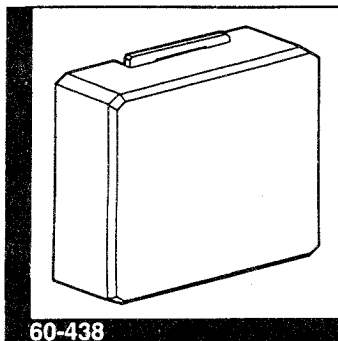# Energy Saver Module

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INSTALLATION INSTRUCTIONS

About This Document

This document describes how to install, wire, program, and test the Energy Saver Module (ESM) for both CareTaker® and CareTaker *Plus* systems.

Product Summary

The ESM provides the following features:

■ Overrides the on-site thermostat operation for heating/cooling.

■ Built-in temperature sensor monitors premises temperature and initiates a freeze alarm if it drops to a programmed value (default = 42°F).

■ Built-in backup freeze detector (42°F fixed) activates furnace if ESM fails and temperature drops to 42°F.

The user sets a low-temperature limit (for heating) and a high-temperature limit (for cooling). When the ESM is turned on and the inside temperature reaches the temperature limit, it controls the heating/cooling (according to the thermostat switch setting). When the ESM is turned off, heating/cooling temperatures are controlled by the on-site thermostat.

The ESM can be controlled from a system touchpad, or a TouchTone phone either on- or off-site.

Tools Needed

■ Small pocket-size screwdriver

■ Screws and anchors (included)

■ 4-conductor, 22-gauge or greater, stranded wire (run between ESM and Control Panel)

■ 2-conductor, 22-gauge or greater, stranded wire (run between ESM and thermostat)

■ Digital voltmeter

Installation Guidelines

Use the following guidelines when installing the ESM:

■ For CareTaker *Plus* systems, a Feature Expansion Module (60-622) must be installed in the Control Panel (Panel) before adding an ESM to the system.

■ Install the ESM where a standard heating/cooling thermostat exists.

Note: Programmable thermostats have a battery for keeping time and programmed settings in memory. Installing an ESM may cause this thermostat type to lose time and/or programming when the ESM is turned on.

■ Choose a location on an inside wall, as close as possible to the thermostat. Whenever possible, locate the ESM next to the thermostat. This keeps the temperature difference between the ESM and thermostat to a minimum.

Mounting the ESM

This section describes how to mount the ESM.
1) Remove the enclosure cover by pressing down on the top center of the cover, and pull the cover away from the base (see Figure 1). Set the cover aside.
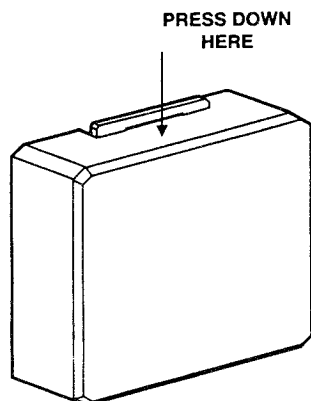
**PRESS DOWN
HERE**

Figure 1. Removing the Enclosure Cover

**CAUTION: You must be free of static electricity
before handling circuit boards. Dis-
charge yourself by touching a
grounded, bare metal surface, or
wear a grounding strap.**

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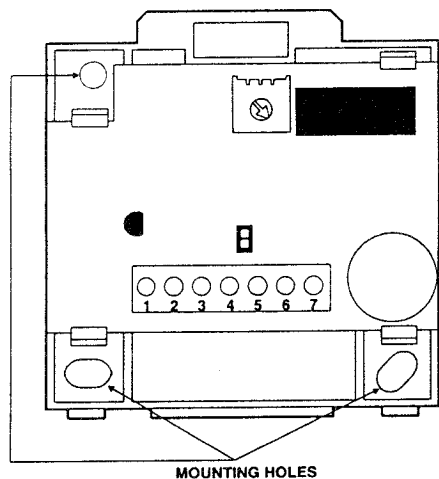

MOUNTING HOLES

Figure 2. Mounting Hole Locations

Note: The lower-left mounting hole can be used in
addition to the other two mounting holes, if
desired.

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

ESM Components

This section describes the key ESM components you
should be familiar with when installing the unit. Fig-
ure 3 shows the component locations and Table 1
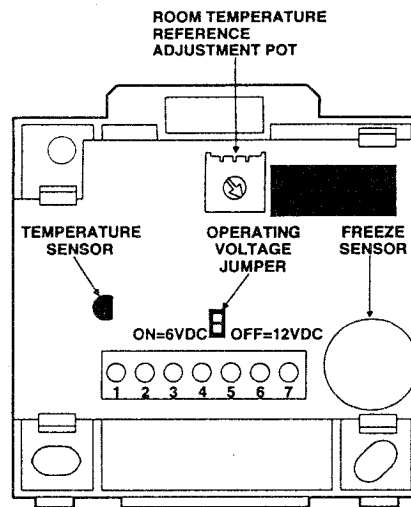describes each component function.

**ROOM TEMPERATURE
REFERENCE
ADJUSTMENT POT**

**TEMPERATURE   OPERATING   FREEZE
SENSOR   VOLTAGE   SENSOR
JUMPER**

ON=6VDC   OFF=12VDC

Figure 3. ESM Key Component Locations

Table 1. ESM Component Functions

Component	Function
Temperature Sensor	Monitors the premises tempera- ture.
Temperature Reference Adjustment Pot	Used for adjusting the ESM tem- perature reading so that it matches the on-site thermostat reading.
Operating Voltage Jumper	Determines the ESM operating voltage: ON = 6 VDC (CareTaker *Plus*) OFF = 12 VDC (CareTaker)
Freeze Sensor	Backup freeze sensor in case tem- perature sensor fails.

Wiring Connections

This section describes the ESM wiring connections in
CareTaker *Plus* and CareTaker systems.

ESM Connections to the CareTaker *Plus*

1) Turn off the Panel power switch.
2) Route a 4-conductor, 22-gauge or greater, stranded wire from the ESM location to the Panel.
3) Route a 2-conductor, 22-gauge or greater, stranded wire from the ESM to the thermostat.
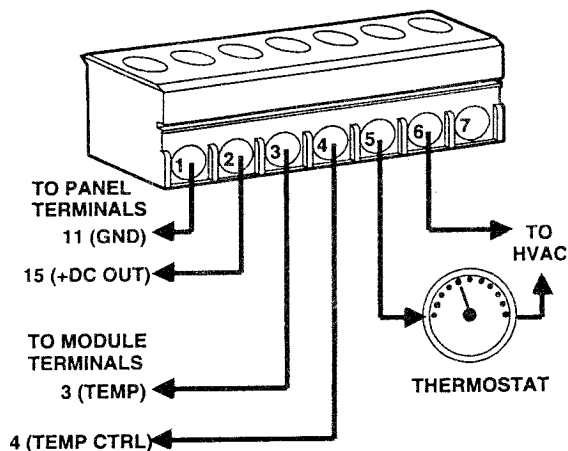4) Connect wires as shown in Figure 4. Table 2 describes the wiring connections shown in Figure 4.

Figure 4. ESM Wiring Connections to CareTaker *Plus*

Table 2. ESM to CareTaker *Plus* System Wiring Connections

Connect ESM Terminal	To Panel Terminal	To Feature Exp. Module Terminal	To Thermostat\HVAC
1 (GND)	11 (GND)		
2 (+DC)	15 (+DC)		
3 (TEMP)		3 (TEMP)	
4 (TEMP CTRL)		4 (TEMP CTRL)	
5 (RELAY)			THERM.
6 (RELAY)			HVAC

ESM Connections to the CareTaker

1) Turn on the Panel sleep switch.
2) Route a 4-conductor, 22-gauge or greater, stranded wire from the ESM location to the Panel.
3) Route a 2-conductor, 22-gauge or greater, stranded wire from the ESM to the thermostat

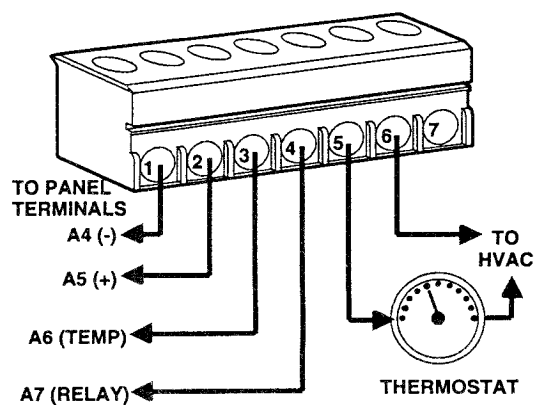4) Connect wires as shown in Figure 5. Table 3 describes the wiring connections shown in Figure 5.

Figure 5. ESM Wiring Connections to CareTaker

Table 3. ESM to CareTaker System Wiring Connections

Connect ESM Terminal	To Panel Terminal	To Thermostat/ HVAC
1 (GND)	A4 (-)	
2 (+DC)	A5 (+)	
3 (TEMP)	A6 (TEMP)	
4 (TEMP CTRL)	A7 (RELAY)	
5 (RELAY)		THERM.
6 (RELAY)		HVAC

Note: If the system includes a Hardwire Talking Touch-pad (60-258), be sure to connect the touchpad's black wire to Panel terminal 7. This makes the touchpad's Energy Saver light operational.

Programming CareTaker *Plus* Energy Saver Upper Sensor Numbers

The Panel must be programmed to receive data from the ESM before proceeding. This section describes programming the upper sensor numbers that affect ESM operation.

Upper Sensor 88 - Energy Saver Enable

This upper sensor must be programmed on for the Panel to receive data from the ESM and allows for setting low- and high-temperature limits.
1) Turn off the Panel's tamper bypass switch.
2) Turn on the Panel power switch.
3) Using an alphanumeric touchpad, press BYPASS until the display reads UPPER SENSORS.
4) Press BYPASS until the display reads Sn88 OFF - ENERGY SAVER.
5) Press COMMAND and the display reads Sn 88 ON - ENERGY SAVER.

Upper Sensor 78 - Freeze Alarm

This upper sensor controls whether the ESM initiates a freeze alarm if the premises temperature drops to a programmed value (default = 42°F).
1) Using an alphanumeric touchpad, press STATUS until the display reads Sn 78 OFF - FREEZE ALARM.
2) Press COMMAND and the display reads Sn 78 ON - FREEZE SENSOR.
3) Exit programming by pressing FIRE.
4) Attach the Panel cover to the chassis.

Adjusting the ESM Temperature Reading

This section describes how to adjust the ESM temperature reading so that it matches the on-site thermostat reading.

CareTaker *Plus* ESM Temperature Reading Adjustment

1) Perform a long status report using one of the following methods:
- Using an alphanumeric or wireless touchpad, press STATUS + STATUS.
- Using a TouchTone phone, press * + # + # or * + CODE + # + 1.

  A voice message announces the current temperature reading. If the announced temperature is higher or lower than the thermostat, proceed to step 3.
2) Remove the ESM cover and locate the room temperature adjustment pot (see Figure 3).

3) Using a small pocket-size screwdriver, turn the pot clockwise to increase the temperature reading, or counterclockwise to decrease the temperature reading.
4) Wait about 20 seconds, then check the temperature reading by performing another long status report.

Repeat steps 4 and 5 until the ESM temperature reading matches the thermostat reading.

CareTaker ESM Temperature Reading Adjustment

1) Turn off the Panel sleep switch.
2) Using a TouchTone phone or hardwire touchpad, perform a full status report by entering * + CODE + # + 1.

   A voice message announces the current temperature reading. If the announced temperature is higher or lower than the thermostat, proceed to step 3.
3) Remove the ESM cover and locate the room temperature adjustment pot (see Figure 3).
4) Using a small pocket-size screwdriver, turn the pot clockwise to increase the temperature reading, or counterclockwise to decrease the temperature reading.
5) Wait about 20 seconds, then check the temperature reading by performing another long status report.

Repeat steps 4 and 5 until the ESM temperature reading matches the thermostat reading.

Setting the Low- and High-Temperature Limits

This section describes how to set the low- and high-temperature limits for both CareTaker *Plus* and CareTaker systems.

Note: Always set the low- and high-temperature limits at least 14°F apart or the ESM may not operate correctly.

Setting CareTaker *Plus* Low- and High-Temperature Limits

Note: CareTaker *Plus* Panels do not accept low-temperature limits higher than or equal to the high-temperature limit, and vice versa.

1) Turn on the Panel power switch and replace the Panel cover.

2) Set the low-temperature limit (45°F to 90°F) by entering the described command, using the appropriate device:

■ From a TouchTone phone, enter:

   * + CODE + # + 3 + nn (nn = 45 to 90)

■ From an alphanumeric or wireless touchpad, enter:

   CODE + STATUS + 3 + nn (nn = 45 to 90)

3) Set the high-temperature limit by entering the described command, using the appropriate device:

■ From a TouchTone phone, enter:

   * + CODE + # + 4 + nn (nn = 45 to 90)

■ From an alphanumeric or wireless touchpad, enter:

   CODE + STATUS + 4 + nn (nn = 45 to 90)

Setting CareTaker Low- and High-Temperature Limits

1) Turn off the Panel sleep switch.

2) Set the low-temperature limit (40°F to 97°F) by entering the following command from a Touch-Tone phone or hardwire touchpad:

   * + CODE + # + 3 + nn (nn = 40 to 97)

3) Set the high-temperature limit (41°F to 98°F) by entering the following command from a Touch-Tone phone or hardwire touchpad:

   * + CODE + # + 4 + nn (nn = 41 to 98)

Setting the Freeze Temperature

This section describes how to set the freeze temperature for both CareTaker *Plus* and CareTaker systems.

Setting the CareTaker *Plus* Freeze Temperature

1) Place the Panel in the program mode by removing the Panel cover.

2) Using an alphanumeric touchpad, press STATUS or BYPASS until the display reads FREEZE TEMP.

3) Press COMMAND. The display reads TEMP _ _.

4) Enter the freeze temperature (40 to 90), then press COMMAND.

5) Exit the program mode by pressing FIRE and replace the Panel cover.

Setting the CareTaker Freeze Temperature

1) Place the Panel in the program mode using one of the following methods:

■ Turn on the Panel program switch.

■ Enter * + CODE + # + 7 + SERV (dealer service access code) from a TouchTone phone.

2) Using a TouchTone phone or hardwire touchpad, set the freeze temperature (01°F to 59°F) by entering * + 23 + nn (nn = 01 to 59).

3) Exit the program mode by turning off the Panel program switch or by pressing * + 99 from a TouchTone phone.

Testing

This section describes how to test the ESM for the following:

■ ESM relay activation (which would trigger the furnace or air-conditioner)

■ Freeze detection

Testing for ESM Relay Activation

1) Check the current temperature by performing a full status, using the following methods:

■ For CareTaker *Plus* systems, enter CODE + STATUS + 1 from an alphanumeric or wireless touchpad or enter * + # from a TouchTone phone.

■ For CareTaker systems, enter * + CODE + # + 1 from a hardwire touchpad or TouchTone phone.

2) Set the low-temperature limit about 5 degrees below the current temperature reading.

3) Set the high-temperature limit about 5 degrees above the current temperature reading.

4) Set your digital voltmeter for AC volts and place the meter probes on ESM terminals 5 and 6. The voltmeter should read 0 VAC.

5) Turn on the ESM as follows:

■ For CareTaker *Plus* systems, enter CODE + 5 or COMMAND + 5.

■ For CareTaker systems, enter * + CODE + 0.

6) Place the meter probes on ESM terminals 5 and 6. The voltmeter should read about 24 VAC.

7) Turn off the ESM and reset the low- and high-temperature limits to their pretest settings.

Testing the ESM for Freeze Detection

1) If the system is monitored, contact the central station and inform them that you will be sending a freeze alarm report.

2) Remove the ESM cover.

3) Initiate a freeze alarm using one of the following methods:

- Place an ice cube in a plastic bag and hold it on the temperature sensor.

- Spray some electronic component cooler on the temperature sensor.

4) After a few seconds, the ESM initiates a freeze alarm and system sirens sound a low-level interior alarm (auxiliary). Sirens stop automatically, after the central station receives the freeze alarm report.

Note: The temperature sensor recovers when its temperature reaches about 5 degrees warmer than its programmed setting.

Specifications

Compatibility: CareTaker *Plus*, CareTaker

Power Requirements: 6 or 12 VDC, 20 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