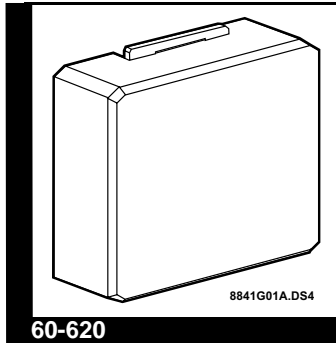


Superbus Energy Saver Module

Document Number: 466-1031 Rev. B
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Installation Instructions

Product Summary

The Superbus Energy Saver Module (ESM) provides a money-saving and convenient way to monitor and control temperatures. The ESM uses low- and high-temperature limits to save energy by overriding the existing HVAC thermostat. When the ESM is on, temperature limits determine when the heat or air-conditioning turns on. When the ESM is off, the HVAC thermostat controls heat and air-conditioning.

For example, if the thermostat is set for 68°F and the ESM high limit is 80°F, the ESM prevents the air-conditioner from turning on until the temperature reaches 80°F.

A temperature sensor monitors the temperature and reports a freeze alarm to the panel if the temperature drops below the set freeze temperature (default = 42°F). A backup freeze stat provides additional protection by activating the furnace if the temperature drops to 45°F (±6°F).

Figure 1 shows the main ESM components and Table 1 describes the main ESM components.

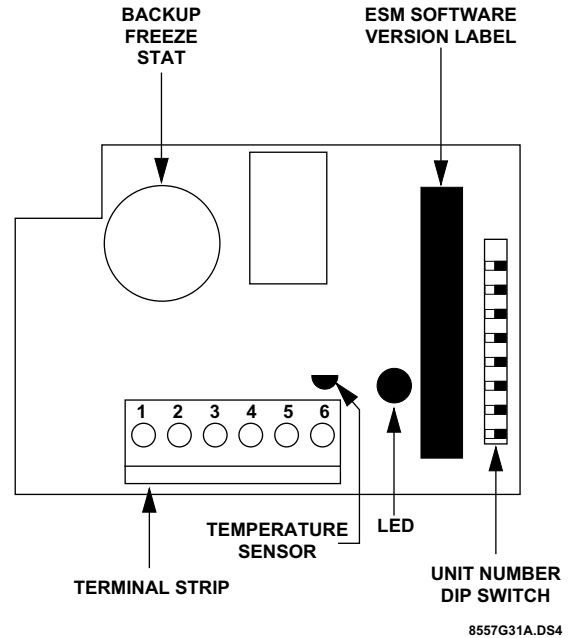


Figure 1. ESM Component Locations

Table 1. ESM Component Descriptions

ESM Component	Function
Backup Freeze Stat	Activates furnace if temperature drops to 45°F (±6°F).
ESM Software Version Label	Identifies the installed software version.
Unit Number DIP Switch	Determines the ID number of the ESM on the bus.
Light-Emitting Diode (LED)	Flashes constantly to indicate normal communication to the panel bus.
Temperature Sensor	Monitors the premises temperature.
Terminal Strip	Used for panel and HVAC thermostat connections.

Installation Guidelines

Use the following guidelines when installing the ESM:

- v For UltraGard™ systems, up to eight superbus devices can be connected to the panel (Superbus Alphanumeric Touchpad, HIM, ESM, etc.).
- v Each superbus device must have a different unit ID number.
- v For UltraGard systems, only one ESM can be connected to a panel.
- v The ESM's maximum current draw is 20 mA.
- v Do not exceed the panel's total power when using panel power for bus devices and hardwired sensors that require panel power (refer to the specific panel's *installation instructions*).
- v Use 4-conductor, 22-gauge or larger stranded wire from the ESM to the panel.
- v Use 2-conductor, 22-gauge or larger stranded wire from the ESM to the thermostat.
- v Install the ESM on an inside wall, next to or as close as possible to the existing thermostat. This keeps the temperature difference between the ESM and the thermostat to a minimum.
- v Programmable thermostats that use a battery to keep time and other programmed settings may lose time and/or programmed settings when the ESM is turned on. This can happen since the ESM relay is interrupting the thermostat's main power, forcing the thermostat to rely on battery power to save time and programmed settings. As a result, the thermostat battery may need to be replaced more often, depending on how often and how long the ESM is turned on.

Tools Needed

- v Small pocket-size screwdriver
- v Screws and anchors (included)
- v Digital voltmeter

Installation

Installation consists of mounting the ESM (next to or as close as possible to the existing thermostat) and wiring it to the panel and existing HVAC thermostat.

To mount the ESM:

1. Press down on the top center of the cover and pull it away from the base (see Figure 2). Set the cover aside.

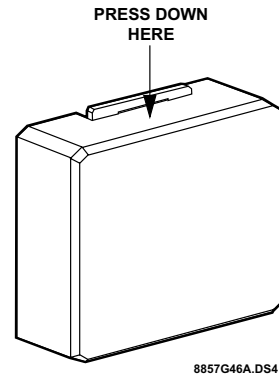


Figure 2. Removing the Enclosure Cover

CAUTION: You must be free of static electricity before handling circuit boards. Wear a grounding strap or touch a bare metal surface to discharge static electricity.

2. Place the ESM on the wall at the desired location and mark the upper-left and lower-right mounting holes (see Figure 3).

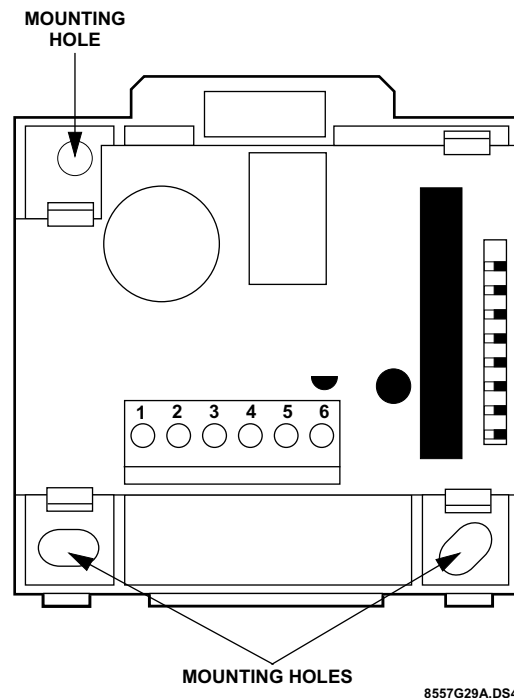


Figure 3. Mounting Hole Locations

3. Install anchors where studs are not present and secure the ESM to the wall with the enclosed screws.

Wiring

Some thermostats control heating and cooling, others control only heating. A heating/cooling thermostat uses four wires and a heating-only thermostat usually has two. The general color code for four-wire thermostats is as follows:

- Red: Power feed to thermostat
- Green: Fan control
- Yellow: Cooling
- White: Heating

Note: If the thermostat wire colors are different than those described above, contact a qualified HVAC service person for wiring information about the specific thermostat you are working with. Be sure to give the service person the manufacturer's name and model number of the thermostat.

To wire the ESM to the UltraGard panel:

1. Turn off the panel power switch.
2. Disconnect the panel battery and unplug the power transformer.
3. Turn off the thermostat and remove its cover.
4. Route a 4-conductor, 22-gauge or larger, stranded wire from the ESM to the panel.
5. Connect terminals 3 thru 6 to the panel as shown in Figure 4.

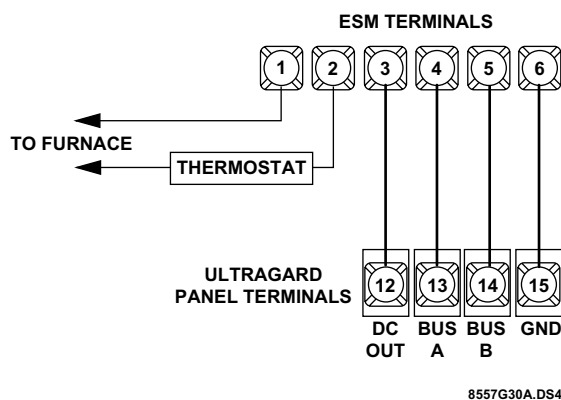


Figure 4. ESM Wiring Connections to the Thermostat and UltraGard Panel Terminals

6. Route a 2-conductor, 22-gauge or larger, stranded wire from the ESM to the thermostat.

To connect a four-wire thermostat:

1. Remove the red wire (or power feed) from the thermostat and connect it to ESM terminal 1.
2. Connect a wire from ESM terminal 2, to the thermostat terminal on the where the red wire (or power feed) was connected.

To connect a two-wire thermostat:

1. Remove one of the wires from the thermostat and connect it to ESM terminal 1.
2. Connect a wire from ESM terminal 2, to the terminal on the thermostat where the original wire had been connected.

Setting the ESM Unit ID Number

Before you power up the panel, you must set the unit ID number on the ESM so that the panel recognizes the device. Each bus device must have a different unit ID number for successful communication and operation with the panel.

To set the ESM unit ID number for UltraGard systems:

Locate the DIP switches on the ESM circuit board (see Figure 1) and set them to the desired ID number, 0-7 (see Figure 5).

Note: Switches 1 thru 5 must remain in the OFF position as shown in Figure 5.

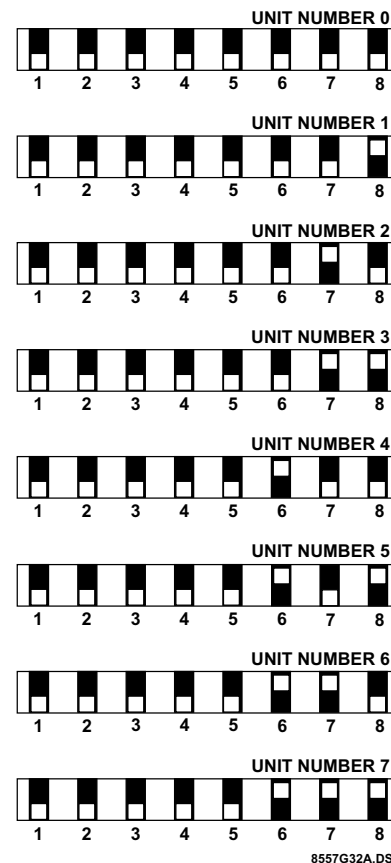


Figure 5. ESM Unit ID DIP Switch Settings

Power Up and Bus Communication

This section describes how to power up the panel and the ESM and get them communicating with each other.

To power up the UltraGard panel and the ESM:

1. Verify that all wiring at the panel and the ESM are correct.
2. Reconnect the panel battery and plug in the power transformer.
3. Turn on the panel power switch.
4. Set the panel's RUN/PROGRAM switch to PROGRAM.

If the alphanumeric display reads *1-OFF* and the *1* is flashing, you must enter the install code (4-digit installer access code) to get the panel into the program mode.

The alphanumeric display should read *PROGRAM MODE* and the ESM LED should be flashing continuously, indicating successful communication to the panel.

Note: If the LED is not flashing continuously, set the RUN/PROGRAM switch to RUN and turn off the panel power switch. Verify that all wiring is correct and that all bus devices are set with different unit ID numbers.

Whenever the ESM unit ID number is changed, you must turn off the panel power switch, turn it back on, and then enter the program mode for the panel and ESM to communicate successfully.

Setting the ESM SET TEMP

The SET TEMP programming command lets you adjust the ESM temperature so it matches the house thermostat reading. Refer to the specific panel's *installation instructions* for complete details.

Note: The ESM must be installed and powered up for a minimum of 15 minutes before adjusting the ESM temperature, to ensure consistent readings between the ESM and house thermostat.

For best results, wait an hour before adjusting the ESM temperature as described in the specific panel's *reference manual*.

Programming and Testing the ESM

For complete ESM programming and testing information, refer to the specific panel's *installation instructions*.

Specifications

Compatibility: UltraGard

Power Requirements: 12 VDC, 30 mA (maximum)

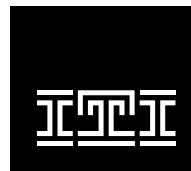
Dimensions: 2.60" x 2.60" x.90" (L x W x D)

Notices

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.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Interactive Technologies, Inc. can void the users' authority to operate the equipment



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