Q-Series Outdoor Air or Critical Environment Relative Humidity and Relative Humidity & Temperature Sensors

Figure 1. Q-Series Relative Humidity and Relative Humidity & Temperature Sensor with Outdoor Air Sun Shield.

Figure 2. Q-Series Relative Humidity and Relative Humidity & Temperature Critical Environment Room Sensor.

Figure 3. Q-Series Relative Humidity Removable Sensing Tip.

Figure 3. Q-Series Relative Humidity and Relative Humidity & Temperature Critical Environment Room Sensor with Display.

Description

The Q-Series Outdoor Air Relative Humidity and Relative Humidity & Temperature Sensors monitor and transmit changes in humidity and temperature to the building control systems. These units are especially suited for applications where precise, stable humidity sensing is required. 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. Some models are available with display.

All versions are also equipped with a removable, replaceable sensing tip. The removable sensing tips have a threaded connection that allows the user to screw off the tip without disrupting the installation or wiring. Siemens sensors with replaceable tips are ideal for applications where measurement accuracy is critical and sensor replacement is not an option. Replaceable sensing tips eliminate the need for accuracy adjustment.

All certified sensors include a certificate of calibration. The certification is based on a 3-point humidity and 3-point temperature verification and calibration of the sensing element.

Sun shields are sold separately.

Specifications – Humidity Element

Measurement range	0 to 100% rh
Accuracy at room temperature (73°F, 20°C)	±2% rh, 0-95% rh
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 to100% linear, proportional
Output signal - rh/T units	4 to 20 mA or 0 to 10 Vdc, 0 to100% linear, proportional
Polarity protection	Yes

Specifications–Temperature Element (for combination RH/T units only)

Time constant at 0°C to 50°C and 10-80%rh	Approx. 20 seconds in moving air
Accuracy:	± 1.4°F: 59°F to 95°F (± 0.8°C): (15°C to 35°C) ± 1.8°F: -40°F to 59°F and 95°F to 158°F (± 1.0°C): (-40°C to 15°C and 35°C to 60°C)
Output signal	4 to 20 mA or 0 to 10 Vdc, 0 to 100% linear, proportional, (terminal U2)
Calibration adjustments	None

General Specifications

Operating conditions
     Relative humidity
     Temperature (jumper selectable)
	
	 0 to 100%
	 32°F to 122°F (0°C to 50°C) **or**
	 -31°F to 95°F (-35°C to +35°C) **or**
	 -40°F to 158°F (-40°C to 70°C)

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" OD × 3.3" L (15 mm × 84 mm) Outdoor Air Housing: 3.1" L × 2.3" W × 1.5" D (80 mm × 60 mm × 40 mm) Shield (mounted): 3.43" H × 3.5" W × 4.1" D (87 mm × 89 mm × 104 mm)

Voltage requirement
     0 to 10 Vdc output types
     4 to 20 mA output types
	
	 13.5 to 35 Vdc or 24 Vac ± 20%
	 13.5 to 35 Vdc

Power consumption	<1 VA
Material Type	Polycarbonate plastic
CE and UL listed	UL 873 standard for Temperature Indicating and Regulating Equipment

Ordering Information

Part Number	Description
QFA3100	Outdoor air humidity sensor (2%), 0 to 10 Vdc
QFA3101	Outdoor air humidity sensor (2%), 4 to 20 mA
QFA3160	Outdoor air humidity sensor (2%), 0 to 10 Vdc/Temp 0 to 10 Vdc
QFA3171	Outdoor air humidity sensor (2%), 4 to 20 mA Temp 4 to 20 mA
QFA4171	Outdoor air humidity sensor (2%), 4 to 20 mA/Temp 4 to 20 mA (certified version)
QFA4160	Outdoor air humidity sensor (2%), 0 to 10 Vdc/Temp 0 to 10 Vdc (certified version)
QFA3160D	Outdoor air humidity sensor (2%), 0 to 10 Vdc/Temp 0 to 10 Vdc with display
QFA3171	Outdoor air humidity sensor (2%), 4 to 20 mA Temp 4 to 20 mA
QFA3171D	Outdoor air humidity sensor (2%), 4 to 20 mA Temp 4 to 20 mA with display
QFA4171	Outdoor air humidity sensor (2%), 4 to 20 mA/Temp 4 to 20 mA (certified version)
QFA4171D	Outdoor air humidity sensor (2%), 4 to 20 mA/Temp 4 to 20 mA (certified version) with display
QFA4160	Outdoor air humidity sensor (2%), 0 to 10 Vdc/Temp 0 to 10 Vdc (certified version)
QFA4160D	Outdoor air humidity sensor (2%), 0 to 10 Vdc/Temp 0 to 10 Vdc (certified version) with display
Accessories	
AQF3101	Sensor filter cap
AQF4150	Replaceable certified sensor tip
AQF3100	Sun Shield (must be ordered separately)
74 662 0104 0	US 1/2-in rigid conduit adapter

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Page 3 of 3