SIEMENS

QFA3100/4100 Series Relative Humidity Sensors for Critical Environments or Outdoor Use

QFA31xx

QFA31xx with AQF3100 Weather Shield

QFA31XX with Display

Replacement Sensing Element

Description

QFA3100 and QFA4100 Series sensors are used in HVAC systems where high accuracy and short response times for measuring relative humidity are required. The sensors maintain a +/- 2% RH accuracy from 0 to 100% RH.

Typical applications include:

• Pharmaceutical facilities

• Laboratories

• Hospitals

• Indoor swimming-pools

• Computer and data processing centers

• Greenhouses

Sensors are available with either 0 to 10V or 4 to 20 mA output signals. Options include an LCD display and additional analog output for temperature.

The QFA3100 Series sensors feature an enclosure with gaskets and may be installed outdoors with an AQF3100 weather shield (sold separately).

NOTE: Units with display are not intended for outdoor use.

The QFA4100 variants come with a three-point, independently-certified calibration certificate. The certification is easily renewed by installing a new certified sensing element.

The AQY Series cables enable the sensing element to be remotely mounted up to 30 feet from the sensor.

Specifications – Humidity Element

Measurement range	0 to 100% RH
Accuracy	$\pm$2% RH, 0 to 100% RH @ 73°F (23°C)
Temperature effect	Less than 0.1% per degree C
Time Constant	< 20 seconds
Output signal	4 to 20 mA or 0 to 10 Vdc, 0 to100%RH, linear, proportional

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

Measurement range (selectable)	**Jumper Position**
32° to 122°F (0° to 50°C) (Default)	R2
-31° to 95°F (-35° to 35°C)	R1
-40° to 158°F (-40° to 70°C)	R3
Accuracy	0.54°F @ 73°F ($\pm$0.3°C @ 23°C)
Time Constant	8.5 minutes (dependent on airflow and wall coupling)
Output signal	4 to 20 mA or 0 to 10 Vdc, full range, linear, proportional

General Specifications

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Installation	18 AWG cable length shared in conduit with other sensor wiring 750 ft (229 m) max.
Connections	Screw terminals
Voltage requirement	
0 to 10 Vdc output types	13.5 to 35 Vdc or 24 Vac $\pm$ 20%
4 to 20 mA output types	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
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
QFA4160	Outdoor air humidity sensor (2%), 0 to 10 Vdc/Temp 0 to 10 Vdc (certified version)
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

Ordering Information, Continued

Accessories	
AQF3101	Replacement filter cap
AQF3150	Replacement sensing element - standard
AQF4150	Replacement sensing element - certified
AQF3100	Weather shield for outdoor use
7466201040	Replacement 1/2-inch rigid conduit adapter
AQY2010	Remote sensing cable, 10 feet (3 m)
AQY2030	Remote sensing cable, 30 feet (9 m)

Dimensions
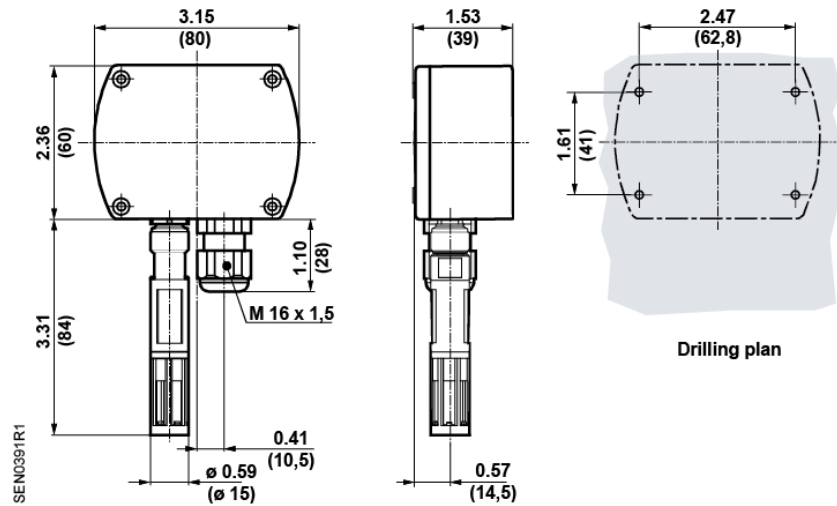
**Figure 1. QFA31 Series Sensors
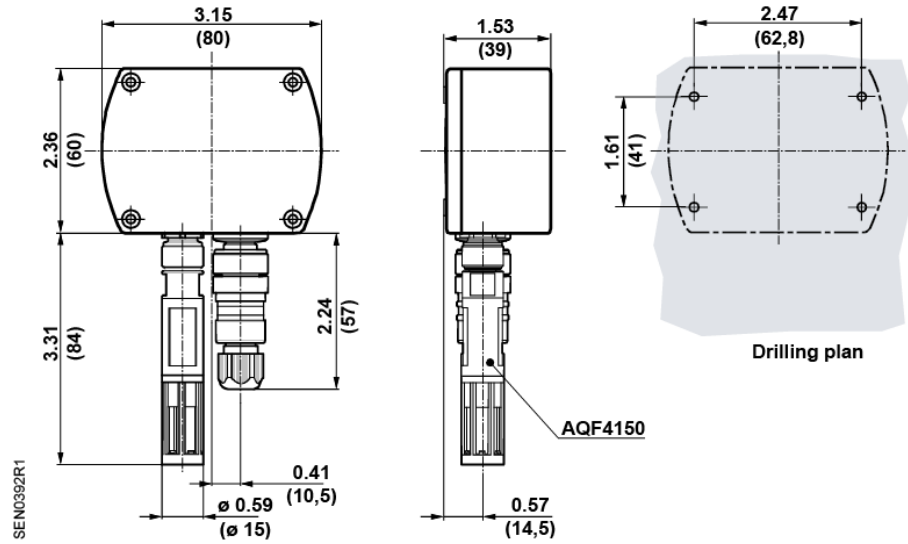Dimensions in Inches (Millimeters).**

Dimensions, Continued

**Figure 2. QFA41 Series Sensors
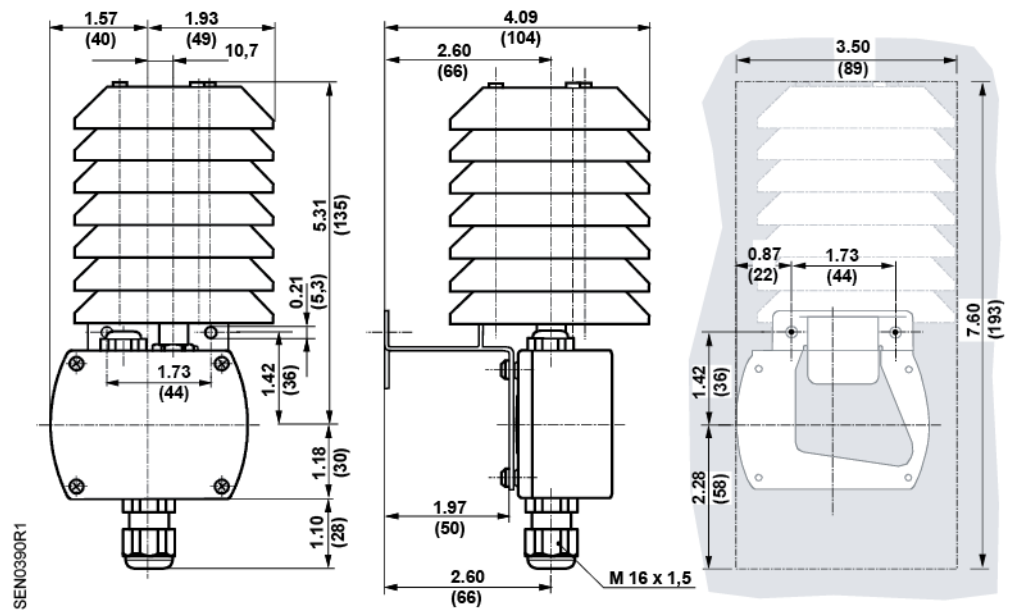Dimensions in Inches (Millimeters).**

**Figure 3. QFA31 Series Sensors with AQF3100
Dimensions in Inches (Millimeters).**