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Q-Series Duct Relative Humidity and Relative Humidity & Temperature Sensors



Figure 1. Q-Series Duct Relative Humidity and Relative Humidity & Temperature Sensor.



Figure 2. Q-Series Duct Relative Humidity and Relative Humidity & Temperature Sensor with Display.



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

Description

The Q-Series Duct 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. Certified units are also available where certification is required. Several models are available — for humidity only (in 5%, 2% and certified) or for humidity and temperature sensing (also in 5%, 2%, certified), and display versions. The humidity only units are available in either 4 to 20 mA or 0 to 10 Volt signal versions. Combination humidity and temperature units are also available in either dual current or voltage versions, transmitting proportional signals back to the controller. Nickel 1000 ohm or Platinum 1000 ohm RTD temperature outputs on combination versions are also offered.

2% and certified versions are equipped with a removable, replaceable sensing tip. The removable sensing tips have a Lumberg 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. Humidity calibration and certification is based on a three-point process at 20, 50, and 85% rh @ 23°C.

Specifications – Humidity Element

Measurement range	0 to 100% rh
Accuracy at room temperature of 73°F (20°C)	QFM2xxx types: $\pm 5\%$ rh, 0 to 95% rh ($\pm 3\%$ rh, 30 to 70% rh) QFM3xxx types: $\pm 2\%$ rh, 0 to 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 to 100% linear, proportional
Output signal-rh/T units	0 to 10 Vdc or 4 to 20mA (both outputs), 0 to 100% linear, proportional
Polarity protection	Yes
Calibration	None
Time constant	Approximately 20 seconds in moving air

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

	QFM2110 (Platinum) QFM2120 (Nickel) QFM2140 (T1)	QFM2160 QFM2171	QFM31xx QFM41xx
Accuracy:	± 1.4°F: 59°F to 95°F (± 0.8°C): (15°C to 35°C) ± 1.8°F: -31°F to 59°F and 95°F to 1 (± 1.0°C): (-35°C to 15°C and 35°C)		
Output signal	Platinum 1K ohm RTD (385α) Nickel 1K ohm RTD (Siemens) T1 (PTC)	0 to 10 Vdc (QFM 4 to 20 mA (QFM	,

General Specifications

Operating conditions	
Relative humidity	0 to 100%
Temperature range:	0.10 10070
QFM2110, QFM2120, QFM2140	-31°F to 140°F (-35°C to 60°C)
QFM2160, QFM2171, QFM31xx, QFM41xx	
Installation	18 AWG cable length shared in conduit with other sensor wiring 750 ft (229 m) max
Connections	Screw terminals
Dimensions	Probe: .6" OD × 7.2" L (15 mm × 183 mm) Housing: 3.1" L × 2.3" W × 1.5" D (80 mm × 60 mm × 40 mm)
Environmental conditions	
LCD display readable	-13°F to 158°F (-25°C to 70°C)
Voltage requirement	13.5 to 35 Vdc
Input impedance (4 to 20 mA versions only)	Less than 500 ohms
Housing material type	Polycarbonate plastic, UL 94-5VB rated, suitable for plenum installations
Housing protection class	IP 65 (QFM3xxx, QFM4xxx types), IP54 (QFM2xxx types), NEMA 1 (all types)
Filter material and specification	Teflon™, 10 micron filter

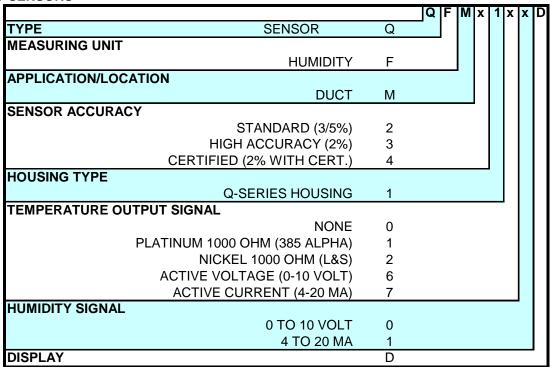
Agency certification	UL listed to UL 873 for Temperature Indicating and Regulating Equipment
CE conformance	EMC directive 2004/108/EC
Weight	
Without LCD display	7.34 ounces (0.208 kg)
With LCD display	23.49 ounces (0.666 kg)

Ordering Information

n Platinum RTD (385 Alpha)
n Nickel RTD
Vdc
mA
Vdc
Vdc, with display
mA
mA, with display
(certified)
certified)

Product Naming Key

HUMIDITY SENSORS



NOTE: For combination RH&T versions, mixed 4-20 mA and 0-10V signals not offered.

NOTE: Display versions not offered on all types.

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