

Installation Instructions

Comparative Enthalpy

Foundation™ Packaged Rooftop Units with Low
Leak Economizer
15 to 25 Tons

Model Number:
BAYENTH303*

Used With:
E/GCC180-300

▲ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

August 2024

ACC-SVN180G-EN

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:**

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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General Information

Unit Inspection

To protect against loss due to damage incurred in transit, perform inspection immediately upon receipt of the unit. Check carefully for shipping damage. If any damage is found, report it immediately, and file a claim against the transportation company.

Exterior Inspection

If the job site inspection reveals damage or material shortages, file a claim with the carrier immediately. Specify the type and extent of the damage on the bill of lading before signing. Notify the appropriate sales representative.

Important: Do not proceed with installation of a damaged unit without sales representative approval.

- Inspect the complete exterior for signs of shipping damages to unit or packing material.
- Verify that the nameplate data matches the sales order and bill of lading.
- Verify that the unit is properly equipped and there are no material shortages.
- Verify the power supply complies with the unit nameplate specifications.

Inspection for Concealed Damage

Inspect the components for concealed damage as soon as possible after delivery and before it is stored.

If concealed damage is discovered:

- Notify the carrier's terminal of the damage immediately by phone and by mail.
- Concealed damage must be reported within 15 days.
- Request an immediate, joint inspection of the damage with the carrier and consignee.
- Stop unpacking the unit.
- Do not remove damaged material from receiving location.
- Take photos of the damage, if possible.
- The owner must provide reasonable evidence that the damage did not occur after delivery.

Parts List

Quantity	Description
1	Outside Air Temperature/Humidity Sensor
1	Return Air Temperature/Humidity Sensor
4	Screws 6-32 X 0.75
1	Outside Air Temperature/Humidity Sensor Wire Harness
1	Return Air Temperature/Humidity Sensor Wire Harness
13	Pop-in Wire Ties
1	Label
1	Snap-In Bushing

Installation

⚠ WARNING

Hazardous Service Procedures!

Failure to follow all precautions in this manual and on the tags, stickers, and labels could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

NOTICE

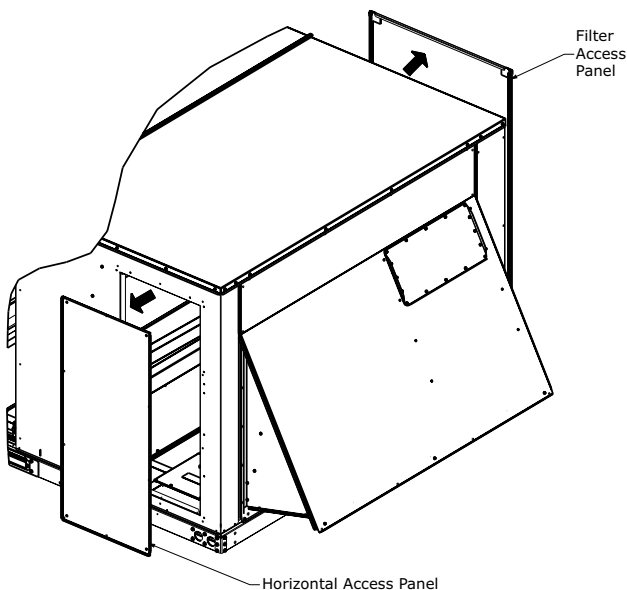
Electrostatic Discharge!

Electrostatic discharge can short equipment circuitry. Ensure that you are properly grounded before handling sensitive electronic equipment.

Outside Air Temperature/ Humidity Sensor Installation

1. Remove access panel.

Figure 1. Remove access panel



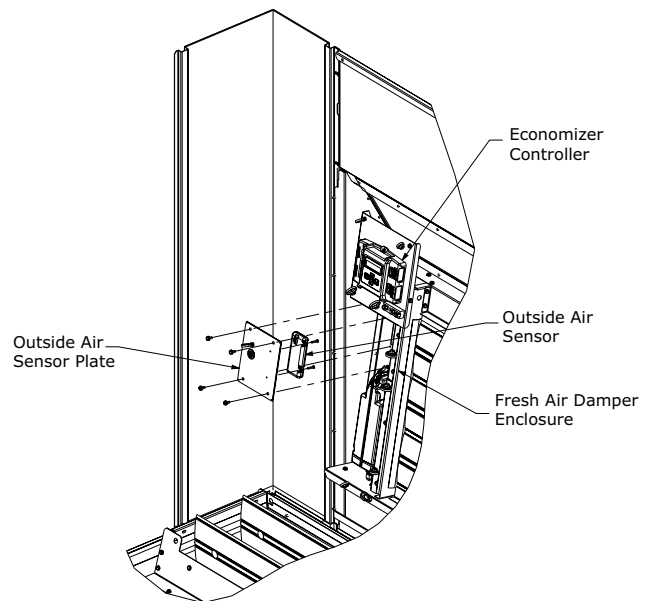
2. Remove the four screws from the outside air sensor

plate located on the fresh air damper enclosure below the economizer controller.

3. Remove existing outside air temperature (OAT) sensor attached to plate and disconnect OAT sensor harness from the OAT pin on the controller. Discard existing OAT sensor and OAT harness.

Note: The new sensor in this kit reads both temperature and humidity. The existing OAT sensor harness must be removed from the OAT pin on the controller or the controller will display a configuration error.

Figure 2. Remove sensor



4. Remove the new outside air temperature/humidity (OAE) sensor from box and verify DIP switch settings are set to OA per the label on the sensor.

Note: The protective film on the DIP switch is only necessary during the assembly process. Simply push through the film to set the DIP switches; this will not harm the device.

Installation

Figure 3. Verify DIP switches on new sensor

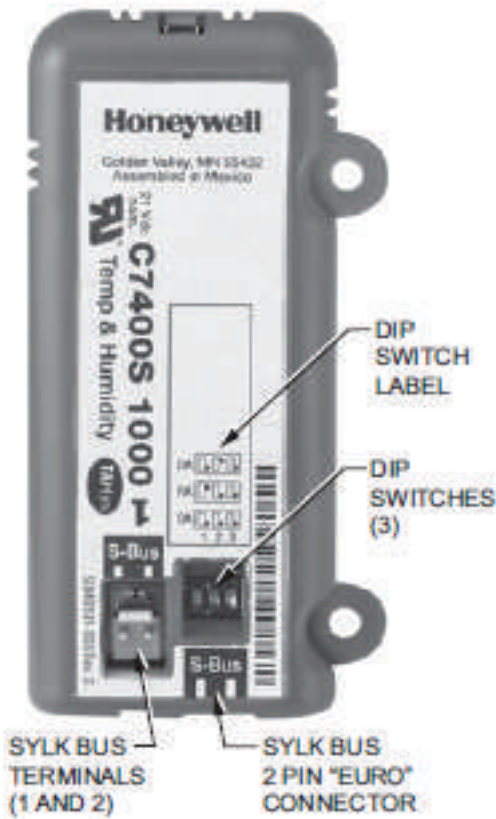
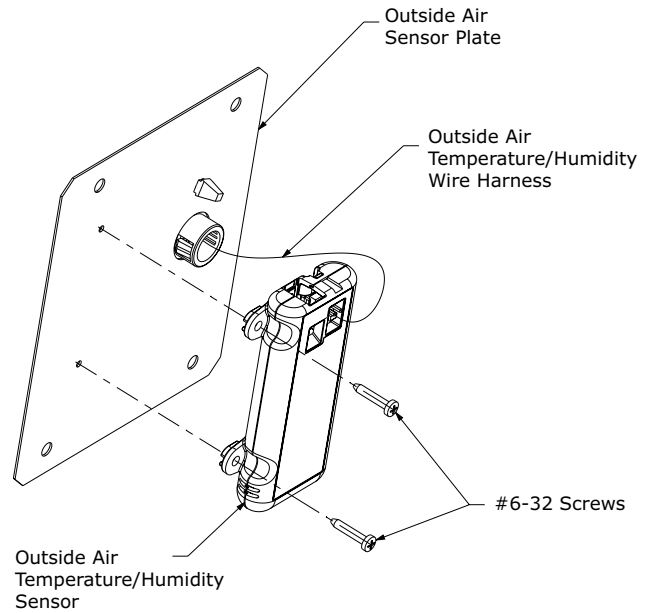


Table 1. Sensor DIP switch positions for switches 1, 2, and 3

Use	1	2	3
RA	ON	OFF	OFF
OA	OFF	OFF	OFF

5. Secure OAE sensor to plate using the screws provided in this kit.

Figure 4. Attach outside air sensor to plate



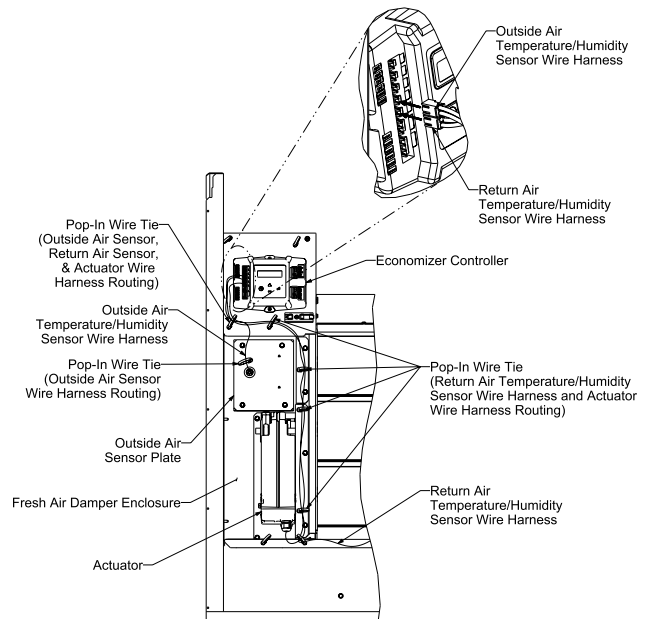
6. Connect OAE sensor harness (shorter of the two wire harnesses provided in this kit) to S-BUS pins on sensor and route through bushing in plate.

Note: Polarity insensitive connections.

7. Reattach plate with attached OAE sensor to fresh air damper enclosure with four screws.

8. Route harness to controller using pop-in wire ties provided in locations shown in figure below.

Figure 5. Wire routing and connections



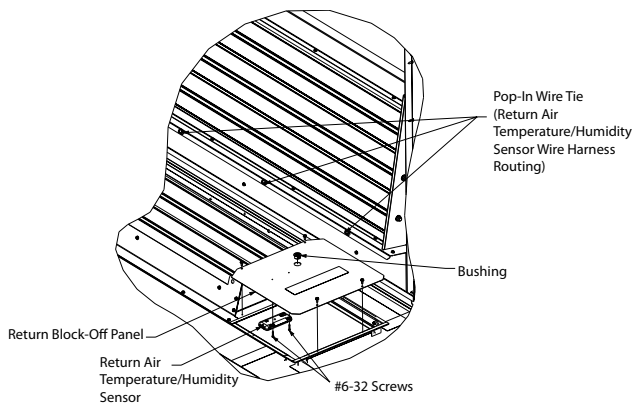
9. Connect OAE wire harness to economizer controller SBUS pin per unit wiring diagram.

Note: The labels on the sensors and controller are color coded for ease of installation. Orange labeled sensors can only be wired to orange terminals on the controller. Brown labeled sensors can only be wired to the S-BUS (brown) terminals.

Return Air Temperature/Humidity Sensor Installation - Downflow Units

1. Remove return air block off panel.
2. Remove tape covering the hole for the bushing and two holes for the sensor. Place snap bushing in hole on return air block off panel.

Figure 6. Return air block-off panel removal

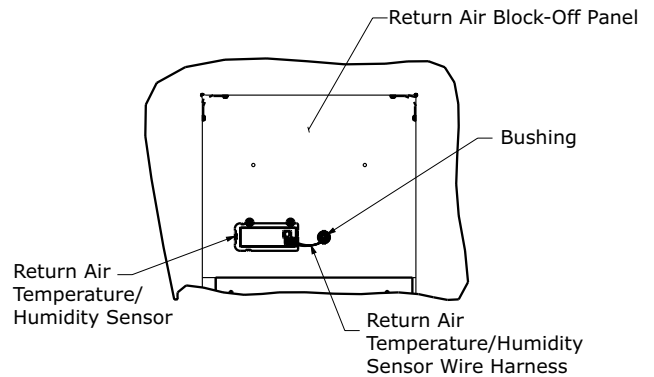


3. Remove remaining new temperature/humidity sensor from box and set DIP switch setting to RA for the return air temperature/humidity sensor (RAE) per the label on sensor.

Note: The protective film on the DIP switch is only necessary during the factory assembly process. Simply push through the film to set the DIP switches; this will not harm the device.

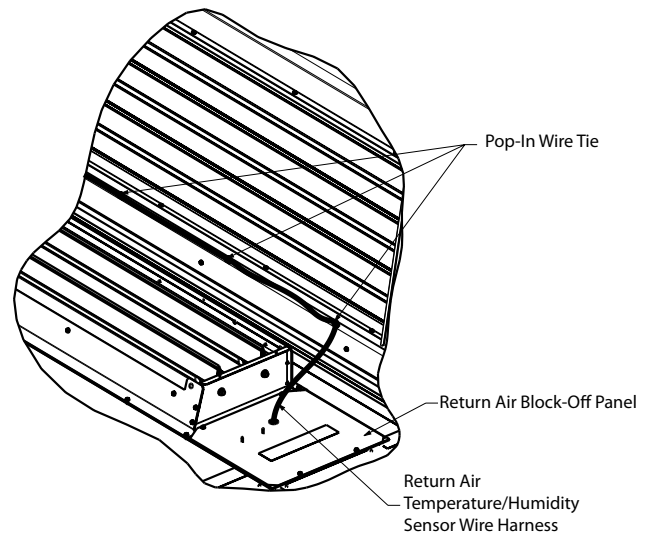
4. Secure the RAE sensor to the return air block off panel using the two screws provided.
5. Connect RAE sensor harness (longer of the two wire harnesses provided in this kit) to return air sensor and route wire through the bushing.

Figure 7. Install return air temp/humidity sensor



6. Reattach return air block off panel back on to the return duct using the previous screws.
7. Route the RAE sensor harness down the flange on the fresh air damper using the provided pop-in wire ties.

Figure 8. Return air sensor wire routing



8. Connect harness to controller on an available S-BUS pin per unit wiring diagram.

Return Air Temperature/Humidity Sensor Installation - Horizontal Units

1. Remove remaining new temperature/humidity sensor from box and set DIP switch setting to RA for the return air temperature/humidity sensor (RAE) per the label on sensor.

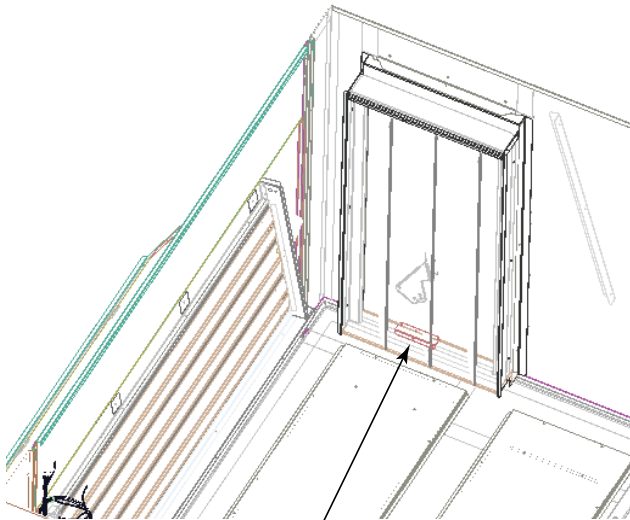
Note: The protective film on the DIP switch is only necessary during the factory assembly process. Simply push through the film to set the DIP switches; this will not harm the device.

2. Secure the RAE sensor to the return air block off panel

Installation

using the two screws provided. This can be done from inside or outside the unit.

Figure 9. RAE bracket location



Return air sensor bracket

3. Connect RAE sensor harness (longer of the two wire harnesses provided in this kit) to return air sensor and route wire through the bushing and down the flange of the return air damper.

Figure 10. Install sensor and route wire

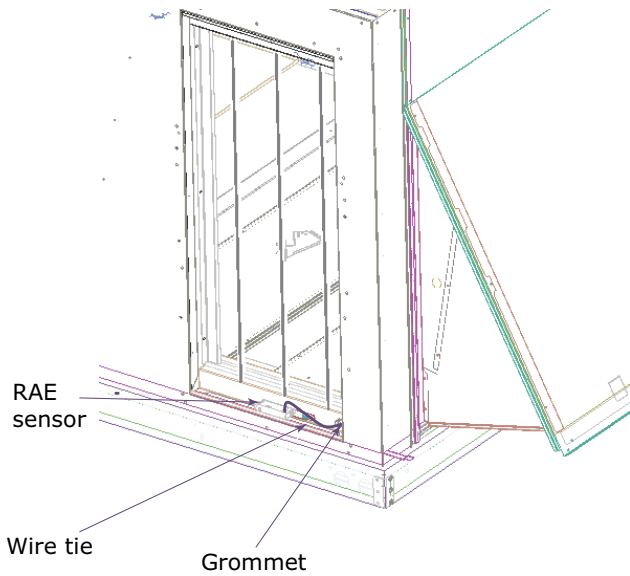
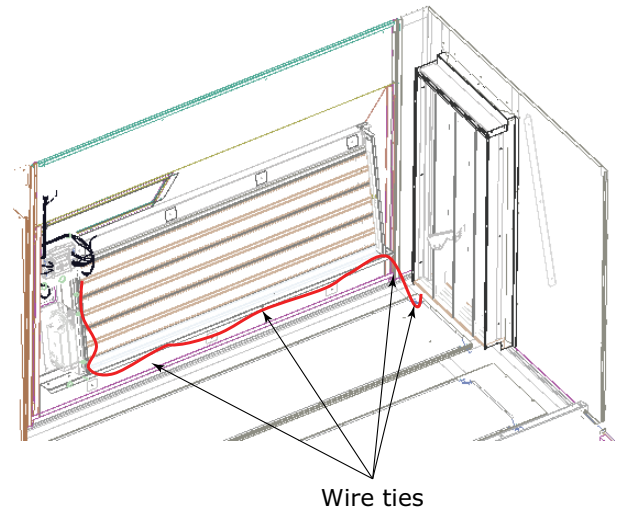


Figure 11. Route wire down the flange of RA damper

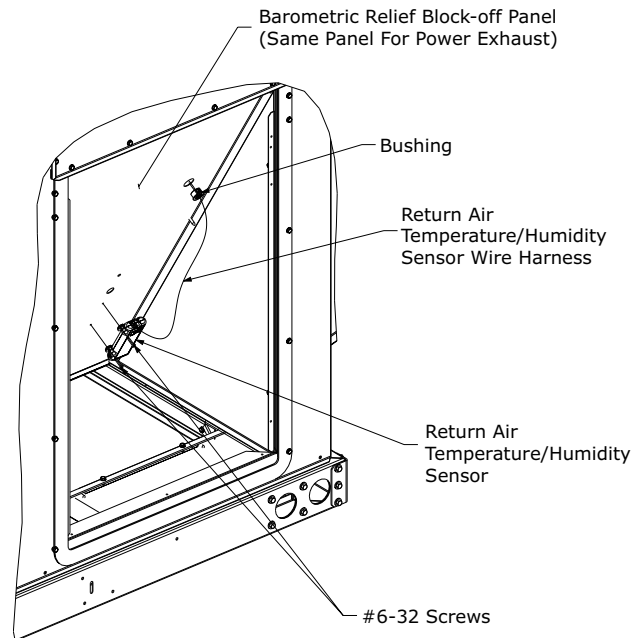


4. Connect harness to controller on an available S-BUS pin per unit wiring diagram.

Return Air Temperature/Humidity Sensor Installation with Barometric Relief or Power Exhaust

1. Locate barometric relief block-off panel and place snap bushing in hole as shown in following figure.

Figure 12. Barometric relief block-off with return air sensor



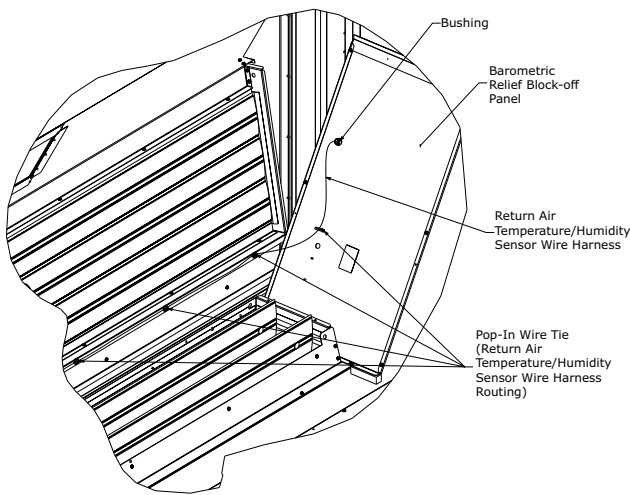
2. Remove remaining temperature/humidity sensor from

box and set DIP switch setting to RA for the RAE sensor per the label on sensor.

Note: The protective film on the DIP switch is only necessary during the factory assembly process. Simply push through the film to set the DIP switches; this will not harm the device

3. Connect RAE sensor harness (longer of the two wire harnesses provided in this kit) to RAE sensor and route wire through the bushing.
4. Route the RAE sensor harness down the wire channel on the fresh air damper using the provided pop-in wire ties.

Figure 13. Return air sensor wire routing for barometric relief/power exhaust



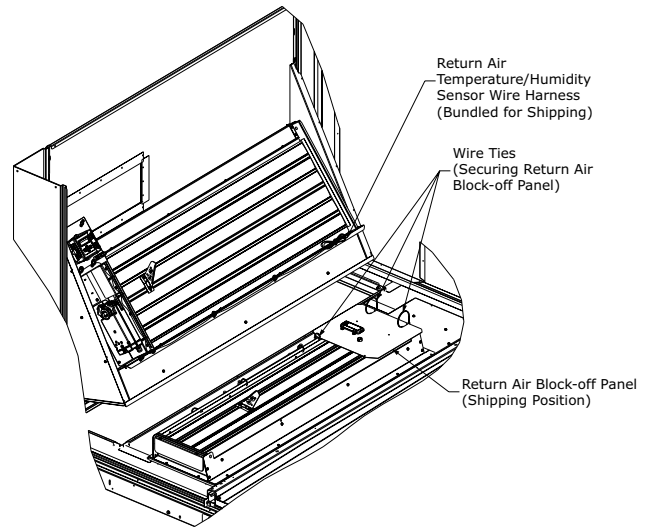
5. Connect RAE sensor harness to controller on an available S-BUS pin per unit wiring diagram.

Factory Installed Economizer with Comparative Enthalpy - Downflow

1. Remove filter access panels.
2. Verify DIP switch settings on installed outside air sensor are set to OA.
3. Cut wire ties and remove return air block-off panel from its shipping position located on top of the return air damper.

Note: If barometric relief or power exhaust accessories are going to be field installed, the return air sensor would need to be removed from the return air block-off panel and secured to the barometric relief block-off panel before that accessory is installed.

Figure 14. Return air sensor (factory installed)



4. Verify DIP switch settings on RAE sensor are set to RA.
5. Locate RAE sensor wire harness bundle, secured to the non-actuator side of the fresh air damper, and cut wire tie securing bundle.
6. Route RAE sensor wire harness through bushing in return air block-off panel and connect to RAE sensor.
7. See Low Leak Economizer Installation Instructions ACC-SVN178*-EN for return damper and return block off installation.

Controller Setup (Field and Factory Installed)

1. Verify the correct ENTH CURVE parameter is set in the economizer controller.

Note: The default parameter value for enthalpy is set to ES3 on the controller.

Table 2. Single enthalpy and dual enthalpy boundaries (parameters ES1 through ES5)

Enth. Curve	Temp. dry-bulb (°F)	Temp. dew point (°F)	Enthalpy (btu/lb/da)	Point P1		Point P2	
				Temp. °F	Humid. %RH	Temp. °F	Humid. %RH
ES1	80	60	28	80	36.8	66.3	80.1
ES2	75	57	26	75	39.6	63.3	80
ES3	70	54	24	70	42.3	59.7	81.4
ES4	65	51	22	65	44.8	55.7	84.2
ES5	60	48	20	60	46.9	51.3	88.5
HL	86	66	32.4	86	38.9	72.4	80.3

Note: For differential enthalpy there is a high limit boundary. The high limit boundary is ES1 when there are no stages of mechanical cooling energized and HL when a compressor stage is energized.

Installation

- To change the enthalpy parameter on the controller use the down arrow, navigate to the SETPOINTS menu, and press enter. Then scroll down (using down arrow) to ENTH CURVE, press enter and use the up/down arrow to view the parameter values. To select the parameter, press enter to accept the displayed value and store it in non-volatile RAM. The screen will then display "CHANGE STORED". Press the Menu (Up/Exit) to return to the previous menu.

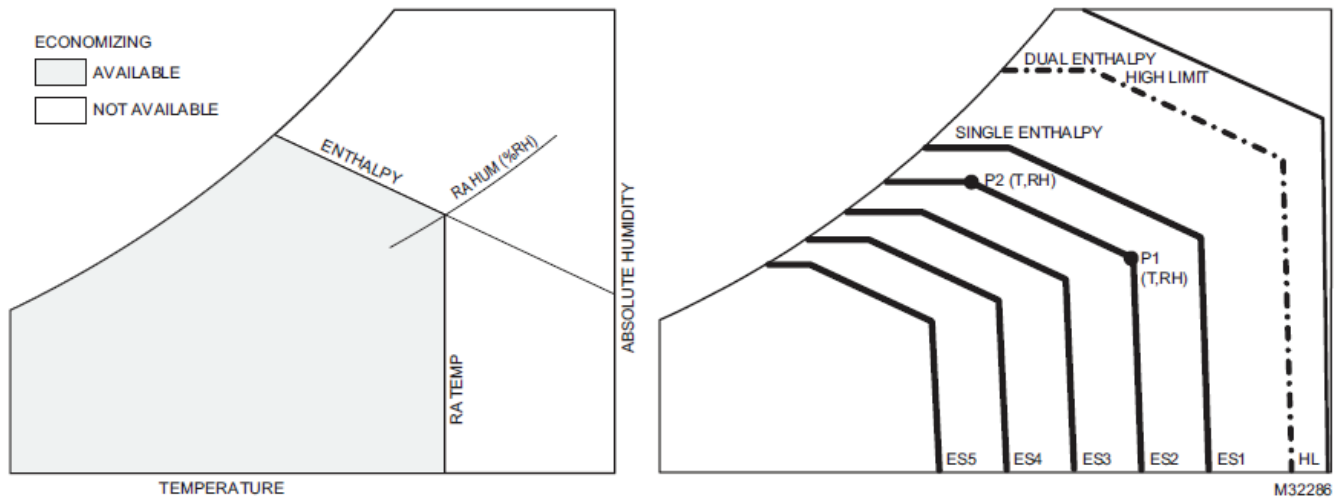
Note: During setup, the Economizer module is live at all times.

Note: Parameter OA T CAL and OA H CAL under ADVANCED SETUP menu allow for the operator to adjust for an out of calibration sensor (see Low Leak Economizer Installation Instructions ACC-SVN178*-EN for full list of set points).

Note: There will be a slight delay during start-up while the controller and OAE/RAE sensors communicate.

- Place label next to unit nameplate.
- Secure filter access panel back on to the unit.

Figure 15. Single enthalpy curve and boundaries



Trane and American Standard create comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or americanstandardair.com.

Trane and American Standard have a policy of continuous product and product data improvement and reserve the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

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