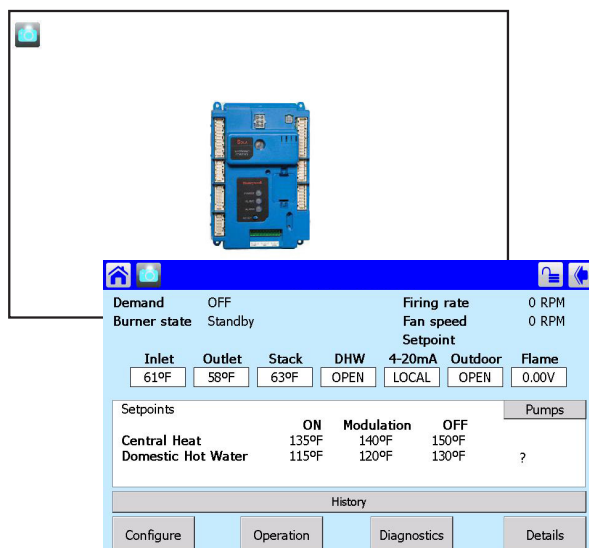




Start Up Guide for **Brute®** with Touchscreen Display

Modulating Boilers and
Volume Water Heaters

Indoor models BNTH & BNTV
Sizes 285 – 850 MBTU/h

Outdoor models BNTH & BNTV
Sizes 150 – 850 MBTU/h

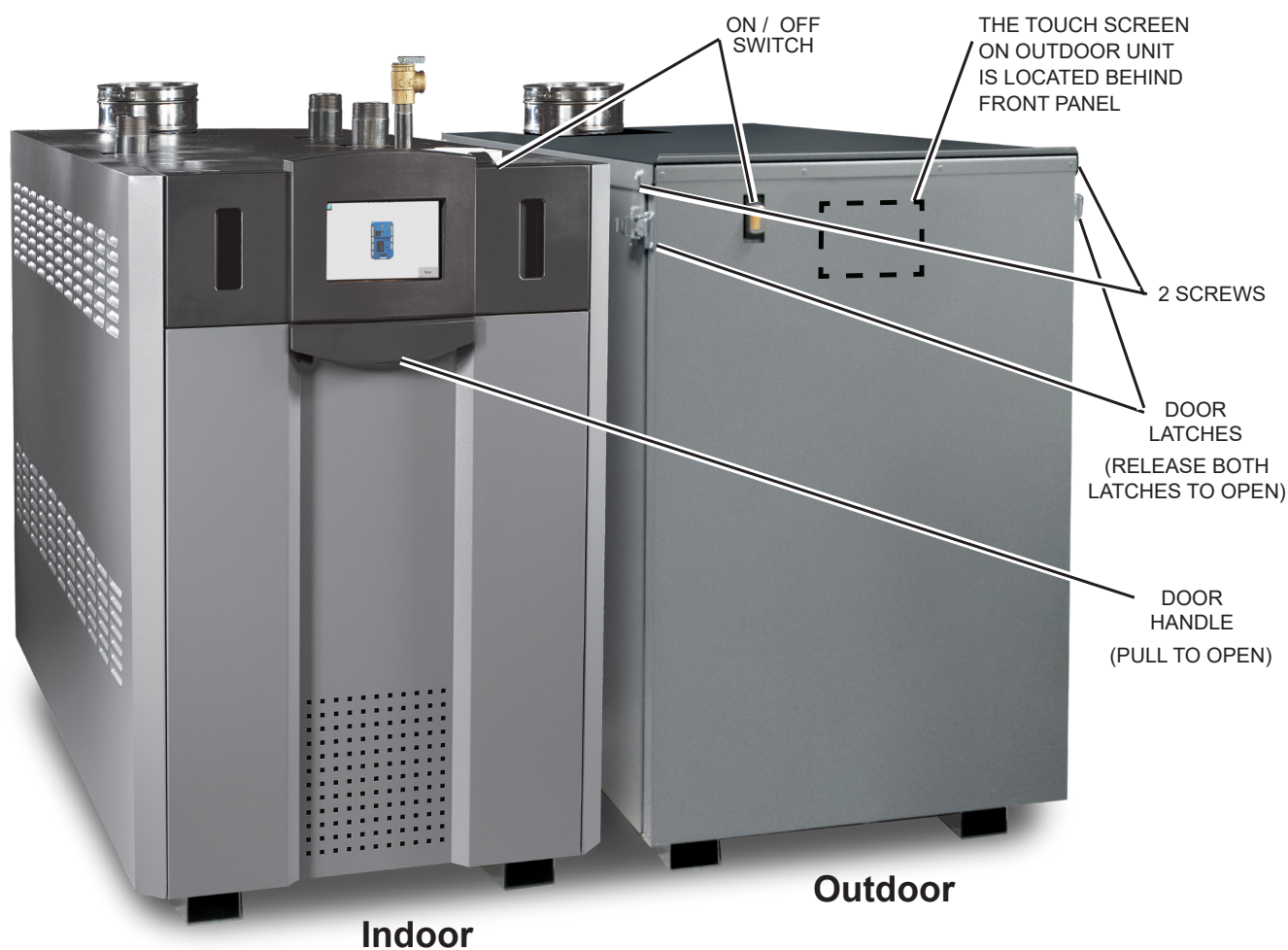


Table Of Contents

Single Boiler Set Up -----3-4

Setting Up Outdoor Reset -----5

Warm Weather Shutdown -----6

Domestic Hot Water Configuration -----6

Log in -----7

Lead/Lag Set Up -----7-8

Lead/Lag Master Configuration -----9-11

Lead/Lag Slave Configuration -----11-14

Setting The Date And Time -----15

Combustion Setup Procedures -----16-17

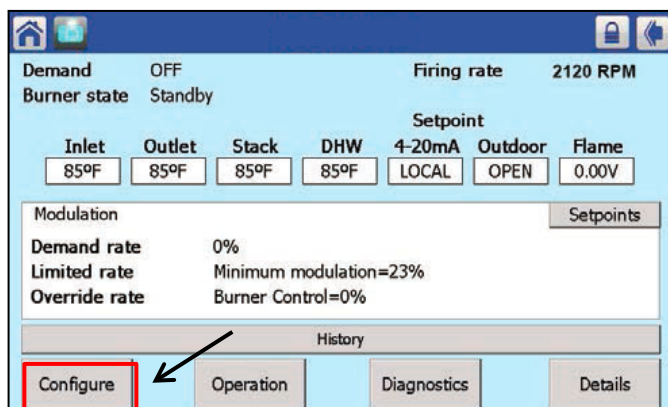
Setting up 4-20 MA Set Point -----18

Single Boiler Setup

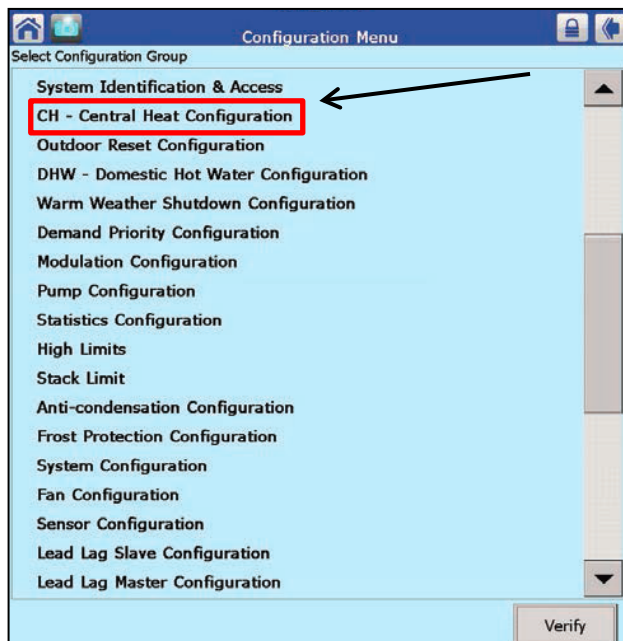
Adjusting Central Heat Set point for CH demand



1. Starting from the Home Screen press the controller icon.

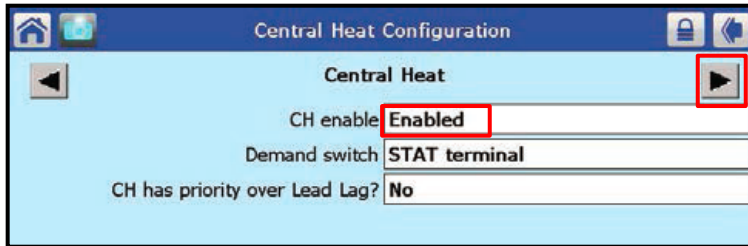


2. From the Status Summary Screen, press the "Configure" button.



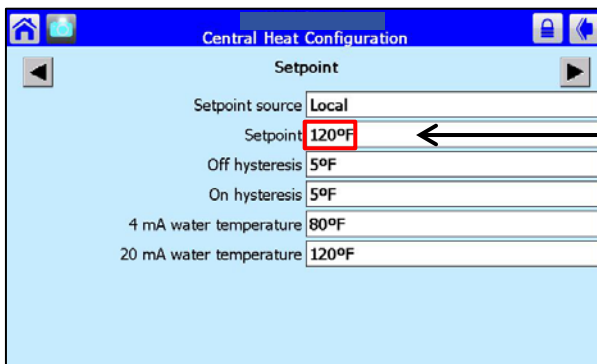
3. Press, "CH-Central Heat Configuration" to adjust the set point.

Single Boiler Setup Continue

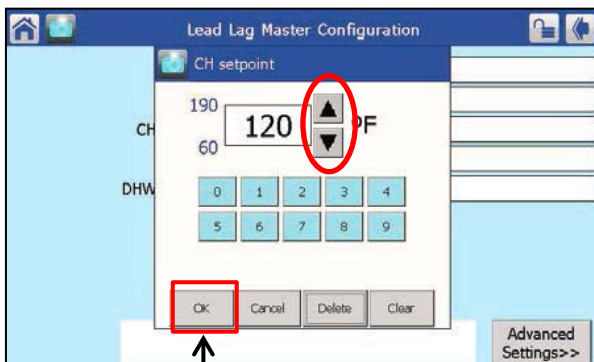


4. Confirm that “CH enable” reads Enabled as shown in this example.

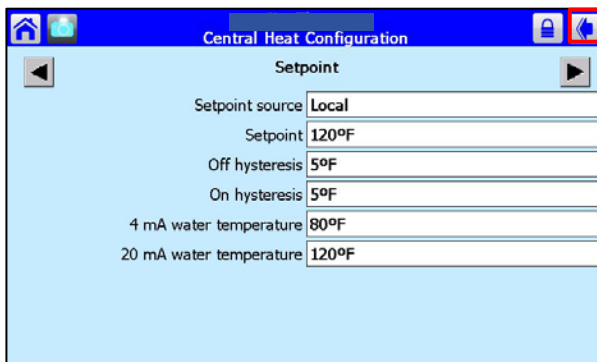
5. Press the right had arrow on the screen to get to the set point screen.



6. Press on the “Setpoint” box to adjust the temperature.



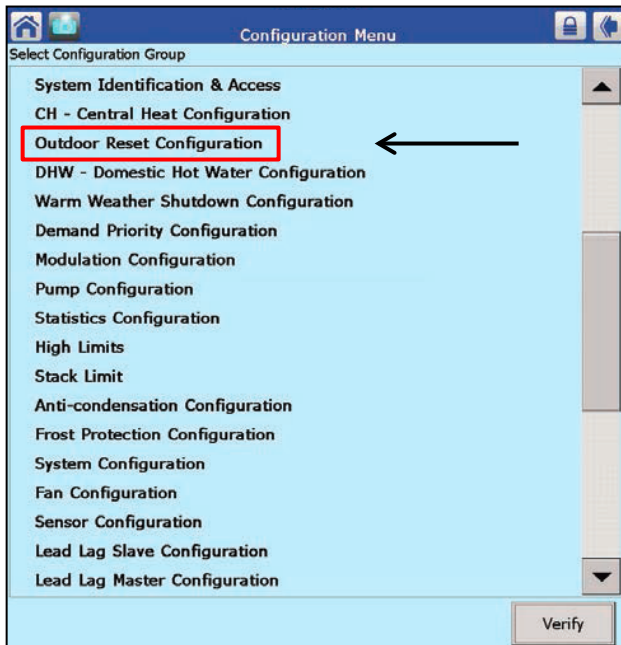
7. A smaller box will appear. Use the Up/Down arrows on the screen to adjust the desired set point. Then Press “OK”.



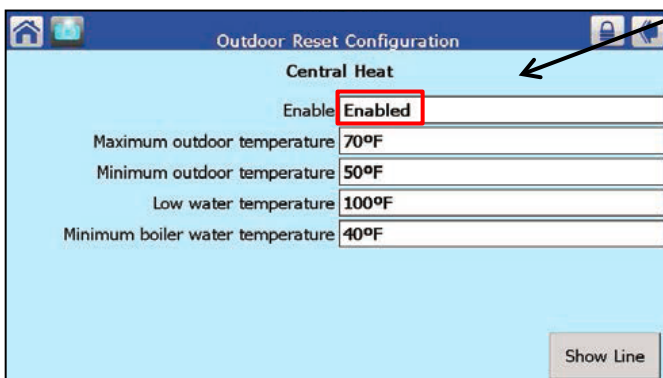
8. Press the back arrow button on the top right corner of the screen to return to the “Configuration Menu”.

Setting Up Outdoor Reset

Outdoor Reset is *Strongly* Recommended. You may skip this step if you are not using this function



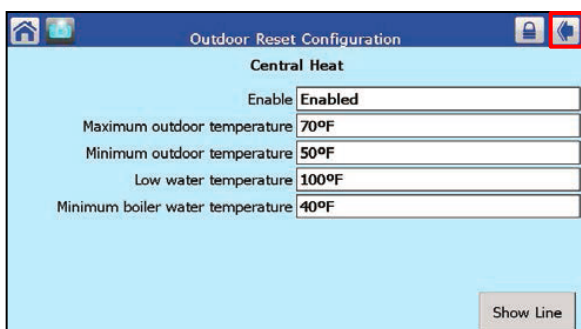
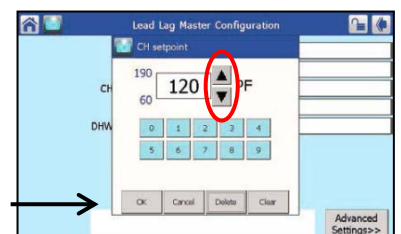
1. From the Configuration Menu, Press **"Outdoor Reset Configuration"**



2. Confirm that Central Heat is **"Enabled"**.

3. Next, adjust the **Maximum Outdoor Temperature, Minimum Outdoor Temperature and Low Water Temperature** by pressing each set point box.

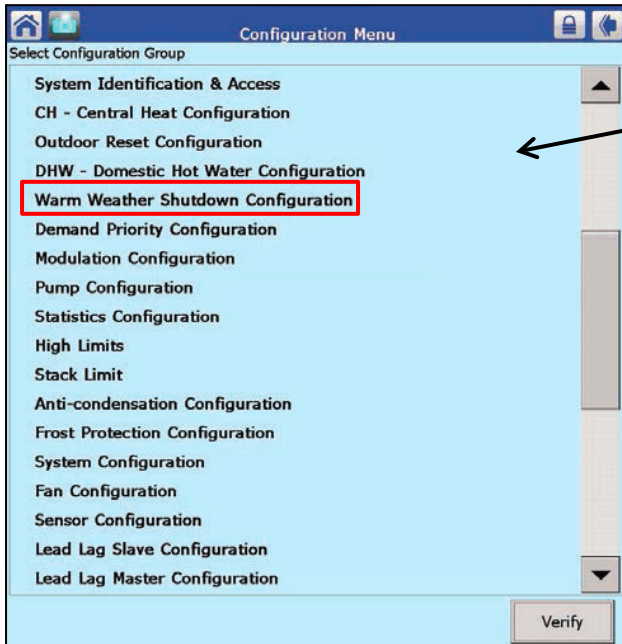
Use the Up/Down arrows on the screen to adjust the temperature. Press **"OK"** after each adjustment is made.



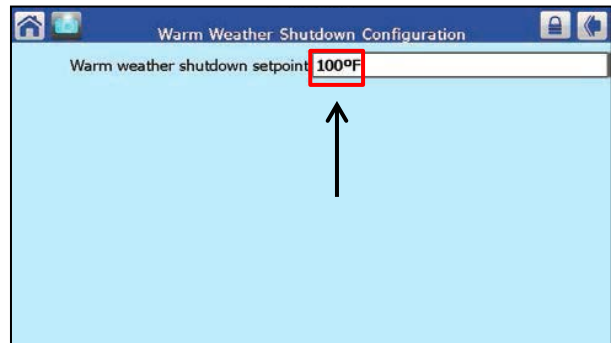
4. After configuring the outdoor reset, press the back arrow on the top right corner of the screen to return back to the Configuration Menu.

Warm Weather Shutdown

You may skip this step if you are not using Outdoor Reset



1. From the Configuration Menu, choose **"Warm Weather Shutdown Configuration"**.

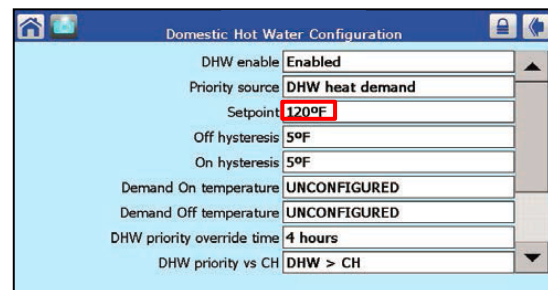
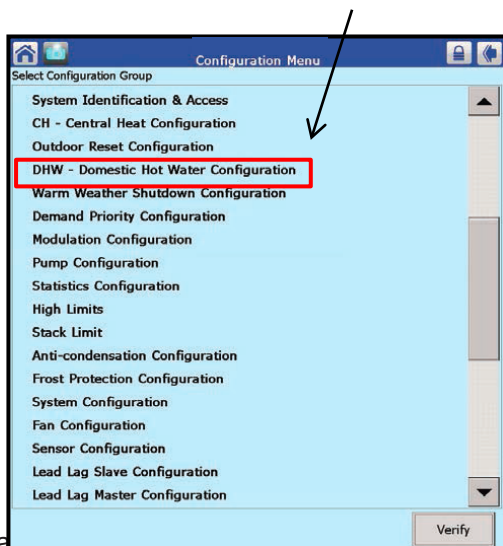


2. Press on the set point box and adjust the shutdown.
3. After adjusting the shutdown set point, then press **"OK"**.
4. Press the back arrow on the top right corner of the screen to return to the Configuration Menu.

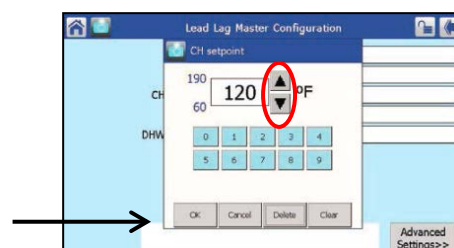
Domestic Hot Water Configuration

Skip this step if you are not using Domestic Hot Water

1. From the Configuration Menu, press **"DHW Domestic Hot Water Configuration"**



2. Make adjustments from the DHW set point screen.



3. After adjusting the DHW set point, press **"OK"**.

Lead/Lag Set Up

You can cascade up to eight NeoTherm boilers together. One boiler becomes the Lead or Master control and the other boilers become the Lag or Slaves controls.

Note: The system sensor and outdoor sensor will need to be wired to the Master boiler only. The input from these sensors is used by the Master control to control the modulation rate of all of the operating boilers it is connected to. See the manual for sensor and cascade wiring.

When a boiler is operating as part of a Lead/Lag system, it does not use the normal “CH set point” – it uses the “Lead/Lag CH set point” on the Master control.

It is **STRONGLY** recommended to start each boiler to complete combustion set up and perform all safety checks before setting up Lead/Lag cascade. See page 16-17 for combustion set up.

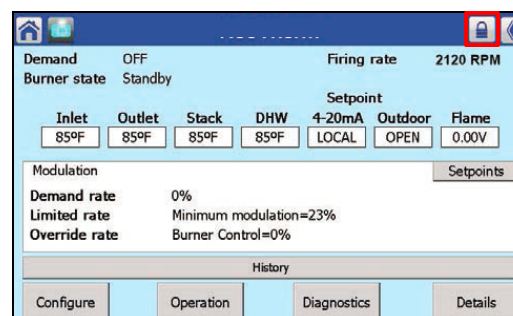
Note: Some parameters will require a log in.

The log in will need to be completed on each boiler.

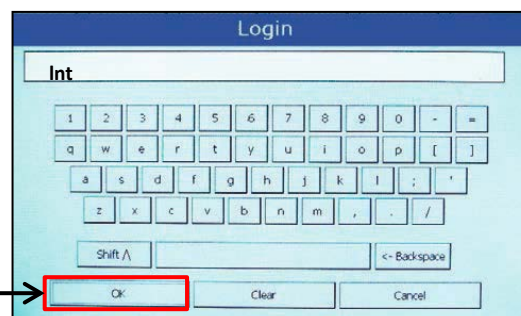
1. To log in, start from the Home Screen. Press the controller icon.



2. Press the pad lock symbol on the top right side of the screen.



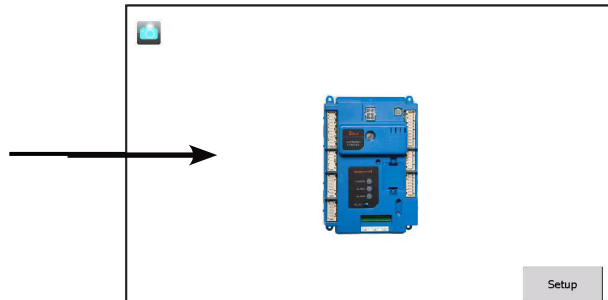
3. The key pad will appear.
Next, type in the password “LNT”, then press “OK”.



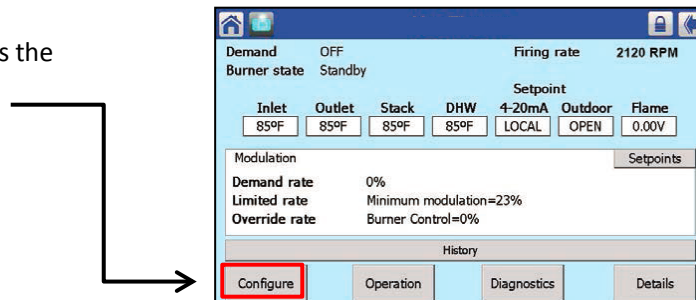
Lead/Lag Set Up Continues

Setting up the Lead/Lag Master Control

1. Starting from the Home Screen press the controller icon.

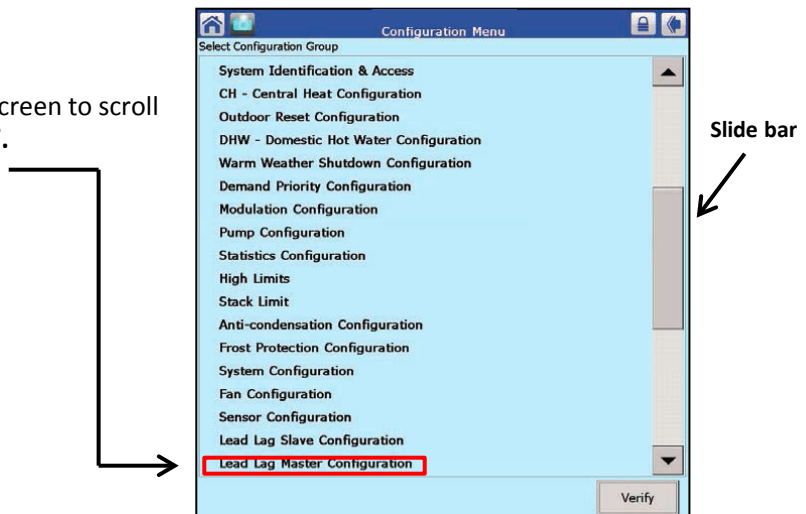


2. From the Status Summary Screen, press the **"Configure"** button.



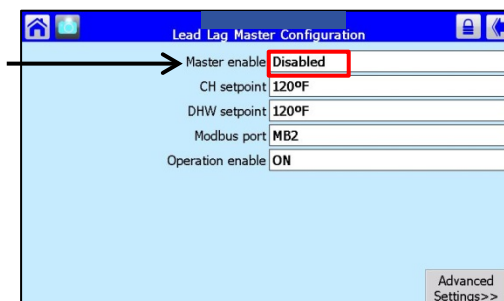
3. Use the slide bar on the right side of the screen to scroll down to **"Lead Lag Master Configuration"**.

Press, **"Lead Lag Master Configuration"**



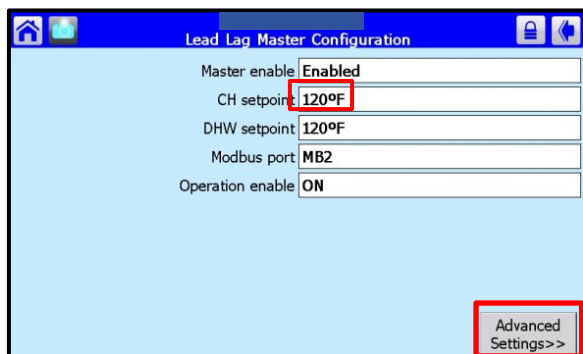
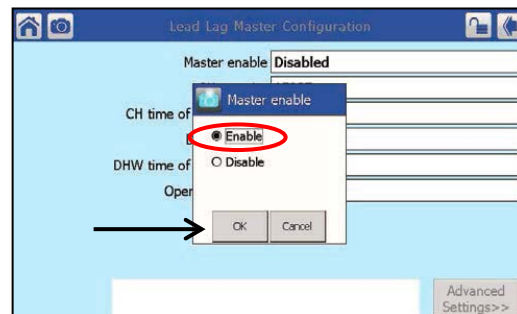
4. Confirm the Master control is **"Enabled"**.

If it is not enabled, press the box for **"Disabled"**.



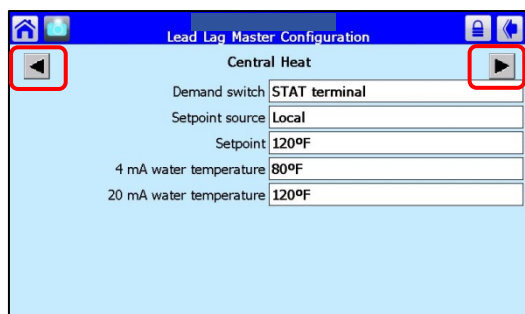
Setting up the Lead/Lag Master Control continues

5. A smaller box will appear on the screen. Choose the box for **"Enable"**, then press **"OK"**.

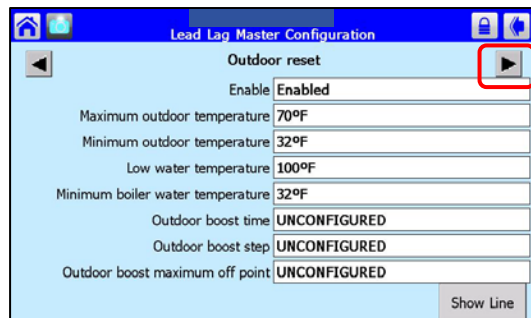


6. With the Master Control now Enabled, press the setting box labeled **"CH setpoint"**. Here you can adjust the desired Lead/ Lag system set point.

7. Press **"Advanced Settings"**

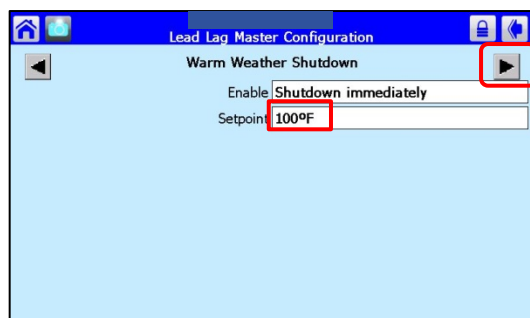


8. From this screen, use the Left or Right arrows to scroll to other screens. Make adjustments if needed.



9. If you are using Outdoor Reset for Lead/ Lag, adjust the **Maximum Outdoor Temp, Minimum Outdoor Temp and Low Water Temp** by touching each set point line. The set point screen will appear. Make the adjustment, then press OK.

When finished, press the arrow to advance to the **"Warm Weather Shutdown"** screen.

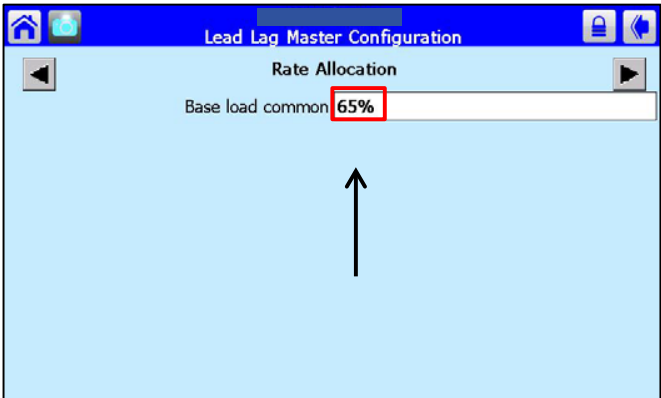


10. From the **"Warm Weather Shutdown"** screen, adjust the setpoint.

When finished, press the arrow to advance to the **"Rate Allocation"** screen.

Lead/Lag Master Control continues

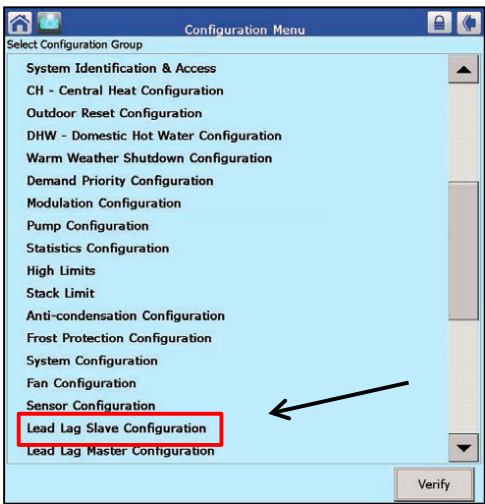
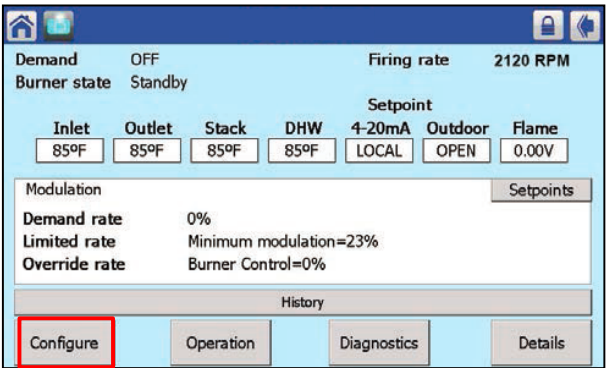
11. Adjust the “Base Load Common” value to the number of boilers in the cascade system. See chart for values.



Number of Boilers	Base load value
1	NA
2	65%
3	50%
4	35%
5	35%
6	35%
7	35%
8	35%

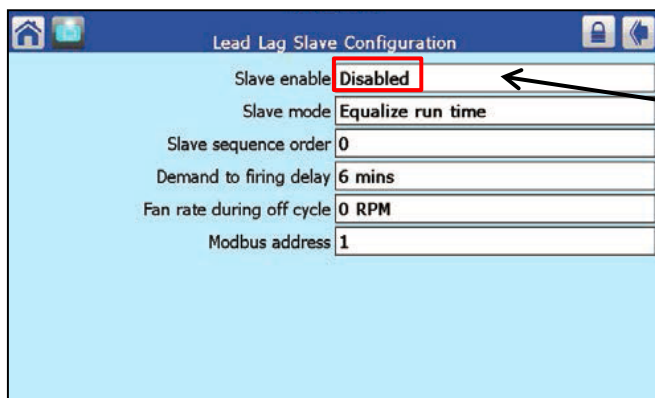
Note: In the Lead/Lag Slave Sub-Menu, Identify each control (including the Lead/Lag Master) as a slave by turning on “Slave Enable.”

12. From the Status Summary Screen, press the “Configure” button.

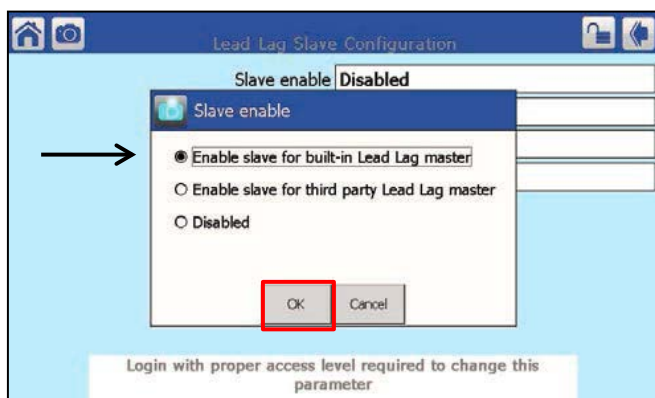


13. Scroll down and press “Lead Lag Slave Configuration”.

Lead/Lag Master Control continues



14. Press “Disabled”



15. A smaller box will appear on the screen. Choose “Enable Slave for built - in Lead Lag Master”.

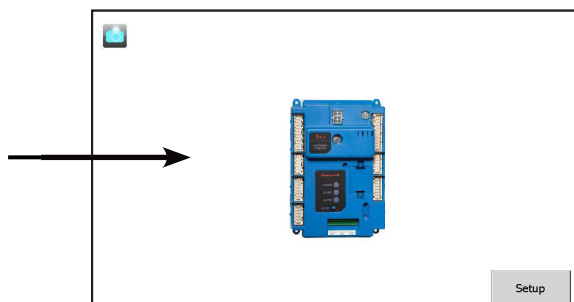
16. Then press “OK”.

The Lead boiler (Master control) is now configured.

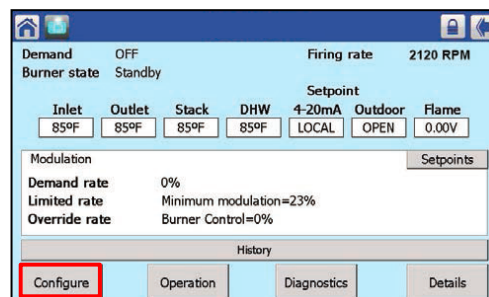
Slave boilers Lead/Lag configuration

Complete the Slave Configuration on **Each** boiler in the system. You will need to “Log In” on each slave boiler. See page 7 to log in.

1. Starting from the Home screen, press the controller Icon.



2. From the Status Summary Screen, press the “Configure” button.

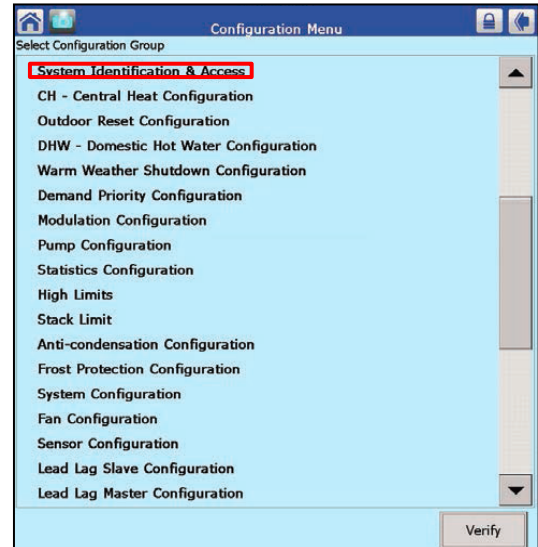


Lead/Lag Slave configuration continues

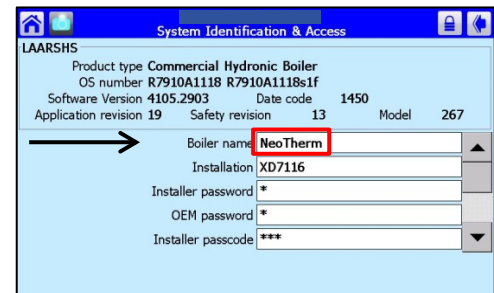
Modbus Address

All of the boilers will each need their own boiler name and Modbus address. On boilers two through eight you will need to change the Modbus Address. **Example:** On the Master boiler the Modbus address is **1**. On boiler two the address will be **2**. On boiler three the address will be **3**, etc...

1. Press “System Identification & Access”

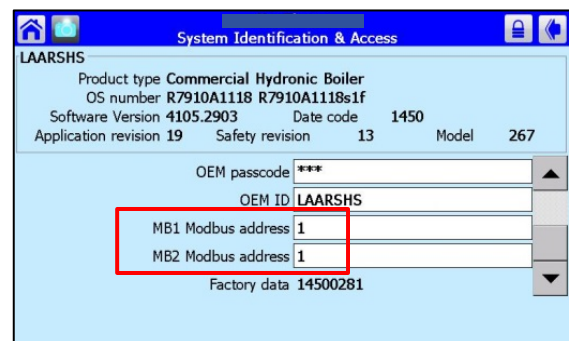
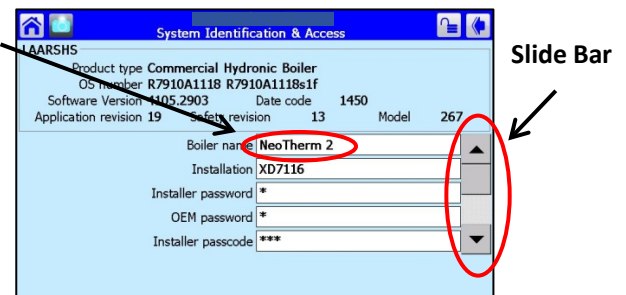


2. Press the box for “Boiler name”. Using the key pad, **change** the boiler name on **each** slave boiler. Then press “OK”.



For this example we used “NeoTherm 2” for the boiler name. Boiler three could be NeoTherm 3, etc..

Note: Depending on the screen configuration, you may need to use the slide bar on the right side of the screen to scroll down to the “Modbus address” lines.



This screen shows the MB1, MB2 address lines

Lead/Lag Slave configuration continues

System Identification & Access

LAARSHS

Product type Commercial Hydronic Boiler
OS number R7910A1118 R7910A1118s1f
Software Version 4105.2903 Date code 1450
Application revision 19 Safety revision 13 Model 267

OEM passcode ***
OEM ID LAARSHS
MB1 Modbus address 1
MB2 Modbus address 1
Factory data 14500281

3. Change **both MB1 and MB2** address.

Press on **EACH** address box to change the address.

System Identification & Access

LAARSHS

Product type Commercial Hydronic Boiler
OS number R7910A1118 R7910A1118s1f
Software Version 4105.2903 Date code 1450
Application revision 19 Safety revision 13 Model 267

MB1 port Modbus address

250
1 2
0 1 2 3 4
5 6 7 8 9

OK Cancel Delete Clear

4. Use the arrows on the screen to change the address number, then press “OK”. **Repeat this on each slave boiler keeping them in sequential order.**

5. Next, press the back arrow on the top right corner of the screen. This will return you to the “Configure Menu”.

Configuration Menu

Select Configuration Group

- System Identification & Access
- CH - Central Heat Configuration
- Outdoor Reset Configuration
- DHW - Domestic Hot Water Configuration
- Warm Weather Shutdown Configuration
- Demand Priority Configuration
- Modulation Configuration
- Pump Configuration
- Statistics Configuration
- High Limits
- Stack Limit
- Anti-condensation Configuration
- Frost Protection Configuration
- System Configuration
- Fan Configuration
- Sensor Configuration
- Lead Lag Slave Configuration
- Lead Lag Master Configuration**

Verify

Slide Bar

6. You will need to confirm the master configuration function on **each Slave boiler** is disabled.

On the slave controls scroll down and press on “Lead Lag Master Configuration”.

Lead Lag Master Configuration

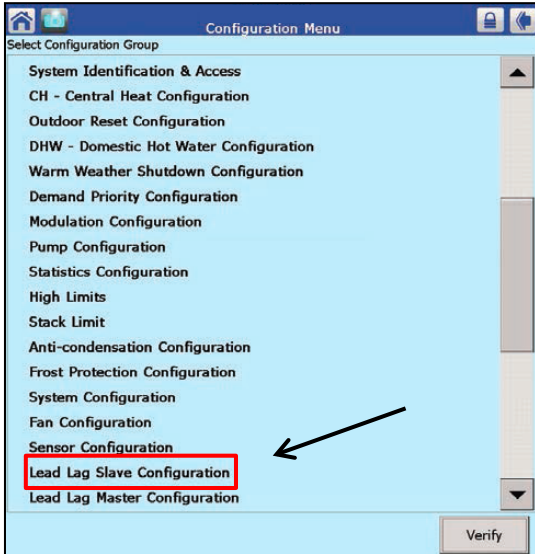
Master enable Enabled
CH setpoint 120°F
DHW setpoint 120°F
Modbus port MB2
Operation enable ON

Advanced Settings>>

7. Press the “Enable” box and change it to “Disabled”, then press “OK”.

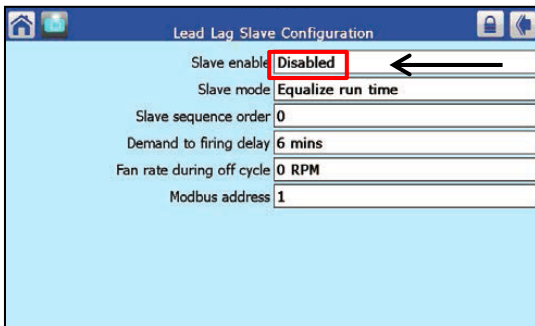
8. Next, press the back arrow on the top right corner of the screen. This will return you to the “Configure Menu”.

Lead/Lag Slave configuration continues

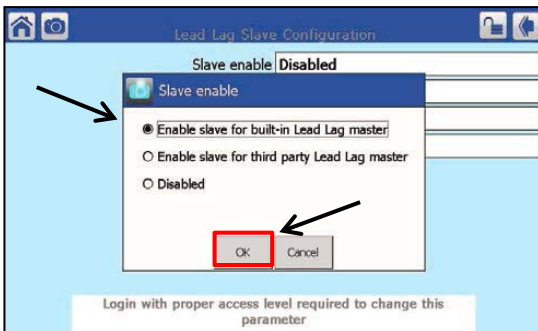


Slide Bar

9. Use the slide bar on the right side of the screen to scroll down and Choose **“Lead Lag Slave Configuration”**.



10. Press **“Disabled”**.



11. A smaller box will appear on the screen. Choose **“Enable Slave for built - in Lead Lag Master”**.

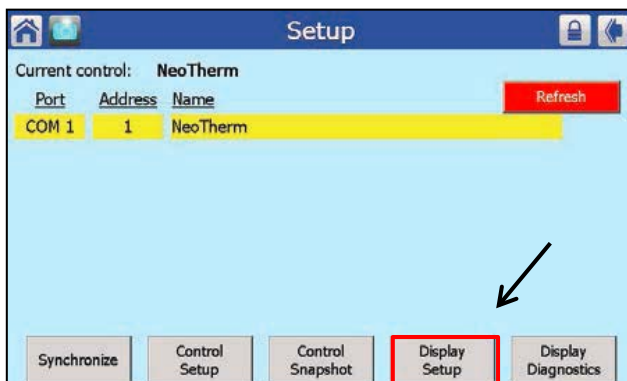
12. Press **“OK”**.

The Slave configuration is complete.

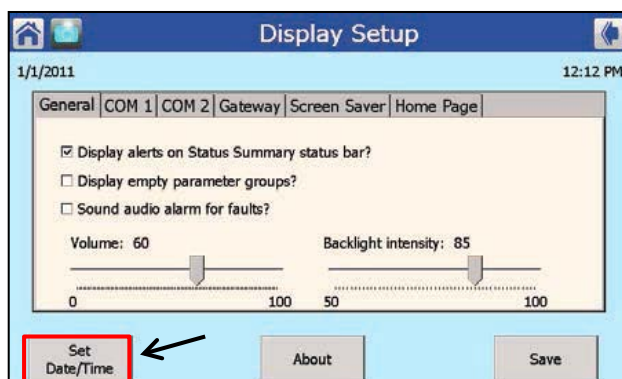
Setting the Date and Time



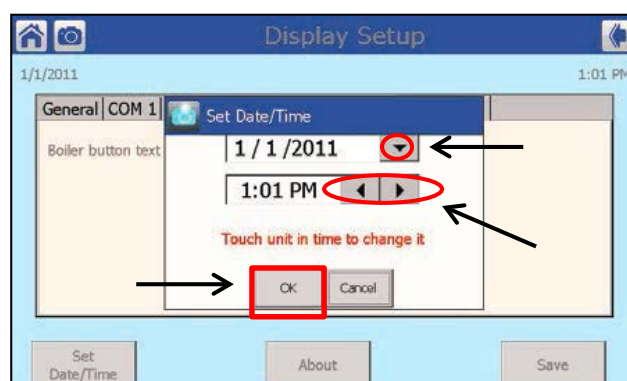
1. From the "Home" screen press the **"Setup"** button.



2. Press the **"Display Setup"** button.



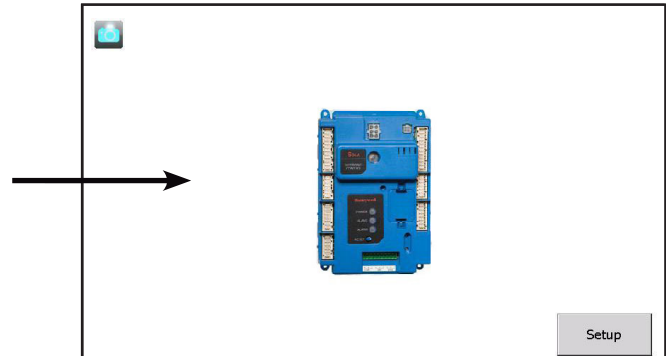
3. Press the **"Set Date/Time"** button.



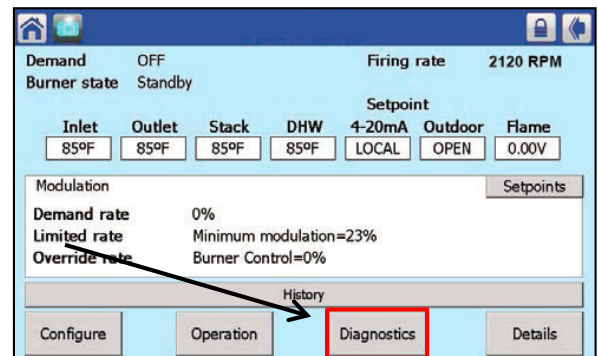
4. Use the arrows on the screen to change the Date and Time, then press **"OK"**.

Combustion Setup Procedure

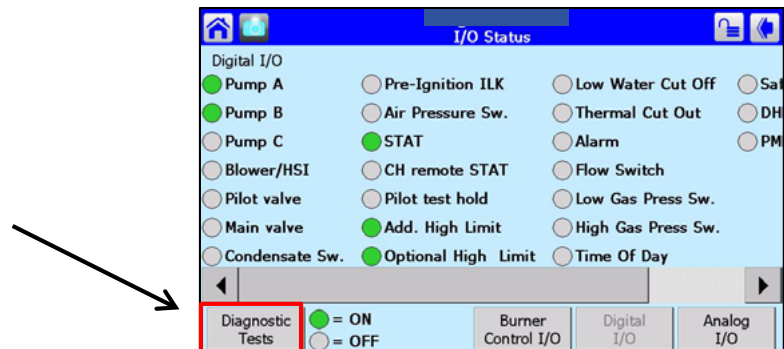
1. Starting from the Home Screen press the controller icon.



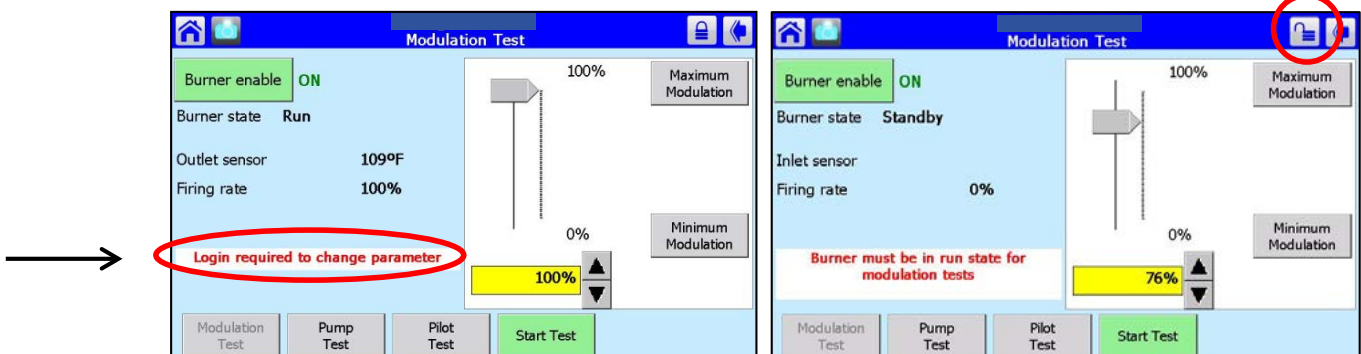
2. From the Status Summary Screen, press the "Diagnostics" button.



3. Press the "Diagnostics Test" button.



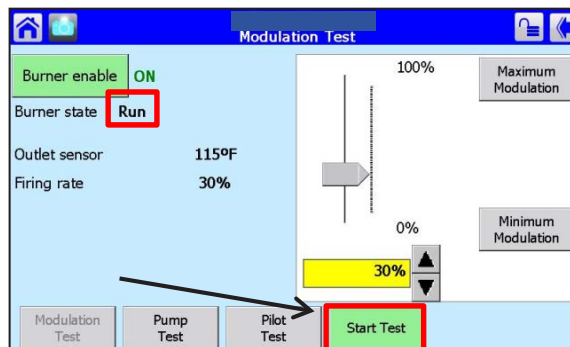
4. Make sure you are logged in and the padlock symbol is unlocked. See page 7 for login.



5. Start the boiler and confirm it is running.

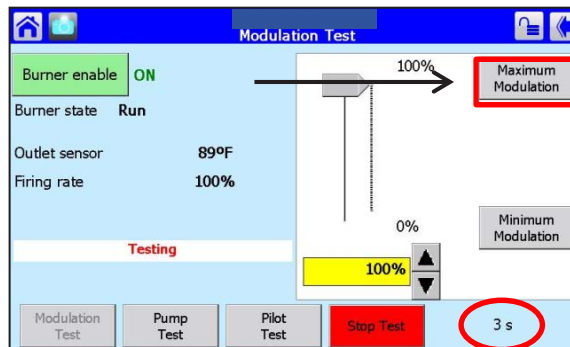


6. Press **"Start Test"**.



7. Press **"Maximum Modulation"**.

8. You will have 5 minutes to check and adjust High Fire CO₂. A test timer will appear on the bottom right corner of the screen counting up to 5 minutes.

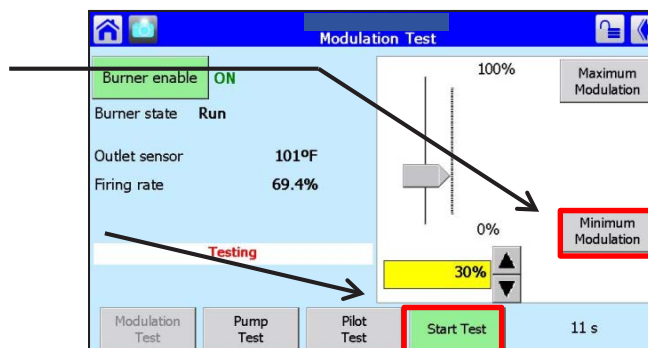


Test timer

9. After completing the High Fire testing, press **"Stop Test"**.

10. Press **"Minimum Modulation"**.

11. Press **"Start Test"**. You will have 5 minutes to check and adjust Low fire CO₂.



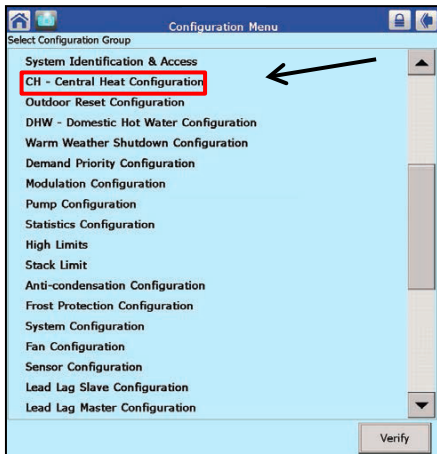
12. Repeat steps 6 through 11 a few times to confirm High and Low fire CO₂.
After CO₂ has been completed press **"Stop Test"**.

CO₂ Adjustments

Gas Type	High Fire CO ₂	Low Fire CO ₂
Natural	8.8 to 9.0 %	0.5% Lower than High Fire setting
Propane	9.8 to 10 %	

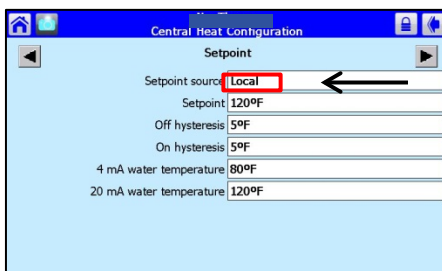
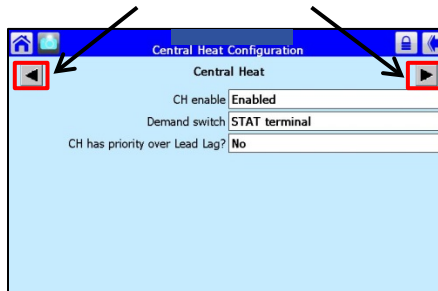
Refer to the manual for gas valve adjustment.

Setting up 4-20 MA Set Point



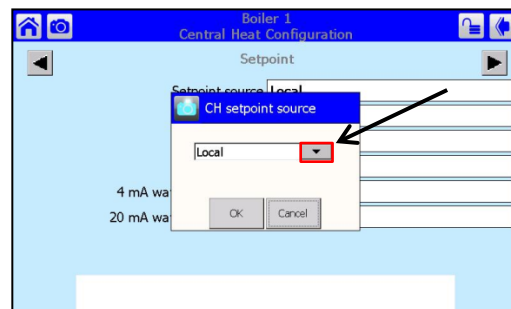
1. Starting from the Configuration Menu, press “CH-Central Heat Configuration”.

2. From the “Central Heat” screen use the arrows on the screen to advance to the “Setpoint” screen.



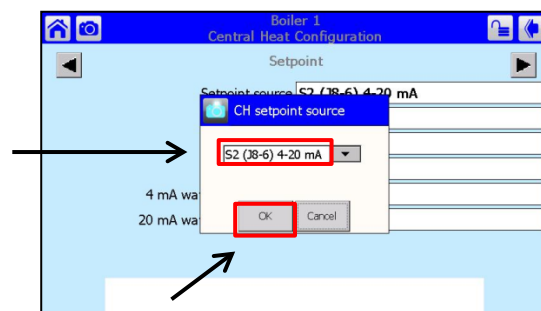
3. From the **Setpoint** screen, press “Local”. If you are prompted to log in, press OK and log in. The password in LNT.

4. Press on the down arrow in the box



5. Select “S2 (J8-6) 4-20 mA

6. Press “OK”



[illegible]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

