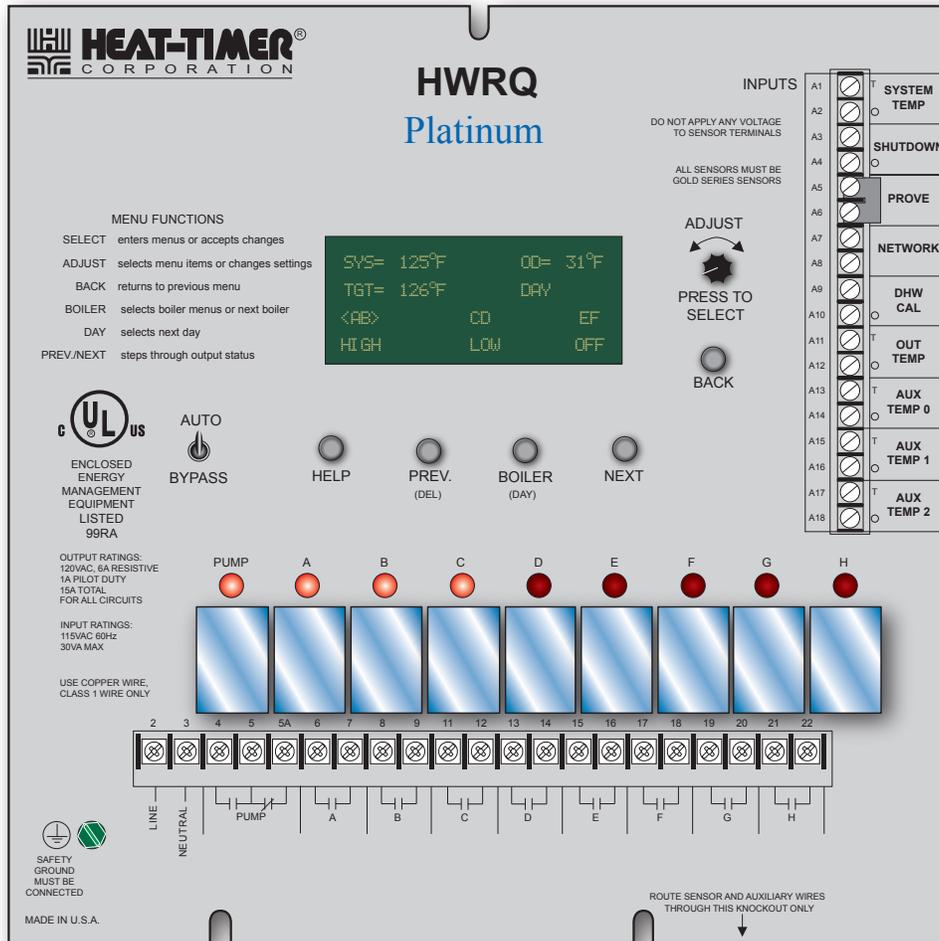


Installation and Operation Manual

Hydronic/Hot Water Outdoor Reset Multiple Boiler Heating Controls

HWRQ 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.

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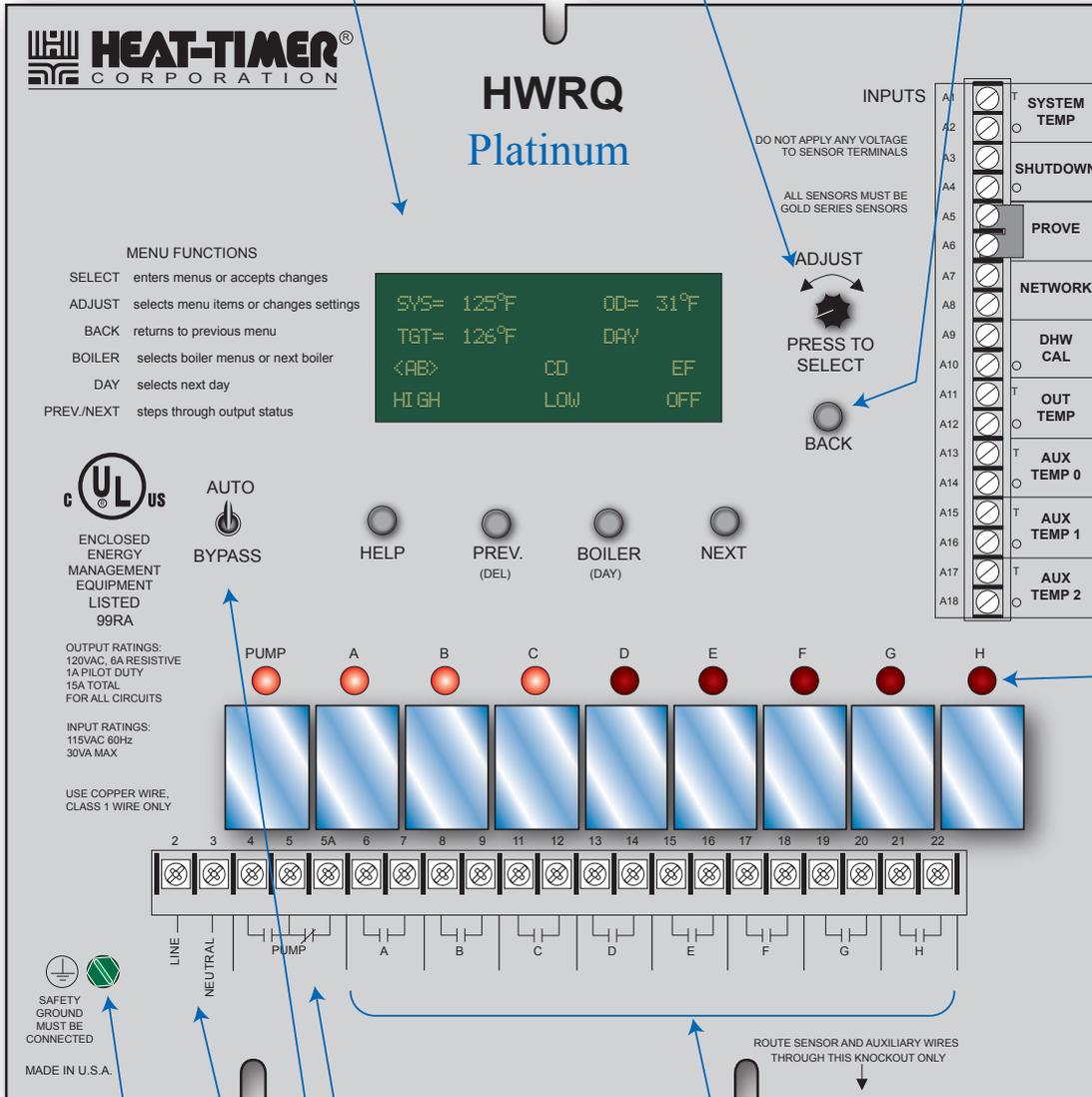
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HWRQ PANEL LAYOUT

Digital display shows the system status, Target, outdoor, and system temperatures. To view and adjust settings, press the Adjust/Select button.

Depress the knob to move forward through the menus and to accept changes. To change a setting's value, rotate the knob.

Depress the button to go back through the menus



From heating system sensor

When closed, all stages are turned off*

Checks status of system components*

From Heat-Timer network sensors**

From DHW Control*

From outdoor sensor mounted in the shade

Remote Communication Option**

Remote Communication Option**

Remote Communication Option**

Red lights indicate when the associated stage relay is activated

Green Earth Ground screw

120VAC Power

BYPASS position overrides outputs so the burners are always active

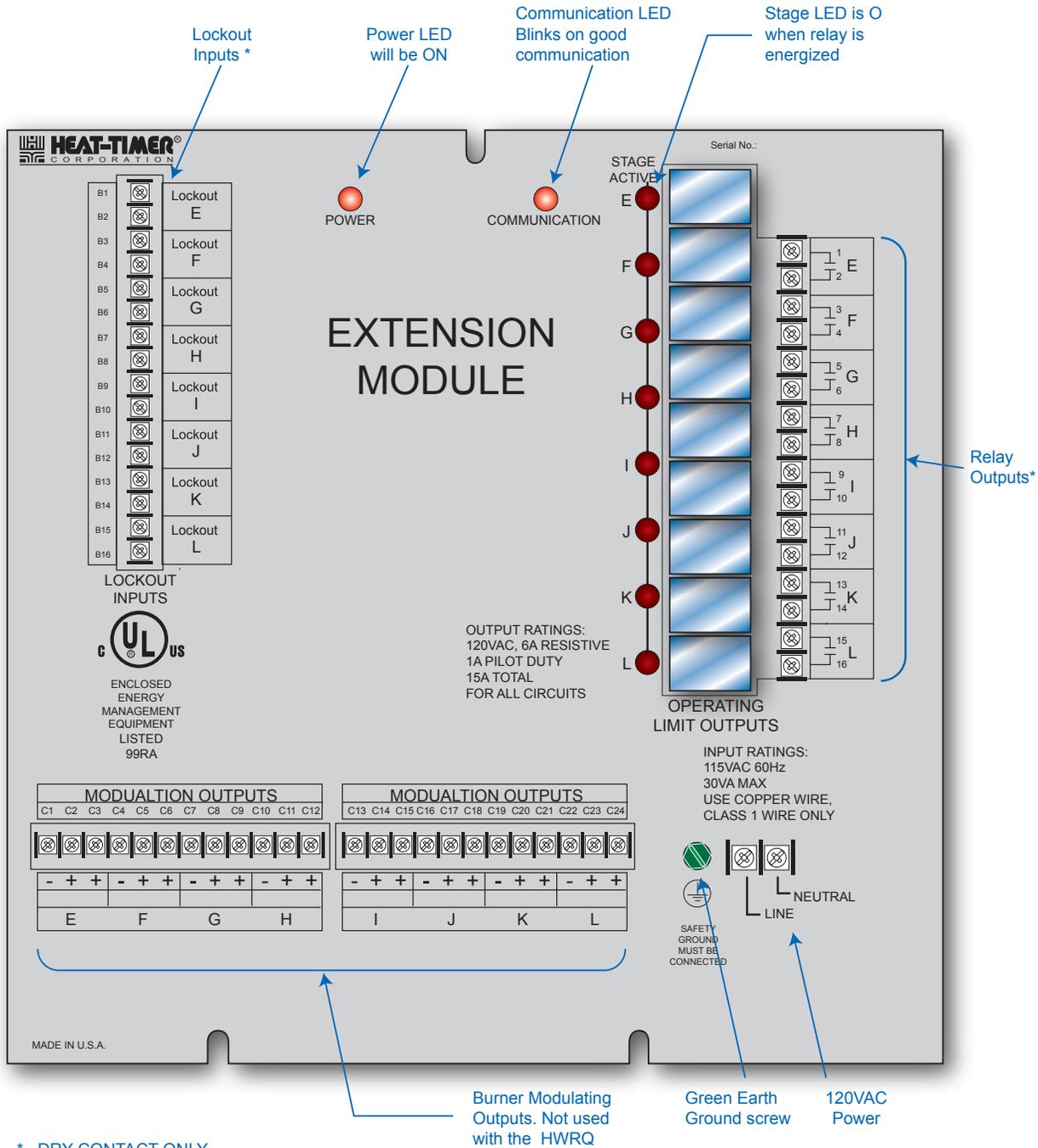
Pump Output is active when HWRQ requires heat and during optional Run-On

Burner Stages Outputs are active when HWRQ requires Heat

* DRY CONTACT ONLY

** Only available with the Remote Communications package

EXTENSION PANEL LAYOUT



* DRY CONTACT ONLY

Burner Modulating Outputs. Not used with the HWRQ

Green Earth Ground screw
120VAC Power

UNDERSTANDING OPERATION CONCEPT

The HWRQ Platinum controls a hot water heating system to provide a building with comfortable and even heat levels. The HWRQ Platinum varies the temperature of the circulating heating water in response to changes in the Outdoor temperature (OD). The heating water temperature is controlled by staging up to eight on/off boilers (or 4 2-stage, 2 3-stage, or 2 4-stage boilers) directly, or by staging up to 24 on/off (or 12 2-stage, 8 3-stage, or 6 4-stage boilers) with the addition of up to two Extension panels.

The HWRQ Platinum also controls the system circulating pump based on an adjustable Outdoor Cutoff. When the Outdoor temperature (OD) is above the Outdoor Cutoff, the pump is off and no heating water is circulated through the system. When the Outdoor temperature (OD) drops below the Outdoor Cutoff, the pump is activated and the heating water circulates through the system. The Reset Ratio and the outdoor temperature control the temperature of the heating water.

RESET RATIO/OUTDOOR RESET

When a building is being heated, heat escapes through the walls, doors, and windows to the colder outside air. The amount of heat that escapes depends on the outside temperature. The colder the outside temperature, the more heat escapes. If you can input heat into the building at the exact same rate that it is lost out of the building, then the building temperatures will remain constant. The Reset Ratio is an adjustment that lets you achieve this equilibrium between heat input and heat loss.

The starting point for most systems is the 1:1 (Outdoor Air Temperature : Heating Water Temperature) ratio. This means that for every degree the outdoor temperature drops, the temperature of the heating water will increase one degree. The starting point of the curves is adjustable, but comes factory selected at 70°F Outdoor Temp. and 100°F Water Temp. For example with a 1:1 ratio, if the outdoor temperature is 50°F, this means the temperature has fallen 20° from the starting point of 70°F. Therefore, the heating water temperature will be increased 20° to 120°F.

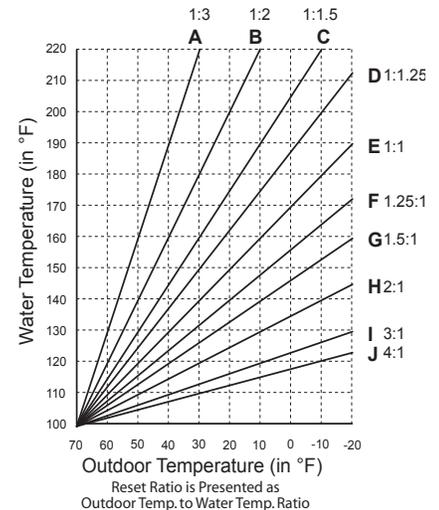
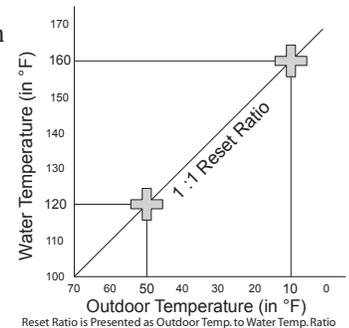
Each building has different heat loss characteristics. A very well insulated building will not lose much heat to the outside air, and may need a Reset Ratio of 2:1 (Outdoor:Water). This means the outdoor temperature would have to drop 2 degrees to increase the water temperature 1 degree. On the other hand, a poorly insulated building with insufficient radiation may need a Reset Ratio of 1:2 (Outdoor:Water). This means that for each degree the outdoor temperature dropped the water temperature will increase 2 degrees. The HWRQ Platinum has a full range of Reset Ratios to match any buildings heat loss characteristics.

A heating curve that relies not only on Outdoor temperature but also on heat transfer units will improve heat comfort. The following are suggested starting settings for different heat transfer units based on average building insulation and heat loss:

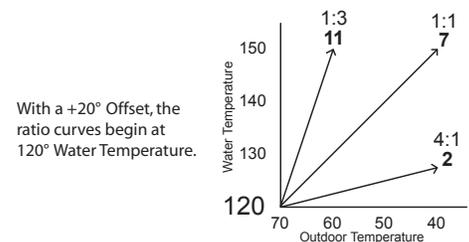
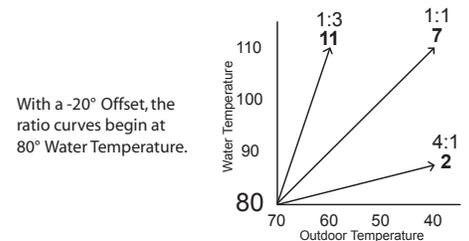
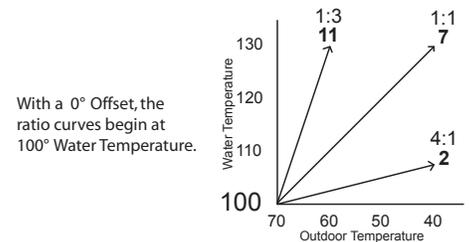
Transfer Unit	Reset Ratio	Offset	Heat Transmission
Radiators (Steel & Cast Iron)	1.00 : 1.00	0°F	radiation & convection
Baseboard (Finned copper tube & Cast Iron)	1.00 : 1.00	0°F	radiation & convection
Radiant (High Mass/Concrete)	4.00 : 1.00	-10°F	radiation & convection
Radiant (Low Mass/Joists)	2.00 : 1.00	-10°F	radiation & convection
Fan Coils & Air Handlers	1.00 : 1.00	20°F	convection

⚠ WARNING

When controlling a none-condensing boiler directly without the use of a mixing valve, minimum boiler water temperature must be set to boiler manufacturer specifications. In that case, system temperature must not go below such temperature.



Reset Ratio Curves



Reset Ratio is Presented as Outdoor Temp. to Water Temp. Ratio

Water Offset

SPACE FEEDBACK CONCEPT

If the HWRQ Platinum control has the RINET communication option, the control can also provide the capability of using Heat-Timer space sensors to fine-tune the reset curve. With this option the control will monitor space temperatures over a period of time and adjust the system target temperature to prevent overshooting and undershooting the adjustable day and night space target temperatures. Example: If the space temperature average is 72 degrees over a two-hour period and the day target is 70 degrees, the control will adjust the system target temperature 4 degrees (system temperature) for every 1 degree (ambient temperature) that it is over or under the target. The 4 degrees in this calculation is referred to as Space Feedback Gain, which is adjustable. In this example, it would subtract 8 degrees from the current system target temperature because it is 2 degrees (ambient) above the day target. In addition, the control will keep the boilers off until the average space temperature provided by the sensors drops below the desired day target. This concept provides significant savings. See “Space Feedback Gain” on page 36.

PID SEQUENCE OF OPERATION

The HWRQ Platinum checks the Outdoor temperature (OD) by means of an Outdoor Sensor located on the exterior North Side of the building. At the same time, it monitors the water temperature (SYS) of the building's heating system by means of a Heating System Sensor located on a common supply line. When the Outdoor temperature (OD) falls below an adjustable Outdoor Cutoff temperature, the HWRQ Platinum activates the system pump and begins to calculate the Target Water Temperature (TGT). The Target Water Temperature (TGT) is the temperature of the circulating system water the HWRQ Platinum calculates based on Outdoor temperature (OD) and the Reset Ratio settings. If the HWRQ Platinum has been set up correctly, then by circulating water at the Target Water Temperature (TGT), the amount of heat entering the building will equal the building's heat loss.

The HWRQ Platinum also monitors the System Water Temperature (SYS). When the System Water Temperature (SYS) is different from the Target Water Temperature (TGT), the HWRQ Platinum will take action to correct the difference. The HWRQ Platinum will turn boiler stages on and off to regulate the circulating system water temperature. Once the Target Water temperature is achieved, the HWRQ Platinum will keep the necessary stages to maintain the target. The Pump relay will stay energized for as long as the outdoor temperature (OD) is below the Outdoor Cutoff + 2°F. However, the Pump may be on if Pump Run-On is set to a value higher than 0 minutes.

OSS OPERATION

(Available in Set Point Operating Mode)

OSS is used in fast reacting application as in process applications, where maintaining a set point is critical. The OSS utilizes the Throttle setting, as a mean to calculate the number of stages the HWRQ Platinum shall have on at any point. For every Throttle Range below the set point an additional stage shall be turned on/energized. That is, if the set point was 180°F and the Throttle setting was 5F°, if the System dropped below 175°F (180°F - 5F°), the lead stage will energize. With further decrease in the system value to 170°F (180°F - 5F° - 5F°), the second stage will energize.

As the system temperature rises towards the set point, stages will turn off. Using the previous example, when the system rise to 10 Psi, boiler B will de-energize leaving only boiler A on. Boiler A will remain on until the system rises a one full Throttle range above the set point. This will leave the lead boiler A on until the temperature rises to 14 Psi then turn off/de-energize.

Throttling Example

Set Point = 180°F

Throttling = 5°F

4 Boiler Stages, A, B, C, and D

Temperature	Calculation	Falling Temperature		Rising Temperature	
		Stage Turned On	Stages On	Stage Turned Off	Stages On
185°F	180 + (1)THR	None	None	A	None
180°F	180 - (0)THR	None	None	None	A
175°F	180 - (1)THR	A	A	B	A
171 to 174°F	---	---	A	---	A,B
170°F	180 - (2)THR	B	A,B	C	A,B
166 to 169°F	---	---	A,B	---	A,B,C
165°F	180 - (3)THR	C	A,B,C	D	A,B,C
161 to 165°F	---	---	A,B,C	None	A,B,C,D
160°F	180 - (4)THR	D	A,B,C,D	None	A,B,C,D

HT# 059031-00B

INITIAL PILOT PROGRAM

Setting an Initial Pilot Program will ease the configuration of the HWRQ Platinum and will give the opportunity to utilize many of the energy saving features and give more comfortable heat when needed.

The program should consist of the following:

- Selecting the features that your system can utilize,
- Making sure you have the right control and accessories,
- Install the Control,
- Setting the System Startup,
- Setting the System Settings,
- Setting the Stages
- Setting the Schedules
- Adjusting Reset Ratio and Water Offset (In Reset Mode Only)

SELECTING THE SYSTEM FEATURES

The HWRQ Platinum has been designed with Hydronic commercial building heating as the primary purpose. With this in mind, many of the HWRQ Platinum features can be utilized to ease, enhance and improve your system performance. Some of these features are listed in this section.

Outdoor Reset or Set Point (Control Mode)

- The HWRQ Platinum can control the System Temperature either by adjusting the Target Temperature according to the Outdoor Temperature (Outdoor Reset) or by maintaining an adjustable Set Point. The earlier relies on an Outdoor Sensor (supplied with the control) and achieves better fuel savings in addition to better comfort.

PID or Oversize (Control Logic)

- The HWRQ Platinum can use an algorithm (PID) to look at the rate of change in the System. If the System Temperature changes quickly, the HWRQ Platinum will turn on or off stages quickly. If the temperature changes are slow or minor, the HWRQ Platinum will react slowly. The PID logic provides the most stable operation. Stages are brought on or off based on the rate of change of the System Temperature and the impact a stage has on that rate.
- For applications where the stages are oversized for most load conditions, the HWRQ Platinum has Oversize System logic. The Oversize logic turns stages on or off proportionally, based on how far the System Temperature is from the Set Point.

Water Offset

The Offset value moves the starting point of the Reset Ratio curves. Therefore, any change made to the Offset will immediately change the value of the Target Water Temperature (TGT) by the same amount. For example, if the Target Water Temperature (TGT) was 150°F based on the specific outdoor temperature and Reset Ratio, then increasing the Offset from 0°F to 10°F would increase the Target Water Temperature (TGT) to 160°F.

In a new installation, start with an Offset value of 0°F. Adjust the Offset value in mild weather. If the ambient indoor temperatures are too warm in the mild weather, decrease the Offset. If the ambient building temperatures are too cold in the mild weather, increase the Offset. The rule of thumb for baseboard radiation is to change the Offset by 4°F for every 1°F degree you wish to change the building temperatures. For radiant heat applications, change the Offset by 1° or 2° for every degree you wish to change the building temperature. The Offset can be set from -40 to 40°F.

Setback

Whenever the Outdoor temperature (OD) falls below the Outdoor Cutoff, the system pump is activated and the HWRQ Platinum regulates the heating system to hold the Computed Water temperature. As the Outdoor temperature (OD) changes, the HWRQ Platinum adjusts the actual water temperature to hold a constant Day (Normal) heat level. The Day heat level is for when occupants are present and active.

The HWRQ can also hold a lower or Night (Setback) heat level. This lower level of heat is for when the building is unoccupied or tenants are sleeping. The HWRQ has the capability of programming up to 4 Day and 4 Night settings for each day of the week. When the building comes out of Night setting, there is an optional Boost setting to quickly bring the building up to comfortable temperatures.

Boost and Early Shutdown

The boost is designed to return the building to its Day (Normal) heat level after Night (Setback) heat level. It does it by increasing the Computed Water Temperature by a set amount of degrees set by the Boost Adjustment for a period of time that depends on the outside temperature.

Early Shutdown is a feature that allows a building, usually commercial, to start Night Setback earlier than the last Night schedule setting for that day. The HWRQ Platinum calculates the time period from the last Night Schedule setting for that day based on Outdoor temperature (OD). The warmer it is outside the earlier the HWRQ Platinum will shift to Night (Setback). At 65°F Outdoor Temperature (OD) the Early Shutdown is the longest, 90 minutes. At 0°F Outdoor Temperature (OD) there is no Early Shutdown or Early Shutdown is 0 minutes.

Number of Stages

- The HWRQ Platinum can be configured to control a variety of boiler-burner configurations. It can control up to 24 boiler stages using the HWRQ Platinum in addition to two Extension panels.
- The HWRQ Platinum can control up to 4 stage burners.
- Burner stages can be sequenced Lo/Hi/Lo/Hi or Lo/Lo/Hi/Hi. The first lets a burner fire its lower stage first followed by its higher stages. The second lets all burners lower stages to turn on before starting any higher burner stages. Both can only apply to 2-stage or more burners.

Adding up to 3 Extension Panels for Additional Stages

- When additional Stages are needed, the HWRQ Platinum can control up to 3 additional extension panels for a total of 24 stages.
- Extension panels have built-in Lockout input terminals. The HWRQ Platinum can isolate locked out boilers from the operation process and display their status.

Stages Sequencing (for Multiple Stage Boilers)

- The HWRQ Platinum can sequence multiple stage burners in one of two different ways. Either, starting burners' lower stages followed by the higher ones or by sequencing each burner stages followed by the next burner. Contact boiler manufacturer for the appropriate sequence of operation.

Automatic Rotation among Stages

- Rotating the first burner to be activated on a call for output promotes even wear on all burners. The HWRQ Platinum has three modes of rotation: Manual, First-ON/First-OFF, or automatically every selected time period from every hour to every 41 days.

Boiler Lockout (Requires Extension Panel)

- The HWRQ Platinum is designed to accept Lockout inputs, when used with an Extension Panel, from each burner. If any burner is in Lockout, the HWRQ Platinum will automatically skip it when adding more capacity. If a burner goes into Lockout during normal operation, the next burner will be activated immediately to maintain the desired output capacity.

Domestic Hot water with or without Priority

- This allows the HWRQ Platinum to change System Temperature to be able to supply a domestic hot water system with heat from the boilers. An external control or device must initiate a dry contact signal to input terminals DHW Call. No voltage can be supplied across the DHW Call terminals.
- Regardless of the status of the priority, season, or Day or Night, when the DHW Call terminals are shorted using an external aquastat or other devices, the HWRQ Platinum will raise the Target Temperature (TGT) to 200°F or Maximum Water Temperature setting, whichever is lower, for as long as the terminals are shorted.
- If the domestic hot water is set to have priority, the system Pump relay will turn off for up to an hour or until the DHW Call terminates, whichever is sooner. Upon termination of DHW Call, the HWRQ Platinum will revert to its operating schedule and logic.

Schedules

- By setting an operating Schedule and Night Setback, you can save energy while providing comfortable heat to the building. The setting allows the HWRQ Platinum to reduce Target temperature (TGT) by a specific number of degrees set by the Night Setback during the night or when building is unoccupied, i.e. office buildings and schools.
- During the day, Day Time settings will change Target temperature (TGT) based on Outdoor temperature (OD), Water Offset, Reset Ratio. A Night Time setting will reduce the Target Temperature by the Setback setting. Each weekday can have up to 4 Day Time and 4 Night Time (Setback) settings. Refer to *Schedules (menu selection)*, and *System Settings/System Settings 2/Night Setback (menu selection)*.

Boost

- This feature lets the HWRQ Platinum bring the building up to temperature quickly after a Night Setback. When the HWRQ Platinum

is to start the Boost, it raises the Target Temperature by the amount set by the Boost Adjustment for a period that is calculated using the outdoor temperature as a guide. Refer to *System Settings/System Settings 2/Boost Mode (menu selection)*.

Early Shutdown ESD

- This feature allows the HWRQ Platinum to shift 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 HWRQ Platinum will shift to Night Setback. Refer to *System Settings/System Settings 2/Boost Mode (menu selection)*

System Pump Run-On

- This feature lets the HWRQ Platinum run the System Pump for a longer period after the boilers have been turned off, consequently, dissipating the excess heat from the boilers combustion chamber. That way the boiler should not over heat and activate its high limits. Refer to *System Settings/Sys Run-On (menu selection)*

Remote Communication

- The HWRQ Platinum can be upgraded to Internet, BACnet IP, BACnet MSTP, or MODBUS communication to monitor and control all HWRQ Platinum functions from a remote location. Only, the Internet communication package upgrade allows the HWRQ Platinum to accept additional sensors, to monitor their status, and to provide alarms if the sensor values are not in the correct range.

MAKING SURE YOU HAVE THE RIGHT CONTROL

If you need the HWRQ Platinum to do additional tasks that either is not listed or do not know how to configure them, contact Heat-Timer Corp. Sales Department either by Phone (973)575-4004, Fax (973) 575-4052, or by E-mail support@heat-timer.com.

INSTALLATION

Before beginning the installation, carefully evaluate your heating system. The HWRQ Platinum can control the heating system through these different methods:

- Controlling multiple single or multiple stage boilers.
- Controlling up to 24 Burner stages by interfacing to a Heat-Timer Extension Panels with lockout.

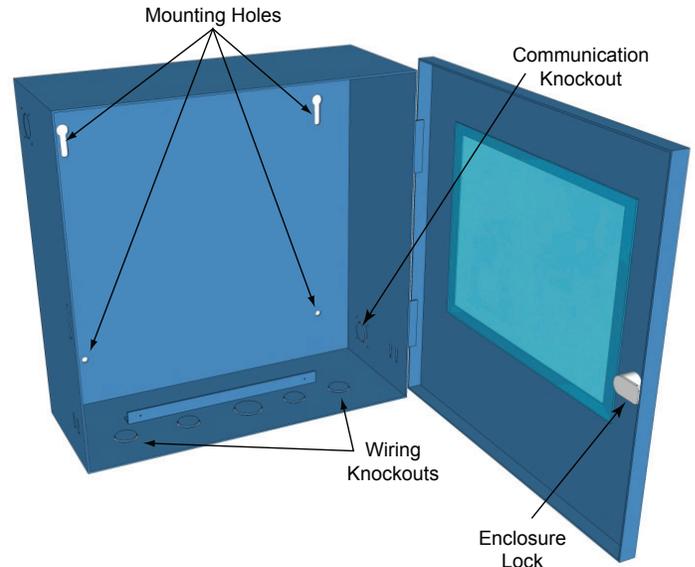
MOUNTING THE ENCLOSURE

Locate an appropriate site

- Near the equipment to be controlled
- Away from excessively high or low temperatures
- At eye level, or where the displays are easily visible
- The surface must be strong enough to hold the weight of the control and the metal enclosure.
- Leave 12" of clearance under the enclosure to allow access to gutter cover screws.

Remove the HWRQ Platinum from the metal enclosure

- Remove the top center screw holding the panel to the enclosure.
- Loosen the two screws at the bottom of the enclosure.
- Make sure to unscrew any enclosure cables. (Primarily used to connect to computers and remote systems.)
- Lift the panel from the enclosure.
- Screw the enclosure to the mounting surface through the holes provided.

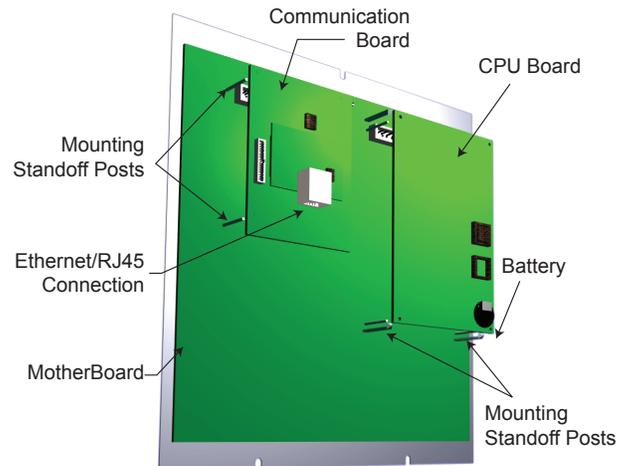


⚠ WARNING
Use on the Enclosure Knockouts. DO NOT DRILL HOLES THROUGH THE ENCLOSURE AS IT WILL VOID CONTROL WARRANTY.

REAR OF PANEL

Activate the Battery

- Turn the HWRQ Platinum panel over to reveal the piggyback circuit board (CPU board).
- Remove the plastic strap that covers the battery. The contacts should be touching the battery.



⚠ ALERT
Do not install the battery unless you plan to power the control at once. If the control is not powered, the battery will lose its charge in 100 days.

REMOTE COMMUNICATION WIRING

- All panels will include Motherboards and CPU boards.
- Some panels might include an addition board.
- Remember that the upgrade to Internet panel requires replacing the CPU board.
- When connecting the HWRQ Platinum to an Extension Panel, connect the RS485 to the back of the HWRQ Platinum. Use the center RS485 terminals on the motherboard. Do not use the RS485 terminals on the RI board.
- Screw the HWRQ Platinum back into the enclosure

REMOTE COMMUNICATION WIRING

- All standard Platinum controls come with a Motherboard and a CPU board.
- If the Platinum control is ordered as a RINET, BAC or BUS it will also come with a communication board. If a control is ordered as a standard Platinum control, it can be field upgraded by adding the appropriate upgrade kit. A new CPU board and a communication board will be included in any of the Upgrade Kits.
- When connecting the HWRQ Platinum to an Extension Panel. The RS485 connection from the Extension Panel connects to the back of the HWRQ Platinum. Use the RS485 (B) connection as noted in the picture below. Do not connect Extension Panel to RS485 (A).

Wiring MODBUS RTU

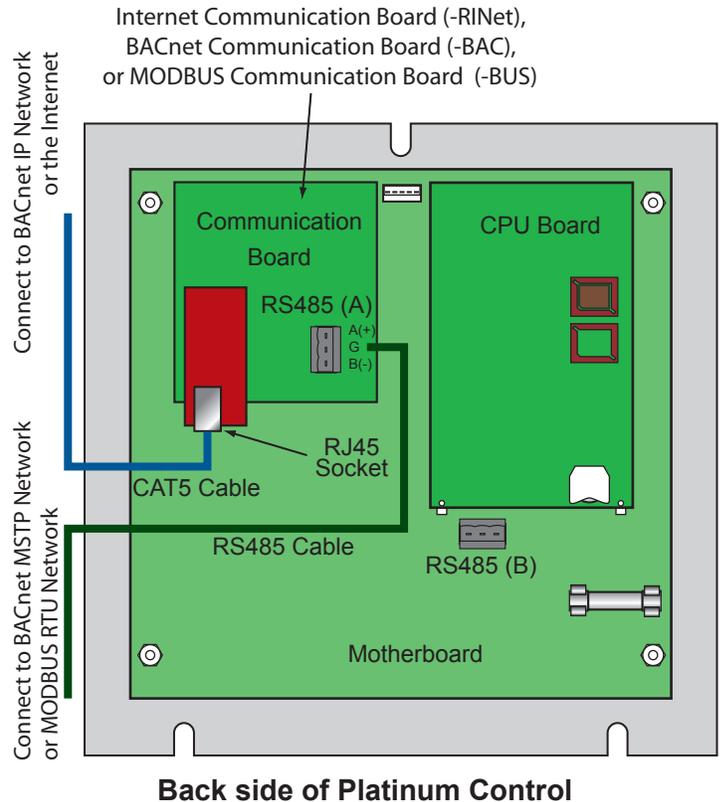
- When connecting RS485 cables for MODBUS remote communication, a MODBUS communication board must be installed on the back of the Motherboard.
- Heat-Timer Platinum control MODBUS communication uses a RS485 connection.
- Connect the RS485 cable coming from the MODBUS network to the RS485 (A) communication socket on the back of the control's Communication Board. The terminals are labeled 'A (+)', G (Ground), and 'B (-)'.
- Use 18# Twisted Pair cable. The cable length must not exceed 3500 feet.
- The ground RS485 terminal (G) MUST be connected to the BMS RS485 Ground.

Wiring Internet and BACnet IP

- When connecting the control to an Internet (RINet) or BACnet IP (BAC) network, the proper communication board and CPU board must be installed on the back of the Motherboard.
- The Ethernet cable must use the Platinum control's enclosure bottom right side knockout.
- Connect the CAT5E Ethernet cable coming from the Internet Modem or router or the BACnet IP network to the Ethernet RJ45 communication socket on the back of the control's Communication Board.
- For reliable communication, do not run the Ethernet cable more than 200 Ft.
- To configure the control for Internet communication, see "Internet ID" on page 36.

Wiring BACnet MSTP

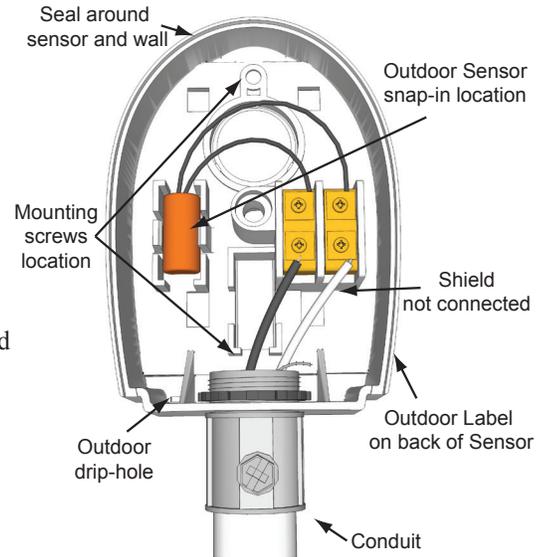
- The RS485 cable must use the Platinum control's enclosure bottom right side knockout.
- Connect the MSTP cable coming from the BACnet MSTP network to the RS485 (A) communication socket on the back of the control's Communication Board. The terminals are labeled 'A (+)', G (Ground), and 'B (-)'.
- Connect the RS485 to the back of the Platinum control's BACnet Communication Board.
- Use 18# Twisted Pair cable. The cable length must not exceed 3500 feet.
- The ground RS485 terminal (G) MUST be connected to the BMS RS485 Ground.



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 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.
- If screws are used to affix the enclosure to the wall, make sure to seal around the sensor and wall except from the bottom.
- The sensor wires can be extended up to 500' using shielded 2-conductor cable (#18/2). Do not ground the shield at the sensor but at the control using the terminal marked with an "O".
- Do not run sensor wires in conduit with line voltage wiring.



ALERT

Determining the proper location for the Outdoor Sensor is very important. The HWRQ 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

Locating HSS

- Put the Heating System sensor approximately 10' past the boiler on the common supply header but before any major takeoffs.
- The sensor must be located where it sees the output of all the boiler stages. If a boiler is piped so that the sensor does not see its output, the HWRQ Platinum will not sequence the boilers correctly.

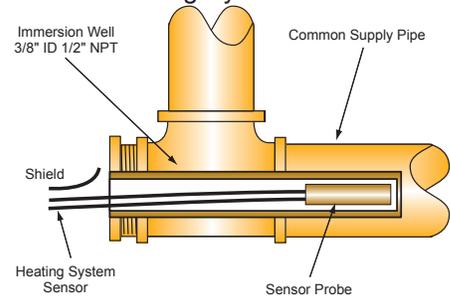
Heating System Sensor (HSS) Installation

- Only use a Gold Series sensor. If you are replacing an earlier Gold model Heat-Timer, it is not necessary to upgrade the sensor.
- Install a 3/8" ID 1/2" NPT immersion well (HT #904011-00 or equivalent).
- Insert the sensor probe of the supplied sensor (HT #904250-00) into the well, and screw the handy-box into the threaded top of the well.
- The sensor wires can be extended up to 500' using a shielded 2-conductor cable. Do not ground the shield at the sensor. Only at the panel using one of the terminals marked with an "O".
- Do not run sensor wires in conduit with line voltage wiring.

ALERT

If the HSS can not sense the correct heating system water temperature being supplied to the building, the HWRQ Platinum will not provide comfortable heat levels. Be sure the HSS is located on a main supply pipe which can not easily be isolated from the system.

Immersion Heating System Sensor



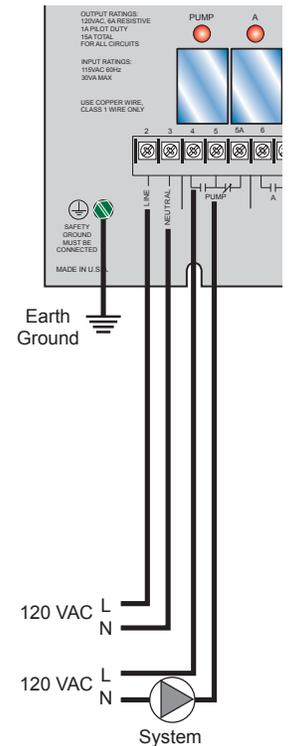
WIRING

POWER INPUT WIRING

- Bring the power wires through the bottom **left** hand knock out of the enclosure. **Do not bring wires through sides or the top, as this will interfere with servicing the control.**
- Attach 120V 60 Hz to terminals *Line* and *Neutral*.
- Ground wiring must be connected to Ground screw. DO NOT use the neutral line as earth ground.
- Class 1 copper wire is required by UL.
- Class 1 voltages must enter the enclosure through a different opening from any Class 2 voltage wiring.
- Heat-Timer recommends the installation of a Surge Suppressor and a Power Switch before the Power Line connection for safety and ease of service.

CIRCULATION PUMP WIRING

- The Pump Terminals are dry contacts only. They do not source any power.
- Wire the Normally Open (N.O.) Pump dry contact terminals to the pump or pump starter. The N.O. contacts DO NOT source any power.
- Make sure Pump relay is installed.
- All output terminals DO NOT source power. They act as a dry contact only. A separate power source is required for the equipment.



WIRING THE STAGES

- The HWRQ Platinum stage outputs are dry contacts only. They do not source any power.
- Bring the boiler stage wires through the enclosure bottom Knockouts. Class 1 voltages must enter the enclosure through a different knockout from any Class 2 voltage wiring.
- If the boilers need the secondary pumps to run on after the boiler is turned off, or need an interlock to combustion air, use Heat-Timer System Control Panel SCP-6 panel (HT #926601-00) or Pump-Lead-Lag PLL control (HT #926720-00).

ON/OFF BOILER WIRING

- Each of the HWRQ Platinum's stages must be wired in series with the each of the boilers' limit circuits.
- Attach the first boiler to the NO contacts marked BURNER STAGE A (terminals 6 & 7), the second boiler to B (8 & 9), and the third boiler to C (11 & 12), and so on.
- Set the Burner Type to On/Off. See "Burner Type" on page 21.

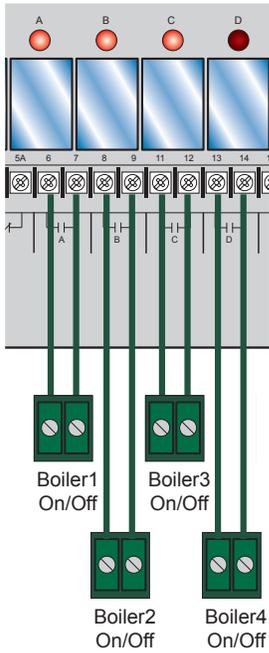
MULTI-STAGE BOILER WIRING

- The Normally Open (NO) contacts for each boiler must be in series with the boiler limit circuits.
- When wiring several multi-stage units, start with the lower stage of the first unit and wire it to Output A, followed by the higher stage of the same unit and wire it to Stage B.
- Set the Burner Type to any of the multi-stage options. See "Burner Type" on page 21.

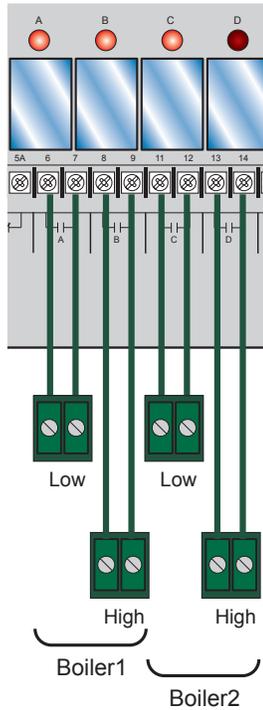
ALERT

Each relay is rated at 1 amp inductive, 6 amps resistive at 120V.
The total output of all relays must not exceed 15A.

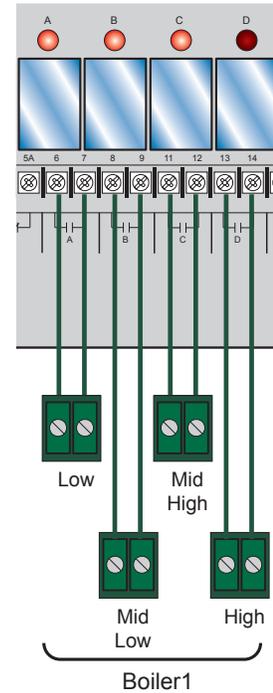
On/Off Wiring



2-Stage (Lo/High) Wiring



4-Stage Wiring



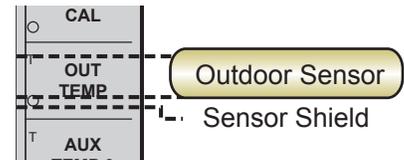
WIRING THE INPUTS

⚠ WARNING

Never apply external voltage to the input terminals. Permanent damage will occur, voiding the warranty.

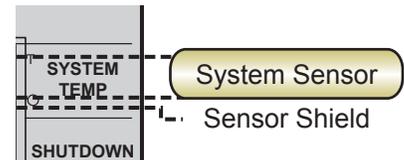
WIRING THE OUTDOOR SENSOR

- The HWRQ Platinum is designed to be connected to an Outdoor sensor. Only use the Heat-Timer sensor included with the unit.
- Outdoor sensor wires can be extended up to 500' by splicing with 18 gauge shielded sensor wire.
- Attach the sensor wires to the Out Temp terminals (A11 and A12). Temperature sensors have no polarity.
- Connect the shield to the O terminal marked with a circle. Do not connect the shield at the sensor end.
- Class 2 voltage wiring must use a different conduit and knockouts from class 1 voltage wiring.



WIRING THE HEATING SYSTEM SENSOR (HSS)

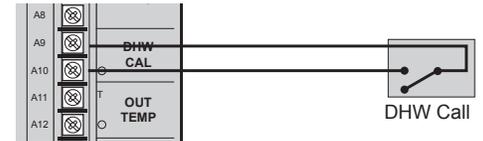
- The HWRQ Platinum is designed to be connected to a (HT#904024-00) temperature sensor for immersion in 3/8"ID well (HT#904011-00 or equivalent).
- Temperature sensor wires can be extended up to 500' by splicing with 18 gauge shielded sensor wire.
- Attach the sensor wires to the SYSTEM TEMP terminals (A1 and A2). Temperature sensors have no polarity.
- Connect the shield to the right hand O terminal with a circle next to it.
- Class 2 voltage wiring must use a different conduit and knockouts from class 1 voltage wiring.



WIRING DHW CALL INPUT

(Optional)

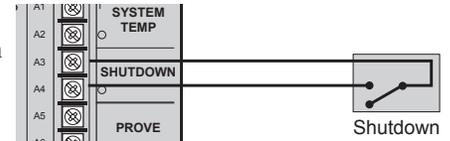
- DHW can be used to raise Set Point to 200°F or Maximum Water temperature, whichever is lower.
- DHW Call terminals are dry contact N.O. terminals.
- Wire an aquastat or other controls to provide closure on the DHW Call terminals.



WIRING SHUTDOWN TERMINALS

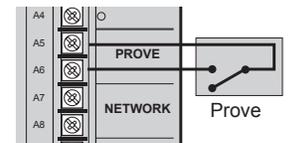
(Optional)

- This feature can be used whenever it is desirable to turn off the HWRQ Platinum from a remote location or another controller.
- A typical use for this feature would be to disable all heat when an Energy Management System (EMS) indicates a building is overheated.
- When the Shutdown feature is enabled by closing a dry contact, all stage relays will de-energize. The Pump relay will continue to be energized.
- The Shutdown signal must be a dry contact only. No voltage can be placed across the SHUTDOWN terminals.
- Bring the two wires from the dry contact to the terminals marked SHUTDOWN- A3, A4



WIRING PROVE TERMINALS

- The Prove feature checks system components are operational before activating the boilers.
- If the PROVE input terminals are open, the HWRQ Platinum will enable only the Pump relay. All stage relays will be de-energized when the PROVE input is open.
- If NO external conditions must be met before the OUTPUT relays are energized, DO NOT remove the factory installed jumper across the PROVE terminals.
- 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 HWRQ Platinum to provide heat. DO NOT remove the factory installed PROVE jumper unless replacing it with a Prove signal.

⚠ WARNING

The PROVE input CAN NOT be used as a safety limit. All equipment must have its own certified limit and safety controls as required by local codes. Any safety interlock MUST be wired back to the boilers or other equipment as required by code.

WIRING AUX TEMP INPUT TERMINALS

(Requires Communication Package Upgrade)

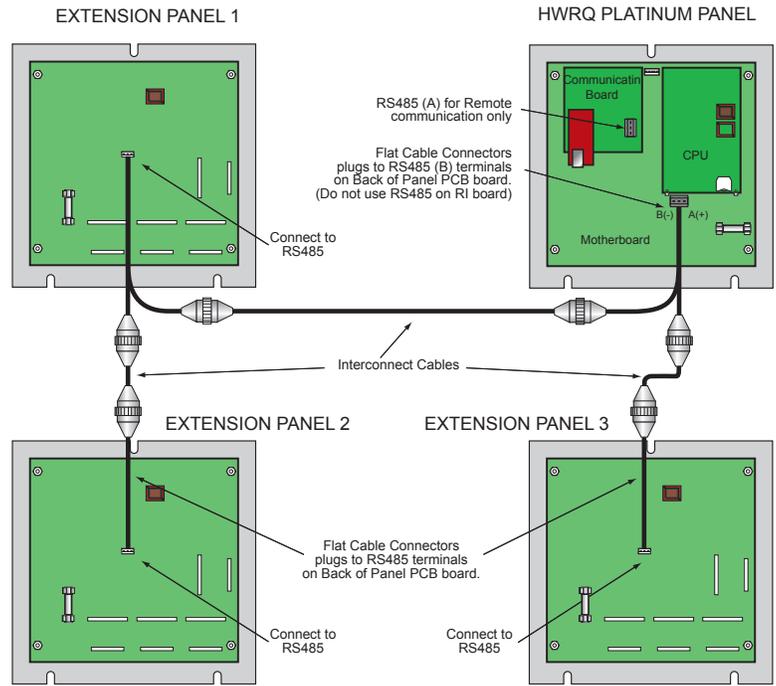
- Each Aux Temp can connect to only one temperature or switch sensor.
- The value of the sensor can be viewed by pressing the BACK button on the control or using the ICMS web site (<http://www.htcontrols.com>).

TESTING THE SENSORS

- Power up the HWRQ Platinum.
- The control will go through a countdown, and then the top left of the display marked (SYS) will show the temperature read by the Heating System Sensor (HSS). The top right (OD) will show the temperature read by the Outdoor Sensor.
- If the display reads OPEN, SHORT, or an incorrect temperature, see "Testing the Sensors" on page 15.
- Wireless and MIG sensors readings can only be viewed on the Internet.

WIRING TO AN EXTENSION PANEL

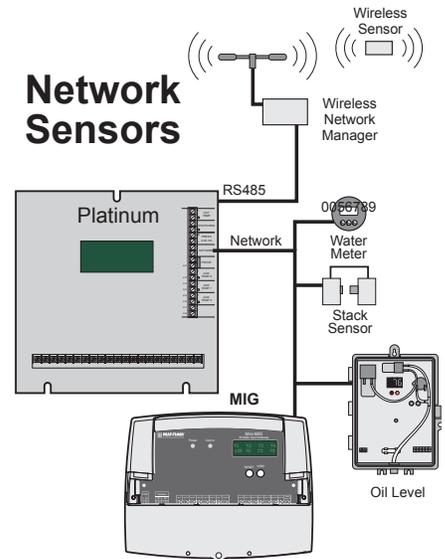
- The HWRQ Platinum can control up to 8 stages solely. By adding a Heat-Timer Extension Panel using RS485 cable, you can add an additional 8 boiler stages. A total of two Heat-Timer Extension Panels can be added to any single HWRQ Platinum totaling 24 boiler stages.
- Each Extension Panel has 8 Lockout inputs that can be used by the HWRQ Platinum when sequencing the boilers. Each Lockout controls one boiler regardless of the number of stages it has.
- When the HWRQ Platinum is connected an Extension Panel, you will be able to scroll through each of the boilers using the Adjust Knob.
- If a communication package is purchased with the HWRQ Platinum and the Extension Panel, the Internet will show the status of each boiler including the Extension Panel boilers.
- No Output cards are required for the Extension Panel when used with the HWRQ Platinum. You will need to install the proper relays for the stages needed. See Extension Panel documentation for additional wiring instructions.



WIRING NETWORK SENSORS

(Requires Internet Communication Package Upgrade)

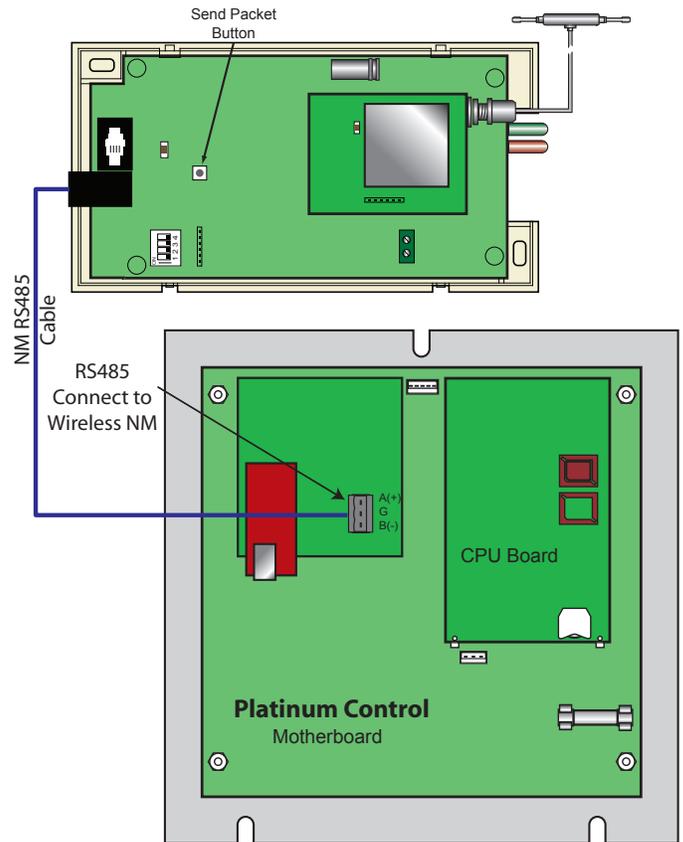
- Remember that network sensors can only be configured remotely through the Internet (<http://www.htcontrols.com>).
- The HWRQ Platinum Network terminals can connect to up to 64 network sensors.
- When connecting to multiple sensors, a Mini-MIG control can be used to handle up to 16 sensors each. Multiple Mini-MIG's can connect to a single HWRQ Platinum.
- A variety of network sensors are available for the HWRQ Platinum:
 - Stack Sensor
 - Meter Count/Pulse sensor (connects to water meters.)
 - Oil tank level sensor (OTM)
 - Pressure, vacuum, and humidity transducers
 - Multiple Input Gateway (Mini-MIG) that gives the capability of connecting the control to multiple temperature or switch sensors.



WIRING WIRELESS SENSORS

(Requires Internet Communication Package Upgrade)

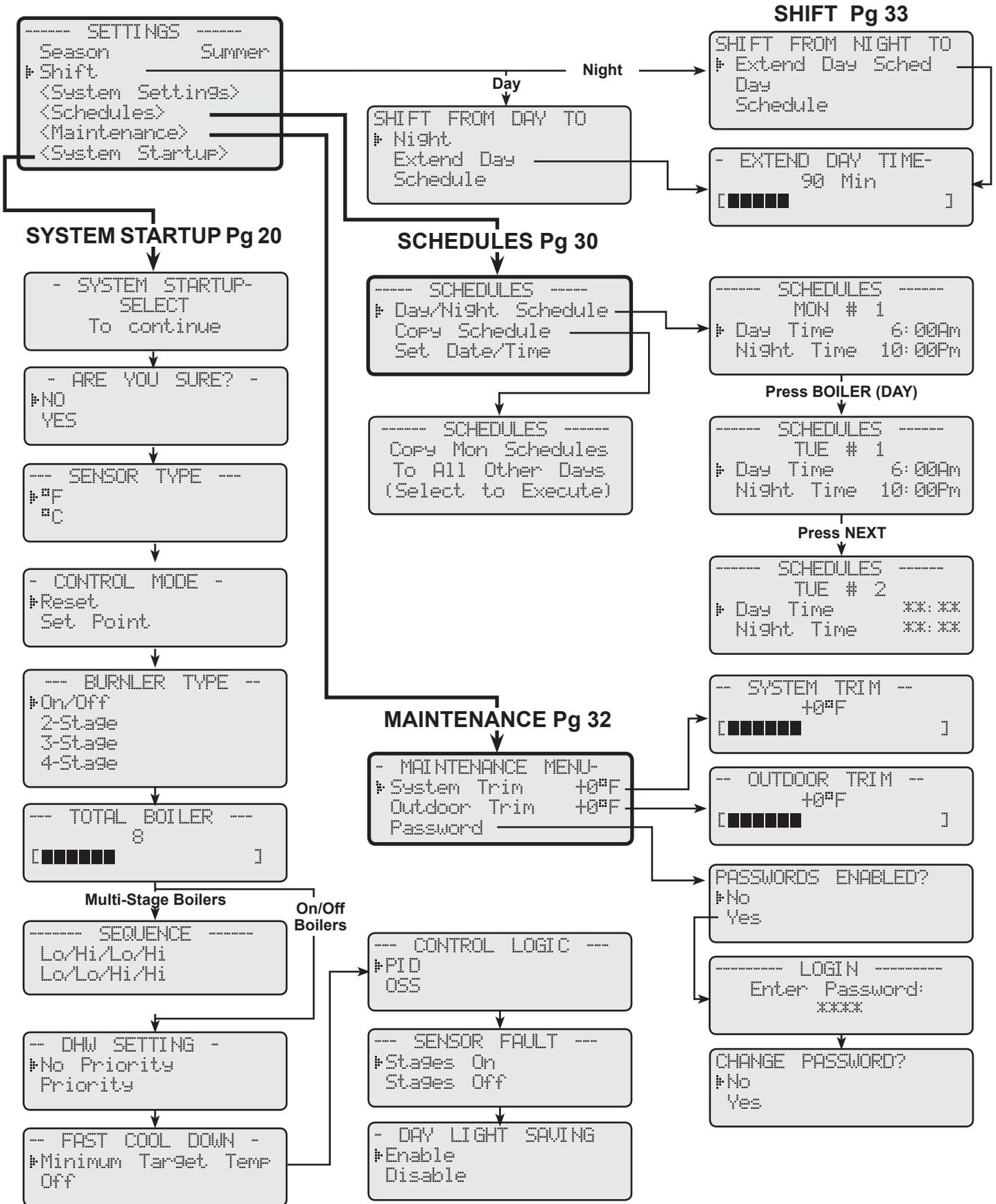
- Remember that wireless sensors can only be configured remotely through the Internet (<http://www.htcontrols.com>)
- The HWRQ Platinum Network terminals can connect to up to 64 network sensors.
- Wireless sensors can be used with transceivers to reduce building sensor wiring. The wireless Network Manager can be wired directly to the RS485 on the communication board. The balance of the wireless system will communicate its information to the wireless Network Manager.



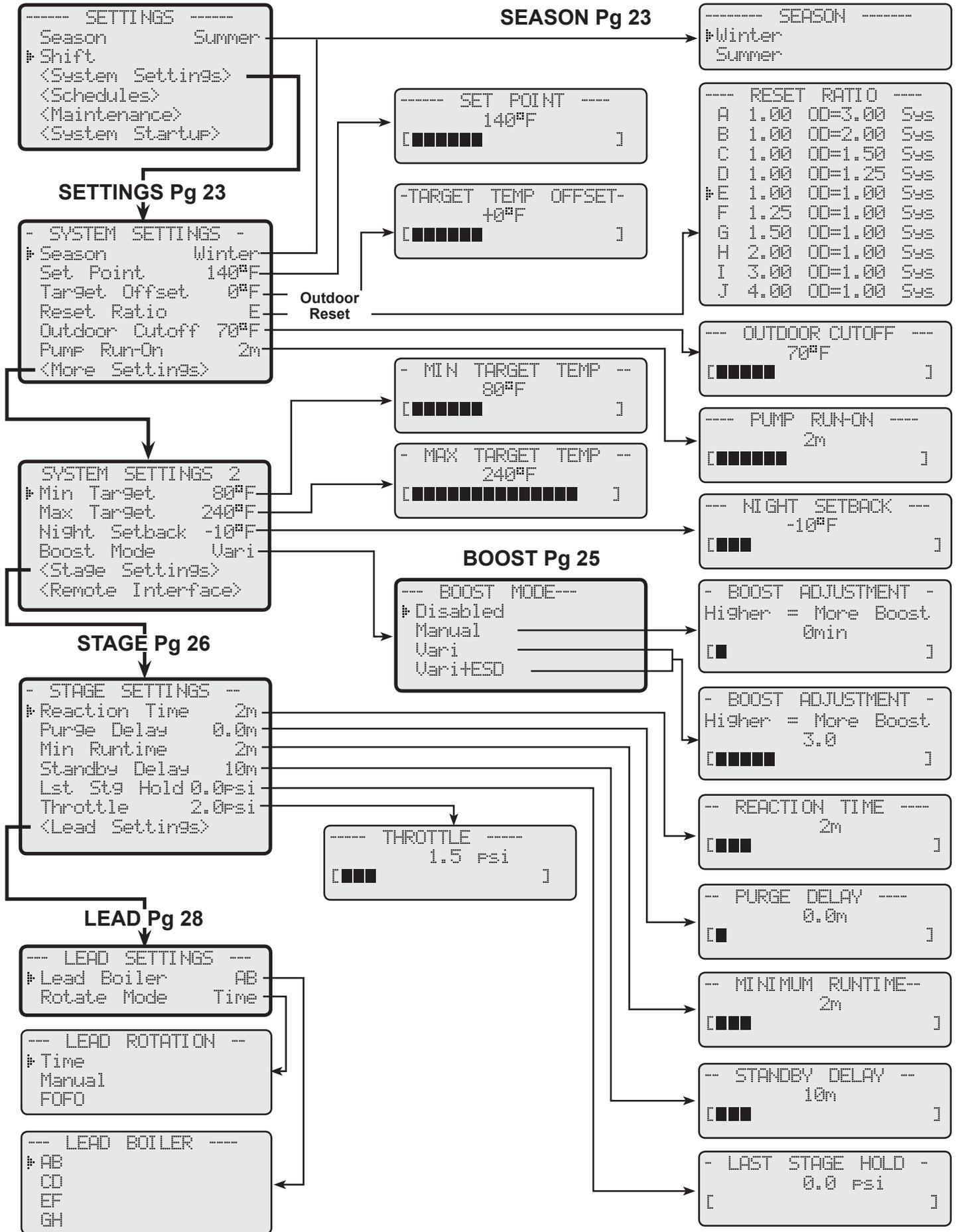
WIRING EXTENSION PANEL LOCKOUT

- Each Extension Panel has 8 Lockout inputs that can be used by the HWRQ Platinum when sequencing the boilers.
- The first Lockout terminals on the first Extension panel will control the first HWRQ Platinum boiler, the boiler that has stage A as its first stage. The second Lockout terminals on the first Extension panel will control the second HWRQ Platinum boiler.
- When a boiler Lockout terminals are shorted, the HWRQ Platinum will de-energize that boiler stages. In addition, it will omit that boiler from the sequencing process until those terminals are opened again. The display will show  under that boiler stages indicating the Lockout Status.

MENU SETTINGS



HT# 059031-00B



SETTING THE CONTROL

DISPLAY AND CHANGING SETTINGS

The HWRQ Platinum comes with an 80 character (20 character per row x 4 rows) digital display. In addition, to the right of the display a turn (ADJUST) and push (PRESS TO SELECT) knob is used to scroll through settings when turned. When PRESS TO SELECT is pushed, the menu selection or value is selected. A push BACK button is used to go to the previous step on the menus.

Under the display four additional push buttons exist to assist in other menu functions:

NEXT In Boiler menu, goes to the next setting. In Schedules, goes to next schedule time on schedules,

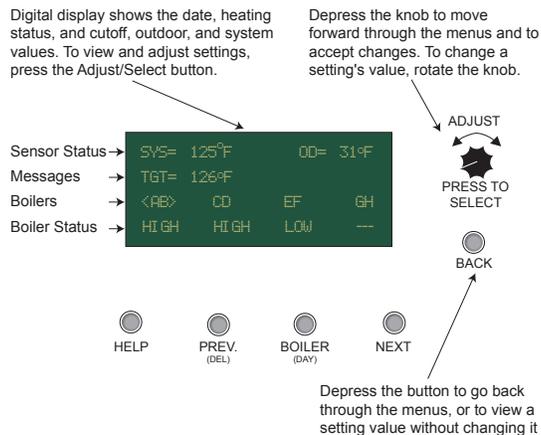
BOILER (DAY) In the Boiler menu, switches between boilers. In Schedules, switches between different weekdays,

PREV.(DEL) clears a specific schedule setting. In Boiler menu, will go to the previous boiler settings

HELP when clicked on a specific menu item will provide help instructions.

When powering up the HWRQ 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 system screen. Once the control is mounted and wired, set up an initial pilot program.

- Set and adjust System Startup Settings
- Set and adjust Stage Settings
- Set and adjust System Settings
- Set and adjust Maintenance
- Set and adjust Schedules



SYSTEM STARTUP SETTINGS

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

If entering this menu option after the control has been set, several warnings will display with an option of pressing the Select button to continue. After the warnings the following options will be displayed in this order:

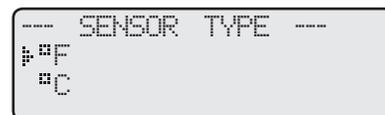
- Sensor Type (°F for Fahrenheit or °C for Celsius.)
- Control Mode (Reset or Set Point)
- Burner Type (On/Off, 2-Stage, 3-Stage, or 4-Stage)
- Total Boiler (From 1 to 24)
- Sequencer (Lo/Hi/Lo/Hi or Lo/Lo/Hi/Hi)
- DHW Setting (No Priority or Priority)
- Fast Cool Down (Minimum Water temperature or OFF)
- Control Logic (PID or OSS)
- Sensor Fault (Stages On or Stages Off)

SENSOR TYPE

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

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

- This option allows you to set the display mode of the sensors and all temperature settings displayed by the HWRQ Platinum.

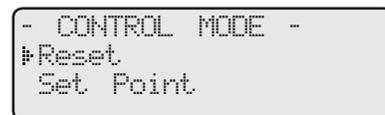


CONTROL MODE

Reset or Set Point Default: Reset

SELECT *Settings/System Startup/.../Control Mode*

- The HWRQ Platinum can control the water temperature by adjusting it according to Outdoor temperature (Outdoor Reset) or by maintaining an adjustable Set Point.
- When Reset is selected, the HWRQ Platinum will adjust the Target Water Temperature (TGT) according to the Outdoor Temperature, the Reset Ratio, and the Offset. This option will provide more comfort and fuel savings.



HT# 059031-00B

When Reset is Selected, the following are the settings that directly affects this modes operation:

- Reset Ratio SELECT *Settings/System Settings/Reset Ratio*
- Target Offset SELECT *Settings/System Settings/Target Offset*
- Maximum Target SELECT *Settings/System Settings/More Settings/Maximum Target*

When Set Point is Selected, the following are the settings that directly affects this modes operation:

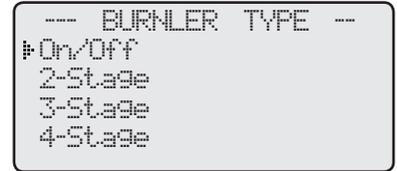
- Set Point SELECT *Settings/System Settings/Set Point*

BURNER TYPE

On/Off, 2-Stage, 3-Stage, or 4-Stage Default: On/Off

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

- The HWRQ Platinum can control multiple multi-stage boilers.
- The number of stages multiplied by the number of boilers will give the total number of stages the HWRQ Platinum will control.



TOTAL BOILER

From 1 to 24 depending on Boiler Type Default: varies

SELECT *Settings/System Startup/.../Total Boiler*

- The HWRQ Platinum can control up to a total of 24 stages using two Extension panels. The Total Boiler default will change to reflect the HWRQ Platinum's 8 stages. That is if Burner Type was set to 2-Stages, the Total Boiler will default to 4 resulting in a total of 8 stages being controlled by the HWRQ Platinum.



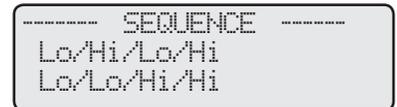
SEQUENCE

(Not Available for on/Off Boilers)

Lo/Hi/Lo/Hi or Lo/Lo/Hi/Hi Default: Lo/Hi/Lo/Hi

SELECT *Settings/System Startup/.../Sequence*

- The HWRQ Platinum can sequence multi-stage burners by boiler (Lo/Hi/Lo/Hi). In this option, the HWRQ Platinum will start the first boiler's lowest stage followed by the remaining stage for that boiler. Then, do the same for the following boilers.
- If the Lo/Lo/Hi/Hi option was selected, the HWRQ Platinum will start the first boiler's lowest stage followed by the second boiler's lowest stage until all boilers set to Auto mode has all their lowest stages on. When more stages are need, the HWRQ will start the secondary stages and so on. This option is more efficient for many copper tube and low mass boilers.



DHW SETTING

No Priority or Priority Default: No Priority

SELECT *Settings/System Startup/.../DHW Setting*

- This selection allows you to set how the HWRQ Platinum will control the Pump relay operation based on a Domestic Hot Water call initiated through the DHW Call input terminals.
- When a domestic hot water call is initiated by closing the contacts on DHW Call terminals, the HWRQ Platinum changes the Target Set Point to 200°F or Max Target Water Temp. setting, whichever is lower.
- When the DHW Call contacts are opened, the HWRQ Platinum changes the Target Set Point back to a setting that is based on Outdoor temperature, Reset Ratio and Water Temperature Offset.
- The HWRQ Platinum Pump Relay will react differently based on the DHW Setting. If the setting was set to No Priority, then the Pump Relay will stay energized supplying heat to the building.
- If the setting was set to Priority, the Pump Relay will de-energize for a period of one hour allowing all the heat to supply the Domestic Hot Water zone for that period.
- After the One hour priority time, the Pump Relay will energize again allowing both building heating (Pump relay) and domestic hot water heating to continue.

The following are the settings that directly affects this modes operation:

- Max Target SELECT *Settings/System Settings/More Settings/Maximum Target*



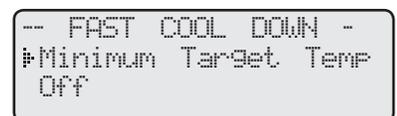
FAST COOL DOWN

(Available with Communication Controls only)

Min Target Temperature or Off Default: Min Tgt Temp

SELECT *Settings/System Startup/.../Fast Cool Down*

- This option is only available when the HWRQ Platinum has a communication package.



- Space Lock (SELECT: Settings/System Settings/More Settings/Remote Interface) must be set to ON.
- The Fast Cool Down allows the building to cool down quicker until the space temperature is at the Night Target setting (SELECT: Settings/System Settings/More Settings/Remote Interface).
- When Minimum Water Temp is selected, the HWRQ Platinum will allow the System Temperature to cool down to the Minimum Target temperature when a switch from Day (Normal) to last Night (Saving) takes place. This option must be selected when the boiler manufacturer has a minimum boiler temperature requirement.
- When Off is selected, the HWRQ Platinum will reduce the system water temperature to a minimum of 70°F when a switch from Day (Normal) to last Night (Saving) schedule takes place.
- When the building space temperature reaches the Night Target setting the HWRQ Platinum will exit the Fast Cool Down.
- After the Space Temperature has reached the Night Target, the HWRQ Platinum will recalculate the Target Temperature based on the Night settings.

CONTROL LOGIC

PID or OSS (Oversized System) Default: PID

SELECT *Settings/System Startup/.../Control Logic*

- The PID option allows the HWRQ Platinum to sequence stages based on Reaction Time and boiler Min Run Time. The PID relies on the rate of change in the System Temperature. The PID logarithmic calculations foresee changes and sequence stages based on those changes. It is the most efficient operation for most heating systems.
- The Oversize option sequence stages based on how many Throttling ranges is the system temperature away from the Target Temperature. At one Throttling range below the Set Point, only one stage will be on. For each additional Throttling range below the Set Point, an additional stage will be activated. The last stage on will be allowed to exceed the Set Point by one Throttling range before turning off that stage. This helps to prevent the last stage from short cycling.

When PID is Selected, the following are the settings that directly affects this modes operation:

- Reaction Time SELECT *Settings/System Settings/More Settings/Stage Settings/Reaction Time*
- Purge Delay SELECT *Settings/System Settings/More Settings/Stage Settings/Purge Delay*
- Minimum Run Time SELECT *Settings/System Settings/More Settings/Stage Settings/Min Runtime*
- Standby Delay SELECT *Settings/System Settings/More Settings/Stage Settings/Standby Delay*
- Last Stage Hold SELECT *Settings/System Settings/More Settings/Stage Settings/Lst Stage Hold*

When Oversize (OSS) is Selected, the following are the settings that directly affects this modes operation:

- Throttle SELECT *Settings/System Settings/More Settings/Stage Settings/Throttle*

```

--- CONTROL LOGIC ---
#PID
  OSS
  
```

SENSOR FAULT

Output On or Output Off Default: Output On

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

- This selection determines the status of the stage relays when either the Outdoor Sensor or System Sensor is at fault, sensor reading will blink with either OPEN or SHORT. In addition, the Display second line will show SENSOR FAULT.
- When Stages On is selected and a sensor is at fault, the Pump relay in addition to all the stages relays will energize. This will allow all the boilers to run on their own limits.
- When Stages Off is selected and a sensor is at fault, the Pump relay will energize. However, all boiler stages relays will de-energize.

```

--- SENSOR FAULT ---
#Stages On
  Stages Off
  
```

DAY LIGHT SAVING

Enable or Disable Default: Enable

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

- Enable this feature in areas where Day Light Saving is observed to account for the time changes without having to manually change the time twice a year.

```

- DAY LIGHT SAVING
#Enable
  Disable
  
```

DATE AND TIME SETTING

Year, Month, Day, Time

SELECT *Settings/System Startup/.../Set Year*

- Entering the correct date and time assures that the HWRQ Platinum will make its changes correctly.
- Use the Select and Adjust button to change date and time values.

```

----- SET YEAR -----
                2010 YR
[■■■■■■■]
  
```

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 HWRQ Platinum behaves differently based on the selected Control Mode (see Startup Settings).

Reset

- Target Offset
- Reset Ratio
- Maximum Target
- Season (Winter or Summer)
- Outdoor Cutoff
- Pump Run-On
- Minimum Target
- Night Setback
- Boost Mode
- Stage Settings
- Remote Interface (Can be utilized with Remote Communication Only)

Set Point

- Set Point
- Season (Winter or Summer)
- Outdoor Cutoff
- Pump Run-On
- Minimum Target
- Night Setback
- Boost Mode
- Stage Settings
- Remote Interface (Can be utilized with Remote Communication Only)

```
- SYSTEM SETTINGS -
# Season           Winter
Set Point         140°F
Target Offset     0°F
Reset Ratio       E
Outdoor Cutoff    70°F
Pump Run-On       2m
<More Settings>
```

```
SYSTEM SETTINGS 2
# Min Target       80°F
Max Target        240°F
Night Setback     -10°F
Boost Mode        Vari
<Stage Settings>
<Remote Interface>
```

SEASON

Winter or Summer

Default: Winter

SELECT *Settings/Season* when in Winter setting

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

- The HWRQ Platinum will turn off the Pump relay when it is in Summer setting. Furthermore, the burners will be off for heating.
- When in Winter, the HWRQ Platinum will activate the Pump relay whenever the Outdoor temperature (OD) falls below the Cutoff setting. In addition, it will begin heating whenever the System temperature (SYS) falls below the Target Temperature. Therefore, adjust this setting to Winter during the heating season.
- When the heating season is over, it is a good practice to switch the HWRQ Platinum to Summer setting.

```
----- SEASON -----
# Winter
Summer
```

⚠ ALERT

DO NOT turn power off to the HWRQ Platinum when heating season is over. If you do so, the battery will run down and will have to be replaced. Instead switch to Summer.

SET POINT

(Available with Set Point Control Mode Only)

70°F to 240°F

Default: 120°F

SELECT *Settings/System Settings/Set Point*

- When the Control Mode is set to Set Point, the HWRQ Platinum will sequence boiler stages to achieve that Set Point.

```
----- SET POINT ----
                140°F
[■■■■■■■] ]
```

TARGET OFFSET

(Available with Reset Control Mode Only)

-40°F to 40°F

Default: 0°F

SELECT *Settings/System Settings/Target Offset*

- The Target Offset setting lets you adjust the starting points of the Reset Ratio curves. This means that, regardless of the Outdoor temperature (OD), or the Reset Ratio that has been selected, when the Offset setting is changed, that change is directly added or subtracted to the Target water temperature (TGT). For example, if the Target water temperature (TGT) was 130°F and the Offset was changed from 0° to 10° (an increase of 10°), then the Target water temperature (TGT) would increase to 140°F
- The Target Offset setting does not change the effect that Outdoor temperature (OD) has on System water temperature (SYS). For instance, with an E setting (1.00 (OD):1.00 (SYS)) Reset Ratio, the System water temperature (SYS) will always increase one degree for each degree change in the Outdoor temperature (OD). What the Offset does is add or subtract a constant temperature value. (See Understanding Operation Concept)
- If required: **Adjust the Water Offset in mild weather.** If the ambient building temperatures are too warm in the mild weather, decrease the Water Offset. If the ambient building temperatures are too cold in the mild weather, increase the Water Offset. The rule of thumb for baseboard radiation is to change the Offset 4°F for every 1°F you wish to change the building temperatures. In radiant heat applications, change the Offset 1°F or 2°F for every 1°F you wish to change the building temperature.

```
-TARGET TEMP OFFSET-
                +0°F
[■■■■■■■] ]
```

- To adjust the Offset simply rotate the Adjust knob. The Water Offset is adjustable from -40°F to +40°F with a default of 0°F. A minus Offset reduces the Target water temperature (TGT), and a positive Offset increases the temperature.

RESET RATIO

(Available with Reset Control Mode Only)

A to J

Default: E

SELECT *Settings/System Settings/Reset Ratio*

- The Reset Ratio determines how the System water temperature (SYS) will vary with Outside temperature (OD). With any of the ratios, the colder it becomes outside, the hotter the temperature of the system water. The ratios are adjustable from 1:3 (A) to 4:1 (J). (See Understanding Operation Concept)
- With a 1:3 (A) ratio, the System water temperature (SYS) will increase rapidly as the outside temperature falls, hitting the maximum of 240°F at 24°F outside temperature. With a 4:1 (J) ratio, the System water temperature (SYS) will increase slowly as the outside temperature falls. Even at -30°F, the system water will only be 125°F, and at 24°F outside, the system water will be 112°F. Such a low Reset Ratio might be used with radiant floor heating applications.
- With most baseboard heating applications, a 1:1 (E) setting is a good place to start. With a 1:1 (E) ratio, for every degree the outside temperature falls, the system water temperature is increased one degree.
- If required: **Adjust the RESET RATIO in cold weather.** If the ambient building temperatures are too cold in cold weather, change the ratio counterclockwise by one letter (i.e.. from E to D). If the building temperatures are too warm in cold weather, change the ratio clockwise by one letter (i.e.. from E to F).

	RESET RATIO		
A	1.00	OD=3.00	Sys
B	1.00	OD=2.00	Sys
C	1.00	OD=1.50	Sys
D	1.00	OD=1.25	Sys
E	1.00	OD=1.00	Sys
F	1.25	OD=1.00	Sys
G	1.50	OD=1.00	Sys
H	2.00	OD=1.00	Sys
I	3.00	OD=1.00	Sys
J	4.00	OD=1.00	Sys

OUTDOOR CUTOFF

Off, 30°F to 75°F, On

Default: 70°F

SELECT *Settings/System Settings/System Cutoff*

- The Outdoor Cutoff will determine when the HWRQ Platinum turns on the Pump relay and begins heating the System water (SYS). When the Outdoor temperature (OD) is above the Outdoor Cutoff, the HWRQ Platinum will turn off the Pump relay. In addition, all burner stages will be off for heating. When the Outdoor temperature (OD) falls below the Outdoor Cutoff, the HWRQ Platinum will activate the Pump and control the burner stages to hold the Target water temperature (TGT).
- The Outdoor Cutoff can be set from 30°F to 75°F. In addition, the Setting can be set to ON or OFF. In the ON position, the Pump will run regardless of the Outdoor temperature (OD) and the burner stages will be active to hold the Target water temperature (TGT). (Note: The lowest Target water temperature the HWRQ Platinum will circulate is 70°F. If the Outdoor Cutoff is turned ON and the Season is set to Winter, the HWRQ Platinum will circulate at least 70°F water even in the hottest of weather.) In the OFF position, the system pump will always be off and all burner stages will be off for heating.

	OUTDOOR CUTOFF
	70°F

PUMP RUN-ON

0 to 60 minutes

Default: 2 minute

SELECT *Settings/System Settings/Pump Run-On*

- The Pump relay will energize whenever the Outdoor temperature (OD) is below the Outdoor Cutoff (CUT). When the Outdoor temperature increases 2°F above the Outdoor Cutoff after the last burner stage relay has de-energized, the Pump relay will stay on for a period of time set by the Pump Run-On. This allows the Pump to dissipate the residual heat within the boilers back into the building.
- The Pump Run-On time should be set based on the size and type of the boilers. A boiler with low water content and high horsepower will need a longer Pump Run-On than a boiler with the same horsepower but has more water content.

	PUMP RUN-ON
	2m

MINIMUM TARGET

70°F to 170°F

Default: 80°F

SELECT *Settings/System Settings/More Settings/Minimum Target*

- The Minimum Water Temperature must be set to the boiler manufacturer's specification. The HWRQ Platinum will calculate the Target temperature (TGT) based on the Outdoor temperature (OD), the Reset Ratio, and the Offset value. The HWRQ Platinum will control the burner stages to hold either the calculated temperature, or the Minimum Water Temperature, whichever is higher.
- The Minimum Target must be at least 20°F lower than the Maximum Target (See next setting).

	MIN TARGET TEMP
	80°F

MAXIMUM TARGET

(Available with Reset Control Mode Only)

90°F to 240°F

Default: 240°F

SELECT *Settings/System Settings/More Settings/Maximum Target*

- This is the highest temperature heating water the HWRQ Platinum will circulate through the heating system.
- When using a radiation system, it should be set according to the tubing or floor manufacturer's specification.
- The Maximum Target must be at least 20°F higher than the Minimum Target



NIGHT SETBACK

0°F to 80°F

Default: 10°F

SELECT *Settings/System Settings/More Settings/Night Setback*

- The HWRQ Platinum has two heat levels. The Day Time (Normal) settings are for when a building is occupied and people are active. The Night Time settings hold a lower ambient temperature, and are for when a building is unoccupied.
- The Night Time setting lowers the temperature of the circulating System water (SYS) by the number of degrees indicated. In other words, the HWRQ Platinum will first calculate the temperature of the circulating System water by using the outside temperature and Reset Ratio. Then the HWRQ Platinum will add or subtract the value of the Water Offset. Finally, if the control is in Setback, the HWRQ Platinum will subtract the value of the Night Setback setting. This final value is the temperature the HWRQ Platinum will use for the Target water temperature (TGT). This procedure will occur automatically.
- The Night Setback setting is adjustable from 0°F (no Night Setback) to -80°F (the circulating water temperatures will be lowered 80°F when the control enters the Setback mode.) For baseboard radiation, begin by setting the Night Setback 4°F for every degree you wish to decrease the ambient building temperatures. For example, if you wish the building to be 5°F cooler during Setback, set the Night Setback to -20°F. For radiant applications, begin by setting the Night Setback 1°F or 2°F for every degree you wish to decrease the ambient building temperatures.



BOOST AND EARLY SHUTDOWN

Off, Vari, and Vari+ESD

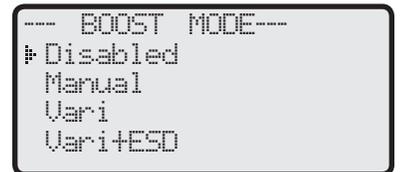
Default: Vari

Boost Adjustment: 0°F to 60°F

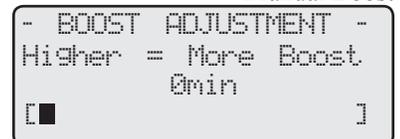
Default: 20°F

SELECT *Settings/System Settings/More Settings/Boost Mode*

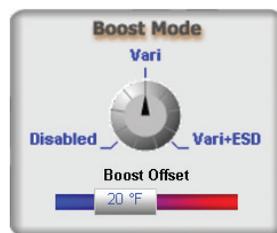
- The morning Boost is designed to return the building to comfortable ambient temperatures after the cooler Night (Setback) period.
- The HWRQ Platinum will accomplish this by running elevated water temperatures for a given time period based on the #1 Day Time schedule for that day.
- If you do not want a Boost on a day of the week, simply program the #1 Day Time schedule to **:**, and use the #2 Day Time program for any Day (Normal) settings.
- To cancel a Boost or Early Shutdown for one time only for a specific day without changing the Schedule, Select Shift from the Settings menu. Any Shifting will result in cancelation of Boost or Early Shutdown.



Manual Boost



Vari Boost



There are three modes of Boost:

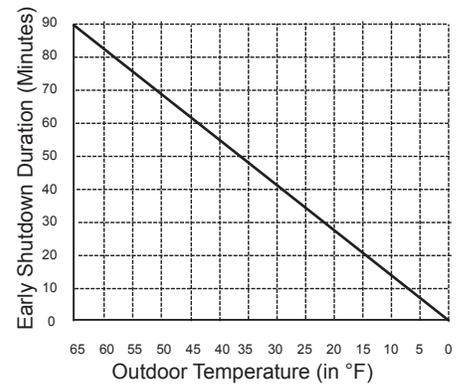
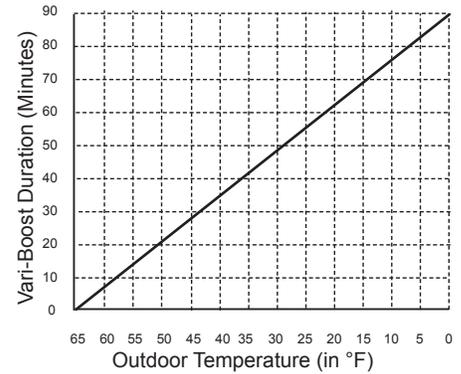
Off - The HWRQ Platinum will begin running the Day water temperatures at the Day # 1 time setting. No Boost will start.

Vari-Boost - This Boost begins earlier than the Day # 1 time. The length of the Boost time depends on the outside temperature. During the Boost period, the HWRQ Platinum will increase the Target water temperature by the number of degrees set on the Boost Adjustment.

- The Boost Adjustment should initially be set to the same number of degrees as the Night Setback. For instance, if the Night setback is set at 20°F, then the Boost Adjustment should be set to 20°F.
- If the ambient building temperatures are too cold at the Day # 1 time, then increase the Boost Adjustment in increments of 10°F. If the Boost Adjustment is turned all the way up, and it is still too cold at the Day # 1 time, it might be necessary to decrease the amount of the Water Temperature Night Setback.
- If it is too warm at the Day # 1 time, then decrease the Boost Adjustment in increments of 10°F

Vari-Boost with Early Shutdown - This should be used in commercial buildings where the building will be unoccupied in the Night times. A Vari-Boost as described above is run. In addition, the HWRQ Platinum will switch into the Night Setback mode earlier than the latest Night setting for that day.

- The warmer it is outside, the earlier the HWRQ Platinum will shift into Night Setback.(see diagram)
- Whichever option the Fast Cool Down has been set to, the Early Shutdown will use it as a Target Temperature.
- If the HWRQ Platinum has an Internet communication package and Space Lockout has been activated, the Early Shutdown will lower Target Temperature to either Minimum Water temp Setting or 70°F, depending on the Fast Cool Down setting, until Space Avg has reached the Night Target.
- If Space Lockout has not been activated or no communication package is available, the Target temperature will be the Night Setback.



STAGE SETTINGS

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

The Stage Settings is for adjusting how the burners and their stages should respond to different operation steps. The Stages behave differently based on the selected Control Logic (see Startup Settings).

Oversize (OSS)

- Throttle
- Lead Stage
- Rotate Mode

PID

- Reaction Time
- Purge Delay
- Minimum Run Time
- Standby Delay
- Last Stage Hold
- Throttle
- Lead Stage
- Rotate Mode

```

- STAGE SETTINGS -
# Reaction Time 2m
Purge Delay 0.0m
Min Runtime 2m
Standby Delay 10m
Lst Stg Hold 0.0Psi
Throttle 2.0Psi
<Lead Settings>
    
```

REACTION TIME

(Available with PID Control Logic Only)

1 minute to 10 minutes Default: 2 minutes

SELECT *Settings/System Settings/More Settings/Stage Settings/Reaction Time*

- It is the amount of time it takes a single stage to affect the system.
- After the HWRQ Platinum turns on a stage trying to meet a set point, it will not turn on another stage until the reaction time has elapsed. Then, it will recalculate if a stage is need.
- To determine the optimum time, start with a hot system. Then, turn on a single stage and calculate how long it takes until the system begins to respond to that stage. That period should be set as the Reaction Time.

```

-- REACTION TIME --
2m
[■■■■]
    
```

PURGE DELAY

(Available with PID Control Logic Only)

0.0 minute to 10.0 minutes

Default: 0 minutes

SELECT *Settings/System Settings/More Settings/Stage Settings/Purge Delay*

- Most large boiler units must go through a purge cycle before they are brought on line.
- When the HWRQ Platinum activates a boiler (the lowest stage on a burner), it does not start to calculate its output until the Purge Delay is over. This allows the unit to fully come on line and to begin producing output.
- The Purge Delay helps to prevent short cycling of a newly activated burner. Once the lowest burner stage is activated, it **MUST** run through the entire Purge Delay period.
- The minimum Purge Delay setting **MUST** be set to the time required by the units manufacturer.



MIN RUN TIME

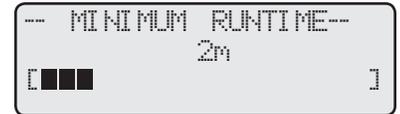
(Available with PID Control Logic Only)

1 minute to 60 minutes

Default: 2 minutes

SELECT *Settings/System Settings/More Settings/Stage Settings/Min Runtime*

- This is the minimum amount of time any stage will run.
- For the lowest stage of a burner, the Minimum Run Time starts after the purge cycle.
- This timer does not apply to the last stage online. The Last Stage Hold applies in that case.
- Initially, set the Min Run Time to half the Reaction Time.
- If System tends to overshoot, reduce the Min Run Time. If boilers tends to short cycle, increase Min Run Time.



STANDBY DELAY

(Available with PID Control Logic Only)

1 minute to 60 minutes

Default: 10 minutes

SELECT *Settings/System Settings/More Settings/Stage Settings/Standby Delay*

- The Standby Delay Time only applies to Boilers in Standby Mode.
- A Standby Boiler can only be activated after all the boilers in Auto Mode have run for the full Standby Time.
- Standby boilers are used for backup or extreme load conditions only. A Standby Stage can never be a Lead Stage
- The full Standby Delay Time must always elapse regardless of what happens to system temperature. Therefore, shorter Standby Times will result in smoother set point operation in extreme conditions. Longer Standby Times may prevent a Standby Boiler from firing if the other boilers can eventually meet the load, or if the load decreases.
- When setting Standby Time, remember that it will be added to the Reaction Time for the first stage on the first Standby boiler. The following stages start time will rely on Pre-Purge and Reaction Time.



LAST STAGE HOLD

(AVAILABLE WITH PID CONTROL LOGIC ONLY)

0°F to 30°F

Default: 5°F

SELECT *Settings/System Settings/More Settings/Stage Settings/Lst Stage Hold*

- The Last Stage Hold prevents short cycling of the Lead Stage during low load conditions.
- In low load conditions, the system might have a load that is significantly less than the output of one Stage. When the HWRQ Platinum brings on the Lead Stage, the Set Point is quickly exceeded, and the HWRQ Platinum turns the Lead Stage off.
- To prolong the run time during this type of condition, use the Last Stage Hold setting.
- The HWRQ Platinum will allow the system temperature to exceed the Set Point by the number of degrees selected, before the Lead Stage is turned off.
- For example, with a Set Point of 160°F and a Last Stage Hold setting of 10°F, the Lead Stage boiler will remain on until the Set Point reaches 170°F then de-energize.



Avoiding Conflicting Boiler Limits

- The temperature limits set on the boilers MUST be set considerably higher than the HWRQ Platinum’s Set Point for the reasons detailed below.
- The HWRQ Platinum sensor is located in a common header some distance from the boilers.
- As the temperature rises in the header and before reaching the sensor location, energy is dissipated.
- Therefore, the temperature in the header will correctly be lower than that registered by sensors in the boilers.
- In addition to the normal drop experienced between the boiler’s temperature and that read by the HWRQ Platinum sensor, the Last Stage Hold setting must be accounted for. The boiler limit must be set above the Set Point PLUS the Last Stage Hold PLUS the normal drop experienced in the piping.
- Using the previous example of a 10°F Last Stage Hold with a 160°F Set Point, the boilers’ limits must be set enough over 170°F to prevent the boilers’ internal limits being reached. In this situation, the boiler high limit should be set at approximately 180°F to prevent the difference in boiler temperature vs. header temperature causing erratic operation.

⚠ ALERT

The temperature limits set on the boilers must be higher than the HWRQ Platinum Set Point. Read the section at left for details that will prevent erratic system operation.

THROTTLE

(Available with OSS Control Logic Only)

2°F to 20°F

Default: 2°F

----- THROTTLE -----

1.5 Psi

[■■■]

SELECT *Settings/System Settings/More Settings/Stage Settings/Throttle*

- The Throttling Range sets a temperature band around the Set Point that controls when stages will be turned on or off.
- For example, in the Oversize (OSS) heating mode, no stages will be activated until the temperature falls one full Throttling Range below the Set Point. A second stage will be activated when the temperature falls to two full Throttles below the Set Point, and so on, with one extra stage being turned on for every throttling below the Set Point the System temperature reaches.
- Stages will be turned off as the temperature rises toward the Set Point with one full throttling range as a differential.
- The last stage to be turned off will be allowed to exceed the Set Point by a full throttling range before it is turned off. This helps prevent the last stage from short cycling when the load is low or when the stage is oversized.

Throttling Example

Set Point = 180°F

Throttling = 5°F

4 Boiler Stages, A, B, C, and D

Temperature	Calculation	Falling Temperature		Rising Temperature	
		Stage Turned On	Stages On	Stage Turned Off	Stages On
185°F	180 + (1)THR	None	None	A	None
180°F	180 - (0)THR	None	None	None	A
175°F	180 - (1)THR	A	A	B	A
171 to 174°F	---	---	A	---	A,B
170°F	180 - (2)THR	B	A,B	C	A,B
166 to 169°F	---	---	A,B	---	A,B,C
165°F	180 - (3)THR	C	A,B,C	D	A,B,C
161 to 165°F	---	---	A,B,C	None	A,B,C,D
160°F	180 - (4)THR	D	A,B,C,D	None	A,B,C,D

LEAD BOILER AND ROTATION SETTINGS

LEAD BOILER

A thru H or last boiler number

Default: <A>

SELECT *Settings/System Settings/More Settings/Stage Settings/Lead Boiler*
or *Settings/System Settings/More Settings/Stage Settings/Lead Settings/Lead Stage*

- The Lead Boiler’s lowest stage will always be the first stage brought on when there is a call for output. As more output is needed, additional Stages are added.
- The Lead Boiler is shown on the main display in brackets.
- In a 2-Stage system (see Boiler Type in the Startup section), the display will show the two Lead Boiler stages bracketed <AB>. In a 3-Stage system, the display will show the three Lead Boiler stages bracketed <ABC>, and so on.
- The Lead Boiler can be rotated based on the Rotation Mode selected. (See next setting)

--- LEAD BOILER ---

[AB]

[CD]

[EF]

[GH]

HT# 059031-00B

ROTATE MODE

Time, Manual, First-On/First-Off (FOFO) Default: Time

SELECT *Settings/System Settings/More Settings/Stage Settings/Rotate Mode*

or *Settings/System Settings/More Settings/Stage Settings/Lead Settings/Rotate Mode*

- Automatically rotating the Lead boiler among the active boilers promotes more even wear on the boilers and can help prolong their life.
- The HWRQ Platinum has three selections for rotating the Lead Boiler.

Time

- On power up, or any time the HWRQ Platinum loses power, the Lead Boiler will be the lowest Boiler in Auto Mode (that is, A first, then B, C, or D).
- If the default 24 hour rotation is used, at 2 am every morning, the Lead Boiler will change to the next Boiler in Auto Mode. Note: If you do not set the system time, the HWRQ Platinum will assume it was installed at 2 PM.
- If the Rotate Time (Auto Rotate Period) is changed, the Lead Boiler will change to the next Boiler in Auto Mode every time the Rotate Time (Auto Rotate Period) has elapsed. For example, with a 12 hour Rotate Time, the Lead Boiler will rotate from A to B after the first 12 hours of operation, and then from B to C after the next 12 hours, and so on.
- When less output is needed, the additional Boiler Stages are turned off in the reverse order of how they were added. For instance, if the Boiler stages were added in the sequence A, B, and C, then they will be turned off in the sequence C, B, and A.

Manual

- If Manual is selected, the Lead Boiler will not automatically rotate.
- In Manual, whichever Boiler is presently the Lead will remain the Lead until there is a power failure. Then the HWRQ Platinum will revert to the lowest Boiler in Auto Mode (that is, A first, then B, C, or D).

First-On/First-Off (FOFO) (AVAILABLE IN PID CONTROL MODE ONLY. NOT AVAILABLE IN OSS)

- On power up, or any time the HWRQ Platinum loses power, the Lead Boiler will be the lowest Boiler in Auto Mode (that is, A first, then B, C, or D).
- When less output is needed, the Lead Boiler will be the first boiler turned off. The bracket indicating lead Boiler will then switch to the next available boiler in Auto Mode. For instance, if the boilers were added in the sequence A, B, and C, then they will be turned off in the sequence A, B, and finally C. The lead boiler will now be switched to D when there is an output call.

BOILER OPERATION MODE

Auto, Standby, Off, On

Default: Auto

BOILER (Button)

By pressing the BOILER button, the Boiler Operation mode menu selection will display.

There are four modes. By pressing the BOILER, NEXT, or PREV buttons the display will scroll between the different modes.

- **Auto** - In this mode boiler stage will operate based on control settings. Boiler can be used in rotation.
- **Standby** - Boiler will start only after all Boilers set to Auto are on for the full Standby Delay.
- **Off** - Boiler relay will be Off until this setting is changed.
- **On** - Boiler relay as well as System relay will be On until this setting is changed.

```
--- LEAD SETTINGS ---
# Lead Boiler      AB
  Rotate Mode     Time
```

```
--- LEAD ROTATION ---
# Time
  Manual
  FOFO
```

```
----- BOILER AB -----
# Auto
  Standby
  Off
  On
```

SCHEDULES

Enter menu by pressing SELECT: *Settings/Schedules*

- The HWRQ Platinum has two levels of heat. The Day Time level is used when a building is occupied and people are active.
- The Night Time (Setback) level is used when a building is not occupied, or when people are sleeping.
- The HWRQ Platinum can have up to four Day Time and four Night Time (Setback) periods for each individual day of the week. The HWRQ Platinum will show which period is it in on the 2nd line of the display.
- Every time the HWRQ 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 you do not have to program every day of the week.
- 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 HWRQ Platinum will ignore any Time setting that reads **:***.

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

DAY/NIGHT SCHEDULE

Day Time default is 6:00 am Night Time default is 10:00 PM

SELECT: *Settings/Schedules/Day Night Schedule*

- Use this setting to set up to 4 Day Time and 4 Night Time (Setback) settings per each day of the week. The Day Time settings allows the HWRQ Platinum to set the Target based on Outdoor temperature and the Reset ratio (when Reset is selected as a Control Mode) or Set point (when Set Point is selected as a Control Mode).
- If the Boost feature is being used, it uses the Day Time on the 1st setting of that day as a Boost calculation starting point.
- The actual Boost start time varies depending on the Outdoor Temperature (OD).
- The Night Time settings lets the HWRQ Platinum reduce the Target temperature (TGT) by the Night Setback setting. Furthermore, if the Early Shutdown feature is being set, it uses the last Night Time setting of that weekday as an Early Shutdown calculation starting point. In this case, the actual Early Shutdown start time will vary based on Outdoor temperature.
- In this area of the menu 3 buttons will take effect. The NEXT button will allow the scroll between the 4 different settings of a specific weekday. The BOILER/DAY button will allow the scroll between all weekdays. The PREV/DEL button will erase the Day Time and Night Time settings for a specific day schedule.



Schedule Example

Schedule		Day of 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	**.**	**.**	**.**	**.**	1:00PM	8:00AM♦	**.**
	Night	**.**	**.**	**.**	**.**	4:00PM	4:00PM♦♦	**.**
#3	Day	**.**	**.**	**.**	**.**	6:00PM	****	**.**
	Night	**.**	**.**	**.**	**.**	10:00PM♦♦	****	**.**
#4	Day	**.**	**.**	**.**	**.**	****	****	**.**
	Night	**.**	**.**	**.**	**.**	****	****	**.**

♦ No boost will take effect.

♦♦ Early Shut Down ends. Night Schedule begins

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 until the Vari Boost the following morning

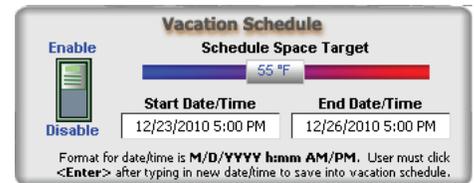
- Friday:** Vari Boost begins before 7 am and ends at 7 am
 Day temperature level is maintained from 7 am to 11 am
 Night temperature level is maintained from 11 am to 1 PM
 Day temperature level is maintained from 1 PM to 4 PM
 Night temperature level is maintained from 4 PM to 6 PM
 Day temperature 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 until 8 AM the following morning
- Saturday:** No Vari Boost because the #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 into Sunday
- Sunday:** Night temperature level is maintained all day Sunday, ending at the Vari Boost Monday morning

⚠️ ALERT

When working with HWRQ Platinum with any of the communications option, Boost can extend to an additional hour if Day Target was not reached within the Boost period.

VACATION SCHEDULE SETTING
(Available with RINet (Internet Controls Only))

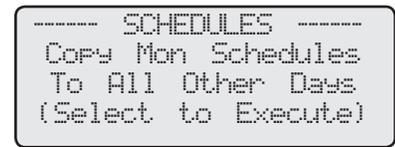
- The vacation Space Target and settings can only be set on the Internet ICMS website.
- The HWRQ Platinum offers a Vacation Schedule which provide the user with an adjustable lower space target that can be maintained between two specified date/time periods.



COPY SCHEDULE

SELECT: *Settings/Schedules/Copy Schedule*

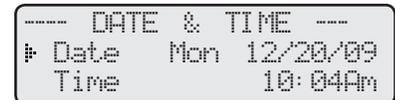
- To reduce the need for setting each weekday time schedule, this feature has been made to allow the copying of the Monday schedule settings to the reset of the week.



SET DATE AND TIME

SELECT: *Settings/Schedules/Set Date & Time*

- At the end of the Startup Menu the Date and Time will need to be set.
- The Date will allow you to set the year followed by the month then finally the day.
- Adjust the time by selecting Time from the menu and then scrolling through the hours followed by the minutes.
- Pay attention to the AM/PM when adjusting the hours.
- Internet capable controls get their date and time from the Internet. The date and time downloaded from the Internet will follow the ICMS Building Time Zone setting.



⚠️ ALERT

Remember that the battery is the only backup for the Date and Time. If no power is supplied to the HWRQ Platinum and there was no battery or battery had no power, date and time values will be lost and will need to be readjusted.

MAINTENANCE

Enter menu by pressing SELECT: *Settings/Maintenance*

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

SYSTEM AND OUTDOOR SENSOR TRIM

SELECT: *Settings/Maintenance/System Sensor Trim*

SELECT: *Settings/Maintenance/Outdoor Sensor Trim*

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 (OD) or the System temperature (SYS). The Trim setting can adjust the displayed value by $\pm 5^{\circ}\text{F}$. Do not use the Trim setting to make the Outdoor temperature sensor match that reported on the radio or 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.

```
- MAINTENANCE MENU-
# System Trim    +0°F
Outdoor Trim    +0°F
Password
```

```
-- SYSTEM TRIM --
      +0°F
[■■■■■■■ ]
```

```
-- OUTDOOR TRIM --
      +0°F
[■■■■■■■ ]
```

PASSWORD AND LOCAL SECURITY

SELECT: *Settings/Maintenance/Password*

The Password is provided to prevent unauthorized users from making changes to HWRQ Platinum settings. Setting up the Password feature is not recommended as it slows down access, 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 the Password is enabled, none of the settings, except Shift to Extended Day and Auto/Bypass toggle switch, can be changed without entering the Password. Once the Password is entered, you can make multiple changes. The Password will expire 15 minutes after the last change has been made.

Using the Default Password

- The HWRQ Platinum has a built in default panel Password - HWRQ. Enabling the default Password will prevent most unauthorized users from adjusting the settings, but will not prevent Heat-Timer service personnel or anyone else with access to this manual, from adjusting the panel.
- To enable the default Password, enter the Maintenance menu, select Password, and follow the prompts to enable the Password.
- At the Login screen, you will have to enter the Password. Turn the Adjust knob until the desired letter is shown. Then press the Select to move on to the next letter.
- Enter HWRQ into the Login screen.
- When completed, select No to the prompt “Change Password?”

Note: When Password is enabled, all settings will be read only except for the Shift to Extended Day and the toggling of the Auto/Bypass Switch.

```
PASSWORDS ENABLED?
#No
Yes
```

```
----- LOGIN -----
Enter Password:
xxxx
```

```
CHANGE PASSWORD?
#No
Yes
```

```
NEW PASSWORD?
Enter New Password
M***
```

ALERT

When password is enabled, all settings will be read only except for the Shift to Extend Day and the Auto/Bypass switch operation.

SHIFT

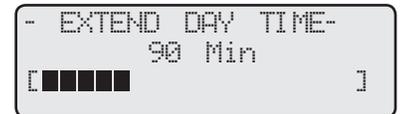
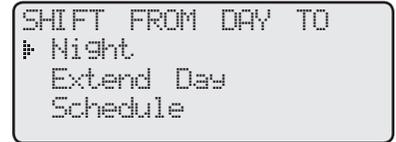
Enter menu by pressing SELECT: *Settings/Shift*

The Shift selection allows you to manually shift from any setting into Night, Day, Extended Day Schedule, or programmed Schedules. This can be used to temporarily override the programmed schedule. A typical example where the shift would be used is in a school where an event has gone into overtime. Instead of re-programming the control to keep it from going into the Setback mode, simply select the Shift followed by the Shift option. The amount of time the HWRQ Platinum will hold the shift is:

- **Shifting from Day to Night** - The control will stay in the Night mode either until the control is shifted again, or until the next programmed Day mode time. The Display will show NIT SHT to indicate this status.
- **Shifting from Night to Day** - The control will stay in the Day mode either until the control is shifted again, or until the next programmed Night mode time. The Display will show DAY SHT to indicate this status.
- **Shifting to Extended Day** - The control will stay in the Day mode for an adjustable amount of time (adjustable between 60 to 240 minutes), and then revert automatically back to the scheduled program. This prevents a user (without a programming password) from putting the HWRQ Platinum in Day mode for an extended period of time when it is programmed for Night.

When the control is manually shifted to Extended Day. The Display will alternate between the DAY EXT and the Extended Time balance remaining in minutes indicating the Extended Day mode.

- The Shift to Extended Day option will be available to anyone to change. Password enabling will not affect this option.



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.

AUTO/BYPASS

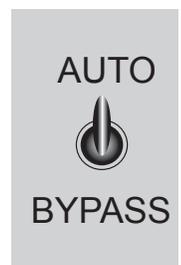
- The switch must be in the AUTO position for the HWRQ Platinum to control the pump and the circulating system water temperatures.
- When switched to Bypass, the pump will run, and all burners and their stages will run on their limits. The Open switch directly connects the Normally Open contacts 4 to 5, contacts 6 to 7, contacts 8 to 9, contacts 11 to 12, and so on. Therefore, if there is no heat, test the pump and the boilers by putting the control in Bypass. If the units do not run, the problem is not with the HWRQ Platinum panel.
- When the HWRQ Platinum is in the Bypass position, no normal functions will be executed. The display will change to read the total amount of time the control has been in Bypass.
- This switch will not be affected by any password setting.

ALERT

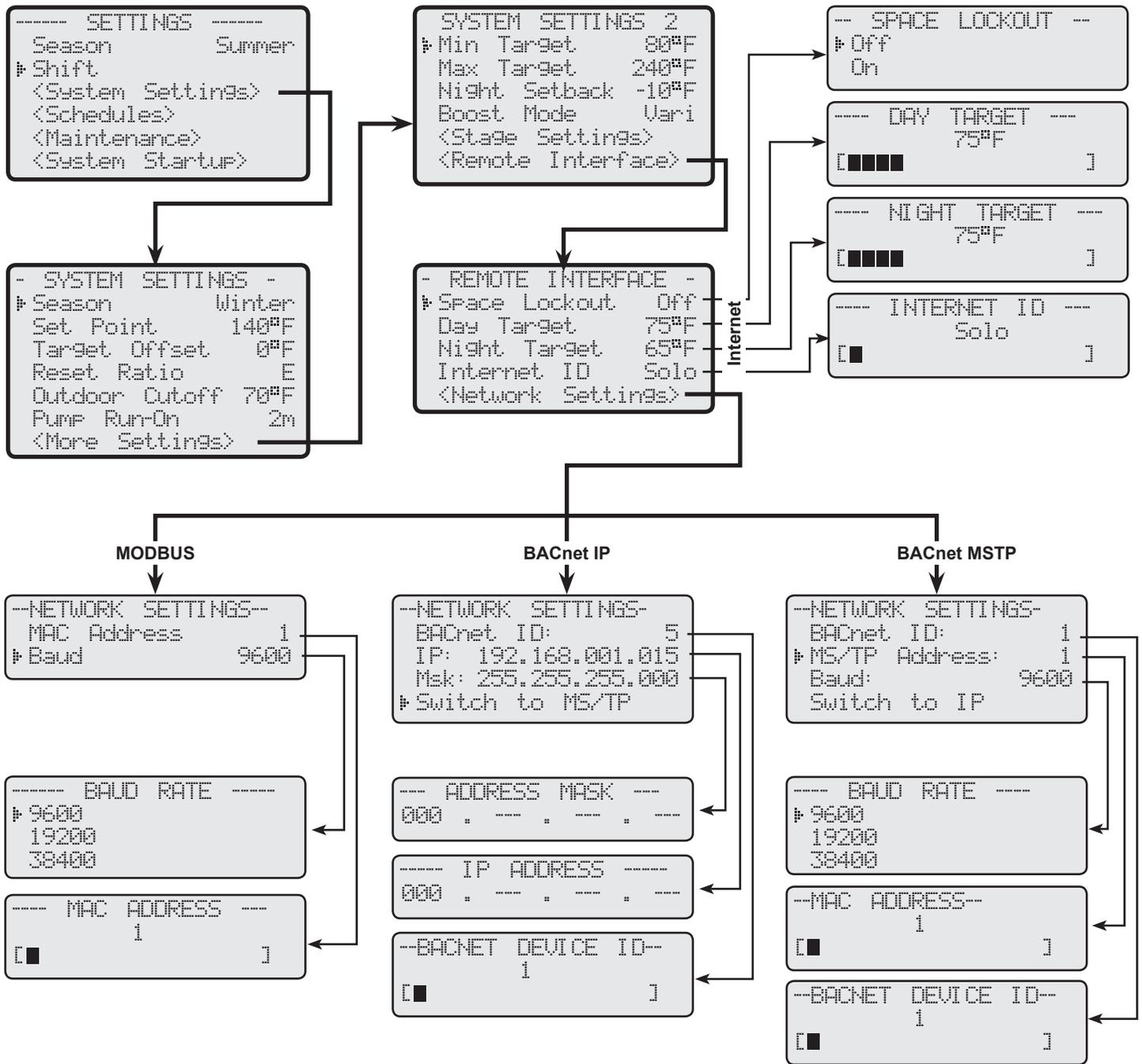
When the HWRQ Platinum is switched to Bypass locally or remotely, all stages will turn on regardless of the Boiler Mode setting. In this case, Sensor Fault, Shutdown, and Prove will have no effect on the control operation.

ALERT

When password is enabled, all settings will be read only except for the Shift to Extend Day and the Auto/Bypass switch operation.



COMMUNICATION OPTIONS



INTERNET COMMUNICATION FEATURES

The HWRQ Platinum with Internet connection (HWRQ Platinum with RINet package will include RJ45 connection) many benefits.

The following are some of the features that can be achieved when using any of the remote communication packages:

- Boiler and Sensor values and settings. Provides “Live” status and editing capability of Platinum control settings and values from virtually anywhere.
- 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.
- Vari-Boost Enhancements. With Space Lockout activated, Boost can end sooner if Day Target is reached. In addition, Boost can extend up to an hour if Day Target was not reached during the calculated Boost period.
- Fast Cool Down. With Space Lockout activated, Fast Cool Down allows the building to cool down faster when switching from Day Time to Night Time (Setback) until Night Target is reached.
- Water Meter Inputs. A water meter sensor can be connected to the Platinum control panel allowing it to be monitored by any of the remote communication packages. This can be used to detect boiler feed leaks as well as primary building cold water leaks.
- Oil Tank Levels. Platinum control panels can be connected to Oil Tank Level controls to monitor and send an alarm when low levels are reached.
- Boiler Time line. A history graph of the boiler operation based on the type of input.
- Sensor Time line. Displays a history of the sensor readings based on predetermined intervals.

ALERT

When connecting an Internet Panel make sure of the following:

- Panel must have a full time Internet access,
- Firewall and Router must allow outgoing traffic on port 4133 and incoming traffic on ports 8082 - 8114,
- A Heat-Timer router is required when multiple panels are connected to a single internet connection.

For custom configurations contact Heat-Timer.

INTERNET COMMUNICATION

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

(Requires Internet Communication Package)

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

- The HWRQ Platinum can be controlled remotely. This allows it to monitor additional sensors that can be used for checking and configuring alarms and sensors.
- The HWRQ Platinum using the Internet communication package (RINet) and Internet access can configure to connect to a large number of sensors.

SPACE LOCK

On or Off

Default: Off

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

- The Space Lockout is required to be set to On to be able to use Space sensors for Day Target and Night Target. This option can be set when the HWRQ Platinum has the Internet communication package.

DAY AND NIGHT TARGET

Day 55°F to 85°F

Default: 75°F

Night 50°F to 80°F

Default: 65°F

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

- The Day and Night Target are used by the Space Feedback to adjust the target water temperature using the System Water Offset. See “Space Feedback Gain” on page 36.
- The Day Target is the space temperature the HWRQ Platinum will try to reach during the Boost period when coming out of the Night Time (Setback) setting.
- The Night Target is the space temperature the HWRQ Platinum will try to reach during the Early Shutdown ESD period when switching from the Day setting.

```
- REMOTE INTERFACE -
# Space Lockout   Off
Day Target       75°F
Night Target     65°F
Internet ID      Solo
```

```
-- SPACE LOCKOUT --
# Off
On
```

```
--- DAY TARGET ---
      75°F
[■■■■■ ]
```

```
--- NIGHT TARGET ---
      75°F
[■■■■■ ]
```

INTERNET ID

(Requires RINet Package)

Solo, 1-31, Custom

Default: Solo

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

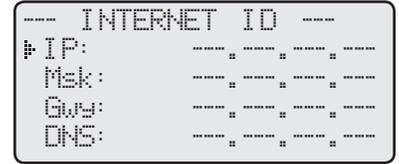
- The Solo; is for a single panel behind a router.
- When multiple panels are connected to one router, each panel requires a unique number from (1-31).
- The Custom option allows the user to manually configure the Internet connection.

ALERT

When connecting multiple panels to the Internet, a Heat-Timer Router is required.

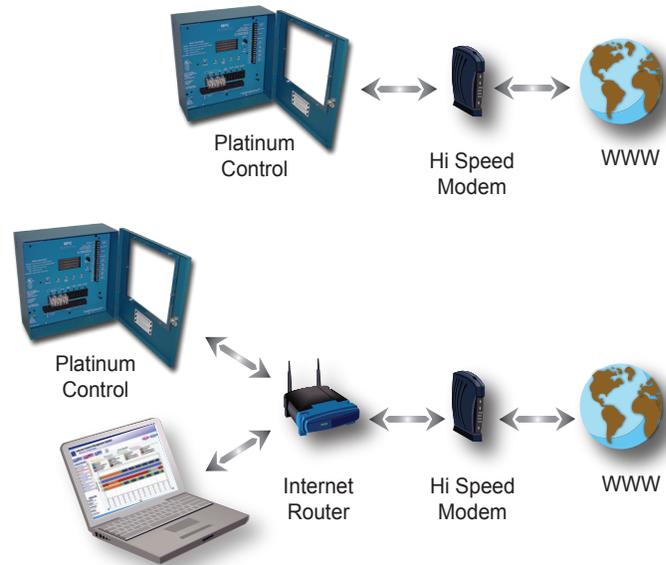


CUSTOM



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



SPACE FEEDBACK GAIN

Accessible Only through the Internet (Requires RINet Package)

0.0 to 5.0

Default: 4.0

- Space Feedback is a feature that Heat-Timer hydronic controls use to fine tune their reset ratios. The control does that by adjusting the water temperature based on space temperature behavior over the previous two hours.
- The Space Feedback Gain is used to adjust the amount of change in the Target Water Temperature for every 1°F Space. That is, if the Space Target was 70°F and the Space Average over the previous two hour was 68°F, then the control will increase the System Water Offset by 8°F if the Feedback Gain was set to 4°F ((70°F - 68°F) x 4°F = 8°F). This increase in the system temperature allows the building to reach its Space Target quicker. See “Space Feedback Concept” on page 6.



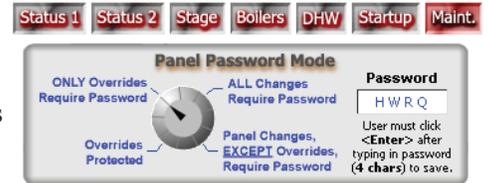
VERRIDE REMOTE CHANGES

(Requires RINet Package)

- With Internet communication, any setting that is changed remotely will automatically be 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 Panel Password Mode under the Maintenance live session must be set to either “Only Overrides Require Password” or “All Changes Require Password”. This will allow a control user with the proper password to make changes to overridden settings.
- All BACnet IP communication controls provide access to change their override values locally when the password is entered.

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.

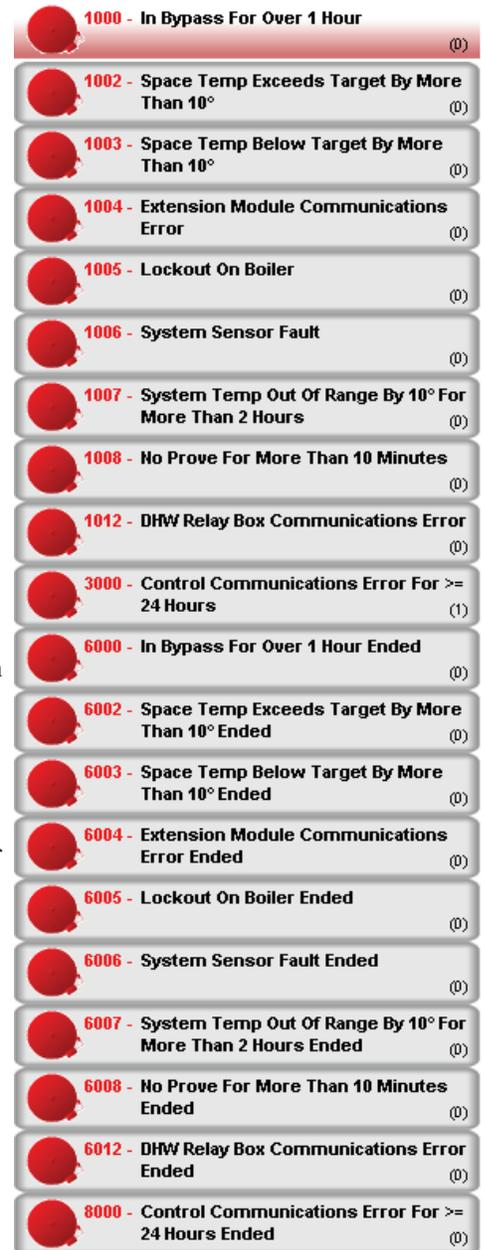


List of HWRQ Platinum Overrides

System Overrides		
Description:	Panel Settings:	Override Settings:
Boost Mode	Vari	Vari
Boost Offset	+20 °F	+20 °F
Bypass Mode	Auto	Auto
Day Extension Time	90 Min	90 Min
Day Space Target	75 °F	75 °F
Last Stage Hold	0 °F	0 °F
Maximum Water Temp	170 °F	170 °F
Minimum Runtime	2 Min	2 Min
Minimum Water Temp	80 °F	80 °F
Night Setback Temp	-10 °F	-10 °F
Night Space Target	65 °F	65 °F
Offset Temperature	+10 °F	+10 °F
Pre-Purge Delay	0.0 Min	0.0 Min
Pump Run-On	0 Min	0 Min
Reaction Time	1 Min	1 Min
Rotate Mode	Time	Time
Rotate Period	24 Hrs	24 Hrs
Season	Winter	Summer
Set Point	120 °F	120 °F
Space Lockout Enable	Off	Off
Standby Delay	1 Min	10 Min
Throttle Range	2 °F	2 °F

INTERNET ALARMS

- The HWRQ Platinum RINet has a set of pre-configured control alarms that can be activated through the Internet ICMS website by visiting the control Alarms webpage.
- Each alarm can be activated 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), e-mail alarm, a text message to a cell phone (it is an e-mail in the form of 111111111@CellCompany.com where CellCompany.com will vary with the cell phone carrier).
- The HWRQ Platinum control alarms are:
 - (#1000) In Bypass for Over 1 Hour: This alarm will generate if the control has been put into Bypass either locally (Auto/bypass switch. See "Auto/Bypass" on page 33 .) or remotely for a full continuous hour.
(#6000) 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 will be sent only 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.
 - (#1004) Extension Module Communications Error: This alarm will be generated if the extension panel communication the HWRQ Platinum has terminated.
(#6004) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
 - (#1005) Lockout on Boiler: This alarm will be generated for any boiler that has gone into lockout status. The message will indicate the specific boiler in lockout.
(#6005) Is an end alarm that can be set to indicate that the initial alarm status has terminated.
 - (#1006) System Sensor Fault: This alarm will be generated whenever the System sensor goes 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 alarm will be generated 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) was activated but had no communication for over 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.



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 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.

```
--NETWORK SETTINGS--
BACnet ID:      1
MS/TP Address: 1
Baud:          9600
Switch to IP
```

```
--NETWORK SETTINGS--
BACnet ID:      5
IP: 192.168.001.015
Msk: 255.255.255.000
Switch to MS/TP
```

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

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

```
--NETWORK SETTINGS--
BACnet ID:      5
Switch to IP
IP: 192.168.001.015
Msk: 255.255.255.000
Switch to MS/TP
```

BACNET DEVICE ID

- This is a 32 bit unique number within the BACnet network. It identifies the Platinum control within the BACnet network. It must be provided by the BACnet Network Administrator and entered into the BACnet ID field.

```
--BACNET DEVICE ID--
1
[■      ]
```

IP AND MASK ADDRESSES

- The Platinum control IP address must be unique within the IP network.
- Both of the IP and Mask addresses must be provided by the Network Administrator.
- Leaving the IP and Mask Addresses as blank or 000.000.000.000 will allow them to be configured using a DHCP server.
- If the no DHCP is be used, 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.

```
---- IP ADDRESS ----
000 . --- . --- . ---
```

```
--- ADDRESS MASK ---
000 . --- . --- . ---
```

BACNET MSTP CONFIGURATION

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

```
--NETWORK SETTINGS--
BACnet ID:      1
Switch to IP
MS/TP Address: 1
Baud:          9600
```

BACNET DEVICE ID

- This is a 32 bit unique number within the BACnet network. It identifies the Platinum control within the BACnet network. It must be provided by the BACnet Network Administrator and entered into the BACnet ID field.

```
--BACNET DEVICE ID--
1
[■      ]
```

MS/TP ADDRESS/ MAC ADDRESS

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

```
--MAC ADDRESS--
1
[■      ]
```

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.

```

--NETWORK SETTINGS-
BACnet ID:      1
# MS/TP Address: 1
Baud:          9600
Switch to IP
    
```

HWRQ PLATINUM BACNET VARIABLE LIST

OBJ ID	OBJECT NAME	DESCRIPTION	TYPE*	UOM	RANGE	READ ONLY
0	BOOST	Boost Offset	AV	°C(62), °F(64)	0 - 33°C, 0 - 60°F	
100	BOOSTMODE	Boost Mode	MV		1=Off, 2=Vari Boost,3=Vari Boost & ESD	
200	BPTIME	Bypass Time	AV	Minutes(72)	0 - 2,147,483,647	X
300 through 331	BSTATUS	Boiler Status	MV		<ul style="list-style-type: none"> • 1=Off, 2=On • 1=Off,2=Low, 3=High • 1=Off, 2=Low, 3=Med, 4=High • 1=Off, 2=Low, 3=MLow, 4=MHigh 	X
400	BTYPE	Boiler Type	MV		1=On/Off, 2=2-Stage3=3-Stage, 4=4-Stage	
500	BYPASSMODE	Bypass Mode	BV		0=Auto, 1=Bypass	
600 through 631	COMERR 00 through COMERR 31	Communication Error	BV		0="", 1=C/E	X
700	CONTROL	Control Mode	BV		0=Reset, 1=Set Point	
800	CUTOFF	Outdoor Cut-off	AV	°C(62), °F(64)	0 - 25°C, 30 - 75°F	
900	DHWMODE	DHW Call Mode	BV		0=No Priority, 1= Priority	
1000	DLS	Day Light Saving	BV		0=Enable, 1=Disable	
1100	FAULTMODE	Sensor Fault Mode	BV		0=Stages On, 1=Stages Off	
1200	FCD	Fast Cool Down	BV		0=Minimum Target Temp, 1=Off	
1300	INMODE	Sensor Type	BV		0=°F Sensor, 1=°C Sensor	
1400	LEAD	Lead Boiler	MV		(Refer to Table 2)	
1500 through 1531	LOCK 00 through LOCK 31	Lockout Input	BV		0=(inactive),1=L/O,	X
1600	LOGIC	Logic Mode	BV		0-PID, 1-OSS	
1700	LSTHOLD	Last Stage Hold	AV	°C(62), °F(64)	0 -17°C, 0 - 30°F	
1800	MINRUN	Min Runtime	AV	Minutes(72)	1-60	
1900	MINTGT	Min Water Temp	AV	°C(62), °F(64)	21 - 77°C, 70 - 170°F	
2000 through 2031	MODE 00 through MODE 31	Boiler Mode	MV		1=Auto, 2=Standby, 3=Off, 4=On	
2100	NBOILER	Total Boilers	AV		1 - 32/(BTYPE+1)	
2200	ODTEMP	Outdoor Sensor	AV	°C(62), °F(64)	-40 - 121°C, -40 - +250°F	X
2300	ODTRIM	Outdoor Sensor Trim	AV	°C(62), °F(64)	-3 - +3°C, -5 - +5°F	
2400	OFFSET	Offset Temp	AV	°C(62), °F(64)	-22 - +22°C, -40 - +40°F	
2500	PDATE	Panel Date	AV	Days (70) since 1/1/1981	0 - 2,147,483,647	
2600	PRUNON	Pump Run-On	AV	Minutes(72)	0 - 60	

HT# 059031-00B

OBJ ID	OBJECT NAME	DESCRIPTION	TYPE*	UOM	RANGE	READ ONLY
2700	PTIME	Panel Time	AV	Minutes(72) since 0:00	0 - 1439	
2800	PUMP	Pump	BV		0=Off, 1=On	X
2900	PURGE	Purge Delay	AV	Minutes(72)	0-10	
3000	R	Reset Ratio	MV		1=A, 2=B, 3=C, 4=D, 5=E, 6=F, 7=G, 8=H, 9=I, 10=J	
3100	REACT	Reaction Time	AV	Minutes(72)	1 - 10	
3200	RTMODE	Lead Stage Rotation Mode	MV		1-Time, 2-Manual, 3-FOFO (No FOFO for LOGIC=OSS)	
3300	RTTIME	Periodic Rotation Interval	AV	Hours(71)	1 - 999	
3400 through 3455	SCHEDULES 00 through SCHEDULES 55	Schedules	AV	Minutes(72) since 0:00	0 - 1439, 1440=empty schedule	
3500	SEASON	Season	BV		0=Winter, 1=Summer	
3600	SEQUENCE	Sequence	BV		0=Lo/Hi/Lo/Hi1=Lo/Lo/Hi/Hi	
3700	SETBACK	Night Setback Temp	AV	°C(62), °F(64)	-44 - 0°C, -80 - 0°F	
3800	SETPT	Set point	AV	°C(62), °F(64)	21 - 116°C, 70 - 240°F,	
3900	SHIFT	Day Night Shift	MV		1=Day, 2=Night, 3=Day Extended 90 Minutes, 4=Resync to Schedule	
4000	STBYDLY	Standby Delay	AV	Minutes(72)	1 - 60	
4100	SYSEN	System Sensor	AV	°C(62), °F(64)	-40 - 121°C, -40 - +250°F	X
4200	SYTRIM	System Sensor Trim	AV	°C(62), °F(64)	-3 - +3°C, -5 - +5°F	
4300	TARG	Calculated Target	AV	°C(62), °F(64)	0 - 116°C, 0 - 240°F	
4400	THROTTLE	Throttle Range	AV	°C(62), °F(64)	1 - 11°C, 2 - 20°F	
4500	ZMAXTGT	Max Target Temp	AV	°C(62), °F(64)	32 - 116°C, 90 - 240°F	

*: 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 variables with multiple UOM's depend upon the value of INMODE to determine which one to use.

Note: Use BOOST when BOOSTMODE set to Vari Boost or Vari Boost & ESD.

Note: BSTATUS range changes with BTYPE. For example: when BTYPE is set to 0, BSTATUS range 0 to 1; when BTYPE is set to 1, BSTATUS range 0 to 2.

Note: Use LSTHOLD, MINRUN, OFFSET, PURGE, R, REACT, STBYDLY when LOGIC set to 0.

Note: Use RTTIME when RTMODE set to 0.

Note: Use THROTTLE when LOGIC set to 1.

Note: Use ZMAXTGT when CONTROL set to 0.

Note: The HWRQ Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Instance 3400 is the first DAY schedule of Monday; Instance 3401 is the first NIGHT schedule of Monday; Instance 3408 is the first DAY schedule of Tuesday; Instance 34009 is the first NIGHT schedule of Tuesday and so on.

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

BOILER TYPE BACNET VARIABLE TABLE

BTYPE	LEAD - Special value (Up to NBOILER -1)
0	1 - 32 → 'A' 'B' 'C' ... 'X' 'Y' 'Z' 'a' 'b' 'c' 'd' 'e' 'f'
1	1 - 16 → 'AB' 'CD' 'EF' ... 'WX' 'YZ' 'ab' 'cd' 'ef'
2	1 - 10 → 'ABC' 'DEF' 'GHI' ... 'STU' 'VWX' 'abc' 'def'
3	1 - 8 → 'ABCD' 'EFGH' 'IJKL' 'MNOP' 'QRST' 'UVWX' 'abcd' 'efgh'

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

HWRQ 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 RTU COMMUNICATION CONFIGURATION

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

```

--NETWORK SETTINGS--
MAC Address      1
Baud             9600
    
```

MODBUS COMMUNICATION OPTIONS

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

All Other Platinum Controls

- Before connecting the Platinum control to the MODBUS network, the user must set the following parameters according 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.

```

----- MAC ADDRESS -----
                        1
[ ■                      ]
    
```

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.

```

----- BAUD RATE -----
Baud
9600
19200
38400
    
```

ALERT

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

HWRQ PLATINUM MODBUS VARIABLE LIST

HWRQ 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	Boost Offset		°C, °F	0 - 33°C, 0 - 60°F	
16	Boost Mode			0=Off, 1=Vari Boost, 2=Vari Boost & ESD	
17,18	Bypass Time		Minutes	0 - 2,147,483,647 *4	X
19 through 50	Boiler Status		Boiler Type=0 Boiler Type=1 Boiler Type=2 Boiler Type=3	• 0=Off, 1=On • 0=Off, 1=Low, 2=High • 0=Off, 1=Low, 2=Med, 3=High • 0=Off, 1=Low, 2=MLow, 3=Mhigh, 4=High	X
51	Boiler Type			0=On/Off, 1=2-Stage, 2=3-Stage, 3=4-Stage	
52	Bypass Mode			0=Auto, 1=Bypass	
53 through 84	Extension Panel Stage Communication Error			0="", 1=C/E	X
85	Control Mode			0=Reset, 1=Set Point	
86	Outdoor Cut-off		°C, °F	0 - 25°C, 30 - 75°F	
87	DHW Call Mode			0=No Priority, 1= Priority	
88	Day Light Saving			0=Enable, 1=Disable	
89	Sensor Fault Mode			0=Stages On, 1=Stages Off	
90	Fast Cool Down			0=Minimum Target Temp, 1=Off	
91	Sensor Type			0=°F Sensor, 1=°C Sensor	
92	Lead Boiler			(Refer to Table 2)	

HT# 059031-00B

HWRQ REG / VARIABLE#	DESCRIPTION	MULT *1 (if not 1)	UOM	RANGE / STATES / SPECIAL VALUES	READ ONLY
93 through 124	Lockout Input			0=(inactive), 1=L/O	X
125	Logic Mode			0=PID, 1=OSS	
126	Last Stage Hold		°C, °F	0 -17°C, 0 - 30°F	
127	Min Runtime		Minutes	1-60	
128	Min Water Temp		°C, °F	21 - 77°C, 70 - 170°F	
129 through 160	Boiler Mode			0=Auto, 1=Standby, 2=Off, 3=On	
161	Total Boilers			1 - 32/(BTYPE+1)	
162	Outdoor Sensor		°C, °F	-40 - 121°C, -40 - +250°F (32000=Open, 32001=Shorted) *2	X
163	Outdoor Sensor Trim		°C, °F	-3 - +3°C, -5 - +5°F	
164	Offset Temp		°C, °F	-22 - +22°C, -40 - +40°F	
165	Panel Date		Days since 1/1/1981	0 - 36500	
166	Pump Run-On		Minutes	0 - 60	
167	Panel Time		Minutes since 0:00	0 - 1439, 1440=not set	
168	Pump			0=Off, 1=On	X
169	Purge Delay		Minutes	0-10	
170	Reset Ratio			0=1:3, 1=1:2, 2=1:1.5, 3=1:1.25, 4=1:1, 5=1.25:1, 6=1.5:1, 7=2:1, 8=3:1, 9=4:1	
171	Reaction Time		Minutes	1 - 10	
172	Lead Stage Rotation Mode			0=Time 1=Manual, 2=FOFO (No FOFO for 'Logic Mode'=OSS)	
173	Periodic Rotation Interval		Hours	1 - 999	
174 through 229	Day/Night Schedules		Minutes since 0:00	0 - 1439, 1440=not set	
230	Season			0=Winter, 1=Summer	
231	Sequence			0=Lo/Hi/Lo/Hi, 1=Lo/Lo/Hi/Hi	
232	Night Setback Temp		°C, °F	-44 - 0°C, -80 - 0°F	
233	Set point		°C, °F	21 - 116°C, 70 - 240°F,	
234	Day Night Shift			0=To-Day, 1= To-Night, 3=To-Schedule 2=Extend-Day,	
235	Standby Delay		Minutes	1 - 60	
236	System Sensor		°C, °F	-40 - 121°C, -40 - +250°F (32000=Open, 32001=Shorted) *2	
237	System Sensor Trim		°C, °F	-3 - +3°C, -5 - +5°F	
238	Calculated Target		°C, °F	0 - 116°C, 0 - 240°F(32003 - Off) *2	X
239	'Throttle Range' Range		°C, °F	1 - 11°C , 2 - 20°F	
240	Max Target Temp		°C, °F	32 - 116°C, 90 - 240°F	

BOILER TYPE MODBUS VARIABLE TABLE

Boiler Type	LEAD – Special value (Up to Total Boilers – 1)
0	0 – 31 ► 'A', 'B', 'C', ..., 'X', 'Y', 'Z', 'a', 'b', 'c', 'd', 'e', 'f'
1	0 – 15 ► 'AB', 'CD', 'EF', ..., 'WX', 'YZ', 'ab', 'cd', 'ef'
2	0 – 9 ► 'ABC', 'DEF', 'GHI', ..., 'STU', 'VWX', 'abc', 'def'
3	0 – 7 ► 'ABCD', 'EFGH', 'IJKL', 'MNOP', 'QRST', 'UVWX', 'abcd', 'efgh'

- ♦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: Note: Use 'Burner Differential' and 'Burner' when 'Output Mode' is set to Burner.
 Use 'Valve' when 'Output Mode' is set to Motorized Valve.

Note: Use 'Boost' when 'Boost Mode' is set to Vari Boost or Vari Boost & ESD.

Note: 'Boiler Status' range changes with 'Boiler Type'. For example: when 'Boiler Type' is set to 0, 'Boiler Status' range is 0 to 1; when 'Boiler Type' is set to 1, 'Boiler Status' range is 0 to 2

Note: Use 'Last Stage Hold', 'Min Runtime', 'Offset', 'Purge', 'Reset Ratio', 'Reaction Time', 'Standby Delay' when 'Logic Mode' is set to 0.

Note: Use 'Reaction Time' when 'Lead Stage Rotation Mode' is set to 0.

Note: Use 'Throttle Range' when 'Logic Mode' is set to 1.

Note: Use 'Max Target' when 'Control Mode' is set to 0.

Note: The HWRQ 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 HWRQ Platinum Installation and Operation manual for supplementary information.

TROUBLESHOOTING

When there is a problem with heat in a building, the first place people look is at the heating control. And the heating control may be the problem, but so may be other system components, or perhaps the heating control is not adjusted properly. To help determine and correct the problem, simply follow the troubleshooting guide that best describes your heating situation:

The troubleshoot diagrams in the following pages represent these issues:

- No Heat, No Pump
- No Heat, Pump Running
- Too Little Heat
- Too Much Heat

In addition to these basic problems, you may have intermittent problems. If you

- **Sometimes have No Heat, too Little Heat or too Much Heat**, The HWRQ Platinum may not be programmed correctly. Check through all the settings of the clock to make sure the Day and Night Setback modes are when you want them to be. Go through all four settings for each day of the week, making sure any unused settings display **:**. Pay special attention to the AM and PM, since if these are incorrect, the program will be 12 hours off. Refer to *Schedules/Day and Night Schedule (menu selection)*
- **Have too Little Heat or too Much Heat Only at the #1 Day Time**, adjust your Vari Boost. The Vari Boost changes with Outdoor temperature (OD), and is therefore recommended if there is too little heat, increase the Boost Adjustment by 10°F, if there is too much heat, reduce the Boost Adjustment by 10°F. Refer to *System Settings/ System Settings 2/Boost Mode/Vari (menu selection)*
- **Have too Little Heat Before the Last Setback Program**, you may not wish to use the Shutdown feature. Simply select the Vari Boost instead of Vari Boost+ESD. Refer to *System Settings/ System Settings 2/Boost Mode/Vari (menu selection)*
- **Have too Little Heat or too Little Heat Only in Parts of the Building**, then check the heating system components. Check that there is no air trapped in the system, and that the pump are working properly.

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

TESTING THE SENSORS

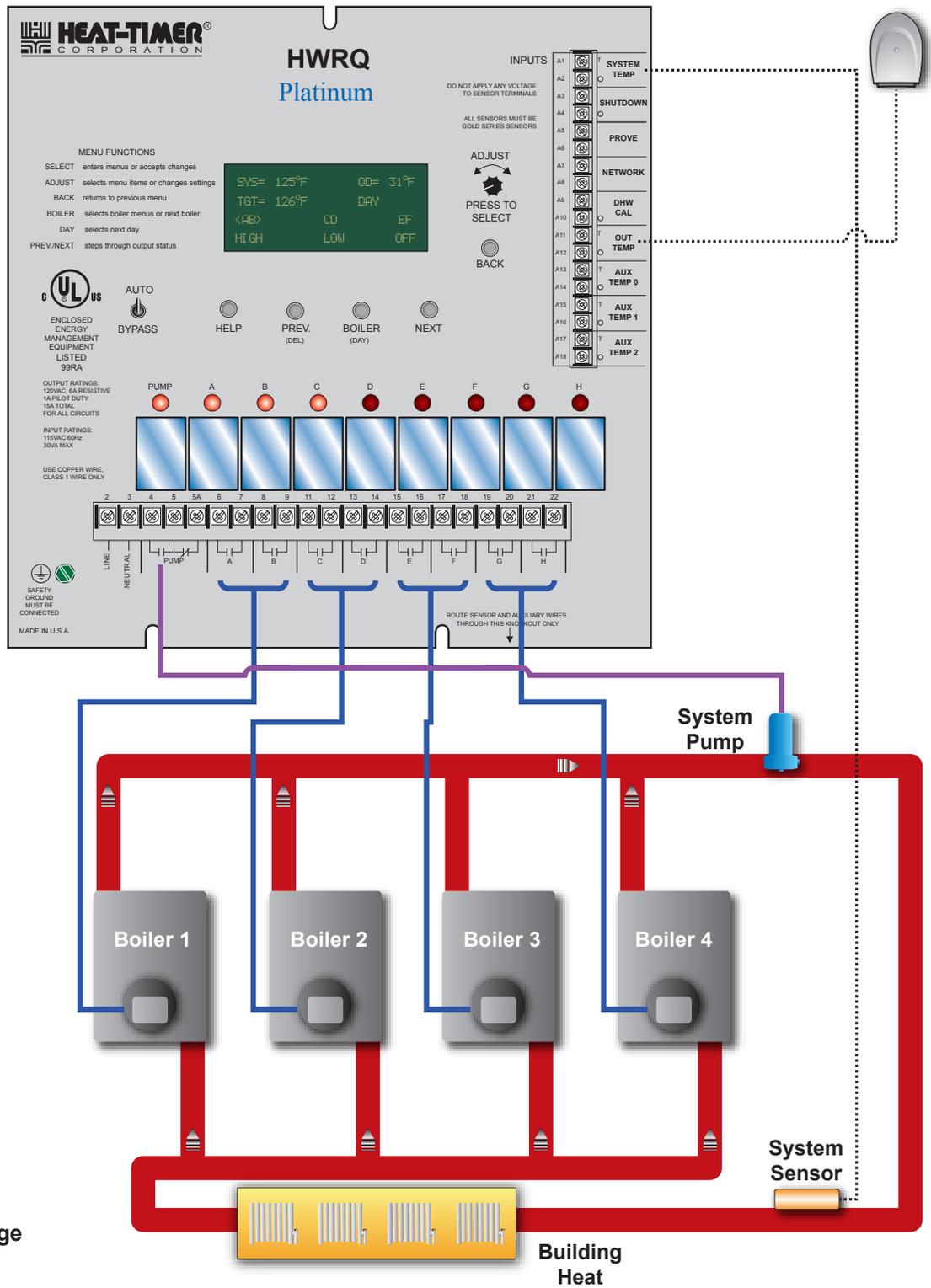
The HWRQ Platinum sensors record the temperature where they are located. Before assuming a sensor is not working, it is important to get an accurate reading at the sensor location. If the outdoor sensor is affected by sun, exhaust fans, open doors, or windows, the reading may vary significantly from the actual outdoor temperature. Similarly, if the heating system sensor (HSS) does not appear to be reading correctly, check if it is located correctly.

To perform the test, you will need a digital multi-meter capable of reading resistances. The Heating System Sensor and Outdoor Sensor temperatures are constantly displayed on the HWRQ Platinum. Remove the outdoor sensor wires from the Out Temp terminals (A11 and A12), or the heating system sensor wires from System Temp terminals (A1 and A2). Use the multi-meter to take a resistance reading across the detached wires going to the sensor. If the reading shows:

- OPEN or resistance is higher than the values on the adjacent chart - Check the wires going to the sensor. They may have been broken or become disconnected. If the wires are fine, check the resistance at the sensor itself. If the resistance is still open, the sensor has been damaged and needs to be replaced.
- SHORT or resistance is lower than the values on the adjacent chart - Check the wires going to the sensor. They may have become shorted together in the run of the wire. If not, check the resistance at the sensor itself. If there still is no resistance, the sensor has been damaged and needs to be replaced.
- Resistances from 187 ohms to 117720 ohms - Find the temperature that corresponds to the resistance value on the chart. If the sensor appears to be outputting correctly, check that the wires were properly connected to the HWRQ Platinum inputs. If the sensor is not outputting correctly, take another reading at the sensor itself. If this is correct, the problem is in the wiring between the sensor and the HWRQ Platinum. Otherwise, the sensor has been damaged, and should be replaced.

PIPING AND WIRING DIAGRAMS

PIPING HWRQ PLATINUM TO 4 LO/HI BOILERS



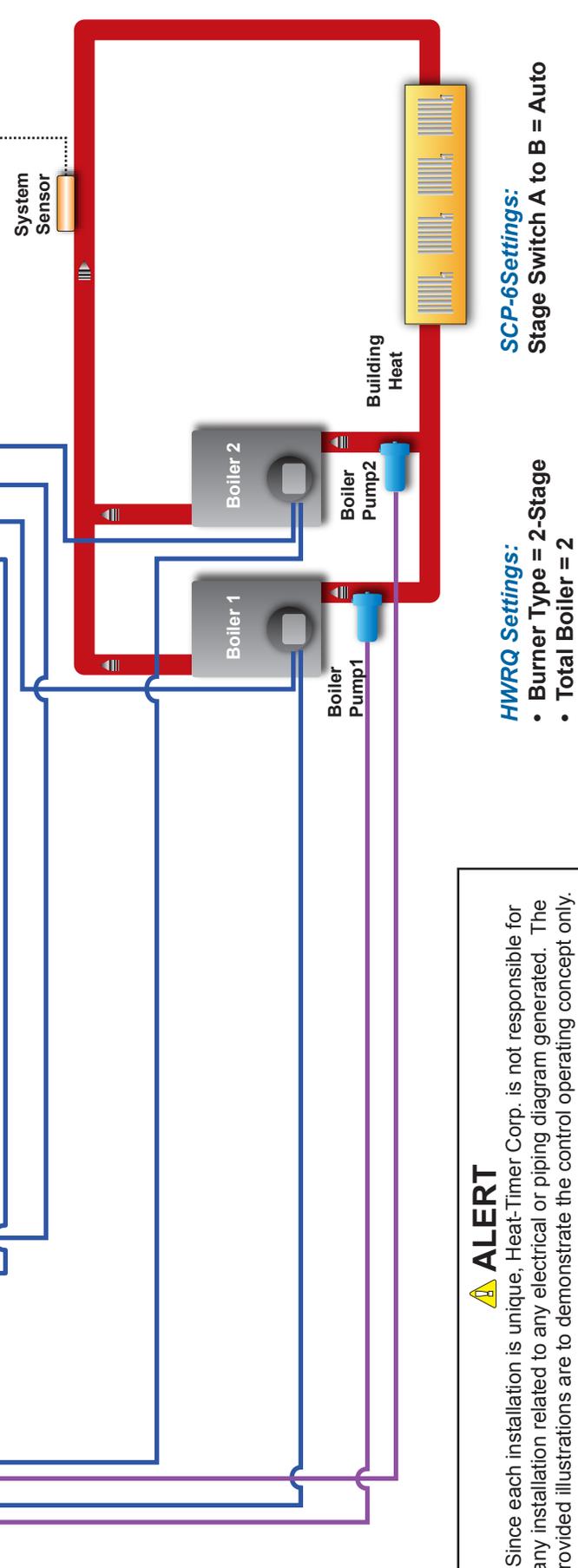
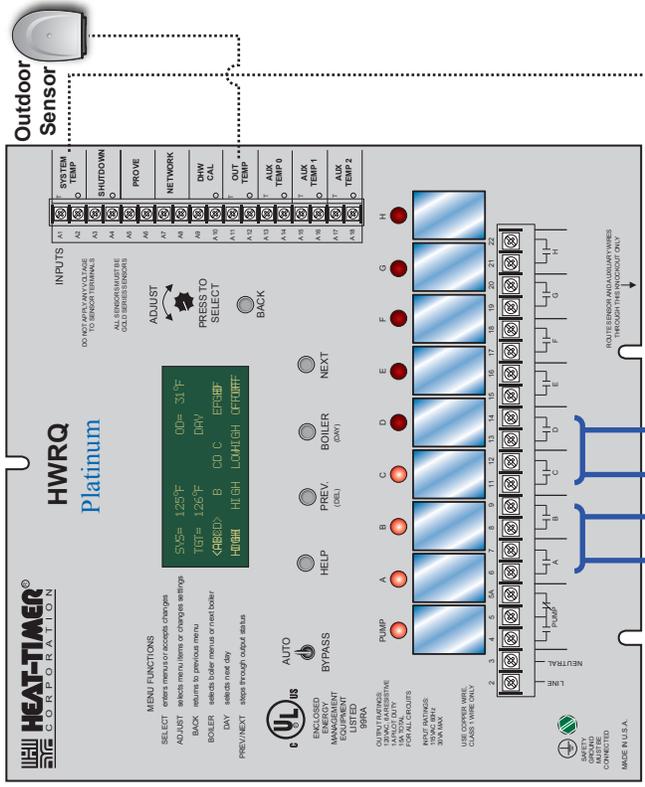
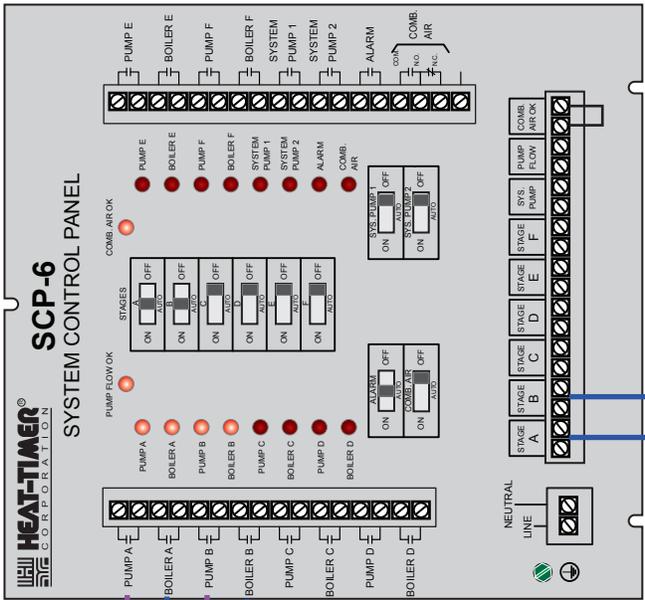
HWRQ Settings:

- Burner Type = 2-Stage
- Total Boiler = 4

⚠ 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.

PIPING 2 LO/Hi BOILERS AND THEIR PUMPS TO HWRQ PLATINUM AND SCP-6



⚠️ ALERT
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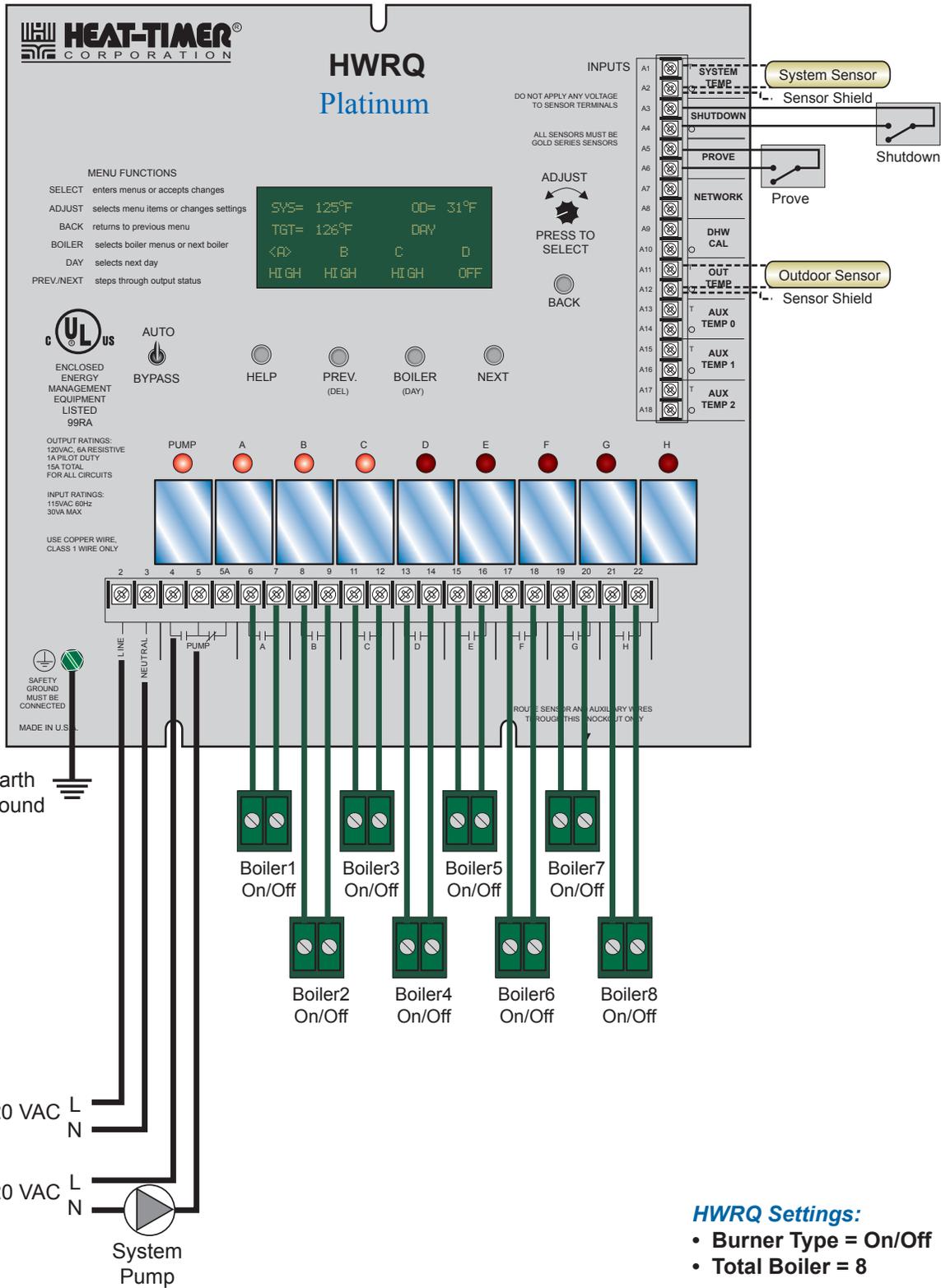
HWRQ Settings:

- Burner Type = 2-Stage
- Total Boiler = 2

SCP-6Settings:

Stage Switch A to B = Auto

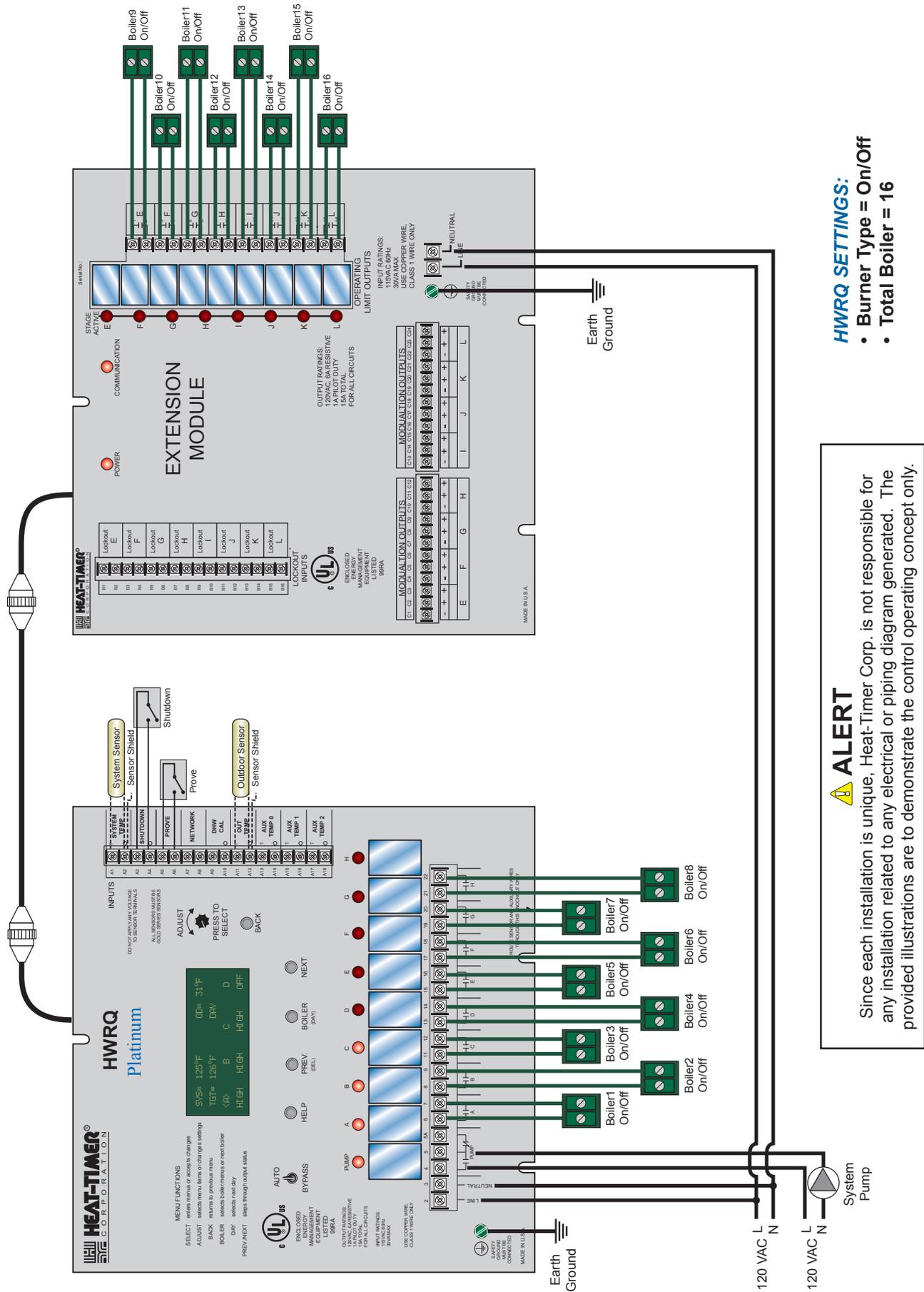
WIRING HWRQ PLATINUM TO 8 ON/OFF BOILERS



⚠️ 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 HWRQ PLATINUM TO 16 ON/OFF BOILERS

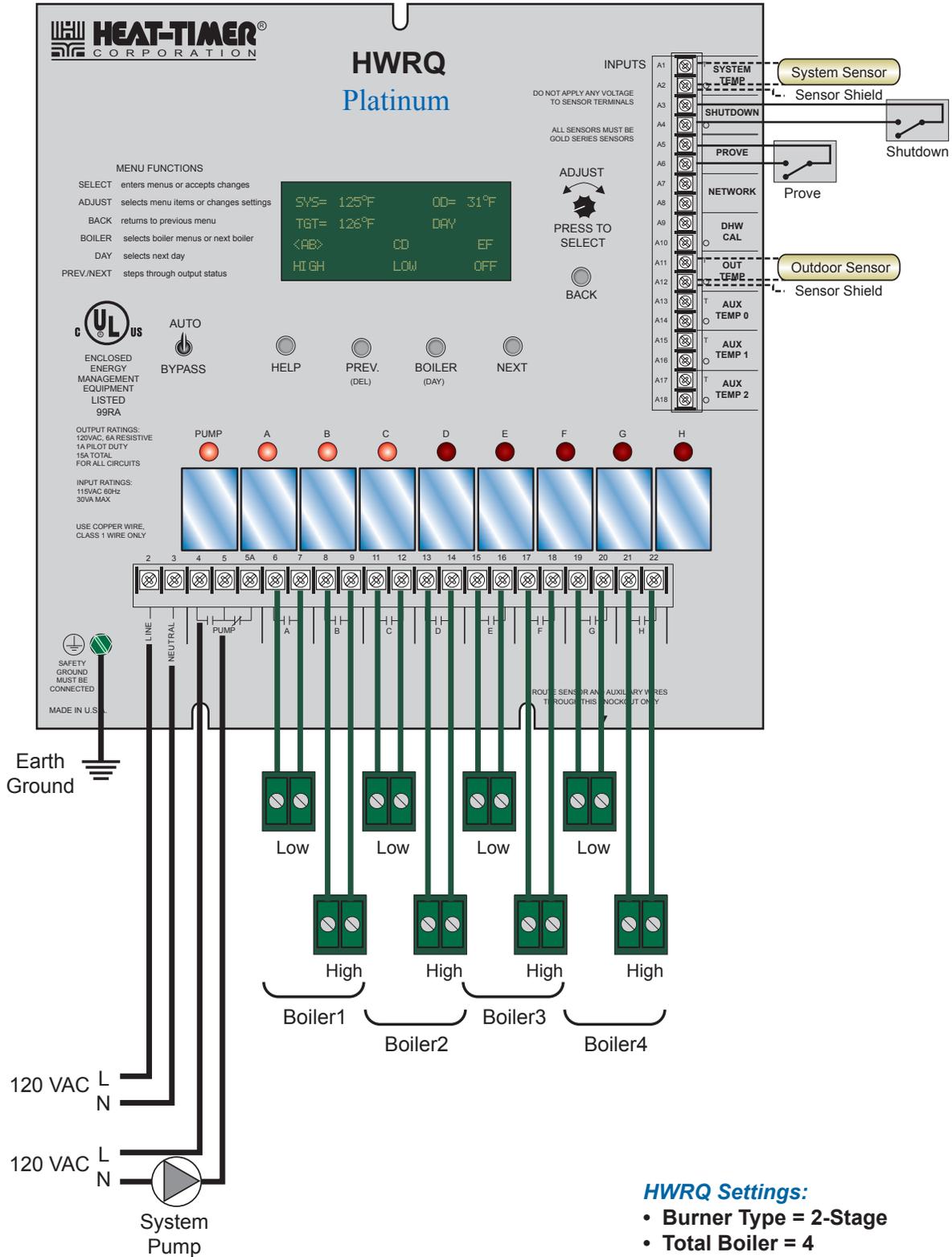


- HWRQ SETTINGS:**
- Burner Type = On/Off
 - Total Boiler = 16

⚠ 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.

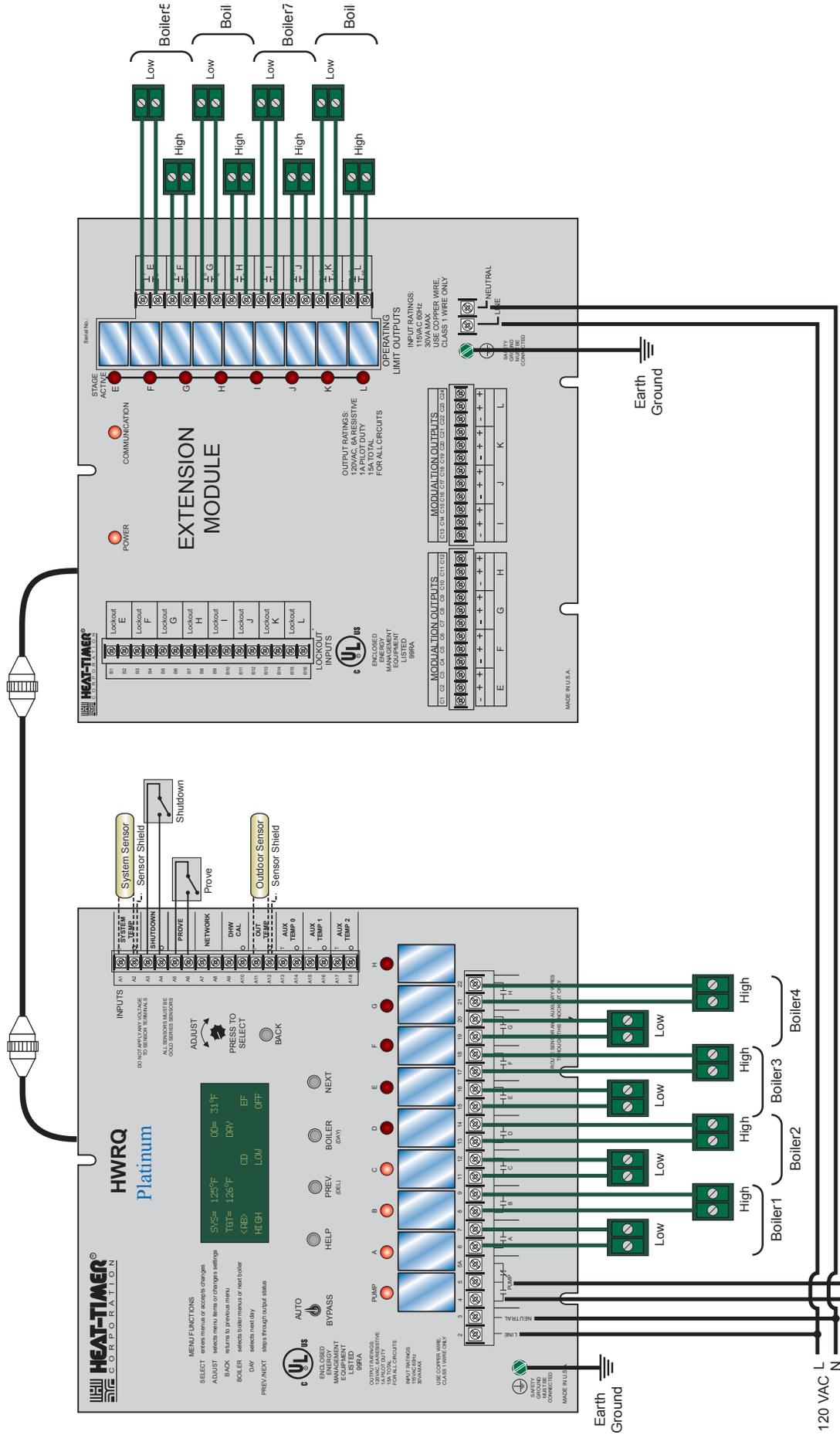
WIRING HWRQ PLATINUM TO 4 LO/HI BOILERS



⚠ ALERT

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Wiring HWRQ Platinum to 8 Lo/Hi Boilers

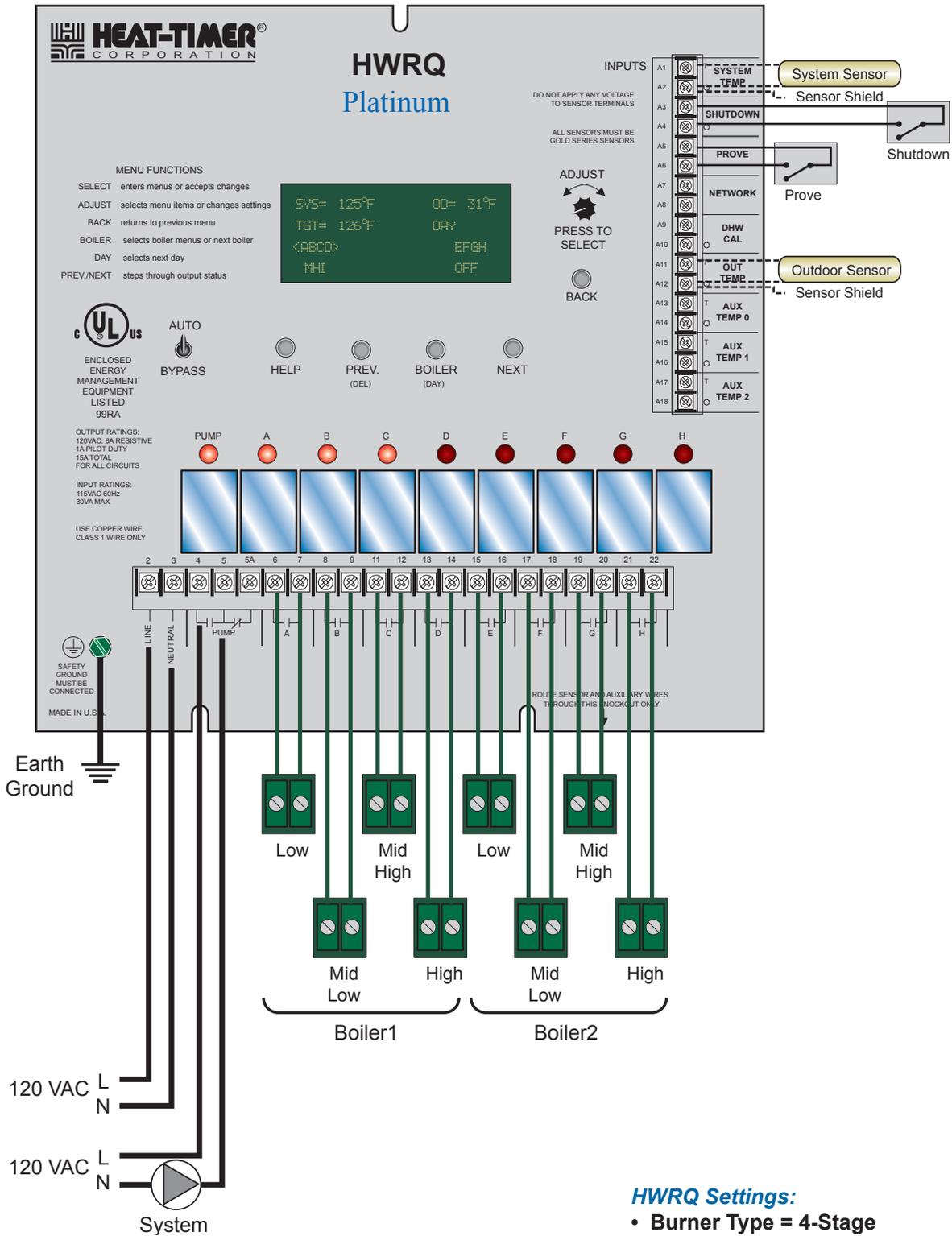


⚠️ ALERT

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.

- HWRQ Settings:**
- Burner Type = 2-Stage
 - Total Boiler = 8

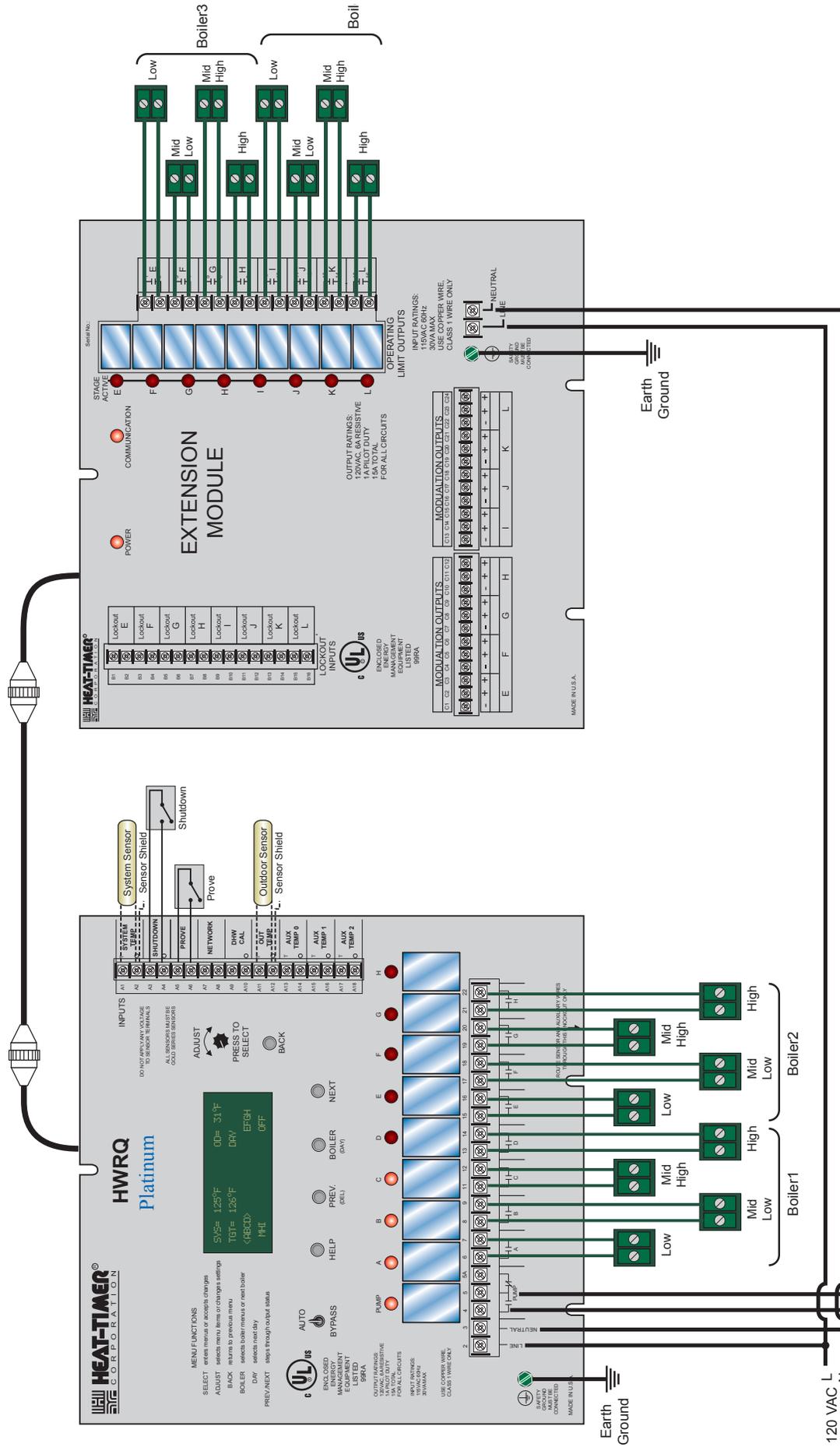
Wiring HWRQ Platinum to 2 4-Stage Boilers



⚠️ ALERT

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WIRING HWRQ PLATINUM TO 4 4-STAGE BOILERS

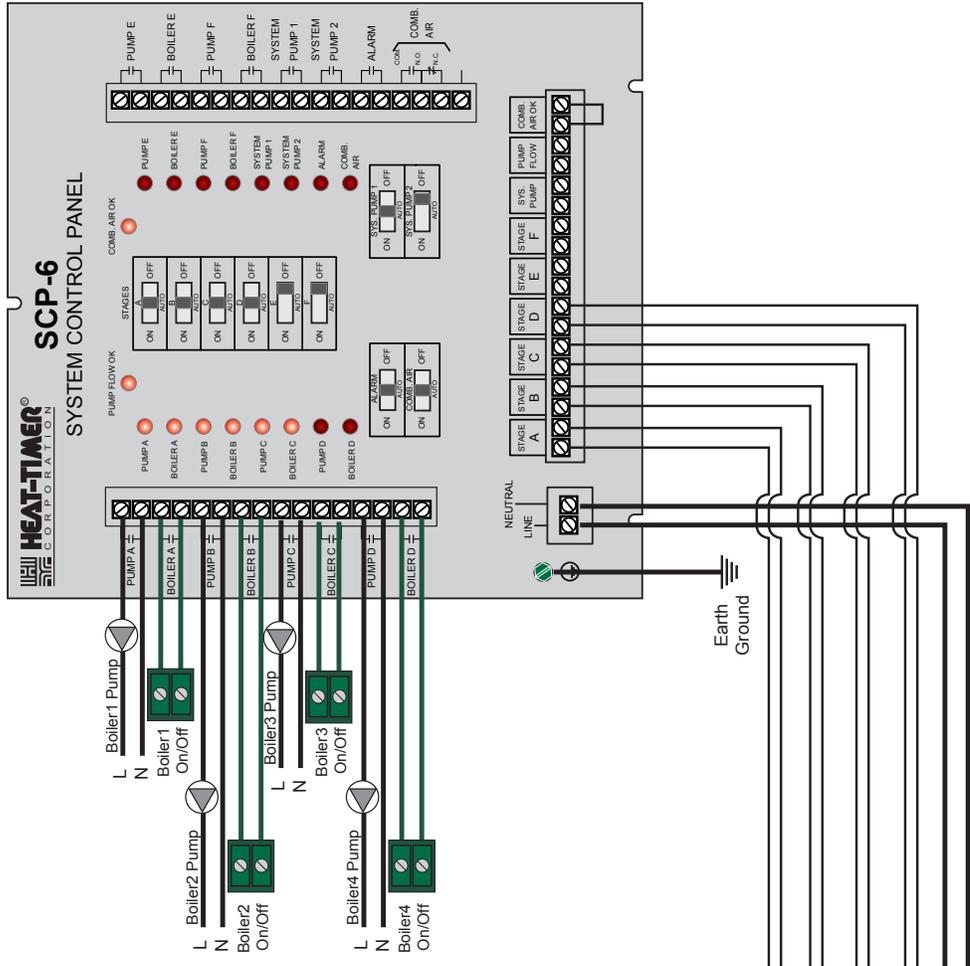
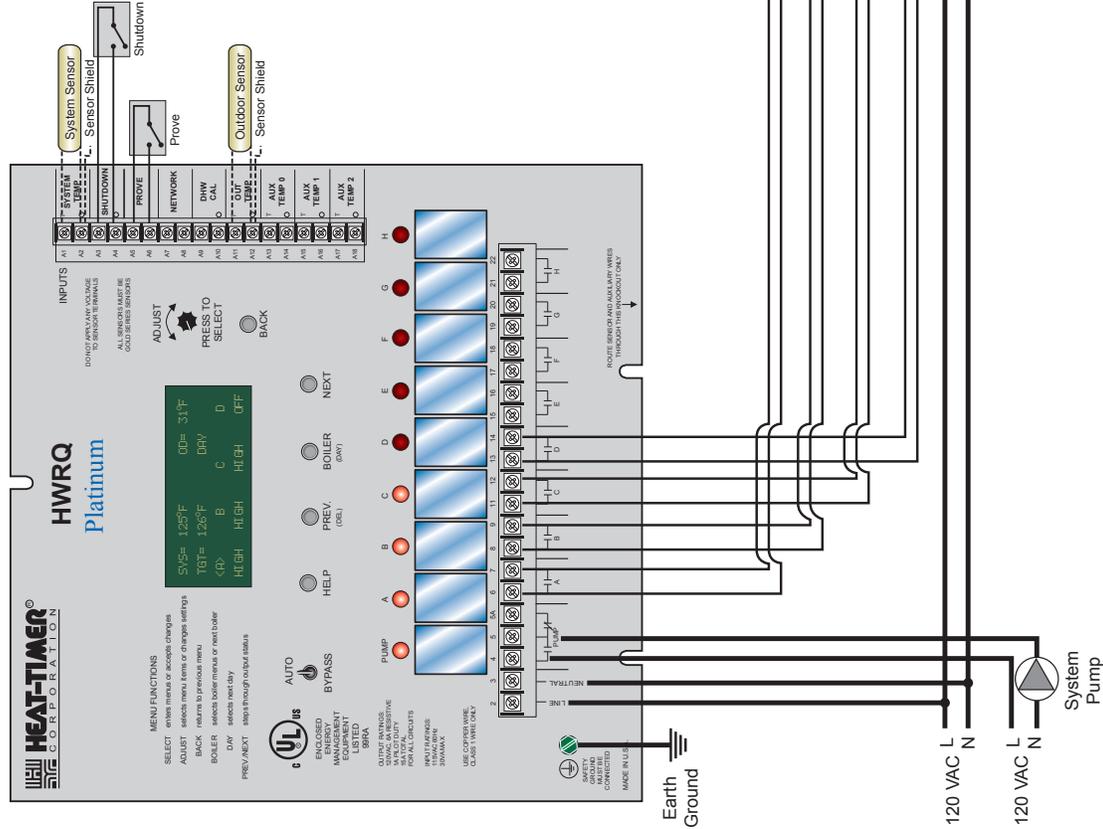


ALERT

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.

- HWRQ Settings:**
- Burner Type = 4-Stage
 - Total Boiler = 4

WIRING HWRQ PLATINUM TO 4 ON/OFF BOILERS WITH PUMPS



ALERT

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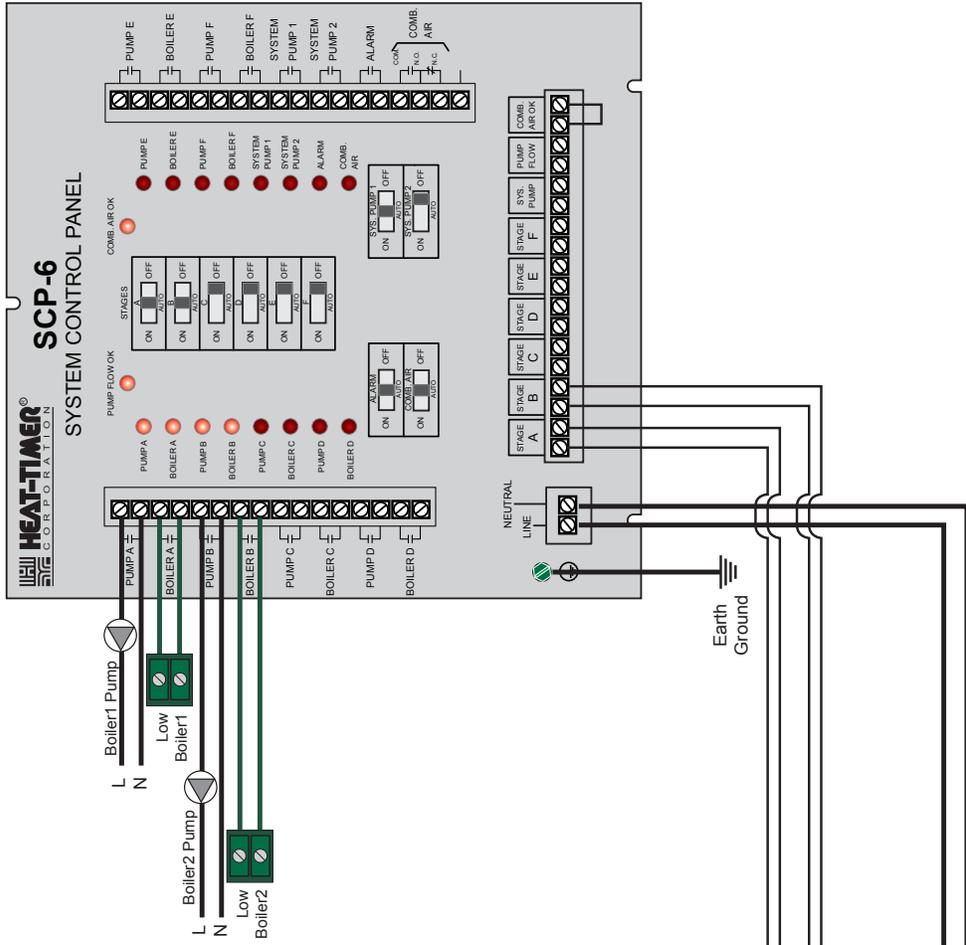
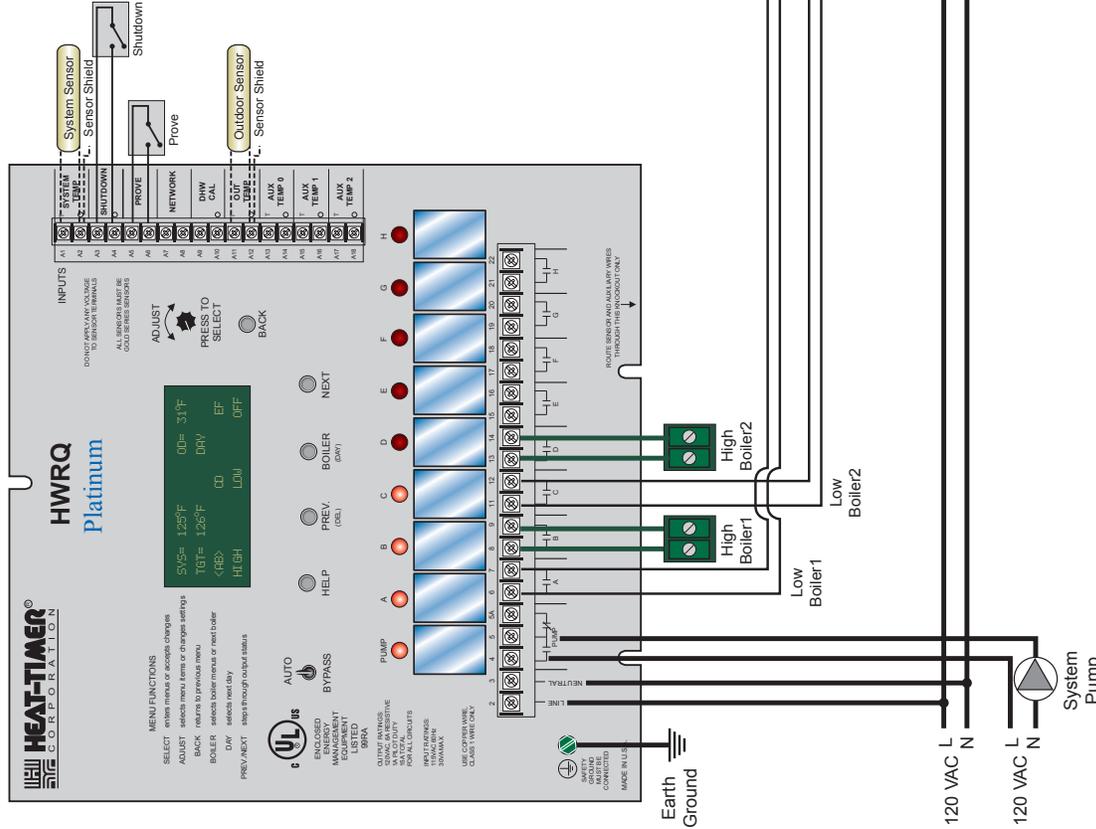
HWRQ Settings:

- Burner Type = On/Off
- Total Boiler = 4

SCP-6 Settings:

Stage Switch A to D = Auto

WIRING HWRQ PLATINUM TO 2 LO/HI BOILERS WITH PUMPS



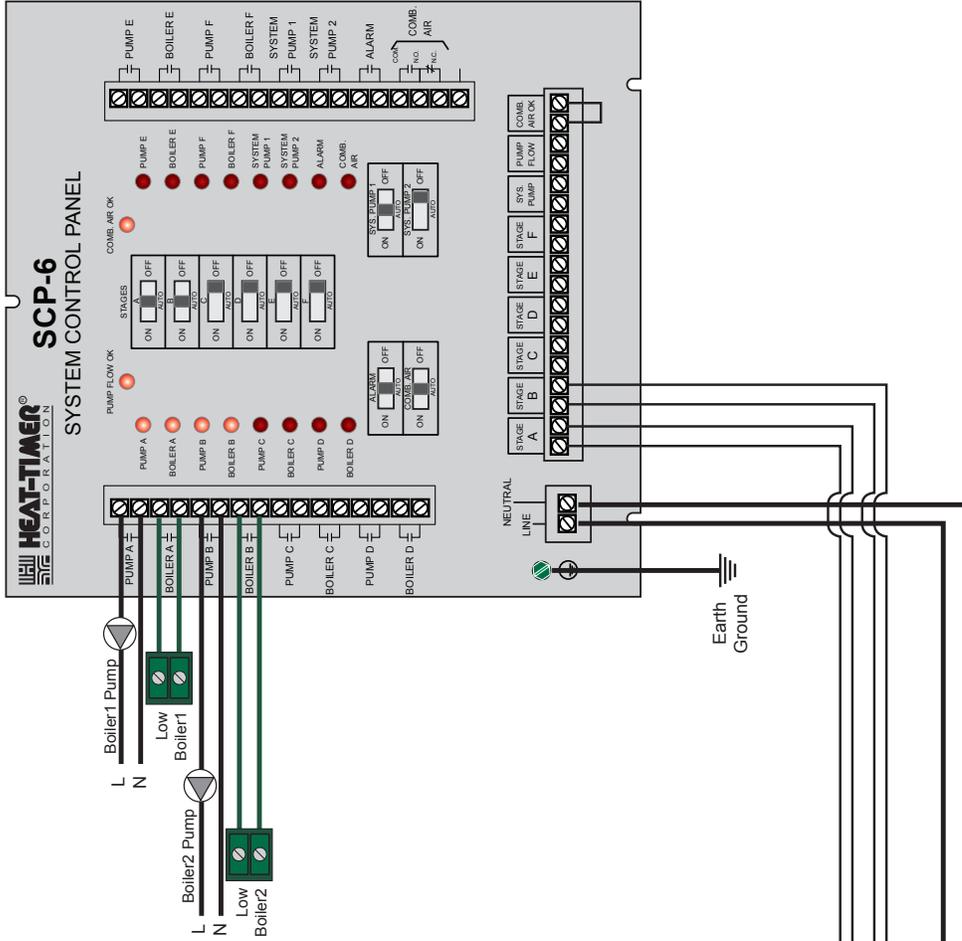
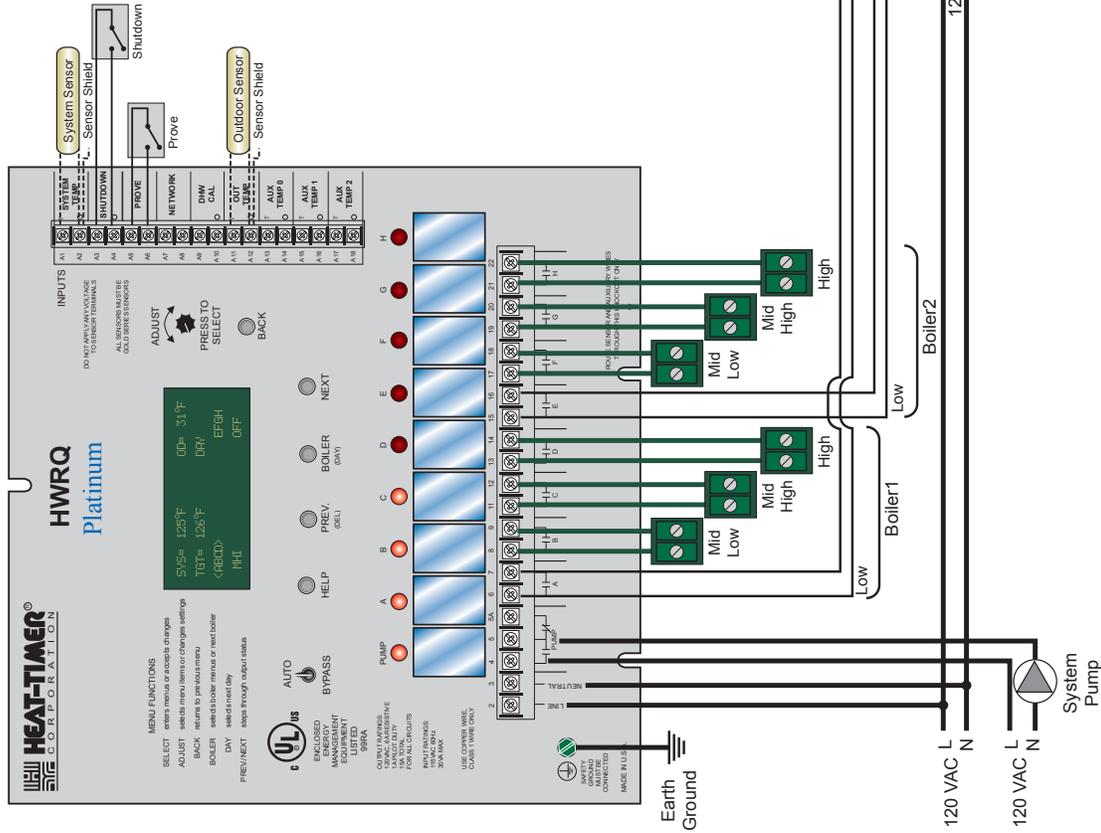
⚠ ALERT

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.

- HWRQ Settings:**
- Burner Type = 2-Stage
 - Total Boiler = 2

- SCP-6Settings:**
- Stage Switch A to B = Auto

WIRING HWRQ PLATINUM TO 2 4-STAGE BOILERS WITH PUMPS



⚠️ 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.

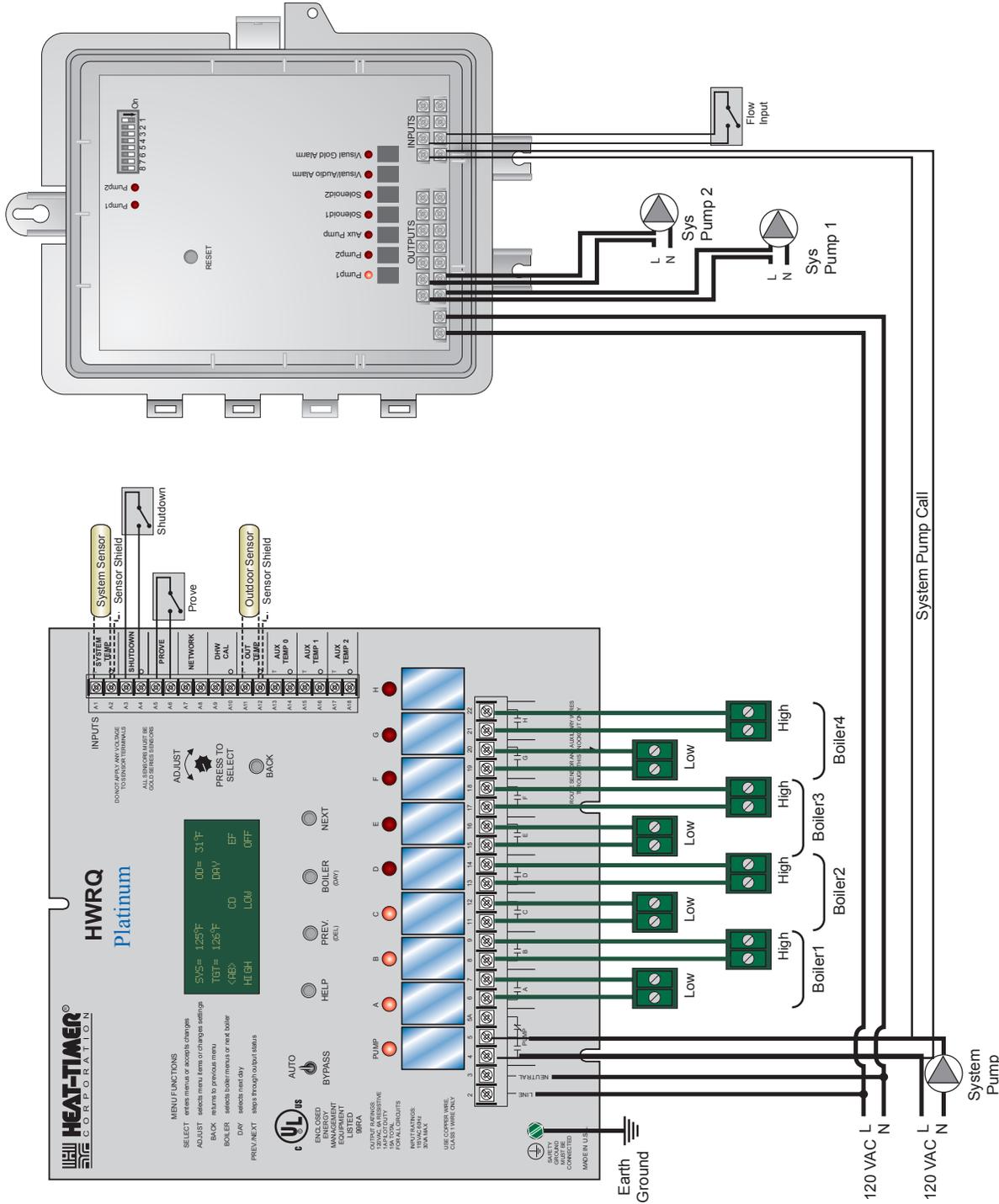
HWRQ Settings:

- Burner Type = 4-Stage
- Total Boiler = 2

SCP-6 Settings:

- Stage Switch A to B = Auto

WIRING HWRQ PLATINUM TO 2 4-STAGE BOILERS WITH PUMPS



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.

HWRQ Settings:

- Burner Type = 2-Stage
- Total Boiler = 2

SCP-6Settings:

- Stage Switch A to B = Auto

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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03122010

SPECIFICATIONS

Voltage Input:	120 VAC 60 Hz
Power Consumption:	30 VA Max
Pump Output:	1 N.O. S.P.D.T
Heating Output:	8 N.O. S.P.S.T. for Burner stages
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 rows with 20 characters each)
Sensor Ranges:	Outdoor temperature sensor - minus 35°F to 250°F Heating system sensor - minus 35°F to 250°F
Outdoor Cutoff Range:	30°F to 75°F, ON and OFF
Control Operating Mode:	Outdoor Reset or Set Point
Control Logic:	PID Logarithm or Oversize System
Reset Ratio Range:	A (1:3) to J (4:1) (Outdoor:System Water)
Offset Adjustment:	minus -40°F to plus 40°F
Night Setback:	0°F to 80°F
Minimum Water Temperature:	70°F to 170°F
Maximum Water Temperature:	90°F to 240°F (available in Reset Mode only)
Reaction Time:	1 to 10 minutes
Minimum Boiler Run Time:	1 to 10 minutes
Stage Operation Modes:	On, Off, Standby, Auto
Standby Time Delay:	0 to 60 minutes
Stage Rotation Modes:	Manual, First-On/First-Off, Auto (from 1 Hour to 41 days)
Stage Sequencing:	Lo/Hi/Lo/Hi or Lo/Lo/Hi/Hi
Last Stage Hold:	0°F to 30°F
Purge Delay:	1.0 to 10.0 minutes
Pump Run-On:	0 to 60 minutes
Schedules:	4 Day Time and 4 Night Time (Setback) settings per day
Night Setback:	0°F to 80°F
Morning Boost:	Vari-Boost - Self-adjusting from 0 to 90 minutes - Water temperature increase 0°F to 60°F Early Shutdown - Self-adjusting from 0 to 90 minutes
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, DHW Call Input, Shutdown Input, and Prove Input.
Network Input Maximum Sensors:	64 Neuron Sensors including MIG Sensors.
Season:	Winter and Summer.
Enclosure:	Follows NEMA 1 Standard
Dimensions:	5-1/8" x 13" x 13"
Weight:	14 pounds