

USER'S INFORMATION MANUAL

M-Series Condensing Boiler

Wall-Mounted, Gas-Fired Combi and Solo Boiler



MODELS	
M060C	M060S
M090C	M090S
M120C	M120S
M160C	M160S



Certified to ANSI Z21.13 and CSA 4.9

WARNING

If the information in these instructions are not followed exactly, a fire or explosion may result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Welcome

- If you need service, contact your local dealer/distributor or call Rinnai Customer Care at 1-800-621-9419 Monday to Friday between 8 AM to 8 PM ET. Please have your full serial number or model number available for product- or service-related issues.
- As when using any appliance generating heat, there are certain safety precautions you should follow. See the **Safety Precautions** section in this manual for detailed safety precautions.
- Keep this manual for future reference.

Contents

1 Safety	2
2 About the Boiler	5
3 Operating the Boiler	6
Start-Up Information	6
Control Panel	7
Basic Operation Settings	9



IMPORTANT: Cleaning the Condensate Trap

1. Inspect the condensate drain assembly inside the boiler and your external drain system.
2. Remove any debris that may be present in the condensate removal system.
3. Fill the condensate drain outer tube with 150 ml (about 5 oz.) of water.

For Installation and Operation Manual, please visit rinnai.us

1 Safety

WARNING

- If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury, or death.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS:**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.
- The warning signs in this manual are here to prevent injury to you and others. Please follow them explicitly.

Safety Symbols

This manual contains the following important safety symbols. Always read and obey all safety messages.



Safety alert symbol. Alerts you to potential hazards that can kill or hurt you and others.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in personal injury or death.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

Safety Precautions

Please read and follow the safety precautions listed below.

DANGER

Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.

WARNING

Environment: Air surrounding the boiler, venting, and vent termination(s) is used for combustion and must be free of any compounds that cause corrosion of internal components. These include corrosive compounds that are found in aerosol sprays, detergents, bleaches, cleaning solvents, oil based paints/varnishes, and refrigerants. The air in beauty shops, dry cleaning stores, photo processing labs, and storage areas for pool supplies often contains these compounds; therefore, it is recommended that external (outdoor) models be used for these locations where possible. In applications utilizing room air where there are high levels of particulates, Rinnai offers a room air screen. The boiler, venting, and vent termination(s) should not be installed in any areas where the air may contain these corrosive compounds.

WARNING

Inspecting the Exhaust and Intake Venting System:

- Visually inspect the entire exhaust vent and intake system. Look closely for blockages, deterioration, leaks or any other type of damage to the system. Repair any joints that show signs of leakage. Make sure the intake vent pipe is connected and properly sealed (if applicable).
- Examine the exhaust vent and air intake to make sure they are clean and free of obstructions.

NOTICE

- Check the water pressure in the central heating installation regularly. Use only potable water for filling. See the Installation and Operation Manual for specific glycols, inhibitors, and system cleaners permitted. Contact your installer in case of doubt.
- Do not use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control which has been under water.
- Flammable liquids such as cleaning solvents, aerosols, paint thinners, adhesives, gasoline and propane must be handled and stored with extreme care. These flammable liquids emit flammable vapors and when exposed to an ignition source can result in a fire hazard or explosion. Flammable liquids should not be used or stored in the vicinity of this or any other gas appliance.
- Do not obstruct combustion air to the boiler.
- Do not use an extension cord or adapter plug with this appliance.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.
- DO NOT operate the boiler without the front panel installed. The front panel should only be removed for service/maintenance or replacing internal components.
- BURN HAZARD. Hot exhaust and vent may cause serious burns. Keep away from the boiler. Keep small children and animals away from the boiler.
- Heating supply, return and domestic hot water outlet pipes leaving the boiler can be hot to touch.
- Rinnai recommends that every home have a carbon monoxide (CO) alarm in the hallway near bedrooms in each sleeping area. Check batteries monthly and replace them annually.
- Always check the water temperature before entering a shower or bath.
- California law requires the following Proposition 65 warning to be provided:

WARNING

This product can expose you to chemicals including Nickel compounds, Lead and Lead compounds which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, visit www.P65Warnings.ca.gov.

Gas Operating Instructions

FOR YOUR SAFETY READ BEFORE OPERATING



WARNING: If you do not follow these instructions EXACTLY, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.


WHAT TO DO IF YOU SMELL GAS:

- DO NOT try to light any appliance.
 - DO NOT touch any electric switch; DO NOT use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to turn the gas control valve. Never use tools. If the gas control valve will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
 - D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Set the temperature controller to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance does not have a pilot. It is equipped with a direct ignition device which automatically lights the burner. DO NOT try to light the burner by hand.
5. Turn the manual gas control valve located at gas inlet of appliance clockwise  to the OFF position.
6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
7. Turn the manual gas control valve located at gas inlet of appliance counterclockwise  to the ON position.
8. Turn on all electric power to the appliance.
9. Set the temperature controller to desired setting.
10. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

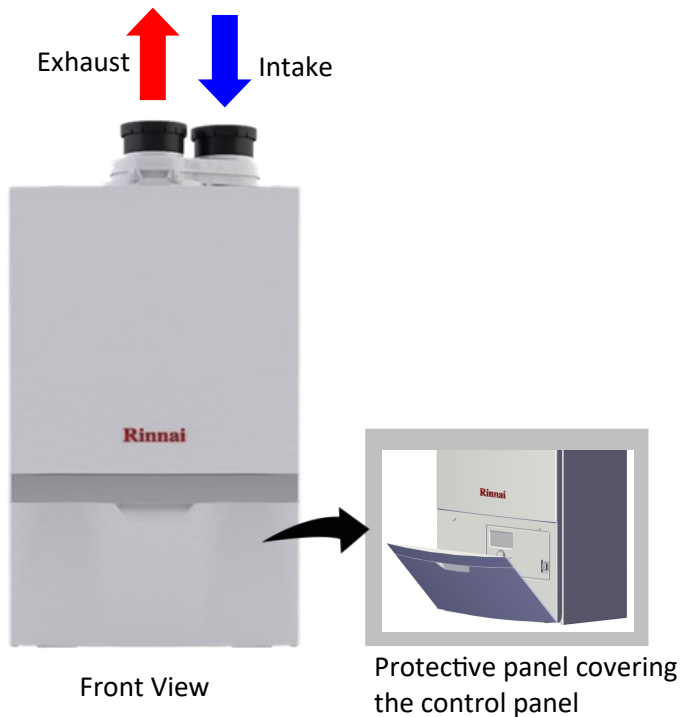
1. Set the temperature controller to the lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Turn the manual gas control valve located at gas inlet of appliance clockwise  to the OFF position.

2

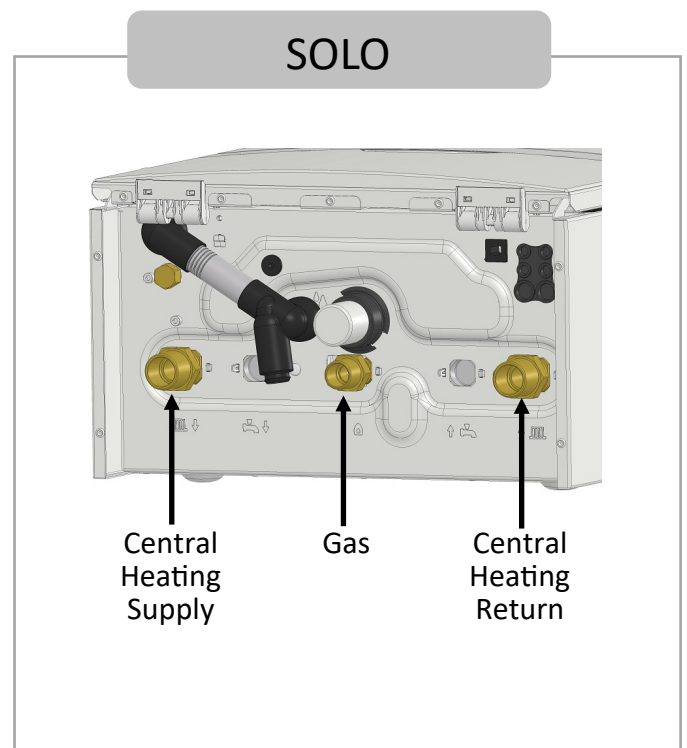
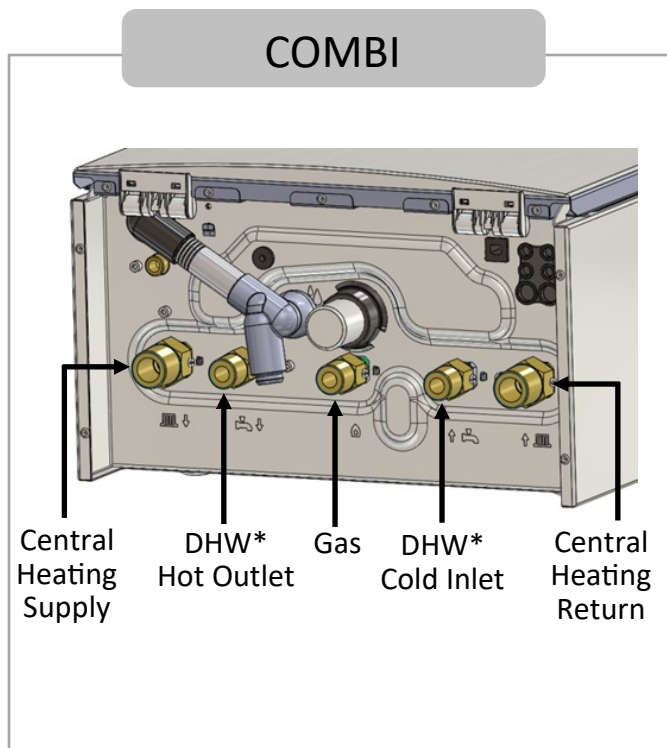
About the Boiler

The M-Series Condensing Boiler is a wall-mounted, gas-fired boiler available in combination (central heating and domestic hot water) and solo (central heating only) versions.

For complete boiler information, refer to the Installation and Operation Manual supplied with the boiler, or visit rinnai.us. The manual includes helpful information including boiler specifications, accessories, parts, maintenance procedures, and more.



Bottom Connections



DHW = Domestic Hot Water

3 Operating the Boiler

Topics in this section

- Start-Up Information
- Control Panel
- Basic Operation Settings

This section includes instructions for starting and operating the boiler.

Start-Up Information

NOTICE

The boiler will not immediately fire up and begin operation. The boiler will go into an automatic de-aeration program that is approximately 7 minutes in duration.

NOTICE

It can take up to a week before all the air has disappeared from a newly filled and pressurized installation. During the first week of operation, noises can be heard which indicate the presence of air. The automatic air vent in the boiler will remove the air, which means the water pressure will reduce some during this period and therefore additional water will be necessary to maintain proper pressure in the heating system.

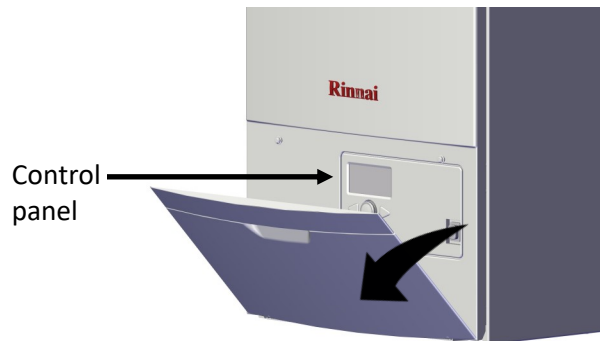
Water Pressure Needed for Operation

- The boiler is in normal operation between 19 PSI and 43.5 PSI.
- Below 10.1 PSI, the boiler will have an error code (Fault 108 on the display) and be blocked from operation. Increasing the heating system water pressure will be necessary for operation.
- Between 10 PSI and 19 PSI, operation will be limited to 80% (Alert Warning 1P4 will appear on the display).
- Above 43.5 PSI, the boiler will have an error code (Fault 109 on the display) and be blocked from operation as the pressure is too high.
- The pressure relief valve supplied with the boiler is rated to 30 PSI.

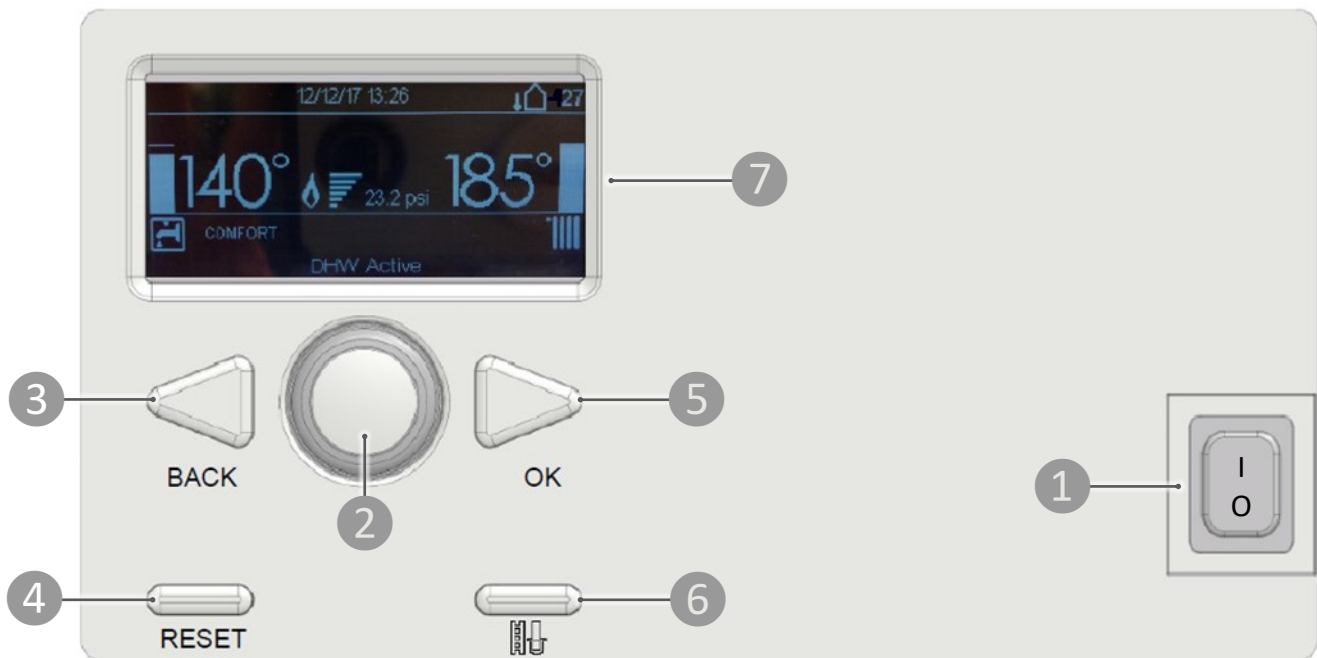
Control Panel

Access the Control Panel

Slowly lower the protective panel on the front cover to access the control panel.



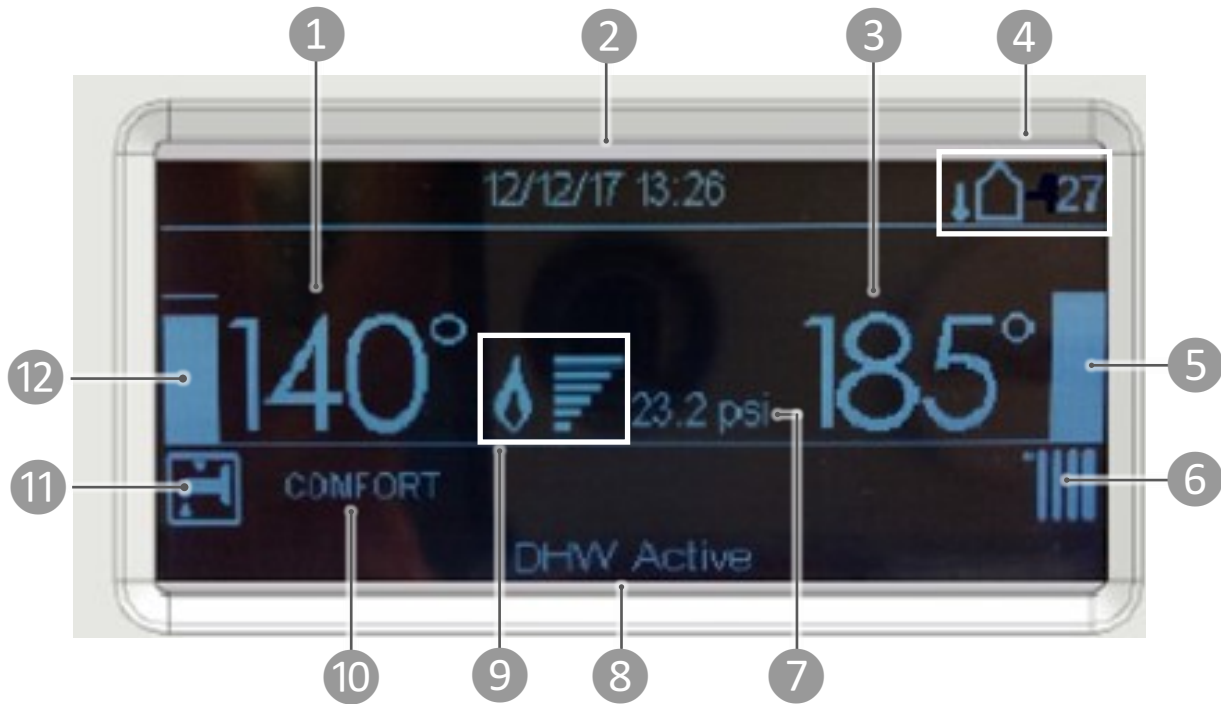
Control Panel Features


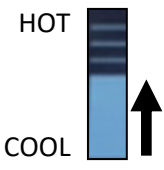









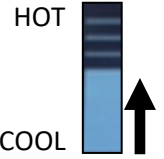


- 1 Power (On/Off)**
Press to turn the boiler on or off. (I = On O = Off)
- 2 Selector Wheel**
Turn the wheel left or right to scroll through available menu options.
- 3 Back**
Press to go back one screen.
- 4 Reset**
Press to reset a fault code.
*See **Reset Fault Code** section for more information.*
- 5 OK**
Press to select an item.
- 6 Chimney Active (Service Mode)**
Press to enter into service mode which allows adjustment of high fire/low fire and O2 settings.
*See **Chimney Active (Service Mode)** section in Installation and Operation Manual for more information.*
- 7 Boiler Display**
Displays boiler status information.
*See **Boiler Display** section for more information.*

Boiler Display

When the boiler is turned on, the main screen (also called the home screen) appears in the display.



- | | |
|---|--|
| <p>1 DHW setpoint temperature</p> <p>2 Current date and time</p> <p>3 Heating supply setpoint</p> <p>4 Outdoor temperature </p> <p>5 Visual illustration of current central heating temperature</p> <div data-bbox="186 1438 673 1648" style="border: 1px solid black; padding: 5px;">  <p>Scale rises as the temperature increases</p> </div> <p>6 Central heating status symbol</p> <p>A box around the radiator symbol indicates central heating is in operation</p> <div data-bbox="203 1795 284 1942" style="display: inline-block; vertical-align: top;"> 
  </div> <p>CENTRAL HEATING IN OPERATION</p> <p>CENTRAL HEATING NOT IN OPERATION</p> | <p>7 Current central heating system water pressure</p> <p>8 Boiler status indicator, such as DHW is active, Central Heating is active, error messages, and other status information</p> <p>9 Fire level status </p> <div data-bbox="933 1312 1372 1375" style="display: inline-block; vertical-align: top;"> 
  </div> <p>High fire (maximum of six bars)</p> <p>Low fire</p> <p>10 DHW comfort or economy mode is active</p> <p>11 DHW status symbol</p> <p>A box around the faucet symbol indicates DHW is in operation</p> <div data-bbox="950 1606 1031 1669" style="display: inline-block; vertical-align: top;"> 
  </div> <p>DHW IN OPERATION</p> <div data-bbox="1242 1606 1323 1669" style="display: inline-block; vertical-align: top;"> 
  </div> <p>DHW NOT IN OPERATION</p> <p>12 Visual illustration of current hot water temperature</p> <div data-bbox="941 1764 1477 1963" style="border: 1px solid black; padding: 5px;">  <p>Scale rises as the hot water temperature increases</p> </div> |
|---|--|

Basic Operation Settings

Turn the Boiler On or Off

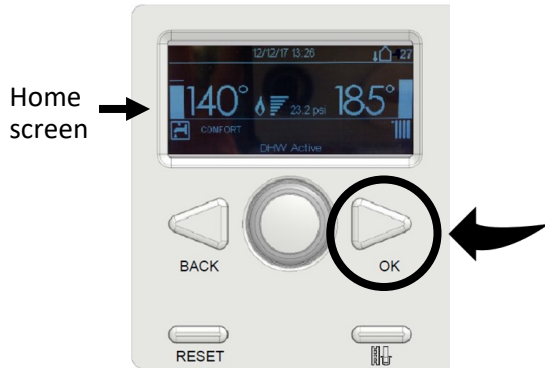
To turn the boiler on or off, press the Power switch.

I = On O = Off

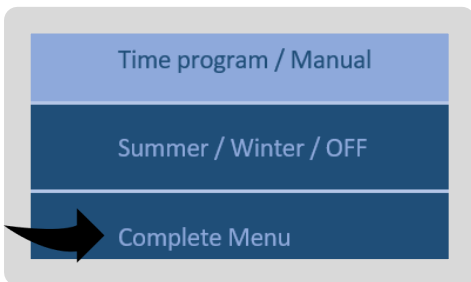


Change the Central Heating Setpoint Temperature

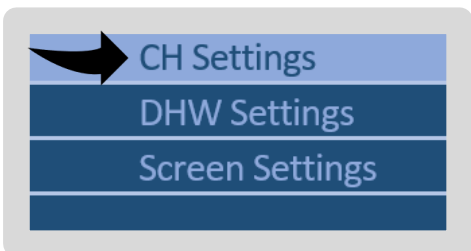
1 From the controller Home screen, press **OK**.



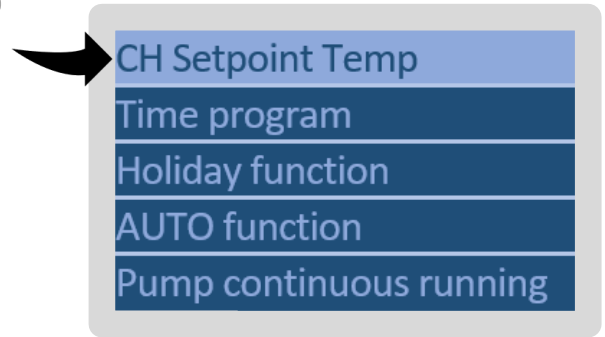
2 Turn the selector wheel to highlight **Complete Menu**. Press **OK**.



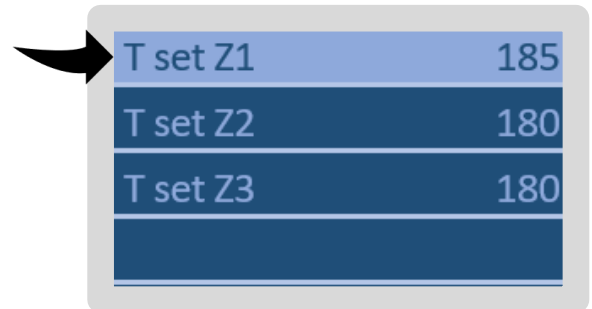
3 **CH Settings** is highlighted. Press **OK**.



4 **CH Setpoint Temp** is highlighted. Press **OK**.

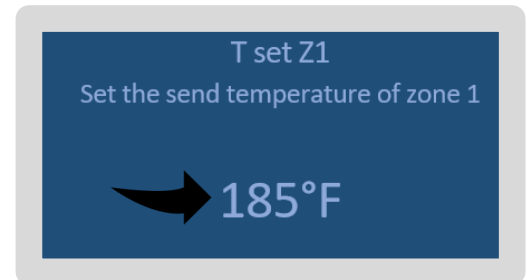


5 Option **T set Z1** is highlighted. Press **OK**.
Note: T set Z2 and T set Z3 are inactive functions.



6 Turn the selector wheel to until the desired temperature appears on the display. Press **OK**.

Available temperature settings (minimum to maximum): 68° F - 185° F (20° C - 85° C)

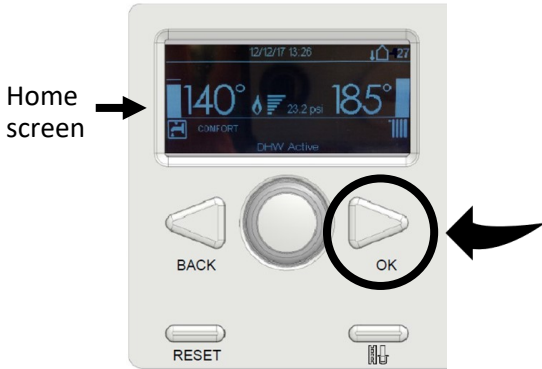


7 Press the **Back** button until the Home screen appears on the display.

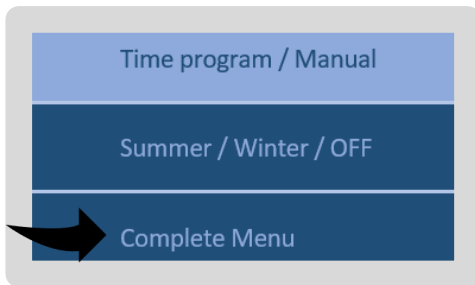


Change the Domestic Hot Water Setpoint Temperature (For Combi Models Only)

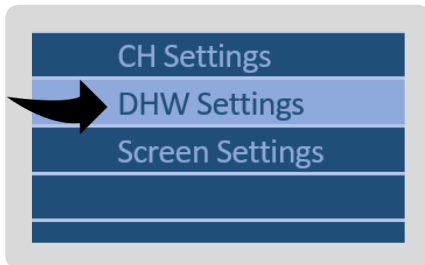
1 From the controller Home screen, press **OK**.



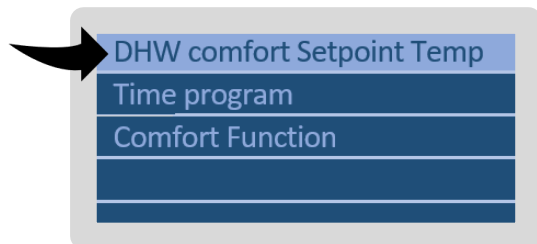
2 Turn the selector wheel to highlight **Complete Menu**. Press **OK**.



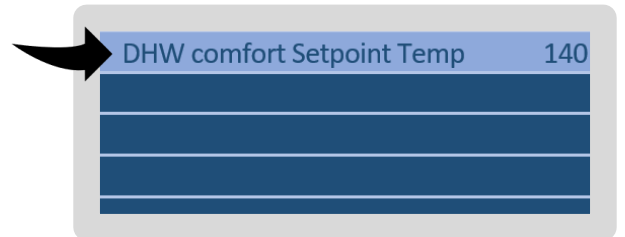
3 Turn the selector wheel to highlight **DHW Settings**. Press **OK**.



4 Option **DHW Comfort Setpoint Temp** is highlighted. Press **OK**.



5 The current DHW comfort setpoint temperature is displayed. Press **OK**.



6 Turn the selector wheel to until the desired temperature appears on the display. Press **OK**.

Available temperature settings:
(minimum - maximum)
104° F - 149° F (40° C - 65° C)



7 Press the **Back** button until the Home screen appears on the display.



Change the Language

To change the language appearing on the boiler display, follow the steps below.

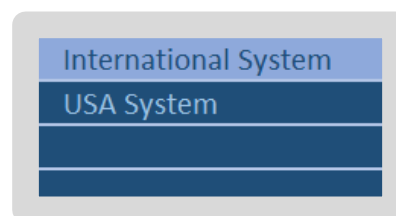
1. From the controller Home screen, press **OK**.
2. Turn the selector wheel to highlight **Complete Menu**. Press **OK**.
3. Turn the selector wheel to highlight **Screen Settings**. Press **OK**.
4. **Language** is highlighted. Press **OK**.
5. Turn the selector wheel to highlight the desired language and press **OK**.
6. The language is changed. To exit, press the **Back** button until the **Home** screen appears on the display.



Change Units of Measurement

To change the unit of measurements appearing on the boiler display, follow the steps below.

1. From the controller Home screen, press **OK**.
2. Turn the selector wheel to highlight **Complete Menu**. Press **OK**.
3. Turn the selector wheel to highlight **Screen Settings**. Press **OK**.
4. Turn the selector wheel to highlight **System measurement unit**. Press **OK**.
5. Select **International System** or **USA System**.

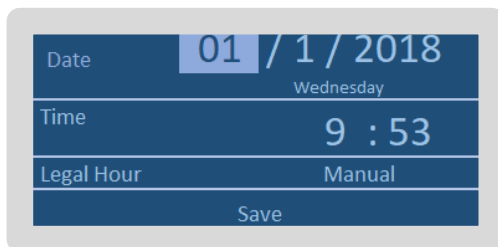


6. Press **Save**.
7. To exit, press the **Back** button until the **Home** screen appears on the display.

Change the Time and Date

To change the time and date appearing on the boiler display, follow the steps below.

1. From the controller Home screen, press **OK**.
2. Turn the selector wheel to highlight **Complete Menu**. Press **OK**.
3. Turn the selector wheel to highlight **Screen Settings**. Press **OK**.
4. Turn the selector wheel to highlight **Time & Date**. Press **OK**.
5. Edit the following screen.



6. Press **Save**.
7. To exit, press the **Back** button until the **Home** screen appears on the display.

Fault Codes



WARNING

Some of the checks below should be performed by a licensed professional. Consumers should never attempt any action that they are not qualified to perform.

When the boiler detects an error, a 3-digit blocking or fault code appears on the controller display.

- A blocking code is a temporary error that can be automatically corrected by the boiler.
- A fault code requires the error to be reset and/or corrected for the boiler to go back into a normal operating mode.

In the table below, fault codes are labeled with “Press the **Reset** button” in the “How to Resolve” column.

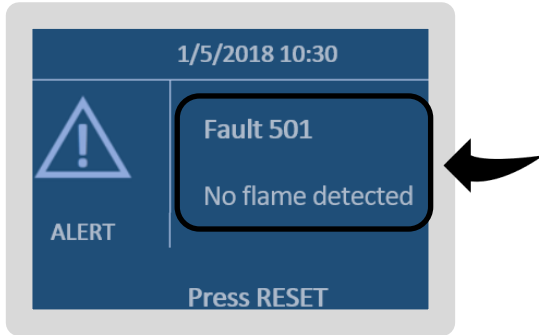
An overview of the most common blocking and fault codes are listed below.

Code	Description	Reason(s)	Where Error is Occurring	How to Resolve
101	Overheat	<ul style="list-style-type: none"> • The supply or return water temperature is greater than 212° F for 3 seconds. • The return water temperature is within 9° F of the supply temperature for 24 hours • The supply and return probe check failed 	Central Heating operation	Press the Reset button
102	Pressure Sensor Damaged	The pressure sensor has a short or open circuit	Central Heating operation	Troubleshoot the pressure sensor
103	Flow Check Failed 3 Times	Three flow checks failed within 15 minutes. 1P1 (Flow Check 1 Failed) was the last error detected.	Central Heating operation	Press the Reset button
104	Flow Check 2 Failed	More than 27° F per second change in supply or return water temperature	Central Heating operation	Press the Reset button
105	Flow Check Failed 3 Times	Three flow checks failed within 15 minutes. 1P3 (Flow Check 4 Failed) was the last error detected.	Central Heating operation	Press the Reset button
106	Flow Check Failed 3 Times	Three flow checks failed within 15 minutes. 1P4 (Filling Needed) was the last error detected.	Central Heating operation	Press the Reset button
107	Flow Check 5 Failed	The return water temperature is more than 63°F higher than the supply water temperature and the burner is on	Central Heating operation	Press the Reset button
108	Supply Pressure is below Minimum Pressure	<ul style="list-style-type: none"> • The supply pressure is below minimum pressure and the burner is on • The burner is off with the supply pressure below the minimum pressure and deaeration is active for 40 seconds 	Central Heating operation	Raise the supply pressure above the minimum pressure
109	Supply Pressure is above Maximum Pressure	The supply pressure is above the maximum pressure	Central Heating operation	Lower the pressure to 4.3 PSI below the maximum supply pressure
110	Send Probe Damaged	The supply sensor has a short or open circuit	Central Heating operation	Troubleshoot the supply sensor
112	Return Probe Damaged	The return sensor has a short or open circuit	Central Heating operation	Troubleshoot the return sensor
114	Outdoor Probe Damaged	The outdoor sensor is installed and has a short or open circuit	Central Heating operation	Troubleshoot the outdoor sensor

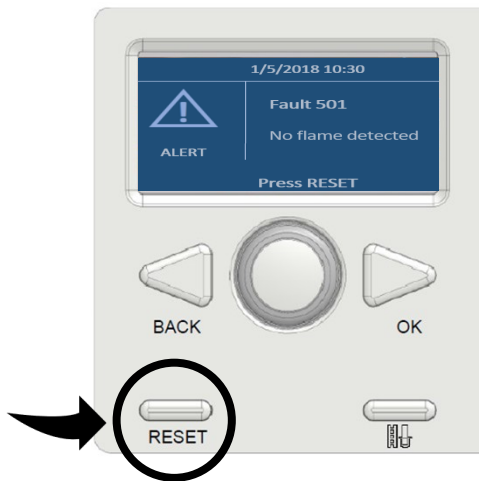
Code	Description	Reason(s)	Fault Location	How to Resolve
1P1	Flow Check 1 Failed	Change in supply temperature of 12.6° F to 27° F in one second	Central Heating operation	The boiler will attempt to correct for 10 seconds
1P2	Flow Check 3 Failed	The supply water temperature is more than 99°F higher than the return water temperature	Central Heating operation	The boiler will attempt to correct for 10 seconds
1P3	Flow Check 4 Failed	The return water temperature is 18° F higher than the supply water temperature	Central Heating operation	The boiler will attempt to correct for 10 seconds
1P4	Filling Needed	Supply pressure is below the warning pressure	Central Heating operation	Raise the supply pressure above the minimum pressure
201	Combi Domestic Hot Water NTC Damaged	The Domestic Hot Water sensor has a short or open circuit	Domestic Hot Water operation	Troubleshoot the Domestic Hot Water sensor
203	Tank NTC Sensor Damaged	The tank probe has a short or open circuit	Domestic Hot Water operation	Troubleshoot the tank probe
303	PCB Fault	PC board software or hardware error	PC Board	Press the Reset button
304	Too Many Reset	The Reset button was pressed more than 5 times in 15 minutes	PC Board	Wait for 15 minutes to elapse without pressing the Reset button
306	PCB Fault	PC Board error	PC Board	Press the Reset button
309	Gas Relay Check Failed	Flame detected for 3 seconds after the gas valve closed	PC Board	Press the Reset button
3P9	Scheduled Maintenance-Call Service	The maintenance timer has expired	PC Board	Reset the monthly timer for the next maintenance interval reminder
501	No Flame Detected	Flame not detected	Flame ignition/detection	Press the Reset button
502	Flame Detected with Gas Valve Closed (False Flame)	Flame detected before the gas valve opened	Flame ignition/detection	Troubleshoot the flame rod, igniter, electrode, and gas valve
504	Flame Lift	Loss of flame during burner operation	Flame ignition/detection	Press the Reset button
5P1	1stIgnit Failed	Flame not detected during the first ignition attempt	Flame ignition/detection	Fault will go away at the end of the second ignition attempt
5P2	2ndIgnit Failed	Flame not detected during the second ignition attempt	Flame ignition/detection	Fault will go away at the end of the third ignition attempt
5P3	Flame Lift	Loss of flame during burner operation	Flame ignition/detection	Fault will go away with proper ignition
612	Fan Error	Fan speed is too high or too low	Fan/Vent	Press the Reset button
1P9	Water Pressure Dynamic Check	No pressure change after 5 seconds of running the pump	Central Heating operation	The boiler will check the pressure for 30 seconds and the error will go away with proper inlet pressure
140	Water Pressure Dynamic Check	Two 1P9 water pressure checks failed	Central Heating operation	Press the Reset button

Reset a Fault Code

- 1** When an error occurs, the fault code and description appear on the display.

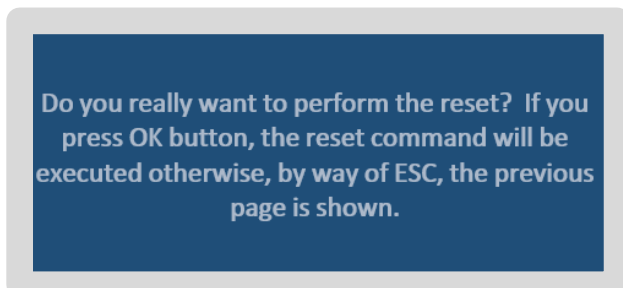


- 2** To reset the fault code, press the **RESET** button.

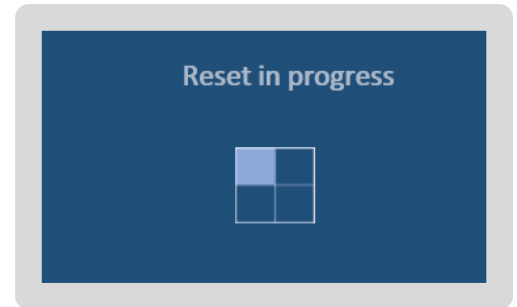


- 3** The following message appears:
Do you really want to perform the reset?

- Press **OK** to reset the error
- Press the **ESC** keyboard button to cancel reset and return to the previous screen



- 4** The **Reset in Progress** message appears.



- 5** The **Fault Solved** message appears.



- 6** After the code is reset, the Home screen automatically appears.



Notes



Learn more about Rinnai high-performance Tankless Water Heaters, Hybrid Water Heating Systems, Boilers, Vent-Free Fan Convectors and EnergySaver® Direct Vent Wall Furnaces at:

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Local, state, provincial, federal and national fuel gas codes must be adhered to prior to and upon installation.

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