

Group: Controls

Part Number: OM 1039-1

Date: January 2011

Supersedes: OM 1039, dated 03/10

# **Room Sensor for BACnet<sup>®</sup> VAV Actuator Operation Manual**

**Model(s): 2508032**

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## Revision History

IM 1039	March 2010	Initial release
IM 1039-1	January 2011	Clarified BACnet VAV Actuator as the VAV box controller

## Reference Documents

Number	Company	Title	Source
IM 1040	McQuay	Start-up procedures for the BACnet VAV actuator	<a href="http://www.mcquay.com">www.mcquay.com</a>
IM 1093	McQuay	Single Duct VAV Terminal Box installation manual	<a href="http://www.mcquay.com">www.mcquay.com</a>

## Limited Warranty

Consult your local McQuay Representative for warranty details. Refer to Form 933-43285Y. To find your local McQuay Representative, go to [www.mcquay.com](http://www.mcquay.com).

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# General Information

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This manual contains the information you need to properly configure and operate the Room Temperature Sensor for the BACnet VAV Actuator, and corresponding VAV system.

## Hazard Identification Messages

### DANGER

Dangers indicate a hazardous situation that will result in death or serious injury if not avoided.

### WARNING

Warnings indicate potentially hazardous situations, which can result in property damage, severe personal injury, or death if not avoided.

### CAUTION

Cautions indicate potentially hazardous situations, which can result in personal injury or equipment damage if not avoided.

### WARNING

#### **Electric shock hazard. Can cause personal injury or equipment damage.**

This equipment must be properly grounded. Connections and service to the VAV Actuator Room Sensor must be performed only by personnel knowledgeable in the operation of the equipment being controlled.

### CAUTION

#### **Static sensitive components. Can cause equipment damage.**

Discharge any static electrical charge by touching the bare metal inside the control panel before performing any service work. Never unplug cables, circuit board terminal blocks, or power plugs while power is applied to the panel.

### NOTICE

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense. **McQuay International disclaims any liability resulting from any interference or for the correction thereof.**

# Overview

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This document relates to the set up and operation of the McQuay 2508032 Room Temperature Sensor. It explains the various operating modes available and describes procedure for programming the display, according to user preferences.

## Accessories

Description	Product Number
25-foot (7.6 m) cable with connections	2508041
50-foot (15.2 m) cable with connections	2508042
100-foot (30.5 m) cable with connections	2508043
Replacement Housing Base	2508044
Passkey	2508045

# Operation

## Operation modes

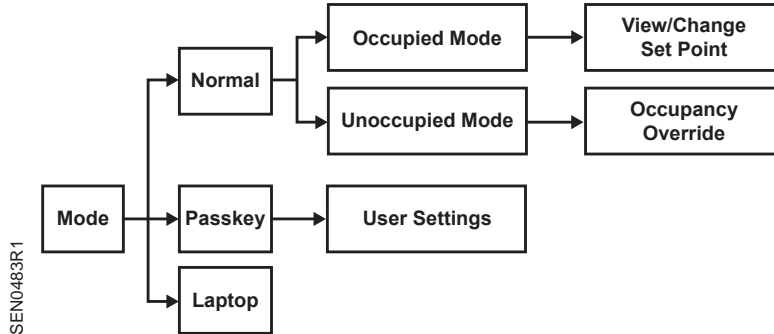


Figure 1. Operation Modes.

### Normal Mode

In Normal Mode, the display is updated with temperature, humidity, and occupied status (all where applicable) on a set time cycle.

The display shows temperature in the desired units (as set by the jumper on the PCA). Depending on the model, the humidity will be displayed as well. When both of these variables need to be displayed (temperature, relative humidity) the display will cycle through the required values at a rate of one change every three to five seconds.

### Occupied Mode

If the BACnet VAV Actuator is currently in Unoccupied Mode (display shows man outside of the house), pressing the override button (button designated by an image of a man inside a house) results in the display showing the word OCCUPIED and the request is sent to the actuator to override the unoccupied mode. If the BACnet VAV Actuator does not get overridden, and stays in unoccupied mode, the display on the sensor reverts back to the unoccupied symbol as soon as possible.

If the BACnet VAV Actuator is currently in occupied mode, pressing the override button flashes the word OCCUPIED, and does nothing else. This functionality is intended solely to let the user know that the button press was recognized.



Occupied Mode



Unoccupied Mode

### Setpoint Adjustment Mode

The temperature setpoint is adjusted by using the plus and minus buttons. The resulting changes in setpoint are displayed on the display in 1.0°F or 0.5°C increments.

The setpoint adjustment will be displayed, and will stay on the screen for three seconds. If, during those three seconds, a setpoint button is pressed again, the setpoint will be adjusted accordingly and be displayed, and the three-second countdown will restart. If there is no user input for more than three seconds, the room unit will return to Normal Mode.



## Passkey Mode

Insert the passkey in the sensor HMI (Human-Machine Interface) port to setup all of the user functionality listed below. For each parameter, use the following sequence:

- Press the occupancy override button to edit the parameter.
- Press the plus/minus buttons to scroll through the various options available for each parameter to display the desired option.
- Press the occupancy override button again to move to the next user adjustable parameter.
- When finished, remove the passkey from the HMI port. User setting changes will be saved when the passkey is removed.

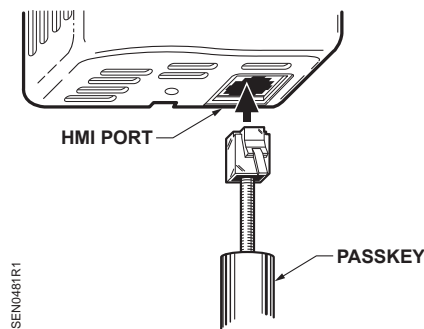


Figure 2. Inserting the Passkey.

## Settings

- **Set Pt Disp.** - determines how the user views the temperature setpoint adjustment. The default setting is NUMERIC, displayed in degrees. The user selects between a NUMERIC and a GRAPHIC setpoint display.
  - **Set Pt Min** - determines the minimum temperature setpoint value. The default setting is 55°F or 12.5°C. The user selects the minimum setpoint the room unit should request. The setpoint limit is ultimately defined in the controller. If the setpoint is displayed graphically as a sliding bar, this sets the left end of the slider bar. The limits are 55°F to the Set Pt Max value. The adjustment step size is 1°F or 0.5°C.
  - **Set Pt Max** - determines the maximum temperature setpoint value. The default setting is 95°F or 35°C. The user selects the maximum setpoint the sensor should request. The setpoint limit is ultimately defined in the controller. If the setpoint is displayed graphically as a sliding bar, this sets the right end of the slider bar. The limits are Set Pt Min to 95°F. The adjustment step size is 1°F or 0.5°C.
  - **Disp. Temp?** - determines whether the temperature value should be displayed. The default value is YES.
  - **Disp. RH?** - determines whether the humidity value should be displayed. The default value is YES, if the device is a humidity room unit. (This option is conditional based on the presence of humidity measurement capability, and only offered with QFA3x80.F types.)
  - **Disp. Occ?** - determines whether the occupancy status should be displayed. The default value is YES if the device offers occupancy override capability.
- NOTE:** this does not enable/disable the Occupancy override button functionality, just the display of the occupancy status.
- **T Cal** - allows the user to field calibrate the temperature display and output through a bias adjustment. The default value is + 0°F. Adjustments may be made between -5°F and + 5°F, in 0.5°F increments.

- **RH Cal** - allows the user to field calibrate the humidity display and output through a bias adjustment. The default value is + 0%. Adjustments may be made between 5% and + 5%, in 0.5% increments
- **Brightness** - allows the user to adjust the display brightness. Allowable values are 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, with 1 being dimmest and 10 being brightest. The default setting is 5.
- **Scr. Saver** - allows the user to activate or deactivate the display screen saver. Available options are: NONE, OFF, and FADING. The default value is NONE. If set to NONE, the display operates at the programmed brightness level without any interruption.
  - **OFF** – The display will turn off after 30 seconds. Any button press will wake it up (without doing anything else), and then the device will operate in Normal Mode for 30 seconds until the display turns off again.
  - **FADING** – Within 30 seconds of no operator interaction, the entire display will fade to a display brightness of 1. The display will operate at this brightness until the user presses a button. At that time, the programmed display brightness will be restored.
- **Factory Defaults** - allows the user to reset all parameters to factory defaults. Available options for this parameter are YES and NO.

### Laptop Pass-thru Mode

To communicate with the BACnet VAV Actuator using Datamate Base, Datamate Advanced, or Microsoft Windows™ Controller Interface Software (WCIS), connect a PC-compatible cable (see *Accessories*) from a laptop to the sensor HMI port at the bottom of the room unit. This puts the room unit in laptop mode, which deactivates all buttons and shows LAPTOP on the display. In this mode, the controller communicates only with the laptop. The room unit does not update measured values to the controller while in this mode. The room unit returns to Normal Mode once the cable is disconnected.

## Error Messages

Message	Meaning
NO TEC	No communication with BACnet VAV Actuator. This error will be displayed on the lower right (icon) section of the display, and the upper portion of the display should continue to display temperature and humidity values.  <b>NOTE:</b> This error will appear whenever BACnet VAV Actuator subpoints are not available or the actuator (or its subpoints) are not responding to commands.
NO SENSOR	No temperature or humidity sensor detected on the PCA. This error will be displayed until the error is corrected. This message might also display if the wrong controller-to-room unit-cable is used or if the replacement sensor element is incorrectly installed on the PCA.
00x	Room unit firmware revision. This is visible upon power-up for a few seconds until communication is established with the BACnet VAV Actuator.

# Set-up of Displayed Temperature Units

The factory default for displayed temperature units is °F. To change the display to °C mode, snip the wire jumper on the back of the PCB (the visible side when the unit is taken off the wall).

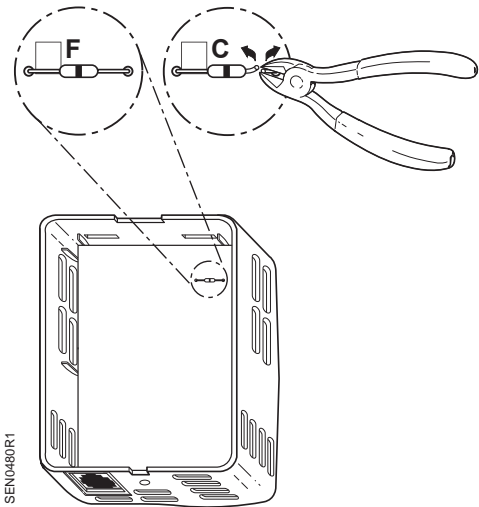


Figure 3. Jumper Location.

