The **Display Manager** is an **Energy Manager** that is equipped with an *LCD display*, and four *pushbutton keys*. With the exception of the Fuel Type (oil/gas) and Venting (chimney/inducer) options, all setup options are selected through *option screens* via the *display* and *keys*. The Fuel Type and Venting options can be viewed, but not set, in the *option screens*. These two options can only be set using the physical dip switches on the bottom of the Manager board.

- To access the *option screens*, you must first ensure the manager is powered; if the manager is powered, the blue "PWR" LED will be on. If the blue LED is on, but the screen is not illuminated, press any *key* to wake the *display*.
- Use the UP/DOWN keys to view additional menuscreens. Use the ENTER/ESC keys to enter/exit submenus. The ENTER key is also used to change options from the option screens.

How to Use Self-Guided On-Screen Prompts To Edit Options

From the system status screen, press the DOWN key twice, or until the

<u>Option Setup (edit \rightarrow)</u> menu screen is displayed. Press the ENTER key to enter into the option screens. From there, use the UP/DOWN keys to view each option. Use the ENTER key to change the selected option.



Display System Status Screen Shown Setting features are self-guided through on-screen prompts



Dip Switch Settings

Set dip switches for Fuel type: Oil or Gas and Vent type: Chimney or Inducer



Display Manager Option Menu Descriptions

Fuel Type - VIEW-ONLY. Must be set using physical dip switch on bottom of Manager Board This menu can be used to **view** the setting of physical dip switch one, which determines the Fuel Type setting.

Venting - VIEW-ONLY. Must be set using physical dip switch on bottom of Manager Board

This menu can be used to **view** the setting of physical dip switch two, which determines the Venting setting. SmartBoost[™] - Default setting is OFF

This option turns the SmartBoost function ON or OFF. While ON, if a zone has been calling for heat for 25 minutes (optionally 45 minutes), then SmartBoost kicks in to help satisfy that zone sooner by boosting the maximum return temperature to be 190°F/175°F from the standard 170°F/155°F. The boosted zone will stay at the 190°F/175°F setting for up to 25 minutes after the call is satisfied.

SmartBoost[™] Delay - Default setting is 25 Minutes

This option sets the delay to either 25 minute or 45 minutes before SmartBoost raises the maximum return temperature to be 190°F/175°F. This option only impacts boiler operation if SmartBoost is ON.

HW Zone - Default setting is Hot Water

This option will allow the hot water zone to be turned into a heating zone. While this option is set to Heating, the "Hot Water Zone" will act as a heating zone with 20 minutes of thermal purge. This change will allow the hot water zone to become a fifth heating zone, for those cases where domestic hot water isn't required.

HW Priority - Default setting is NO

This option allows the Hot Water Zone to have priority over heating calls for 20 minutes. While this option is set to YES, the Energy Manager will ignore heating calls to the system for the first 20 minutes of a hot water call. After 20 minutes, or when the hot water call is satisfied, the system will resume providing heat to the rest of the zones.

MultiPurge[™] - Default setting is OFF

This option turns the Multipurge function ON or OFF. While ON, any zones finishing in the prior 20 minute period will purge with the last zone satisfied. Setting the Purge Time for a given zone to 5 minutes prevents that zone from multi-purging.

Zone Purge Times - Default setting for each zone is 20 Minutes

This option sets either a 20 minute or 5 minute purge time for heating zones. After all zone calls have been satisfied, there may still be heat remaining in the boiler. Instead of wasting that remaining heat, the Energy Manager will keep the last calling zone (or zones, if Multipurge is ON) open to allow the heat to be purged out of the boiler and into the system. The user is able to choose to let the boiler purge for either 5 minutes or 20 minutes before closing the zone. Any zone set to 5 minutes will also have Multipurge disabled for that zone. Regardless of the selected option, the Energy Manager will always end purging and close the zone when the return temperature has dropped sufficiently.

The following types of zones are recommended to have a 5 minute purge time.

- **AIR HANDLER / FAN COIL**
- VERY SMALL ZONE (like an individual bathroom) •
- **RADIANT ZONE with STORAGE TANK**

Secondary Zones - Default setting for each zone is OFF

This option allows for primary/secondary operation. If any secondary zone is enabled, the manager will assume that Zone 13 controls the injection zone (IZ) and Zone 14 controls the loop circulator (LC). Any zone that gets a call while set as a secondary zone will also activate the IZ and LC, when needed.

If the hot water zone is set as a heating zone, the HWZ will also be displayed under the Secondary Zones options.

EXPANDED ENERGY MANAGER



15 ZONE MANAGER INSTALLATION INSTRUCTIONS

- Remove cover from junction box. Use a free knockout on the top of the junction box to mount a second or third transformer, wire black lead to "XFMR" and white lead to "NEUTRAL" on relay board in box. (Use sections marked "120 VOLTS" only.) A second junction box is not needed for the expanded Energy Manager. Wire additional transformer(s) in parallel with first transformer. To wire in parallel, wire terminal "A" on one transformer to "A" on the other. Repeat with other low voltage terminal "B". Verify 24VAC output from all transformers BEFORE reconnecting the Manager.
- 2. Mount long panel on top of box cover with long screws provided in lower 4 holes with spacers down.
- 3. Mount expanded Energy Manager to cover plate over 4 long screws and 2 wide bolts (top 2 holes).
- 4. Wire the bottom half of expanded manager as 5 zones Energy Manager. For top half, attach one thermostat lead to a zone and the other to A1 on lower half of manager. Attach one lead from zone valve or relay to corresponding zone output and the other lead to 24VAC on lower half.
- 5. Option switches set fuel type (oil or gas) and venting (chimney or power vented). See location of switches on previous page.
- **NOTICE:** When operating without an expanded manager, *use a 5 zone service board for the lower half.* If you do not have a service board, refer to "Operation of Boilers without Energy Manager" in the Tech Manual.

Notes:

- 1. This 15-Zone Display Energy Manager can be used as a "drop-in" replacement for a 10– or 15-Zone Digital Energy Manager. When upgrading, quick connects and wiring will match new 15-Zone Display Manager.
- 2. This 15-Zone Display Energy Manager can be used as a replacement for a 12-Zone Digital Energy Manager. When upgrading, zone input wiring (thermostats) and zone output wiring (zone valves or circulator relays) must be removed and relocated to new terminal positions on the 15-Zone Display Manager. Mark or tag each input and corresponding output before removing them from the existing manager. Then rewire using the diagram above.



Display Manager Error Codes and Faults

An error code on the display indicates that Display Manager has detected a problem.

- **E100:** Temperature sensor is not working properly. This indicates that the Manager is in service board mode. **Circulator and inducer run constantly**, burner runs off the high limit aquastat. All inputs turn on respective outputs. If the sensor is not detected within ten minutes, the Manager will change to E190 mode.
- **E190:** After ten minutes in E100 mode the Display Manager switches to E190 mode. This indicates that the Manager is operating in Classic Manager Mode. The boiler will operate as **cold start** instead of maintaining temperature as when in service board mode. When a thermostat calls, the system will **pre-heat** for two minutes before opening the zone output and will **post purge** for whatever the zones max purge time is set.

Check Sensor wiring. Check sensor leads for loose connections or damage. If connections and wiring look good, replace the sensor.

- If Manager is left in this mode, set Dual Guard high limit to "Service Mode".
- **E130:** Excessive temperature condition. Zones could not extract heat from boiler. *Check zone valves, heat exchanger and boiler circulation. High limit aquastat may not be functioning.*
- **E140:** Boiler is in Freeze Protection Mode, Burner light off, Circulator light on, Heating zone outputs on. This means that the boiler return temperature did not increase enough to open zones within 27 minutes.

Does Primary Control need to be reset?

- YES: Troubleshoot as standard burner lockout.
- NO: Did homeowner reset control?
 - YES: Troubleshoot as standard burner lockout.
 - NO: Reset Manager. Run through standard heat cycle.

Does boiler return heat up properly?

- **NO:** Check circulator. Possible closed or blocked bypass. Look for a zone valve not holding.
- **YES:** Intermittent problem. Check low voltage wiring for tightness from Manager through relay board and cad cell relay to TT. Check line voltage at burner, in and out of cad cell relay. Check LWCO, Check limit aquastat for proper operation. See if burner/main circulator relay is properly plugged in and working properly.
- **E150:** The return temperature did not reach 100°F after seven minutes. The manager will pulse the output of the calling zone for one minute on and one minute off. If the return increases within 20 minutes, the system will continue to run and supply heat while displaying the E150 code, indicating a boiler side blockage and that the manager is operating in Classic Manager Mode. When a thermostat calls, the system will pre-heat for two minutes before opening the zone output and will post purge for whatever the zone max purge time is set. If after 20 minutes the return does not heat up, the Manager will change to E140 mode.
- Sensor Fault: On power-up, or display wake-up, the display will briefly show the message: "Sensor Fault; Replace Soon". This indicates that one of the two dual thermistors is giving an invalid reading. Check to ensure that all thermistor leads are securely connected and tightened on the left-hand side quick-connect. If the connections are secure, and the message is still displayed on power-up or display wake-up, the thermistor should be replaced.

TO RESET MANAGER	
	The Manager can be reset to normal operation by turn- ing the system switch off and back on.
WARNING:	
	Do Not Jump! If you apply 24VAC to any temperature sensor lead with the sensor connected to the Manager, you will burn out both the sensor and the Manager in less than a second.