Table of Contents

Standard Shipping within 3 to 5 days Products ordered through the Rapid Response™ program can ship same day. Expect longer lead times for large quantities and unique parts. See inside back cover for details on Rapid Response™ shipping.

Sensor Compatibility Matrix

Signal Type	AET	Alerton	Anderson Cornelius	Andover	Automated Logic	Auto-Matrix	Carrier	Circon	Delta Controls	Distech Energie	Honeywell	Invensys	JCI	KMC	Reliable Controls	Schneider General	Solidyne	TAC/CSI	Teletrol	Trane	Triangle Microsystems	Walker	York	T&A
0 to 10 Vdc								•																
1K Platinum RTD (375 element)													•							•				
1K Platinum RTD (385 element)											•	•	•							•				
4 to 20 / 0 to 20 mA								•																
Ni1000 RTD (JCI)													•										•	
Ni1000 RTD (L&S)																								
NTC 10K (Type II)		•			•		•			•			•	•			•	•		•	•			
NTC 10K (Type III)	•			•		•	•		•			•		•	•				•				•	

100K NTC Room Temperature Sensors

4 to 20 mA and 100K Ohm

Siemens 4 to 20 mA and 100K Ohm Room Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The miscellaneous Room Temperature Sensors provide accurate 100K NTC, reliable sensing of room temperature. The sensor's resistance varies proportionally to the actual room temperature being measured.

100K NTC Room Temperature Sensors Specifications

Temperature Range
Setpoint ..... 55 to 95°F (13 to 35°C)
Operating ..... 55 to 95°F (13 to 35°C)
Output Signal ..... Changing Resistance

Calibration Point Factory Setting ..... 77°F (25°)
Accuracy ..... ±0.5°F (±0.3°C)
Resistance Value ..... 10K Ohm
Calibration Adjustments ..... None Required
Cover Dimensions ..... 3-11/32"H x 2-1/2"W x 1-1/2"D
(85 mm H x 64 mm W x 38 mm D)

100K NTC Room Temperature Sensors Product Ordering

Application	Temperature Range	Desert Beige Part No.	White Part No.
Room 100K Ohm	20°F to 120°F (-7°C to 49°C)	**536-983A**	**536-983B**

Ordering Notes:
The controller to which the sensor is connected determines application-sensing range.

Flush Mount
Room Temperature Sensors

Plastic Flush Mount Room Temperature Sensor.

Metal Flush Mount Room Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The Flush Mount Room Temperature Sensor provides sensing of room temperature to the Siemens room controller products. The sensor's resistance varies with the actual room temperature being measured.

The sensor connects to the controller via a 2-wire pigtail connection. It incorporates a temperature-sensing element (10K Ohm Type II thermistor, 100K Ohm thermistor, or 1000 Ohm RTD) behind a blank, stainless steel or plastic switch cover plate.

Features

- Tamper-proof screws
- Can be painted after installation
- Designed for mounting to a 2 x 4 electrical box
- Option of brushed stainless steel finish or beige or white plastic

Applications

The Flush Mount Room Temperature Sensor is designed for those applications in which a protruding room temperature sensor is not acceptable.

Flush Mount Room Temperature Sensors Specifications

Output Signal ..... Changing Resistance

Operating Temperature Range* .....-40 to +257°F (-40 to +120°C)

10K Ohm Thermistor

Calibration Point Factory Setting .....77°F (25°)
Accuracy..... ±0.5°F (±0.3°C)
Resistance Value @ Cal. Temp.....10k

100K Ohm Thermistor

Calibration Point .....77°F (25°)
Accuracy..... ±0.5°F (±0.3°C)
Resistance Value @ Cal. Temp.....100k Ohm

1000 Ohm RTD

Calibration Point .....32°F (0°)
Accuracy..... ±0.54°F (±0.3°C)
Resistance Value @ Cal. Temp..... 1K Ohm

Dimensions .....4-1/2" H x 2-3/4" W x 1-1/36" D
(114 mm H x 70 mm W x 27 mm D)

*Functional range is controller dependent.

Flush Mount Room Temperature Sensors Product Ordering

Description	Part No.
10K Ohm (APOGEE TEC) NTC Thermistor, Metal Plate	**540-995**
10K Ohm (Type II) NTC Thermistor, Metal Plate	**540-984**
10K Ohm (Type II) NTC Thermistor, Beige Plastic Plate	**536-994A**
10K Ohm (Type II) NTC Thermistor, White Plastic Plate	**536-994B**
100K Ohm NTC Thermistor, Metal Plate	**536-984**
1000 Ohm (375 ALPHA) Platinum RTD, Metal Plate	**544-973**
1000 Ohm (375 ALPHA) Platinum RTD, Beige Plastic Plate	**544-374A**
1000 Ohm (375 ALPHA) Platinum RTD, White Plastic Plate	**544-374B**

Button Room Temperature Sensors

Button Room Temperature Sensor
(with or without Wall Plate).

Energy & Atmosphere

Indoor Environmental Quality

Description

The Button Room Temperature Sensor provides a resistance signal to the Siemens controller that varies proportionally with temperature.

The sensor connects to the controller via a two-wire field cable or pre-terminated cable with RJ-11 plugs. The Button Room Temperature Sensor has a temperature-sensing element (10K ohm Thermistor [TEC compatible only], or 1000 ohm RTD, 375 alpha) installed on the button sensor.

Features

- 10K NTC for TEC or 1K platinum (375) RTD Sensors
- Tamper-proof screws
- Can be painted after installation
- Designed for mounting to a 2 x 4 electrical box
- Brushed stainless steel finish
- Available with or without matching wall plate

Applications

This room sensor is designed for applications in which a normal or flush-mount room temperature sensor is not acceptable. It is available with or without a brushed, stainless steel wall plate.

The wall plate version is designed to mount to a 2-inch x 4-inch electrical box. The tamper-proof screws, used to install the sensor to the utility box, protect the sensor from removal by unauthorized personnel.

Button Room Temperature Sensors Specifications

Output Signal ..... Changing Resistance

10K Ohm Thermistor
Operating Temperature Range* ..... 55 to 95°F (13 to 35°C)
Calibration Point ..... 77°F (25°C)
Accuracy ..... ±0.5°F (±0.3°C)
Resistance Value ..... 10K Ohm

1000 Ohm RTD
Operating Temperature Range* ..... -40 to 257°F (-40 to 125°C)
Calibration Point ..... 32°F (0°C)
Accuracy ..... ±0.54°F (±0.3°C)
Resistance Value ..... 1K Ohm

Dimensions ..... 4-1/2" H x 2-3/4" W x 1-1/36" D
..... (114 mm x 70 mm x 27 mm)

*Functional range is controller dependent.

Button Room Temperature Sensors Product Ordering

Description	Part No.
1K Platinum (375) RTD	**QAA1011.AASU**
1K Platinum (375) RTD, with Wall Plate	**QAA1011.AATU**

Room Temperature Sensors

QAA20xx.FWNU

Room Temperature Sensor with Analog Display, Setpoint and Override.

QAA20xx.WNU

Room Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The QAA20 Series Room Temperature Sensors monitor and transmit changes in temperature to the building control systems. QAA20 Series sensors utilize the standard Series 1000 housing, but with a totally new internal circuit design.

Features

- Resistive output signals
- High degree of accuracy
- Analog temperature display
- Liquid Crystal Display (LCD)
- Analog setpoint adjustment
- Occupancy override button

Applications

The QAA20 Series Room Temperature Sensors are especially suited for applications where precise, stable temperature sensing is required. An assortment of models is available – versions with sensing only or setpoint adjustment, occupancy override and display.

The QAA20 Series temperature sensors are also available in a variety of signal types. Choose from powered 4 to 20 mA or 0 to 10 Volt signal versions. Choose also from numerous resistive signal outputs. Select the correct product based on the compatibility needs of your building automation system. See the **Sensor Compatibility Matrix** on page B-2 for more details.

QAA Series Specifications

General

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

Connections ..... Screw Terminals

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

Housing

Material Type..... Polycarbonate Plastic

Color ..... White

Dimensions..... 3-11/32" H x 2-1/2" W x 1-1/2" D (85 mm H x 63 mm W x 38 mm D)

Temperature Element

Measurement Range ..... Controller Dependent

Operating Temperature..... -40 to 240°F (-40 to 116°C)

Operating Range, Active Signal Types..... 40 to 90°F

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

Sensing Element..... Various, see Naming Key

Output Signals

Resistive Types ..... Various

Active Types..... 4 to 20 mA and 0 to 10 Vdc, 0-100% Linear, Proportional

Polarity Protection..... Yes

Accuracy at Calibration Temperature..... +/- 1 K

QAA Series Product Ordering

Application	Description	Part No.
Room Temperature Sensor	Platinum RTD, 1000 Ohms @ 32°F (385 Alpha) with Setpoint, Night Override, Display	**QAA2012.FWNU**
Room Temperature Sensor	Platinum RTD, 1000 Ohms @ 32°F (385 Alpha)	**QAA2012.WNU**
Room Temperature Sensor	Nickel RTD, 1000 Ohms @ 32°F, with Setpoint, Night Override, Display	**QAA2020.FWNU**
Room Temperature Sensor	Nickel RTD, 1000 Ohms @ 32°F	**QAA2020.WNU**
Room Temperature Sensor	Nickel RTD, 1000 Ohms @ 77°F, with Setpoint, Night Override, Display	**QAA2021.FWNU**
Room Temperature Sensor	Nickel RTD, 1000 Ohms @ 77°F	**QAA2021.WNU**
Room Temperature Sensor	NTC Thermistor 10K Ohm Type 2, with Setpoint, Night Override, Display	**QAA2030.FWNU**
Room Temperature Sensor	NTC Thermistor 10K Ohm Type 2	**QAA2030.WNU**
Room Temperature Sensor	NTC Thermistor 10K Ohm Type 3, with Setpoint, Night Override, Display	**QAA2032.FWNU**
Room Temperature Sensor	NTC Thermistor 10K Ohm Type 3	**QAA2032.WNU**
Room Temperature Sensor	4 to 20 mA, 40 to 90°F, with Setpoint, Night Override, Display	**QAA2072.FWNU**
Room Temperature Sensor	4 to 20 mA, 40 to 90°F, with Setpoint, Night Override, Display, Siemens Logo	**QAA2072.FWU**
Room Temperature Sensor	4 to 20 mA, 40 to 90°F	**QAA2072.WNU**
Room Temperature Sensor	4 to 20 mA, 40 to 90°F, Siemens Logo	**QAA2072.WU**
Room Temperature Sensor	0 to 10 Volt, 40 to 90°F, with Setpoint, Night Override, Display	**QAA2062.FWNU**
Room Temperature Sensor	0 to 10 Volt, 40 to 90°F, with Setpoint, Night Override, Display, Siemens Logo	**QAA2062.FWU**
Room Temperature Sensor	0 to 10 Volt, 40 to 90°F	**QAA2062.WNU**
Room Temperature Sensor	0 to 10 Volt, 40 to 90°F, Siemens Logo	**QAA2062.WU**

Ordering Note:

No Siemens logo unless specified.

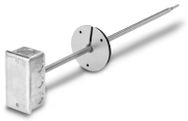
Accessories & Service Kits B-35

Duct, Pipe, Outdoor Air Temperature Sensors

QAD20xxU
Surface Mounted Pipe Sensor.

QAM20xx.xxx
Averaging Flexible Thermistor Sensor.

QAE20xx.xxx
Liquid Immersion Thermistor Sensor.



QAM20xx.xxx
Duct (Single Point) Thermistor Sensor.

QAM20xx.xxx
8-inch Duct Point Temperature Sensor.

QAC20xxU
Outside Air Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The QAx20 Series Duct, Pipe and Outdoor Air Temperature Sensors monitor and transmit changes in temperature to the building control systems.

Features

- Resistive output signals
- High degree of accuracy
- 2 x 4 or metal box enclosure

Applications

The QAx20 Series Duct, Pipe and Outdoor Air Temperature Sensors are especially suited for applications where precise, stable temperature sensing is required. These sensors are available in a variety of signal types. Choose from numerous resistive signal outputs, and select the correct product, based on the compatibility needs of your building automation system. See the **Sensor Compatibility Matrix** on page B-2 for more details.

QAx20 Series Specifications

General

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

Connections ..... Screw Terminals

Temperature Element

Measurement Range ..... Controller Dependent

Operating Temperature..... -40 to 240°F (-40 to 116°C)

Sensing Element..... Various Resistive Types, see Naming Key

Polarity Protection.....Yes

Accuracy at Calibration Point .....+/- 1 K

QAx20 Series Product Ordering

Application	Description	Part No.
Outdoor Air Sensor	PT 1000 Ohm (385)	**QAC2012U**
Outdoor Air Sensor	NI 1K Ohm @ 32°F	**QAC2020U**
Outdoor Air Sensor	NI 1K Ohm @ 77°F	**QAC2021U**
Outdoor Air Sensor	NTC 10K Ohm Type 2	**QAC2030U**
Outdoor Air Sensor	NTC 10K Ohm Type 3	**QAC2032U**
Duct Point Sensor	PT 1K Ohm, (385), 4 Inch	**QAM2012.010**
Duct Point Sensor	PT 1K Ohm, (385), 8 Inch	**QAM2012.020**
Duct Point Sensor	PT 1K Ohm, (385), 18 Inch	**QAM2012.045**
Duct Point Sensor	PT 1K Ohm, (385), 8 Foot	**QAM2012.250**
Duct Point Sensor	PT 1K Ohm, (385), 16 Foot	**QAM2012.500**
Duct Point Sensor	PT 1K Ohm, (385), 24 Foot	**QAM2012.750**
Duct Point Sensor	NI 1K Ohm @ 32°F, 4 Inch	**QAM2020.010**
Duct Point Sensor	NI 1K Ohm @ 32°F, 8 Inch	**QAM2020.020**
Duct Point Sensor	NI 1K Ohm @ 32°F, 18 Inch	**QAM2020.045**
Duct Averaging Sensor	NI 1K Ohm @ 32°F, 8 Foot	**QAM2020.250**
Duct Averaging Sensor	NI 1K Ohm @ 32°F, 16 Foot	**QAM2020.500**
Duct Averaging Sensor	NI 1K Ohm @ 32°F, 24 Foot	**QAM2020.750**
Duct Point Sensor	NI 1K Ohm @ 77°F, 4 Inch	**QAM2021.010**
Duct Point Sensor	NI 1K Ohm @ 77°F, 8 Inch	**QAM2021.020**
Duct Point Sensor	NI 1K Ohm @ 77°F, 18 Inch	**QAM2021.045**
Duct Averaging Sensor	NI 1K Ohm @ 77°F, 8 Foot	**QAM2021.250**
Duct Averaging Sensor	NI 1K Ohm @ 77°F, 16 Foot	**QAM2021.500**
Duct Averaging Sensor	NI 1K Ohm @ 77°F, 24 Foot	**QAM2021.750**
Duct Point Sensor	NTC 10K Ohm Type 2, 4 Inch	**QAM2030.010**
Duct Point Sensor	NTC 10K Ohm Type 2, 8 Inch	**QAM2030.020**
Duct Point Sensor	NTC 10K Ohm Type 2, 18 Inch	**QAM2030.045**
Duct Averaging Sensor	NTC 10K Ohm Type 2, 8 Foot	**QAM2030.250**
Duct Averaging Sensor	NTC 10K Ohm Type 2, 16 Foot	**QAM2030.500**
Duct Averaging Sensor	NTC 10K Ohm Type 2, 24 Foot	**QAM2030.750**
Duct Point Sensor	NTC 10K Ohm Type 3, 4 Inch	**QAM2032.010**
Duct Point Sensor	NTC 10K Ohm Type 3, 8 Inch	**QAM2032.020**
Duct Point Sensor	NTC 10K Ohm Type 3, 18 Inch	**QAM2032.045**
Duct Averaging Sensor	NTC 10K Ohm Type 3, 8 Foot	**QAM2032.250**
Duct Averaging Sensor	NTC 10K Ohm Type 3, 16 Foot	**QAM2032.500**
Duct Averaging Sensor	NTC 10K Ohm Type 3, 24 Foot	**QAM2032.750**

Accessories & Service Kits B-35

Sensor Compatibility Chart B-2

4 to 20 mA Analog Sensors

Surface Mounted
Pipe Sensor.

Outside Air
Temperature Sensor.

Duct (Single Point)
Temperature Sensor.

Duct (Averaging)
Flexible Temperature Sensor.

Duct (Averaging)
Rigid Temperature Sensor.

Duct Liquid Immersion
Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

Available in a variety of models for specific mounting requirements and sensing applications, Analog Sensors provide input for accurate loop-powered temperature sensing (detecting) for controllers via a 20 AWG twisted, shielded cable pair. The loop current varies according to the temperature being measured.

Features

- Output Signal 4 to 20 mA
- High degree of accuracy
- Rugged construction

Applications

Analog Sensors are designed for a variety of temperature sensing applications including room, surface-mount, outside air, duct point or averaging, and liquid immersion where high accuracy and/or long wiring runs are required.

Important: Sensors are not suitable for use with Siemens RWD Controller.

4 to 20 mA Analog Sensors Specifications

Output Signal ..... 4 to 20 mA
Reference Resistance at 32°F (0°C) ..... 100 Ohms
Element Material ..... Platinum

4 to 20 mA Analog Sensors Product Ordering

Application	Probe Length	Temperature Range/Mid-range Accuracy (Transmitter and Sensor Combined)	Part No.
Surface Mount	NA	30 to 250°F/±1.1°F (-1 to +121°C/±0.65°C)	**536-780**
Outdoor Air	NA	-58 to +122°F/±0.6°F (-50 to +50°C/±0.3°C)	**536-768**
Duct – Single Point	4"	20 to 120°F/±0.7°F (-7 to +49°C/±0.4°C)	**533-376-4**
	8"		**533-376-8**
	18"		**533-376-18**
	4"	70 to 220°F/±1.1°F (21 to 104°C/±0.6°C)	**533-377-4**
	8"		**533-377-8**
	18"		**533-377-18**
	4"	4 to 122°F/±0.7°F (-20 to +50°C/±0.4°C)	**544-560-4**
	8"		**544-560-8**
	18"		**544-560-18**
Flexible Duct – Averaging	8 ft	20 to 120°F/±0.7°F (-6 to +49°C/±0.4°C)	**533-380-8**
	16 ft		**533-380-16**
	24 ft		**533-380-24**
Rigid Duct – Averaging	18"	20 to 120°F/±0.7°F (-6 to +49°C/±0.4°C)	**535-490-18**
	24"		**535-490-24**
	36"		**535-490-36**
	48"		**535-490-48**
Liquid Immersion	2.5"	30 to 250°F/±1.1°F (-1 to +121°C/±0.6°C)	**536-767-25**
	4.0"		**536-767-40**
	6.0"		**536-767-60**
	2.5"	20 to 70°F/±0.6°F (-7 to +21°C/±0.3°C)	**536-774-25**
	4.0"		**536-774-40**
	6.0"		**536-774-60**
	2.5"	32 to 212°F/±1.0°F (0 to 100°C/±0.6°C)	**544-562-25**
	4.0"		**544-562-40**
	6.0"		**544-562-60**

Room Relative Humidity and Relative Humidity/Temperature Sensors

QFA Series Room Relative Humidity and Relative Humidity/Temperature Sensor.

QFA Series Room Relative Humidity and Relative Humidity/Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The QFA Series Room Relative Humidity and Relative Humidity/Temperature Sensors monitor and transmit changes in humidity and temperature to the building control systems.

Several models are available for humidity only (in 5% and 2%) or for humidity and temperature sensing (also in 5% and 2% 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 available in either dual current or voltage versions, transmitting proportional signals back to the controller.

Features

Standard Features

- 4 to 20 mA and 0 to 10 Vdc output signals
- High degree of accuracy

Full-featured Models

- Liquid Crystal Display (LCD in degrees F or C)
- Digital Temperature Setpoint Adjustment in 0.5 degree increments
- Override Button
- Removable, replaceable humidity element (2% versions only)

Applications

These units are especially suited for applications where precise, stable humidity sensing is required.

QFA Series Specifications

General

Installation..... 18 AWG Cable Length Shared in Conduit with Other Sensor Wiring 750 ft. (229 m) Max

Connections ..... Screw Terminals

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

CE and UL listed..... UL 873 Standard for Temperature Indicating and Regulating Equipment

Housing

Material Type.....Polycarbonate Plastic
Color ..... Desert Beige or White
Dimensions.....3-11/32" H x 2-1/2" W x 1-1/2" D (85 mm H x 63 mm W x 38 mm D)

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

Measurement Range .....0 to 100% RH

Accuracy at room temperature (73°F, 20°C).....±5% RH for 0% ≤ RH < 30% or 70% ≤ RH < 95%
±3% RH for 30% ≤ RH < 70%

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.....4 to 20 mA or 0 to 10 Vdc, 0 to 100% Linear, Proportional

Polarity Protection.....Yes

Humidity Element

Temperature Element (for combination RH/T units only)

Operating Temperature..... 32 to 122°F (0 to 50°C)

Time Constant at 0 to 50°C and 10-80%RH ..... Approx. 20 Seconds in Moving Air

Accuracy .....at 32 to 122°F (0 to 50°C): ±1 K
at -31 to +95°F (-35 to +35°C): ±0.8 K
at -31 to +140°F (-35 to +60°C): ±1 K

Output Signal .....4 to 20 mA or 0 to 10 Vdc, 0 to 100% Linear, Proportional, (Terminal U2)

Calibration Adjustments.....None

QFA Series Product Ordering

Application	Description	Part No.
Room Relative Humidity 5%	0 to 10 Vdc, No LCD, Beige	**QFA2000.BU**
Room Relative Humidity 5%	0 to 10 Vdc, No LCD, White	**QFA2000.WU**
Room Relative Humidity 5%	4 to 20 mA, No LCD, Beige	**QFA2001.BU**
Room Relative Humidity 5%	4 to 20 mA, No LCD, White	**QFA2001.WU**
Room Relative Humidity 5% & Temperature	0 to 10 Vdc, No LCD, Beige	**QFA2060.BU**
Room Relative Humidity 5% & Temperature	0 to 10 Vdc, No LCD, White	**QFA2060.WU**
Room Relative Humidity 5% & Temperature	0 to 10 Vdc, LCD, Temp Setpoint, Occupant Override, Beige	**QFA2060.FBU**
Room Relative Humidity 5% & Temperature	0 to 10 Vdc, LCD, Temp Setpoint, Occupant Override, White	**QFA2060.FWU**
Room Relative Humidity 5% & Temperature	4 to 20 mA, No LCD, Beige	**QFA2071.BU**
Room Relative Humidity 5% & Temperature	4 to 20 mA, No LCD, White	**QFA2071.WU**
Room Relative Humidity 5% & Temperature	4 to 20 mA, LCD, Temp Setpoint, Occupant Override, Beige	**QFA2071.FBU**
Room Relative Humidity 5% & Temperature	4 to 20 mA, LCD, Temp Setpoint, Occupant Override, White	**QFA2071.FWU**
Room Relative Humidity 2%	0 to 10 Vdc, No LCD, Beige	**QFA3000.BU**
Room Relative Humidity 2%	0 to 10 Vdc, No LCD, White	**QFA3000.WU**
Room Relative Humidity 2%	4 to 20 mA, No LCD, Beige	**QFA3001.BU**
Room Relative Humidity 2%	4 to 20 mA, No LCD, White	**QFA3001.WU**
Room Relative Humidity 2% & Temperature	0 to 10 Vdc, No LCD, Beige	**QFA3060.BU**
Room Relative Humidity 2% & Temperature	0 to 10 Vdc, No LCD, White	**QFA3060.WU**
Room Relative Humidity 2% & Temperature	0 to 10 Vdc, LCD, Temp Setpoint, Occupant Override, Beige	**QFA3060.FBU**
Room Relative Humidity 2% & Temperature	0 to 10 Vdc, LCD, Temp Setpoint, Occupant Override, White	**QFA3060.FWU**
Room Relative Humidity 2% & Temperature	4 to 20 mA, No LCD, Beige	**QFA3071.BU**
Room Relative Humidity 2% & Temperature	4 to 20 mA, No LCD, White	**QFA3071.WU**
Room Relative Humidity 2% & Temperature	4 to 20 mA, LCD, Temp Setpoint, Occupant Override, Beige	**QFA3071.FBU**
Room Relative Humidity 2% & Temperature	4 to 20 mA, LCD, Temp Setpoint, Occupant Override, White	**QFA3071.FWU**

Duct Relative Humidity and Relative Humidity/Temperature Sensors

QFM Series Duct Relative Humidity Sensor.

QFM Series Duct Relative Humidity and Relative Humidity/Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The QFM Series Duct Relative Humidity and Relative Humidity/Temperature Sensors monitor and transmit changes in humidity and temperature to the building control systems. Several models are available for humidity only (in 5%, 2% and 2% certified) or for humidity and temperature sensing (also in 5%, 2% and 2% certified 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 (Siemens type) or Platinum 1000 Ohm RTD (385 ALPHA type) temperature outputs on combination versions are also offered.

Features

- 4 to 20 mA or 0 to 10 Vdc output signals
- High degree of accuracy
- Removable, replaceable sensing tip (2% and 2% certified models)
- Versions with LCD display also available

Applications

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

QFM Series Specifications

General

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

Connections ..... Screw Terminals

Dimensions

Probe..... 0.6" O.D. x 7.2"L (15 mm O.D. x 183 mm L)

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

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

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 ..... EC Directive on electromagnetic compatibility: 89/336/EEC

Humidity Element

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

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

Accuracy at Room Temperature ≈ 73°F (20°C):

QFM2xxx, QFM3xxx types:.....

and QFM4xxx..... ±5% RH, 0-95% RH (±3% RH, 30-70% RH) ±2% RH, 0-95% RH

Operating Temperature Jumper Selectable..... 32 to 122°F (0 to 50°C) or -31 to 95°F (-35 to 35°C) or -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 and 0 to 10 Vdc, 0-100% Linear, Proportional

RH/T units .....0 to 10 Vdc, 0-100% Linear, Proportional

Polarity Protection.....Yes

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

		QFM2110 (Platinum) QFM2120 (Nickel)	QFM2160 QFM2171	QFM31xx QFM41xx
Operating Temperature		-31 to +140°F (-35 to +60°C)	-31 to +122°F (-35 to +50°C)	-31 to +158°F (-35 to +70°C)
Time Constant		Approximately 20 seconds in moving air		
Accuracy	+/-0.6K	—	—	59 to 95° F (15 to 35°C)
	+/0.8K	59 to 95ºF (15 to 35ºC)	59 to 95ºF (15 to 35ºC)	31 to 158ºF (-35 to +70ºC)
	+/-1.0K	31 to 140°F (-35 to +60°C)	-31 to +122°F (-35 to +50°C)	—
Output Signal		Platinum 1K Ohm RTD (385)	0 to 10 Vdc (QFMx160)	
		Nickel 1K Ohm RTD (Siemens)	4 to 20 mA (QFMx171)	
Calibration		None		

QFM Series Product Ordering

Application	Description	Part No.
Duct Humidity 5%	0 to 10 Vdc	**QFM2100**
Duct Humidity 5%	4 to 20 mA	**QFM2101**
Duct Humidity 5% & Temperature	0 to 10 Vdc / Temp 1K Ohm Platinum RTD (385 Alpha)	**QFM2110**
Duct Humidity 5% & Temperature	0 to 10 Vdc / Temp 1K Ohm Nickel RTD (L&S Type)	**QFM2120**
Duct Humidity 5% & Temperature	0 to 10 Vdc / Temp 0 to 10 Vdc	**QFM2160**
Duct Humidity 5% & Temperature	4 to 20 mA / Temp 4 to 20 mA	**QFM2171**
Duct Humidity 2%	0 to 10 Vdc	**QFM3100**
Duct Humidity 2%	4 to 20 mA	**QFM3101**
Duct Humidity 2% & Temperature	0 to 10 Vdc, Temp 0 to 10 Vdc	**QFM3160**
Duct Humidity 2% & Temperature	0 to 10 Vdc, Temp 0 to 10 Vdc, w/Display	**QFM3160D**
Duct Humidity 2% & Temperature	4 to 20 mA / Temp 4 to 20 mA	**QFM3171**
Duct Humidity 2% & Temperature	4 to 20 mA / Temp 4 to 20 mA, w/Display	**QFM3171D**
Duct Humidity	4 to 20 mA (Certified)	**QFM4101**
Duct Humidity & Temperature	0 to 10 Vdc, Temp 0 to 10 Vdc (Certified)	**QFM4160**
Duct Humidity & Temperature	4 to 20 mA / Temp 4 to 20 mA (Certified)	**QFM4171**

Outdoor Air Relative Humidity and Relative Humidity/Temperature Sensors

Energy & Atmosphere

Indoor Environmental Quality

AQY2010
Remote Sensing Cable
Shown with QFA3100.

QFA3100 Q 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 seperately on B-39
- Display model is available on QFA series version

Applications

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

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

Very Low Differential Pressure Transducers

Very Low Differential Pressure Transducers.

Description

The Very Low Differential Pressure Transducers sense differential or gauge (static) pressures and convert pressure difference to a proportional electrical output. The 590 Series is offered with a 0 to 10 Vdc output.

Used in Building Energy Management Systems, these transducers are capable of measuring pressures with the accuracy necessary for proper building pressurization and air-flow control.

The 590 Series Transducers are available in five different air pressure ranges. Static accuracy is ±1% full scale in normal ambient temperature environments. The units are temperature compensated to less than ±0.033% FS/°F of thermal error over the temperature range of 0°F to +150°F.

Features

- 10 psi proof pressure on all ranges
- 24 Vac
- 0 to 10 Vdc analog output is compatible with all energy management systems
- Fully protected against reverse wiring
- Internal regulation permits use with unregulated DC power supplies
- 1% accuracy, or better, improves variable air volume system performance
- Meet CE conformance standards
- No field calibration or adjustment necessary

Applications

The Very Low Differential Pressure Transducers are used for the following applications:

- Heating, Ventilation and Air Conditioning (HVAC)
- Energy Management Systems
- Variable Air Volume (VAV) and Fan Control
- Environmental pollution control
- Static duct and clean room pressures

590 Series Specifications

Temperature

Operating* ..... 0 to +150°F (-18 to +65°C)
Storage ..... -40 to +185°F (-40 to +85°C)

* Operating Temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.

Physical Description

Case Fire Retardant Glass Filled Polyester

Electrical Connection ..... Screw Terminal Strip
Pressure Fitting ..... 1/4" Fitting
Weight ..... 3 ounces

Electrical Data (Voltage)

Circuit ..... 3-wire (Com, Out, Exc)
Excitation/Output** ..... 12 to 30 Vac/0 to 10 Vdc

**Zero output factory-set to within ±50 mV (±25 mV for optional accuracies).

Bi-directional Output at Zero Pressure ..... 2.5 Vdc (±50 mV)
Output Impedance*** ..... 100 Ohms

***Calibrated into a 50K ohm load, operable into a 5000-ohm load or greater.

Pressure Media ..... Typically air or similar non-conducting gases

590 Series Product Ordering

Description	Accuracy	Part No.
Differential Pressure Sensor, 5" WC, 10 Vdc Signal	1%	**590-501**
Differential Pressure Sensor, 2" WC, 24 Vac, 10 Vdc Signal	1%	**590-502**
Differential Pressure Sensor, 1" WC, 24 Vac, 10 Vdc Signal	1%	**590-503**
Differential Pressure Sensor, ±0.25" WC, 24 Vac, 10 Vdc Signal	1%	**590-505**
Differential Pressure Sensor In Conduit Box, 5" WC, 24 Vac, 10 Vdc Signal	1%	**590-506**
Differential Pressure Sensor In Conduit Box, 2" WC, 24 Vac, 10 Vdc Signal	1%	**590-507**
Differential Pressure Sensor In Conduit Box, 1" WC, 24 Vac, 10 Vdc Signal	1%	**590-508**
Differential Pressure Sensor In Conduit Box, ±0.25" WC, 24 Vac, 10 Vdc Signal	1%	**590-510**
Differential Pressure Transmitter, 1.0", 0.4%, 4 to 20 mA, Conduit Cover, 24 Vac	0.4%	**590-780**
Differential Pressure Transmitter, .65", 0.4%, 4 to 20 mA, Conduit Cover, 24 Vac	0.4%	**590-781**
Differential Pressure Transmitter, 0.5", 0.4%, 4 to 20 mA, Conduit Cover, 24 Vac	0.4%	**590-782**

Pressure Sensors for Liquid and Gas

Pressure Sensor.

Sustainable Sites

Indoor Environmental Quality

Energy & Atmosphere

Description

The 7MF Series Pressure Sensors are suitable for the measurement of static and dynamic positive pressure in HVAC facilities, particularly in hydraulic and pneumatic systems using liquid or gaseous media (steam applications).

The 7MF Series Pressure Sensors are available in several different air pressure ranges, from 1 to 40 atmospheres of pressure (1 to 580 psi).

Features

- Piezo-resistive measuring system
- 0 to 10 Vdc and 4 to 20 mA output signals
- Measurement unaffected by changes in temperature
- High temperature stability
- No mechanical aging or creepage
- Excellent EMC characteristics

Applications

The 7MF Series Pressure Sensors are used for the following applications:

- Heating, Ventilation and Air Conditioning (HVAC)
- Energy Management Systems
- Chiller, Boiler and Steam Applications

7MF Specifications

Power Supply
Supply Voltage ..... DC 16...33 V
Max. Voltage Tolerance ..... ±15 % at AC 24 V
Current Consumption ..... <4 mA

Output Signal
..... 4 to 20 mA two-wire connection; power supply DC 10 to 36V
.....0 to 10 mA three-wire connection; power supply DC 15 to 36V

Application Range .....0 to 40 bar, refer to table below.

Accuracy ..... (FS = Full Scale)
Total of linearity, hysteresis and reproducibility ..... <±0.3 % FS
Zero point offset voltage ..... <30 Mv

Temperature Drift
TC zero point..... <±0.015 % FS/K (typically)
TC sensitivity..... <±0.015 % FS/K (typically)

Response Time ..... <2 ms

Nominal Pressure ..... Relative pressure as in "Ordering Information" (measurement of difference from ambient pressure)

Max. Admissible Pressure and Rupture Pressure ..... 3 x scale end value of measuring range (FS) <4 bar
2.5 x scale end value of measuring range (FS) >4 bar

Media ..... Neutral and slightly corrosive liquids and gases
Admissible temperature of medium..... -40 to +239°F (-40 to +125°C)

Maintenance..... Maintenance-free

Mounting Position ..... Optional

Connecting Cable..... PVC, length 5 ft., 3 x 0.25 mm^2 stranded wires

Screwed Fitting..... External thread G1⁄2"

Operation to Climatic Conditions
Temperature ..... -40 to +85°C
Humidity ..... <95% RH

Storage/transport Climatic Conditions
Temperature ..... -40 to +85°C
Humidity ..... <95% RH

CE conformity to EMC Directive 89/336/EEC

N474 Conformity to
Australian EMC Framework ..... Radio Communication Act 1992
Radio Interference Emission Standard..... AS/NZS 3548

Base..... Stainless Steel (1.4305)

Measuring Element..... Ceramics diaphragm

Cover ..... Stainless Steel (1.4305)

Sealant..... FPM (Viton) spec.

Shipping Weight ..... 0.53 lb. (0.24 kg)

7MF Series Product Ordering

Pressure Range (psi)	Output Signal	Part No.
0 to 15 psi	4 to 20 mA	**7MF15644BB003EA1**
0 to 30 psi	4 to 20 mA	**7MF15644BE003EA1**
0 to 60 psi	4 to 20 mA	**7MF15644BF003EA1**
0 to 100 psi	4 to 20 mA	**7MF15644BG003EA1**
0 to 150 psi	4 to 20 mA	**7MF15644CA003EA1**
0 to 200 psi	4 to 20 mA	**7MF15644CB003EA1**
0 to 300 psi	4 to 20 mA	**7MF15644CD003EA1**
0 to 15 psi	0 to 10 V	**7MF15644BB103EA1**
0 to 30 psi	0 to 10 V	**7MF15644BE103EA1**
0 to 60 psi	0 to 10 V	**7MF15644BF103EA1**
0 to 100 psi	0 to 10 V	**7MF15644BG103EA1**
0 to 150 psi	0 to 10 V	**7MF15644CA103EA1**
0 to 200 psi	0 to 10 V	**7MF15644CB103EA1**
0 to 300 psi	0 to 10 V	**7MF15644CD103EA1**

Accessories & Service Kits B-35

Room Carbon Dioxide Sensors

QPA2060D Q Series
Room Carbon Dioxide & Temperature Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The QPA Series Room Carbon Dioxide Sensors monitor and transmit changes in CO_2 to the building control systems. No calibration of the CO_2 sensor is necessary — these microprocessor-based units consist of a non-dispersive infrared CO_2 sensor that experiences less than 1% drift per year for the first two years of operation and negligible drift thereafter. All variants for CO_2 and combination versions with Temperature or VOC deliver 0 to 10 Volt proportional signals to the controller.

Features

- LCD display option
- Various models:
  CO_2
  CO_2/VOC
  CO_2/Temp
  CO_2/Temp/RH
- Built-in test function for troubleshooting
- Jumper selectable °C/°F units for temp models w/display
- **No Logo** versions available

Applications

These units are especially suited for applications where precise, stable CO_2 sensing is required.

QPA Series Specifications

General

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

Connections ..... Screw terminals

Dimensions ..... 3.94" H x 3.54" W x 1.65" D (100 mm x 90 mm x 42 mm)

Voltage Requirement ..... 13.5 to 35 Vdc

Housing Protection Class ..... NEMA 1 (all types)

CO_2 Element

Operating Range ..... 0 - 2000 ppm

Accuracy at Room Temperature ≈ 73°F (20°C) ..... +2% mV

Operating Temperature ..... -23 to +113°F (-5 to +45°C)

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

Sensing Element ..... NDIR CO_2 sensing module

Output Signal ..... 0 to 10 Vdc, 0-100% Linear, Proportional

Polarity Protection ..... Yes

Permissible Air Velocity in the Room ..... <26.2 ft./s

Temperature Element (for Combination CO_2/T unit only)

Operating Temperature ..... 23 to 113°F (-5 to 45°C)

Time Constant ..... <1 minute

Accuracy ..... ±0.8K

Output Signal ..... 0-10 volts

Calibration ..... None Required

Humidity Element

Measuring Range ..... 0 to 100% RH

Accuracy ..... ±5% RH

QPA Series Product Ordering

Application	Description	Part No.
Room Sensor, CO2	0 to 10 V	**QPA2000**
Room Sensor, CO2	0 to 10 V, No Logo	**QPA2000N**
Room Sensor, CO2 and VOC	0 to 10 V	**QPA2002**
Room Sensor, CO2 and VOC	0 to 10 V, with Display	**QPA2002D**
Room Sensor, CO2 and VOC	0 to 10 V, No Logo	**QPA2002N**
Room Sensor, CO2 and Temp	0 to 10 V	**QPA2060**
Room Sensor, CO2 and Temp	0 to 10 V, with Display	**QPA2060D**
Room Sensor, CO2 and Temp	0 to 10 V, No Logo	**QPA2060N**
Room Sensor, CO2, Temp and RH	0 to 10 V	**QPA2062**
Room Sensor, CO2, Temp and RH	0 to 10 V, with Display	**QPA2062D**

Accessories & Service Kits B-35

Duct CO_2 and CO_2/Temperature Sensor

QPM 2100
CO_2 only Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

The QPM Series Duct CO_2 Sensors monitor and transmit changes in CO_2 to the building control systems. Several models are available for CO_2 only, CO_2/Temp, CO_2/Temp/RH and CO_2/VOC. All variants for CO_2 and combination versions with Temperature or VOC deliver 0 to 10 Volt proportional signals to the controller.

No calibration of the CO_2 sensor is necessary — these microprocessor-based units consist of an NDIR sensor that experiences less than 1% drift per year for the first two years of operation and negligible drift thereafter.

Features

- LCD display option
- Various models:
  CO_2
  CO_2/VOC
  CO_2/Temp
  CO_2/Temp/RH
- Jumper selectable °C/°F units for temp models w/display
- **No Logo** versions available

Applications

These units are especially suited for applications where precise, stable CO2 sensing is required.

QPM Series Specifications

General

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

Connections ..... Screw terminals

Voltage Requirement..... 13.5 to 35 Vdc
Q Series sensors with 0-10 Vdc outputs can also operate on 24 Vac

Input Impedance (4 to 20 mA versions only) ..... Less than 500 Ohms

CO_2 Element

Operating Range..... 0 - 2000 ppm

Accuracy at Room Temperature ≈ 73°F (20°C) .....+2% mean value

Operating Temperature..... -31 to +113°F (-35 to +45°C)

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

Sensing Element.....NDIR CO_2 sensing module

Output Signal..... 0 to 10 Vdc, 0-100% linear, proportional

Polarity Protection.....Yes

Permissible Air Velocity in the Duct .....<26.2 ft./s

Temperature Element (for Combination CO_2/T unit only)

Operating Temperature ..... -31 to +113°F (-35 to +45°C)

Time Constant .....<1 min

Accuracy ..... ±1K

Output Signal.....0 to 10 Volt

Calibration ..... None Required

QPM Series Product Ordering

Application	Description	Part No.
Duct Sensor, CO2	0 to 10 Vdc	**QPM2100**
Duct Sensor, CO2	0 to 10 Vdc, No Logo	**QPM2100N**
Duct Sensor, CO2 and VOC	0 to 10 Vdc	**QPM2102**
Duct Sensor, CO2 and VOC	0 to 10 Vdc with Display	**QPM2102D**
Duct Sensor, CO2 and Temp.	0 to 10 Vdc	**QPM2160**
Duct Sensor, CO2 and Temp.	0 to 10 Vdc with Display	**QPM2160D**
Duct Sensor, CO2, RH and Temp.	0 to 10 Vdc	**QPM2162**
Duct Sensor, CO2, RH and Temp.	0 to 10 Vdc with Display	**QPM2162D**

Accessories & Service Kits B-35

Pitot Tube Sensor Kits

536 Pitot Tube Sensor Kit.

Description

The Pitot Tube Sensor Kit is used with either static or differential air pressure sensing devices, to measure average static or differential pressure across a duct.

Features

- Thin steel construction
- Mounting flange is easily bent to conform to round or oval ducts

Applications

This kit is used in situations where a terminal box manufacturer-supplied sensor (flow pick-up) is not available, or where the existing flow pick-up has been damaged.

Pitot Tube Sensor Kits Specifications

Material
- Probe ..... 6061 aluminum
- Gasket ..... 1/4-in (6 mm) closed-cell neoprene
- Tubing ..... FR polyethylene
- Mounting Flange ..... 26 GA galvanized sheet steel

Mounting
- Screws ..... #8 self-tapping 1/4-in (6 mm) hex washer head
- Flange hub ..... #10 pan head, slotted

Dimensions ..... 1.50" x 3.75" (38 mm x 95 mm)

Pitot Tube Sensor Kits Product Ordering

Duct Size	Maximum Probe Length	Part No.
6" (152 mm)	5.75" (146 mm)	**536-376**
8" (203 mm)	7.75" (197 mm)	**536-378**
10" (254 mm)	9.75" (248 mm)	**536-380**
12" (305 mm)	11.75" (298 mm)	**536-382**
14" (356 mm)	13.75" (349 mm)	**536-384**

Air Velocity Sensor

QVM62.1 Air Velocity Sensor.

Energy & Atmosphere

Indoor Environmental Quality

Description

This sensor is used to control the air velocity to a constant value, balance out pressure fluctuations (supply or exhaust air control), or to monitor the flow in air ducts. It is designed with a thin film sensing element and its unique, sleek housing guarantees product recognition. This unit is compatible with all Siemens systems and controllers.

Features

- Mounting flange allows the installer to vary the probe insertion length into the duct space for best control
- Mounting flange dampening gasket minimizes vibration
- Graduated probe ensures maximum flow accuracy
- Flow directional arrow provides for the most accurate reading
- Connection cable provides mounting flexibility
- Three jumper selectable flow measuring ranges accommodate any application or environment

Applications

This sensor is primarily used to set the basic volumetric flow rate for modulating fan control.

QVM62.1 Sensor Specifications

Power Supply

Operating Voltage ..... 24 Vac +/- 20%
Frequency ..... 50/60 Hz
Power Consumption ..... ≤ 5 VA (maximum 200 mA)
Output Impedance ..... <20 ohm

Measuring Data

Measuring Ranges, Adjustable ..... 0 to 16 ft/s (0 to 5 m/s)
0 to 33 ft/s (0 to 10 m/s) (factory setting)
0 to 49 ft/s (0 to 15 m/s)
Measuring Accuracy at 68°F (20°C), 45% rh, ... ± 0.7 ft/s
1013 hPa ..... (0.2 m/s + 3% of measured value)
Permissible Air Velocity ..... 66 ft/s (20 m/s)
Direction Dependence ..... < 0.3% of measured value at ≤ + 10°
Time Constant t_{90} at 10 m/s ..... 4 seconds

Signal Output U1

Voltage ..... 0 to 10 Vdc
Current ..... ± 1 mA

Line Length

Permissible Length to Controller at:

20 AWG Copper Cable ..... 164 ft (50 m)
18 AWG Copper Cable ..... 492 ft (150 m)
16 AWG Copper Cable ..... 984 ft (300 m)
Line Length to the Sensor Head ..... 3 ft (1 m) (prewired)

Connections

Mechanical ..... Screw Connection
Electric ..... Screw Terminal, Maximum 2 x 18 AWG

Degree of Protection

Degree of Protection Provided by Enclosures as per EN 60 529

Transducer ..... IP 42
Sensor head ..... IP 20
Degree of protection as per EN 60 730 III

Climatic Conditions

Temperature ..... 23°F to 113°F (-5°C to 45°C)
Humidity (non-condensing) ..... <95% rh
Mechanical Conditions ..... Class 3M2
Chemical Conditions ..... Class 3C2

Storage (Transducer and Immersion Stem)

Temperature ..... 23°F to 113°F (-5°C to 45°C)
Humidity (Non-condensing) ..... <95% rh
Mechanical Conditions ..... Class 1M2

Weight with Packaging ..... 12 oz (0.352 kg)

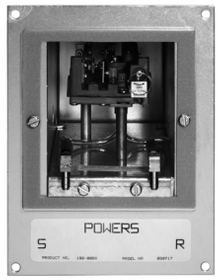
QVM62.1 Sensor Product Ordering

Application	Description	Part No.
Air Velocity Sensor	0 to 3000 FPM	**QVM62.1**

Accessories & Service Kits B-35

Room and Duct Hygrostats

186 Room Hygrostat.



186 Duct Hygrostat.

Energy & Atmosphere

Indoor Environmental Quality

Description

The 186 Room and Duct Hygrostats are pneumatic instruments sensitive to slight changes in relative humidity.

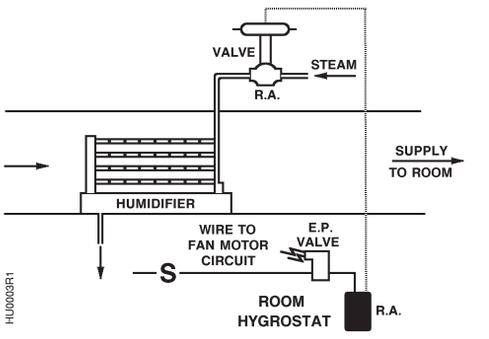
Features

- Adjustable sensitivity
- Sensitive hygroscopic membrane
- Includes temperature compensation
- Galvanized steel housing standard on duct model
- Models available for normal comfort range and high limit range
- Room type comes complete with standard cover and wall plate
- Duct type comes mounted inside a duct mounting box

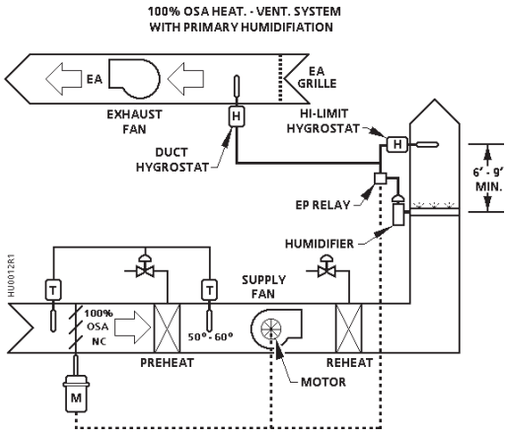
Applications

The 186 Room and Duct Hygrostats provide control of relative humidity for comfort control in hospitals, schools and office buildings.

Application Drawings



Room Application.



Duct Application.

Room and Duct Hygrostats Specifications

Sensitivity .....1/4 to 4 psi/% RH
Normal Supply Pressure ..... 15 to 25 psi (103 kPa to 172 kPa)
Maximum Supply Pressure .....30 psi (207 mm)
Air Consumption ..... 15 scim (4 ml/s)
Effect of 10°F Temperature Change .....Shift of 1% RH
Effect of 5 psi Supply Pressure Change (mid sensitivity) ..... 7.0 min./vol unit
Duct Box ..... Extends 6" (152 mm) into duct
Air Connections
Duct ..... Barb fitting for 1/4" (64 mm) OD polyethylene tubing
Room..... 5/32" (4 mm) OD polyethylene tubing

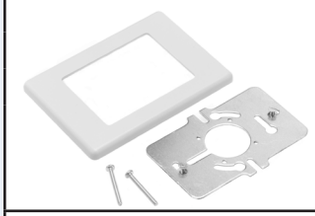
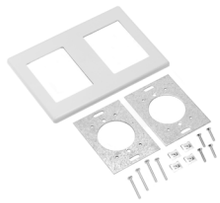
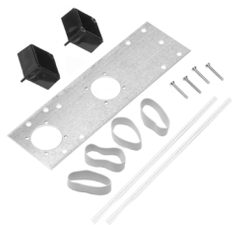
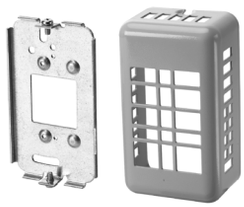
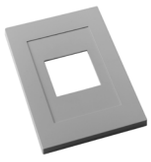
Dimensions
Chassis..... 2.9" H x 1.75" W x 1.13" D (73.66 mm W x 44.45 mm H x 28.70 mm D)
Room.....2.16" W x 3.34" H (55 mm W x 85 mm H)
Duct ..... 4.5" W x 5.88" H x 6" D (114 mm x W 149 mm H x 152 mm D)
Standard Room Cover .....Desert Beige, plastic
Shipping Weights
186-0013 & 186-0019..... 0.84 lb. (0.38 kg)
186-0087; 186-0088; 186-0090; 186-0091 .....3.3 lb. (1.5 kg)

Room and Duct Hygrostats Product Ordering

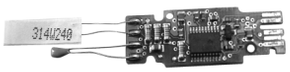
Description	Control Range	Type of Control	Part No.	
			Direct Control Action	Reverse Control Action
Room	20 to 90% RH	Humidification/Dehumidification	**186-0013**	**186-0019**
Duct	20 to 90% RH	Humidification/Dehumidification	**186-0087**	**186-0088**
Duct	55 to 95% RH	High Limit	—	**186-0090**
Duct	25 to 65% RH	Room Comfort	—	**186-0091**

Accessories & Service Kits B-35

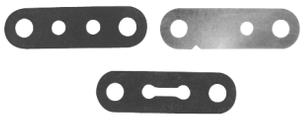
Table of Contents

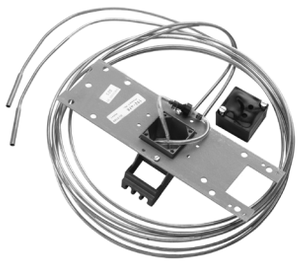
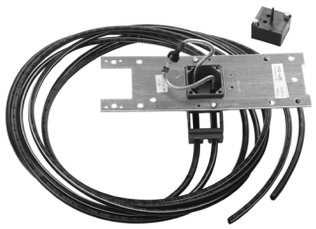
	Description	Product Group	Quantity	Part No.
Sensors				
	**Single Adapter Base Kit.**	T, RH & RH/T Sensors		
	• Beige		1	**544-782A**
	• White		1	**544-782B**
	**Double Adapter Base Kit.**	T, RH & RH/T		
	• Beige		1	**544-783A**
	• White		1	**544-783B**
	**Extender Ring Kit.**	T, RH & RH/T		
	• Beige		1	**544-785A**
	• White		1	**544-785B**
	**Non-Conduit Rough-in Kit.**	T, RH & RH/T Sensors	1	**544-784**
	**Metal Gym Guard.** Desert Beige	RT Sensors	1	**182-621**
	**Electrical Box (2 x 4)** **Adapter Plate Kit.**	T, RH & RH/T Sensors	Pkg. of 5	**192-506**
	**Electrical Box (2 x 4)** **Adapter Base. (low profile)**	T, RH & RH/T Sensors	Pkg. of 5	**192-507**
	**Adapter Base.**	T, RH & RH/T Sensors	1	**192-307**

Accessories & Service Kits

	Description	Product Group	Quantity	Part No.
Sensors				
	**Adapter Frame.**	RT Sensors	1	**192-308**
	Mounting Strap. For mounting Room Sensor on standard light switch plate.	RT Sensors	1	**536-666**
	Adapter Plug. For plugging in Room Sensor & Portable Operator's Terminal into Controller.	RT Sensors	1	**540-142**
	Fixing Bracket for Remote Mounting. Made from die-cast Aluminum..	Q Series Pressure	1	**AQB22.1**
	**Mounting Kit.**	Q Series Pressure	1	**AQB51.1**
	**Conduit Assembly Kit.**	599 Series Diff. Pressure Sensors	1	**590-500**
	**Replaceable Humidity Sensing Element.** 2% versions only	Q Series Room Humidity	1	**AQF3050**
	**Humidity Sensor Filter Cap.**	Q Series Duct/Outdoor Air Humidity	1	**AQF3101**
	**Replaceable 2% Humidity Sensor Tip.**	Q Series Duct/Outdoor Air Humidity	1	**AQF3150**
	**Replaceable 2% Certified Humidity Sensor Tip.**	Q Series Duct/Outdoor Air Humidity	1	**AQF4150**

Accessories & Service Kits

	Description	Product Group	Quantity	Part No.
Sensors				
	**Replacement Flange Kit.**	Q Series Duct Humidity	1	**74 662 0068 0**
	**Sun Shield.**	Q Series Outdoor Air Humidity	1	**AQF3100**
	**Stainless Steel Well.**	Pipe Temp. Sensors		
	0.26"D x 2 1/2"L (18 mm D x 64 mm L)		1	**AQE2000.005**
	0.26"D x 4"L (18 mm D x 102 mm L)		1	**184-120**
	0.26"D x 4"L (18 mm D x 102 mm L)		1	**AQE2000.010**
	0.26"D x 6"L (18 mm D x 152 mm L)		1	**AQE2000.015**
186				
	**Hygrostat Restrictor Repair Kit.** Includes enough restrictor for plates and upper and lower Hygrostats gaskets.	186	Material for 10 Hygrostats	**180-893**
	**Membrane Element Kit.** Replaces membrane element. Contains one element assembly, screws, nuts, and lock washers.	186	1	**186-062**

	Description	Product Group	Quantity	Part No.
186				
	**Wall Box Rough-In.** For 2-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 m) OD with thermostat chassis plug-in adapters for easy maintenance.	186	1	**192-478**
	3-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 m) OD with thermostat chassis plug-in adapters for easy maintenance.		1	**192-498**
	**Wall Box Rough-In.** For 1- or 2-pipe dual 1/4" (6 mm) OD polyethylene with plaster plate. 10' (2 m) long. With thermostat chassis plug-in adapters for easy maintenance.	186	1	**192-480**
	3-pipe dual 1/4" (6 mm) OD polyethylene with plaster plate. 8' (2.4 m) long. With thermostat chassis plug-in adapters for easy maintenance.		1	**192-499**
	**Mounting Clips, Spacer and Template for finished drywall.**	186	Package of 10	**182-685**
	**Stud Mounting Bracket and Dual Copper Tubing.** Belled to 3/16" (5 mm) OD with plug-in adapters for easy maintenance.	186	1	**192-482**
	**Metal/Wood Stud Bracket.** Drywall rough-in.	186	Package of 5	**182-683**
	**Dual 1/8" (3 mm) OD Copper Tubing with Plug-in Adapters.** For 1- or 2-pipe. Split for 3-pipe.	186	1	**192-479**
	**Plug-in Adapter.** Includes Tee 20 scim restrictor for 1-pipe.	186	Package of 10	**192-875**

Notes

Housings with No Logo Option

Siemens sensors not only mount and commission quickly, they come in a sleekly designed housing to further enhance a room's aesthetics. No Logo versions are available for locations that require complete unobtrusiveness. Look for the "N" suffix on the sensor part number when ordering.