

LIGHT COMMERCIAL STEAM HEATING SYSTEM ECONOMIZER

Description

The HeatManager™2.5 is a patented microprocessor-controlled fuel-saving device for steam heating systems. It reduces fuel consumption, wear on boiler parts and burner emissions by actively managing the burner, in conjunction with the boiler's controls, to more efficiently match the boiler output to the required load.

Operation

After installation, setting the switch on the unit to the 'ON' position activates the device. The LCD display indicates the various 'modes' of the device, and sensed Pressures and Temperatures. The possible messages and their explanation are:

'STANDBY MODE' - The boiler is operating under its own internal controls, which have turned the burner off. This occurs for a period of time after the burner has shut down.

'ECONOMIZER MODE' - The boiler's controls have requested the burner to come on but the HeatManager™ has sensed that there is available steam which can be used without burning fuel. The burner will remain off and useful energy will be extracted from the boiler's existing supply of steam.

'HEATING MODE' - The burner is allowed to fire.

'HEATING LOW LIMIT' - The unit has switched the burner on due to an increase in load. This condition may occur occasionally. If this message appears frequently, the boiler's pressure controls are set too low and should be increased in 1 PSI increments until the message stops appearing frequently.

During normal operation, one of the above messages will be alternated with the message(s) below.

'STEAM PRESS = ' - The measured value of the boiler steam pressure is displayed in PSIG.

'DOM. TEMP = ' - The measured value of the domestic hot water outflow temperature is displayed in degrees F. *

* Note: This message will only appear if the boiler supplies domestic hot water and the optional second sensor is installed (see Sensor Section of these instructions).

In the event that a sensor fails, the HEATMANAGER™ will return full control of the burner to the boiler's controls, the 'Power/Normal' indicator will blink, and the following message will be displayed:

'SENSOR FAILURE '

If this message appears, see the instructions under **Service and Troubleshooting** or call your installer for service.

Installation

The HeatManager™ is electrically installed in series with the boiler pressuretrol as shown in the wiring diagram (Fig. 1a or Fig.1b on the reverse side of this page). Check the shipping box label for correct model. The HEATMANAGER™ can be used with 24, 115 and 220 Volts for power and control.

For safety, power to the boiler must be shut off during installation. For improved savings, it is recommended that the low pressure setting of the boiler's controls be set no lower than 4 PSI. If the setting is found to be lower, it should be raised to at least 4 PSI.

Positioning

The unit can be mounted in any position. For readability of the display, the vertical position is preferred. Depending on the boiler's configuration, the unit can be mounted on an electric junction box or directly on an external pressuretrol. Remove a knockout from the junction box or pressuretrol and mount the unit using the standard ½" electrical fitting on the case, and the supplied lock-nut.

Wiring

All wiring and connections must comply with Local and National Electrical Codes. The unit should be wired as shown in the wiring diagram (Fig. 1a or Fig. 1b) on the reverse side.

NOTE: All unused leads should be trimmed and individually insulated.

Sensors Installation

Attach the pressure sensor to the boiler using standard plumbing practices for the pressures involved. The pressure sensor must be mounted to a 'steam pigtail siphon tube' to protect the sensor from high temperatures (see fig. 3). Failure to do so will void the sensor warranty. Route the sensor wire back to the HeatManager™ controller in a workman like manner. Insert the sensor connector into the 'Steam Pressure Sensor' jack on the unit.

For boilers that also supply domestic hot water; attach a temperature sensor (as shown in fig. 2) to the domestic hot water outflow-pipe at the storage tank (if used) or at the boiler's domestic water coil outlet-pipe, if no storage tank is used, and insulate. Route the sensor wire back to the HeatManager™ controller in a workman like manner and insert the temperature sensor connector into the 'Domestic Water Sensor' jack. *This sensor should not be used if the boiler does not supply heat for domestic hot water.*

If any of the sensor leads are too short, they can be extended by using HeatManager™ extension cables, or make your own using standard 'modular telephone' wire and connectors (see Fig. 4).

Checkout

Recheck wiring one last time and make sure that the sensor(s) is plugged into the proper jack(s). The sensor(s) is only detected during power-up. Set the HEATMANAGER™ switch to 'Off/Bypass' and restore power to the boiler. Reset the switch to 'On'. After a brief check of the electronics, the sensor(s) will be detected and the green 'Power/Normal' indicator should light continuously. It is important to verify recognition of the sensors by viewing the reading(s), on the display. If the installed sensors are not detected, the HEATMANAGER™ will not function properly. If the green indicator is blinking or if the display does not verify the installed sensors, turn the HEATMANAGER™ 'Off' and recheck the sensor installation. After the sensor-check, depending upon the condition of the boiler, the HEATMANAGER™ will go into one of its various modes. **Note, and write down, the Boiler's pressure control setting.** You should be able to get the HEATMANAGER™ to change modes by temporarily setting the controls higher or lower. This indicates the unit is operating normally. If the HeatManager™2.5 does not change modes when the boiler's controls are adjusted, the unit is probably wired incorrectly; see the WIRING NOTE. **Make sure to return the Boiler's control settings to their original position.**

Service and Troubleshooting

The HeatManager™ doesn't require any maintenance and will provide years of trouble free operation. The unit may be disconnected at any time by putting the switch to the 'OFF/BYPASS' position. In this position, the unit has no effect on the system and the boiler functions as it did prior to the HeatManager™ installation. This allows service personnel to diagnose any boiler problems without the unit intervening.

If at any time the 'SENSOR FAILURE' message appears on the front panel display, a sensor is not operating properly and the HeatManager™ has returned full burner control back to the Boilers' controls. The failed sensor can be identified by turning the HeatManager™ off, then back on, and observing the display to see which connected sensor is not recognized. Replace the unrecognized sensor with a known good one, and repeat the above test. If the sensor still isn't recognized, there is a problem with the HeatManager™, which should be returned for service.

NOTE: Installer, please leave these instructions with the unit for future reference.

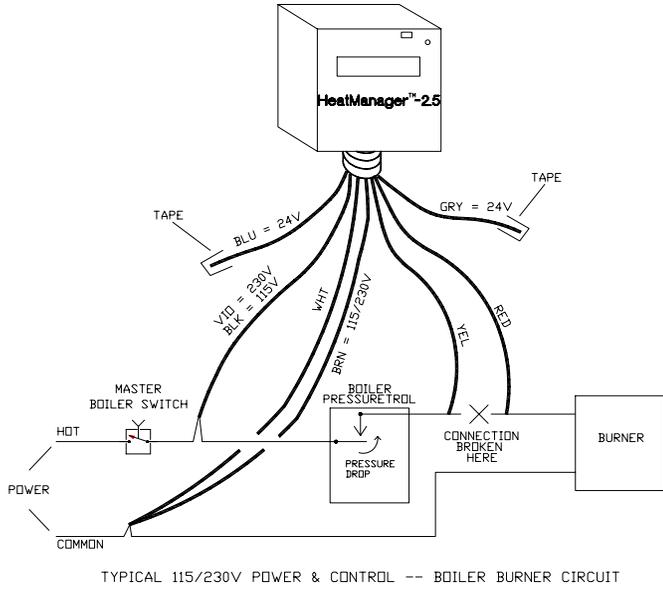


Fig. 1a

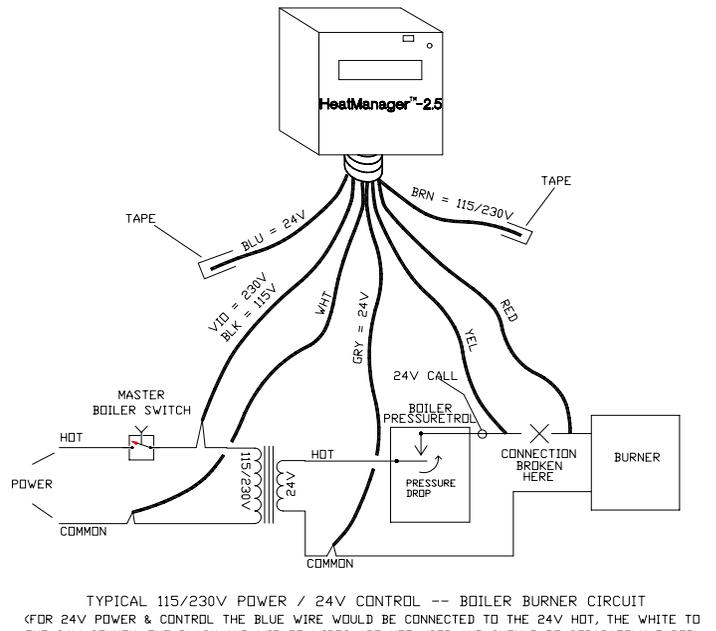


Fig. 1b

WIRING NOTE: The HeatManager™ 2.5 has separate return wires for the Power and Burner circuits. It is necessary that these wires be connected to the appropriate returns for the circuit. If this is not done; the unit will not function properly. Unused wires **MUST** be separately taped!

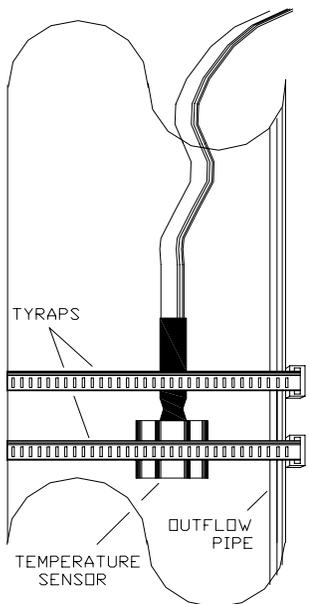


Fig. 2

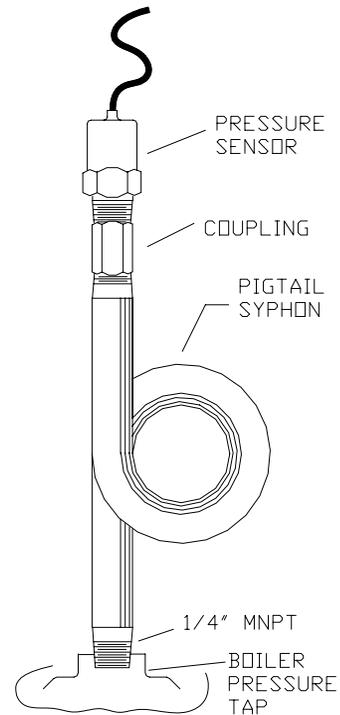
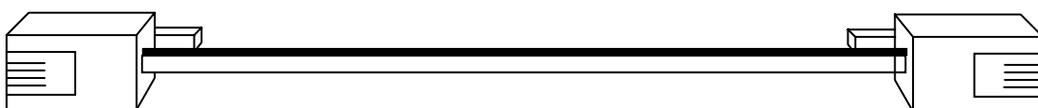


Fig. 3



The temperature sensor wire(s) can be extended using standard, 4 conductor modular telephone wire, connectors, and couplers. The correct extension wire would have the same order of wire colors, from top to bottom, with the connectors held as shown above.

Fig. 4