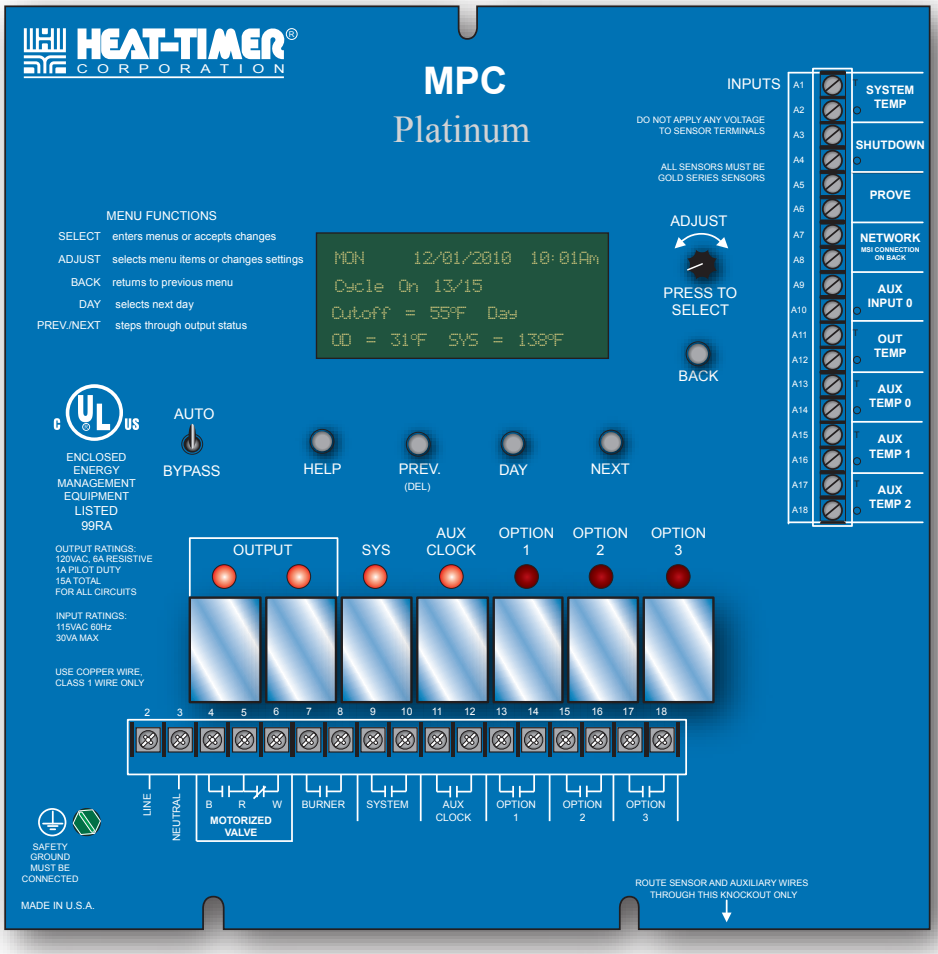
Installation and Operation Manual

Steam Outdoor Reset Boiler /Motorized Valve Cycling Heating Control

MPC Platinum



⚠ WARNING

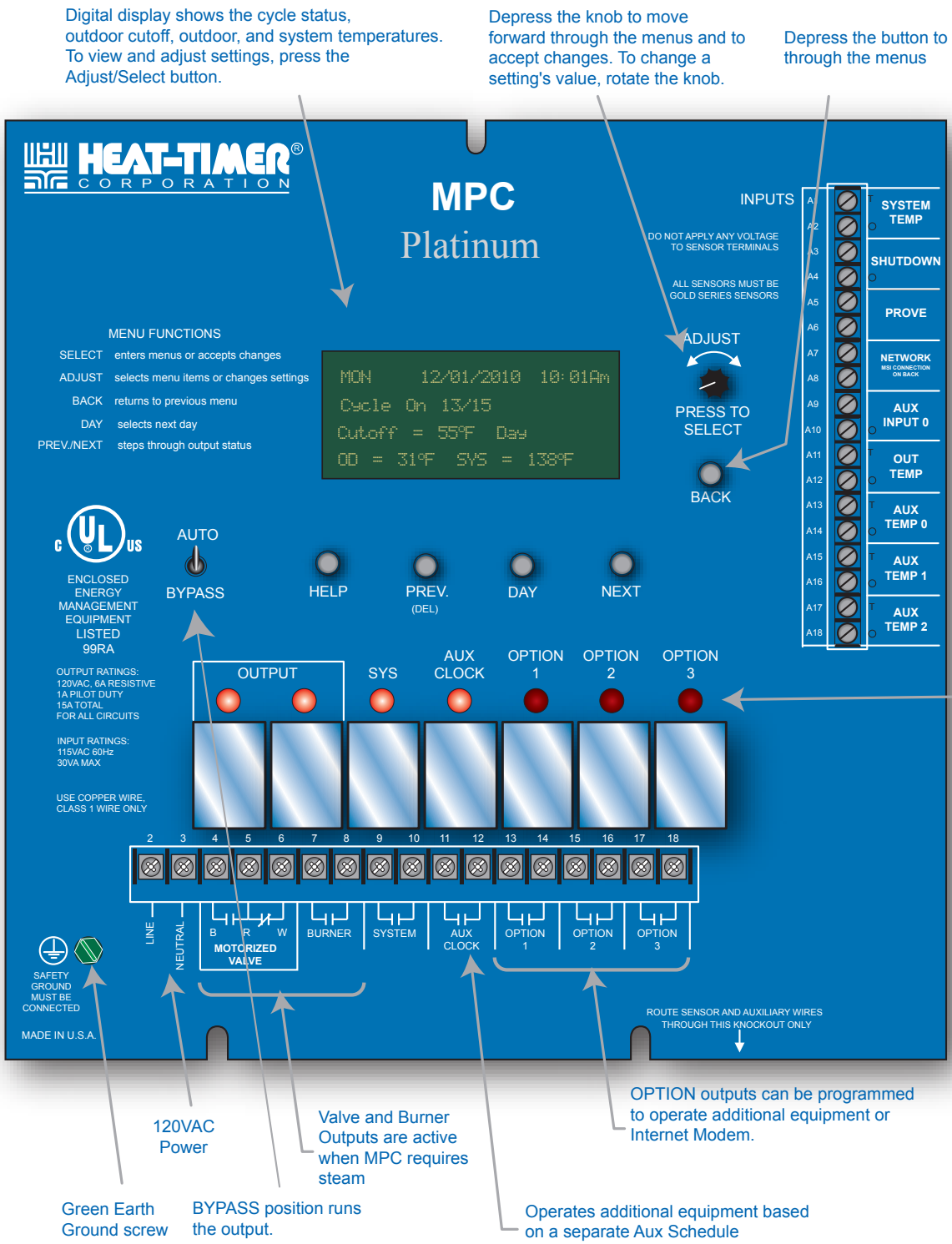
This Heat-Timer control is strictly an operating control; it should never be used as a primary limit or safety control. All equipment must have its own certified limit and safety controls required by local codes. The installer must verify proper operation and correct any safety problems prior to the installation of this Heat-Timer control.

HEAT-TIMER® CORPORATION

HT# 059085-00 F

Content

MPC PLATINUM FUNCTION CHART



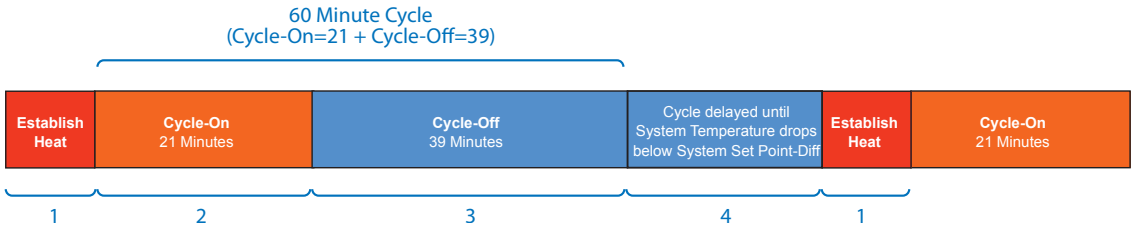
* DRY CONTACT ONLY
** Only available with the Remote Communications package

HT# 059085-00 F

UNDERSTANDING THE CYCLE CONCEPT

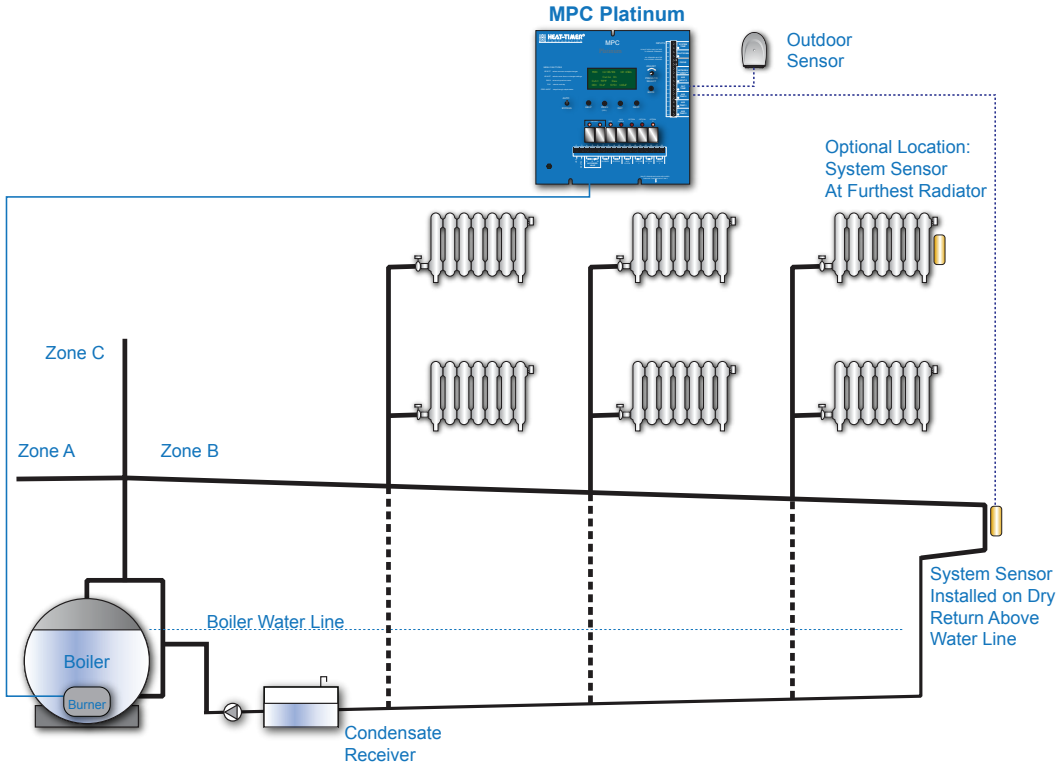
The Heat-Timer MPC Platinum is a microprocessor-based control designed to manage a low-pressure steam heating system. It operates a steam boiler or a two-way steam valve to provide the desired amount of heat to the building.

The MPC Platinum operates based on the CYCLE principle. Heat-Timer created this principal specifically for steam heating systems to overcome the inabilities of standard thermostatic controls to cope with the unique challenges of low-pressure steam heating. Unlike water and air systems, steam systems take time to build up a "head of steam". Moreover, once the system starts heating up, it has momentum that takes time to dissipate. This makes it difficult to control its temperature.



Cycle length based on outdoor temperature

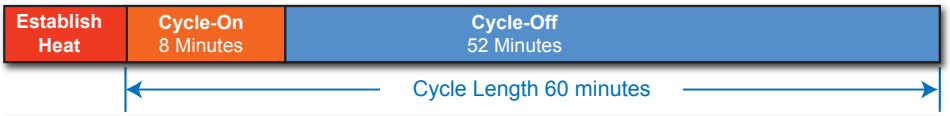
By monitoring the outside temperature, the MPC Platinum is able to anticipate the building heating needs. Each CYCLE period (usually 60 minutes long, but adjustable depending on the type of radiation units) consist of a Cycle-ON segment and a Cycle-OFF segment. The length of the Cycle-ON segment will vary with the outside temperature. The colder it is outside, the longer the Cycle-ON part.



The MPC Platinum constantly checks the outside temperature by means of a solid-state sensor located on the exterior of the building. At the same time, it monitors the heating system of the building by means of a heating system sensor. This heating system sensor is located where it will show that heat has reached the furthest location in the building (or the hardest to heat area). Based on this combined data, the MPC Platinum sends instructions to the heating plant to control the heat level in the building.

In addition to adjusting the length of the Cycle-ON segment, the outdoor temperature acts as a system cutoff. When the outdoor temperature rises above one of the adjustable cutoff temperatures (Two outdoor cutoffs are available. One is for the day and the other is for the night), the MPC Platinum will not call for any heat. When the outdoor temperature drops below the cutoff, the MPC Platinum will automatically begin controlling the heating cycle. Once the heating system is active, the heating system sensor will register when heat has reached throughout the building. The combined effect of these two sensors is to provide an even, comfortable level of heat throughout the building.

Sample Mild Weather Cycle



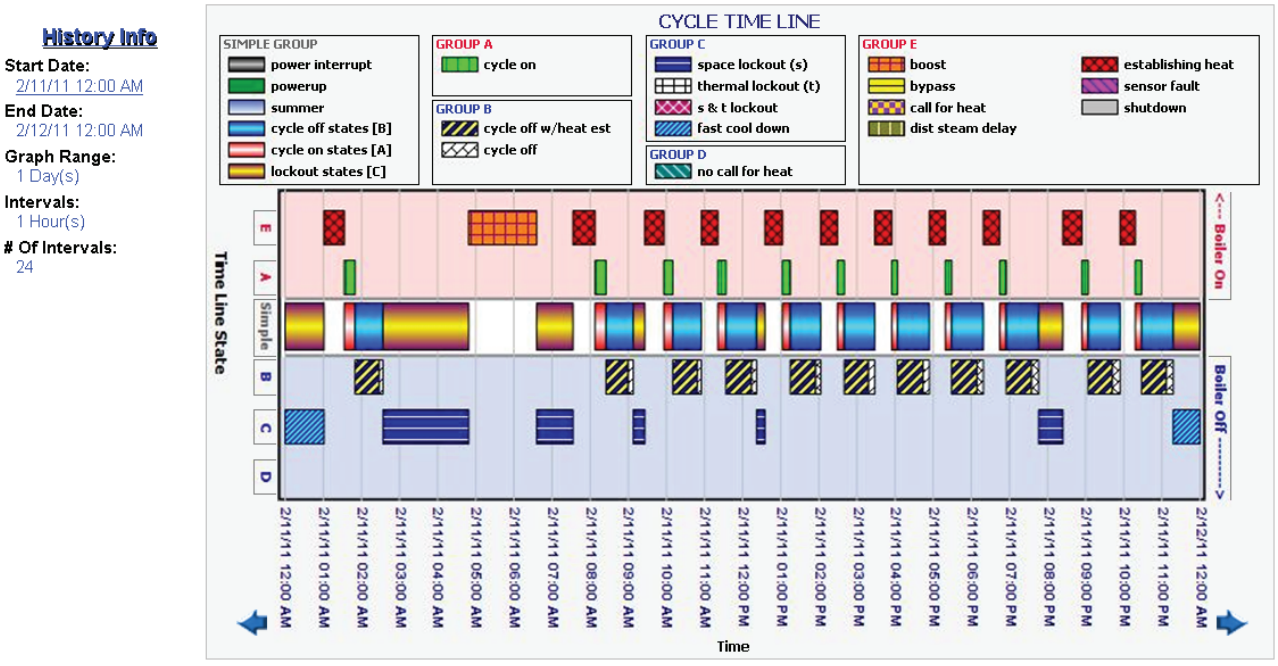
Sample Cold Weather Cycle

The MPC Platinum is able to maintain two different heat levels. The Day heat level is the higher level of heat. It provides comfortable temperatures when the building tenants are active. The Night heat level provides lower heat and conserves energy when the building is empty or when tenants are asleep. Both heat levels rely on the identical cycle concept, but the lower Night settings provide less heat given the same outdoor temperature.

SEQUENCE OF OPERATION

- The MPC Platinum activates the steam source when the outside temperature falls below the outdoor sensor cutoff (factory set at 55°F for Day and 40°F for Night, but fully adjustable).
- The MPC Platinum will continue to call for heat, keeping the steam source active, until the heating system sensor reaches its adjustable Set Point. This indicates that steam has gotten entirely through the system, or that "heat is established".
- Once "heat is established", the Cycle-ON segment of the cycle will begin.
- During the Cycle-ON period, the MPC Platinum will keep the steam source activated. The length of the ON part of the cycle is dependent on the outdoor temperature, the Day/Night setting, and several user selectable adjustments that can be tuned to the specific heat loss characteristics of the building.
- Once the Cycle-ON part has ended, the Cycle-OFF part of the cycle will begin. The MPC Platinum will turn off the boiler or close the steam valve for the remainder of this cycle.
- When the Cycle-OFF part is over, the MPC Platinum will once again activate the steam source unless either the outside temperature has risen above the cuttoff, or the thermal lockout is active.
- With the thermal lockout, the heating system sensor temperature must fall below the Set Point through an adjustable differential before the heating source can be reactivated. This allows residual heat in the pipes to continue to heat the building. Once the pipes have cooled sufficiently, a new cycle can begin.
- However, if the MPC Platinum is an Internet capable control and space sensors are installed, the control checks for Space Lockout before staring another cycle.

CYCLE TIMELINE



Internet Control Cycle Timeline view

- During a heating cycle, the control switches between the different cycle states. The states are divided into groups.
- During any of the operational states, the control has the output relays energized. And during the energy saving states, the control has the output relays de-energized.
- An Internet control Cycle Timeline is viewable on the History tab of the ICMS site. They are part of the Stock History.
- State Groups are divided into either Boiler-On or Boiler-Off. The Boiler-On groups are represented by the reddish background. They are graphed on the upper portion of the Cycle-Timeline Internet history graph. The Boiler-Off groups are graphed on the bottom portion of the graph and has a bluish background.
- These Internet graphs help troubleshoot and fine tune the control operation.

TYPICAL STEAM HEAT CONFIGURATION

The MPC Platinum works with virtually any non-vacuum steam heated system. The MPC Platinum can control a boiler directly to create steam. For systems where a central plant provides steam, the MPC Platinum opens or closes a motorized valve to allow or prevent steam from entering the heating system. The MPC Platinum also works with one or two-pipe steam systems.

However, based upon the specific layout of the steam heating system there are several differences in locating the heating system sensor and in the output wiring to the boiler or motorized valve that the user need to observe. It is important to carefully check the piping diagrams at the end of this manual to determine which of the following four layouts matches your heating system:

- One Pipe Steam - Motorized Valve
- Two Pipe Steam - Motorized Valve
- One Pipe Steam - Direct Burner Operation
- Two Pipe Steam - Direct Burner Operation

For subatmospheric vacuum type steam systems, see Heat-Timer SRC Platinum Control on the Heat-Timer web site (http://www.heat-timer.com).

INITIAL PROGRAM

Setting an Initial Program ease's the configuration of the MPC Platinum while giving the opportunity to utilize many of the energy saving and comfort features. The program should consist of the following:

- Select the features your system can utilize,
- Make sure you have the right control and accessories,
- Install the Control,
- Set the System Startup,
- Set the System Settings,
- Set the Schedules
- Adjust the Day and Night Heat Adjustments and the Set Point

SELECTING THE SYSTEM FEATURES

Heat-Timer designed the MPC Platinum with low-pressure steam building heating as the primary purpose. With this in mind, the user can use many of the control features to ease, enhance, and improve the system performance. Below is a list of its major features.

Steam Outdoor Reset

- The MPC Platinum regulates the amount of steam sent to the building based on the outdoor temperature. It uses the Cycle concept based on the Day and Night Heat Adjustment and outdoor cutoffs to regulate the heat. The colder it gets, the longer the Cycle-On runs. See "AUTO/BYPASS Switch" on page 16.

Night Setback

- Whenever the outdoor temperature falls below the Outdoor Cutoff, the MPC Platinum adjusts the Cycle-ON and Cycle-OFF ratio to hold a constant Day or Night heat level. The Night heat level is for when the building is unoccupied or tenants are sleeping.

Day and Night Schedules

- The MPC Platinum has 4 Day and 4 Night settings for each day of the week. By setting a Schedule, Day and Night Heat Adjustments, and Outdoor Cutoffs, you can save energy while providing comfortable heat to the building. The settings allow the MPC Platinum to reduce the length of the steam Cycle-ON portion during the night or when building is unoccupied. See "Schedules" on page 29.

Vacation Schedule (Available with Internet Control Only)

- This feature gives the user the ability to provide a lower-than-night space target between two specified date-time combinations. This provides additional savings for schools and office buildings to use in long holiday periods. See "Vacation Schedule Setting" on page 30.

Space Sensor Feedback (Available with Internet Control Only)

- For better control and much more energy saving capabilities you can add wireless or wired space sensors to the MPC Platinum to fine tune its operation and increase the system's overall efficiency. When you add space sensors to the space average, the MPC Platinum checks the space average before the beginning of each cycle to determine if the building is sufficiently heated. See "Space Lockout" on page 28.

System Output

- The system output relay connects to and operates a combustion air-damper or other boiler room equipment and it will energize whenever there is a call for the boiler. In addition, if you connect the combustion air-damper's end-switch to the Prove input terminals, it will stop the boiler from firing if the damper is not fully open. See "Installation" on page 8.

Boost and Early Shutdown

- The boost returns the building to its Day (Normal) heat level after Night (Setback) heat level. It does it by running the burner or valve output for a period of time that depends on the outside temperature. It offers an adjustable curve parameter to tune its operation to the specific building. See "Boost Mode" on page 26.

- The Early Shutdown feature shifts the Day schedule to Night Setback before the last Night Time setting for that day. The Early Shutdown varies based on Outdoor temperature (OD). The warmer the Outdoor temperature the earlier the MPC Platinum shifts to Night Setback. See "Early Shutdown Curves" on page 27.

Remote Communication

- The MPC Platinum is upgradable to Internet, BACnet IP, BACnet MSTP, or MODBUS communication to allow monitoring and controlling of all of its functions from a remote location. Only the Internet communication package allows the MPC Platinum to accept a variety of additional sensor inputs to monitor their status and provide web, E-Mail, or text message alarms under specified adjustable conditions.

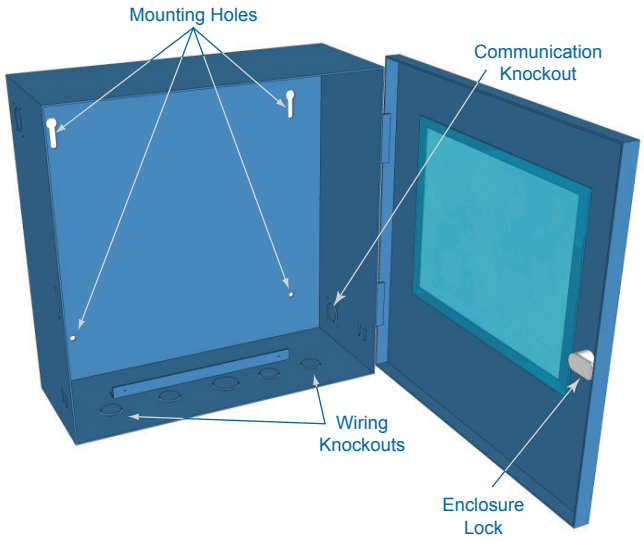
MAKING SURE YOU HAVE THE RIGHT CONTROL

If you need the MPC Platinum to do additional tasks that either are not listed or you do not know how to configure them, contact Heat-Timer Corp. Sales Department either by Phone (973)575-4004, Fax (973) 575-4052, or over the web (visit http://www.heat-timer.com).

INSTALLATION

MOUNTING THE ENCLOSURE

- Select a location near the equipment to be controlled.
- The surface should be flat and sufficiently wide and strong to hold the MPC Platinum.
- Keep the MPC Platinum control away from extreme heat, cold, or humidity. Ambient operating temperature is from 20 to 120°F.
- Remove the control from the metal enclosure by removing the top center screw and loosening the two bottom screws. Then, lift the control out of the enclosure.
- Screw the enclosure to the surface through its back mounting holes.
- Return the control to the enclosure, replace the top screw, and tighten the bottom two screws.



⚠ WARNING

Use only the provided Enclosure Knockouts. DO NOT DRILL HOLES THROUGH THE ENCLOSURE AS IT WILL VOID CONTROL WARRANTY.

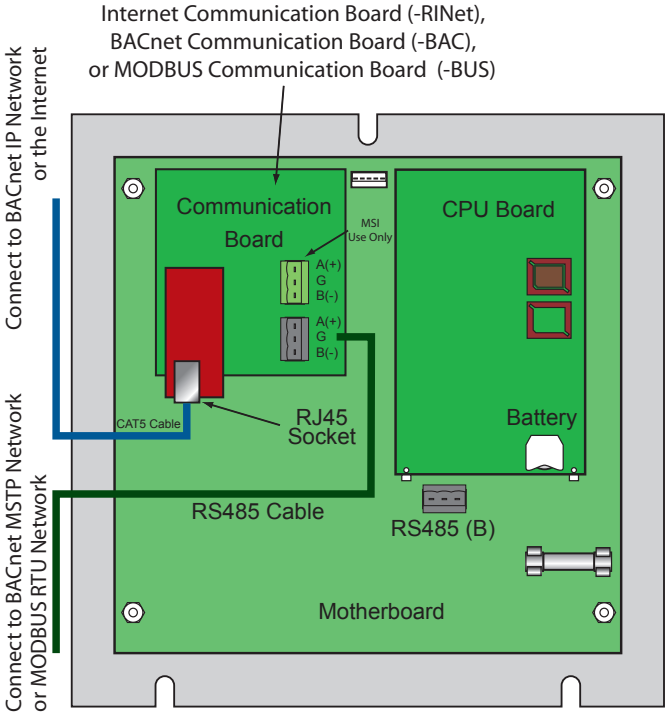
REAR OF CONTROL

Activate the Battery

- Turn the MPC Platinum control over to reveal the piggyback circuit board (CPU board).
- Remove the plastic strap that covers the battery. The contacts should be touching the battery.
- The control has a coin Lithium battery (CR2032) (HT# 020002-00) that is used to maintain the control's date and time during power outages. This battery can maintain the clock for up to a total of 100 days.

⚠ ALERT

Do not install the battery unless you plan to keep the control continuously powered. If the control has no power, the battery will lose its charge in 100 days.



Control Communication Upgrade

- All non-communication MPC Platinum controls are upgradable to any of the available communication options. This, requires the purchase of the specific communication type Upgrade Kit.
- The Upgrade Kit consist of two boards, a CPU Board and a Communication Board. The CPU Board has the control operating software. The Communication Board has the specific protocol communication software.
- All communication boards have an Ethernet socket that is used for the BACnet IP or Internet communication and a RS485 socket that is used for BACnet MS/TP or MODBUS communication.
- Both boards are mounted on the back of the Platinum control's motherboard. Thus, to install both boards you need to remove the control from the enclosure by removing 3 facing screws. Then, turn the control over to reveal its back.
- Each of the boards is mounted on a group of standoffs that must be replaced during the upgrade. See "Remote Communication Wiring" on page 14.
- Connect the communication cable from the side Knockout.
- Reinstall the Panel in the enclosure using 3 screws.

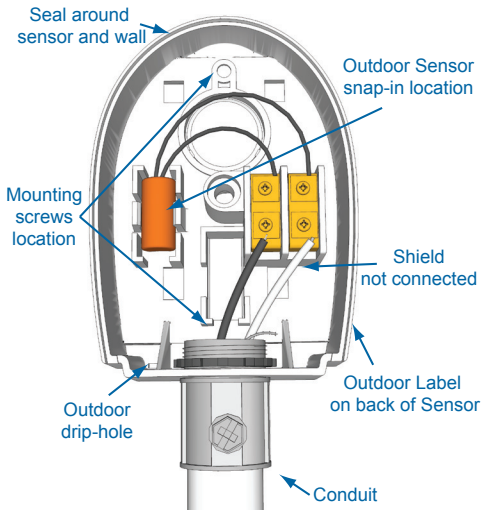
SENSOR INSTALLATION

OUTDOOR SENSOR INSTALLATION

Only use the Heat-Timer sensor included with the unit (HT# 904220-00).

- Locate the sensor in the shade on the north side of the building. The sensor should never be in direct sunlight.
- Be sure the location is away from doors, windows, exhaust fans, vents, or other possible heat or cool sources.
- The sensor should be mounted approximately 10' feet above ground level.
- Adhere the Outdoor Label provided to the back of the sensor base.
- Use the Enclosure Base bottom knockout for the conduit. Use the locknut to hold the conduit and enclosure base together. Screw the cover to the base.
- Make sure to seal around the sensor enclosure and wall except from the bottom.
- The sensor wires can be extended up to 500' using shielded 2-conductor cable (HT# 703001-01) (#18/2). Do not connect the shield at the sensor. However, connect it at the control using the terminal marked with an "O".
- Do not run sensor wires in conduit with line voltage wiring.

Outdoor Sensor



⚠ ALERT

Determining the proper location for the Outdoor Sensor is very important. The MPC Platinum will base the heat on the outdoor temperature information it receives from this location. If the sensor is in the sun, or covered with ice, its reading will be different from the actual Outdoor temperature (OD).

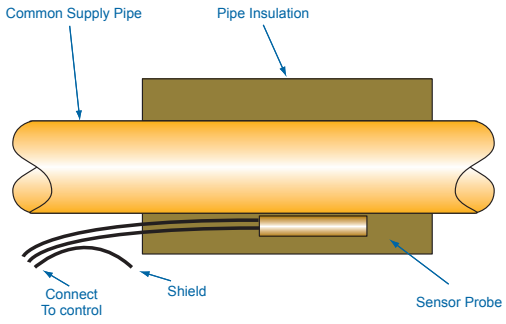
HEATING SYSTEM SENSOR (HSS) INSTALLATION

- Install the sensor at one of the following locations:
  - ○The ideal location for the HSS is on the furthest radiator in the system. This radiator is usually the hardest to heat.
  - ○The sensor may be located on the furthest return riser. However, the sensor MUST be above the boiler water line (on a dry return).
- Only use the sensor provided with the control. If you are replacing an earlier Gold model Heat-Timer, it is NOT necessary to upgrade the sensor.
- Strap the HSS to the pipe using the tie-wraps provided with the outdoor sensor. Then wrap insulation around the sensor and pipe to achieve the highest accuracy.
- The sensor wires can be extended up to 500' using a shielded 2-conductor cable (HT# 703001-01) (#18/2).
- Do not connect the shield at the sensor. However, connect it at the control using the terminal marked with an "O".
- Do not run sensor wires in conduit or trough with line voltage wiring.

⚠ ALERT

NEVER Install the HSS between the condensate receiver and the boiler.

Strap-On Heating System Sensor



⚠ ALERT

If the HSS cannot sense the system is full of steam, the MPC Platinum will not provide comfortable heat levels. Be sure the HSS is located on a properly vented pipe that cannot easily be isolated from the system.

Using a Pressutrol instead of the HSS

- Heat-Timer MPC Platinum control requires the use of a HSS. However, if a good location for the HSS is not possible, it is acceptable to install a Pressuretrol Adaptor Kit (HT# 900043-00) that connects to the boiler operating pressuretrol. In this case, the system may not be as efficient as when using the HSS and the Thermal Lockout feature will not be available..

⚠ ALERT

The use of the Pressuretrol Adaptor Kit (HT# 900043-00) may reduce the system operating efficiency.

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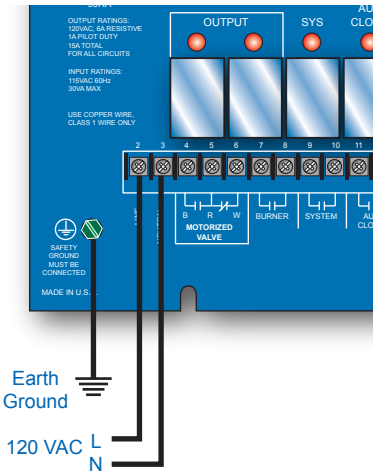
WIRING THE POWER

- If possible, provide a dedicated circuit breaker for the MPC Platinum. **DO NOT** connect the MPC Platinum to a circuit breaker connected to high inductance devices such as relays, pumps, fans, or motors.
- Bring the 120VAC 60Hz power wires through a bottom knockout (KO) of the enclosure.
- Class 1 voltages must enter the enclosure through a different knockout from any Class 2 voltage wiring.
- Connect the hot line to terminal marked *LINE*.
- Connect the neutral line to the terminal marked *NEUT*. **DO NOT** share neutrals. The neutral line **MUST** come directly from the circuit breaker.
- Connect the green ground screw to earth ground. **DO NOT** use the neutral line as a ground.
- Heat-Timer recommends the installation of a Surge Suppressor and a Power Switch before the Power Line connection for safety and ease of service.



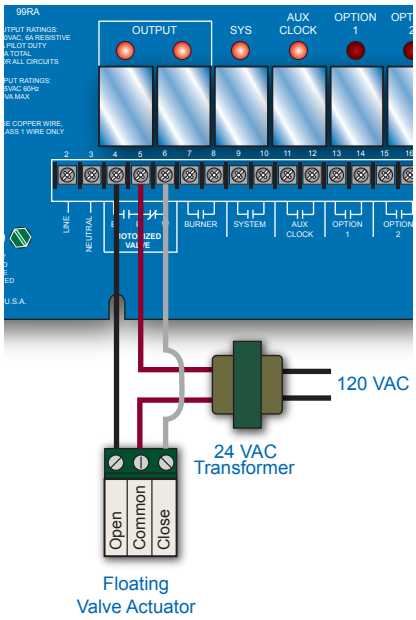
OUTPUT WIRING

- All of the MPC Platinum's outputs DO NOT SOURCE any power. If power is needed at a specific output, a separate power source must be wired in series with the output.
- Each of the output relays can switch a 6A resistive at 120VAC load or a 1A inductive load.

WIRING TO A MOTORIZED VALVE

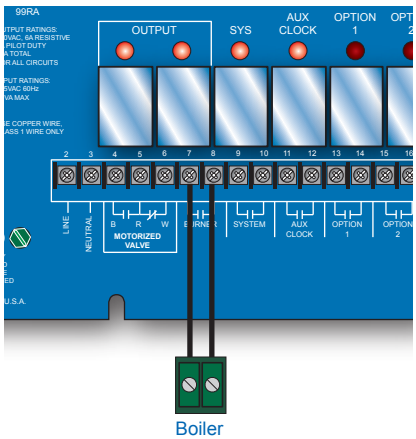
- The MPC Platinum is capable of operating a boiler, a floating motorized valve, or both.
- The MPC Platinum output terminal *R (5)* is the Common. Wire it to the 24 VAC power source (transformer).
- Connect the transformer's second wire to the actuator Common terminal.
- The MPC Platinum output terminal *B* (*4)* is the Normally Open (N.O.). Wire it to the actuator Open terminal.
- The MPC Platinum output terminal *W (6)* is the Normally Closed (N.O.). Wire it to the actuator Close terminal.
- The N.O. and N.C. contacts are dry contacts only. They do not source any power. The transformer is the actuator power source.

⚠ WARNING
Switching to BYPASS during power outages activates the Output and System.



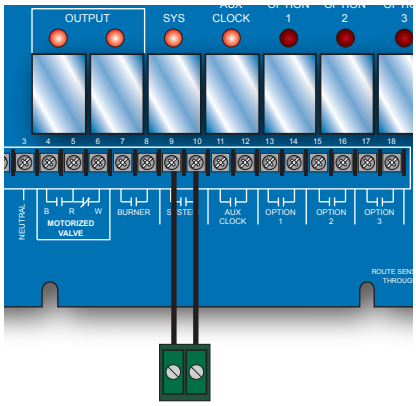
WIRING TO A BOILER

- The MPC Platinum s designed to operate a boiler, a floating motorized valve, or both.
- The *BURNER* output terminals are *7* and *8*. They do not source any power. Wire the burner output in series with the boiler limit circuit.



WIRING TO SYSTEM OUTPUT

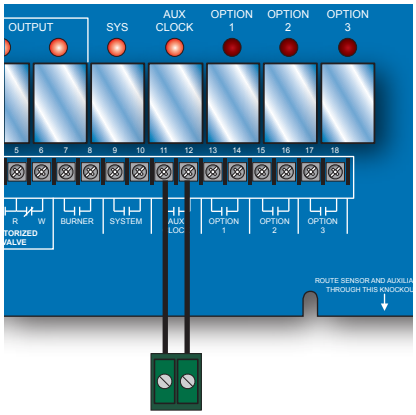
- The MPC Platinum is equipped with a System output to operate additional equipment. The most common use for this output is operating a combustion air-damper.
- The *SYSTEM* output terminals are *9* and *10*. These terminals do not source any power. Wire these terminals directly to the combustion air-damper activation terminals.
- The contacts can switch a 6A resistive at 120VAC load.
- A good practice is to use the MPC Platinum's Prove input terminals to connect to the combustion air-damper End Switch. This prevents the MPC Platinum from activating the boiler before fully opening the damper. See "Wiring The Prove" on page 12.
- The System relay energizes whenever the Output relay energizes. When the Output relay de-energizes, the System relay remains energized for the System Run-On period before de-energizing.



Combustion Air Damper

WIRING TO AUXILIARY CLOCK

- The MPC Platinum is equipped with an *AUX CLOCK* output (terminals *11* and *12*). Use the output to operate additional equipment based on the Aux Schedule. A common use is to turn on and off a set of lights based on a schedule. See "Aux Relay Schedule" on page 30.
- The *AUX CLOCK* output terminals do not source any power. Wire the *AUX CLOCK* terminals directly to the equipment activation terminals if the equipment does not require any power.
- If the equipment controlled require powering, make sure that its power consumption does not exceed the output relay rating. Otherwise, use an isolation relay.



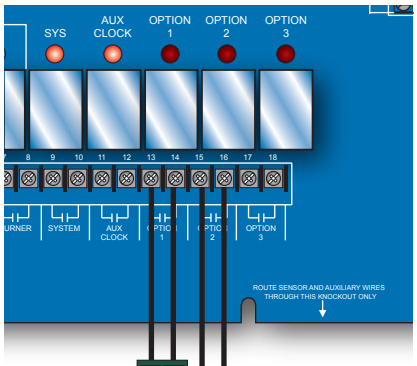
Auxilary Schedule Activated Device

WIRING TO OPTION OUTPUTS

- The MPC Platinum is equipped with three optional relay outputs (*OPTION1* terminals *13* and *14*, *OPTION2* terminals *15* and *16*, and *OPTION3* terminals *17* and *18*). Use these outputs to operate additional equipment based on the control logic. Each of the Option output relays has different logic operating choices. Select the desired choice from the Startup Menu. See "Option Outputs Modes" on page 21.
- If the control is an Internet capable control, the *OPTION3* output relay will function as a relay to manage a cable or DSL modem's power.

> **⚠ WARNING**
> On Internet capable controls, you MUST use Option 3 output to manage the power to Cable and DSL modems. However, DO NOT use Option 3 Output to manage the power to Cellular Modems.

- The *OPTION* output terminals do not source any power. Wire the *OPTION* terminals directly to the equipment activation terminals if the equipment does not require any power.
- If the equipment controlled require powering, make sure that its power consumption does not exceed the output relay rating. Otherwise, use an isolation relay. In this case, use the *OPTION* terminal to break the hot power wire. going to the equipment. Then, connect the neutral wire directly the equipment second terminal.



Option1

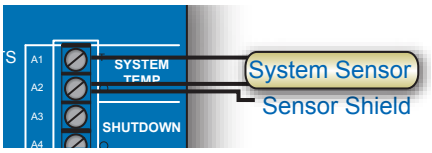
Option2

HT# 059085-00 F

INPUT WIRING

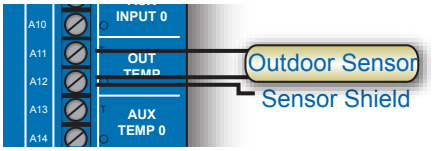
WIRING SYSTEM SENSOR

- Only use the Heat-Timer Outdoor sensor included with the MPC Platinum (#904250-00).
- You can extend the sensor wires up to 500' by splicing it with 18 gauge shielded wire (Belden #8760 or equivalent).
- DO NOT run sensor wire in conduit or trough with line voltage.
- Heat-Timer temperature sensors have no polarity. Connect the sensor wires to the MPC Platinum terminals marked *SYSTEM TEMP (*terminals *A1* and *A2)*.
- Connect the shield to the circled terminal *SYSTEM TEMP-A2* with one of the sensor wires and cut shield off at sensor end.



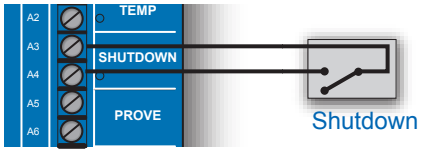
WIRING THE OUTDOOR SENSOR

- You can extend the sensor wires up to 500' by splicing it with 18 gauge shielded wire (Belden #8760 or equivalent).
- DO NOT run sensor wire in conduit or trough with line voltage.
- Heat-Timer temperature sensors have no polarity. Connect the sensor wires to the MPC Platinum terminals marked *OUT TEMP (*terminals *A11* and *A12)*.
- Connect the shield to the circled terminal *OUT TEMP-A12* with one of the sensor wires and cut shield off at sensor end.



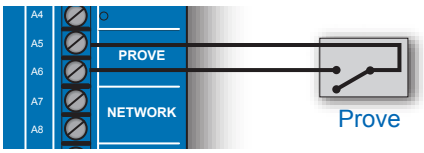
WIRING THE SHUTDOWN

- You can use this feature whenever it is desirable to deactivate the MPC Platinum from a remote location or another controller like a Building Management System (BMS).
- The Shutdown feature de-energizes the *BURNER* and *MOTORIZED VALVE* output relays, turning off the boiler or closing the motorized valve. However, the *SYSTEM* relay will remain energized for the period of the System Run-On. See "System Run-On" on page 28.
- The Shutdown signal must be a dry contact only. DO NOT place voltage across the *SHUTDOWN* terminals.
- Bring the two wires from the dry contact to the terminals marked *SHUTDOWN- A3*, *A4*.



WIRING THE PROVE

- The MPC Platinum uses the Prove input to check system operation before activating the outputs. A good practice is to use the MPC Platinum's Prove input terminals to connect to the combustion air-damper End Switch. This prevents the MPC Platinum from activating the boiler before fully opening the damper. See "Installation" on page 8.
- If the *PROVE* input terminals are open, the MPC Platinum will enable only the System relay. The Burner and Motorized valve (*OUTPUT*) relays will be de-energized when the *PROVE* input is open.
- The Prove signal must be a dry contact only. No voltage can be placed across the *PROVE* terminals.
- Bring the two wires from the dry contact to the terminals marked *A5* and *A6*.

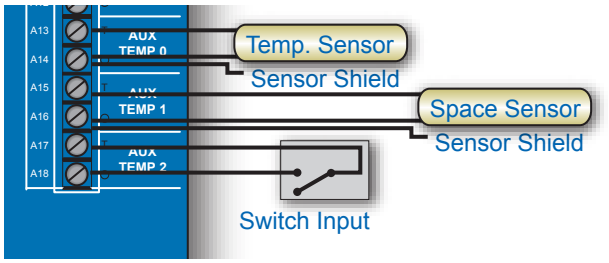


⚠ ALERT

The *PROVE* input terminals must be shorted for MPC Platinum to provide heat. **DO NOT** remove the factory installed PROVE jumper unless replacing it with a Prove signal.

NETWORK AND AUX TEMP

- The only way to configure all Network sensors and switches is through the Internet using the ICMS web site (http://www.htcontrols.com).
- Heat-Timer offers a large variety of network sensors. Visit our web site (http://www.heat-timer.com) for a list of available Network Sensors.
- The Aux Temp inputs are capable of accepting a temperature or a switch sensor. The user can access their values by pressing the BACK button while in the default screen.

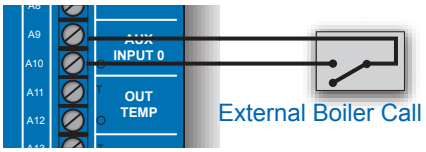


TESTING THE SENSORS

- On a power up, the Platinum control goes through a countdown followed by the default screen.
- The default screen displays [SYS] to show the Heating System Sensor (HSS) temperature and [OD] to show the Outdoor Sensor temperature.
- If either of the two temperatures reads OPEN, SHORT, or an incorrect temperature. See "Troubleshooting" on page 44.
- You can only view Network sensor readings on the Internet.

AUX INPUT

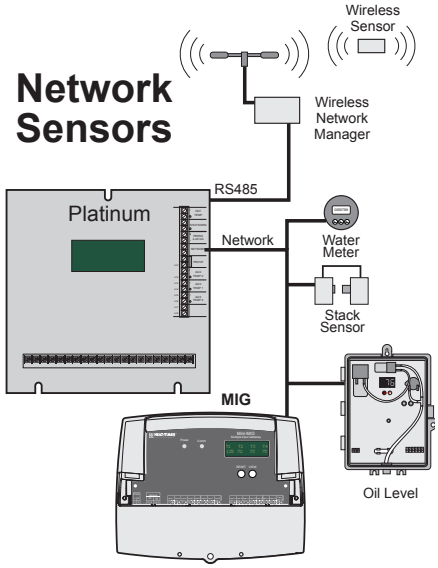
- If the boiler is activated by another control, i.e. domestic hot water aquastat, the Aux Input will allow a Heat-Timer communication package to chart a time line for boiler status.



WIRING NETWORK SENSORS

(Requires Internet Communication Package Upgrade)

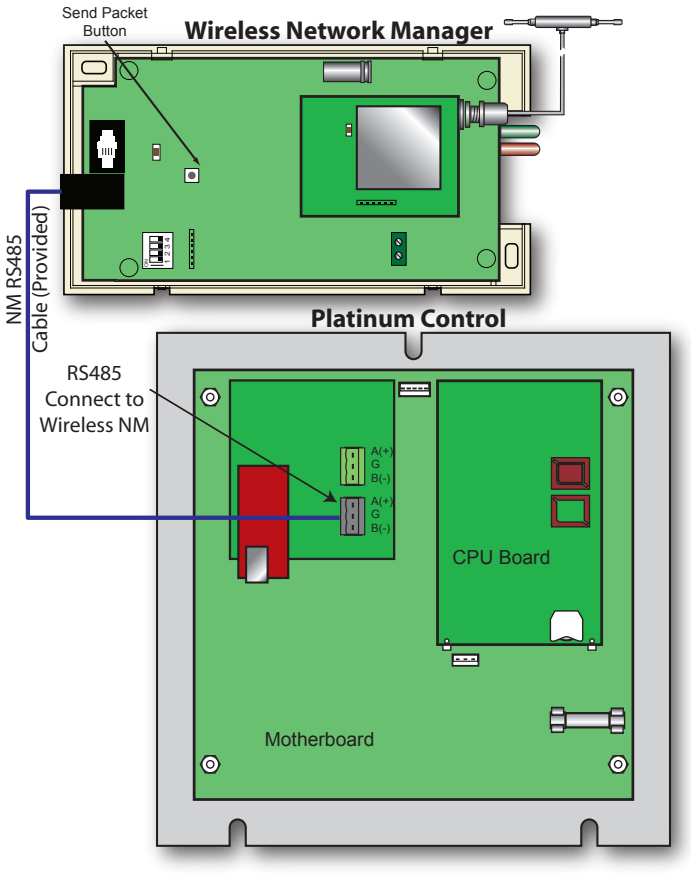
- The only way to configure all Network sensors and switches is through the Internet using the ICMS website (http://www.htcontrols.com).
- The MPC Platinum Network terminals can connect up to 64 or 128 network sensors, depending on the control hardware.
- Use the Mini-MIG to handle up to 16 temperature, switch, or count sensors. Multiple Mini-MIG's can connect to an MPC Platinum.
- A variety of network sensors is available for the MPC Platinum:
  - Stack Sensor (measures the stack temperature),
  - Water Meter Count/Pulse sensor (measures water consumption),
  - Oil Tank Monitor (measure the amount of oil in a tank),
  - Pressure, vacuum, and humidity transducers,
  - Multiple Input Gateway (Mini-MIG) that gives the capability of connecting the control to multiple temperature or switch sensors and a single count sensors.
  - Conductivity sensors (to measure boiler chemical requirement).



CONNECTING WIRELESS SENSOR SYSTEM

(Requires Internet Communication Package Upgrade)

- Wireless sensors can only be configured remotely through the Internet (http://www.htcontrols.com).
- The MPC Platinum can connect to up to 64 or 128 network sensors, depending on the control hardware. These numbers include wireless sensors, wireless Transceivers, and the wireless Network Manager.
- Use Wireless Transceivers to extend the range of the wireless network and reduce building sensor wiring.
- The wireless Network Manager connects directly to the communication board's RS485.
- The balance of the wireless system communicates its information to the wireless Network Manager.



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REMOTE COMMUNICATION WIRING

- All standard Platinum controls come with a Motherboard and a CPU board.
- If the Platinum control part number ends with RINET, BAC, or BUS; then it also comes with a communication board. If a control is a standard Platinum control, it can be field upgraded by adding the appropriate upgrade kit. A new CPU board and the respective communication board will be included in any of the Upgrade Kits.

⚠ ALERT

Always bring your communication cable through one of the side knockouts. DO NOT use the bottom knockouts for communication cabling.

BACNET WIRING

BACNET IP WIRING

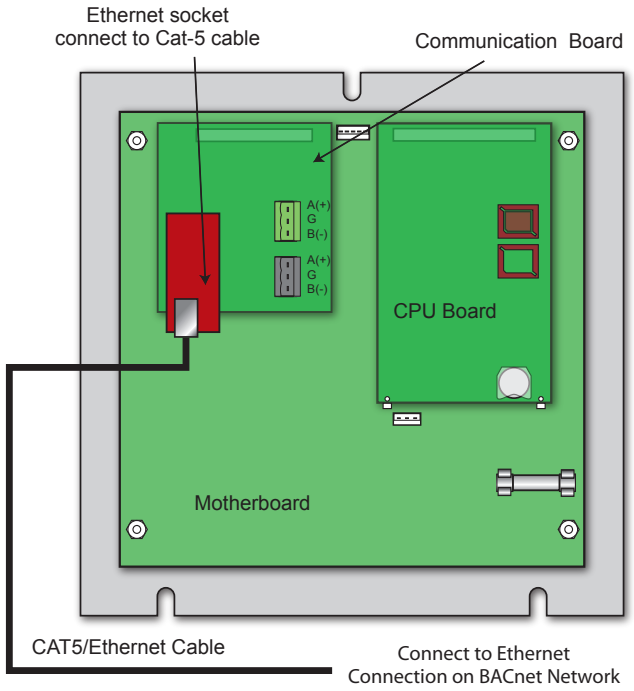
- The Ethernet cable should use the Platinum control's enclosure closest side knockout.
- Connect the CAT-5E BACnet IP cable to the RS45 communication socket on the back of the control's Communication Board.
- For reliable communication, do not run CAT-5E cables more than 150 Ft. CAT-6 cables can have a maximum run of 300 Ft.
- To set the BACnet configuration on the control, see "BACnet Communication" on page 38. Also, see "BACnet Configuration Manual".

⚠ ALERT

A BACnet capable Platinum control displays

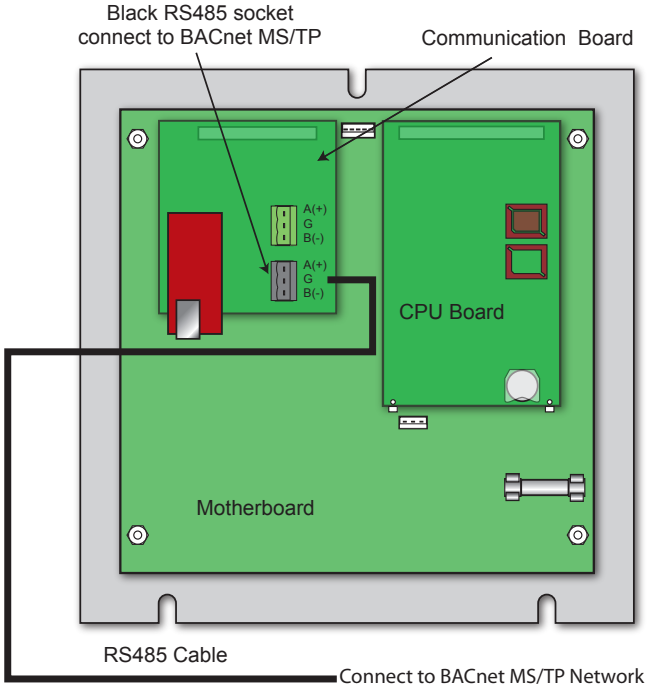
-- NETWORK PANEL --

on the first row of the display when in screen saver mode.



BACNET MS/TP WIRING

- The RS485 cable should use the Platinum control's enclosure closest side knockout.
- Connect the BACnet MS/TP cable to the RS485 connector communication socket on the back of the control's Communication Board. The Communication Board terminals are labeled 'A (+)', G (Ground), and 'B (-)'.
- Use 18# AWG Twisted Pair cable. The cable length must not exceed 3500 feet.
- The ground RS485 terminal (G) MUST be connected to the BMS RS485 Ground.
- To set the BACnet configuration on the control, see "BACnet Communication" on page 38. Also, see "BACnet Configuration Manual".

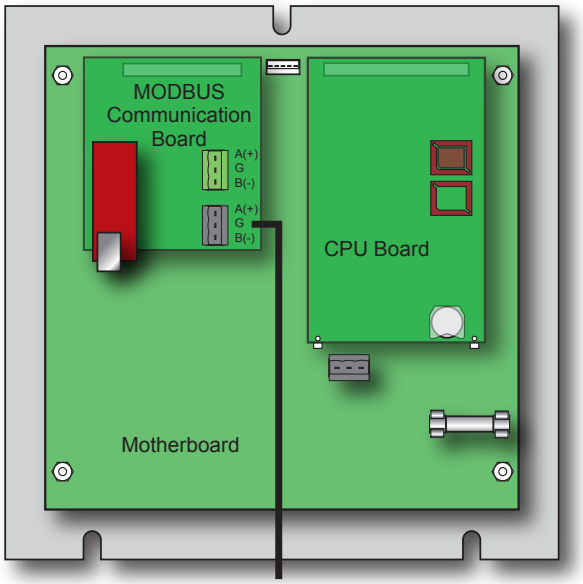


MODBUS RTU WIRING

- A MODBUS communication board and a CPU board with the MODBUS software is required for proper MODBUS communication.
- Heat-Timer Platinum control MODBUS communication uses a RS485 connection.
- Connect the MODBUS RS485 cable to the Communication Board's RS485 socket. The Communication Board's RS485 socket has 'A (+)', G (Ground), and 'B (-)' terminals. Polarity is observed,
- The cable length must not exceed 3500 feet.
- Must Connect the ground RS485 terminal (G) to the BMS RS485 Ground.
- To set the MODBUS configuration on the control, see "MODBUS RTU Communication Configuration" on page 42. Also, see "MODBUS Configuration Manual".

⚠ ALERT

DO NOT USE the RS485 Connector on the Motherboard for MODBUS communication. Use the RS485 Connector on the MODBUS Communication Board instead.



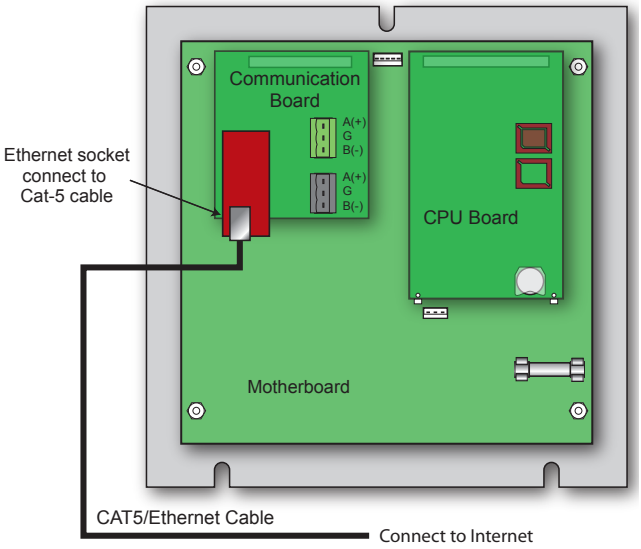
INTERNET WIRING

ETHERNET CONNECTION TO MODEM

- Connect the Ethernet cable (provided) to the modem socket marked Ethernet/LAN. Class 2 voltage wires must use a different knockout from Class 1 voltage wires.
- Connect the other Ethernet cable end to the Communication board, through the side knockout.

ETHERNET CONNECTION TO PLATINUM CONTROL

- Bring the Ethernet line through one of the Platinum Enclosure side knockouts. Class 2 voltage wires must use a different knockout from Class 1 voltage wires.
- Connect the Ethernet cable to the Communication Board on the back of the Platinum control. See "Platinum Internet Setup Manual".



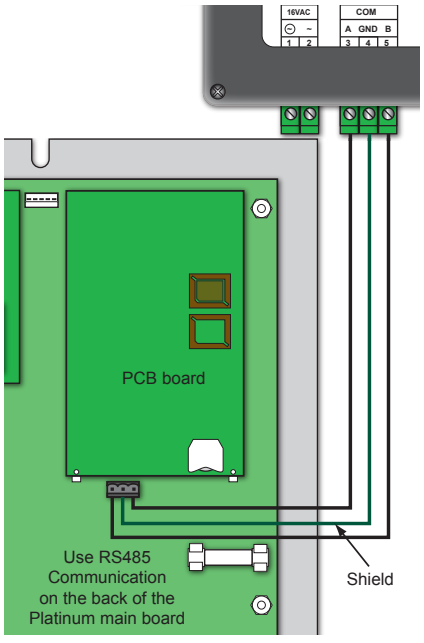
DHW ENERGY SAVER WIRING

- The DHW Energy Saver communicates all of its information to the Platinum control using RS485 (3-wire connection).
- The DHW Energy Saver RS485 terminals are wired to the Platinum main board's RS485 (under the PCB board).
- Follow the wiring as per the graph on the right.

⚠ ALERT

DO NOT connect the DHW Energy Saver to the RS485 on the Platinum RI board. Instead, connect the DHW Energy Saver RS485 to the Platinum main board.

- Maximum wiring length should not exceed 100 Feet. Use 18 gauge 2-conductor shielded wire (#18). Connect the shield to the middle terminals on both of the RS485 connections. To eliminate communication errors, DO NOT splice the communication cable wires.
- When connecting the DHW Energy Saver and a Platinum Extension to the same connector, make sure to splice the cables externally before bringing them to the RS485 Plug Connector on the main Platinum Board. See "DHW Energy Saver Manual".



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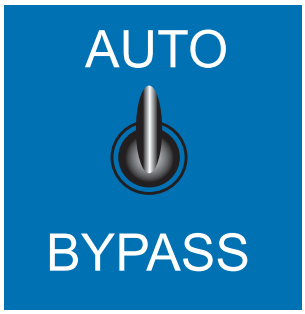
AUTO/BYPASS SWITCH



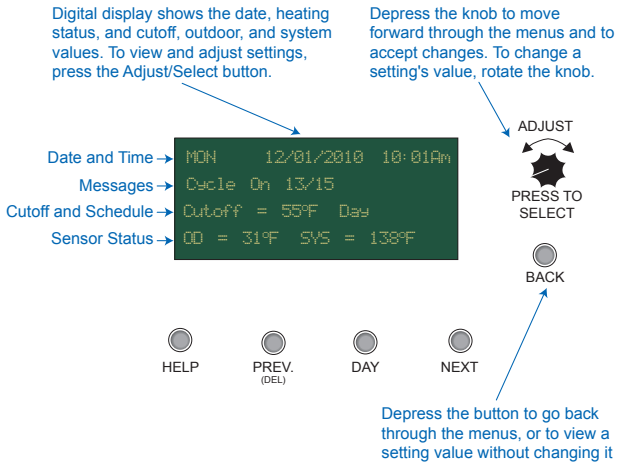
- The switch must be in the *AUTO* position for the MPC Platinum to control the heating system.
- The *BYPASS* position overrides all automatic control of the MPC Platinum.
- If the MPC Platinum has power and is operational, switching to *BYPASS* automatically activates the Motorized Valve, the Burner, and the System output.
- Switching the control to *BYPASS* manually during a power outage, activates the Motorized Valve, Burner , and System outputs.

> **⚠ ALERT**
> Switching the MPC Platinum into Bypass overrides all automatic operation. In Bypass, the boiler will run constantly on its own limits or the valve will be fully open.

SETTING THE CONTROL

DISPLAY AND CHANGING SETTINGS

The MPC Platinum comes with an 80 character (20 character per row x 4 rows) digital display with simple English menus.



ADJUST/SELECT	This knob turns to ADJUST and when pressed it SELECTs. Turn the knob to scroll through settings. Press a menu option to accept a setting,
BACK	Use to go back to the previous menu,
NEXT	In Schedules, goes to next schedule period,
DAY	In Schedules, advances through weekdays,
PREV.(DEL)	Clears a specific schedule setting.
HELP	Provides help instructions regarding the current menu function.

MENU TYPES

When powering up the MPC Platinum for the first time, it will take you through an 70 second count down followed by the System Startup Settings then another 10 second boot setup and finally end with the default screen. Once the control is mounted and wired, set up an initial pilot program.

- **Set and adjust System Startup Settings:** The contractor sets these values after installing the control for the first time. End users should avoid changing these settings as they will change the control operating logic. If the Startup Settings are not correct, the MPC Platinum may operate the system incorrectly.
- **Set and adjust System Settings:** These settings adjust the system to the specific building characteristics. These are general settings that control the amount of heat provided. The default settings will generally work in most applications, but adjustments should fine-tune the performance of your system.
- **Set and adjust Maintenance:** Provide calibration tools for the sensors and allow a password to be set.
- **Set and adjust Schedules:** Sets the Day/Night heat schedule and the Aux clock schedule. Four pairs of Day/Night times can be set for each day of the week. In addition, the Aux relay is capable of following the Aux Schedule. It is programmable to turn on or off up to eight times per day.
- **Shift:** Allows you to temporarily shift from Day (higher heat level) to Night (lower heat level) settings, or vice versa, without reprogramming the times of the Day/Night Schedule.

DISPLAY MESSAGES

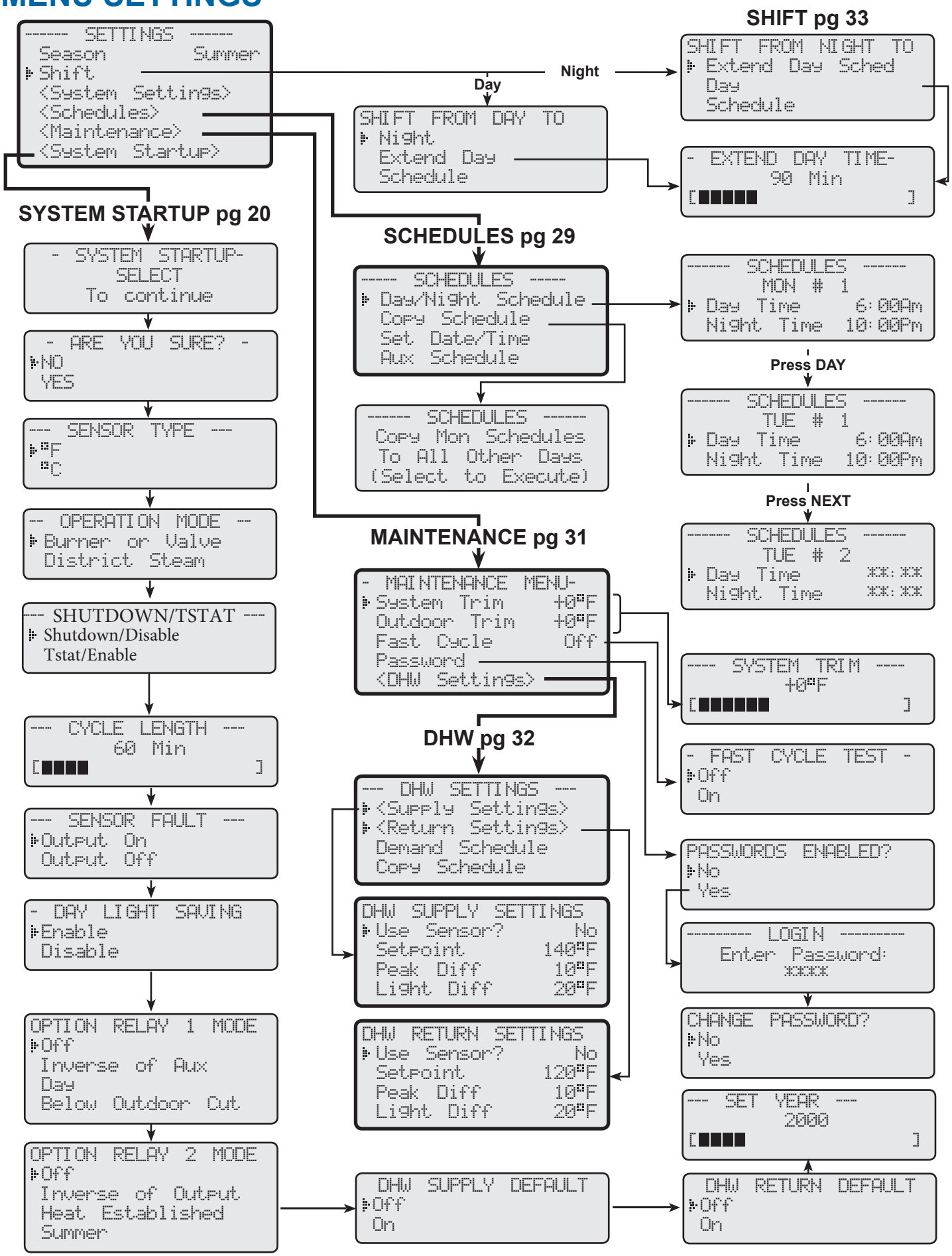
The MPC Platinum normal display layout utilizes the second line for message indications. The following is a list of the most common Message Display Line information:

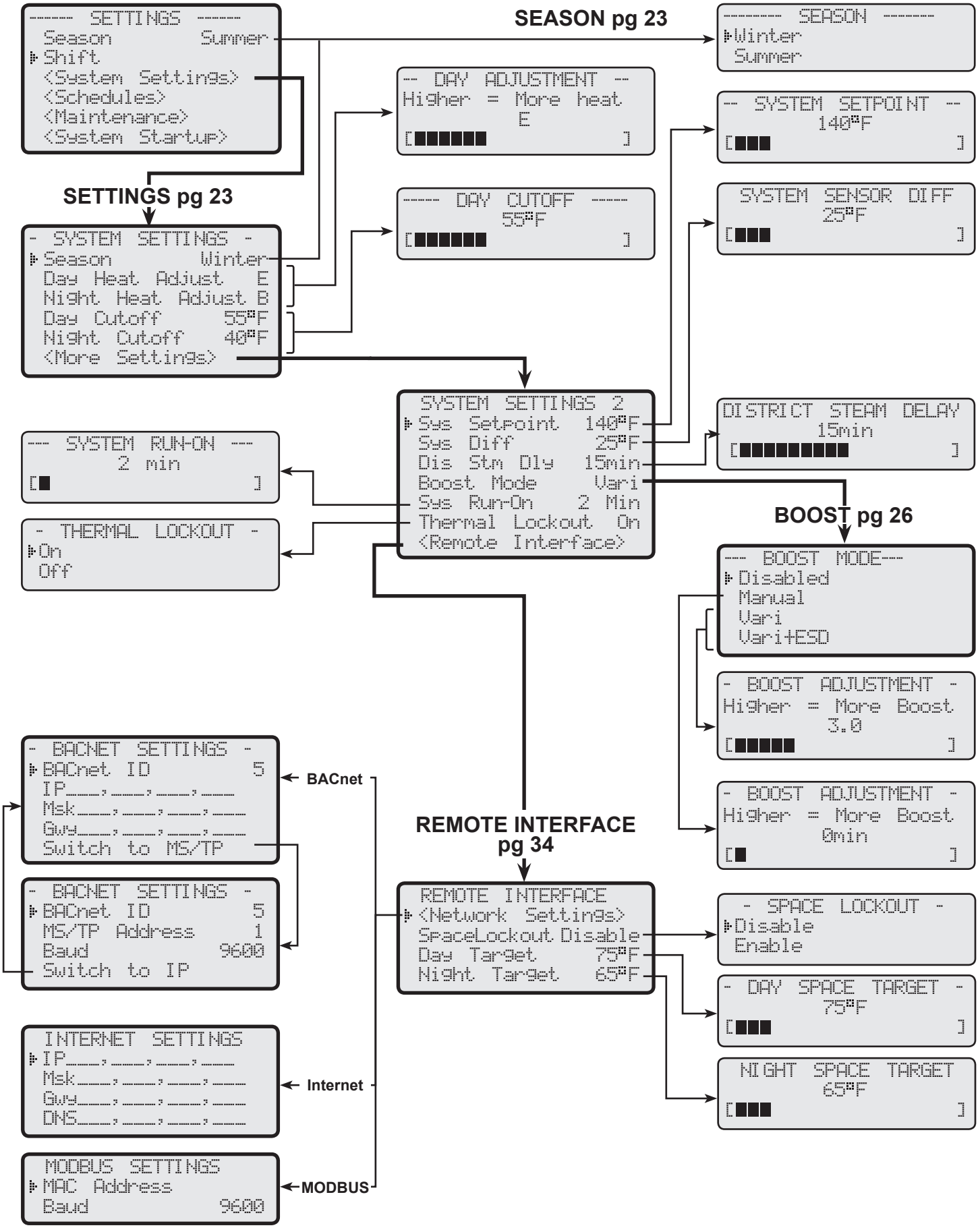
- BYPASS: 0D 0H 15M — The control is switched to Bypass for the amount of time indicated. See "AUTO/BYPASS Switch" on page 16.
- Cycle On: 1/5 min — The MPC Platinum is in the Cycle-ON period for a minute out of a total Cycle-ON of 5 minutes. See "Troubleshooting" on page 44.
- Cycle Off: 6/60 min — The MPC Platinum is in the Cycle-OFF period. Only 6 Cycle-ON minutes out of the Cycle 60 minutes has elapsed. See "Understanding the Cycle Concept" on page 4.
- Est Heat at: 125°F — The MPC Platinum is energizing Output relay to establish heat before starting a heating cycle. See "Understanding the Cycle Concept" on page 4.
- Fast C/D: 68°F — The Boost option selected is Vari+ESD. The MPC Platinum turns the output off before the last Night Schedule setting for the Fast Cool Down until the space average temperature drops below 68°F (Night Space Target). See "Early Shutdown Curves" on page 27.
- Manual Boost 25/30 min — The MPC Platinum has started a Manual Boost in a Cycle Operation Mode. 25 minutes have elapsed of the 30 Manual Boost minutes. See "Boost Mode" on page 26.
- Prove Failure — The Prove input terminals are now open. The boiler relays are de-energized. However, the System relay will remain energized. See "Wiring The Prove" on page 12.
- Sensor Fault — Either the Outdoor or the System sensor is reading Short or Open. The Output relay will be energized or de-energized based on the Sensor Fault setting. See "Sensor Fault" on page 20.
- Shutdown Active — The *SHUTDOWN* input is Shorted. Outputs are not active. See "Wiring the Shutdown" on page 12.
- Space L/O: 71°F — In Cycle Operation Mode the MPC Platinum is in Space Lockout (utilizing space sensors) until the space average drops below 71°F. See "Space Lockout" on page 28.
- Steam Time 12/15 min — District Steam is the Operating Mode choice. The control activated the output relay for 12 out of 15 minutes before starting the cycle. See "Operation Mode" on page 20.
- Summer — The control is set to Summer. No heat is active. See "Season" on page 23.
- Thermal Lockout: 125°F — In Cycle Operation Mode the MPC Platinum is in Thermal Lockout until the System Sensor Temperature drops below the System Set Point less the Differential. See "Thermal Lockout" on page 28.
- Vari Boost Active — The MPC Platinum has started a Vari Boost in a Cycle Operation Mode. See "Boost Mode" on page 26.
- Waiting for Prove — There is a call for heat and the Prove terminals are open before the boilers start firing. The boiler relay is de-energize while the System relay is energized. See "Wiring The Prove" on page 12.

The third line is reserved for the Cutoff and any day or night setting messages. The following is a list of the most common third line Messages:

- Day Ext — The control is shifted to the Extended Day schedule for specified amount of time. See "Shift" on page 33.
- Day Shf — The control is shifted to the Day schedule from the Night Schedule. See "Shift" on page 33.
- Night ESD — The Night Early-Shutdown is active. See "Early Shutdown Curves" on page 27.
- Night Shf — The control has been shifted to the Night schedule from the Day Schedule. See "Shift" on page 33.
- No Call for Heat — The outdoor temperature is above the Outdoor Cutoff. See "Day and Night Outdoor Cutoff" on page 24.
- Sys RunOn: 2/5 min — The Output relay has turned off and the System relay has been running for 2 minute and will need to run for a total of 5 minutes. See "System Run-On" on page 28.

MENU SETTINGS





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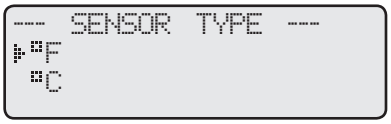
STARTUP SETTINGS

⚠ ALERT
All Startup settings cannot be changed on the Internet except for Sensor Fault

Enter menu by pressing ***SELECT:*** *Settings/System Startup*
If entering this menu option after the control has been set, several warnings will display before continuing. After accepting all the warnings, the following Startup option menus must be set:

- Sensor Type (°F for Fahrenheit or °C for Celsius.)
- Operation Mode (Burner/Valve or District Steam)
- Cycle Length
- Sensor Fault (Output On or Output Off)
- Daylight Savings (Enable or Disable)
- Option relays' modes

SENSOR TYPE

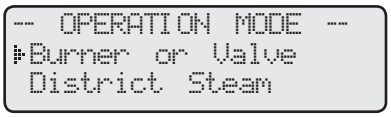


°F Fahrenheit or °C for Celsius **Default: °F Fahrenheit**

SELECT *Settings/System Startup/.../Sensor Type*

- This option allows you to change the sensors' display and all temperature settings between Fahrenheit and celsius.

OPERATION MODE

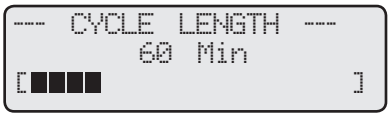


Burner/Valve or District Steam **Default: Burner/Valve**

SELECT *Settings/System Startup/.../ Sensor Type / Operation Mode*

- In most buildings, the time required for the heating system to fill with steam depends on several factors. For example, using direct burner operation, the time it takes to generate steam depends on the boiler off time length. With a valve, the amount of time also depends on the status of the heating plant and may additionally vary depending on the balance of the heating zones' valve position.
- However, in cases where steam is distributed from a local power authority (district steam) or other sources where the steam is always available at a constant pressure, the time required to fill the heating system with steam will be relatively constant.
- If your steam source is of the later type, you may decide to select the District Steam option.
- With the District Steam option, the HSS is not used. The MPC Platinum uses a timer to start the Cycle-ON. See "District Steam Delay" on page 25.
- Selecting the District Steam option may result in overheating and unnecessary energy expenses as the Thermal Lockout feature will not be available.

CYCLE LENGTH



Adjustable from 10 to 240 minutes **Default: 60 minutes**

SELECT *Settings/System Startup/.../ Sensor Type / Operation Mode / Cycle Length*

- The Cycle Length is directly related to the type of radiation used. The following is Heat_ Timer recommended Cycle Length:
  - For most cast iron radiation, choose a 60-minute cycle. If the radiators are very large or the system is oversized, choose a 90-minute cycle.
  - For convector or baseboard radiation, choose a 30-minute cycle.
  - For air handlers or blower units, choose a 20-minute cycle.

SENSOR FAULT

Output On or Output Off **Default: Output On**

SELECT *Settings/System Startup/.../Sensor Fault*

- In cases where the Outdoor sensor reads SHORT or OPEN, you can select whether you want to default to providing continuous heat, or no heat at all.
- To help prevent a freeze-up in such a circumstance, the user can select *Output On* which turns on the output relay energizing the boiler or maintain the valve open, thereby providing continuous heat until the sensor problem can be corrected.
- The *Output Off* option does not provide any heat if the sensor reads a fault value.

DAY LIGHT SAVING MODE

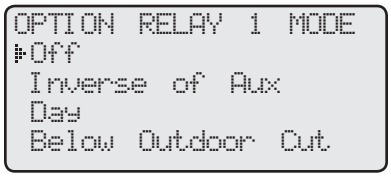
Enable or Disable **Default: Enable**

SELECT *Settings/System Startup/.../Sensor Fault/Day Light Saving*

- If it is desirable for the MPC Platinum to automatically adjust the system clock for Day Light savings, select *Enable*.
- If the control is located where Day Light Savings time is not observed, or if you wish to manually change the clock for Day Light Savings, select *Disable*.
- For accuracy, Internet controls receive their date and time through Heat-Timer ICMS web servers based on the time zone set for the building.

OPTION OUTPUTS MODES

OPTION RELAY 1 MODE

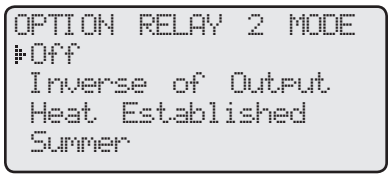


Off, Inverse of Aux, Day, Below Outdoor Cutoff **Default: Off**

SELECT *Settings/System Startup/.../Day Light Saving/ Option Relay 1 Mode*

- Each of the Option output relays can perform a different function based on many of the control operating functions. These menus assign the functionality to the relays
- If the default *"Off"* setting is selected, Option 1 Relay will never energize.
- If the *"Inverse of Aux"* is selected, Option 1 Relay will energize whenever the Aux Clock relay is de-energized and will de-energize whenever the Aux Clock relay is energized.
- If *"Day"* is selected, Option 1 Relay will energize whenever the MPC Platinum is holding the Day heat setting and will de-energize when the MPC Platinum is holding the Night heat setting.
- If *"Below Outdoor Cutoff"* is selected, Option 1 Relay will energize whenever the Outdoor sensor temperature registers below the Outdoor Cutoff temperature and will de-energize whenever the Outdoor sensor temperature registers above the Outdoor Cutoff.

OPTION 2 RELAY MODE

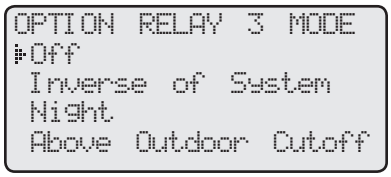


Off, Inverse of Output, Heat Established, Summer **Default: Off**

SELECT *Settings/System Startup/.../Option Relay 1 Mode/Option Relay 2 Mode*

- Each of the Option output relays can perform a different function either based on many of the control operating functions. These menus assign the functionality to the relays
- If the default *"Off"* setting is selected, Option 2 relay will never energize.
- If the *"Inverse of Output"* is selected, Option 2 Relay will energize whenever the Output relays are de-energized and will de-energize whenever the Output relays are energized.
- If *"Heat Established"* is selected, Option 2 Relay will energize whenever the MPC Platinum establishes heat (the temperature of the HSS is above the System Set Point) and it will de-energize when the MPC Platinum does not have its heat established.
- If *"Summer"* is selected, Option 2 Relay will energize whenever the MPC Platinum is switched to the Summer mode (no heat is provided) will de-energize whenever the MPC Platinum is in Winter.

OPTION 3 RELAY MODE



(Available in Standard non-communication controls only)

Off, Inverse of System, Night, Above Outdoor Cutoff **Default: Off**

SELECT *Settings/System Startup/.../Option Relay 2 Mode/Option Relay 3 Mode*

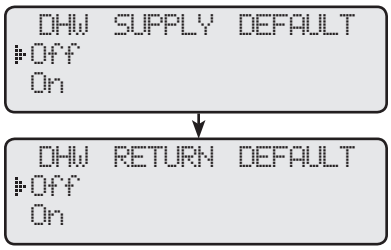
- If the MPC Platinum is a communication control, Option 3 output will not be available for programming. On Internet controls, Option 3 output relay is used to switch power to the Internet Modem/Router. Since some cable modems may loose their communication and not be able to restore it unless they are powered down for a short period. In this case, Option 3 incorporates a built-in delay for the modem.
- If the MPC Platinum is a Standard, non-communicating control, its Option 3 output can be programmed to operate based on one of the four different options.
- If the default *"Off"* setting is selected, Option 3 relay will never energize.
- If the *"Inverse of System"* is selected, Option 3 Relay will energize whenever the System relay is de-energized and will de-energize whenever the System relay is energized.

- If *"Night"* is selected, Option 3 Relay will energize whenever the MPC Platinum is holding the lower, or Night, heat settings and will be de-energize when the MPC Platinum is holding the Day settings.
- If *"Above Outdoor Cutoff"* is selected, Option 3 Relay will energize whenever the Outdoor sensor temperature registers above the Outdoor Cutoff temperature and will de-energize whenever the Outdoor sensor temperature registers below the Outdoor Cutoff.

DHW SUPPLY AND RETURN DEFAULTS

SELECT *Settings/System Startup/.../Option Relay 2 Mode/DHW Supply Default*

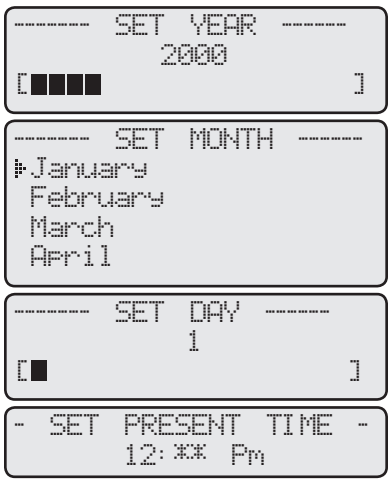
- These options set the DHW Energy Saver's (DHW-ES) Supply and Return output relays behavior when the DHW-ES looses communication with the Platinum controlor when the respetive sensor reads a fault condition (Short or Open).
- The DHW-ES output relay may take up to 1 minute to respond to the fault or no-communicaiton condition.



SETTING THE DATE AND TIME

SELECT *Settings/System Startup/.../Option Relay 3 Mode/Set Year/Set Month/...*

- The date and time are used to maintain the controls schedules.
- Internet controls receive the date and time through the Heat-Timer servers based on the time zone set for the building.
- The control has a coin Lithium battery (CR2032) (HT# 020002-00) that is used to maintain the control's date and time during power outages. This battery can maintain the clock for up to a total of 100 days. See "Activate the Battery" on page 8.

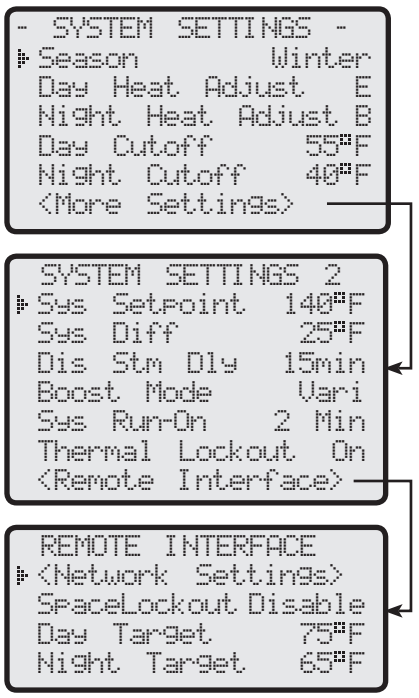


OPERATION

SYSTEM SETTINGS

Enter menu by pressing ***SELECT:*** *Settings/System Settings*

The System Settings and System Settings 2 menus allow for adjusting and fine-tuning the system for enhanced comfort and more fuel savings. The MPC Platinum behaves differently based on the selected Control Mode (see Startup Settings).



Burner or Valve

- Season
- Day and Night Heat Adjustments
- Day and Night Outdoor Cutoffs
- Season (Winter or Summer)
- System Set Point
- System Differential
- Boost Mode
- Pump Run-On
- Thermal Lockout
- Space Lockout ♦
- Day and Night Space Target ♦
- Remote Interface (Can be utilized with Remote Communication Only)

District Steam

- Season
- Day and Night Heat Adjustments
- Day and Night Outdoor Cutoffs
- Season (Winter or Summer)
- District Steam Delay
- Boost Mode
- Pump Run-On
- Space Lockout ♦
- Day and Night Space Target ♦
- Remote Interface (Can be utilized with Remote Communication Only)

♦ Requires Internet Remote Communication

SEASON

Winter, Summer **Default: Winter**

SELECT *Settings/Season* when in Winter setting

SELECT *Settings/System Settings/Season* when in Summer setting

- The Season setting controls whether the MPC Platinum will give heat.
- When set to Summer, the MPC Platinum does not energize the Boiler and the Motorized Valve outputs.
- When set to Winter, the MPC Platinum operates the building heat whenever the outdoor temperature falls below the Cutoff temperature. See "Day and Night Outdoor Cutoff" on page 24.
- During the heating season, the control must be set to Winter mode.
- When the heating season is over, it is a good practice to switch the control to the Summer.

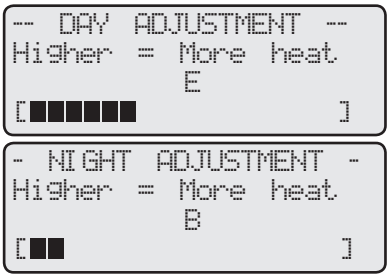
⚠ ALERT

Do not turn the power off to the MPC Platinum when the heating season is over. If you do so, the battery will run down and have to be replaced. Instead, switch its Season to Summer.

DAY AND NIGHT HEAT ADJUSTMENT

Adjustable from A through P **Default: E (Day) / B (Night)**

SELECT *Settings/<System Settings>/Day Heat Adjust or Night Heat Adjust*



- Heat Adjustments control the duration of Cycle-On based on the outdoor temperature.
- An "*A*" setting gives the least duration of Cycle-On at any given outside temperature. A "*P*" setting gives the longest Cycle-On.
- The MPC Platinum has two heat levels, Day and Night. The Day heat level is for when the building is occupied and people are active. The Night heat level holds a lower ambient temperature, and is for when the building is unoccupied or people are sleeping. The Day and Night Heat Adjustment are individually set.
- The length of the Cycle-ON is based on the Outdoor Cutoff temperature. Therefore, if you set both the Day and Night Heat Adjustments to the same value, you will get less heat at Night. For example, with both Heat Adjustments set to F and the factory set Cutoffs of 55°F for Day and 40°F for Night, when the outdoor temperature is 25°F the On part of the cycle will last for 15 minutes in Day, and only 7 minutes at Night.
- If the building is too cold, adjust the appropriate setting up a letter (Day Heat Adjust if it is too cold in the Day time and Night Heat Adjust if it is too cold in the Night time). For example; from F to G. Then wait at least 24 hours before evaluating the new adjustment. Otherwise, adjust it up another letter and wait an additional day for the results.
- Similarly, if the building is too warm, reduce the Heat Adjustment one letter and wait for 24 hours before making any additional adjustments.

HT# 059085-00 F

CYCLE LENGTH TABLE

Outdoor Cutoff Minus Outdoor Temperature

Heat Adjustment Setting	95°F	90°F	85°F	80°F	75°F	70°F	65°F	60°F	55°F	50°F	45°F	40°F	35°F	30°F	25°F	20°F	15°F	10°F	5°F	1°F
A	45	41	37	33	29	25	22	18	15	13	10	8	5	3	2	0	0	0	0	0
B	57	51	46	41	37	33	28	25	21	18	15	12	9	7	5	3	1	0	0	0
C	C	59	54	48	43	38	33	29	25	21	18	15	12	9	7	5	3	1	0	0
D	C	C	C	55	49	43	38	34	29	25	21	17	14	11	9	6	4	2	1	0
E	C	C	C	C	55	49	43	38	33	28	24	20	17	13	10	8	6	4	2	1
F	C	C	C	C	C	55	49	43	37	32	27	23	19	15	12	9	7	5	3	2
G	C	C	C	C	C	C	54	48	42	36	31	26	22	18	14	11	8	6	4	3
H	C	C	C	C	C	C	C	53	47	40	35	29	25	20	16	13	10	7	5	4
I	C	C	C	C	C	C	C	59	52	45	39	33	27	23	18	15	11	9	6	5
J	C	C	C	C	C	C	C	C	58	50	43	37	31	25	21	16	13	10	7	6
K	C	C	C	C	C	C	C	C	C	56	48	41	34	28	23	19	15	11	8	7
L	C	C	C	C	C	C	C	C	C	C	53	45	38	32	26	21	16	13	9	7
M	C	C	C	C	C	C	C	C	C	C	59	51	43	35	29	23	18	14	11	8
N	C	C	C	C	C	C	C	C	C	C	C	56	47	39	32	26	20	16	12	9
O	C	C	C	C	C	C	C	C	C	C	C	C	53	44	36	29	23	17	13	10
P	C	C	C	C	C	C	C	C	C	C	C	C	59	49	40	32	25	19	15	12

Minutes ON (based on 60 minute cycle length)

- "C" minutes denotes continuous operation

The duration of the Cycle-ON (when the heat source is activated) depends on the following four factors:

1. Outside temperature
2. Outdoor Cutoff temperature
3. Heat Adjustment settings
4. Cycle length

- When the outside temperature is above the Outdoor Cutoff, the MPC Platinum will not call for heat. Below the Cutoffs, the length of Cycle-ON is adjusted by the Heat Adjustment Settings. "'*A*" gives the shortest duration of heat while "*P*" gives the longest duration of heat as shown by the chart.

Example:

Heat Adjustment: G
Outside Temp.: 30°F
Outdoor Cutoff: 55°F

Outdoor Cutoff 55°F
- Outdoor Temp. 30°F

Select Highlighted Vertical Column 25°F

Cycle Length	Cycle-On	Divide by
20	4.7	3
30	7	2
60	14	1
90	21	2/3

DAY AND NIGHT OUTDOOR CUTOFF

On, 20°F/-7°C to 100°F/38°C, Off **Default: 55°F (13°C) Day / 40°F (4°C) Night**

SELECT *Settings/<System Settings>/Day Outdoor Cutoff or Night Outdoor Cutoff*

- The Day and Night Outdoor Cutoffs determine when the MPC Platinum calls for heat.
- When the outside temperature rises above the Cutoff by 2F°, the MPC Platinum stops providing steam to heat the building.
- When the temperature falls below the Cutoff, the MPC Platinum begins running cycles and providing steam to the heating system.
- The Cutoff temperature also affects the amount of heat provided to the building. See "Understanding the Cycle Concept" on page 4.

SYSTEM SET POINT

(Available in Burner or Valve Operation Mode Only)

Adjustable from 70°F/21°C to 250°F/121°C **Default: 150°F/66°C**

SELECT *Settings/<System Settings>/<More Settings>/Sys Setpoint*

- The System Set Point is the temperature at which the heat has gotten all the way through the building's radiation system. Above this temperature, all the radiators in the building are hot.
- To find the appropriate System Set Point for your building, you may need two individuals to use the following procedure:
  1. Turn the heating system off and wait until the radiators are cool.

2. Have another person located at the furthest radiator (in terms of longest piping distance) or to a radiator in a location known to get heat last.
3. Manually, switch the control to Bypass.
4. When the last radiator is hot, record the System temperature (displayed next to *SYS* on the fourth line of the main display).
5. Set the System Set Point to the temperature noted in Step 4.
6. Switch the control back to Auto operation.

⚠ ALERT
The Heat Establish period cannot exceed six hours. If during the Heat Establishing period the HSS does not reach the Set Point, the Cycle-ON will start after six hours of Heat Establish.

⚠ ALERT
The System Set Point must be set correctly, as described above. Otherwise, the MPC Platinum may consistently under or overheat the building, especially in mild weather when fuel savings should be the greatest.

SYSTEM DIFFERENTIAL

(Available in Burner or Valve Operation Mode Only)

Adjustable from 3°F/2°C to 75°F/42°C **Default: 25°F/14°C**

SELECT *Settings/<System Settings>/<More Settings>/Sys Diff*

- The System Differential is the temperature range through which the HSS must fall below the System Set Point before another cycle can begin.
- The selected starting value for the System Differential depends on the value of the System Set Point. The higher the System Set Point, the higher the Differential value can be set.
- As an initial setting, set the heating system to restart at approximately 125 °F. At this temperature most of the residual heat in the radiators has dissipated, but enough heat remains to keep the ambient temperatures warm during the time it takes the MPC Platinum to establish heat.
- For example, if the System Set Point is 170°F, then set the Differential to 45°F, so the Set Point less the Differential is 125°F. If the System Set Point is 140°F, then set the Differential to 15°F.
- If the space temperature becomes too cold between cycles, reduce the amount of the System Differential.
- If the building is overheating, especially in mild weather, check the System Set Point. If the System Set Point setting is correct, then increase the System Differential. See "System Set Point" on page 24.

DISTRICT STEAM DELAY

(Available in District Steam Operation Mode Only)

Adjustable from 0 to 30 minutes **Default: 15 minutes**

SELECT *Settings/<System Settings>/<More Settings>/Dist Steam Dly*

⚠ ALERT
No Thermal Lockout is available with District Steam.

- In most district steam applications, the condensed steam is not recycled back. In these applications, use District Steam as the Operating Mode. See "Operation Mode" on page 20.
- The MPC Platinum uses this time setting to determine the beginning of the steam cycle.
- No system sensor is required in the District Steam mode.
- Since no system temperature is used, no energy saving Thermal Lockout is available.
- To find the appropriate District Steam Delay for your building, use the following procedure:
  1. Turn the heating system off and wait until the radiators are cool.
  2. Have another person located at the furthest radiator (in terms of longest piping distance) or to a radiator in a location known to get heat last.
  3. Manually, switch the control to Bypass. At the same time start to count the time.
  4. Wait until the radiator begins to get warm. Then record the amount of elapsed time.
  5. Set the District Steam Delay to the time noted in Step 4.
  6. Switch the control back to Auto operation.

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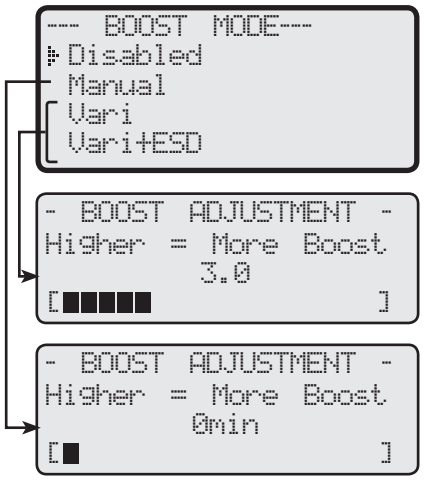
BOOST MODE

Disabled, Manual, Vari, Vari+ESD **Default: Vari**

SELECT *Settings/<System Settings>/<More Settings>/Boost*

- The Boost quickly returns the building to comfortable ambient temperatures after the cooler Night period.
- The MPC Platinum accomplishes this by either running the boiler on its limits or opening the steam valve for a given Boost time based on the *#1 Day* schedule. See "Schedules" on page 29.
- During the Boost heat period, the MPC Platinum does not run cycles. The prolonged heat period allows ambient temperatures to rise rapidly.
- To disable the Boost for all the days, select *Disable* as the option.
- If you do not want a Boost on a specific day of the week, clear the *#1 Day* to ***:** and use the *#2 Day* program for any Day settings. See "Schedules" on page 29.
- There are three types of Boost:
  1. *Manual* - This Boost begins at the *#1 Day* time, and lasts for a selected number of minutes. The Manual Boost time is adjustable from 0 to 120 minutes. The Manual Boost time does not adjust with outside temperature.
  2. *Vari* - This boost begins earlier than the *#1 Day* time. The number of minutes before the *#1 Day* time depends on the outside temperature and the Boost Adjustment Curve. A Vari Boost curve of 0.1 gives the shortest Boost period, and a curve of 6.4 gives the longest Boost period. The Vari Boost has a built in self-adjusting Warm-up time. The Warm-up time accounts for the time length the heat source needs to reach the System Set Point. The MPC Platinum adds the Warm-up to the Boost time.
  3. *Vari +ESD (Early ShutDown)* - This Boost is typically only used in commercial or other buildings where the building is unoccupied during the Night times. It follows the Vari Boost described above. In addition, the MPC Platinum switches to the Night mode earlier than the last *Night* setting for that day of the week. The warmer it is outside, the earlier the MPC Platinum shifts to Night based on the Boost Adjustment Curve. See "Early Shutdown Curves" on page 27.
- The Early Shutdown curve setting follows the Vari Boost setting. It cannot be set separately from the Vari Boost curve.

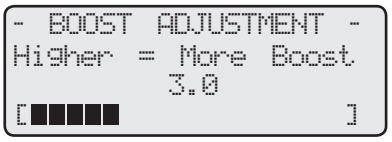


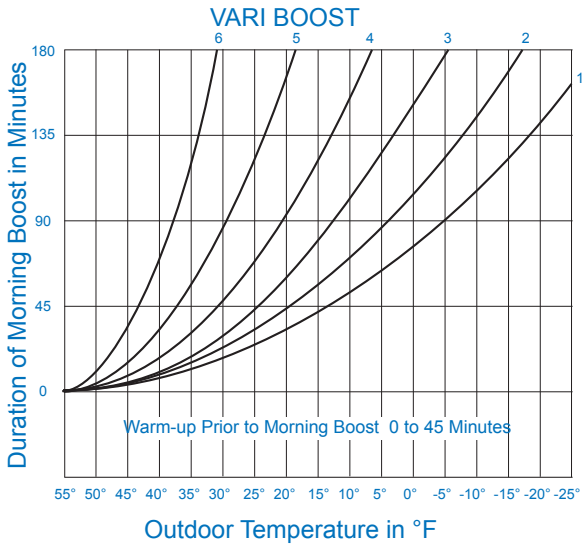
VARI BOOST CURVES

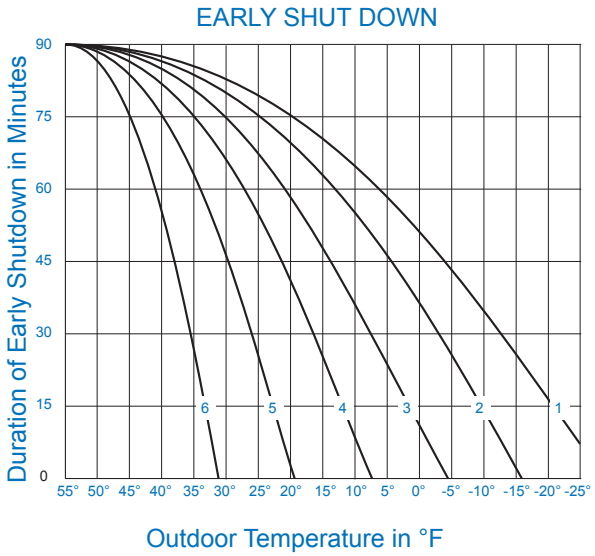
Adjustable from 0.1 to 6.4 **Default: 3.0**

SELECT *Settings/<System Settings>/<More Settings>/Boost/ Vari*

- These curves determine the duration of the Boost in accordance with changes in outside temperature.
- Vari Boost time increases with colder outdoor temperatures.
- The Warm-up period (below 0 minutes) represents a variable period of up to 45 minutes during which time the heating system is warmed up prior to the Boost.
- The MPC Platinum determines the number of Warm-up minutes for a specific building based on a rolling average of its past experiences establishing heat for Vari Boost.
- The total Vari Boost time is equal to the time determined by the outdoor temperature and the Boost curve plus the Warm-up time.
- The use of Internet controls adds space sensor installation capability. When Space Average reaches the Day Space Target while the Space Lockout is enabled, the Vari Boost ends. However, if the Space Average is below the Day Space Target before the #1 Day time, the Vari Boost may continue for up to an additional hour after the *#1 Day* setting.







EARLY SHUTDOWN CURVES

Setting matches Vari Boost

SELECT *Settings/<System Settings>/<More Settings>/Boost/ Vari+ESD*

- Early Shutdown (ESD) is calculated based on the latest night schedule for that day. It allows the control to switch to the Night setting earlier than the latest night schedule. This normally is useful in buildings where heat loss is minimal.
- The same curve setting that determines the Vari Boost also determine the Early Shutdown operation, but in reverse. The curves cannot be set separately.
- Early Shutdown time decreases with colder outdoor temperatures.
- The maximum time spans for the Early Shutdown are half as long as the Vari Boost - ranging from 0 to 90 minutes instead of 0 to 180 minutes (compare vertical axis of the two graphs).
- If space sensors are available and the Space Lockout is set to enable, the ESD message may end sooner if the Space Average reaches the Night Space Target. From that time,, the MPC Platinum will continue using the Night settings.

WARM-UP ENABLE AND LEARN

- The Warm-up Enable and Learn Features are only available through the Internet when the *Vari Boost* or *Vari+ESD Boost* is set to enable.
- Warm-up adds additional time to the calculated Vari-Boost period to account for the time it takes to establish heat. By default, it starts 15 minutes before the Vari Boost.
- If Learn is set to enable, the control will measure the Boost establishing heat time and then use it as the Warm-up time before the next day Vari-Boost.
- Heat-Timer recommends setting the Warm-up to Enable and the Warm-up Learn to Yes.

SYSTEM RUN-ON

Adjustable from 0 to 360 minutes **Default: 2 minutes**

SELECT *Settings/<System Settings>/<More Settings>/Sys Run-On*

- The *Sys Run-On* setting controls the length of time the System relay remains energized after the Output relays turn off.
- If the System output is used to control a combustion-air damper, the run-on allows the damper to bring more fresh air to the room for the next boiler initiation.

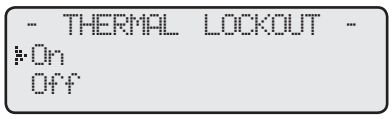
THERMAL LOCKOUT

(Not Available in District Steam)

On, Off **Default: On**

SELECT *Settings/<System Settings>/<More Settings>/Thermal Lockout*

- The Thermal Lockout is an energy saving feature that prevents a cycle from starting when the heating system is hot.
- When a cycle is over, the pipes and radiators may still be very warm. Therefore, they continue to heat the ambient air. If more steam is added during that time, the ambient space will begin to overheat. The Thermal Lockout prevents this from occurring as it allows the system pipe temperatures to fall through the adjustable System Differential before reactivating the heat source.
- The Thermal Lockout should be set to *On* unless the system dissipates heat very quickly, as might occur with air handling units.



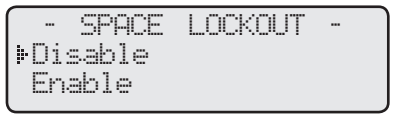
SPACE LOCKOUT

(Used on Internet Communication Controls Only)

Disable, Enable **Default: Disable**

SELECT *Settings/<System Settings>/<More Settings>/<remote interface>/Space Lockout*

- Space Lockout is an energy saving feature that prevents a cycle from starting when the Average Space Temperature is higher than the Day or Night Space Target.
- Each space sensor has the option to be included in the Space Average Temperature or not.
- The Space Lockout should be set to *On*.



DAY AND NIGHT SPACE TARGETS

(Used on Internet Communication Controls Only)

Disable, Enable **Default: Disable**

Day is Adjustable from 55°F/13°C to 85°F/29°C **Default: 75°F/24°C**

Night is Adjustable from 50°F/10°C to 80°F/27°C **Default: 65°F/18°C**

SELECT *Settings/<System Settings>/<More Settings>/<remote interface>/Day Target*

- The Day and Night Space Targets are the desired space average settings during the respective schedule. The MPC Platinum operates the outputs to reach and maintain these space averages.
- These values are only useful when you configure space sensors on an Internet ready control. See "Communication Options" on page 34.
- The Vari-Boost also uses the Day Space Target. During the Vari Boost, the MPC Platinum may remain in Boost until the space average reaches the Day Space Target or exceeds the maximum Boost time limit. See "Boost Mode" on page 26.
- The Early Shutdown (ESD) also uses the Night Space Target. That is, during the Early Shutdown while the Space Average temperature is dropping to the Night Space Target, the Fast Cool Down message keeps displaying until the Space Average reaches the Night Space Target. At this time, the MPC Platinum resumes using the Night schedule settings.

SCHEDULES

SELECT *Settings/<Schedules>*

- The MPC Platinum has two levels of heat. The Day Time level is for an occupied building where people are active. The Night Time (Setback) level is for an unoccupied building or when people are asleep.
- The MPC Platinum can have up to four Day periods and four Night periods for each day of the week. The MPC Platinum will show which period number on the third line of the display. See "Display Messages" on page 17.
- Every time the MPC Platinum updates the clock time, it checks the Day/Night program. If there is a matching Day/Night time programmed, it sets the heat level accordingly; otherwise, the heat level is not changed. This means there is no need to program every day of the week.
- The first setting of each day, #1 Day, is important as it starts the Boost period. The Boost quickly returns the building to the Day temperature from the lower Night temperatures. See "Boost Mode" on page 26.
- The latest Night setting of each day is also important. The Early Shutdown uses this time to calculate the Early Shutdown.
- Day and Night times do not need to be sequential. They can be in any order.
- If an office building is unoccupied all weekend, simply set the last programmed #4 setting (8:00 PM on Friday). Then, set all the Saturday and Sunday programs to **:** (using the DEL button). The control will stay in Night Time (Setback) until it reaches a Day setting (6:00AM on Monday).

⚠ ALERT

The MPC Platinum will ignore any Time setting that reads **:**.

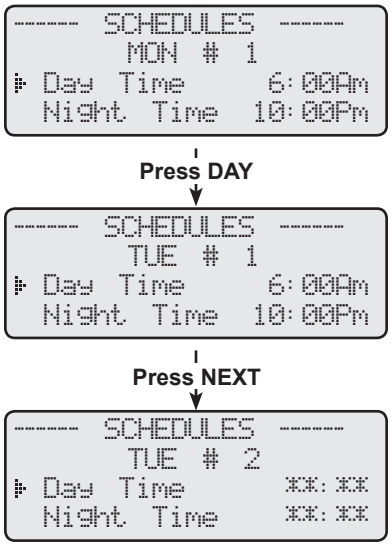
The #1 Day setting for any Day Time is used by the Boost. The last Night Time setting is used by the Early Shutdown ESD features.

No two settings can have the same time on the same day.

SETTING THE DAY/NIGHT SCHEDULE

Day/Night Schedules Mon #1 - 4 Default: 6:00Am (Day#1)/10:00Pm (Night#1)

- The MPC Platinum has four Day and four Night settings for each day of the week. They are designated as MON #1 Day Time, MON #1 Night Time, MON #2 Day Time, MON #2 Night Time, etc.
- The first time to be set will be MON #1. Adjust the Day and Night times as desired.
- Push the *NEXT* button to advanced to MON #2. If this is not programmed, the display will show **:**. If you wish to set a time for MON #2, press the *SELECT* button to adjust. Otherwise, continue to push the *NEXT* button to scroll through the rest of the Monday schedules.
- To set or check the other days of the week, you must first enter the Schedule menu so MON #1 is displayed. Then press the *DAY* button to advance to TUE #1, WED #1, etc.
- The MPC Platinum will ignore any schedule setting which is cleared. A cleared setting will be displayed as **:**.
- Settings can only be cleared in Day/Night pairs. To clear just a Day or a Night setting, you must clear both and then reprogram just the desired one.
- To clear the pair of settings, press the PREV (DEL) button.



Schedule Example

Schedule		Day of the Week						
		MON	TUE	WED	THU	FRI	SAT	SUN
#1	Day	6:00AM	6:00AM	6:00AM	6:00AM	7:00AM	**:**	**:**
	Night	10:00PM♦♦	10:00PM♦♦	10:00PM♦♦	10:00PM♦♦	11:00AM	**:**	**:**
#2	Day	**:**	**:**	**:**	**:**	**:**	8:00AM♦	**:**
	Night	**:**	**:**	**:**	**:**	**:**	4:00PM♦♦	**:**
#3	Day	**:**	**:**	**:**	**:**	6:00PM	**:**	**:**
	Night	**:**	**:**	**:**	**:**	10:00PM♦♦	**:**	**:**
#4	Day	**:**	**:**	**:**	**:**	1:00PM	**:**	**:**
	Night	**:**	**:**	**:**	**:**	4:00PM	**:**	**:**

♦ **No boost will take effect.**

♦♦ **Early Shut Down ends. Night Schedule begins?**

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Monday through Thursday: Vari-Boost begins before 6 am and ends at 6 am
Day temperature level is maintained from 6 am until before 10 PM
Early Shutdown starts before 10 PM and ends at 10 PM
Night temperature level is maintained from 10 PM.

Friday: Vari Boost begins before 7 am and ends at 7 am
Day temperature level is maintained from 7 am to 11 am
Night temperature level is maintained from 11 am to 1 PM
Day temperature level is maintained from 1 PM to 4 PM
Night temperature level is maintained from 4 PM to 6 PM
Day temperature level is maintained from 6 PM until before 10 PM
Early Shutdown starts before 10 PM and ends at 10 PM
Night temperature level is maintained from 10 PM.

Saturday: No Vari Boost because the Day#1 is not programmed
Day temperature level is maintained from 8 am until before 4 PM
Early Shutdown starts before 4 PM and ends at 4 PM
Night temperature level is maintained from 4 PM.

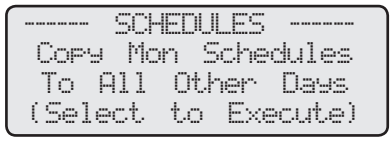
Sunday: Night temperature level is carried over from Saturday and maintained all day Sunday, ending at the Vari Boost Monday morning

⚠ ALERT
On an Internet control with Space Average, the Boost can extend to an additional hour if Day Target is not reached within the Boost period.

COPY SCHEDULE

SELECT: *Settings/Schedules/Copy Schedule*

- To reduce the need for setting each day's time schedule, this feature has been made to allow the copying of Monday schedule to the rest of the week.



VACATION SCHEDULE SETTING

(Used on Internet Communication Controls Only)

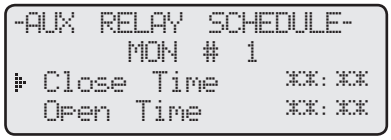
- The vacation Space Target and settings can only be set on the Internet ICMS website (http://www.htcontrols.com).
- The MPC Platinum offers a Vacation Schedule with an adjustable lower space target that it maintains between two specified date/time periods.
- During that time, the MPC Platinum uses the Vacation Schedule Space Target. However, it also uses the Night Heat Adjustment and Night Outdoor Cutoff settings.

AUX RELAY SCHEDULE

Close/Open Schedules Mon #1 - 4 **Default: Empty**

SELECT: *Settings/Schedules/Aux Schedule*

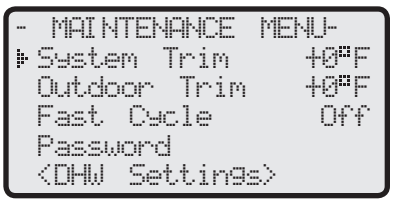
- The Auxiliary (Aux) Clock is an extra Normally Open relay output that energizes based only on the Aux Schedule. See "Wiring to Auxiliary Clock" on page 11.
- The relay status is programmable with a *Close Time* (Aux Clock relay is energized) and an *Open Time* (Aux Clock relay is de-energized). There are four Close/Open Time pairs available for each day of the week.
- The Aux Clock relay is not affected by outdoor temperature, but acts as a separate time clock to turn on lights, fans, dampers, or other equipment.
- The Aux Clock has a separate schedule program from the Day/Night Schedule, but the times are set in the same way. It is important to note that the Copy Schedule function does not affect the Aux Schedule. Each day must be programmed individually.



MAINTENANCE

SELECT: *Settings/<Maintenance>*

The Maintenance menu gives access to sensor trimming, Password protection, and DHW settings.



SYSTEM AND OUTDOOR SENSOR TRIM

SELECT: *Settings/<Maintenance>/System Trim*

SELECT: *Settings/<Maintenance>/Outdoor Trim*

Each is Adjustable from -5 to +5 **Default: 0**

- The Heat-Timer thermistor type sensors are very accurate, and normally require no calibration. Sometimes it may be desirable to make small adjustments to the displayed value for either the outdoor temperature or the HSS. The Trim setting can adjust the displayed value by ± 5°F.
- Do not use the Trim setting to make the Outdoor temperature sensor match that reported on TV. Outdoor temperature can vary widely over a broadcast range. Only trim the outdoor sensor based on an accurate thermometer reading taken where the sensor is located.

FAST CYCLE

SELECT: *Settings/<Maintenance>/Fast Cycle*

Off, On **Default: Off**

- The Fast Cycle changes cycle minutes to cycle seconds. Thus, you can view a 60-minute cycle in 60 seconds.
- Use the Fast Cycle to test the boiler or valve. As long as the Thermal Lockout is OFF, the MPC Platinum will bring on the boiler or open the valve.
- Note that the Fast Cycle feature only works when the MPC Platinum is in a cycle. It does not override the Heat Established function or prevent the Thermal Lockout.

⚠ ALERT

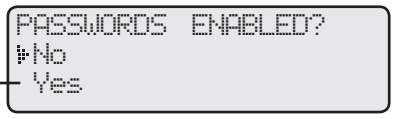
Be sure to set the Fast Cycle feature to *Off* after testing. Failure to do so will result in under heating and boiler/steam valve short cycling.

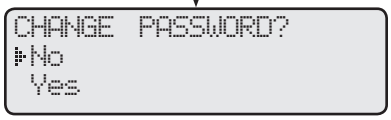
PASSWORD AND LOCAL SECURITY

Adjustable to any four letters **Default: MPCX**

SELECT: *Settings/<Maintenance>/Password*

- The Password is a security measure to prevent unauthorized local control users from making changes to the MPC Platinum settings. It consists of four letters.
- It does not protect against any remote changes. Remote Internet changes have a web login screen with a different password for each user.
- On the web, only the Internet account Owner can view and change the Password.
- Setting up the Password feature makes servicing more difficult and can disable the system if management or ownership should change.
- The Password feature is not active unless a user enables it. If you choose to enable the Password, DO NOT forget the Password. Write it down and store it in a safe location known to at least one other authorized user.
- When you set the Password Enabled to Yes, none of the settings, except Shift to Extend Day, Auto/Bypass toggle switch, and Schedules can be changed without entering the Password.
- When you try to change a protected control setting, the login screen will show upon trying to change a setting.
- To enter the Password, turn the *ADJUST/SELECT* knob to the desired letter. Then, press the *ADJUST/SELECT* to move on to the next letter. Once the Password is complete, you can make multiple changes. The Password will expire after 5 minutes of no activity.
- To allow an Internet communication control overridden values local adjustment, you must set the Control Password Mode, under the ICMS Maintenance screen, to either "Only Overrides Require Password" or "All Changes Require Password". This allows the control user with the proper password to make changes to overridden settings.





⚠ ALERT

When Password Enabled is set, all settings are Read-Only except the 'Shift to Extend Day' and the Auto/Bypass switch.

⚠ WARNING

All remotely changed settings are automatically set to Override status. An overridden setting is not adjustable unless you set the Password Mode on the Maintenance Web page to "ONLY OVERRIDES REQUIRE PASSWORD" or "ALL CHANGES REQUIRE PASSWORD".

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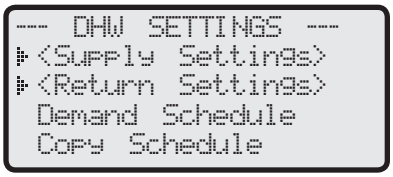
DHW SETTINGS

SELECT: *Settings/<Maintenance>/<DHW Settings>*



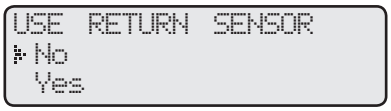
- The DHW (Domestic Hot Water) Energy Saver connects to any of the Platinum Internet controls (RINet) with software version 7.05 or higher to operate a boiler or direct/indirect water heater and a DHW circulating pump based on two set points. One set point is for the boiler water and the other is for the return pump.
- The DHW Energy Saver uses two sensors connected to the Platinum RINet (Internet communication capable control). Aux Temp 0 sensor measures the boiler supply temperature. Aux Temp 1 sensor measures the domestic recirculation-line return temperature.
- All the DHW Energy Saver settings are viewable and adjustable through the Platinum control menus or the Platinum control pages on ICMS website (http://www.htcontrols.com).

USING THE SUPPLY/RETURN SENSOR

Yes, No **Default: No**

SELECT *Maintenance/DHW Settings/Supply Settings/Use Sensor* **Supply Sensor**

SELECT *Maintenance/DHW Settings/Return Settings/Use Sensor* **Return Sensor**



- By activating the Supply Sensor feature, the Platinum control will utilize Aux Temp 0 input as the Supply Sensor.
- By activating the Return Sensor feature, the Platinum control will utilize Aux Temp 1 input as the Return Sensor.

SUPPLY/RETURN SET POINT

Supply is adjustable from 60°F/16°C to 200F°/93°C **Supply Default: 140°F/60°C**

Return is adjustable from 60°F/16°C to 200F°/93°C **Return Default: 120°F/49°C**

SELECT *Maintenance/DHW Settings/Supply Settings/Setpoint* **Supply Sensor**

SELECT *Maintenance/DHW Settings/Return Settings/Setpoint* **Return Sensor**

- The Supply Set Point is the maximum boiler water temperature the DHW Energy Saver will try to achieve. The relay will energize whenever the supply temperature drops below this set point less the differential. See next setting.
- The Return Set Point is the maximum temperature at which the DHW pump relay will de-energize. The circulating pump relay will energize whenever the return temperature drops below this set point less the differential. See next setting.

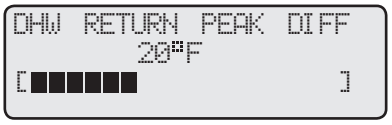
SUPPLY/RETURN PEAK/LIGHT DIFFERENTIAL

Peak is adjustable from 5F°/3C° to 100F°/56C° **Peak Default: 10F°/6C°**

Light is adjustable from 5F°/3C° to 100F°/56C° **Light Default: 20F°/11C°**

SELECT *Maintenance/DHW Settings/Supply Settings/Peak Diff or Light Diff* **Supply Sensor**

SELECT *Maintenance/DHW Settings/Return Settings/Peak Diff or Light Diff* **Return Sensor**

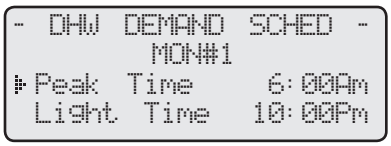


- Subtract the Differentials from the Set Points to determine the temperature at which the boiler/water heater or return pump relay will energize.
- The DHW Energy Saver has two independent differentials for each of the supply and return. The Peak Differential keeps tight control over the supply temperature during heavy usage. For proper operation, set its value less than the same sensor's Light Differential.
- The Light Differential reduces the control of the temperature during the off-peak periods, low DHW usage. It allows the boiler or pump relay to turn on for a slightly longer period. However, due to the reduced usage, the relay will remain off for a much longer period. Its value must be greater than the same sensor's Peak Differential.

DHW DEMAND SCHEDULE

SELECT *Maintenance/DHW Settings/Demand Schedule*

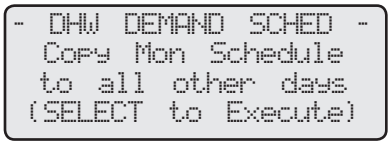
- The Peak and Light Demand Schedule activates the respective differential. Each day of the week has 4 Peak Times and 4 Light Times.
- When in the DHW Schedule, pressing the NEXT button on the Platinum control displays the next Schedule entry.
- Pressing the DAY button on the Platinum control displays the next week day entry.
- Domestic hot water Demand Schedule is accessible on the ICMS web site by selecting Schedules from the Platinum control Live Session then selecting the DHW Demand.



DHW COPY SCHEDULE

SELECT *Maintenance/DHW Settings/Copy Schedule*

- After setting the Monday Schedule, the user can copy its settings to the rest of the days of the week. This reduces setup time.

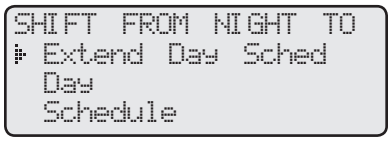


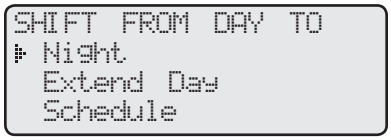
SHIFT

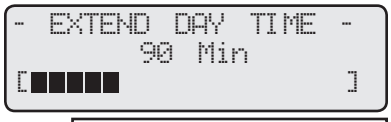
Night, Day, Extended Day, Schedule **Default: Day**

SELECT *Settings/Shift*

- There may be times when it is desirable to temporarily override the schedule because of special circumstances such as a holiday or a school activity that has run over its scheduled time. Rather than adjusting the Day/Night schedule to meet this special circumstance, and possibly forgetting to restore the correct settings afterward, the MPC Platinum is equipped with a Shift option.
- The Shift option will immediately change the status of the MPC Platinum from Day to Night, or Night to Day, without changing the program schedule.
- By selecting *Night* or *Day*, the shift is permanent until the clock advances to the next setting on the schedule. For instance, if you shift the control into Night on Friday afternoon at 3 pm, and the next Day setting is not until Monday at 6 am, the control will remain in Night until Monday morning at 6 am.
- The *Extend Day Sched* shifts from Night into Day. The shift only lasts a predetermined and adjustable period. This period is set using the *Extend Day Time*. Use this shift when a short extension of the Day heat level is required. The MPC Platinum will automatically return to Night after the time has elapsed.
- The *Extend Day* option is similar to the *Extend Day Sched* in that it provides an additional Day heat time. The only difference is that it can be set in the Day period. When the control observes an upcoming Night period, it starts the *Extended Day* period.
- By selecting *Schedule*, the MPC Platinum will check the schedule and set the heat level accordingly.





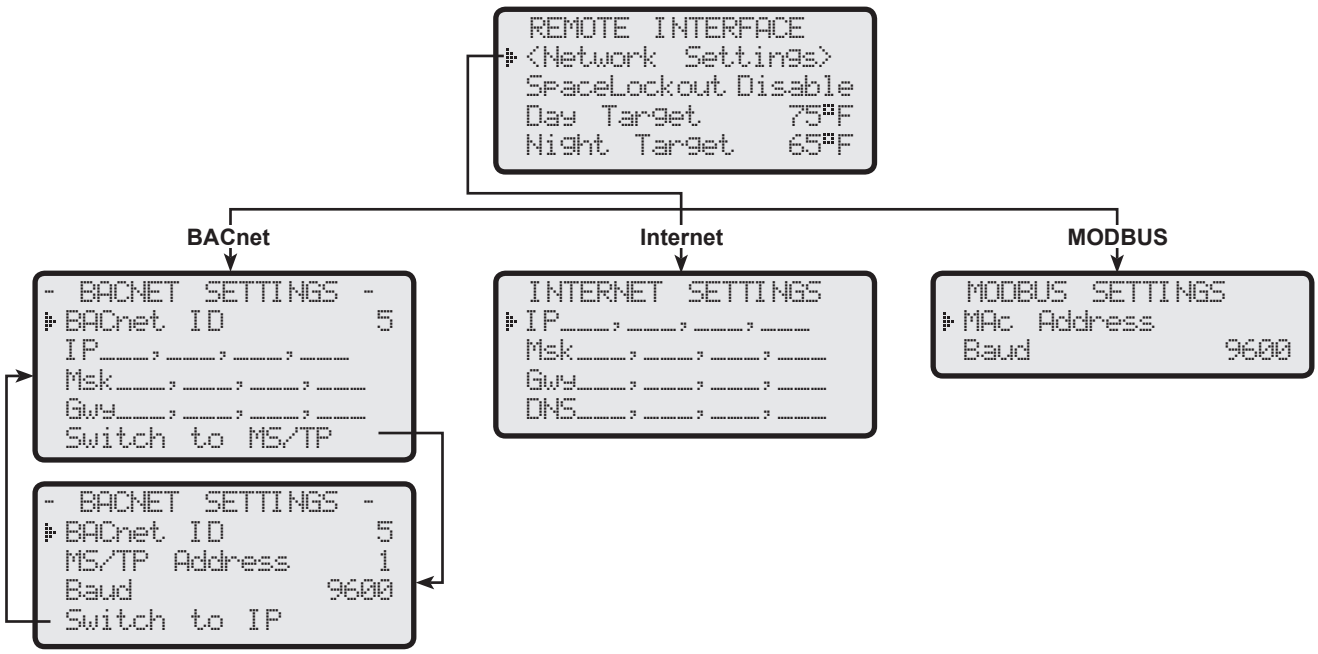


⚠ ALERT
No user security applies to the Shift feature.

COMMUNICATION OPTIONS

The MPC Platinum has several communication options:

- Internet Communication
- BACnet IP or MS/TP communication
- MODBUS RTU communication



INTERNET COMMUNICATION FEATURES

The MPC Platinum RINet (with Internet connection) has many features and benefits.

- Boiler and Sensor status, values, and settings. Provides "Live" status and editing capability of Platinum control settings and values from virtually anywhere using a computer with Internet access.
- Space Temperatures. Gives accurate feed back of heating levels in different parts of the building.
- Alarms. Multiple alarms can be set for specific conditions either based on control operation or sensor status. Each alarm can be configured to send a message through a variety of means (web control status, e-mail, and cellular text messages).
- Vari-Boost Enhancements. With Space Lockout activated, Boost can end sooner if the Space Average reached the Day Target. In addition, Boost can extend up to an hour if the Space Average did not reach the target during the Boost period.
- Fast Cool Down. With Space Lockout set to Enable, the Fast Cool Down turns the outputs off to cool the building down faster when switching from Day to Night (Setback) until the Night Target is reached.
- Water Meter Inputs. The MPC Platinum is designed to connect to a variety of sensors including a water meter sensor. Thus providing water consumption monitoring. This can be used to detect boiler feed or building water leaks.
- Oil Tank Levels. Platinum controls can be connected to Oil Tank Level Monitor to send an alarm when low levels are reached or measure daily oil consumption.
- Boiler and Cycle Time-lines. Multiple history graphs showing boiler operation based on the input as well as the control logic.
- History. Displays a graphical history of the sensor readings based on predetermined intervals.
- Data Export. Send spreadsheet reports of history of the sensor readings and control settings to an e-mail based on predetermined intervals.

⚠ ALERT

When connecting an Internet control, make sure of the following:

- Control must have a full time Internet access,
- The firewall must forward specific inbound port traffic to the control IP address.
- The Firewall must allow outgoing traffic on port 4133 and incoming traffic on ports 8082 - 8114,
- A Heat-Timer router is required when multiple controls are connected to a single internet connection.

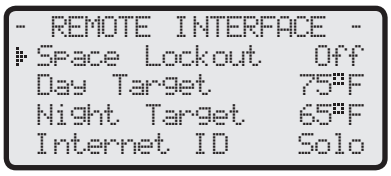
INTERNET COMMUNICATION

Visit (http://www.htcontrols.com)

(Requires Internet Communication Package)

SELECT *Settings/System Settings/More Settings/Remote Interface*

- The MPC Platinum can connect to the Internet for remote monitoring and setting changes.
- It can communicate to a large number of sensors.



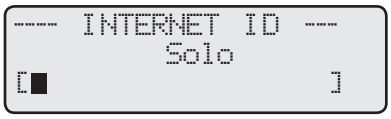
INTERNET ID

(Requires RINet Package)

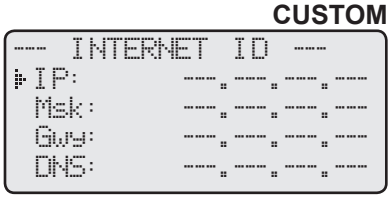
Solo, 1-31, Custom Default: Solo

SELECT *Settings/System Settings/More Settings/Remote Interface/Internet ID*

- The Solo option is for a single control with no Internet firewall to block or rout traffic.
- When multiple controls connect to single Internet connection, each control requires a unique Internet ID number from (1-31).
- The Custom option allows the user to manually configure the Internet connection.



CUSTOM

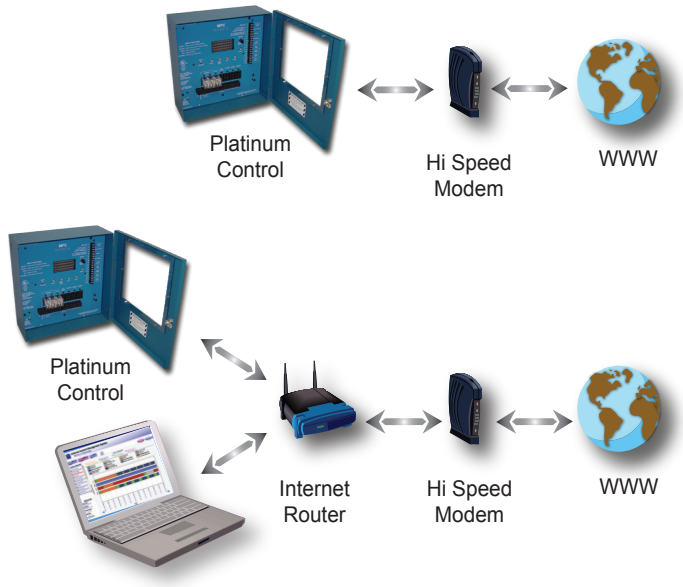


⚠ ALERT

When connecting multiple controls to the Internet, an Internet router is required.

INTERNET PORT FORWARDING TABLE

Internet ID	Actual IP	Port to Forward
Solo	N/A	8082
1	---.---.---.101	8082
2	---.---.---.102	8083
3	---.---.---.103	8084
4	---.---.---.104	8085
5	---.---.---.105	8086
6	---.---.---.106	8087
7	---.---.---.107	8088
8 - 31	---.---.---.108 to ---.---.---. 131	8089 to 8112
32	---.---.---.132	8113
Custom	Any IP	8082



OVERRIDE REMOTE CHANGES

(Requires RINet Package)

- With Internet communication, any remotely changed setting is automatically set to override. An overridden setting will have a star next to its value on the control display. In addition, it will not be modifiable unless the password is entered.
- Internet controls offers the capability of taking a specific value out of its override status. Just go to the ICMS System Override webpage and click the button to the right of that setting.
- To take all settings out of override, go the ICMS System Overrides webpage and select “Remove all Overrides” button.
- To allow an Internet communication control overridden values to be adjusted locally, the Control Password Mode under the Maintenance live session must be set to either “Only Overrides Require Password” or “All Changes Require Password”.

⚠ WARNING

Any setting that is changed remotely will automatically be set to override. An overridden setting is not adjustable unless "ONLY OVERRIDES REQUIRES PASSWORD" or "ALL CHANGES REQUIRE PASSWORD" has been selected from the Internet Maintenance screen.

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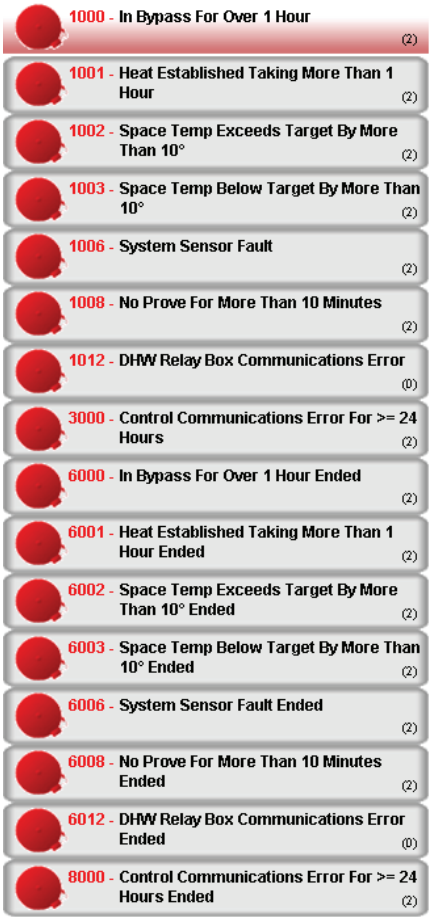
INTERNET ALARMS

- The MPC Platinum RINet has a set of pre-configured control alarms that can be activated through the Internet ICMS website by visiting the control Alarm Configuration webpage.
- Activate any alarm by creating at least one delivery. Simply, click on the *Alarm* button. Then, add a delivery by clicking on the *Add Delivery* button on the right hand side of the screen. A delivery method option (Web or e-mail) must be selected from the drop down list. Then, fill the fields with the delivery information including subject, e-mail, and message.
- A delivery can be in the form of a web alarm (the building and control icons will have a Red dot), an e-mail alarm, a text message to a cell phone (it is an e-mail in the form of 1111111111@CellCompany.com where "CellCompany.com" portion will vary with the cell phone carrier).

- The MPC Platinum control alarms are:
  - (#1000) In Bypass for Over 1 Hour: This alarm generates if the control has been set to Bypass either locally (Auto/bypass switch) or remotely for a full continuous hour. See "AUTO/BYPASS Switch" on page 16.
    (#6000) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
  - (#1001) Heat Established Taking More than 1 hour: This alarm will be sent only if the establishing heat took longer than 1 hour.
    (#6001) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
  - (#1002)/(#1003) Space Temp Exceeds/Below Target by More Than 10°: This alarm generates if the space average over the past two hours has averaged 10°F above or below the space target.
    (#6002)/(#6003) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
  - (#1006) System Sensor Fault: This alarm generates whenever the System sensor reads open or short.
    (#6006) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
  - (#1008) No prove for More Than 10 Minutes: This generates whenever there is a call for output but the Prove terminals have not been shorted for over 10 minutes.
    (#6008) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
  - (#1012) The DHW-ES (Purchased separately (HT# 926769-00)) has no communication for 1 minute.
    (#6012) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
  - (#3000) The Platinum control could not establish a dependable two way communication with the Heat-Timer Servers for over 24 hours.
    (#8000) Is an end alarm that can be set to indicate that the initial alarm status has terminated.



Internet control web Control Alarms

BACNET COMMUNICATION FEATURES

The MPC Platinum BAC (with BACnet IP and BACnet MSTP connections) has many features and benefits.

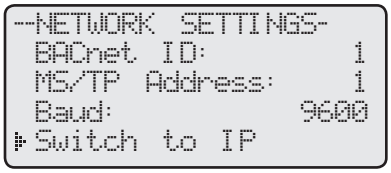
- Boiler and Sensor status, values, and settings. Provides "Live" status and editing capability of Platinum control settings and values from the BACnet network.
- The Data collected can be used to create a historical log, and trigger alarms.

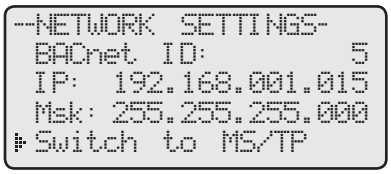
BACNET COMMUNICATION

(Requires BACnet Communication Package)

SELECT: *MENU/<Settings>/<More Settings>/<Remote Interface>/Network Settings*

- Before connecting the Platinum control to the BACnet network, the user must set the following parameters according to the BACnet Network Administrator's instructions.





⚠ ALERT

MODBUS capable Platinum controls will display `--NETWORK PANEL--` on the 2nd row of the display when in screen saver mode.

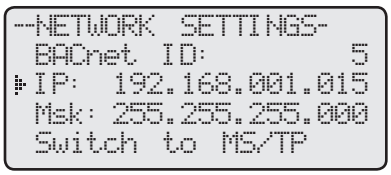
SELECTING BACNET IP OR BACNET MSTP

SELECT: *MENU/.../ Network Settings/Switch to IP or MSTP*

- The same Platinum control can operate within a BACnet IP or BACnet MSTP network.
- To switch to BACnet IP from the MSTP menu, select the `Switch to IP` option.
- To switch to BACnet MSTP from the IP menu, select the `Switch to MS/TP` option.

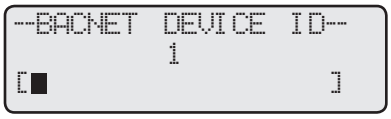
BACNET IP CONFIGURATION

- Any Heat-Timer Platinum control can come as or be upgraded to communicate over a BACnet IP network either directly or through a gateway with the BACnet IP driver.
- Using a gateway is beneficial when communicating to a proprietary protocol EMS/BMS system. The gateway must have both drivers, the BACnet IP or MSTP and the proprietary protocol.



BACNET DEVICE ID

- This is a 32 bit unique number within the BACnet network. It identifies the Platinum control within the BACnet network. The BACnet Network Administrator must provide that information.

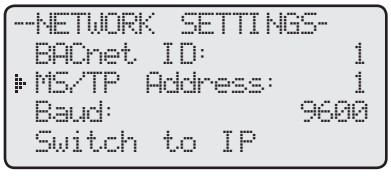


IP AND MASK ADDRESSES

- The Platinum control IP address must be unique within the IP network.
- The Network Administrator needs to provide both of the IP and Mask addresses.
- Leaving the IP and Mask Addresses blank or 000.000.000.000 enables a DHCP server to assign the addresses.
- If no DHCP server is active, the control must use a static IP and Mask. Enter the IP address in the `IP` field and the Mask in the `Msk` field. After dialing each octet , press the *ADJUST/SELECT* button to accept and move on to the next octet.

BACNET MSTP CONFIGURATION

- Any Heat-Timer Platinum control can come as or be upgraded to communicate over a BACnet MSTP network either directly or through a gateway with the BACnet MSTP driver.
- Using a gateway is beneficial when communicating to a proprietary protocol EMS/BMS system. The gateway must have both drivers, the BACnet IP or MSTP and the proprietary protocol.



BACNET DEVICE ID

- This is a 32 bit unique number within the BACnet network. It identifies the Platinum control within the BACnet network. The BACnet Network Administrator must provide that information.

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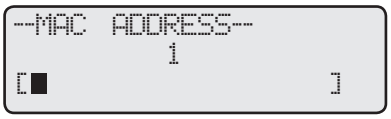
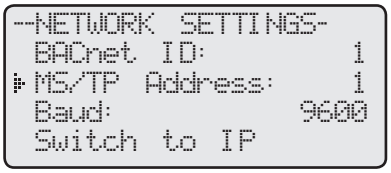
MS/TP ADDRESS/ MAC ADDRESS



- This is the MSTP MAC address on a RS485 network. Its MSTP range is 1 though 127. It is a unique address within the network.
- The MS/TP address must be provided by the Network Administrator.

MSTP BAUD RATE



Options: **9600, 19200, 38400** **Default: 9600**

- The Baud determines the speed of communication.
- Both the Platinum control and BMS must use the same Baud rate.
- The communication is fixed to 8 Data Bits, No Parity, and 2 Stop Bits.

MPC PLATINUM BACNET VARIABLE LIST

MPC Platinum OBJ ID	NAME	DESCRIPTION	TYPE♦	UOM	RANGE / STATES / SPECIAL VALUES	READ ONLY
0	BOOSTADJ	Vari-Boost Adjustment	AV	none (95)	0.1 - 6.4	
100	BOOSTMODE	Boost Mode	MV		1=BoostOff, 2=ManualBoost, 3=VariDay, 4=VariDayNight	
200	BOOSTTIME	Manual Boost Time	AV	Minutes(72)	0 - 120	
300	BPTIME	Bypass Time	AV	Minutes(72)	0 - 2,147,483,647	X
400	BYPASSMODE	Bypass Mode	BV		0=AUTO, 1=ON	
500	CLENGTH	Cycle Length	AV	Minutes(72)	10 - 240	
600	DADJUST	Day Heat Adjustment	MV		1=A, 2=B, 3=C, 4=D, 5=E, 6=F, 7=G, 8=H, 9=I, 10=J, 11=K, 12=L,13=M, 14=N, 15=O, 16=P	
700	DCUTOFF	Outdoor Day Cutoff	AV	°C(62), °F(64)	-6 - 38°C, 20 - 100°F	
800	DLS	Day Light Saving	BV		0=Enable, 1=Disable	
900	FAULTMODE	Sensor Fault Mode	BV		0=OutputOn, 1=OutputOff	
1000	HDIFF	System Differential	AV	°C(62), °F(64)	2 - 42°C, 3 - 75°F	
1100	INMODE	Sensor Mode	BV		0=°F, 1=°C	
1200	NADJUST	Night Heat Adjustment	MV		1=A, 2=B, 3=C, 4=D, 5=E, 6=F, 7=G, 8=H, 9=I, 10=J, 11=K, 12=L,13=M, 14=N, 15=O, 16=P	
1300	NCUTOFF	Outdoor Night Cutoff	AV	°C(62), °F(64)	-6 - 38°C, 20 - 100°F	
1400	ODTEMP	Outdoor Sensor	AV	°C(62), °F(64)	-40 - +122°C, -40 - +250°F	X
1500	ODTRIM	Outdoor Sensor Trim	AV	°C(62), °F(64)	-3 - +3°C, -5 - +5°F	
1600	OPMODE	Operation Mode	BV		0=Burner/valve, 1=District Steam	
1700	OUTPUT	Output Relay	BV		0=Off, 1=On	X
1800	PDATE	Panel Date	AV	Days (70) since 1/1/1981	0 - 2,147,483,647	
1900	PTIME	Panel Time	AV	Minutes(72) since 0:00	0 - 1439	
2000 through 2055	SCHEDULES00 through SCHEDULES55	Schedules	AV	Minutes(72) since 0:00	0 - 1439, 1440=empty schedule	
2100	SEASON	Season	BV		0=Winter, 1=Summer	
2200	SHIFT	Day/Night Shift	MV		1=To-Day, 2=To-Night, 3=Extend-Day, 4=To-Schedule	
2300	SRUNON	System Run-on	AV	Minutes(72)	0 - 60	
2400	SYSSEN	System Sensor	AV	°C(62), °F(64)	-40 - +122°C, -40 - +250°F	X
2500	SYSTEM	System Relay	BV		0=Off, 1=On	X
2600	SYTRIM	System Sensor Trim	AV	°C(62), °F(64)	-3 - +3°C, -5 - +5°F	

MPC Platinum OBJ ID	NAME	DESCRIPTION	TYPE♦	UOM	RANGE / STATES / SPECIAL VALUES	READ ONLY
2700	TLOCKOUT	Thermal Lockout Enable	BV		0=OFF, 1=ON	
2800	XYZMIN	District Steam Delay	AV	Minutes(72)	0 - 30	
2900	XYZTEMP	System Setpoint	AV	°C(62), °F(64)	21 - 122°C, 70 - 250°F	
3000	ZMAXTGT	Max Target Temperature	AV	°C(62), °F(64)	32 – 116°C, 90 – 240°F	

MPC Platinum Notes

♦ AV=analog value(2), BV=binary value(5), MV=multi-state value(19).

Note: The device object id is set through the menus. The device object name is 'HTC_' followed by the panel serial number.

Note: All objects with multiple UOM's depend upon the value of INMODE to determine which one to use.

Note: Use XYZMIN when OPMODE is set to District Steam. Use XYZTEMP, HDIFF and TLOCKOUT when OPMODE is set to Burner/valve.

Note: Use BOOSTADJ when BOOSTMODE is set to VariDay and VariDayNight. Use BOOSTTIME when BOOSTMODE is set to ManualBoost.

Note: The MPC Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Instance 2000 is the first DAY schedule of Monday; Instance 2001 is the first NIGHT schedule of Monday; Instance 2008 is the first DAY schedule of Tuesday; Instance 2009 is the first NIGHT schedule of Tuesday and so on.

Note: Use the MPC Platinum installation menu for supplementary information.

BACNET PICS STATEMENT

Product	Model Number	Protocol Revision	Software Version	Firmware Version
Platinum series BACnet Controls	Varies	1.5	tbd	tbd

Vendor	Vendor ID	Address and Phone
Heat-Timer Corporation	248	20 New Dutch Ln. Fairfield, NJ 07004 - (973)575-4004

Product Description
MPC Platinum control for hot water heating applications. (see http://www.heat-timer.com for more information)

BACnet Standardized Device Profile (Annex L)

Product	Device Profile
Platinum series BACnet Controls	BACnet Application Specific Controller (B-ASC)

Supported BIBBs (Annex K)

Supported BIBBs	BIBB Name
DS-RP-B	Data Sharing-ReadProperty-B
DS-WP-B	Data Sharing-WriteProperty-B
DM-DDB-B	Device Management-Dynamic Device Binding-B
DM-DOB-B	Device Management-Dynamic Object Binding-B
DM-DCC-B	Device Management-DeviceCommunicationControl-B

Standard Object Types Supported

Object Type	Creatable	Deletable
Analog Value	No	No
Binary Value	No	No
Multi-State Value	No	No
Device	No	No

Data Link Layer Options (Annex J)

Product	Data Link	Options
Platinum series BACnet Controls	BACnet/IP	

Segmentation Capability

Segmentation Type	Supported	Window Size (MS/TP product limited to 1)
Able to transmit segmented messages	No	
Able to receive segmented messages	No	

Device Address Binding

Product	Static Binding Supported
Platinum series BACnet Controls	No

Character Sets

Product	Character Sets supported
Platinum series BACnet Controls	ANSI X3.4

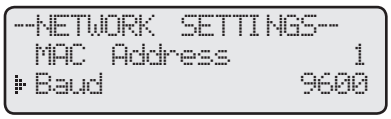
MODBUS COMMUNICATION FEATURES

The MPC Platinum BUS (with MODBUS RTU connections) has many features and benefits.

- Boiler and Sensor status, values, and settings. Provides "Live" status and editing capability of Platinum control settings and values from the MODBUS network.
- The Data collected can be used to create a historical log, and trigger alarms.

MODBUS RTU COMMUNICATION CONFIGURATION

- If the Platinum control is purchased with or upgraded to a MODBUS communication, the following settings must be configured to guarantee proper communication.



MODBUS COMMUNICATION OPTIONS

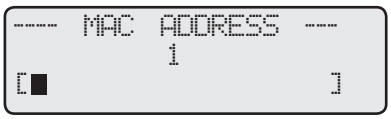
SELECT: *MENU/<Settings>/<More Settings>/<Remote Interface>/Network Setting*

- Before connecting the Platinum control to the MODBUS network, the user must set the following parameters according to the MODBUS Network Administrator's instructions.

MAC ADDRESS

Options: **From 1 to 247** **Default: 1**

- This is a unique ID within the MODBUS network. It must be provided by the MODBUS Network Administrator.



MODBUS BAUD

Options: **9600, 19200, 38400** **Default: 9600**

- The Baud determines the speed of communication.
- Both the Platinum control and BMS must use the same Baud rate.
- The communication is fixed to 8 Data Bits, No Parity, and 2 Stop Bits.

⚠ ALERT

MODBUS capable Platinum controls will display --NETWORK PANEL-- on the 2nd row of the display when in screen saver mode.

MPC PLATINUM MODBUS VARIABLE LIST

MPC Platinum REG / VARIABLE#	DESCRIPTION	MULT ♦1 (if not 1)	UOM	RANGE / STATES / SPECIAL VALUES	READ ONLY
1 – 3	Model			6 Character string ♦3	X
4 – 13	Serial Number			20 Character string ♦3	X
14	Firmware Version	100			X
15	Vari-Boost Adjustment	10	none	0.1 – 6.4	
16	Boost Mode			0=Disabled, 1=Manual, 2=Vari, 3=Vari+ESD	
17	Manual Boost Time		Minutes	0 – 120	
18,19	Bypass Time		Minutes	0 – 2,147,483,647 ♦4	X
20	Bypass Mode			0=AUTO, 1=ON	
21	Cycle Length		Minutes	10 – 240	
22	Day Heat Adjustment			0 – 15 = A – P	
23	Outdoor Day Cutoff		°C, °F	-6 – 38°C, 20 – 100°F	
24	Day Light Saving			0=Enable, 1=Disable	
25	Sensor Fault Mode			0=OutputOn, 1=OutputOff	
26	System Differential		°C, °F	2 – 42°C, 3 – 75°F	
27	Sensor Mode			0=°F, 1=°C	

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MPC Platinum REG / VARIABLE#	DESCRIPTION	MULT ♦1 (if not 1)	UOM	RANGE / STATES / SPECIAL VALUES	READ ONLY
28	Night Heat Adjustment			0 – 15 = A – P	
29	Outdoor Night Cutoff		°C, °F	-6 – 38°C, 20 – 100°F	
30	Outdoor Sensor		°C, °F	-40 – 122°C, -40 – +250°F (32000=Open, 32001=Shorted) ♦2	X
31	Outdoor Sensor Trim		°C, °F	-3 – +3°C, -5 – +5°F	
32	Operation Mode			0=Burner/valve, 1=District Steam	
33	Output Relay			0=Off, 1=On	X
34	Panel Date		Days since 1/1/1981	0 – 36500	
35	Panel Time		Minutes since 0:00	0 – 1439, 1440=not set	
36 through 91	Day/Night Schedules		Minutes since 0:00	0 – 1439, 1440=not set	
92	Season			0=Winter, 1=Summer	
93	Day/Night Shift			0=To-Day, 1=To-Night, 2=Extend-Day, 3=To-Schedule	
94	System Run-on		Minutes	0 – 60	
95	System Sensor		°C, °F	-40 – 122°C, -40 – +250°F (32000=Open, 32001=Shorted) ♦2	X
96	System Relay			0=Off, 1=On	X
97	System Sensor Trim		°C, °F	-3 – +3°C, -5 – +5°F	
98	Thermal Lockout Enable			0=OFF, 1=ON	
99	District Steam Delay		Minutes	0 – 30	
100	System Setpoint		°C, °F	21 – 122°C, 70 – 250°F	

MPC Platinum Notes

♦1 If specified, divide a read value by this to obtain the actual value – Multiply desired value by this before writing.
♦2 For variables that specify them, if a read value is a special value (32000 - 32005), do not divide by 'MULT'.
♦3 Strings are packed 2 characters per register, most significant byte first.
♦4 Multi-register values are stored ***big endian*** (first register x 65536 + second register = value).

Note: All variables are stored as 'Holding Registers'. MODBUS functions :
- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

Note: All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use.

Note: Use 'District Steam Delay' when 'Operating Mode' is set to District Steam. Use 'System Setpoint', 'System Differential' and 'Thermal Lockout Enable' when 'Operation Mode' is set to Burner/valve.

Note: Use 'Vari-Boost Adjustment' when 'Boost Mode' is set to Vari-Day or Vari+ESD. Use 'Manual Boost Time' when 'Vari-Boost Adjustment' is set to Manual Boost.

Note: The MPC Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Register 38 is the first DAY schedule of Monday; Register 39 is the first NIGHT schedule of Monday; Register 46 is the first DAY schedule of Tuesday; Register 47 is the first NIGHT schedule of Tuesday and so on.

Note: Use MPC Platinum Installation and Operation manual for supplementary information.

TROUBLESHOOTING

Sensor Inputs

Display shows Sensor OPEN or SHORT

- When any sensor reads OPEN, check if the sensor wires are continuous to the MPC Platinum. Use an Ohm meter to measure the resistance between the sensor wires when they are not connected to the control. If the readings are out of the Temperature Sensor Chart range, follow the procedure for Display Shows Incorrect Temperature.
- When in SHORT, remove the wires from the sensor terminals. The display should change to read OPEN. If it does not, the MPC Platinum may be damaged.

Display shows an Incorrect Temperature

Remove the wires from the sensor terminals. The display should change to read OPEN. If it does not, the MPC Platinum may be damaged. Using a multi-meter set to measure resistance, take an ohm reading across the detached sensor wires. The ohm reading should correspond to the Temperature Sensor Table. If it does not, the sensor may be damaged and needs to be replaced. Note that sensors are not designed to be placed in the water or steam. A well (HT# 904011-00) or a strap-on sensor (HT# 904220-00) must be used.

Control Operation

Too Much Heat

Check if the control has any of the following conditions:

- **Bypass Mode** - The MPC Platinum will only manage the boiler or valve if the Bypass switch is set to Auto. See "AUTO/BYPASS Switch" on page 16.
- **Day/Night Heat Adjustment** - If the overheating occurs only during day hours, decrease the Day Heat Adjustments. If the overheating occurs only during night hours, decrease the Night Heat Adjustments. See "Day and Night Heat Adjustment" on page 23.
- **Boost Settings** - If the excess heat is only during the morning, then check the Boost settings. You may need to reduce the Vari Boost curve. If the control is set to Manual Boost, reduce the Manual Boost Time or switch to Vari Boost as Manual Boost is not affected by the weather. See "Boost Mode" on page 26.
- **Outdoor Cutoff Settings** - If the Outdoor Cutoff setting is too high during mild weather, the building may over-heat. Also, if the Outdoor Cutoffs are set too high during colder weather, the result may be longer Cycle-ON periods. See "Day and Night Outdoor Cutoff" on page 24.
- **System Set Point** - If the control takes a long time to establish heat, it will overheat the building. Re-adjust the set point correctly. See "System Set Point" on page 24.
- **Thermal Lockout** - If the Thermal Lockout is disabled, the control may start another cycle when there is additional energy in the system. See "Thermal Lockout" on page 28.
- **Space Lockout** - If the Space Lockout is disabled or no space sensor are available, the control may start another cycle when the space is already satisfied. See "Space Lockout" on page 28.

Too Little Heat

Check if the control has any of the following conditions:

- **Day/Night Schedule** - If reduced heat occurs only during specific hours, check the Day/Night Schedule. Make sure to view all the schedule settings for each of the week days. See "Schedules" on page 29..
- Day/Night Heat Adjustment - You may need to increase the Heat Adjustment for either the Day or the Night, depending on the low-heat period. See "Day and Night Heat Adjustment" on page 23.
- **Outdoor Cutoff Settings** - If the Outdoor Cutoff setting is too low, the building may not get any heat during mild weather. Also, if the Outdoor Cutoffs are set too low during mild weather, the result may be shorter Cycle-ON periods. See "Day and Night Outdoor Cutoff" on page 24.
- **Boost Settings** - If the excess heat was only during the morning, then check the Boost settings. You may need to reduce the Vari Boost curve. If the control is set to Manual Boost, change to Vari Boost as Manual Boost is not affected by the weather. See "Boost Mode" on page 26.
- **System Set Point** - If the control establishs heat in a short time, the return may not be hot enough to heat the building. Re-adjust the set point correctly. See "System Set Point" on page 24.

Temperature Sensor Chart

TEMPERATURE		Value (in Ohms)
°F	°C	
OPEN		150000
-30	-34	117720
-20	-29	82823
-10	-23	59076
0	-18	42683
10	-12	31215
20	-7	23089
25	-4	19939
30	-1	17264
35	2	14985
40	4	13040
45	7	11374
50	10	9944
55	13	8714
60	16	7653
70	21	5941
80	27	4649
90	32	3667
100	38	2914
110	43	2332
120	49	1879
130	54	1524
140	60	1243
150	66	1021
160	71	842
170	77	699
180	82	583
190	88	489
200	93	412
210	99	349
220	104	297
230	110	253
240	116	217
250	121	187
SHORT		100

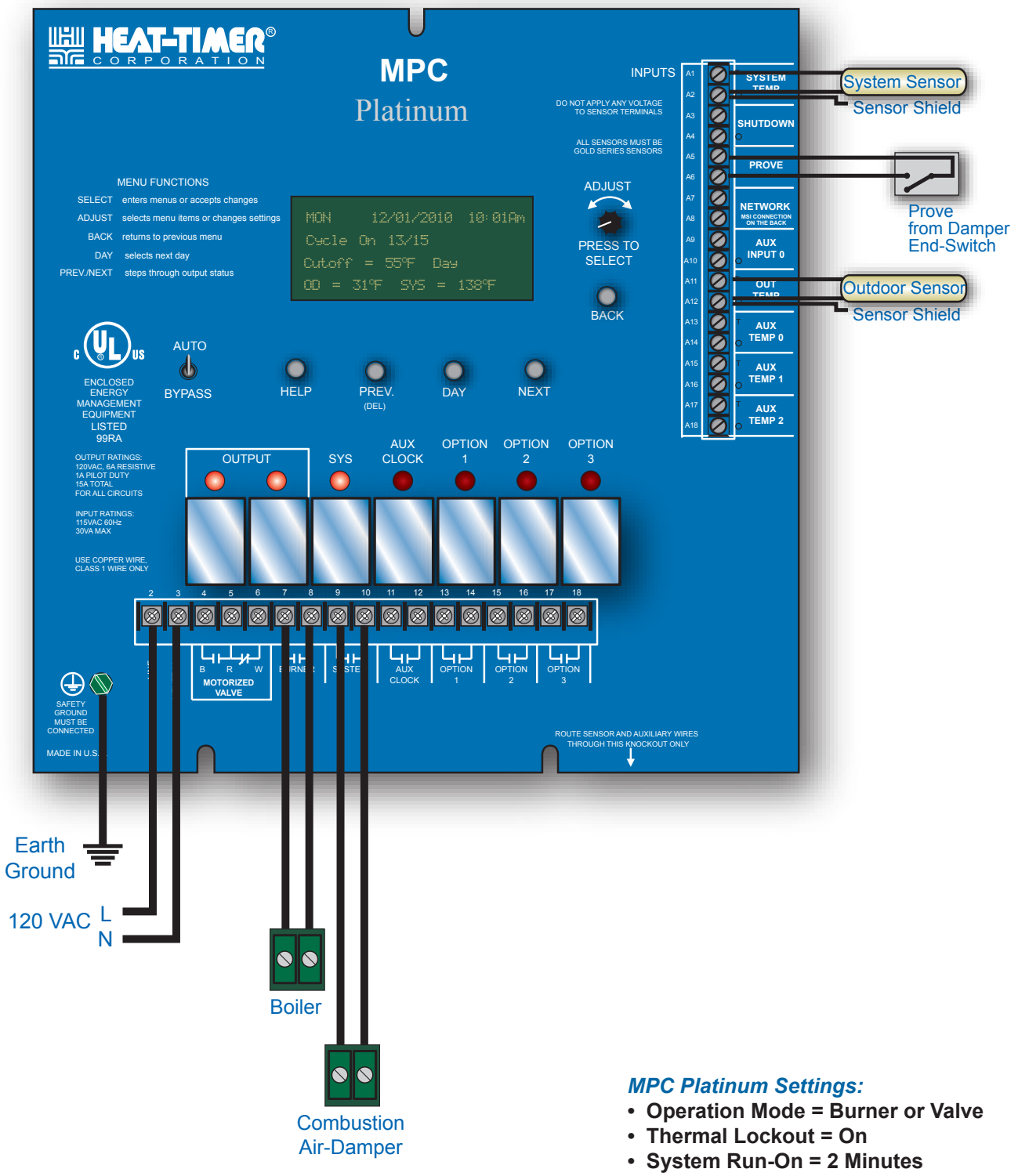
No Heat

Check if the control has any of the following conditions:

- **Season** - The control will not provide any heat if its Season is set to Summer. See "Season" on page 23.
- **Outdoor Cutoff** - If the Outdoor Cutoff was set too low, the control will not provide any heat if the outdoor sensor reading is above the Outdoor Cutoff. See "Day and Night Outdoor Cutoff" on page 24.
- **Shutdown** - If the control Shutdown input is activated, no heat will be provided. The display will show "Shutdown Active" message. See "Wiring the Shutdown" on page 12. See "Display Messages" on page 17.
- **Prove** - If the control Prove input is de-activated, no heat will be provided. The display will show "Waiting for Prove" message. If wires are connected to the Prove input, check the equipment activating the Prove. If no wires are connected, then you must place the factory installed jumper. See "Wiring The Prove" on page 12. See "Display Messages" on page 17.

DIAGRAMS

WIRING: MPC PLATINUM TO A BOILER AND A COMBUSTION-AIR DAMPER



MPC Platinum Settings:

- **Operation Mode = Burner or Valve**
- **Thermal Lockout = On**
- **System Run-On = 2 Minutes**

⚠ ALERT

Since each installation is unique, Heat-Timer Corp. is not responsible for any installation related to any electrical or piping diagram generated. The provided illustrations are to demonstrate the control operating concept only.

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PIPING: MPC PLATINUM OPERATING A BOILER IN A ONE-PIPE STEAM SYSTEM

MPC Platinum Settings:

Operation Mode = Burner or Valve
Thermal Lockout = On

⚠ ALERT

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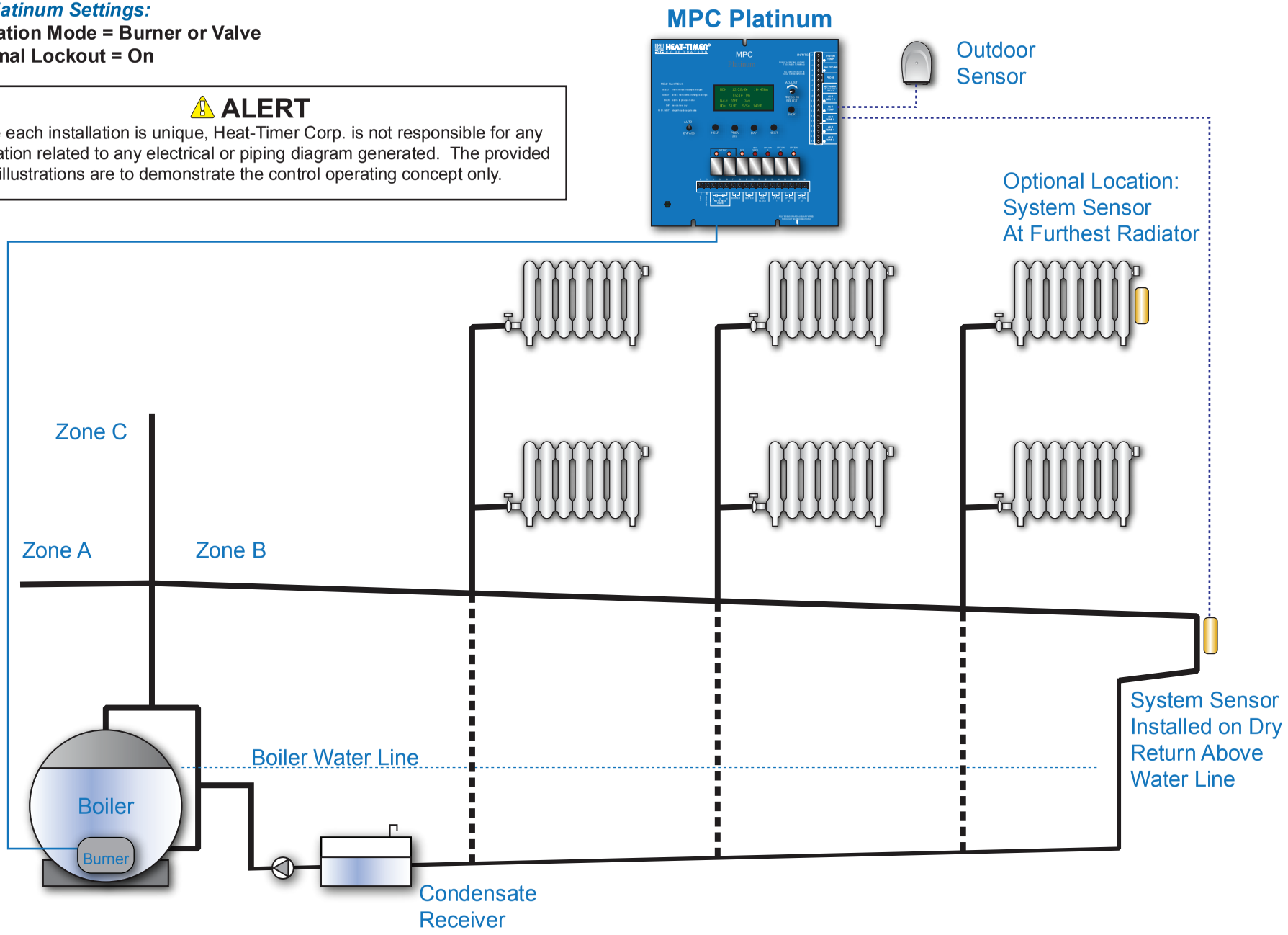

PIPING: MPC PLATINUM OPERATING A BOILER IN A TWO-PIPE STEAM SYSTEM

MPC Platinum Settings:

- **Operation Mode = Burner or Valve**
- **Thermal Lockout = On**

⚠ ALERT

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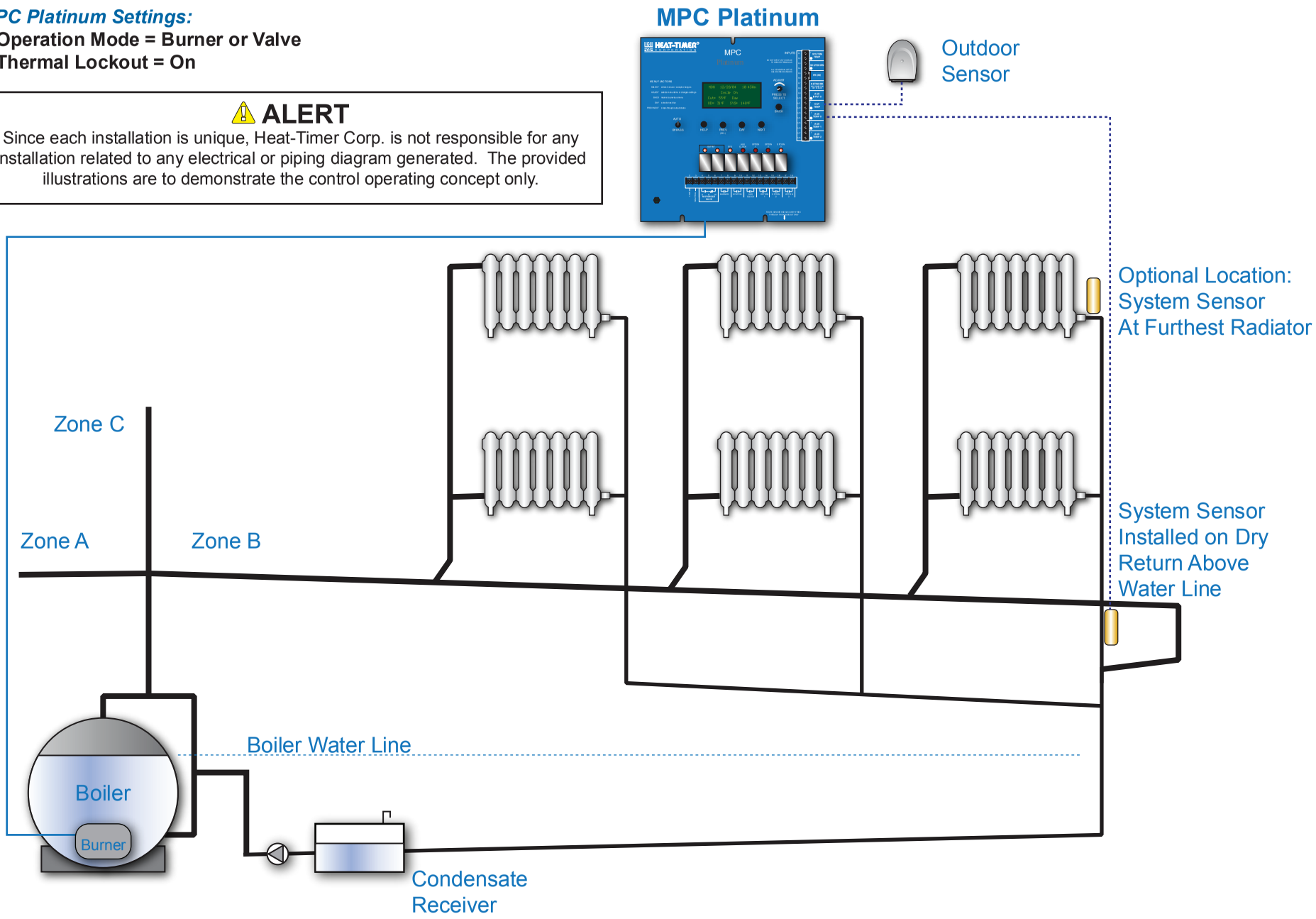
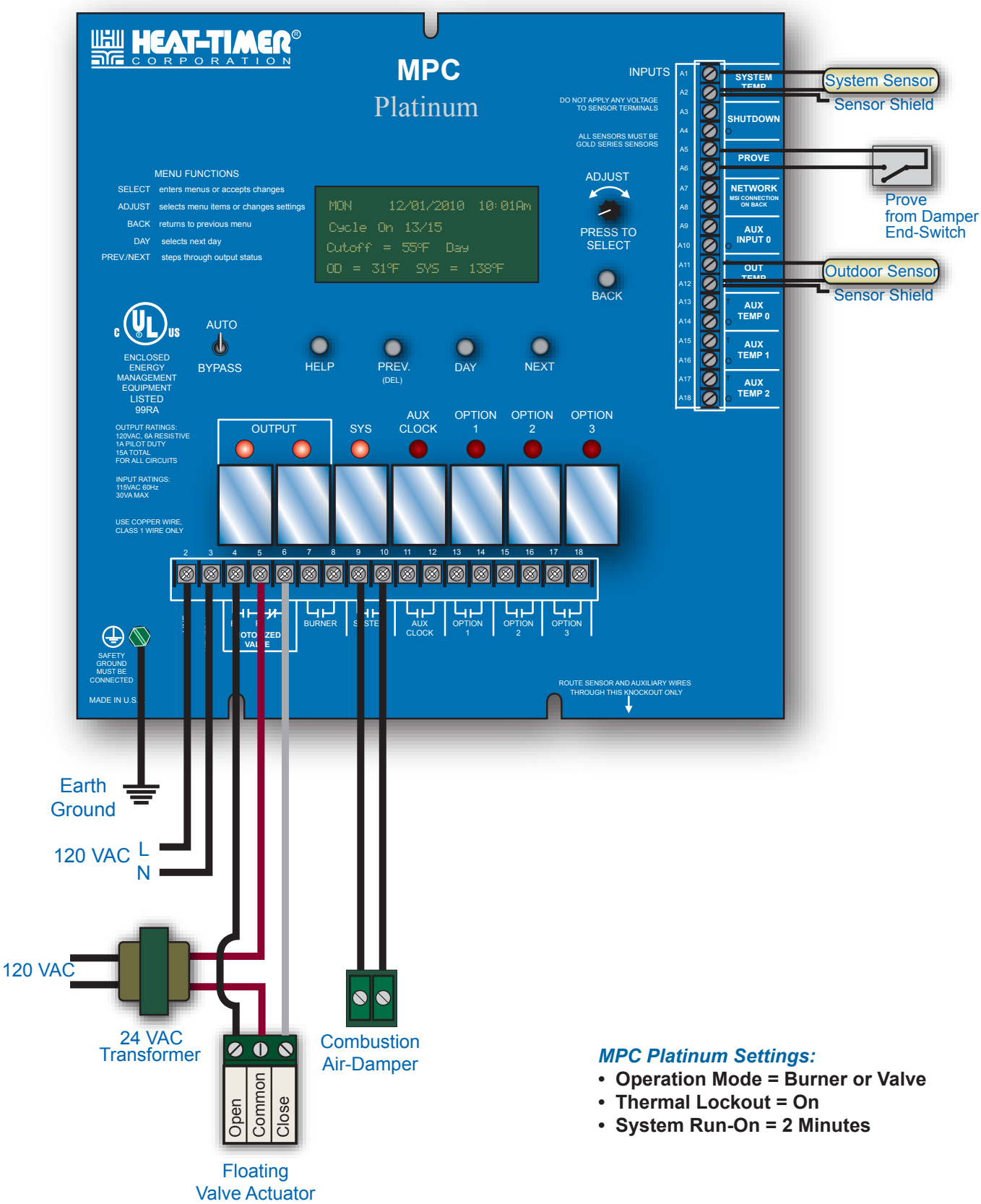


WIRING: MPC PLATINUM TO A MOTORIZED VALVE



MPC Platinum Settings:

- **Operation Mode = Burner or Valve**
- **Thermal Lockout = On**
- **System Run-On = 2 Minutes**

⚠ ALERT

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PIPING: MPC PLATINUM TO A MOTORIZED VALVE IN A ONE-PIPE STEAM SYSTEM

MPC Platinum Settings:

- **Operation Mode = Burner or Valve**
- **Thermal Lockout = On**

⚠ ALERT

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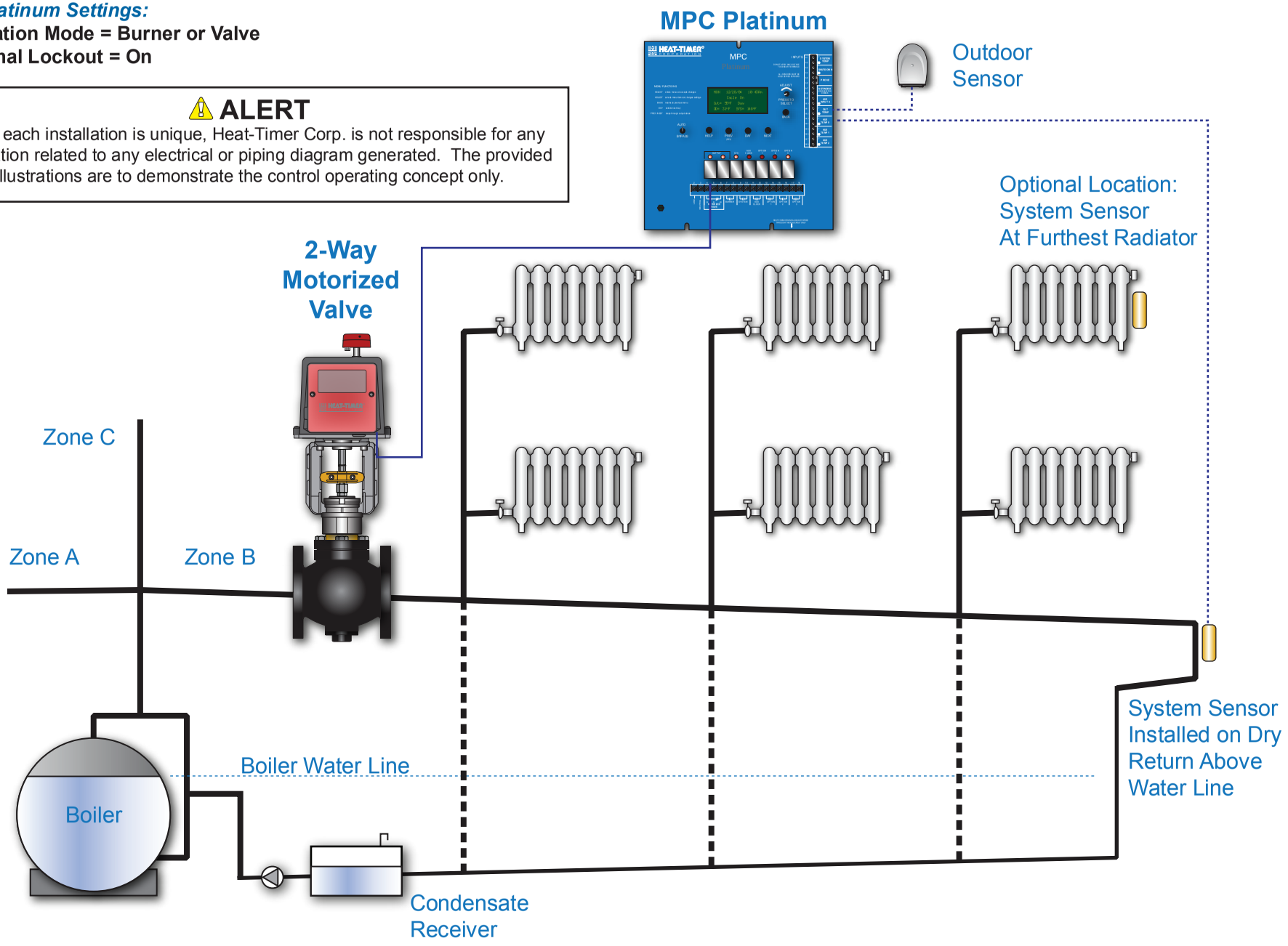


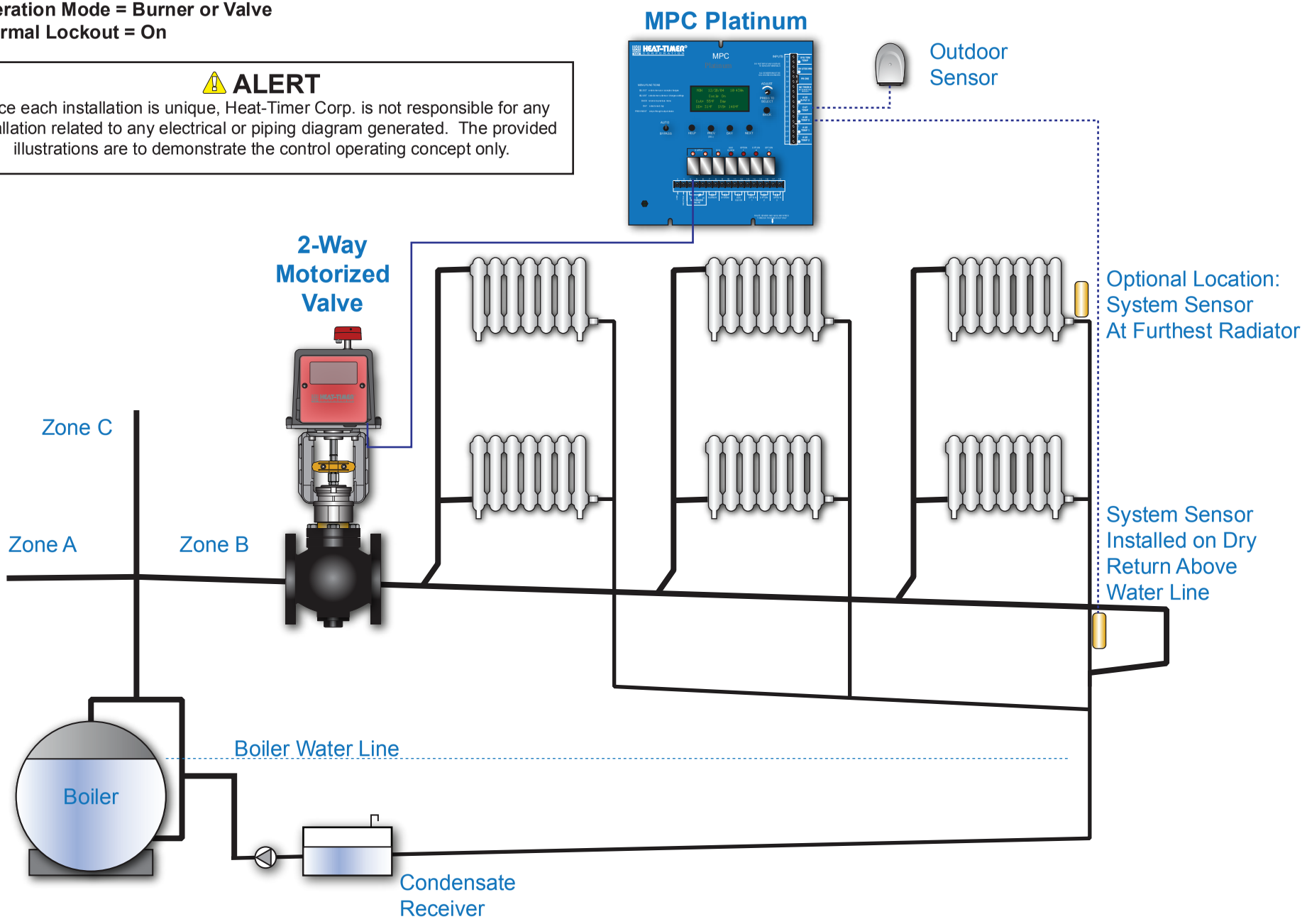
PIPING: MPC PLATINUM TO A MOTORIZED VALVE IN A TWO-PIPE STEAM SYSTEM

MPC Platinum Settings:

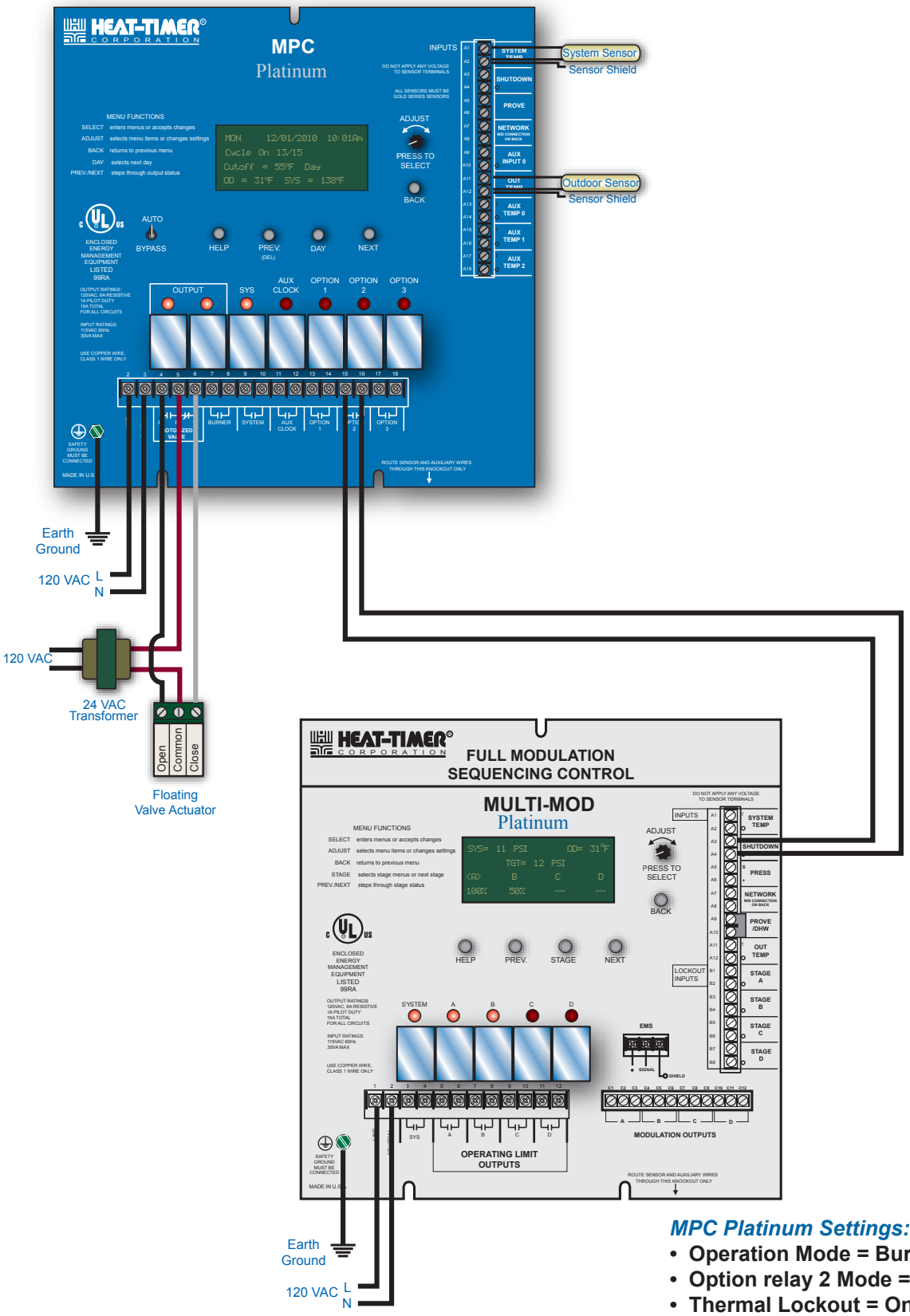
- **Operation Mode = Burner or Valve**
- **Thermal Lockout = On**

⚠ ALERT

Since each installation is unique, Heat-Timer Corp. is not responsible for any installation related to any electrical or piping diagram generated. The provided illustrations are to demonstrate the control operating concept only.



WIRING: MPC PLATINUM TO A MOTORIZED VALVE AND A MULTI-MOD



MPC Platinum Settings:

- **Operation Mode = Burner or Valve**
- **Option relay 2 Mode = Inverse of Output**
- **Thermal Lockout = On**

⚠ ALERT

Since each installation is unique, Heat-Timer Corp. is not responsible for any installation related to any electrical or piping diagram generated. The provided illustrations are to demonstrate the control operating concept only.

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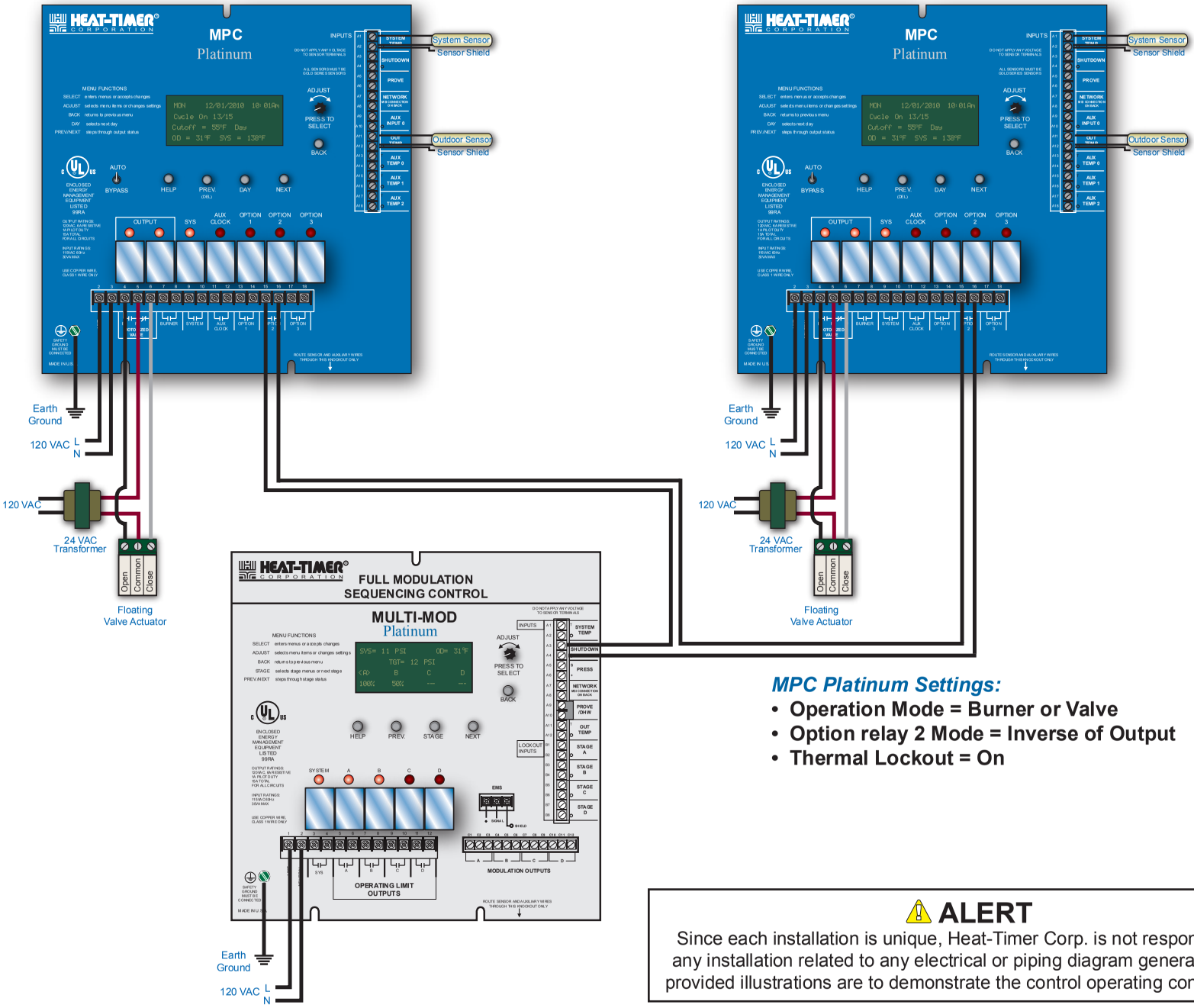
WIRINg: T WO MPC PLATINUMS TO A MOTORIzED VALVES AND A MULTI-MOD



MPC Platinum Settings:

- **Operation Mode = Burner or Valve**
- **Option relay 2 Mode = Inverse of Output**
- **Thermal Lockout = On**

⚠ ALERT

Since each installation is unique, Heat-Timer Corp. is not responsible for any installation related to any electrical or piping diagram generated. The provided illustrations are to demonstrate the control operating concept only.

WARRANTY

WARRANTIES AND LIMITATIONS OF LIABILITY AND DAMAGE: Heat-Timer Corporation warrants that it will replace, or at its option, repair any Heat-Timer Corporation manufactured product or part thereof which is found to be defective in material workmanship within one year from the date of installation only if the warranty registration has been properly filled out and returned within 30 days of the date of installation. Damages to the product or part thereof due to misuse, abuse, improper installation by others or caused by power failure, power surges, fire, flood or lightning are not covered by this warranty. Any service, repairs, modifications or alterations to the product not expressly authorized by Heat-Timer Corporation will invalidate the warranty. Batteries are not included in this warranty. This warranty applies only to the original user and is not assignable or transferable. Heat-Timer Corporation shall not be responsible for any maladjustments of any control installed by Heat-Timer Corporation. It is the users responsibility to adjust the settings of the control to provide the proper amount of heat or cooling required in the premises and for proper operation of the heating or cooling system. Heat-Timer Corporation shall not be required to make any changes to any building systems, including but not limited to the heating system, boilers or electrical power system, that is required for proper operation of any controls or other equipment installed by Heat-Timer Corporation or any contractor. Third Party products and services are not covered by this Heat-Timer Corporation warranty and Heat-Timer Corporation makes no representations or warranties on behalf of such third parties. Any warranty on such products or services is from the supplier, manufacturer, or licensor of the product or service. See separate Terms and Conditions of Internet Control Management System (“ICMS”) services, including warranties and limitations of liability and damages, for ICMS services.

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SPECIFICATIONS:

Voltage Input: 120 VAC 60 Hz
Power Consumption: 30 VA Max/30 Amp Max
Seasons: Winter and Summer
Heating Modes: Burner/Motorized Valve or District Steam
Cycle Length: 10 to 240 minutes
System Output: 1 S.P.S.T
Boiler Motorized Valve Outputs: 1 S.P.D.T. for Motorized Valve and 1 N.O. S.P.S.T. for Burner
Auxiliary /Clock Output: 1 N.O. S.P.S.T. operates based on Auxiliary Schedule
Option Outputs: 3 N.O. S.P.S.T. can be configured to match or invert cycle, Day/Night, Outdoor Cutoffs, or System or Aux/Clock relay operations
Output Relay Ratings: 1 Amp inductive, 6Amp resistive at 120 VAC 60 Hz, 15A total for all circuits
Temperature Display: Fahrenheit or Celsius
Display: 80 character Alphanumeric (4 raws with 20 characters each)
Sensor Ranges: Outdoor or System temperature sensor -35°F/-37°C to 250°F/121°C
System Set Point: 70°F/21°C to 250°F/121°C
System Differential: 3°F/2°C to 75°F/42°C
Thermal Lockout: On/Off
Auxiliary Sensor Inputs: 3 Auxiliary Temperature Sensor Inputs
Network Sensor Input: 64 Sensors can be connected (Use only Neuron Sensors, MIG, or Wireless Receiver.)
Day / Night Outdoor Cutoffs: 20°F/-7°C to 100°F/38°C
Day/ Night Heat Adjustments: A to P (Changes the ratio of the Cycle On to Cycle Off based on a calculated curve)
System Run-On: 0 to 360 minutes
Schedules: 4 Day Time and 4 Night Time (Setback) settings per day
Aux Clock Schedule: 4 open and 4 closed settings per day to control Aux Clock Output relay
Morning Boost:
Vari-Boost - Self-adjusting from 0 to 180 minutes
Early Shutdown - Self-adjusting from 0 to 90 minutes
Manual Boost - adjustable from 0 to 120 minutes
Fast Cycle: For testing only. Changes cycle minutes to seconds
Local Security: Four letter Password Enabled option
Power Backup: Lithium coin battery, 100 days minimum 5 year replacement (Maintains Clock in power outages).
Remote Communications: Internet (RINet)
BACnet IP/MSTP (BAC)
MODBUS RTU (BUS)
External Inputs: 1 Network Input, 3 Aux Inputs, Shutdown Input, and Prove Input
Network Input Maximum Sensors: 64 Neuron Sensors including MIG Sensors.
Season: Winter and Summer
Dimensions: 5-1/8" x 13" x 13"
Weight: 14 pounds
Space Lockout: On/Off
Day Target and Night Target: Day Target (55°F/13°C to 85°F/29°C), Night Target (50°F/10°C to 80°F/27°C)