



Installation Guide

IM 1249

Group: **Controls**

Part Number: **IM 1249**

Date: **August 2015**

BACnet® Thermostat for Rooftop Units



TABLE OF CONTENTS

Installation Guide – Rooftop	2
Applicable Models	2
Mounting the BACnet Thermostat	2
Rough-in Preparation	2
Installing the BACnet Thermostat	3
Connecting Inputs	3
Remote Space Temperature Sensor (optional)	3
Fan Status Switch (optional)	3
Outside Air Temperature	3
Discharge Air Temperature	3
Connecting Outputs	4
Connecting Power	4
Maintenance	5
Specifications	5
Additional Resources	5

Applicable Models

This installation sheet applies to Rooftop unit BACnet Thermostats. Additional information can be found in [IM 1234 BACnet Thermostat](#) Installation and Operation Manual.

Mounting the BACnet Thermostat

CAUTION

Can cause equipment damage.

To prevent mounting screw heads from touching the circuit board in the controller, use only the mounting screw supplied by Daikin Applied. Using screws other than the type supplied may damage the BACnet Thermostat.

For the most accurate performance, install the BACnet Thermostat on an inside wall where it can sense the average room temperature. Avoid locations with direct sunlight, heat sources, windows, air vents, and air circulation or obstructions such as curtains, furniture, etc.

The BACnet Thermostat must not be:

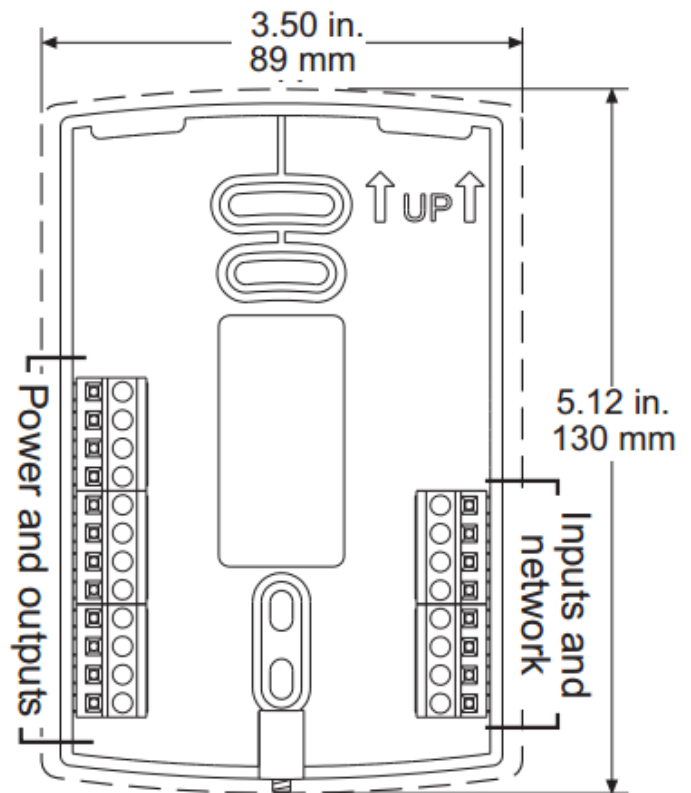
- Mounted on an exterior wall
- Mounted on or near an object with a large thermal mass such as a concrete block wall
- Blocked from normal air circulation by obstructions
- Exposed to heat sources such as lights, computers, copiers, or coffee makers, or to direct sunlight at any time of the day
- Exposed to drafts from windows, diffusers, or returns
- Exposed to air flow through connecting conduits or empty spaces behind walls

Rough-in Preparation

Complete rough-in wiring at each location before mounting a BACnet Thermostat. This includes the following steps.

- Install the supplied mounting base directly to a wall, a vertical electrical box, or a box with a wall plate kit
- Routing the connecting cable or cables from the BACnet Thermostat to the equipment it is controlling
- Block leaks and airflow from conduits with plumber’s putty or similar material
- If replacing an existing thermostat, label existing wires for reference when removing the existing thermostat

Figure 1: BACnet Thermostat Mounting Base Details



Installing the BACnet Thermostat

To install the controller on a mounting base, do the following:

1. Turn the Allen screw in the base of the sensor clockwise until it clears the case (Figure 2).
2. Swing the BACnet Thermostat away from the mounting base to remove it.
3. Route wiring for the BACnet Thermostat through the mounting base.
4. Position the base with the embossed UP toward the ceiling and fasten it directly to a vertical 2 × 4 inch electrical box.
5. Connect the wires for the BACnet Thermostat to the terminals in the mounting base.
6. Place the top of the sensor over the top of the mounting base and swing it down over the Allen screw bracket. Be careful not to pinch any wiring.
7. Turn the Allen screw counterclockwise until it backs out of the mounting base and engages the case (Figure 3).

Figure 2: Removing Allen Screw from Base

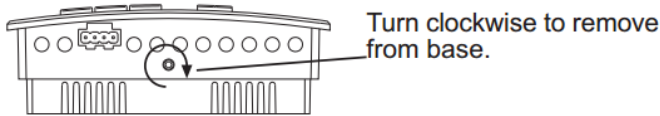
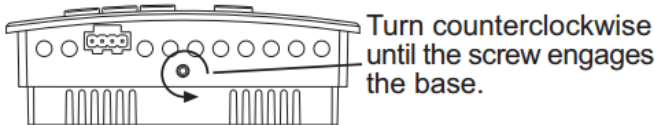


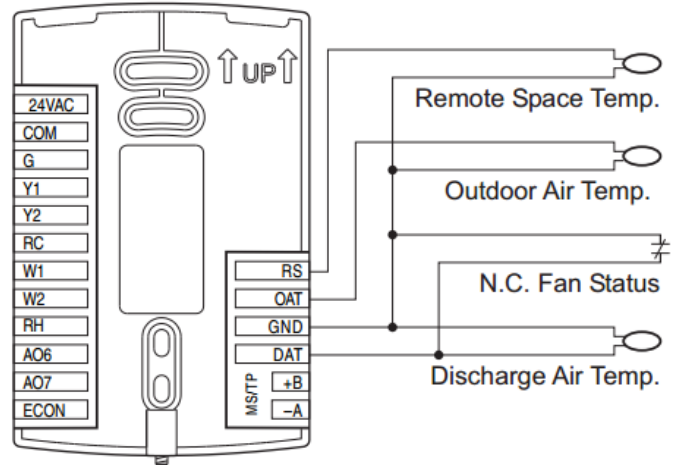
Figure 3: Reconnecting Allen Screw to Base



Connecting Inputs

The inputs for the BACnet Thermostat are configured for specific functions and do not require set up in the field. Not all inputs are required for every application.

Figure 4: Rooftop Unit Inputs



Remote Space Temperature Sensor (optional)

Connect a 10kΩ, Type II thermistor temperature sensor to the remote space temperature (RS) input and ground (GND) terminals. The input includes the internal pull-up resistor. Follow the instructions supplied with the sensor for installation.

When a remote space temperature input is connected to the BACnet Thermostat, the remote temperature is used instead of the internal temperature sensor.

Fan Status Switch (optional)

Connect a Normally Closed Fan Status switch to the Discharge Air Temperature (DAT) input and ground (GND) terminals. The input includes the internal pull-up resistor. Follow the instructions supplied with the switch for installation.

Outside Air Temperature

Connect a 10kΩ, Type II thermistor temperature probe to the outside air temperature (OAT) input. The input includes the internal pull-up resistor. Follow the instructions supplied with the sensor for installation.

Discharge Air Temperature

Connect a 10kΩ, Type II thermistor temperature probe to the discharge air temperature (DAT) input. The input includes the internal pull-up resistor. Follow the instructions supplied with the sensor for installation.

Connecting Outputs

WARNING

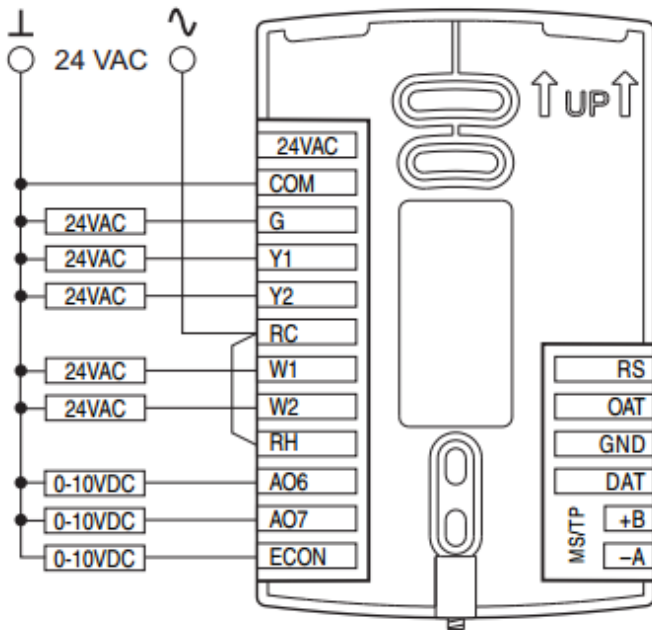
Can cause equipment damage.

Improperly connecting loads or equipment to output terminals may damage the equipment. Connect only as shown in the following diagrams or application drawings.

The BACnet Thermostat outputs are product dependent and are configured for specific applications.

- No field programming or set up is required or possible.
- Depending on model and application, the BACnet Thermostat outputs are designed for either 24 volt AC or 0-10 volt DC loads.
- The outputs may represent analog or digital signals.

Figure 5: Rooftop Unit Output Terminals

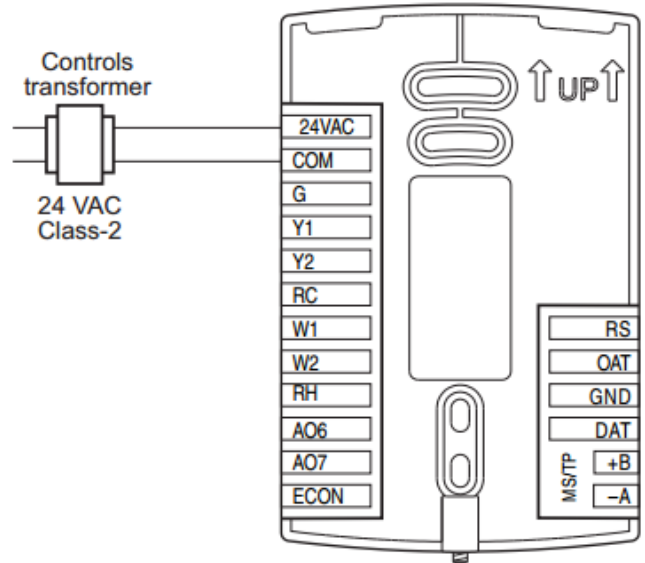


Connecting Power

The BACnet Thermostat requires an external, 24 volt AC power source. Use the following guidelines when choosing and wiring transformers.

- Use only a Class-2 transformer of the appropriate size to supply power.
- Daikin Applied recommends powering the BACnet Thermostat from a dedicated controls transformer.
- Connect the transformer's neutral lead to the COM terminal.
- Connect the AC phase lead to the 24VAC terminal.
- Power is applied to the controller when the transformer is powered.

Figure 6: Wiring for BACnet Thermostat Power



Maintenance

Remove dust as necessary from the holes in the top and bottom. Clean the display with a soft, damp cloth and mild soap.

Specifications

BACnet Thermostat specifications are subject to change without notice.

Supply Voltage:	24 volts AC (-15%, +20%)
	50-60 Hz, 12 VA,
	Class 2 only
Inputs:	0-12 volts DC with internal 10kΩ pull-up resistors
Relay Outputs:	SPST, 24 volts, 1 amp AC or DC
	Maximum for all relay outputs is 3 amps
Analog Outputs:	Short protected 10mA 0-12 VDC
Environmental Limits:	Operating 34 to 125°F (1.1 to 51.6°C)
	Shipping -40 to 140°F (-40 to 60°C)
	Humidity 0 to 95% RH (non-condensing)
Regulatory:	UL 916 Energy Management Equipment
	FCC Class A, Part 15 Subpart B and complies with Canadian ICES-003 Class A

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Additional Resources

For detailed specifications, installation, operating, application, and system integration information, see [IM 1234 BACnet Thermostat](#) Installation and Operation Manual.



Daikin Applied Training and Development

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied Representative for warranty details. To find your local Daikin Applied Representative, go to www.DaikinApplied.com.

Aftermarket Services

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787). To find your local service office, visit www.DaikinApplied.com or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products manufactured in an ISO Certified Facility.