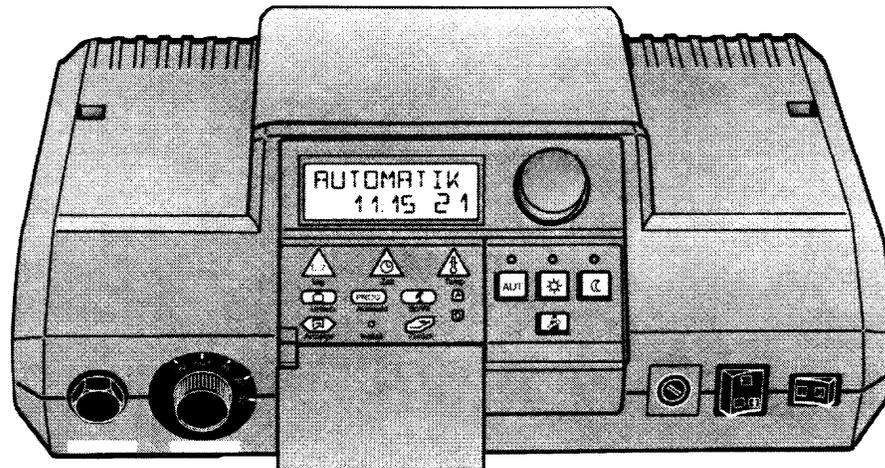


Operating Instructions

Logamatic R 2107



Save These Instructions !

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The Logamatic R2107 control system is designed for residential homes and small commercial applications. The R2107 provides weather responsive control of a low temperature hot water boiler. The base version of the control can operate one heating circuit on constant circulation and any number of zones with conventional heating controls, an indirect fired domestic water (DHW) heater and a DHW recirculation pump. The optional module FM241 provides independent control of a lower temperature heating circuit using a motorized 3- or 4-way mixing valve for use in radiant floor applications. Module FM242 provides staging control for a dual boiler or two stage burner system. Alternatively, it can operate a modulating burner.

The Logamatic R2107 controls the entire system based on your specific heating requirements. The display panel can be adjusted for ease of viewing. The display shows system status during the initial set-up procedure and operation.

Concept of Operation

The operating principle of the control is: “**First PRESS and HOLD a function button then TURN the dial**”. Each button has a specific function. To change a value, first press and hold that button. The display shows the function and its current value. Turn the dial to the new desired value. The new value is stored upon release of the button.

The control resumes automatic operation if no changes are made within 5 minutes. The standard display appears again, indicating time, day of the week, current status of system components and mode of operation.

The R2107 can be equipped with the following features:

- Two channel programmable clock with a weekly heating schedule.
- Choice of 8 factory standard heating programs or fully customized program.
- Easy modification of any factory program to suit individual needs.
- Vacation program.
- Permanent memory of all program settings after power interruption.
- Temporary memory of time and date after power outage.
- Priority domestic hot water (DHW) heating.
- DHW heating starts 30 minutes before day mode space heating operation (Can be set for 24 hrs).
- Periodic or continuous operation of a DHW recirculation pump.
- Three minute post-purge operation for space and DHW heating circulators.
- Freeze protection function.
- Condensate protection (Pump Logic).
- Periodic operation of pumps during summer/vacation to prevent pump seizures.
- Automatic summer/winter change-over.
- Self-diagnostic capability with automatic display of system malfunction.
- Capillary high limit and high limit reset for added safety.
- Manual override switch for space and DHW heating for emergency operation

2 Safety Information

Read these operating instructions thoroughly before start-up. All work which involves opening the control panel must be carried out by a trained technician.

Power must be turned off before opening the control panel. Turn off the system emergency switch outside the boiler room in case of an emergency.

Have malfunctions repaired immediately by a trained technician. Make sure your heating contractor shows you how to operate the system.

Warning! Hot water can scald! Always turn on the cold tap first and then mix in hot water. A thermostatic or tempering valve is strongly recommended on the DHW outlet piping for anti-scald protection.

Freeze protection: The freeze protection is activated when the control is turned on.

Have a heating contractor drain the water in the boiler, storage tank and pipes if the system is not to be used in freezing conditions.

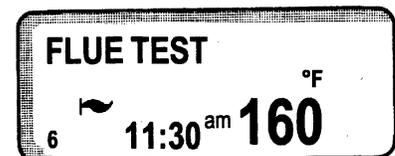
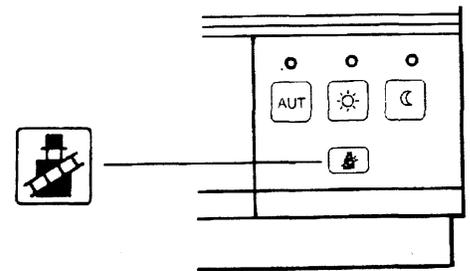


3 Burner Test Procedure

The R2107 is equipped with a test button to manually operate the burner without circulator operation. The following procedure must be followed:

- Turn the control panel on.
- Press the **CHIMNEY SWEEP** button once and hold for 1 second. The display will show “**FLUE TEST**”, current time and the boiler water temperature. The burner fires without circulators coming on. The burner runs up to the setting on the adjustable boiler aquastat. The control panel automatically returns back to the previous operating mode after 30 minutes.
- Press the **CHIMNEY SWEEP** button again to interrupt or stop the burner operation test.

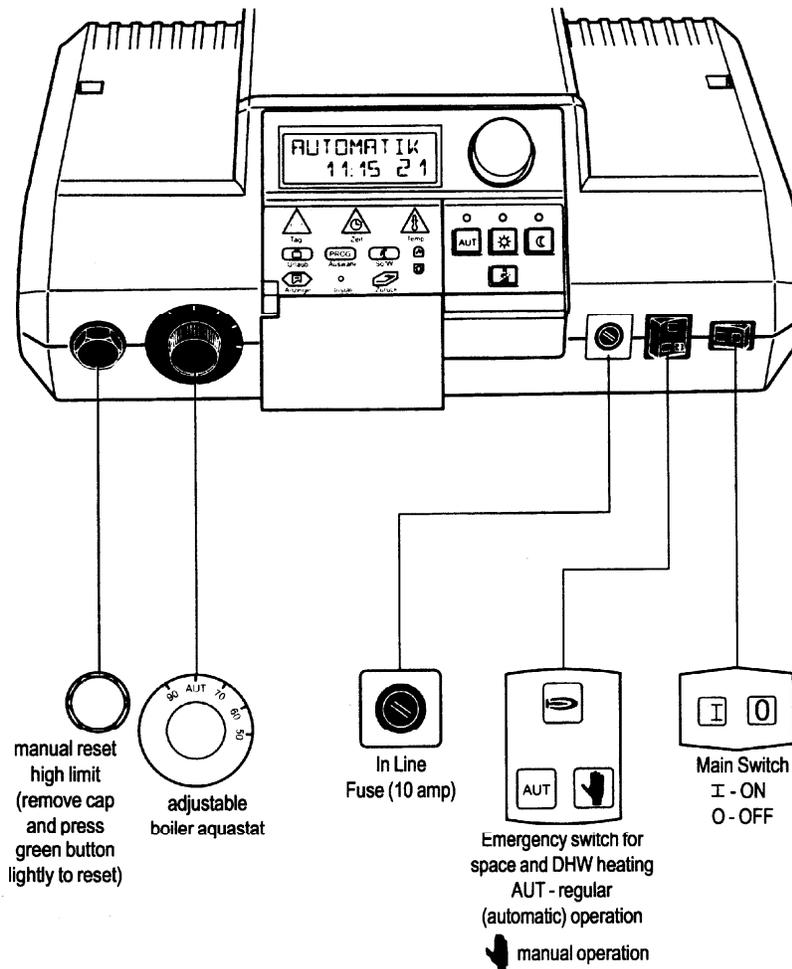
Caution: Do not run domestic hot water during test if anti-scald protection is not in place! Risk of scalding!



The Logamatic R2107 has 2 operating levels. The control operates in the first level where the homeowner can adjust desired day and night room temperatures on regular thermostats, on the R2107 control or on the optional room sensor(s). The display indicates system status, time, day of the week and desired room temperature.

The second level is accessible by opening the cover flap below the display. The homeowner can customize the control, check and modify the heating program, observe system parameters, set the vacation schedule and alter some other settings.

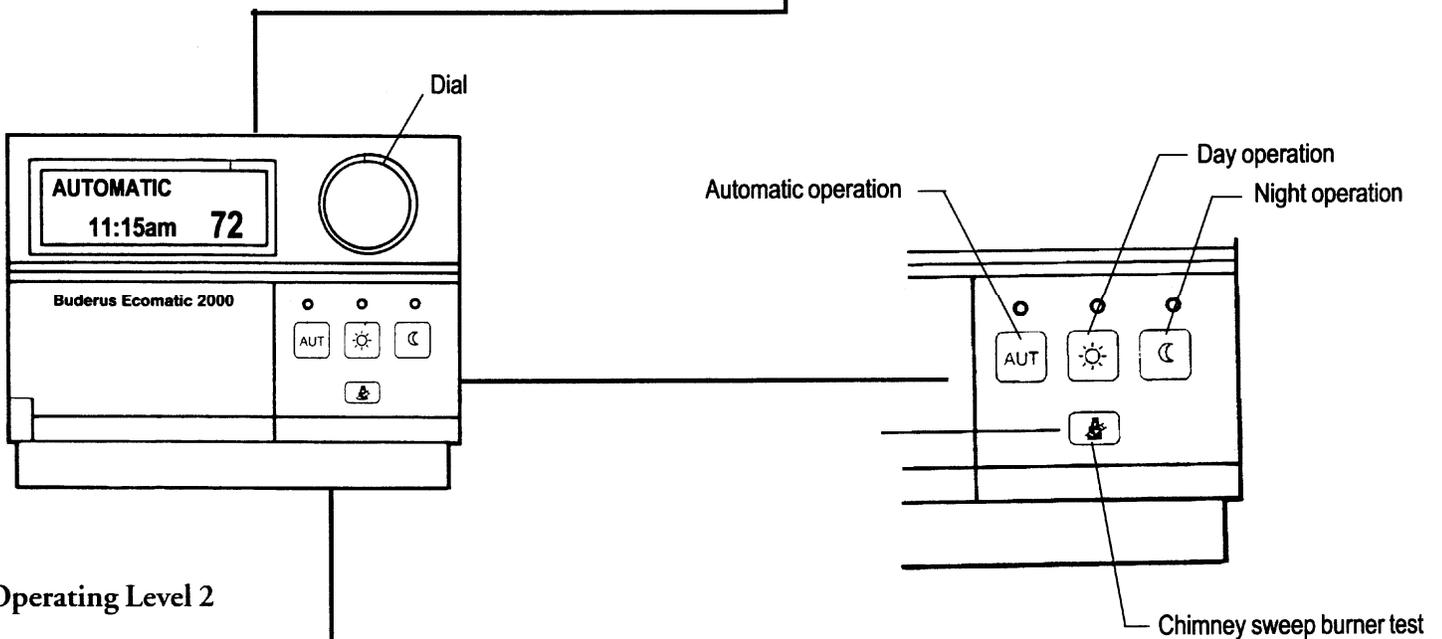
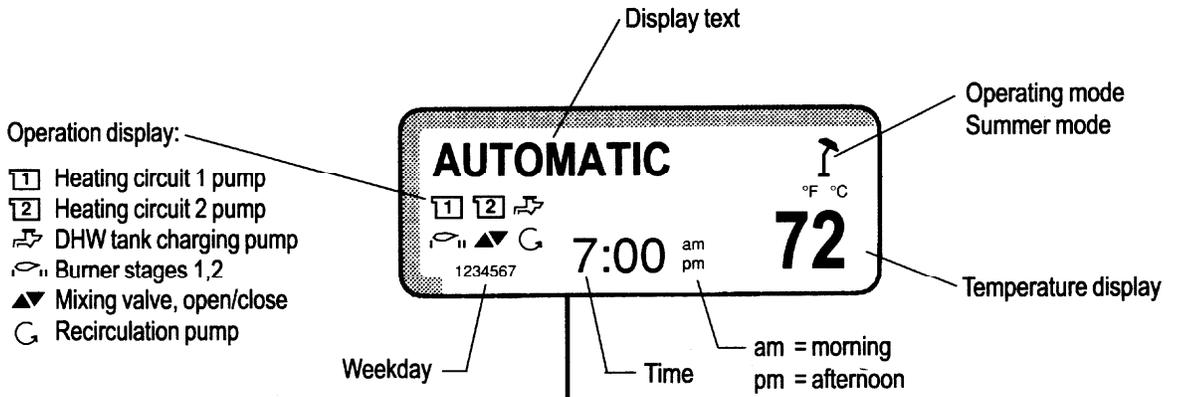
Manual Switches on the R2107



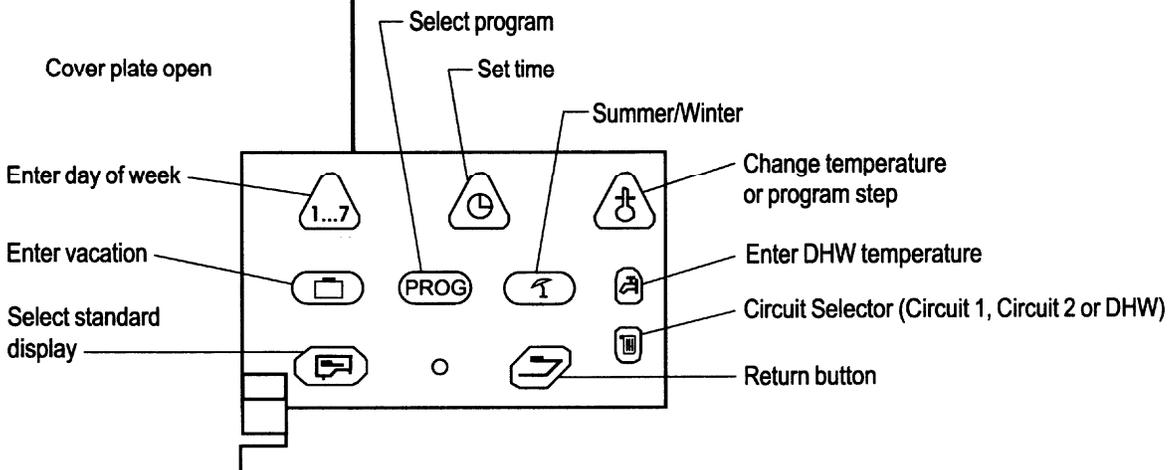
Note: When the emergency switch is in manual mode, set the adjustable boiler aquastat to 140°F or less.
Risk of scalding!

4 R2107 Operating Levels

Operating Level 1



Operating Level 2



These instructions discuss the most commonly used procedures. Refer to Chapters 6, 7 and 8 for a more extensive list of instructions and detailed information.

Start-Up Instructions

- Set the main switch to position I (on).
- Set the adjustable high limit to 190°F. (Position **AUT**).
- Set the emergency heating switch to **AUT** for automatic operation.
- Press the **AUT** button next to the display.

Note: DHW will be heated first when installed. Space heating commences when the DHW tank has reached its temperature.

Shut-Off Instructions.

- Set the main switch to position O (off).

Note: In case of danger, switch off the emergency switch outside the boiler room.

Setting Day and Time on the R2107

- Press and hold the **L..7** button
- Turn the dial to set the proper day. Day 1 = Monday, Day 7 = Sunday.
- Release the **L..7** button.
Press and hold the **⊖** button.
- Turn the dial to the current time.
- Release the **⊖** button.

Change to Daylight Savings Time

- Press and hold the **⊖** button.
- Turn the dial until the proper time shows.
- Release the **⊖** button.

Setting Room Temperatures: Both Heating Circuits without Room Sensors

Day Temperature

- Push the **☀** button on the R2107 and release. The word “MANUAL” appears.
- Push and hold the **⊕** button. The word “DAY TEMP” appears in the display.
- Turn the dial to set the desired day time temperature.
- Release the **⊕** button and press the **AUT** button.

Night Temperature

- Push the **☾** button on the R2107 and release. The word “MANUAL” appears.
- Push and hold the **⊕** button. The word “NIGHTTEMP” appears in the display.
- Turn the dial to set the desired night time temperature.
- Release the **⊕** button and press the **AUT** button.

Note: The R2107 control uses these settings to compute the proper heating curve for setback operation. This applies for both circuits (if equipped with optional module FM241). Actual room temperatures are set on your room thermostats.

Note: The day temperature must exceed the night temperature on the R2107 by at least 1°F.

6 Abbreviated R2107 Operating Instructions

Setting Room Temperatures: One Heating Circuit with/one without Buderus Room Sensor.

Circuit 1 is equipped with room sensor.

Day Temperature

- Turn the dial on the room sensor to the desired day temp.

Night Temperature

- The night temperature is set automatically 7°F lower than the day temperature. This setting can be changed on the  dial located on the inside of the room sensor.

Circuit 2 has no Buderus room sensor.

Note: The R2107 control uses the  and  settings to compute the proper heating curve during setback operation. It applies only for circuits without the room sensor. Actual room temperatures are set on the room thermostats.

Day Temperature

- Press and hold the  button. Turn dial until “CIRCUIT 2” appears in the display.
- Release the  button.
- Press and release the  button on the R2107. The word “MANUAL” appears in the display.
- Press and hold the  button. The word “DAY TEMP” appears in the display.
- Turn the dial to set the desired day temperature.
- Release the  button and press the AUT button.

Night Temperature

- Press and hold the  button. Turn dial until “CIRCUIT 2” appears.
- Release the  button.
- Press and release the  button on the R2107. The word “MANUAL” appears in the display.
- Press and hold the  button. The word “NIGHTTEMP” appears in the display.
- Turn the dial to set the desired night temperature.
- Release the  button and press the AUT button.

Changing the DHW Temperature

- Press and hold the  button. The word “DHW PROD” appears.
- Turn the dial to set the desired DHW temperature.
- Release the  button.

Changing the Summer/Winter Change-over

- Press and hold the  button. The word “WWSD TEMP” appears in the display. (WWSD means warm weather shut down).
- Turn the dial to set the desired outside temperature above which the heating system will automatically shut down.

Note: Turning the dial fully ccw puts the control in “Summer” mode; no space heating; turning the dial fully cw puts the control in “Winter” mode; always space heating.

Display of System Parameters

During automatic operation, the display shows the current day of the week, time, the operating mode and the desired room temperature.

The displayed room temperature depends on the use and number of room sensors in the system.

Single circuit system:

If no room sensor is connected, the display shows the desired room temperature as specified on the R2107 for day or night mode.

If a room sensor is connected, the display shows the desired room temperature as set on the room sensor.

Dual Circuit System (requires module FM241):

Use the  button to select the heating circuit for which you want to display the desired room temperature.

- Press and hold the  button. Turn the dial to the desired heating circuit.
- Release the  button. The display shows now the desired room temperature for the selected heating circuit.

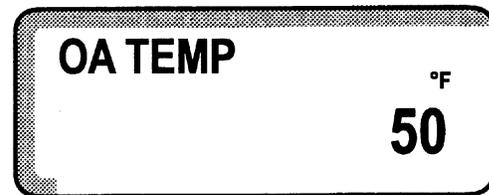
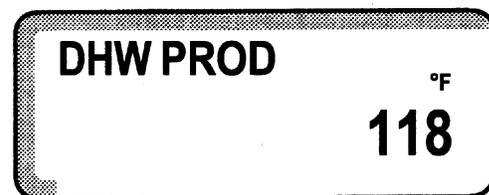
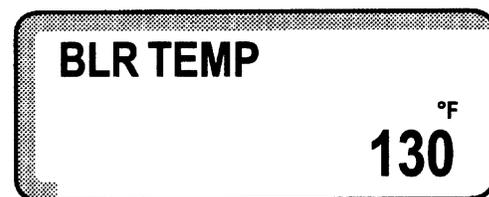
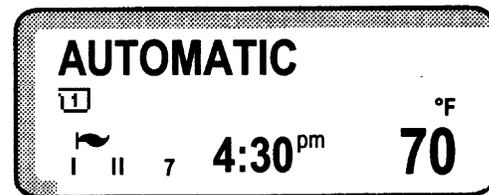
If a room sensor is connected, the display indicates the desired room temperature as set on the room sensor. If no room sensors are connected, different day and night time temperatures cannot be selected for each circuit. The display shows the desired room temperature as specified on the R2107 for day or night mode.

When the control is in automatic operation, actual sensor values and total operating hours for the burner can be displayed in the read-out.

- Turn the dial while in automatic mode to display various system values.

Depending on modules inserted in the control, the following values can be displayed:

- Boiler water temperature
- DHW temperature
- Outside temperature
- Mixed circuit supply water temperature. (requires module FM241)
- Room temperature for circuit 1 (requires room sensor)
- Room temperature for circuit 2 (requires room sensor)
- Flue gas temperature (requires module KM271)
- Hours runtime of the burner
- Hours runtime of burner stage 2 (requires module FM242)



6 Detailed Operating Instructions

Changing the Display Read-out

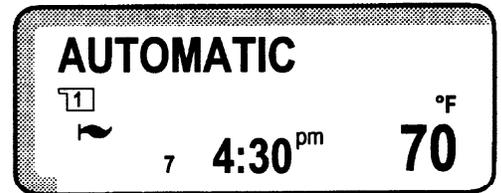
The factory setting of the standard display read-out is:

AUTOMATIC, time, day of the week and the desired room temperature for the first heating circuit.

Instead of the word “AUTOMATIC”, you can set the control to display one of the following entries and its actual temperature:

- Boiler water temperature
- Outside temperature
- DHW temperature

Additional symbols appear in the display to indicate system status such as operation of a heating circulator, burner, etc.

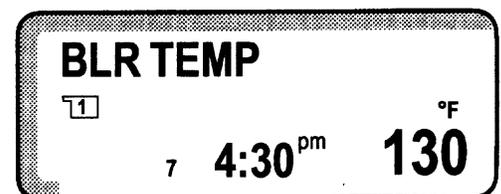
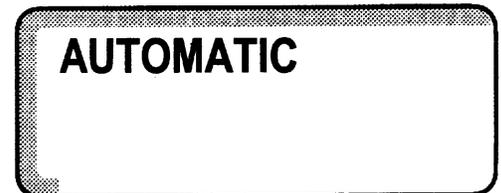


To change the standard read-out

- Press and hold the  button. The word “AUTOMATIC” appears blinking.
- Turn the dial until the desired read-out entry appears. For example, the word “BLR TEMP” is selected.

The current boiler temperature is now displayed.

- Release the  button. The control now displays the word “BLR TEMP” and the current boiler water temperature during automatic operation.

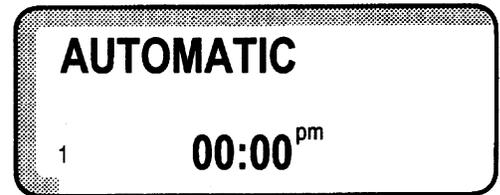


Note: If you press any of the button functions adjacent to the R2107 window the read-out briefly displays the respective function of the pressed button. The control resumes showing the standard display read-out after 5 to 10 seconds.

Setting the Day and Time on the R2107

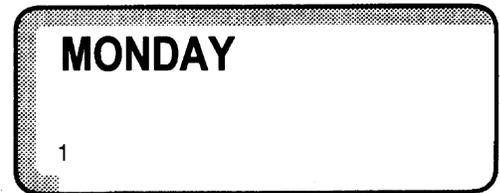
Set the day of the week and the actual time at the initial start-up of control. Time and day of the week may need to be reset after an extended power outage. All other settings are permanently saved and don't require reentry. A blinking time display occurs after an extended power outage and requires resetting of the time.

- Press and hold the  button to stop the blinking and adjust by turning the dial.



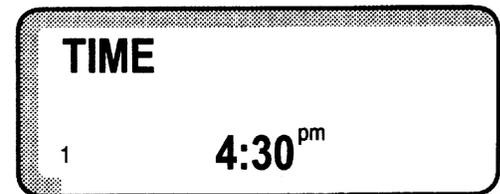
Setting the Day of the Week:

- Press the  button.
- Press and hold the  button. The display shows a particular day.
- Turn the dial to set the proper day (Monday=1, Tuesday=2, etc.).
- Release the  button. The current day is stored and indicated by a small number in the lower left corner of the display (1-7).
- Press the  button to resume automatic operation.



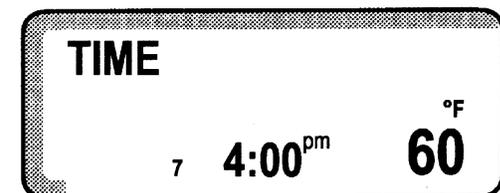
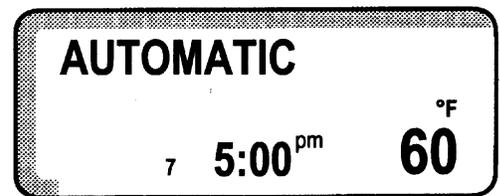
Setting the Time:

- Press and hold the  button.
- Turn the dial until the proper time appears.
- Release the  button. The current time is saved.
- Press the  button to resume automatic operation.



Changing to/from Daylight Savings Time:

- Press the  button.
- Press and hold the  button.
- Turn the dial cw or ccw to set the proper time.
- Release the  button.
- Press the  button to resume automatic operation.



6 Detailed Operating Instructions

Description of the Button Functions

The buttons on the R2107 adjacent to the display read-out have the identical functions as those on the room sensor. These buttons are not functional for circuits with a room sensor.

You can select three different operating modes with these buttons:

Automatic Operation

In the automatic mode, green lights illuminate at both the **AUT** button and either the ☀ or ☾ buttons to indicate actual status. The control operates according to the heating program.

In case two circuits are connected without room sensors, the buttons only apply to the selected circuit. Use the **Ⓜ** button to select the desired heating circuit.

Day mode and night setback mode automatically change according to the heating program. Separate schedules can be selected for two different circuits.

Manual Day Mode Operation

A green light only above the ☀ button indicates continuous day mode operation.

The system now overrides the regular heating program and operates continually in day mode. This function is useful to keep the system temporarily in day mode. The control continues day mode operation until either the **AUT** button (to resume operation according to the heating program) or the ☾ button is pressed (to force continuous night mode).

For example, you have a party and the heating should continue in day mode.

- Press the ☀ button for manual day mode.
- Press the **AUT** button afterwards to resume regular program operation

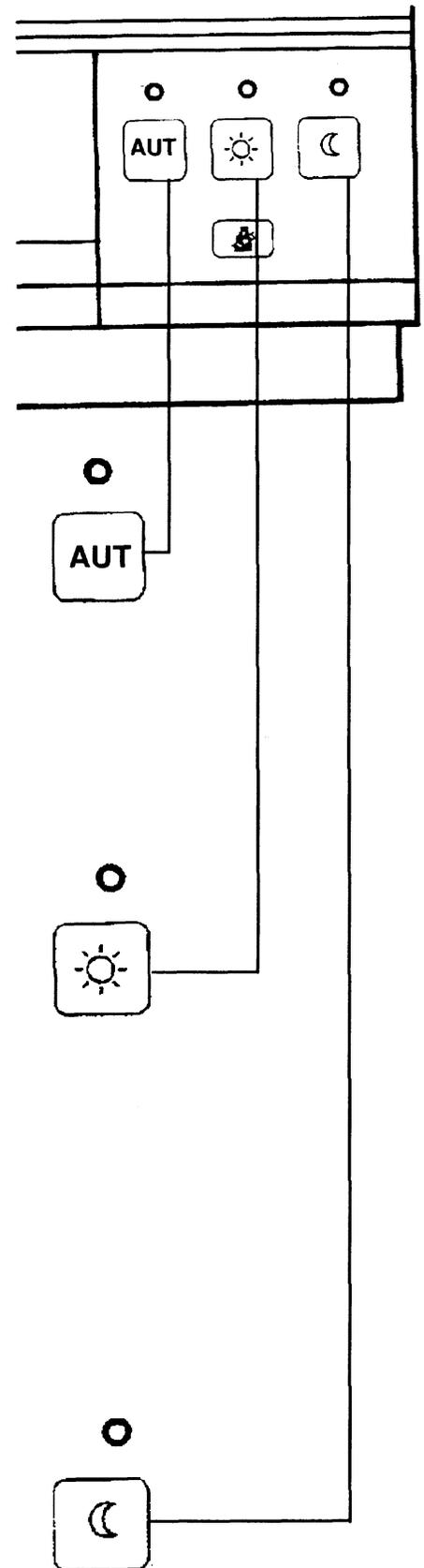
Next: In case DHW is installed, the control prioritizes DHW heating and then resumes space heating.

Manual night mode Operation

A green light only above the ☾ button indicates continuous night mode operation.

The system now overrides the regular heating program and operates continually in night mode. In case both heating circuits are in night mode, the DHW heating is turned off unless programmed differently. (See page 14.)

- Press the ☾ button for manual night mode operation.
- Press the **AUT** button to resume regular program operation.



Setting the Room Temperature Without a Room Sensor

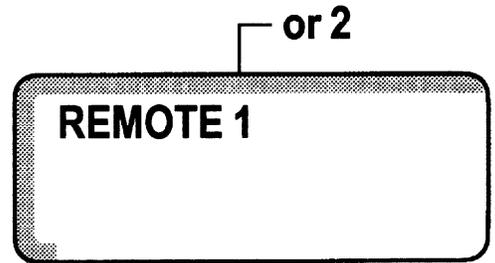
Room temperatures must be set on the room sensor if present. The control indicates that a room sensor is installed when pressing any of the buttons on the R2107. Display reads REMOTE 1 or 2.

Each heating circuit can be equipped with one room sensor (maximum of 2 for the R2107). For each heating circuit with a room sensor, the desired day and night time room temperatures are set on that room sensor.

In case a room sensor is **not** installed for a heating circuit, the ☀️ and 🌙 buttons on the control are used to specify desired day and nighttime temperatures. The control uses the difference between these settings to develop a setback hearing curve for that circuit. Actual room temperatures are set with conventional room thermostats. Same day and night settings apply to both circuits in case both circuits do not have room sensors.

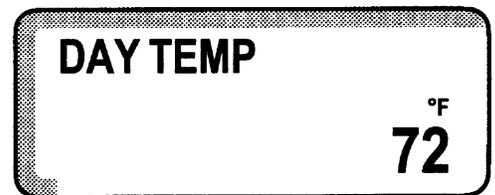
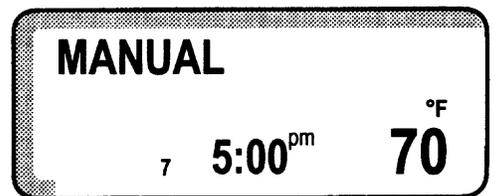
Note: The settings made on the control panel represent desired room temperatures which may not necessarily correspond to the actual room temperatures.

Factory settings: Day temperature: 70°F Range: 52-86°F
 Night Temperature: 63°F Range: 50-84°F



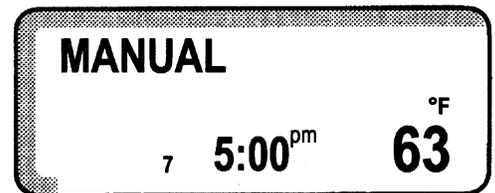
Setting the day room temperature:

- Press and hold the 🏠 button.
Turn the dial until the heating circuit without the room sensor appears in the display.
- Release the 🏠 button.
- Press the ☀️ button and release.
The display reads “MANUAL”, the actual day, time and day time temperature.
- Press and hold the ⬆️ button; the display reads “DAY TEMP”.
- Turn the dial until the desired day temperature appears.
For example: New DAY TEMP = 72°F.
- Release the ⬆️ button. The new desired day temperature is saved.
- Press the (AUT) button to resume regular operation.



Setting the night temperature:

- Press and hold the 🏠 button.
Turn the dial until the heating circuit without the room sensor appears in the display.
- Release the 🏠 button.
- Press the 🌙 button and release.
The display reads “MANUAL”, the actual day, time and night time temperature.
- Press and hold the ⬆️ button; the display reads “NIGHTTEMP”.
- Turn the dial until the desired night temperature appears.
For example: New NIGHTTEMP = 62°F.
- Release the ⬆️ button. The new desired night temperature is saved.
- Press the (AUT) button to resume regular operation.



6 Detailed Operating Instructions

Setting the DHW Temperature

The R2107 controls the DHW production in case an indirect fired water heater is installed in the heating system. DHW heating always has priority over space heating, and begins 30 minutes before the start of day mode.

The DHW heating in the factory setting (“DHW AUTO”) is shut off during the night mode. However, you can set the control for continuous DHW heating (“DHW 24HRS”) or shut it off completely (“DHW OFF”).

The factory setting for DHW is 140°F; range is 86-140°F.

Setting the DHW Temperature:

- Press and hold the  button. The display reads “DHW PROD”.
- Turn the dial to the desired DHW temperature; e.g. 120°F.
- Release the  button. The new value is saved.
- Press the  button to resume regular operation.

Changing the DHW production to 24 hours.

- Press and hold the  button.
- Turn the dial until the display reads “DHW PROD”.
- Release the  button.
- Press and release the  button on the R2107. The display reads “DHW 24HRS”.

The DHW tank is now monitored continuously and maintained at the desired temperature.

- Press and hold the  button and turn the dial to the desired heating circuit.

Shutting off the DHW production:

- Press and hold the  button.
- Turn the dial until the display reads “DHW PROD”.
- Release the  button.
- Press and release the  button on the R2107. The display reads “DHW OFF”.

The DHW tank is now shut off and its temperature will not be maintained.

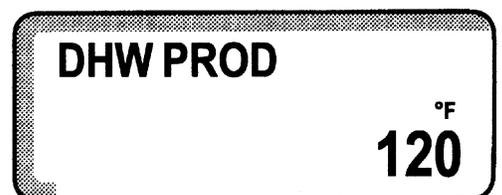
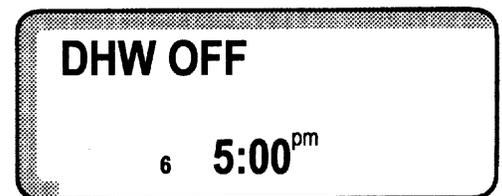
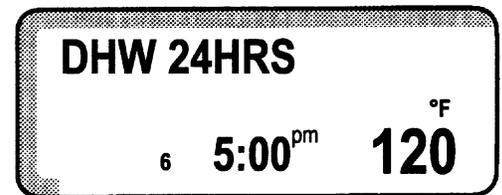
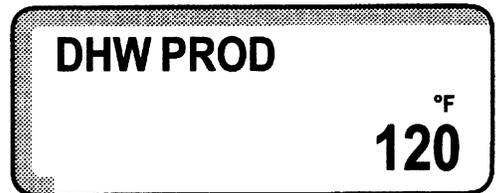
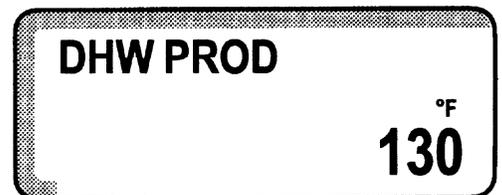
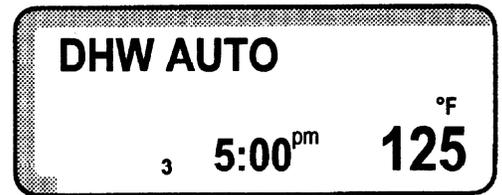
- Press and hold the  button and turn the dial to the desired heating circuit.

Return DHW Production to automatic operation:

- Press and hold the  button.
- Turn the dial until the display reads “DHW PROD”.
- Release the  button.
- Press and release the  button on the R2107. The display now reads “DHW AUTO”.

The DHW tank is now monitored and maintained only during the day mode.

- Press and hold the  button and turn the dial to the desired heating circuit.



Vacation Function

The R2107 is equipped with a vacation function where the control maintains a lower temperature in the house for a predetermined number of days (maximum of 99).

Factory setting on temperature is 63°F, range is 50-86°F.

For example, you are going on vacation for 15 days and would like to maintain the house at 50°F. This setting is made at the control panel and starts immediately. The control operates along a lower heating curve and provides lower temperature water for heating purposes.

Setting Vacation Duration and Temperature

- Press and hold the  button.
- Turn the dial to specify the desired number of vacation days; e.g. 15.
- Release the  button. The current day counts as day one.
- Press and hold the  button.
- Turn the dial to specify the desired room temperature.; e.g. 55°F.
- Release the  button. The new desired day temperature is saved.
- Press the  button to resume regular operation. (Vacation mode.)

The number of vacation days and the desired room temperature are now saved.

The temperature settings on the room sensor(s) are not functional now. In case no room sensors are used, conventional thermostats should not be lowered so that at the end of the vacation period the house will be back to regular temperatures.

Note: In case the heating system consists of high and low temperature circuits, the vacation program is functional for both circuits.

Note: Freeze protection is functional during vacation mode to prevent a possible freeze-up of the house.

Discontinue Vacation Program:

- Press and hold the  button.
- Turn the dial until the display reads “0” days.
- Release the  button. Automatic operation resumes.

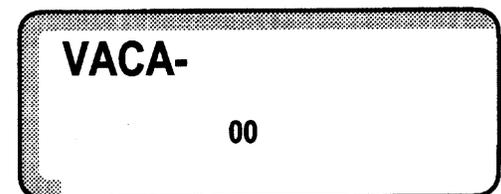
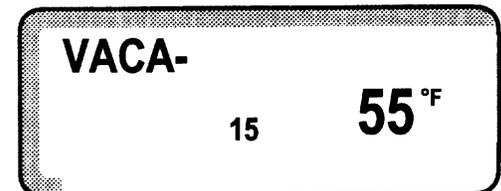
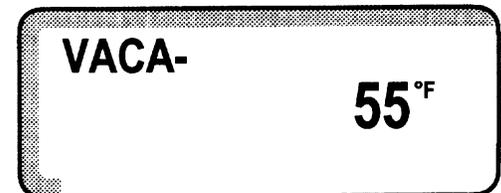
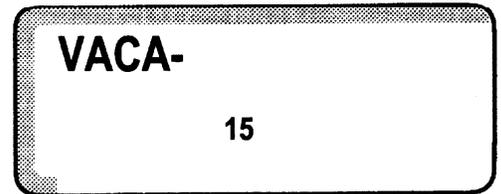
Temporary Interruption of the Vacation Program:

- Press the  or  button on the room sensor or the R2107 control. This will resume day or night mode space heating operation.

Return to Vacation Program:

- Press the  button on the room sensor or R2107 control.

This will resume automatic operation according to the vacation program.



6 Detailed Operating Instructions

Setting the “WWSD TEMP” (Warm Weather Shut Down Temperature)

General Information: The R2107 control switches automatically from summer to winter operation (or vice versa) depending on the outside temperature.

The factory setting for the “WWSD TEMP” is 63°F; the range is 49-87°F.

Summer Operation: Outside temperature is greater than the WWSD Temp
Space heating (Circuit 1 and 2): OFF
DHW Heating ON

Summer operation can be interrupted by pressing the ☀ or ☾ button on either the room sensor or on the R2107 itself.

Space heating now starts and operates along the heating curve.

- Press the ☀ button to resume summer operation.

Winter Operation: Outside temperature is less than the WWSD Temp

Space heating (Circuit 1 and 2): ON
DHW Heating ON

The R2107 changes to summer or winter mode in a delayed fashion. The actual change-over temperature may differ from the set value depending on the building’s thermal response. This feature utilizes the thermal energy of the building and prevents unnecessary burner starts.

Setting the “WWSD TEMP”:

- Press and hold the ☾ button. The display reads “WWSD TEMP”.
- Turn the dial to the outside temperature below which you want to heat; e.g. 65°F.
- Release the ☾ button. The value is stored.

When the R2107 has automatically switched over to summer mode, the display shows the ☾ symbol, the word “SUMMER” and the current time. The room sensor, if present, illuminates the ☾ symbol.

Setting Continuous Summer Mode:

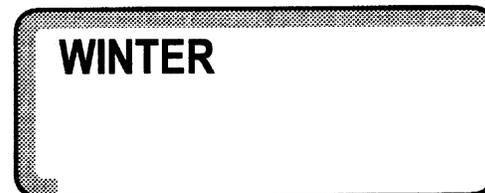
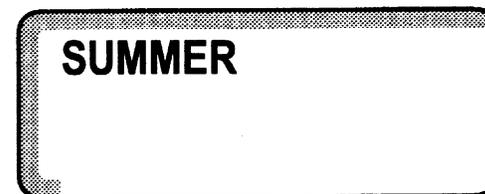
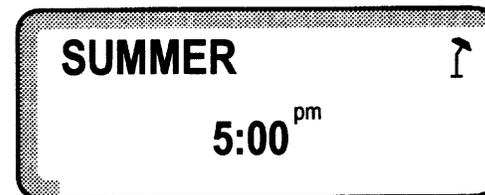
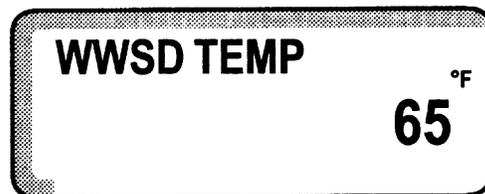
One can set the control for constant summer mode; this will prevent the heating system from turning on during cool mornings in the summertime.

- Press and hold the ☾ button.
- Turn the dial ccw until the word “SUMMER” appears in the display.
- Release the ☾ button.

Setting Continuous Winter Mode:

One can set the control for constant winter mode; this keeps the heating system on independent of outside temperature.

- Press and hold the ☾ button.
- Turn the dial ccw until the word “WINTER” appears in the display.
- Release ☾ button.



General Information

The use of one or two room sensors is dependent on the presence of a constant circulation heating zone. One such zone is permissible for each heating circuit. The room sensor performs an adjustment to the boiler water temperature based on the desired and actual indoor temperature. Your heating contractor has set the functions of the room sensor to match your specific system configuration.

- The room containing the room sensor should in general be the main living area as it determines the water temperature available to other zones.
- The room sensor should be located away from the direct influence of external and/or internal heat sources such as lamps, appliances, direct solar gain and opened doors and windows.

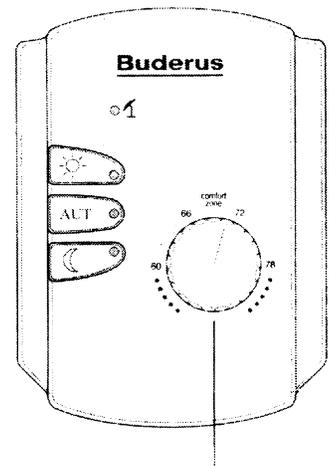
Day Mode Operation

Setting the Day Temperature:

- Turn the dial on the room sensor to the desired room temperature.

The range is 52°F to 86°F.

Room temperature fluctuations are measured by the temperature sensor (located in the room sensor or mounted remotely), transmitted to the R2107 control and balanced out by an automatic increase or decrease of the system water temperature.



Dial for day room temperature

Night Mode Operation

Setting the Night Temperature:

The night temperature is specified as a difference from the day temperature on a ☾ night setback dial underneath the cover of the room sensor.

The factory setting is 4°C (7.2°F); the range is 1 - 10°C (2 - 18°F).

Conversion Table for the Night Setback Dial

☾ Dial Setting	1	2	3	4	5	6	7	8	9	0
Night Setback in F°	1.8	3.6	5.4	7.2	9	10.8	12.6	14.4	16.2	18

Note: Your heating contractor has set your requested amount of night setback. It is recommended not to change this value. Your system will then operate with a fixed temperature difference between day and night and will recover equally in the morning for different outside temperatures.

Note: The 0 setting corresponds to 10°C (18°F) night setback.

Example: Day Temperature = 70°F
 Night Temperature = 63°F (Dial at 4)

7 Room Sensor Operating Instructions

Room Sensor: Button Functions

You can select three different operating modes with the buttons on the room sensor.

Automatic Operation

In the automatic mode, green lights illuminate at the **AUT** button and  or  button to indicate actual status. The control operates according to the heating program selected for the circuit with a room sensor.

Day mode and night setback mode automatically change according to the heating program. Separate schedules can be selected for the different circuits.

Manual Day Mode Operation

A green light only above the  button indicates continuous day mode operation. The system now overrides the heating program and operates continually in day mode. This function is useful to temporarily keep the system in day mode or heat DHW during the night time. The control continues day mode operation indefinitely until the **AUT** button is pressed to resume operation according to the heating program.

For example, you have a party and the heating should stay in day mode:

- Push the  button for manual day mode.
- Press the **AUT** button afterwards to resume program operation.

Note: In case DHW is installed, the control prioritizes DHW heating and then resumes space heating.

Manual Night Mode Operation

A green light only above the  button indicates continuous night mode operation. The system now overrides the heating program and operates continually in night mode. In case both heating circuits are in night mode, the DHW heating is turned off unless activated for 24 hour operation.

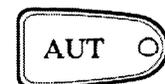
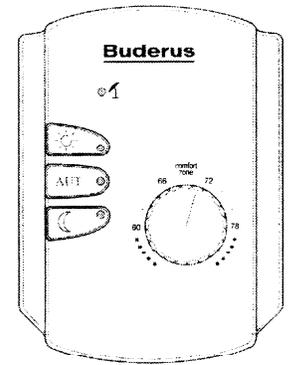
For example, you are leaving the house for several hours and would like to turn down the heat:

- Push the  button for manual night mode operation.
- Press the **AUT** button to resume regular program operation after returning.

Summer Operation

The  light indicates that the system is in summer mode (heat is off).

- Press the  or  button to interrupt summer mode operation.
- Press the **AUT** button to resume summer operation.



The R2107 control is equipped with 8 factory programs for different day and night heating schedules of your heating system. The factory program is the “FAMILY” schedule.

Separate heating schedules or programs can be selected for different heating circuits (requires module FM241). This permits an earlier setback schedule for the floor heating portion versus the radiator or baseboard portion of the heating system.

Switch points (transition from/to day mode) can be modified and added to any of the factory programs to create a fully customized heating program.

Select program 9 (“EMPTY”) to remove all previously entered steps and the system operates in continuous day mode in case no switch points are entered. You can also enter your own program.

Your customized program for circuit 1 is saved under “OWN PROG1”; a modified program for circuit 2 is saved under the name “OWN PROG2”(requires module FM241). These programs have their own separate time schedules.

Selecting a Factory Program for Heating Circuit 1:

- Press and hold the **AUT** button.
- Turn the dial until the word “CIRCUIT 1” appears in the display.
- Release the **AUT** button.
- Press and hold the **PROG** button.

The display shows “CIRCUIT 1” and after a few seconds the most recent program selection; e.g. “FAMILY”.

- Turn the dial to select the desired heating schedule or program.

For example, the “LATE” program.

- Release the **PROG** button.

The display shows the first switch point of the selected factory program.

Turn the dial slowly clockwise to view the successive switch points of the selected program. Day mode is identified by the desired day temperature; night mode is identified by the lower displayed night temperature.

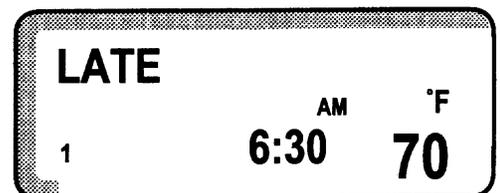
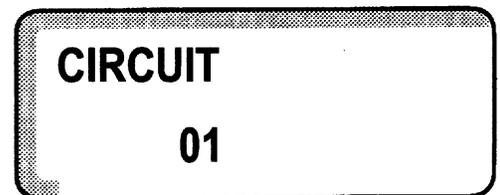
Note: You can only select from different factory programs by holding down the **PROG** button and turning the dial.

Note: The desired day temperature always exceeds the night temperature by at least 1°F. The night temperature must be lower than the day temperature.

To Return to the Standard Display Read-Out:

- Press the **AUT** button

The heating circuit 1 runs now according to the selected program.



8 Programming of the R2107 Heating Programs

Setting a Factory Program for Heating Circuit 2:

A heating program for circuit 2 will only appear on the control if module FM241 is installed in the R2107.

- Press and hold the **⏸** button.
 - Turn the dial to make the word :”CIRCUIT 2” appear in the display.
 - Release the **⏸** button.

 - Press and hold the **⏸** button.
- The display shows “CIRCUIT 2” and after a few seconds the most recent program selection; e.g.”FAMILY”.
- Turn the dial to select the desired heating schedule or program.
e.g.”NOON”.
 - Release the **⏸** button.

The display shows the first switch point of the selected factory program.

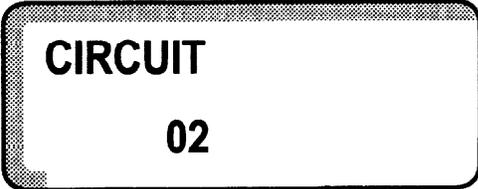
Turn the dial slowly clockwise to view the successive switch points of the elected program. The day mode is identified by the desired day temperature; the night mode is identified by the lower displayed night temperature.

Note: The desired day temperature will always exceed the night temperature by at least 1°F. The night temperature must be lower than the day temperature.

To Return to the Display Read-Out:

- Press the **⏸** button.

Heating circuit 2 runs now according to the selected program.

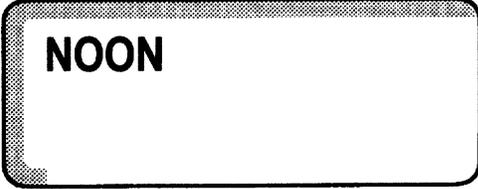


CIRCUIT

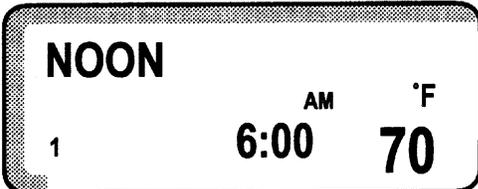
02



FAMILY



NOON



NOON

1

6:00^{AM} 70^F

You can select from the following 8 standard factory installed heating programs for your day and night mode heating schedule. If any of these programs does not suit your life style, any of the programs can be modified for fully customized control of your heating system.

Nr	Prog Name	Day	ON	OFF	ON	OFF	ON	OFF
	MY PROG							
1	FAMILY	1-4	5:30 am	10:00 pm				
		5	5:30 am	11:00 pm				
		6	6:30 am	11:30 pm				
		7	7:00 am	10:00 pm				
2	EARLY	1-4	4:30 am	10:00 pm				
		5	4:30 am	11:00 pm				
		6	6:30 am	11:30 pm				
		7	7:00 am	10:00 pm				
3	LATE	1-6	6:30 am	11:30 pm				
		7	7:00 am	11:00 pm				
4	PM-HOME	1-4	5:30 am	8:00 am	12:00 pm	10:00 pm		
		5	5:30 am	8:00 am	12:00 pm	11:00 pm		
		6	6:30 am	11:30 pm				
		7	7:00 am	10:00 pm				
5	AM-HOME	1-4	6:00 am	11:30 am	4:00 pm	10:00 pm		
		5	6:30 am	12:00 pm	3:00 pm	11:00 pm		
		6	6:30 am	11:30 pm				
		7	7:00 am	10:00 pm				
6	NOON	1-4	6:00 am	8:00 am	11:30 am	1:00 pm	5:00 pm	10:00 pm
		5	6:00 am	8:00 am	11:30 am	11:00 pm		
		6	6:00 am	11:00 pm				
		7	7:00 am	10:00 pm				
7	SINGLE	1-4	6:00 am	8:00 am	4:00 pm	10:00 pm		
		5	6:00 am	8:00 am	3:00 pm	11:00 pm		
		6	7:00 am	11:30 pm				
		7	8:00 am	10:00 pm				
8	SENIOR	1-7	5:30 am	10:00 pm				
9	EMPTY							

The highlighted program name shown in the table appears in the display for each selection.
 Day 1 = Monday, Day 2 = Tuesday, Day 3 = Wednesday, etc.

8 Programming of the R2107 Heating Programs

Changing a Switch Point

When a particular factory program is selected, the R2107 operates according to the details of that program. If you make changes to that program, the R2107 saves your modified program under the name "OWN PROG1" for heating circuit 1, and as "OWN PROG2" for heating circuit 2.

Example: Change Day 1 and Day 2 settings from 5:30 am to 6:30 am of the FAMILY program:

Selecting heating circuit 1:

- Press and hold the **⏸** button.
- Turn the dial to make the word "CIRCUIT 1" appear in the display.
- Release the **⏸** button.
- Press and hold the **PROG** button.

The display shows briefly "CIRCUIT 1" and then the program name.

- Release the **PROG** button.

The display shows the first switch point of the FAMILY program as: FAMILY,1, 5:30 am, 70°F.

Changing switch point timing:

Note: The actual displayed temperature may be different than the 70°F shown here.

- Press and hold the **⏸** button.
- The blinking time indicates that its value can be changed.
- Turn the dial to the desired time setting.
 - Release the **⏸** button.

The display now shows: "OWN PROG1", 1, 6:30 am, 70°F to indicate that the control is now set up with a customized program. To view the individual steps, simply continue turning the dial clockwise to "single step" through the program.

To change any additional switch points, turn the dial to the desired step.

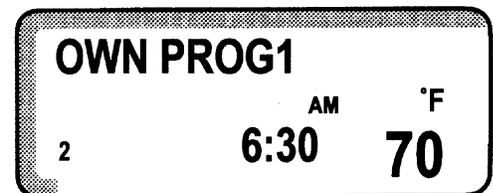
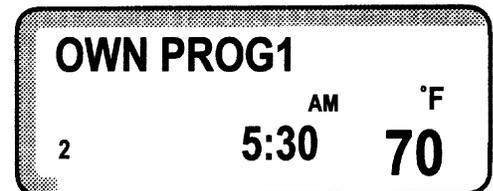
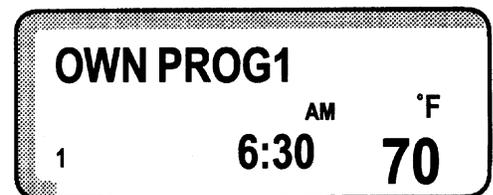
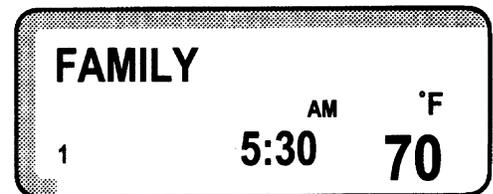
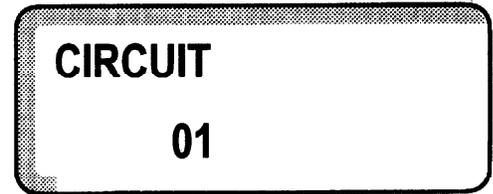
- Press and hold the **⏸** button.
- The blinking time indicates that its value can be changed.
- Turn the dial to the desired time setting.
 - Release the **⏸** button.

The display now shows: "OWN PROG1", 2, 6:30 am, 70°F to indicate that the control is now set up with a customized program. To view the individual steps, simply continue turning the dial clockwise to "single step" through the program.

- Turn the dial to bring the next step requiring changes into the display.

Repeat the last 4 steps for each program step that requires changing.

- Press the **AUT** button to return to the standard display read-out.



Entering New Switch Points

Additional switch points must always be added in pairs. Every switch point to day mode must be accompanied by a switch point back to night mode and vice versa.

Example: You like to use the “FAMILY” program but on Friday (Day 5) between 10:00 am and 1:00 pm would like to operate in the night mode.

Selecting heating circuit 1:

- Press and hold the  button.
- Turn the dial to make the word :”CIRCUIT 1” appear in the display.
- Release the  button.
- Press and hold the  button.
- Turn the dial until the word “FAMILY” appears.
- Release the  button.

The display shows the first switch point of the FAMILY program as:
FAMILY,1, 5:30 am, 70°F.

Entering a new switch point:

- Turn the dial CCW (counter clockwise) until the display shows “NEW SP”. The control is ready to accept a new switch point. You must specify day of the week, time and day or night mode selection.
- Press and hold the  button.
- Turn the dial to the desired day of the week.
- Release the  button.
- Press and hold the  button.
- Turn the dial to the desired time for a new switch point.
- Release the  button.
- Press and hold the  button.
- Turn the dial to select day or night temperature.
- Release the  button.

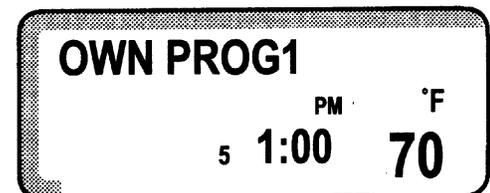
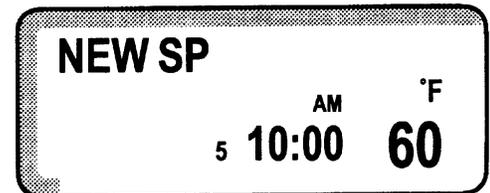
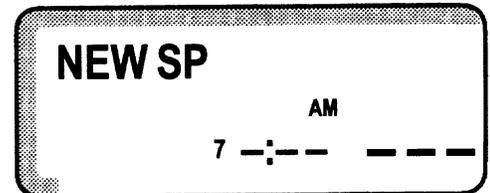
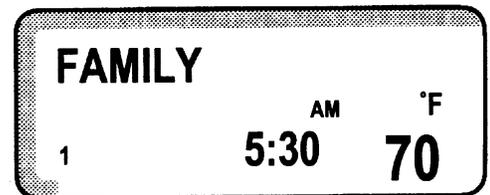
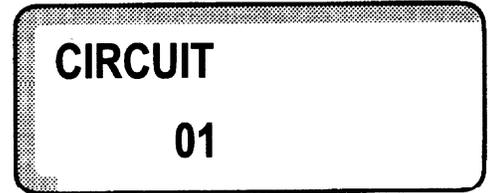
This completes entering the first switch point. Note that the temperature entered must be the complement of the previous switch point. The display shows “NEW SP” to permit entry of the second switch point.

Entering another new switch point:

- Press and hold the  button.
- Turn the dial to the desired day of the week.
- Release the  button.
- Press and hold the  button.
- Turn the dial to the desired time for a new switch point.
- Release the  button.
- Press and hold the  button.
- Turn the dial to select day or night temperature.
- Release the  button.

Releasing the  button saves the entered switch point.

- Press the  button to return to the standard display read-out.
Your entries are saved automatically under the name “OWN PROG1”.



8 Programming of the R2107 Heating Programs

Deleting a Day Mode Heating Interval

A complete day mode interval or heating phase can be deleted by “sliding” two adjacent switch points over each other.

Example: Suppose you are using the “NOON” program but like to delete the day mode heating phase of 11:30 am to 1:00 pm on Monday only so that the system operates in the night mode continuously from 8:00 am to 5:00 pm.

Selecting heating circuit 1:

- Press and hold the  button.
- Turn the dial to make the word :”CIRCUIT 1” appear in the display.
- Release the  button.
- Press and hold the  button.

The display shows briefly “CIRCUIT 1” and then the program name.

- Release the  button.

The display shows the first switch point of the NOON program as: NOON,1, 6:00 am, 70°F.

Deleting a day mode heating phase:

- Turn the dial until the display shows the 11:30 am point to be deleted.
- Press and hold the  button. The time blinks.
- Turn the dial until the 1:00 pm switch point appears in the display. You are now “sliding” the 11:30 am point to the 1:00 pm point.

You cannot turn the dial past the 1:00 pm switch point as another program step is programmed at this time.

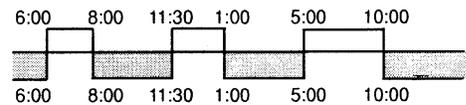
As soon as the display reads 1:00 pm, the display changes to “DELETE SP” and number 8’s appear at the bottom of the display which then rapidly disappear.

After all 8’s have disappeared, both switch points are deleted and the new program is stored under the name “OWN PROG1”. You removed the day mode heating phase from 11:30 am till 1:00 pm for Monday.

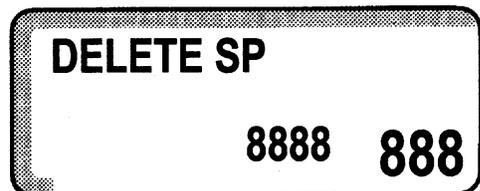
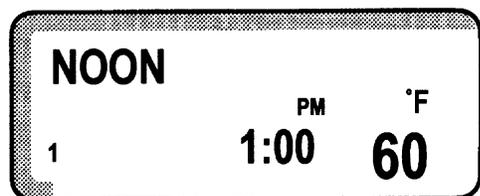
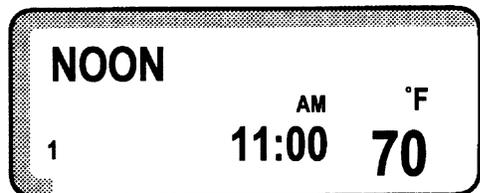
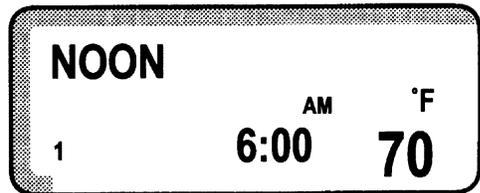
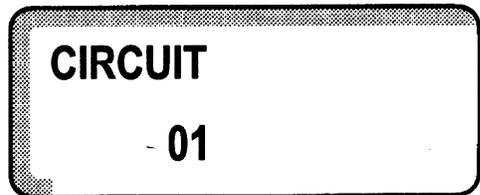
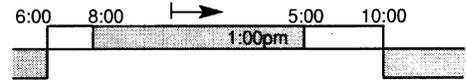
Note: You can interrupt the deleting process by releasing the  button before all 8’s have disappeared. The initial switch point has been deleted; the second point is still present in the program in this case. Both switch points read 1:00 pm; the first with 70°F and the second with 60°F.

- Release the  button after counting down of all 8’s.
- Press the  button to return to the standard display read-out. Your entries are saved under the name “OWN PROG1”.

Standard Program “NOON”



“OWN PROG1”



Bridging of Two Heating Intervals

Two day modes can be connected to each other by bridging or extending the day mode to one another. In other words, a complete night mode interval is deleted and changed to day mode.

Example: Suppose you are operating in the “NOON” program and like to bridge or connect the day mode period on Monday only from 11:30 am to 1:00 pm to the 5:00 pm to 10:00 pm time spans. In other words, you like to maintain day mode from 11:30 am to 10:00 pm.

Selecting heating circuit 1:

- Press and hold the  button.
- Turn the dial to make the word : “CIRCUIT 1” appear in the display.
- Release the  button.
- Press and hold the  button.

The display shows briefly “CIRCUIT 1” and then the program name.

- Release the  button.

The display shows the first switch point of the “NOON” program.

- Turn the dial until you have reached the switch point that you want to bridge or connect to the other heating interval. In this example 1:00 pm.

Bridge the night mode heating phase:

- Press and hold the  button. The 1:00 pm display blinks.
- Turn the dial until 5:00 pm appears in the display.

Note: You cannot turn the dial past the switch as you have now “bridged” the gap between two adjacent night mode switch points. Upon reaching the 5:00 pm setting, the display shows “BRIDGE SP” and the number 8’s disappear one after another.

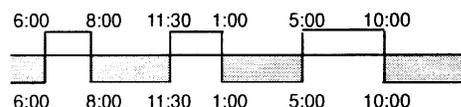
When all number 8’s have disappeared, the two switch points (1:00 pm and 5:00 pm) are deleted, the new program operates in day mode from 11:30 am to 10:00 pm and the settings are stored under the name “OWN PROG1”.

Note: You can interrupt the “bridging” process by releasing the  button or turning the dial back before all 8’s have disappeared. The initial switch point may have moved over, the second one is still in existence.

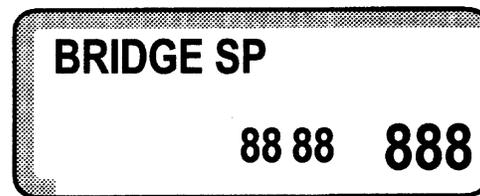
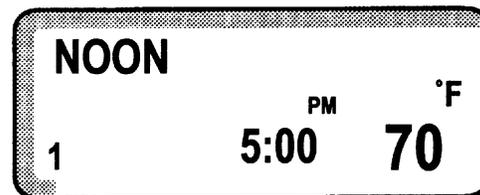
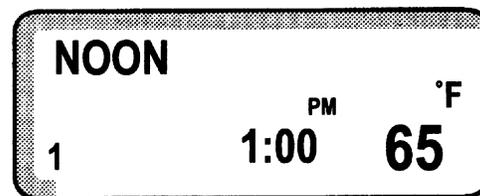
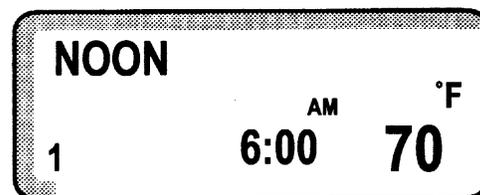
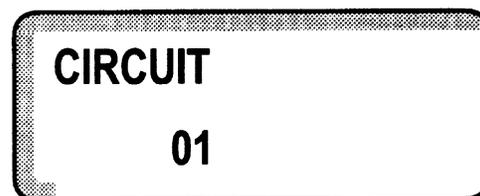
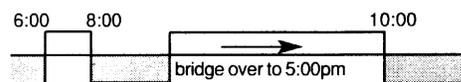
- Press the  button to return to the standard display read-out.

Your entries are saved automatically under the name “OWN PROG1”.

Standard Program “NOON”



New Program “OWN PROG1”



8 Programming of the R2107 Heating Programs

Entering a Complete New Program

A fully customized heating program can be entered into the 9th or “empty” program in case none of the factory programs suit your individual lifestyle. It is recommended to write out your heating program on paper before entering the program. Programs must be entered separately for circuit 1 and 2 (requires module FM241).

Selecting Heating Circuit 1:

- Press and hold the  button.
- Turn the dial to make the word : “CIRCUIT 1” appear in the display.
- Release the  button.
- Press and hold the  button.
- Turn the dial until the word “EMPTY” appears.
- Release the  button.

The display is ready for entry of a switching point by showing: “NEW SP”, dashed lines and day 7 (=Sunday).

- Press the  button to return to the standard display read-out.

Entering a New Program Step:

- Press and hold the  button.
- Turn the dial to the desired day of the week.
- Release the  button.
- Press and hold the  button.
- Turn the dial to the desired time for a new switch point.
- Release the  button.
- Press and hold the  button.
- Turn the dial to select day or night temperature.
- Release the  button.

This switch point is now saved under the name “OWN PROG1” for circuit 1. Follow the same procedure to enter each successive switch point. There are a maximum of 42 switch points for a week. They can be distributed in any fashion. Make sure that the entered temperatures alternate in value.

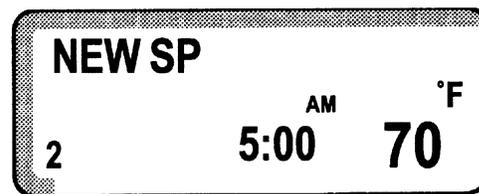
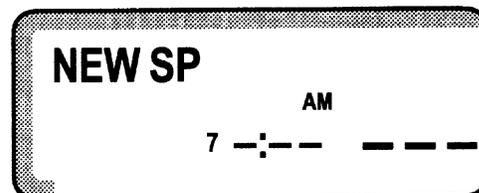
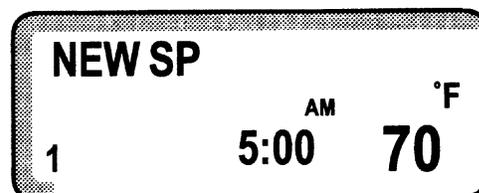
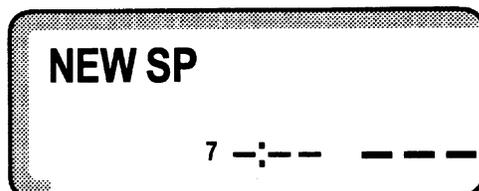
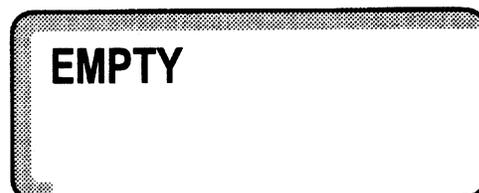
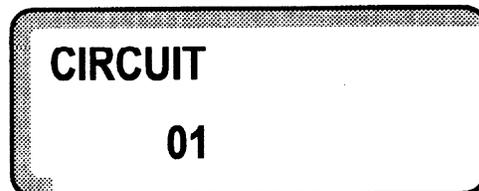
- Press the  button to return to the standard display read-out after all steps have been entered.

Select circuit 2 and follow same procedure for entering its customized program. This program is then saved under the name “OWN PROG2” (requires module FM241). You can also select one of the factory programs and modify it.

Selecting Heating Circuit 2:

- Press and hold the  button.
- Turn the dial until the display reads “CIRCUIT 2”.
- Release the  button.
- Press and hold the  button.
- Turn the dial until the word “EMPTY” appears.
- Release the  button.

The display is ready for entry of a switch point by showing: “NEW SP”, dashed lines and day 7 (=Sunday). Proceed as detailed above.



System Monitoring

Several parameters in the system can be read in the display by turning the dial with the control in automatic operation. Depending on the modules installed, the following system values can be displayed:

- Boiler water temperature
- DHW temperature
- Outside temperature
- Mixed circuit supply water temperature (requires module FM241)
- Room temperature for circuit 1 (requires room sensor)
- Room temperature for circuit 2 (requires room sensor)
- Flue gas temperature (requires module KM271)
- Hours runtime of the burner
- Hours runtime of burner stage 2 (requires module FM242)

To display various system values:

- Turn the dial with the control in automatic operation.
- Press the AUT button to resume automatic operation.

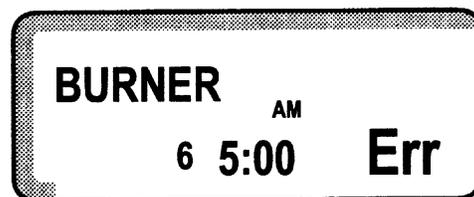


System Diagnostics

The R2107 has self diagnostic capability of its sensor inputs and displays malfunctions to assist you and your heating contractor or service company in servicing your heating system. Corrective action and remedial procedures are outlined for different malfunctions. In most cases the heating system can operate in an emergency mode.

Possible diagnostic messages:

- | | | |
|----------------|---|--|
| BURNER Err | - | burner lock out |
| HEATING Err | - | space heating remains cold |
| DHW PROD Err | - | domestic hot water remains cold |
| REMOTE 1/2 Err | - | room sensor has not responded (each circuit) |
| BLR SENSR Err | - | boiler water sensor defective |
| OA SENSOR Err | - | outside temperature sensor defective |
| DHW SENSR Err | - | DHW sensor defective |
| MIX SENSR Err | - | mixed circuit sensor defective |
| FLUE SENS Err | - | flue gas sensor defective |



Have the malfunction repaired immediately by a qualified heating service technician. Inform the service company by phone of the displayed malfunction message. Follow the procedures listed for each malfunction message for continued heating operation.

9 System Monitoring and Diagnostics

Display: "BURNER ERR"

Burner malfunction: (Applies only for burners with alarm circuit connected to terminal 9 on the burner plug of the R2107). A burner failure locks out burner operation and triggers this message.

Solution:

- Press the reset button located on the burner. If the burner does NOT start after reset (press only once!):
- Contact your service company immediately!
- Set the emergency switch to "manual override".
- Heating pump(s) will run continuously to delay freeze up of pipes.

Display: "HEATING ERR"

Space heating remains cold: The system does not see a change in boiler temperature after 1/2 hour, despite attempted burner operation. Or, the system simply does not start! Heating pumps operate for freeze protection.

Solution:

- Adjust boiler aquastat to 140°F. Shut system off and on again to reset electronics!
- Check manual high limit reset. Reset if necessary (see p. 5).
- Contact your heating service company!
- Set the emergency switch to "manual override".

Display: "DHW ERR"

Domestic hot water remains cold: The DHW does not increase by more than 1°F for 2 hours despite a call for DHW. Control returns to space heating and operates according to the heating curve.

Solution:

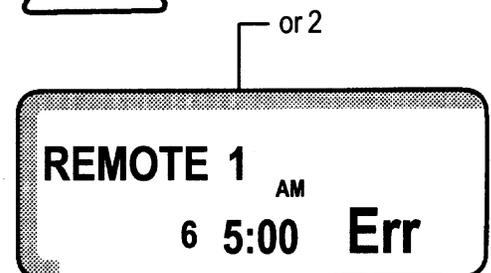
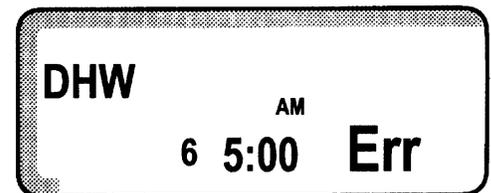
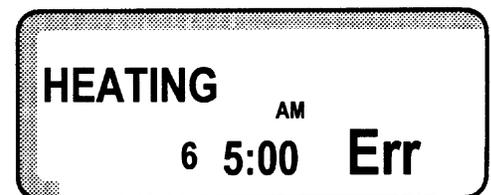
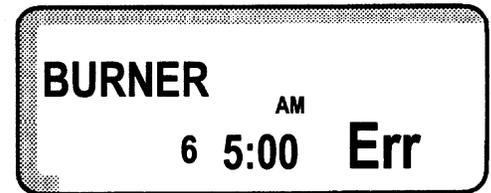
- No DHW production if tank pump is defective! Replace pump.
- Set the emergency switch to "manual override".
- Adjust boiler aquastat to 140°F (60°C). DHW will reach boiler temperature.
- Risk of scalding hot water during emergency operation!
- Contact your heating service company!

Display: "REMOTE ERR"

Room sensor is not responding. The room sensor is not properly communicating with the R2107. The control panel now uses factory settings for day and night temperatures.

Solution:

- Have the service company check the wiring and internal circuit selector dial.



Note: Blinking lights on the room sensor indicate that it is not turned on at the R2107 or set for the wrong circuit. Check the circuit selector dial (HK) on the inside of the room sensor. Set the HK dial to 1 for circuit 1, to 2 for circuit 2.

Defective Temperature Sensors

Display: “BLR SENSR Err”	defective boiler water sensor
“OA SENSOR Err”	defective outside air sensor
“DHW SENSR Err”	defective DHW tank sensor
“FLUE SENS Err”	defective flue gas sensor (requires module KM271)

These messages are triggered when the measured value of the sensor output falls outside the expected range. The R2107 assumes “worst case scenario” and operates the system in a “fail safe” manner. The effect on the heating system components varies slightly for each sensor.

“BLR SENSR”: the control runs the space heating pump(s) constantly and fires the burner up to the adjustable high limit setting.

“OA SENSR”: The R2107 responds by assuming 14°F outside temperature in a time delayed fashion and operates the burner according to the heating curve. Freeze protection runs the heating pump(s) constantly.

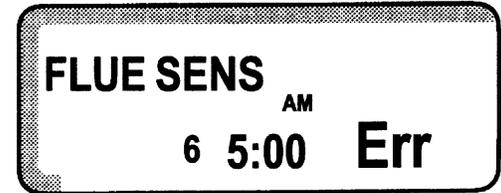
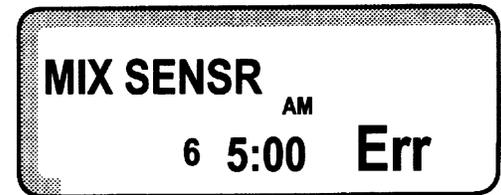
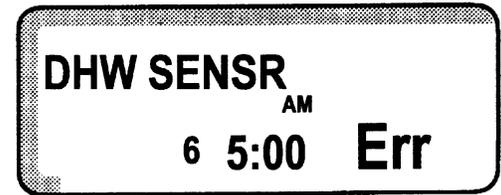
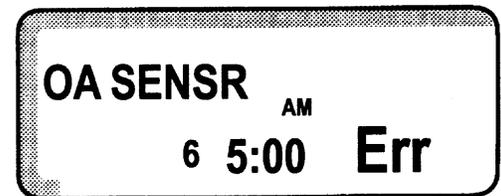
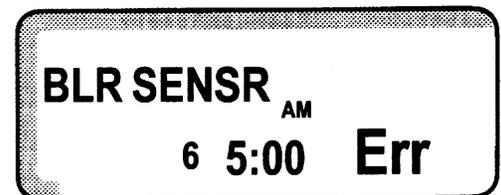
“DHW SENSR” :The R2107 does not heat the DHW tank for safety reasons.

“MIX SENSR”: The R2107 does not change the position of the motorized mixing valve; the pump(s) in this circuit continue to operate during day mode and for freeze protection.

- Contact your heating service company in all cases .
- Adjust the boiler aquastat down to 140°F.
- Set the emergency switch to the “manual override” position.
- Risk of scalding hot water during emergency operation!



“FLUE SENS”: The R2107 continues normal operation; this warning simply indicates a defective sensor.

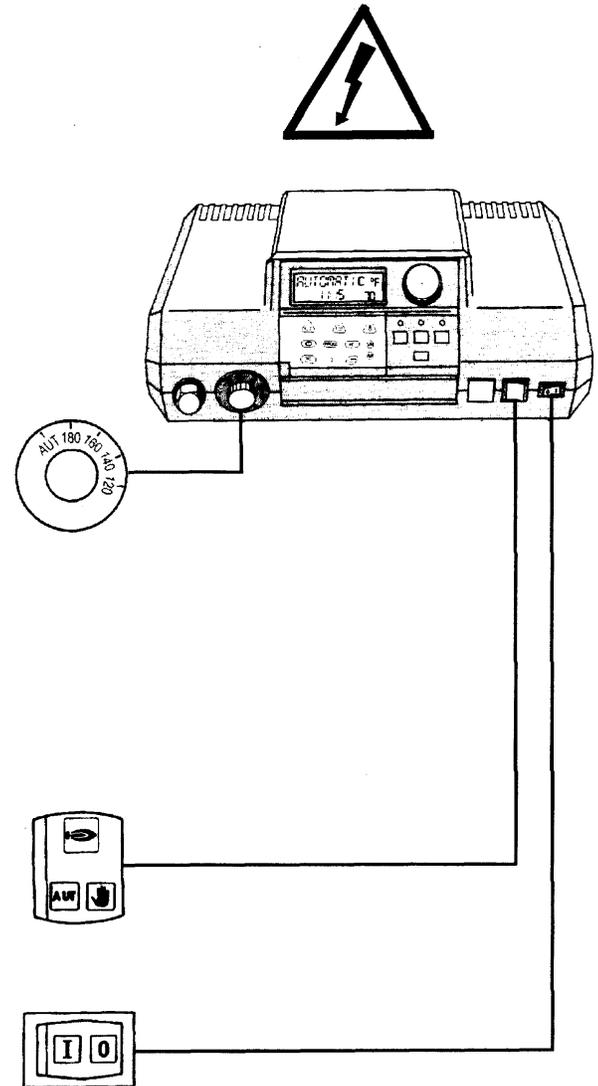


10 Emergency Operating Instructions

If a malfunction in the electronics of the R2107 control occurs, you can operate your heating system in the manual override mode!

Never open the control panel !!

- Please review your operating settings for possible incorrect adjustments before starting emergency operation.
- Adjust the emergency switches according to the table below and the identified malfunction.
- Adjustable boiler aquastat.
- Emergency switch for “space heating” and “DHW” manual operation. Press “MANUAL”.
- Main control panel switch in “I” position.



Note: Possible risk if scalding during emergency operation.
Set adjustable boiler aquastat to 140°F or less.



Position for Emergency Operation			
Malfunction	Main Switch	Heating & DHW Switch	Adj. Boiler Aquastat
No space heating	I	MANUAL	140°F
No DHW heating	I	MANUAL	140°F
No space & DHW heating	I	MANUAL	140°F

Please contact your heating service company immediately in case of a system malfunction. It is helpful to the heating service technician to know the indicated error message(s) on the display of the Logamatic R2107 control.

Heating Contractor:

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