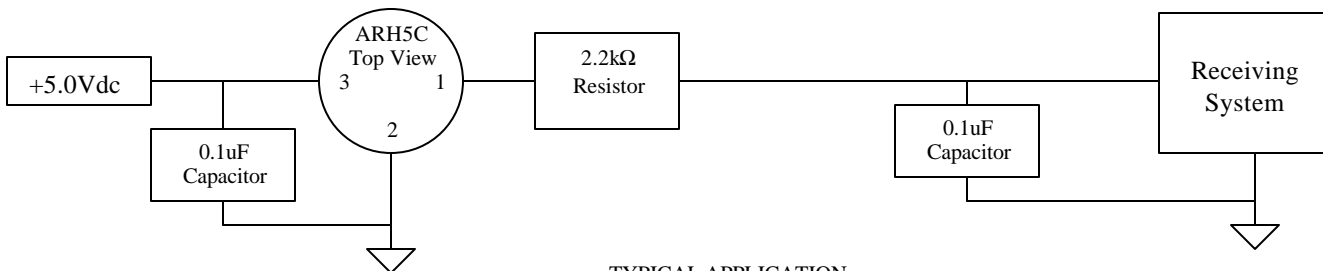
OPERATING SPECIFICATIONS: (+5Vdc Power Supply, 25°C Ambient Temperature, 5 to 95%RH)

PARAMETERS	MINIMUM	TYPICAL	MAXIMUM	UNITS
OUTPUT SIGNAL				
Output Scale Factor		+10		mV/%RH
Voltage Range	0		+1.0	Vdc
Accuracy (+41°F to +113°F)	-5		+5	%RH
Voltage Range	0		+1.0	Vdc
Output Impedance		200		kΩ (ref only)
Response Time (to reach 90% actual humidity)		1		Minutes
TEMPERATURE				
Operating (Recommended)	+41.0		+113	°F
	+5		+45	°C
Temperature Dependency	-5		+5	%RH
POWER SUPPLY				
Operating Voltage Range	+4.75	+5.0	+5.25	Vdc
Operating Current			+0.6	mAdc



ABSOLUTE MAXIMUM RATINGS (25°C Ambient Temperature)

POWER SUPPLY VOLTAGE	+7Vdc Max
OPERATING CONDITIONS	0 to +50°C, +V = +5Vdc, No Condensation
STORAGE CONDITIONS	-20 to +60°C, No Condensation



TYPICAL APPLICATION

The above information is subject to change without notice.
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