

PERFORMANCE DATA

18.07.2023 Tue 22:20:37 CH-1 CH-2 DHW NOT CONNECTED

STATUS
Boiler State In operation for DHW
DHW State Charging, Normal setpoint

OUTDOOR TEMPERATURE 50.1 °F

SYSTEM TEMPERATURE --- °F

INDIRECT STORAGE TEMPERATURE --- °F

ACTIVE SETPOINT: 156.0 °F

SETPOINT: 120.0 °F

ACTUAL: 115.8 °F

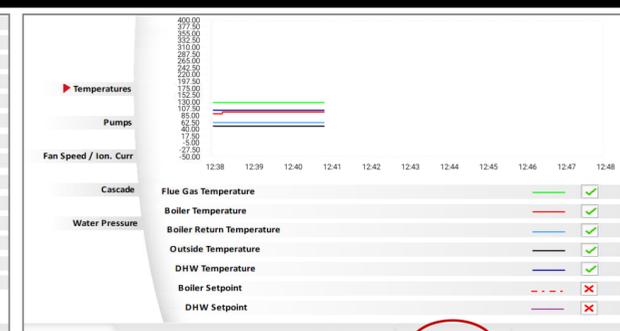
Fan Speed 5491 rpm
Flame Current 1.7 µA
MODULATION: 65 %

PUMP STATUS
Boiler CH-1 DHW

Minimum Fan Speed - LF 1630 RPM
Maximum Fan Speed - HF 6120 RPM
Ignition Fan Speed 3300 RPM
Fan Speed - Actual 0 RPM
Fan Setpoint 0 RPM
Current Fan Control 0 %
Burner Modulation 0 %
Ionization Current 0.0 µA

Boiler State
Boiler Temperature
Pumps
Cascade
History
Info

Room Thermostat CH-1 (H5) Open
Room Thermostat CH-2 (H4) Open
Room Thermostat CH-1 (H4) No Demand
Room Thermostat CH-2 State No Demand
DHW State Charged, nominal temp
0-10V Input (H3) 0.0 V



Rinnai SETUP VIEW GRAPH SERVICE

Rinnai SETUP VIEW GRAPH SERVICE

Rinnai SETUP VIEW GRAPH SERVICE

HOME PAGE:
Left Pane - Provides information about boiler internal temperatures, pressure, date and time.
Center Pane - Displays information about boiler demand, modulation, error messages, setpoint, fan speed, and ionization current. The center pane changes color to show the boiler status: **Dark Gray** - standby; **Light Gray** - Demand; **Red** - Error Code (hard lockout); **Yellow** - Error Code (soft lockout); **Orange** - service reminder. **Right Pane** - Displays information about external devices connected to the boiler (outdoor sensor, system sensor, indirect tank sensor/thermostat, pump status, and Wi-Fi). Press the Rinnai logo to return to the main page (home).

VIEW PAGE:
Boiler State - Displays boiler status including fan speed, modulation, input and output switches state, and fan. **Boiler Temperature** - Displays current boiler temperatures and setpoints. **Boiler Pumps** - Displays pump status, pump speed, and analog output states (0-10V or PWM signals). **Cascade** - Allows the user to monitor cascade system operation from the Master boiler screen. **History** - Provides information about boiler error codes, run hours, ignition cycles, and accumulative error code history. **Info** - Displays device information.

GRAPH PAGE:
Temperatures - Provides options to monitor a selectable number of temperature profiles and setpoint to aid in troubleshooting. **Pumps** - Allows the user to monitor the pump status. **Fan Speed / Ion. Curr.** - Allows the user to monitor fan speed and ionization current to troubleshoot in case of flame failure or fan speed tolerance issue. **Cascade** - Displays actual and setpoint temperature for the cascade system sensor graphically. **Water Pressure** - Allows the user to monitor boiler internal water pressure.

PARAMETERS SETTINGS

Quick Setup

Outdoor Reset Curve

Boiler Setup
CENTRAL HEATING

DHW Setup
CH-1 Boiler Temperature Setpoint 179 °F
CH-2 Boiler Temperature Setpoint 179 °F
Central Heating Switching On Differential 19.9 °F

Pump

Cascade

BMS
DOMESTIC HOT WATER
DHW Setpoint Temperature 120.0 °F
DHW Switching On Differential 9.0 °F

Wi-Fi
Boiler Supply Temperature Offset for DHW 36.0 °F

System

Maintenance

Outdoor Reset Curve

Boiler Setup
DHW Setup
Pump
Cascade
BMS
Wi-Fi
System
Maintenance

Warm Weather Shutdown (All Circuits) 5
Enable Outdoor Reset Curve (All Circuits) On
Boiler Temperature Minimum (CH-1) 86 °F
Boiler Temperature Maximum (CH-1) 180 °F
Outside Temperature Minimum (CH-1) 5 °F
Outside Temperature Maximum (CH-1) 68 °F

Pump Service Mode

Boiler Pump (QX1)
CH-1 Pump (QX2)
DHW Pump (QX3)
No Test

Service Mode
Service Mode: ON OFF
Controller Stop Setpoint: MIN 50 % MAX
80.6 °F

Maintenance
Burner Run Hours Run Since Maintenance 0 Hours
Burner Cycles Since Maintenance 2 Cycles
Time Since Maintenance 0 Months

Output Test
Output Test P1 50 %
Output Test UX2 40 %
Output Test UX3 30 %

Demand Test
CH-1 NO NC
CH-2 NO NC

Rinnai SETUP VIEW GRAPH SERVICE

Rinnai SETUP VIEW GRAPH SERVICE

Rinnai SETUP VIEW GRAPH SERVICE

SETUP PAGE:
To access the SETUP page, the user will be prompted to select the access level and enter password. The password for **Installer** is 9419. The **Technician** and **Engineer** user levels can ONLY be accessed by a Rinnai employee.
For more information on parameter settings, refer to the Rinnai Commercial Boiler Installation and Operation Manual.

SETUP PAGE (Continued):
Outdoor Reset Curve - This page allows the user to select a custom outdoor reset curve based on the heating application (baseboard, hydro-air, or radiant heating). To create a curve, click on the default temperatures shown and enter the desired values for minimum and maximum boiler temperature and minimum and maximum outside temperature. The warm weather shutdown disables the boiler operation for central heating mode when the outside temperature is above this setting.

SERVICE PAGE:
This page can be accessed by any of the users described in the SETUP page. This screen can be used for boiler commissioning. **Pump Service Mode** - The pumps can be manually energized to remove air from the system. **Demand Test** - The room thermostat can be manually activated for a quick boiler operation test. **Service Mode** - This mode can be used during initial start-up to ensure the combustion levels are set properly at minimum and maximum loads. **Maintenance** - This section displays boiler run hours, ignition cycles, and time since last maintenance (which can also be reset from this page). **Service Notes** - this section is used to add notes.

ELECTRICAL DIAGNOSTICS

Connector	Pin	Marking	Description	Voltage	
X1	1	N	Main Power Supply	120V AC	
	2	PE			
	3	L			
	4	L	QX2 / CH Pump	120V AC	
	5	PE			
	6	N			
	7	L1/NO	QX3 / DHW PUMP	120V AC	
	8	PE			
	9	N			
	10	L1/NC	Not Used	QX1 / Boiler Pump	120V AC
	11	L			
	12	PE			
	13	N	AUX2 / Auxiliary Power	120V AC	
	14	L			
	15	PE			
	16	N	Fan Power	120V AC	
	17	L			
	18	P			
	X2	1	L	Gas Valve	120V AC
2		N	Power		
3		L	Spark		
4		N	Generator		
5		Ion	Not used		
X3	-	Ion	Ionization Current	-	
	-	Ion	Ionization Current	-	
X4	1	+15V	Not used	-	
	2	H7	Air Pressure Switch	-	
	3	H3	0-10V Input	-	
	4	RESET	Reset	-	
	5	+5V	Not Used	-	
	6	BX4/B7	Return Sensor	-	
	7	GND	Ground	-	
	8	B2	Supply Sensor	-	
	1	-	Not Used	-	
	2	GND	Not Used	-	
	3	-	Not Used	-	
	4	GND	BX1 / Cascade Sensor	-	

DIAGNOSTIC CODES

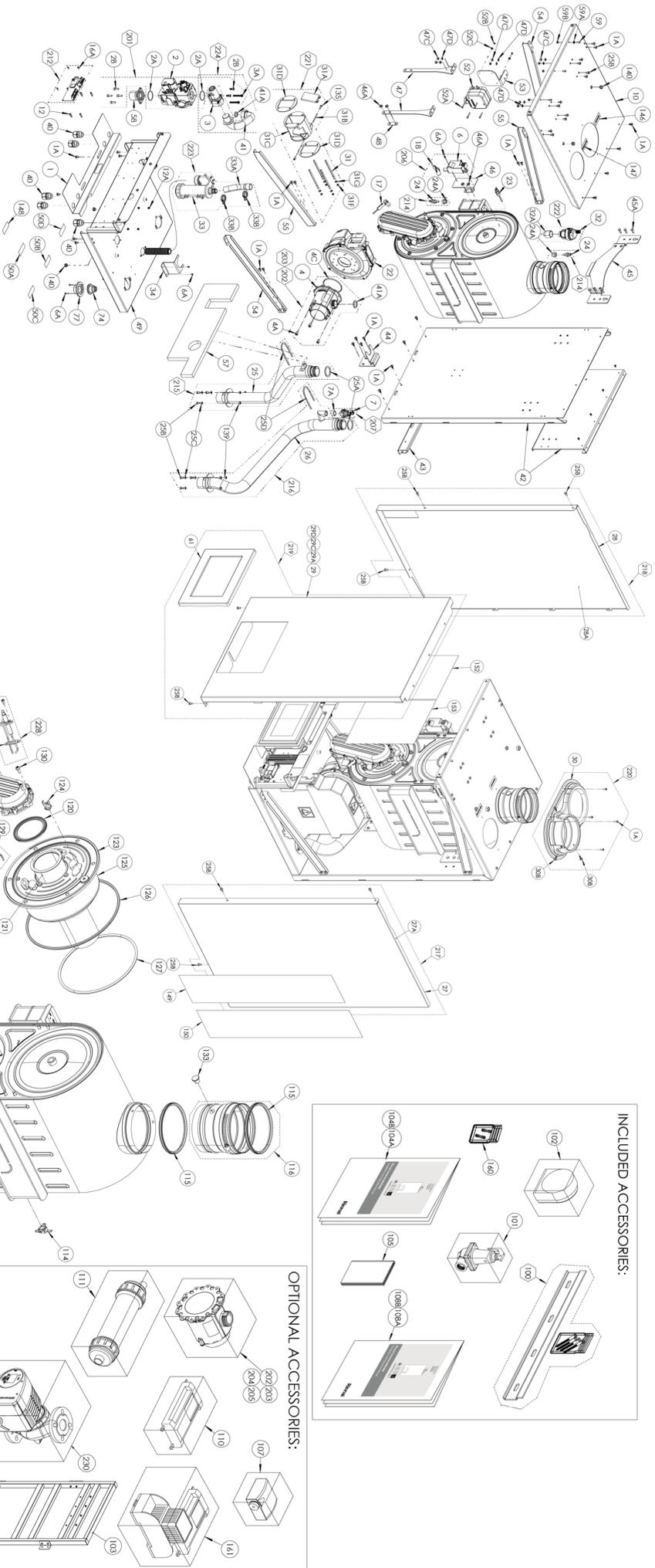
Error Code - Description	Remedies
NOTE: The numbers in parenthesis are diagnostic codes associated with each error codes	
10 Outdoor sensor fault (B9)	The error will auto-reset once the issue is resolved (G10) NOTE: This error code does not prevent boiler operation; however, it will prevent any other error codes to show on the home page. 1- Check the outdoor sensor connection to ensure it is not open/short or disconnected (if not connected, the 2 kOhm resistor should remain in place) - check continuity 2- Check outdoor sensor wiring to ensure it is connected properly (1 kOhm sensor supplied from the factory) - check continuity 3- Check the resistance of the outdoor sensor and compare to the value shown on the resistance value table 4- Replace the outdoor sensor if malfunction is detected 5- If the issue persists, replace the main control board
	The error will auto reset once the issue is resolved (unless the diagnostic code is 2- manual reset required) 1- Check supply temperature sensor wiring to ensure it is connected properly (10 kOhm sensor) - check continuity 2- Check supply temperature sensor to ensure it is not short or open (2) 3- Check the resistance of the supply temperature sensor and compare to the value shown on the resistance value table (737, 591, 249, 552) 4- Replace the supply temperature sensor if malfunction is detected. 5- If the issue persists, replace the main control board
	The error will auto-reset once the issue is resolved NOTE: This error code does not prevent boiler operation; however, it will prevent any other error codes to show on the home page. 1- Check cascade temperature sensor wiring to ensure it is connected properly (10 kOhm sensor) 2- Check cascade temperature sensor to ensure it is not short or open 3- Check the resistance of the cascade temperature sensor and compare to the value shown on the resistance value table 4 of the I/O manual. The cascade temperature sensor is ONLY required on the Master boiler. Confirm the cascade address is set correctly. Ensure the cascade sensor is set correctly on SETUP - cascade setup page. If everything is set correctly, use the save sensor option on SETUP - system setup to configure this sensor. 4- Replace the supply temperature sensor if malfunction is detected. 5- If the issue persists, replace the main control board
	The error will auto reset once the issue is resolved (unless the diagnostic code is 0 or 540 - manual reset required) 1- Check flue gas temperature sensor wiring to ensure it is connected properly (10 kOhm sensor) - check continuity 2- Check flue gas temperature sensor to ensure it is not short (543 or 0) or open (544 or 540) 3- Check the resistance of the flue gas temperature sensor and compare to the value shown on the resistance value table 4- Replace the flue gas temperature sensor if malfunction is detected 5- If the issue persists, replace the main control board
	The error will auto reset once the issue is resolved (unless the diagnostic code is 0- manual reset required) 1- Check return temperature sensor wiring to ensure it is connected properly (10 kOhm sensor) - check continuity 2- Check return temperature sensor to ensure it is not short (441) or open (442) 3- Check the resistance of the return temperature sensor and compare to the value shown on the resistance value table (52, 738, 250, 0) 4- Replace the return temperature sensor if malfunction is detected. 5- If the issue persists, replace the main control board
50 DHW temperature sensor/thermostat fault (B3)	The error will auto-reset once the issue is resolved (55) NOTE: This error code does not prevent boiler operation; however, it will prevent any other error codes to show on the home page. 1- Check what type of device is used to control the indirect tank temperature (sensor or aquastat). Verify that the settings on the boiler (SETUP-DHW Setup) matches the application 2- Check the DHW temperature sensor connection to ensure it is not open or not connected (if an aquastat is being used ensure the correct setting is used) 3- Check DHW temperature sensor wiring to ensure it is connected properly (10 kOhm sensor) - check continuity 4- Check the resistance of the DHW temperature sensor and compare to the value shown on the resistance value table 5- Replace the DHW temperature sensor / Aquastat if malfunction is detected 6- If the issue persists, replace the main control board

Note: PE = Ground

Important Safety Notes: A number of (live) tests are required when performing electrical diagnostics on this product. Proceed with caution at all times to avoid contact with energized components inside the boiler. Only trained and qualified service technicians should attempt to repair this product. Before checking for resistance readings, disconnect the power source to the unit and isolate the item from the circuit (unplug it).

DIAGNOSTIC CODES

Error Code - Description	Remedies
NOTE: The numbers in parenthesis are diagnostic codes associated with each error codes	
81 LPB short-circuit or no bus power supply	The error will auto-reset once the issue is resolved (G7) 1- Check cascade communication cable to ensure the wires are not shorted 2- Ensure the cable connection from cascade module to the main control board is connected properly and secured 3- If the problem persists and the unit is not cascaded with other units, disconnect the cascade module from the main controller. NOTE: LPB is the cascade bus (the power comes directly from the main controller)
	The error will auto-reset once the issue is resolved (G7) NOTE: This error code will ONLY happens if there are two or more units connected with each other. 1- Check to ensure the cascade addresses for the units in the cascade system are unique. For instance if there are one or more units set as Master, the LPB address collision error code will be displayed.
82 LPB address collision	The error will auto reset once the issue is resolved (595) NOTE: BSB is the communication between the Webserver card/Wi-Fi Module and LMS is not jumped or disconnected. 1- Ensure the wiring from the Webserver card/Wi-Fi Module and main controller.
	The error will auto reset once the issue is resolved (G18) NOTE: This error code should only happen during flashing of the main controller at the factory. 1- Loss of data on EEPROM - replace the main control board
83 BSB-Wire short-circuit or no communication	The error will auto reset once the maintenance interval has been reset (87) 1- Perform the boiler service as recommended by the manufacturer 2- Once the service has been performed, access the SERVICE page and perform a maintenance reset.
	This error code requires a manual reset 1- Boiler return temperature not possible (< 32°F [0°C]) - (424) 2- Boiler supply temperature not possible (< 32°F [0°C]) - (422) 3- Boiler supply temperature not possible (> 255°F [124°C]) - (422, 809) 4- Safety Limit Thermostat (SLT) is open (551, 412) - check continuity of thermofuse, burner door switch and jumper on high voltage terminal block 5- Boiler return temperature > 208°F (98°C) - (425) 6- Boiler Supply Temperature > 208°F (98°C) - (419, 430, 432) 7- Boiler temperature rises faster than allowed (5.4°F [3°C]) - (426, 437) 8- Reset criteria (Boiler temperature less than boiler temperature setpoint and Delta-T less than 72°F [40°C] for error 426 not reached) - (427) 9- Delta-T difference between supply and return is higher than 101°F (55°C) - (428) 10- Reset criteria (Delta-T less than 36°F [20°C] after error 433 not reached) - (429) 11- Boiler return temperature is higher than boiler supply temperature + 27°F (15°C) - (420, 431) 12- Boiler return temperature is higher than/equal to boiler supply temperature + 31°F (17°C) - (420) 13- Supply temperature increase after the burner is off - residual heat - (436) 14- Delta-T (difference between supply and return is greater than 72°F [40°C]) - (433, 438)
91 Data loss in EEPROM	The error will auto reset once the supplied temperature is below 203°F (95°C) (264) 1- Supply temperature has exceeded 203°F (95°C) (264)
	The error will auto reset once the water pressure decreases to less than 83 PSI (5.7 bars) (566) 1- Ensure the water pressure in the system does not exceed 87 PSI (6 bar). This is very unlikely since the maximum setting on the factory supplied pressure relief valve is 75 PSI. 2- If the actual pressure in the system has been confirmed to be below 87 PSI, replace the water pressure sensor.
105 Maintenance message	The error will auto reset once the water pressure is at least 16 PSI (1.1 bar) (566) NOTE: The boiler will reduce the output power when pressure in the system is between 12 PSI (0.8 bar) - 20 PSI (1.4 bar). The boiler will continue to operate and an error code will be displayed on the home screen. When the pressure increases above 20 PSI (1.4 bar) the error will disappear. If the pressure decreases below 12 PSI (0.8 bar) the boiler will shut-down and keep the error code. 1- Ensure the water pressure in the system is at least 12 PSI (0.8 bar). Check the pressure setting on the water auto feed to the boiler loop. Check for water leaks in the system piping. 2- If the pressure in the system is still below 12 PSI (0.8 bar), replace the water pressure sensor.
	The error will auto reset once the boiler supply temperature decreases below 203°F (95°C) minus the boiler switch on differential, 20°F (11°C) - default settings. NOTE: The boiler will start reducing the firing rate when supply temperature reaches 190°F (88°C) 1- The boiler temperature has reached 203°F (95°C) (286, 500, 740) 2- No temperature change on supply sensor after flame (501) 3- No temperature change on return sensor after flame (502)
110 SLT lock-out SLT - Safety Limit Thermostat (electronic)	This error code requires a manual reset 1- Loss of flame in operation (625) 2- Ionization current has fallen below 0.8uA (854) 3- Ensure the boiler electrical connection is properly grounded to the ground source. 4- Monitor the gas pressure to the unit while in operation. The gas pressure should be within the limits specified in this manual. 5- Check the flame signal on the display. It should be above 0.8uA when the burner is lit. The flame current should be stable after the boiler has been firing for at least one minute and it is normally between 3 - 7uA. If the flame current is less than 0.8uA, disassemble the burner door and check the ionization probe quality and distance to the burner (clean if necessary).
	This error code will automatically reset if the issue is resolved within 10 minutes. Otherwise a manual reset is required. 1- Ensure the proper setting is being used for the flue pipe venting material. If the flue temperature for the application is higher than 149°F (65C), vent material other than PVC must be used and the setting for the flue gas temperature limit must be set to other on the controller (SETUP-Boiler Setup). 2- The control will limit the flue temperature to 149°F (65°C) for PVC pipe and 207°F (97°C) for other venting materials. The boiler will automatically start to modulate when the vent temperature reaches 140°F (60°C) for PVC and 194°F (90°C) for other venting material. The control will shut down and monitor the vent temperature for 10 minutes. If the temperature exceeds the value shown here after 10 minutes the control will lock-out. 3- Check flue gas temperature resistance and compare to the value listed on the resistance table 4- Ensure the correct gas type is used. If the unit is Natural Gas and Propane gas is connected to the unit this will cause boiler overheating and unsafe conditions.
111 Temperature limiter safety shut-down	This error code requires a manual reset 1- The boiler failed to ignite four times during on heat call (625). 2- Check electrical connection to the unit and check for proper grounding and polarity. 3- Ensure the gas valve power switch is in the ON position. 4- Check the ignition transformer wiring connection for reverse polarity. 5- Check for sparks through the sight glass on the burner door. 6- If there is spark but no flame, monitor the static gas pressure to ensure it is within the limits specified in this manual. 7- Check for vent or condensate blockage. 8- If the problem persists, remove the burner door and inspect the ignition electrodes (check for gaps and distance to the burner. Clean if necessary)
	This error requires a manual reset Internal error on the main controller (630) 1- Error at closing (330) or opening (331) ignition relay 2- Error at closing (332) or opening (333) gas valve relay 1 3- Error at closing (336) or opening (337) the safety relay 4- Replace the main controller
117 Water pressure too high (H1)	This error happens when setting parameters on the main controller. For instance, if the fan speeds are not set within the min and max range set on the main controller.
	This error code requires a manual reset (press reset button for less than 10 seconds) 1- Unit manually locked (reset button pressed more than 10 seconds)
118 Water pressure too low (H1)	This error code requires a manual reset NOTE: These error codes happen in case the impeller on the fan gets stuck. 1- Fan speed threshold not reached: home run (377) 2- Fan speed threshold not reached: standby (378) 3- Fan speed threshold not reached: ignition (379) 4- Fan speed threshold not reached: pre-purge (380) 5- Fan speed threshold not reached: post-purge (381) 6- Fan speed threshold not reached: in operation (233, 749)
	This error code requires a manual reset (9) 1- Air pressure switch is normally closed and will open in case of condensate or vent blockage. 2- Check the pressure switch wiring - check continuity. 3- Check vent pipe and condensate trap for blockage. Disconnect the hose from the air pressure switch and check for operation. If the unit operates normal, either condensate on vent pipe is blocked. If the unit does not operate check pressure switch. 4- Check the pressure switch wiring to ensure it is normally closed when the unit is on standby. 5- If the issue persists check replace the air pressure switch.
125 Maximum boiler temperature exceeded	This error code requires a manual reset 1- Unit in parameterization mode (301) 2- Unit in parameterization mode (770 - parameter stick)
	This error code requires a manual reset NOTE: This error code happens when the power frequency is out of the range [42 Hz - 72 Hz] 1- Mains frequency outside specification (275, 461)
128 Loss of flame in operation (10 times)	This error code requires a manual reset NOTE: On a cascade system, a cascade temperature sensor is required to be installed on the system loop. Once a sensor is connected to the unit, the main controller recognized the sensor. If the sensor gets disconnected this error code will be shown. If the unit is no longer set as a cascade, the sensor must be disabled from the cascade setup menu, and save sensor function must be applied from the system setup menu. 1- Cascade temperature sensor missing (B10) (139)
	This error code requires a manual reset (625) NOTE: This error code happens if unit detects fan while the gas valve is not energized (false flame)
130 Flue gas temperature maximum limit exceeded (BX3)	This error code will auto-reset once the voltage is back within the range NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset 1- Short-circuit of ionization electrode (765, 766). The ionization current is shorted to ground. 2- Check the condensate trap to ensure the condensate is draining properly. If there is water in the heat exchanger in contact with the ionization electrode this error code will appear.
133 Safety time for establishment of flame exceeded (4 times)	This error code will auto-reset once the frequency is back within the range NOTE: This error code happens when the power frequency is out of the range [42 Hz - 72 Hz] 1- Mains frequency outside specification (275, 461)
	This error code requires a manual reset NOTE: On a cascade system, a cascade temperature sensor is required to be installed on the system loop. Once a sensor is connected to the unit, the main controller recognized the sensor. If the sensor gets disconnected this error code will be shown. If the unit is no longer set as a cascade, the sensor must be disabled from the cascade setup menu, and save sensor function must be applied from the system setup menu. 1- Cascade temperature sensor missing (B10) (139)
151 BMU internal fault	This error code requires a manual reset (625) NOTE: This error code happens if unit detects fan while the gas valve is not energized (false flame)
	This error code requires a manual reset NOTE: These error codes happen in case the impeller on the fan gets stuck. 1- Fan speed threshold not reached: home run (377) 2- Fan speed threshold not reached: standby (378) 3- Fan speed threshold not reached: ignition (379) 4- Fan speed threshold not reached: pre-purge (380) 5- Fan speed threshold not reached: post-purge (381) 6- Fan speed threshold not reached: in operation (233, 749)
152 Parameterization error	This error code requires a manual reset NOTE: On a cascade system, a cascade temperature sensor is required to be installed on the system loop. Once a sensor is connected to the unit, the main controller recognized the sensor. If the sensor gets disconnected this error code will be shown. If the unit is no longer set as a cascade, the sensor must be disabled from the cascade setup menu, and save sensor function must be applied from the system setup menu. 1- Cascade temperature sensor missing (B10) (139)
	This error code requires a manual reset (9) 1- Air pressure switch is normally closed and will open in case of condensate or vent blockage. 2- Check the pressure switch wiring - check continuity. 3- Check vent pipe and condensate trap for blockage. Disconnect the hose from the air pressure switch and check for operation. If the unit operates normal, either condensate on vent pipe is blocked. If the unit does not operate check pressure switch. 4- Check the pressure switch wiring to ensure it is normally closed when the unit is on standby. 5- If the issue persists check replace the air pressure switch.
153 Unit manually locked	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
160 Fan speed threshold not reached	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
162 Air pressure switch does not close	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
183 Unit in parameterization mode	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
217 Sensor fault	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
317 Grid frequency OOR	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
353 Cascade temperature sensor missing (B10)	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
384 Extraneous light	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
385 Main undervoltage	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
386 Fan speed tolerance	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)
	This error code requires a manual reset NOTE: This error code happens when the voltage is out of the range [102V -132V] 1- Voltage outside of the range (554, 555)



ITEM	DESCRIPTION	PART NUMBER	RCB301	RCB399
1	Bottom Plate w/ Electrical Connection	809000281	1	1
1A	Screw, DIN 7981 4.8x9.5 (F-H) Gal	809000203	11	11
2	Gas Valve	N/A	1	1
2A	O-Ring 33X2	809000204	1	1
2B	Screw M5 X 12mm, DIN 912	809000205	10	10
3	Throttle Flange	806000059	1	1
3A	Screw M5 X 35mm, DIN 912	809000267	2	2
4	Venturi 301 NG	N/A	1	1
4A	Venturi 399 NG	N/A	1	1
4C	Screw M6 X 12mm, DIN 912	809000268	3	3
4C	O-Ring 70X3	809000206	1	1
6	Ignition Transformer	N/A	1	1
6A	Screw, DIN 7981 3.5x6.5 (F)	809000207	10	10
7	Water Pressure Sensor	N/A	1	1
7A	O-Ring, Water Pressure Sensor	809000208	1	1
10	Top Plate	809000209	1	1
11	Main Control LMS14	N/A	1	1
11A	Screw, DIN 7981 3.5x9.5 (C-H)	809000210	4	4
12	Standoff, M3	809000048	4	4
12A	DIN 6923 Flange Nut M3	809000371	4	4
13		N/A		
14	HMI Touch Panel	N/A	1	1
15B	Plastic Washer 4.8	809000211	2	2
16	Power Supply 24VDC	809000125	1	1
16A	Screw M3 X 8mm	809000075	4	4
17	Ignition Electrode Cable	809000126	1	1
18	Ignition Electrode Cable	809000127	1	1
19	Reset Button	809000128	1	1
20	Gas Valve Power Switch	809000129	1	1
22	Blower w/ O-Ring	809000040	1	1
23	Flue Temperature Sensor	809000131	1	1
24	Supply and Return Temperature Sensor	809000139	2	2
24A	Supply and Return Temperature Sensor Adapter	N/A	2	2
25	Heat Exchanger Supply Pipe	N/A	1	1
26	Heat Exchanger Return Pipe	N/A	1	1
25A	Heat Exchanger Pipe O-Ring	809000213	1	1
25B	Screw M5 X 10mm	809000301	6	6
25C	Washer, Serated A5.3 DIN 6798	809000269	6	6
25D	Heat Exchanger Pipe Mounting Clip	809000214	2	2
27	Right Side Panel	N/A	1	1
27A	Right Side Sealing Foam	N/A	1	1
28	Left Side Panel	N/A	1	1
28A	Left Side Sealing Foam	N/A	1	1
29	Front Panel	N/A	1	1
29A	Front Panel Sealing Foam Top	N/A	1	1
29C	Front Panel Sealing Stripe	N/A	2	2
29D	Front panel Sealing Foam Bottom	N/A	2	2
30	Vent Top	N/A	1	1
30B	Screw 4.8 X 25mm SS Panhead PH2	809000304	3	3
31	Threaded Rod For Check Valve	809000223	4	4
31A	Check Valve Pin	N/A	1	1
31B	Check Valve Pin	N/A	1	1
31C	Check Valve Body	N/A	1	1
31D	Check valve/ Blower Gasket	809000224	2	2
31F	Nut, M5 DIN 934	809000272	4	4
31G	Serrated Washer A5.3 DIN6798	809000269	4	4
32	Automatic Air Vent	N/A	1	1
32A	Automatic Air Vent Adapter	N/A	1	1
33	Condensate Trap	N/A	1	1
33A	Condensate Trap Inlet Hose	807000033	1	1
33B	Condensate Hose Clip	809000226	2	2
34	Condensate Trap Bracket	809000227	1	1
35	Main Control Top Cover	N/A	1	1
35A	Screw, DIN 7981 2.9x13	809000270	1	1
35B	Main Control Cover Warning Label	N/A	1	1
36	Main Controller Back Cover	N/A	1	1
37	Main Control Front Cover	N/A	1	1
38		N/A		
38B		809000234	1	1
39	PG16 Cable Gland	809000235	5	5
40	PG11 Cable Gland	806000062	1	1
41	Flexible Gas Pipe WP13/4 - G1	809000236	1	1
41A	Gasket - venturi	809000237	1	1
42	Back Panel	809000238	1	1
43	Bottom Support - Back	809000239	1	1
44	Heat Exchanger Mounting Plate	809000240	1	1
45	Heat Exchanger Mounting Plate	809000240	1	1
45A	Screw, M6X16 CV-6K DIN 933-8-82NSM/TCA	809000241	1	1
46	Ignition Transformer Plate	809000242	1	1
46A	Flange Nut - M6, DIN 6923	809000274	8	8
47	Washer, Serated A5.3 DIN 6798	809000269	8	8
47C	Nut, M6 DIN 934	809000272	2	2
47D	Nut, M6 DIN 934	809000269	8	8
48	Heat Exchanger Front Support Spacer	809000243	1	1
49	Bottom Plate - 301	809000244	1	1
49	Bottom Plate - 399	809000245	1	1
50A	Label, Gas	809000246	1	1
50B	Label, Condensate	809000247	1	1
50C	Label, Return	809000248	1	1
50D	Label, Supply	809000249	1	1
50E	Label, Low Voltage Terminals	809000250	1	1
50F	Label, High Voltage Terminals	809000251	1	1
52	Flue Pressure Switch	809000134	1	1
52A	Screw, M3 X 25mm, DIN/EN ISO 7045	809000252	4	4
52B	Nut, M3 DIN934 GxHx.8	809000302	4	4
52C	Washer, Serated A3 DIN 6798	809000303	4	4
53	Pressure Switch Support	809000253	2	2
54	Gusset, Right	809000254	2	2
55	Gusset, Left	809000255	2	2
57	Hand Protector, Sponge	809000257	1	1
58	Gas Valve Inlet Flange	809000258	1	1
59	Front Cover Mounting Pin	809000259	3	3
59A	Washer 4.3 DIN 6798	809000275	3	3
59B	Nut, M4, DIN 934	809000276	3	3
60	Grounding Bus Bar	809000135	2	2
60A	Screw, DIN 7981 2.9x13	809000270	2	2
61	HMI Touch Panel Bezel	809000260	1	1
62	HMI Touch Panel Bracket	N/A	1	1
63	Screw, Terminal Grey	N/A	43	43
66	Terminal Stopper	N/A	1	1
67	Terminal End Plate	N/A	1	1
68	Terminal Numbering Label 1-50	N/A	1	1
69	Terminal Rail 120mm	N/A	2	2
71	Gas Valve Adjustment Hole Gasket	809000265	1	1
72	Rectangular Shape Gasket	809000266	1	1
73	PG 11 Blind Cap	809000279	1	1
73A	PG 11 Blind Cap Nut	809000280	1	1
74	Condensate Outlet Pipe Gasket	N/A	1	1
75	HMI Touch Panel Mounting Hinge Left	N/A	1	1
76	HMI Touch Panel Mounting Hinge Right	N/A	1	1
77	Condensate Outlet Adapter	809000202	1	1
78	X1 Main Power Cable	805000099	1	1
79	X1 CH Pump Cable	805000099	1	1
80	X1 DHW Pump Cable	805000100	1	1
81	X1 Boiler Pump Cable	805000101	1	1
82	X1 AUX2/Auxiliary Power Cable	805000102	1	1
83	X1 AUX1/Blower Power Cable	805000103	1	1
84	X2 Gas Supply & Ignition Transformer Cable	805000104	1	1
85	10V Input Cable	805000105	1	1
86	X5 System Temp. Sensor Cable	805000106	1	1
87	X5 BX2 Supply Temperature Sensor Cable	805000107	1	1
88	X5 Flue Temperature Sensor Cable	805000108	1	1
89	X5 B9 Outdoor Temperature Sensor Cable	805000110	1	1
90	X5 B3/38 DHW Sensor Cable	805000111	1	1
91	X6 H15 Water Pressure Sensor Cable	805000112	1	1
92	X6 H5 Room Thermostat 1 & 2 Cable	805000113	1	1
94	X8 Blower PWM Signal Cable	805000114	1	1
95	X10 UVZ/3 0-10V Output Cable	805000115	1	1
96	X15 Pump PWM Signal Cable	N/A	1	1
97	X17 Grounding Cable	805000117	1	1
98	X18 Limit Thermostat Circuit Cable	805000118	1	1
99	Ignition Transformer & Ignition Electrode Grounding Cable	809000138	1	1
100	Wall Mounting Bracket (with screws)	807000224	1	1
101	Pressure Relief Valve, 7.5 PSI	805000099	1	1
102	Outdoor Temperature Sensor	809000047	1	1
103	RCB Floor Stand	809000017	1	1
104	RCB I/O Manual English	800000172	1	1
104A	RCB I/O Manual French	800000166	1	1
104B	RCB I/O Manual Spanish	800000167	1	1
105	RCB Technical Data Sheet	803000051	1	1
106	Air Inlet Filter	803000051	1	1
107	Cascade System Sensor	800000173	1	1
108A	RCB User Manual English	800000138	1	1
108B	RCB User Manual French	803000078	1	1
110	BACnet Adapter	804000074	1	1
111	Condensate Neutralizer	806000069	6	6
112	Nut M6	806000068	1	1
113	Insulation	805000140	1	1
114	Thermo-fuse	802000012	1	1
115	Flue Outlet Gasket	802000011	1	1
116	Flue Outlet Adapter 4 inch + Gasket	805000141	4	4
117	Electrode Screw	N/A	1	1
118	Ignition Electrode	805000143	1	1
119	Ignition Electrode Gasket	806000070	1	1
120	Burner Gasket	806000071	1	1
121	Fiber Burner - 301	806000072	1	1
122	Fiber Burner - 399	806000073	1	1
123	Equipped Burner Door	806000073	1	1
124	Door Thermo Fuse	805000144	1	1
125	Door Insulation	806000074	1	1
126	Door Gasket	806000075	1	1
127	Fiber Bezel	806000076	1	1
128	Ignitization Electrode	N/A	1	1
129	Ignitization Electrode Gasket	805000146	1	1
130	Air/Gas Inlet Pipe Screw	806000077	5	5
131	Equipped Air/Gas Inlet Pipe	806000078	1	1
133	Flue Test Port Plug	806000080	2	2
135	Flipper Body, Screw, M4 X12 DIN912	806000080	1	1
137	Cascade Module	805000148	1	1
138	Cascade Module Cable	806000149	1	1
139	Nut, M5 DIN 934	809000272	6	6
140	UNF 3/8" Cover Bolt	809000284	4	4
143	Terminal Group Label	809000287	2	2
144	Ground Busbar Connection Cable	809000288	3	3
145	Terminal Busbar Connection Cable	809000289	5	5
146	Exhaust Label144	809000290	1	1
147	Air Intake Label	809000291	1	1
148	Reset Button Label	809000292	1	1
149	Warning Label	809000293	1	1
150	Gas Conversion Kit NG to LP - 301	809000294	1	1
152	Ladder Diagram Label	809000295	1	1
153	Wiring Diagram Label	809000296	1	1
154	Terminal Lumper	809000297	2	2
155	Condensate Pipe gasket	N/A	1	1
157	Lumberg 2 Pin Connector	809000299	1	1
159	RCB Carton Box-Wall (Not Shown)	809000283	1	1
160	Spare Fuses (6.3 Amps)	803000057	2	2
161	BACnet Adapter with LonWorks	803000080	1	1
162	Gas Conversion Kit LP to NG - 301	803000053	1	1
202	Gas Conversion Kit LP to NG - 399	803000054	1	1
203	Gas Conversion Kit LP to NG - 399	803000049	1	1
204	Gas Conversion Kit NG to LP - 301	803000048	1	1
205	Gas Conversion Kit NG to LP - 399	803000049	1	1
206	Ignition Transformer Kit	803000055	1	1
207	Water Pressure Sensor Kit	803000056	1	1
210	Main Control Kit - 301 - Programmed	803000057	1	1
211	Main Control Kit - 399 - Programmed	803000058	1	1
212	W-F-I Kit	803000098	1	1
213	HMI Kit	803000060	1	1
202	Gas Conversion Kit LP to NG - 301	803000054	1	1
203	Gas Conversion Kit LP to NG - 399	803000054	1	1
204	Gas Conversion Kit NG to LP - 301	803000048	1	1
205	Gas Conversion Kit NG to LP - 399	803000049	1	1
206	Ignition Transformer Kit	803000055	1	1
207	Water Pressure Sensor Kit	803000056	1	1
210	Main Control Kit - 301 - Programmed	803000057	1	1
211	Main Control Kit - 399 - Programmed	803000058	1	1
212	W-F-I Kit	803000098	1	1
213	HMI Kit	803000060	1	1
214	Supply / Return Sensor Kit	803000061	1	1
215	Supply Pipe Kit	803000062	1	1
216	Return Pipe Kit	803000063	1	1
217	Right Panel Assembly Kit	803000064	1	1
218	Left Panel Assembly Kit	803000065	1	1
219	Front Panel Assembly Kit	803000066	1	1
220	Vent Top Assembly Kit	803000067	1	1
221	Check valve Assembly Kit	803000068	1	1
222	Air Vent Kit	803000069	1	1
223	Condensate Trap Assembly Kit	803000070	1	1
224	Gas Valve Throttle Kit	803000071	1	1
225	Terminal Strip Kit	803000072	1	1
226	Burner Door Assembly - 301	803000073	1	1
227	Burner Door Assembly - 399	803000074	1	1
228	Ignition Electrode Assembly	803000075	1	1
229	Ignitization Electrode Kit	803000076	1	1
230	Magna 3 40-120 CF Pump	807000361	1	1