QPA20xx Series Indoor Air Quality Room Sensors

Product Description
The QPA20xx Series Indoor Air Quality Room Sensors are designed for applications where precise, stable sensing of carbon dioxide (CO₂), temperature, or relative humidity is required. The QPA2002 models sense both volatile organic compounds (VOCs) and CO₂, with the output signal automatically switching to reflect the higher of the two values.

Siemens CO₂ + VOC sensors are designed to help maximize occupant comfort and are not suitable for use in life safety applications.

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| Description                                                                                                                                       |
|                                                                                                                                                |
|Phillips screwdrivers, sizes 1 and 2                                                                                                            |
|Small and medium flat-blade screwdriver                                                                                                           |
|Wire cutters/stripers                                                                                                                              |
|Tape measure                                                                                                                                           |
|Medium-duty electric drill                                                                                                                           |
|Drill bit for wall anchor hole                                                                                                                      |
|Marker or pencil                                                                                                                                 |
|Two No. 10 screws and wall anchors                                                                                                                   |

Prerequisites
- Ensure that the appropriate field wiring is installed.
  Appropriate wiring is 8 to 22 AWG (recommended) multi-conductor shielded cable (plenum or non-plenum as required), within the maximum wiring run length for the individual equipment controller. See Wiring Diagrams to determine the required number of conductors. The maximum recommended length is 750 feet (229 m).
- Ensure that all wiring complies with National Electric Code (NEC) and local regulations.
- Allow up to 96 hours for unit to reach published accuracy.

Installation
Always mount the sensor vertically.
Locate the sensor:
- According to design specifications and local regulations.
- Where the air circulates around it freely (not in recessed areas or behind doors).
- Allowing a minimum of 4 inches (10 cm) of free space above and below for proper airflow and access.

Additional Reference Documents
Technical Instructions: CE1N1961
Technical Specification Sheet: 149-910

Expected Installation Time
30 minutes

* LG-Ni1000, Pt1000, Pt100, or NTC 10K ohm.
Installation, Continued

- Away from drafts caused by doors, windows, outside walls, air registers, pipes, return air plenums, and so on.
- Away from heat sources, such as strong lights, fireplaces, direct sunlight, and so on.
- On an inside wall (preferably), about 5 feet (1.5 m) above the finished floor.

NOTES:  Local codes (such as the Americans with Disabilities Act) may require a specific mounting height.

The end of the conduit at the sensor must be sealed to prevent inaccurate measurements due to drafts through the conduit.

Drywall Mounting (No Rough-in), Typical

1. Place a small screwdriver into the top of the sensor and press in the locking tab to remove the cover.

2. Using the base as a template, mark the hole locations with a pencil.

3. Drill two 1/4-inch diameter holes for plastic wall anchors.

4. Using a mallet, tap in the plastic wall anchors flush with wall.

5. Pull the wiring through the opening in the upper portion of the base.

6. Level the base and fasten it to the wall using two wood screws. The sensor is not position sensitive.

7. Pull the wiring through the base.

8. Position sensor housing over the two mounting lugs located at the top of the base and press down on cover until bottom lugs snap in place.

9. Terminate wires per wiring instructions on the inside of sensor cover.

10. Check that:
    a. The wires from the humidity sensing membrane are separated from each other and are not in contact with the PCA.
    b. The humidity sensing membrane has "free space" and is not in contact with the PCA or the temperature sensing element. See Figure 3.

11. Insert the top of the sensor cover into the slots located on the bottom of the sensor and press up until the locking tab snaps into place.

The installation is now complete.
2 × 4-inch Electrical Wall Box Mounting

An ARG70 wall plate adapter is required to mount a Q-Series CO₂ Room Sensor to a 2 × 4-inch electrical wall box. The ARG70 must be ordered separately.

1. Place a small screwdriver into the top of the sensor and press in the locking tab to remove the cover.
2. Using the two screws provided, fasten wall box adapter to plaster ring, supplied by others.
3. Flex adapter mask and snap in place inside wall box adapter.
4. Fasten sub-base, included with the Q-Series CO₂ Room Sensor, to wall box adapter assembly with the two screws provided.
5. Pull wires through plaster ring.
6. Follow Drywall Mounting Steps 6 through 11.

The installation is now complete.

Installing Temperature Sensing Elements (QPA2080 and QPA2080D Only)

QPA2080 and QPA2080D are shipped with four sensing elements: NTC 10K Ohm, Platinum 1000, Nickel 1000 and Platinum 100 (packaged separately).

To install the sensing element of your choice:
1. Insert the element as shown in Figure 6.
2. Using a small, flat-blade screwdriver, tighten the sensor’s two mounting screws.

Commissioning

- The sensor’s functions can be checked 30 minutes after applying power.
- Checking the CO₂ function:
  In well-ventilated rooms, the sensor shows the CO₂ concentration of the outside air. Typically, this is 360 ppm (depending on the sensor’s measuring accuracy). Also, a basic functional check can be made by exhaling on the sensor. Note that the sensor’s rate of response has been purposely delayed (time constant \( t_{90} = 5 \) minutes).
- Checking the VOC function:
  Touch the sensor with a cotton ball dowsed in alcohol.
- Ventilation should start when the preset switching level of the connected controller is reached.
- After applying power to sensors with display, Init will appear for about six seconds.
- See QPA Series Indoor Air Quality Room Sensors Technical Instructions (CE1N1961) for information on positioning the jumpers on the setting elements.
Wiring Diagrams

Figure 7. QPA2080, QPA2080D.

Figure 8. QPA2060, QPA2060D.

Figure 9. QPA2000.

Figure 10. QPA2062, QPA2062D.

Figure 11. QPA2002, QPA2002D.

G, G0 System potential 24 Vac (SELV) U3 Signal output 0 to 10 Vdc or 0 to 5 Vdc
G0 System neutral and measuring neutral R..(*) Signal output with R... = 0 to 10 Vdc;
U1 Signal output 0 to 10 Vdc or 0 to 5 Vdc without R... = 0 to 5 Vdc
U2 Signal output 0 to 10 Vdc or 0 to 5 Vdc B, M Passive temperature output (interchangeable)

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