

## Room/Outdoor Relative Humidity and Relative Humidity/Temperature Sensors



Energy & Atmosphere



Indoor Environmental Quality



AQY2010  
Remote Sensing Cable  
Shown with QFA3100.



QFA3100 Series  
Outdoor Air Relative Humidity and  
Relative Humidity/Temperature Sensor.



AQF3100  
Sunshield for Sensor.  
Sold Separately.

### Description

The QFA Series Outdoor Air Relative Humidity and Relative Humidity/Temperature Sensors monitor and transmit changes in humidity and temperature to the building control systems. Standard models available are 2% and 2% certified, for both humidity only and combination humidity with temperature sensing. Sensors are offered with either 4 to 20 mA or 0 to 10 Volt output signals.

### Features

- 4 to 20 mA or 0 to 10 Vdc output signals
- High degree of accuracy
- Removable, replaceable sensing tip sold separately on B-39
- "D" suffix models include LCD Display\*

\* Units with display are not intended for outdoor use.

### Applications

The QFA Series Relative Humidity and Relative Humidity/Temperature Sensors are especially suited for applications where precise, stable humidity sensing is required.

For outdoor applications, an AQF 3100 sunshield is required (sold separately).

E-25

Sensors

# QFAx1 Specifications

## General

**Installation**..... 18 AWG cable length shared in conduit with other sensor wiring 750 ft. (229 m) max

**Connections** ..... Screw Terminals

**Dimensions**

Outdoor Air Probe..... 6" O.D. x 3.3" L (15 mm O.D. x 84 mm L)

Outdoor Air Housing..... 3.1" L x 2.3" W x 1.5" D  
(80 mm L x 60 mm W x 40 mm D)

Shield (mounted)..... 3.43" H x 3.5" W x 4.1" D  
(87 mm L x 89 mm W x 104 mm D)

**Voltage Requirement**..... 13.5 to 35 Vdc and 24 Vac ( for sensors with 0-10 Vdc outputs)

**Material Type**..... Polycarbonate plastic

**CE and UL listed** .....UL 873 standard for Temperature Indicating and Regulating Equipment

## Humidity Element

**Operating Range**..... 0 to 100% RH

**Measurement Range** ..... 0 to 95% RH

**Accuracy at Room Temperature (73°F, 20°C)**..... ±2% RH, 0-95% RH

**Operating Temperature** ..... -31 to +140°F (-35 to +60°C)

**Temperature Effect**..... Less than 0.1% per degree C

**Sensing Element**..... Capacitive humidity sensing element

**Output Signal**

RH only units... 4 to 20 mA or 0 to 10 Vdc, 0 -100% Linear, Proportional

RH & T units... 4 to 20 mA or 0 to 10 Vdc, 0 -100% Linear, Proportional

**Polarity Protection**..... Yes

## Temperature Element (for Combination RH/T Units Only)

Application	Temperature
Operating Temperature Jumper Selectable	32 to 122°F (0 to 50°C) or -31 to +95°F (-35 to +35°C) 32 to 122°F (0 to 50°C) or -31 to +140°F (-35 to +60°C)
Time Constant at 0 to 50°C and 10 to 80% RH	Approx. 20 seconds in moving air
Accuracy	at 59 to 95°F (15 to 35°C): ±0.8 K
	at 31 to 122°F (-35 to +50°C): ±1 K
	at 31 to 140°F (-35 to +60°C): ±1 K
Output Signal	4 to 20 mA or 0 to 10 Vdc, 0 -100% linear, proportional, (terminal U2)
Calibration Adjustments	None

## QFAx1 Series Product Ordering

Application	RH	Description	Part No.
Room/Outdoor Air Humidity	2%	0 to 10 Vdc	QFA3100
Room/Outdoor Air Humidity	2%	4 to 20 mA	QFA3101
Room/Outdoor Air Humidity & Temperature	2%	0 to 10 Vdc / Temp 0 to 10 Vdc	QFA3160
Room Air Humidity & Temperature	2%	0 to 10 Vdc / Temp 0 to 10 Vdc with Display	QFA3160D
Room/Outdoor Air Humidity & Temperature	2%	4 to 20 mA / Temp 4 to 20 mA	QFA3171
Room Air Humidity & Temperature	2%	4 to 20 mA / Temp 4 to 20 mA with Display	QFA3171D
Room/Outdoor Air Humidity & Temperature	2%	4 to 20 mA / Temp 4 to 20 mA (Certified)	QFA4171
Room Air Humidity & Temperature	2%	4 to 20 mA / Temp 4 to 20 mA (Certified) with Display	QFA4171D
Room Outdoor Air Humidity & Temperature	2%	0 to 10 Vdc, Temp 0 to 10 Vdc (Certified)	QFA4160
Room Air Humidity & Temperature	2%	0 to 10 Vdc, Temp 0 to 10 Vdc (Certified) with Display	QFA4160D

## QFAx1 Series Accessories

Description	Part No.
Outdoor Air Sunshield	AQF3100
Remote Sensing Cable, 10 Foot	AQY2010
Remote Sensing Cable, 30 Foot	AQY2030