

Installation Instructions

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The accessory temperature sensor can be used on all rooftop units with a factory-installed or accessory EconoMi\$er X.

Table 1 - Package Contents

QTY	CONTENTS
1	Temperature Sensor
1	Sheet Metal Screw
1	Grommet
1	Black Wire
1	Red Wire

IMPORTANT: Read these instructions completely before attempting to install the accessory temperature sensor.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform the basic maintenance functions of replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags, and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Have fire extinguishers available for all brazing operations.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury and/or death.

Disconnect power supply and install lockout tag before attempting to install the accessory.

GENERAL

An outdoor air temperature sensor is standard and is provided with the accessory EconoMi\$er X package. The 2 speed rooftop units have a choice of dry bulb or enthalpy sensor with the factory-installed EconoMi\$er X. Units with factory-installed enthalpy sensor can be changed to outdoor dry bulb changeover control with a single accessory temperature sensor. Units with factory-installed enthalpy sensor can be changed to differential dry bulb control with two accessory temperature sensors. The sensor is used for outdoor temperature control. (See Table 2.)

Outdoor Dry Bulb Changeover Control

For this control mode, the outdoor temperature is compared to an adjustable set point on the EconoMi\$er X controller. If the outdoor air temperature is above the set point, the EconoMi\$er X will adjust the outdoor air dampers to minimum position. If the outdoor air temperature is below the set point, the position of the outdoor air dampers will be controlled to provide free cooling using outdoor air.

Differential Dry Bulb Control

For differential dry bulb control, the standard outdoor dry bulb sensor is used in conjunction with an additional accessory return air sensor (part number CRTEMPSON05A00). In this mode of operation, the outdoor air temperature is compared to the return air temperature and the lower temperature airstream is used for cooling.

Table 2 - Economi\$er X Sensor Usage

APPLICATION	Economi\$er X WITH OUTDOOR AIR DRY BULB
	Accessories Required
Outdoor Air Dry Bulb	None. The outdoor air dry bulb sensor is factory installed
Differential Dry Bulb	CRTEMPSEN005A00 (HH79ZZ07) 20k

INSTALLATION

Single Outdoor Air Temperature Sensor Installation

NOTE: The section assumes you are starting with an Economi\$er X installed in the rooftop and equipped with a single enthalpy sensor. If your Economi\$er X is already equipped with a dry bulb temperature sensor (p/n HH79ZZ007), **STOP**. You do not need to continue with this section.

1. Turn off power to the unit and install Lockout Tag.
2. Depending on the type of panels the unit is equipped with:
 - a. Units with standard panels — Remove the Economi\$er hood from the base unit and save the screws for Step 9a.
 - b. Units with factory-installed hinged panels — Open the hinged panel and secure it. Since the panel is hinged, do not remove it from the unit.
3. Disconnect the 2 wires from the pre-existing single enthalpy sensor and let them hang. Remove the single enthalpy sensor and save the screws (no. 8) for use in Step 4. The wires will be used later to connect to the enthalpy sensor.
4. Use the sheet metal screw (no. 8) for use with Step 3 to mount the HH79ZZ7 dry bulb sensor on the front left of the Economi\$er X frame, as shown in Fig. 5. Use the screw hole in the Economi\$er X frame.
5. Ensure the 2 wires are connected on the Economi\$er X controller correctly.

6. Pick up the wires left hanging in Step 3 and connect them to the temperature sensor.
7. If installation of another dry bulb temperature sensor (for differential dry bulb temperature control) is also planned, skip to Step 3 of the Differential Temperature Sensor installation instructions below.
8. Restore power to the unit.
9. Depending on the type of panels the unit is equipped with:
 - a. Units with standard panels –
Re-install the Economi\$er hood. Secure the hood using the screws saved from Step 2a.
 - b. Unit with factory-installed hinged panels –
Close the hinged panel and latch it.
10. Adjust outside air temperature setpoint on EconoMi\$er X controller. Refer to instructions provided with EconoMi\$er X.

Differential Temperature Sensor

If installing the differential temperature sensor on an accessory Economi\$er X it is easier to install the differential temperature sensor before installing the Economi\$er X. If installing the sensor on a factory-installed Economi\$er X, it is easier to install the differential temperature sensor before installing the Economi\$er hoods.

A single temperature sensor (CRTEMPSN005A00 or HH79ZZ07) must be installed in addition to the differential temperature sensor (CRTEMPSN005A00) to achieve differential temperature Economi\$er X control.

For horizontal applications, it is easiest to install the temperature sensor before making duct connections.

Differential Temperature Sensor Installation for

NOTE: This section assumes you are starting with an Econo\$er X installed in the rooftop and equipped with dry bulb temperature sensor (p/n HH79ZZ007) installed, regardless of whether the Econo\$er was purchased that way, or you have completed the installation of an accessory sensor. If you do not already have a dry bulb temperature sensor installed, first install the sensor as described earlier in this instruction.

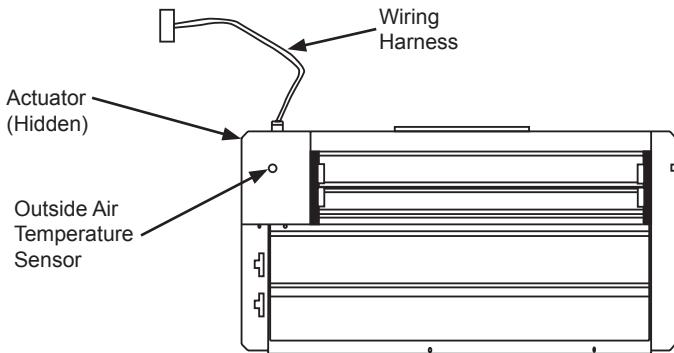


Fig. 1 - Economi\$er X Component Locations

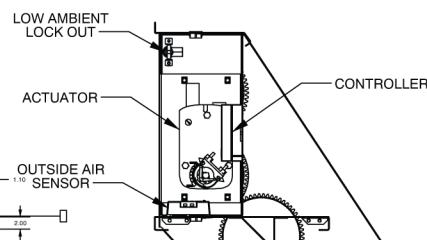
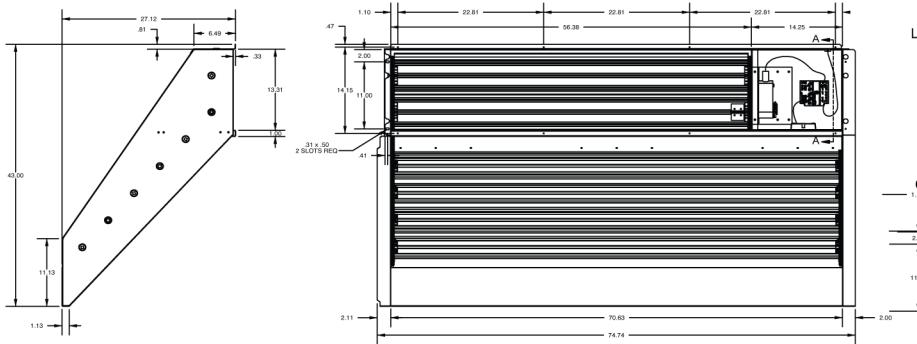


Fig. 2 - Location of Sensor

1. Turn off power to unit and install Lockout Tag.
2. Depending on the type of panels the unit is equipped with:
 - a. Units with standard panels –
Remove the Economi\$er hood from the base unit and save the screws for Step 9a.
 - b. Units with factory-installed hinged panels –
Open the hinged panel and secure it. Since the panel is hinged, do not remove it from the unit.
3. Using the screws provided in the CRTEMPSON05A00 kit, mount the differential temperature sensor in the return air duct as shown in Fig. 3.
4. Route the red and black wires (provided in the CRTEMPSON05A00 kit) between the Economi\$er X controller and the installed location of the differential temperature sensor.
5. Connect the wires to the sensor and the EconoMi\$er X controller per diagram
6. Restore power to the unit and configure the Economi\$er X controller per the configuration section of economizer instructions.
7. Depending on the type of panels the unit is equipped with:
 - a. Units with standard panels –
Re-install the Economi\$er hood. Secure the hood using the screws saved from Step 2a.
 - b. Units with factory-installed hinged panels –
Close the hinged panel and latch it.
8. Adjust outside air temperature setpoint on EconoMi\$er X controller. Refer to instructions provided with Economizer X.

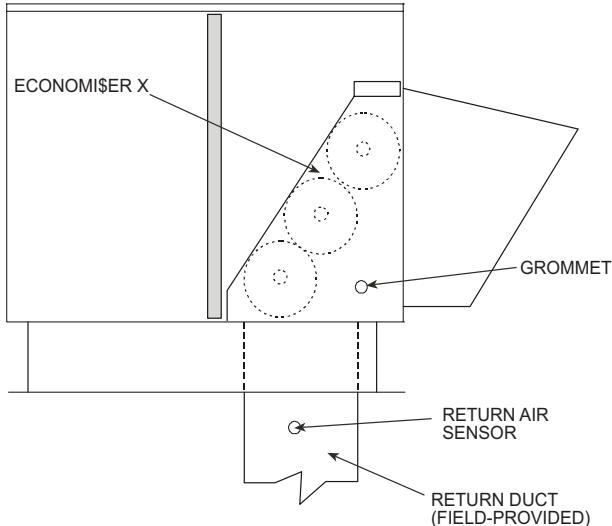


Fig. 3 - Return Air Temperature Sensor Mounting Location

Table 3 - Sensor Resistance

Low Temp = -40
 Increment = 5
 End Temp = 125
 Curve = D
 Resistance = 20,000

Temp (°C)	R _{nom} (Ω)
-40	812,308
-35	577,564
-30	415,156
-25	301,540
-20	221,210
-15	163,834
-10	122,453
-5	92,328
0	70,200
5	53,806
10	41,561
15	32,341
20	25,346
25	20,000
30	15,886
35	12,698
40	10,212
45	8,261
50	6,720
55	5,496
60	4,519
65	3,735
70	3,101
75	2,587
80	2,168
85	1,825
90	1,543
95	1,310
100	1,116
105	955
110	819
115	706
120	610
125	529

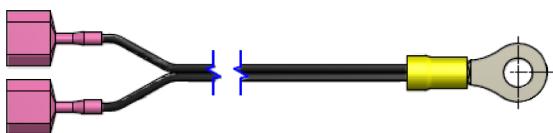


Fig. 4 - Temperature Sensor

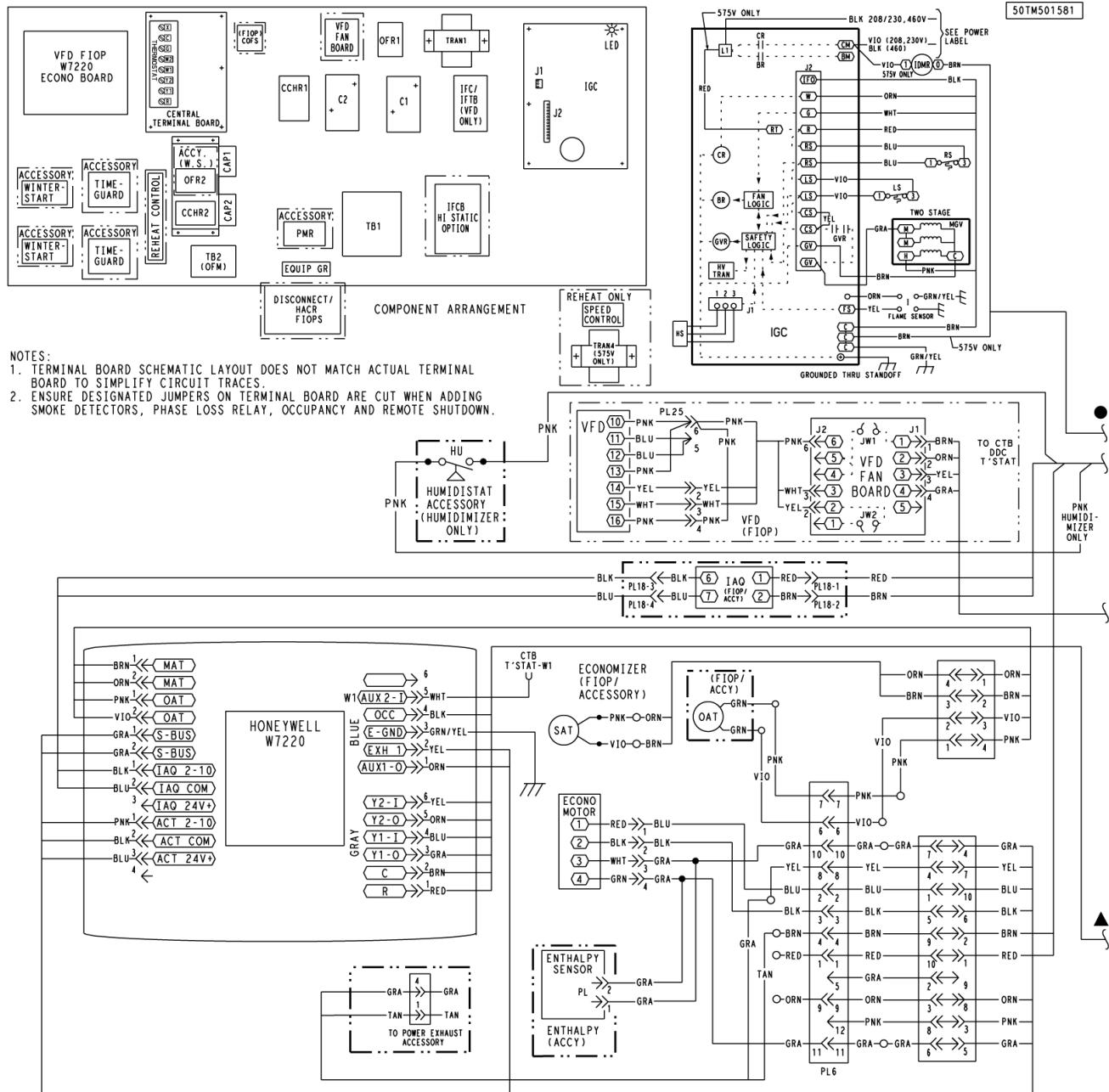


Fig. 5 - Typical EconoMi\$er X Wiring Diagram