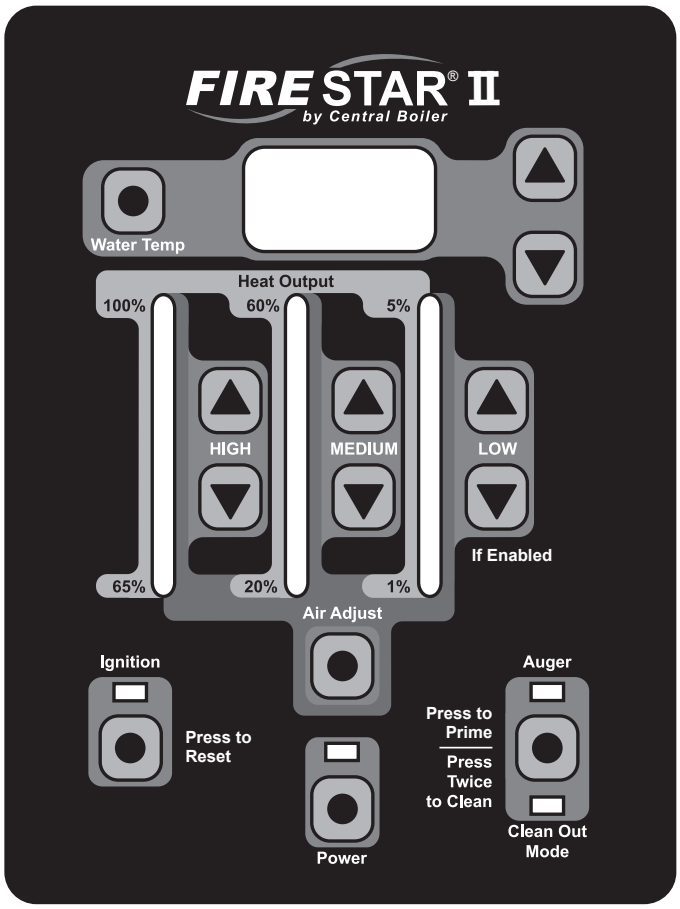
FIRESTAR® II
OPERATION MANUAL

SOFTWARE VERSION 2.5
(includes 2.50, 2.52, 2.53)



For parts and accessories, service or repairs, call your authorized Central Boiler dealer or heating contractor. Record the information below for future reference.

Serial Number	Installation Date
Dealership Name	Phone Number
Owner Name	

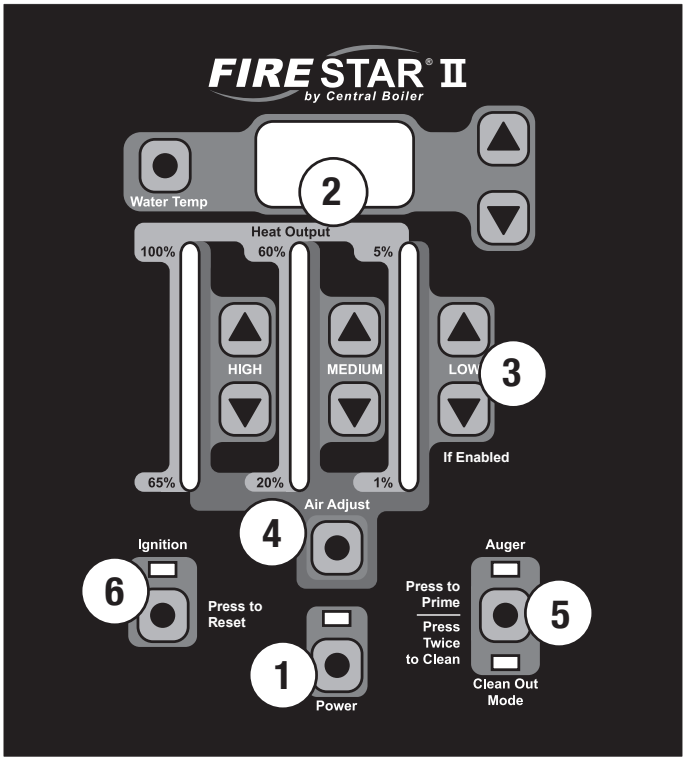
Save This Manual
For Future Reference

JAN-2020 • (p/n 9000317 - REV. F)

FIRESTAR® II

by Central Boiler, Inc.
20502 160th Street • Greenbush, MN 56726
CentralBoiler.com • MaximHeat.com

NOTE: Any person(s) operating a hydronic heater must comply with all applicable laws, including but not limited to local ordinances.



Before operating the FireStar Combustion Controller, become familiar with the information the control panel provides and with the procedures for making changes to settings. The controller has been programmed with default settings. If fine-tuning is desired, refer to the appropriate section of these operating instructions for more information.

1. The **Power** button is used to turn the FireStar combustion controller on and off. To turn the combustion controller on or off, press and hold the **Power** button for at least one second.

   When turning the combustion controller off, the **Power** button does not disable all electrical power to the furnace. If the LED display indicates UNL, the burner auger is "unloading" the fuel and will run until the fire goes out.

2. During normal operation, the LED display indicates the actual temperature of the system water. Other information will also be displayed on the LED display depending on settings, modes, etc. The **Water Temp** button may be used to display the water temperature setting or, used in conjunction with the ▲ and ▼ buttons, to change the water temperature setting.

3. The heat output (fuel feed rate) settings in each of the three modes (HIGH / MEDIUM / LOW) may be changed here using the ▲ and ▼ buttons. During operation, the light bar will indicate the heat output setting for the mode the combustion controller is currently in. The ▲ and ▼ buttons may also be used in conjunction with the **Air Adjust** button to change the air setting for each mode. By default, the LOW mode is disabled.

4. The **Air Adjust** button may be used in conjunction with the HIGH, MEDIUM and LOW ▲ and ▼ buttons to change the combustion air flow setting for each mode. For HIGH and MEDIUM modes, decreasing the setting (fewer lights on the light bar) lowers the fan speed and increasing the setting (more lights on the light bar) increases the fan speed. For LOW mode, increasing or decreasing the setting will increase or decrease the length of time the fan operates each time the auger turns.

5. Press the **Auger** button once to start the prime function. This will cause the augers to operate for 30 seconds while the LED display counts down the time. When pressed twice within one second, Clean Out Mode is enabled. During Clean Out Mode, the transfer auger (top auger) is disabled. The Auger light is on any time the burner auger is running.

6. The **Reset** button can be used to reset the ignition mode (for example, if there is an FD alarm, you can press this button to restart the ignition sequence).

Adjusting Water Temperature Setpoint

Normally the furnace water temperature will be displayed. To display the water temperature setpoint, press the **Water Temp** button. The default setting is 175˚C (79˚C). To raise or lower the water temperature setpoint, press and hold the **Water Temp** button; then press the ▲ and ▼ button. The water temperature setpoint can be set between 150˚F (65˚C) and 190˚F (88˚C).

NOTE: To reduce condensation in the firebox, it is not recommended to set the water temperature setpoint below 165˚F (74˚C).

Burner Temperature

To display the temperature of the burner, press the **Water Temp** ▲ button. The LED display will indicate the actual temperature of the burner up to 999 degrees or, if higher, as a decimal representation (e.g., 1500˚F will display as 1.50).

Initial Start-up

NOTE: Before starting the outdoor furnace, make sure that (1) the proper amount of 1650XL Inhibitor Plus has been added and the water level is full; (2) there is adequate clean, dry fuel in the hopper or supply bin; (3) the main electrical power supply to the outdoor furnace is on; and (4) the ground rod has been installed and connected to the outdoor furnace.

CAUTION

Do not burn garbage, gasoline, naphtha, drain oil or other inappropriate materials.

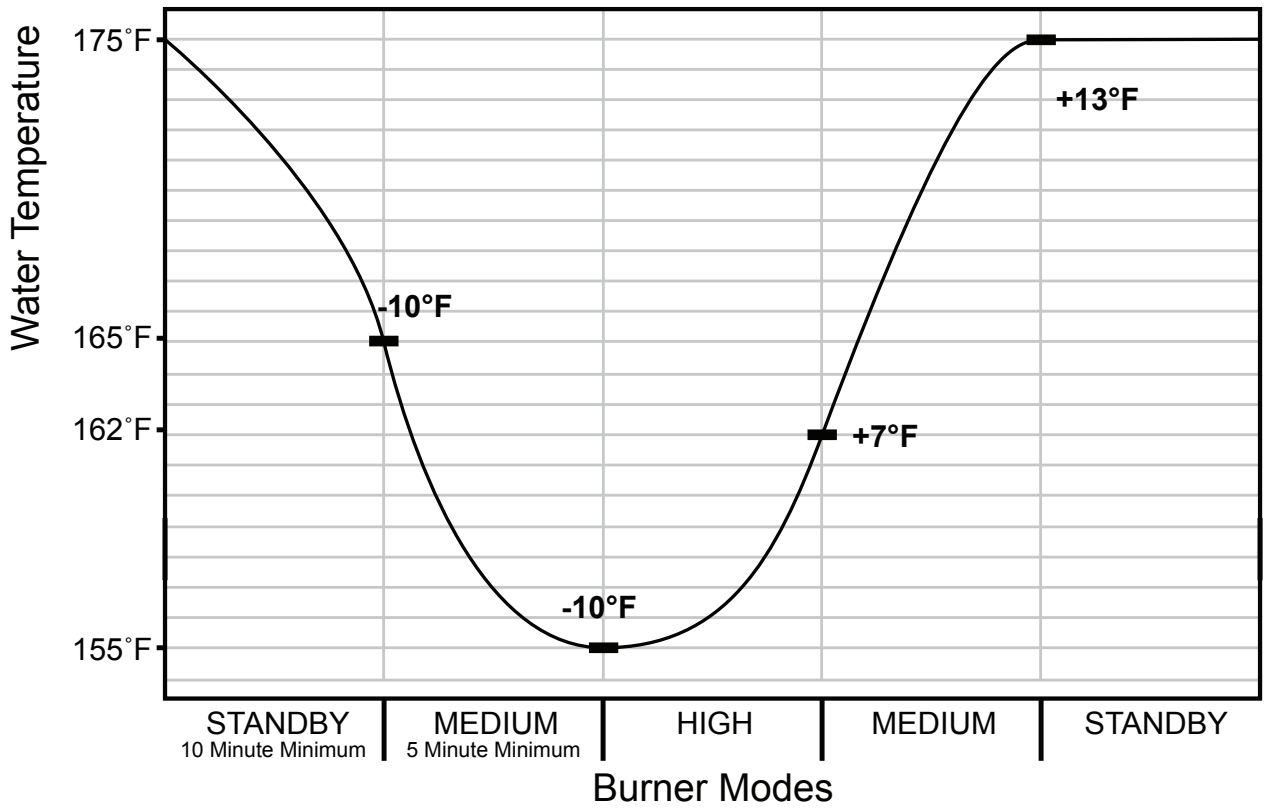
1. Press the **Power** ⊙ button. Upon startup, the combustion controller will display the software version number followed by a brief indicator light test. The LED display will indicate the furnace water temperature.
2. Fuel must be present in the burn chamber for the system to burn properly. To deliver fuel to the burn chamber, start the prime cycle by pressing the **Auger** ⊙ button. The prime cycle timer will count down and stop the augers. When starting from an empty auger, it may take two prime cycles.

NOTE: Upon initial start-up, it is not uncommon for a substantial amount of condensation to be present in the firebox as the furnace is coming up to operating temperature. This is normal and the moisture will evaporate when the outdoor furnace reaches operating temperature. Condensation can also occur if the furnace is allowed to operate below 140˚F (60˚C) on a normal basis.

CAUTION

Regularly exposing the furnace firebox to excessive condensation can significantly reduce the life of the firebox.

FireStar Controller - Maxim M255 PE
Normal Operation*



If burner temperature is not high enough the controller will not switch from MEDIUM to HIGH mode.

*NOTE: This graph is based on factory default settings when the water temperature setpoint is 175˚F.

Setting the FireStar Controller for Fuel Type, Heat Load and Efficiency

The controller's default settings allow the furnace to operate properly in most installations without adjustment. These settings can be adjusted, however, for installations that require matching the furnace output to the heat demands of the system.

NOTE: Be sure to thoroughly read and understand this manual before making changes to default settings. Changing settings can significantly change the way the furnace operates. Consult your dealer if you have any questions.

Corn Mode

By default, the combustion controller is set to burn premium quality wood pellets. Several variables in the Setup Mode are set by default automatically to optimize operation of the Maxim with wood pellets.

When the combustion controller Fuel Mode (variable 7) is set to corn, several variable settings will change automatically as will the ignition sequence. These changes are to optimize operation of the Maxim with corn. Also note the following changes when selecting corn mode:

NOTE: If corn mode is selected, it is recommended that a second ignitor be installed. Both ignitors will stay on while there is a call for heat. When burning corn, it is also recommended that 3 sections of chimney are installed.

- The LED display will alternate between water temperature and burner temperature
- The Auger On Time for MEDIUM and HIGH modes is reduced from 3 seconds to 1 second
- Ignition Sequence Ramp-up for Corn Mode:

    1. Flashes one green bar until the burner temperature reaches 300˚F.
    2. Flashes four orange bars until the burner temperature reaches 400˚F.
    3. Flashes one red bar until the burner temperature reaches 700˚F for five minutes.
    4. At this point, the combustion controller goes to the normal setting.

NOTE: If the burner temperature drops below 300˚F for several minutes, the combustion controller will begin the ignition sequence again.

Heat Output Settings

For best results, determine the lowest water temperature setpoint the outdoor furnace can be set to, while still supplying enough heat to the heat emitters. For most installations, a water temperature setpoint of 175˚F (79˚C) should be adequate.

If, as an example, the water temperature setpoint is 175˚F, when a heat load is applied, there will be a delay before the water temperature starts to fall. When it falls 10˚F, the combustion controller will shift to MEDIUM mode. If the heat output in MEDIUM mode is unable to maintain the water temperature with the heat load applied, once the water temperature drops another 10˚F (this variable is called the MEDIUM to HIGH differential) and the burner temperature is high enough, the combustion controller will shift to HIGH mode.

NOTE: The Maxim operates most efficiently at about 50% of its output capacity. If the combustion controller is shifting to HIGH mode, increasing the MEDIUM to HIGH differential (see variable 3 in Setup Mode) will keep the combustion controller in MEDIUM mode longer and may save fuel.

NOTE: A short drop in water temperature is normal as it can take some time for the outdoor furnace to start to gain temperature.

NOTE: The combustion controller will operate in MEDIUM mode for a minimum of 5 minutes before shifting into HIGH mode, regardless of temperature loss.

If the heat demand is less than 50% of the Maxim's output capacity, it is not necessary for the FireStar combustion controller to shift into HIGH mode.

Increasing the MEDIUM to HIGH differential will help keep the combustion controller from shifting unnecessarily to HIGH MODE (see Setup Mode section).

Monitor the outdoor furnace operation to determine if additional changes are needed, keeping in mind that it may take several cycles of the heat load before this becomes apparent.

LOW Mode (If Enabled)

NOTE: LOW mode should only be enabled if there is a problem with the electric ignitor. Contact your dealer to enable LOW mode. LOW mode should be disabled once the problem has been solved.

LOW mode is used to maintain the fire when the heat demand is low or not present.

NOTE: For most applications, the LOW heat output and air settings should be set to the lowest setting when using wood pellets. The LOW heat output and air settings may require additional adjustment if the fire does not relight when shifting from LOW to MEDIUM, or if the outdoor furnace overheats when changing to a lower mode.

- The LOW heat output setting should be set as low as possible while still enabling the fire to relight when shifting into MEDIUM mode.
- If there is no fuel left in the burn chamber and the fire has gone out, the heat output is set too low. Increase the LOW heat output setting.
- If the water temperature increases above 195˚F (90˚C) when the furnace is in LOW, the heat output is set too high. Decrease the LOW heat output setting.

Monitor the outdoor furnace operation to determine if additional changes are needed, keeping in mind that it may take several cycles of the heat load before this becomes apparent.

IGNITION Mode

Upon entering ignition mode, the augers will start for several seconds to add enough fuel to the burner. The fan will then speed up to the ignition fan speed and the ignitor will heat up. If the ignition sequence exceeds ten minutes, the augers will start a second time to add more fuel to the burner. The controller will attempt this ignition sequence three times.

Corn Only - Ignition Ramp Up Mode

When the combustion controller is set to corn mode, there is an additional function that slowly raises the feed rate until it reaches the actual MEDIUM feed rate. The lower feed rate will be in effect until the burner temperature is above 700˚F (371˚C) for at least five minutes. The MEDIUM Mode LEDs will be flashing during this time.

MEDIUM Mode

In general, the MEDIUM heat output setting should be set high enough to minimize the amount of time the controller is in HIGH mode. Increasing the MEDIUM to HIGH differential will also keep the combustion controller from shifting to HIGH mode.

The outdoor furnace is most efficient when it is operating in MEDIUM mode and not shifting often into HIGH mode. The combustion controller changes to MEDIUM mode when the water temperature drops 10˚ below the water temperature setpoint. MEDIUM mode represents 20%-60% of the outdoor furnace's heat output capacity.

NOTE: For most applications, the default MEDIUM heat output setting is adequate to allow the outdoor furnace to operate efficiently. For some heat load requirements or when burning a fuel other than wood pellets, it may be necessary to change this setting.

- If the outdoor furnace operates in HIGH mode much of the time, increase the MEDIUM heat output setting one step. If the outdoor furnace changes from MEDIUM to LOW mode when there is a heat demand, lower the MEDIUM heat output setting one step.
- In a higher heat load installation such as radiant floor heat, an abrupt heat load change (i.e., when there is no longer a call for heat) will cause the combustion controller to shift quickly from HIGH to MEDIUM to LOW mode. A fuel such as wood pellets that burns easily will continue to provide heat in LOW mode and can cause the water temperature to increase above 195˚F (90˚C). In this instance, decrease the MEDIUM heat output setting so there is less remaining fuel when the controller changes from HIGH to LOW mode.
- Upon entering MEDIUM mode, the combustion controller will turn the fan on in its highest setting for a few seconds to clear the burner. It will then slow down to its medium speed. If the burner temperature is high enough, the controller will stay in medium and cycle the augers at the medium feed rate.
- If the burner temperature is too low, the ignition sequence will start.

HIGH Mode

The reason the FireStar combustion controller has a MEDIUM and HIGH heat output setting is for efficiency. The most efficient setting for the HIGH mode is when the heat output setting is set as low as possible while still providing enough heat.

HIGH mode is used for peak or spike heat loads. The combustion controller changes to HIGH mode when the water temperature drops 20˚F below the water temperature setpoint (this variable can be changed). HIGH mode represents 65%-100% of the outdoor furnace's heat output capacity.

NOTE: The combustion controller will operate in MEDIUM mode if the burner temperature is high enough, for a minimum of 5 minutes before shifting into HIGH mode, regardless of temperature loss.

- The most efficient setting for the HIGH heat output mode is the lowest setting possible that keeps the water temperature from dropping to 150˚F (66˚C). If the water temperature drops to 150˚F (66˚C), increase the HIGH heat output setting or reduce the heat load. Remember that a thermostatic valve must be installed in each set of hot supply and return lines to keep the water temperature from dropping below 150˚F (66˚C).
- If the fuel cannot burn fast enough (i.e., unburned fuel gets pushed into the ash pan), either lower the HIGH heat output setting, raise the HIGH mode air setting, use a different type of fuel that will burn better, or mix in premium wood pellets with the fuel.

To View All Heat Output Settings:

1. Press any of the ▲ or ▼ buttons for the HIGH, MEDIUM or LOW modes. The light bars will display the current heat output settings.

To Change Heat Output Settings:

1. In each mode (HIGH, MEDIUM or LOW), press the ▲ button to increase the heat output or press the ▼ button to decrease the heat output. The new heat output setting will be displayed on the light bar.
2. The light bars will turn off and the new heat output setting(s) will take effect 5 seconds after no buttons are pressed.

Air Settings

Air Settings When LOW Mode is Enabled

The air setting for LOW mode increases or decreases the length of time the fan runs each time the auger turns.

NOTE: The LOW heat output and air settings should only require adjustment if the fire does not relight when shifting from LOW to MEDIUM.

- If there is fuel left in the burn chamber, the water temperature has not increased above 195˚F (90˚C) and the fire has gone out, the air setting for LOW mode is too low. Increase the air setting for LOW mode.

Air Setting for MEDIUM and HIGH Modes

The air settings for the MEDIUM and HIGH modes can be adjusted to provide the correct amount of combustion air to the fire. The proper setting for these two modes is the lowest setting that will still provide enough air for complete combustion (i.e., no smoke and no unburned fuel in the ash pan). If the air settings are too high, the extra air will take heat with it as it goes out the chimney. If the air settings are too low, complete combustion may not occur.

As a general rule, the fan setting for the MEDIUM mode should be within one bar of the MEDIUM heat output setting. The fan setting for HIGH mode should be within one bar of the HIGH heat output setting.

To optimally set the air setting for the MEDIUM and HIGH modes, it is best to use a CO_2 combustion meter and adjust for a reading of 11-13%. If a CO_2 combustion meter is not available, set the air setting for each mode to the lowest setting that does not cause smoke to appear in the exhaust after the mode has operated for 15 minutes.

NOTE: In cold weather, steam in the exhaust will condense and appear as smoke, similar to the steam in the exhaust from an automobile.

To View the Current Air Settings:

1. Press and hold the **Air Adjust** button. The light bars will display the current air setting for each mode.

To Change the Air Settings:

1. Press and hold the **Air Adjust** button; then press the ▲ or ▼ button for the respective mode to decrease or increase the air setting. For HIGH and MEDIUM modes, decreasing the setting (fewer lights on the light bar) lowers the fan speed and increasing the setting (more lights on the light bar) increases the fan speed.
2. Release the Air Adjust button.

NOTE: Allow the fire in the burn chamber to stabilize for a few minutes after changing an air setting to assess what effect the change had before making another adjustment.

Ignition / Clean Out Mode

Ignition

The combustion controller continuously monitors the burner temperature when in MEDIUM mode and there is a call for heat. If at any time the burner temperature is less than the burner temperature setting (which is set to a default setting), the combustion controller will automatically start the ignition sequence in an attempt to relight and raise the burner temperature.

If after three ignition cycles, the burner temperature does not rise above the burner temperature setting, all outputs will be disabled and the LED display will indicate FO to show that the ignition attempt has failed.

This will continue until the cause of the Fire Out alarm is corrected and the controller is reset. To clear the Fire Out alarm, turn the combustion controller off and on again or press and hold the **Reset** button. This will reset the combustion controller and allow normal operation.

NOTE: Before resetting the controller from FO find the cause of the burner not being operational (e.g., out of fuel, wet or contaminated fuel, mechanical problem, etc.).

Clean Out Mode

Situations may arise when it becomes necessary to empty all of the fuel from the burner auger (e.g., for service, at the end of season, etc.). In the Clean Out Mode, the transfer auger is disabled.

To start Clean Out Mode:

1. Press the **Auger** button two times within one second. The Clean Out Mode light will turn on, the transfer auger will be disabled, the combustion controller will shift into MEDIUM mode, and the LED display will indicate CLN. The combustion controller will stay in MEDIUM mode with the transfer auger disabled for 2 hours unless it is cancelled.

NOTE: The combustion controller will not go into Fire Out mode when Clean Out Mode is enabled. It is the operator's responsibility to visually check the burner auger area to determine that all of the fuel has been cleared and consumed. The combustion controller can then be powered off and main power disconnected to the furnace before performing service.

To cancel Clean Out Mode:

(1) Turn the controller off and then on again, (2) press the **Auger** button two times within one second, or (3) press and hold the **Auger** button to prime. The Clean Out Mode light will turn off and the burner and transfer augers will run as normal.

NOTE: If not cancelled, Clean Out Mode will run for 2 hours. After 2 hours the Clean Out Mode light will turn off and the burner and transfer augers will run as normal.

LED Display Alarm Definitions

If any of the following alarms occur, system operations will be halted until the cause of the alarm is corrected.

Low Water: the LED display will flash LO until the water level is above the sensor. Check that the water level indicator rod is above the vent cap and, if necessary, add water according to the Water Quality and Maintenance section. If adding water does not correct the problem, contact your Central Boiler dealer.

High Water Temperature: the LED display will alternately flash HI and the water temperature if the water temperature reaches 200˚F (93˚C). The LED will continue to alternate between HI and the water temperature until the water temperature drops to 195˚F (90˚C).

If this alarm occurs often, you will need to lower the water temperature setpoint.

There is an external limit switch that can also lock the controller in the high water temperature alarm. The LED display will alternately flash HI 2 and the water temperature if the external limit switch trips. This limit switch will trip at approximately 200˚F (93˚C) and automatically reset at 165˚F (74˚C).

If this alarm occurs often, you will need to lower the water temperature setpoint.

Back Burn: The LED display will flash b b if the combustion controller detects a high temperature in the burner auger area, even if the control panel is turned off. Everything but the burner auger will be disabled. The burner auger will run for two minutes, pause for 10 minutes, and continue as required until the combustion controller detects that the temperature in the burner auger area has dropped.

Fire Out: while in MEDIUM or HIGH mode, if the burner temperature drops below the burner temperature setpoint and, if enabled, the ignitor has tried to relight the fire three times, the combustion controller will go into Fire Out mode and the LED display will flash FO. This will continue until the cause of the Fire Out alarm is corrected and the combustion controller is reset. To clear the Fire Out alarm, turn the combustion controller off and on again or press and hold the **Reset** button. This will reset the combustion controller and allow normal operation.

NOTE: while in LOW mode, if the burner temperature drops below the burner temperature setpoint, the LED display will not flash FO. Instead, the bottom three LED lights in the heat setting bars will flash and augers will be disabled until the water temperature drops low enough for the combustion controller to change to MEDIUM mode. No action is required.

Setup Mode

To Enter Setup Mode

Press and hold the **Water Temp** button for at least 7 seconds until the LED display changes from the water temperature to .

Changing Control Variables

While in Setup Mode, select the control variable you want to change (see Selecting Control Variables). To make a change, press the **Water Temp** button. The current value is displayed. Press the or the button to modify the setting. Press the **Water Temp** button to accept the value and return to the selection menu.

Selecting Control Variables

Variables 1-7 and 18-21 can be changed within Setup Mode. Variables 8-17 are reserved settings that are used in conjunction with the optional FireStar XP. Variables preceded with a "d" (e.g., d7) are variables that can be changed only if you have software version 2.52 or 2.53.

To select a variable while in Setup Mode, press the **Water Temp** or button until the number representing the variable appears in the display. The following list indicates each variable's number, name, the default setting and a brief description of the function.

1. Water Temperature Setpoint: 175˚F (80˚C)
The water temperature the combustion controller will operate to maintain. **Range: 150-190**

2. IDLE/STANDBY to MEDIUM Differential: 10˚F (6˚C)
When the water temperature is less than the Water Temperature Setpoint minus this setting, the combustion controller will change from IDLE/STANDBY mode to MEDIUM mode. For example, with the default settings, the combustion controller will change from IDLE/STANDBY mode to MEDIUM mode when the water temperature is less than 175˚F – 10˚F (or 165˚F). **Range: 1-20**

3. MEDIUM to HIGH Differential: 10˚F (6˚C)
When the water temperature is less than the Water Temperature Setpoint minus the LOW to MEDIUM Differential minus this setting, the combustion controller will change from MEDIUM mode to HIGH mode. For example, with the default settings, the combustion controller will change from MEDIUM mode to HIGH mode when the water temperature is less than 175˚F – 10˚F – 10˚F (or 155˚F). **Range: 1-30**

NOTE: Changing this variable will automatically change the HIGH to MEDIUM differential. The HIGH to MEDIUM Differential is a ratio of the MEDIUM to HIGH Differential and is a numeric value from 1 to 10. When the water temperature is this far above the temperature at which the combustion controller changed into HIGH mode, the combustion controller will change to MEDIUM mode.

4. Ignition Burner Temperature: 300˚F (149˚C)
The combustion controller will operate in Ignition Mode until the burner temperature reaches this value plus the Ignition Differential (variable 5).

If the burner temperature drops below this value during MEDIUM mode, the controller will switch to Ignition mode. **Range: 100-470**

5. Ignition Differential: 100˚F (38˚C)
The controller will continue in Ignition Mode until the burner temperature is higher than the Ignition Burner Temperature plus this value (300˚F + 100˚F = 400˚F). If a third attempt is required, this value is added to the target temperature again (300˚F + 100˚F + 100˚F = 500˚F). **Range: 1-199**

6. Ignition Duration: 10 min. (wood pellets)
20 min. (corn)
The amount of time in minutes Ignition mode will run. The combustion controller will make up to three attempts at ignition, each for this amount of time, before a Fire Out mode. **Range: 1-100**

7. Fuel Mode: 1 (wood pellets)
0 (corn)
By default, this variable is set to 1 and the combustion controller is configured to operate with premium quality wood pellets as a fuel source. The combustion controller also has a modified program to help ignite lesser quality wood pellets and/or corn. To enable, change this setting to 0. If set to 0, several other variables will automatically change to the corn default values. **Range: 0-1**

18. Technician Use Only: 1
Do not adjust this value.

19. Electric Assist Duration: 0 (wood pellets)
61 (corn)
Time in minutes that the electric ignitor(s) will remain on after the Burner Temperature has exceeded 400˚F (variable 4 plus variable 5). Setting this variable to 61 will keep the electric ignitor(s) on constantly. **Range: 0-61**

20. Ignition Prime Duration: 15 (wood pellets)
2 (corn)
The augers will run for this amount of time in seconds during the first ignition attempt. **Range: 0-255**

21. 2nd Ignition Prime Duration: 30 (wood pellets)
1 (corn)
The augers will run for this amount of time in seconds during the second ignition attempt. **Range: 0-255**

dlr. Dealer Only Variables: 0

Central Boiler dealers may use this variable to adjust additional system settings when necessary.

NOTE: The following variables can only be adjusted on controllers with software version 2.52 or 2.53. If your controller does not display these variables, your dealer can make adjustments to these variables when necessary.

d7. Corn Mode Only - High Minimum Burner Temperature: 700˚F (371˚C)

When this temperature is reached, the controller will wait another 5 minutes (adjusted with variable d9) and then shift into HIGH mode. The MEDIUM light bar will flash the Intermediate Feed Rate while transitioning from IDLE/STANDBY mode to MEDIUM mode (i.e., medium ramp-up). **Adjustable from 500 to 2500**.

d9. Corn Mode Only - Medium Mode Ramp Up Duration: 5 (minutes)

The minimum amount of time given for the combustion controller to reach the High Minimum Burner Temperature (variable d7, typically 700˚F) plus a High Burner Differential of 10˚F (700˚F + 10˚F = 710˚F) after entering MEDIUM mode. **Adjustable from 0 to 20**.

d20. Shutdown Mode Duration: 5 (minutes)

The combustion controller will operate the fan in MEDIUM mode for this length of time to cool the ignitor after Ignition Mode has ended. **Adjustable from 0 to 59**.

d24. Minimum Ignition Fan Speed: 4

Minimum fan speed during ignition and during electric assist. **Adjustable from 1 to 8**.

d27. LOW Mode Disable: 1

By default, LOW mode is disabled. Once water temperature setpoint is reached, the combustion controller steps down to IDLE/STANDBY mode and fire will go out. If set to 0, enables augers during LOW mode so the fire will stay burning. LOW mode is usually only enabled if there is a problem with the electric ignitors.

NOTE: The following two ignitor-related variables are added features for FireStar controller version 2.52 or 2.53.

d51. Electric Ignitor-Saver Enabled: 0 (wood pellets) - 1 (corn)

If enabled and the Ignitor-Saver Temperature Setpoint is exceeded (typically 1000˚F, adjusted with variable d52), the combustion controller will reduce the ignitor output in an effort to extend the ignitor service life. **Adjustable between 0 (disabled) and 1 (enabled)**.

d52. Electric Ignitor-Saver Burner Temperature Setpoint: 1.00 (1000˚F)

When in Corn Mode, the controller will reduce the ignitor output when the burner temperature is above this value. This feature can also be enabled for wood pellets (see variable d51). **Adjustable from 500 to 1500**.

To Exit Setup Mode

Wait 10 seconds (while not pressing any buttons) and the controller will automatically exit Setup Mode.

To Lock/Unlock Combustion Controller

The combustion controller can be locked to prevent unauthorized access to the combustion controller settings. *To lock the combustion controller:* Press the **Water Temp** button four times within three seconds. The LED display will indicate LOC (locked) for several seconds. *To unlock the combustion controller:* Press the **Water Temp** button four times within three seconds. The LED display will indicate UL (unlocked) for several seconds.

Power Outage

In the event of a power outage, the combustion controller is programmed to return to its previous state. If the system was powered on, it will automatically restart.

Troubleshooting/System Restarting

If there appears to be a combustion controller error, attempt to restart the controller using the **Power** button. If a standard restart fails to correct an apparent error, shut off the main power at the source for one minute and then try again. If that does correct an apparent error, contact your Central Boiler dealer.

To restore to default settings:

Press the **Power** button to turn off the combustion controller; then, while pressing and holding the **Water Temp** button, press the **Power** button to turn on the combustion controller. The LED display will indicate CS if the combustion controller is restored to default settings.

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Printed in U.S.A.

(p/n 9000317 - REV. F) • JAN-2020