XPak NINETY PLUS
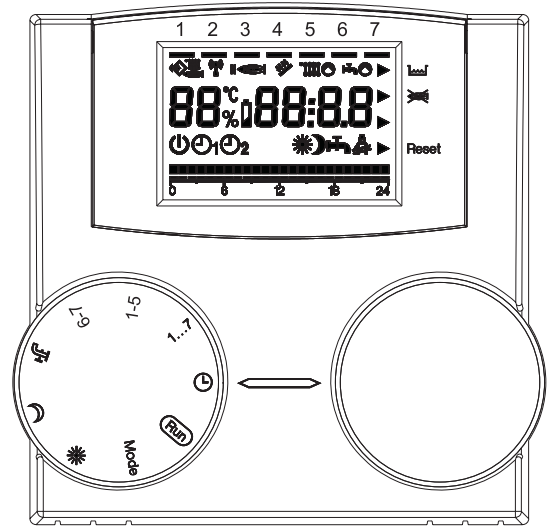
Remote Control Panel REC08

For Models 85 & 120

FOR YOUR SAFETY: Do not store or use gasoline or other flammable vapors and liquids or other combustible materials in the vicinity of this or any other appliance. To do so may result in an explosion or fire.

WHAT TO DO IF YOU SMELL GAS:
- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Raypak®
A Rheem® Company

TO USE THE REMOTE CONTROL PANEL CORRECTLY, CAREFULLY READ THE CONTENTS OF THIS DOCUMENT.

WARNINGS:

1) The remote control must be installed where it can be easily accessed for ambient temperature control (generally in the living room).

2) To optimize legibility of the display, the control panel must be positioned 5 feet from the floor, as required by regulations.

3) The control panel is powered by low voltage directly from the boiler.

4) The control panel must be kept away from heat sources or drafts, as these can compromise the accuracy of the ambient probe incorporated in the panel.

5) Never open the panel, as it is maintenance-free.

6) Never press on the glass of the liquid crystal display, as this may damage the glass and impair viewing.

7) Only use a dry cloth to clean the display, as any infiltration of liquids may damage the liquid crystals.

GENERAL INFORMATION

WHAT DOES THE REMOTE CONTROL PANEL DO?

The remote control panel allows you to control the temperature in your home and the operation of your boiler without having to access the boiler directly. For reasons of space, in fact, your boiler may be installed outside the living space (e.g.: basements, garages, external areas, etc.). The control panel, on the other hand, is generally installed in the largest room of the home, where control and adjustment operations can be performed with ease.

OPERATING METHOD

The control panel allows more refined home heating management, as you can decide how and when to start the boiler. It also allows you to set the domestic hot water temperature without having to access the boiler panel. This manual sets out to explain each of these operating methods and their connected functions.

GLOSSARY OF TECHNICAL TERMS

• **Heating water:** This is the water which flows in the comfort heat radiators after having been heated by the boiler.

• **Domestic hot water:** This is the potable water which flows to the fixtures in the home.

• **Fault code:** This is a code which appears on the display to report any boiler or control panel operational problems.

• **Initial configuration:** This is the configuration of the control panel after initial start-up or resetting.

• **Display:** This is the liquid crystal screen showing all the symbols corresponding to the various functions.

• **Freeze protection function:** This function prevents low temperatures from freezing the water flowing inside the pipes and damaging the heating system. This function activates when the ambient temperature falls below 40°F (5°C).

• **Control panel reset:** This operation is performed to reset the initial configuration of the control panel by deleting any user program apart from the system clock.

• **Summer mode:** Set the control panel to this mode when the heating system is not required (e.g.: spring, summer). The boiler only delivers domestic hot water (when piped to domestic hot water).

• **Automatic heating and continuous heating mode:** Set the control panel to this mode when heating is required (e.g.: autumn, winter). The boiler delivers both domestic hot water and heating water.

• **Comfort temperature:** This temperature optimizes heating in the home.

• **Setback temperature:** This temperature is used when the home is uninhabited, or during the night.

• **Ambient temperature:** This is the temperature measured in the room in which the remote control panel is installed.

• **Outdoor temperature:** This is the temperature measured outside the house by the external sensor (if installed) connected to the boiler.

• **Outdoor reset curve:** This is the relationship between the external temperature and the temperature of the heating water. If the outdoor probe is installed with the boiler, the temperature of the heating water is automatically adjusted according to the changes in outdoor temperature in order to maintain a constant temperature in the home. The outdoor reset curve is chosen by the installer according to the geographical location and system

NOTE:
• The ambient temperature display ranges from 32°F to 210°F (0°C to 99°C).
• The outdoor temperature display ranges from -38°F to 102°F (-39°C to 39°C).
• Temperatures outside these ranges are displayed with three dashes "---".
• Temperatures below 100° (°F or °C) will be displayed in tenths of a degree (XX.X).
• Temperatures of 100° or higher (°F) will be displayed in whole degrees (XXX°F)

USING THE CONTROL PANEL

ELECTRICAL CONNECTIONS

1 = OT Bus
2 = OT Bus
3 = Phone switch
4 = Phone switch
5 = Not used

Fig. 1: Electrical connections

NOTE: Refer to Figure 35 on page 36 of the XPak Installation and Operating Instructions for connections from this Remote Control Panel to the XPak boiler.

SWITCHES

The remote control unit features two directly accessible ENCODER knobs. The left-hand knob (SELECT) is used to select the operating mode. Turn to "**RUN**" for normal operation. The right-hand knob (EDIT) is used to modify the selected value.

Fig 2: Switches

System information

Some system information is shown on the central line of the display.

The ambient temperature and time are normally displayed	70	°F	16:32
If the holiday function is enabled, the time remaining in days is displayed.	HO		05
In case of a fault, ambient temperature and fault code are displayed.	70	°F	E001

Turn the right-hand knob (EDIT) to view:

- Outdoor temperature (only if the outdoor air sensor is installed in the boiler)	AF	°F	60.3
- Boiler supply temperature	⬅	°F	128.7
- Boiler supply temperature setpoint (calculated by the remote control unit)	♨	°F	128.7
- Domestic hot water temperature at boiler	⌁	°F	116.0
- Battery charge status (not used on REC08)	▯	--	--

Day of the week

The day of the week is indicated by the corresponding segment lighting up on the first row of the display.

Boiler status

The boiler status and communication status are displayed

⬦   *OT+ communication correct*

♈   *Radio communication function (not used on REC08)*

⬅   *Flame present in boiler*

♨   *Solar panel thermostatic control (not used on REC08)*

♨○   *Current heating demand in boiler*

⌁○   *Current domestic hot water demand in boiler*

Current heating program

Shows the current heating program.

Control panel operating mode

The current operating status of the control panel is shown on this row of the display:

⏻   *Standby / OFF*

⏱₁   *Automatic operation Heating according to program 1*

⏱₂   *Automatic operation Heating according to program 2*

✳   *Continual heating at comfort temperature*

☽   *Continual heating at setback temperature*

⌁   *Summer mode*

⚒   *Status during Service Technician repair (not used on REC08)*
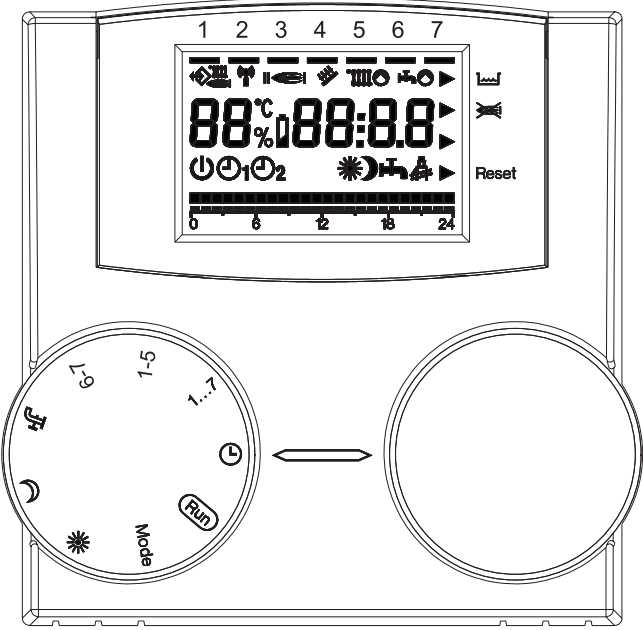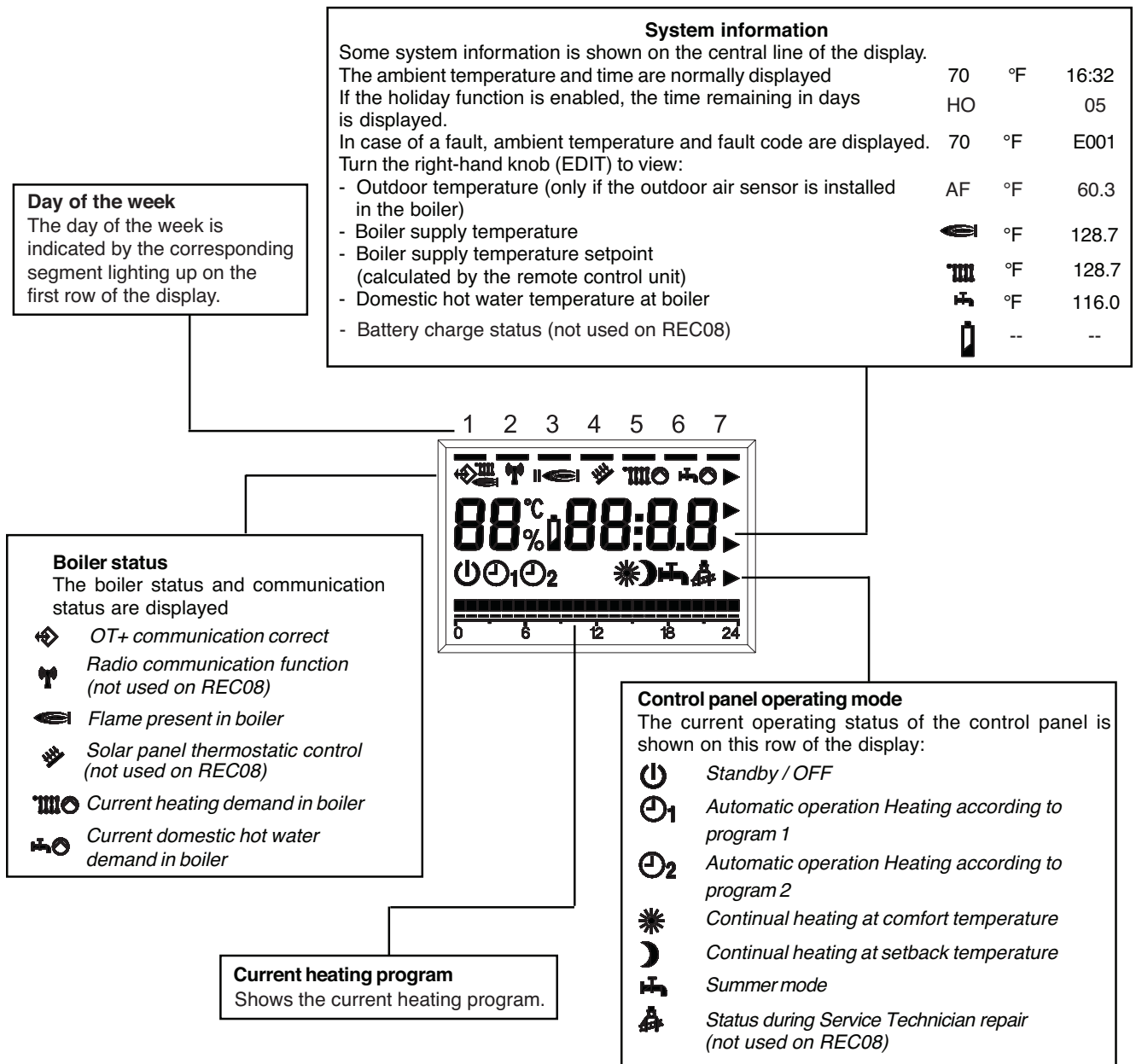
Fig. 3: Run Mode

5

RUN MODE

With the left-hand knob (SELECT) turned to "**RUN**," the control panel displays the information required to check the status of the control panel and boiler. The information is displayed in Fig. 3 on page 5.

CONTROL PANEL OPERATING MODE SETTINGS

Turn the left-hand knob (SELECT) to "**MODE**" and turn the right-hand knob (EDIT) to set one of the following
operating modes:

⏻ Standby / OFF

Heating and hot water are disabled. Only the freeze protection function remains enabled.

⏲1 Automatic operation - heating according to program 1

Heating with program 1. Domestic hot water production enabled.

⏲2 Automatic operation - heating according to program 2

Heating with program 2. Domestic hot water production enabled.

☀ Continual heating in comfort mode (manual)

24-hour heating at comfort temperature. Domestic hot water production enabled.

☽ Continual heating in setback mode (manual)

24-hour heating at setback temperature. Domestic hot water production enabled.

🚰 Summer mode

No heating (only freeze protection). Domestic hot water production enabled.

PL Technical level

Setting of parameters 1-17.

HO Holiday setting

Heating and hot water are disabled. Only the freeze protection function remains enabled.

After setting the parameters, turn the SELECT knob back to "**RUN**."

Setting the comfort temperature

Turn the left-hand knob (SELECT) to "☀"
and turn the EDIT knob to set the required temperature from 40°F to 104°F (5°C to 40°C). After setting the parameter, turn the SELECT knob back to "**RUN**."

Setting the night setback temperature

Turn the left-hand knob (SELECT) to "☽"
and turn the EDIT knob to set the required temperature from 40°F to 104°F (5°C to 40°C). After setting the parameter, turn the SELECT knob back to "**RUN**."

Setting the domestic hot water temperature

Turn the left-hand knob (SELECT) to and "🚰"
turn the EDIT knob to set the required temperature from 95°F to 122°F (35°C to 50°C). After setting the parameter, turn the SELECT knob back to "**RUN**."

Setting the day of the week

Turn the left-hand knob (SELECT) to "*1....7"* and turn the EDIT knob to set the required day of the week. After setting the parameter, turn the SELECT knob back to "**RUN**."

Setting the time

Turn the left-hand knob (SELECT) to "⏱"
and turn the EDIT knob to set the current time. After setting the parameter, turn the SELECT knob back to "**RUN**."

Setting the holiday program

Turn the SELECT knob to "**MODE**," and then turn the EDIT knob to "**HO**" and set the required number of days holiday. Turn the SELECT knob back to "**RUN**." The function begins immediately and ends at midnight on the last set day.
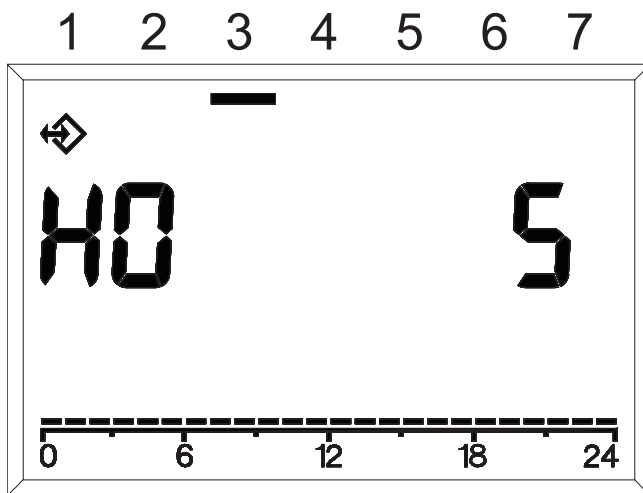

**Fig. 4: Setting the holiday program
(Example shown indicates a 5-day holiday.)**

Setting the heating program

The remote control unit can be used to set two heating programs.

Heating program 1 is used to modify two blocks of days independently: Monday-Friday and Saturday-Sunday.

To set heating program 1, turn the SELECT knob to "**6 – 7**" in order to modify Saturday and Sunday settings or to "**1 – 5**" in order to modify those of the rest of the week.

Heating program 2 is be used to modify parameters 1 (Monday) to 7 (Sunday). To set heating program 2, enter the technical menu and select parameters 1 to 7 depending on the day being set. To do so, turn the SELECT knob to "**MODE**" and then select "**PL**" with the EDIT knob.

Select the required parameter by turning the SELECT knob clockwise: 01 for Monday through 07 for Sunday. Next to the heating program sign, the display shows the current program in hours, the day or group of days to which the programming refers, the programming time and, the first hour block, which will be flashing. On and off times are then set for both heating programs. Turn the right-hand (EDIT) knob counter-clockwise to set the heating phases at setback temperature. Turn it clockwise to set the heating phases at comfort temperature. Every turn of the knob corresponds to a 15-minute increase in time, and every movement of the cursor corresponds to a 1-hour increase.

To exit heating program 1 settings, turn the SELECT knob to "**RUN**."

To exit heating program 2 settings, after programming the days of the week, turn the SELECT knob clockwise to "**PL**," turn the EDIT knob counter-clockwise until it reaches the required operating mode (see the dedicated section). Then turn the SELECT knob to "**RUN**."

Programming takes place throughout the 24 hours. After 23:45, the hour block switches to 0:00.
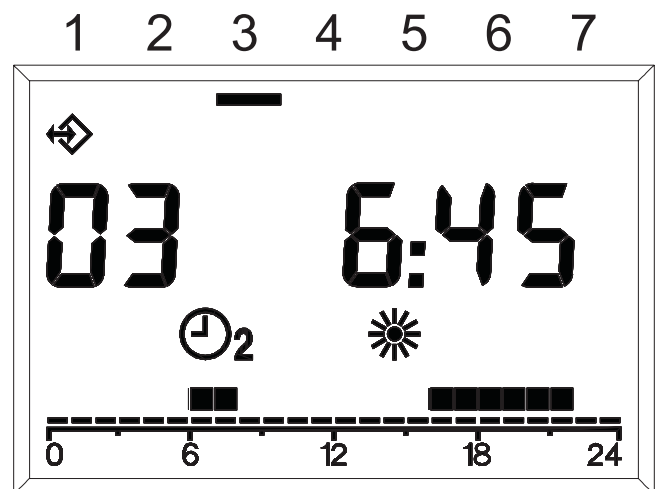

Fig. 5: Setting the heating program

Fault display

Faults are displayed with **EXXX**, where XXX is the default code generated by either the remote control unit or the boiler. The code is displayed instead of the time on the information line. The signal is fixed if the alarm does not require a RESET while it flashes if it requires the RESET procedure. Table A shows the fault codes generated by the thermostat timer.
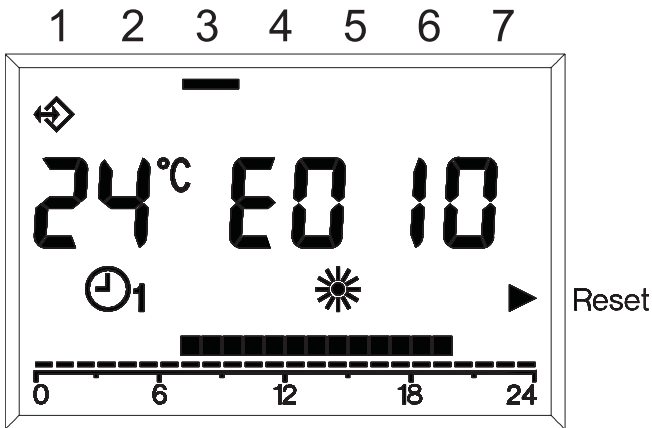

Fig. 6: Fault display

Error #	Description
E 201	No communication with boiler. Data transmission to the boiler must be checked.
E 81	EEPROM Error This code means the memory of the ter-mostat timer has been altered (e.g. via EMV). Following the error, the default data is loaded. All the set values must be checked.
E 80	Fault in the ambient temperature sensor.

Table A: Fault codes generated by the thermostat timer

For definitions of the alarms generated by the boiler, please consult the XPak Installation and Operating Instructions.

Reset blocks in case of boiler error

Some boiler alarms can be directly reset from the remote control unit. In these cases, in addition to the code flashing on the display, a triangle lights up next to the RESET message on the right-hand side of the display (see Fig. 6). At this point, the RESET function can be activated. Turn the EDIT knob clockwise. A RESET command equivalent to pressing the button on the boiler is generated and the release command is sent to the boiler. The arrow disappears after the RESET command has been given.
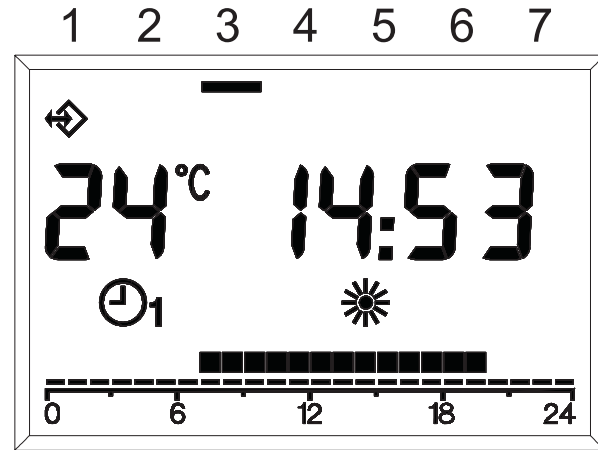

Fig. 7: Reset blocks in case of boiler error

Technical menu

To enter the technical menu, turn the SELECT knob to "**MODE**," turn the EDIT knob to "**PL**" and then select the required parameter using the SELECT knob.

Turn the EDIT knob to set the required value.

To exit the technical level, select the forward/back parameter, "**PL**," using the SELECT button and then turn the EDIT knob.

Both heating program 2 and some installer parameters can be set in the technical menu.

To set the heating program, parameters 01-07, consult the above section

Setting the heating program

Parameters 08 through 17 refer to ambient temperature adjustment and boiler operation.

WARNING: Changing the values of parameters 08 through 17 may compromise the normal operation of the boiler. These parameters should be changed by qualified technicians only.

08 Maximum heating temperature
Maximum delivery temperature of boiler in the heating mode.

09 Minimum heating temperature
Minimum temperature of boiler in the heating mode. If the outdoor air sensor is not fitted and parameter 11, internal sensor influence, equals zero, this parameter is used as a set point for the temperature of the heating water.

10 Heat adjustment curve for heating water
This is only enabled if an outdoor air sensor is connected. Relation curve of the outdoor air sensor in the algorithm used to calculate delivery temperature adjustment.

11 Internal sensor influence
Importance of the ambient temperature sensor in the algorithm used to calculate delivery temperature adjustment.

12 Not used

13 Ambient sensor offset
Temperature offset of the measured internal sensor; this is used to adapt the value to the place of installation.

14 Loading default parameters
Set this parameter to 1 to load the default configuration of the parameters. The day and time are not modified.

15 Supplementary heat adjustment constant
Offset parameter in the algorithm used to calculate delivery temperature adjustment.

16 Software version
This displays the code of the software implemented on the remote control unit.

17 °C/°F selection
This parameter selects whether to view temperatures in °F (Fahrenheit) or °C (Celsius).
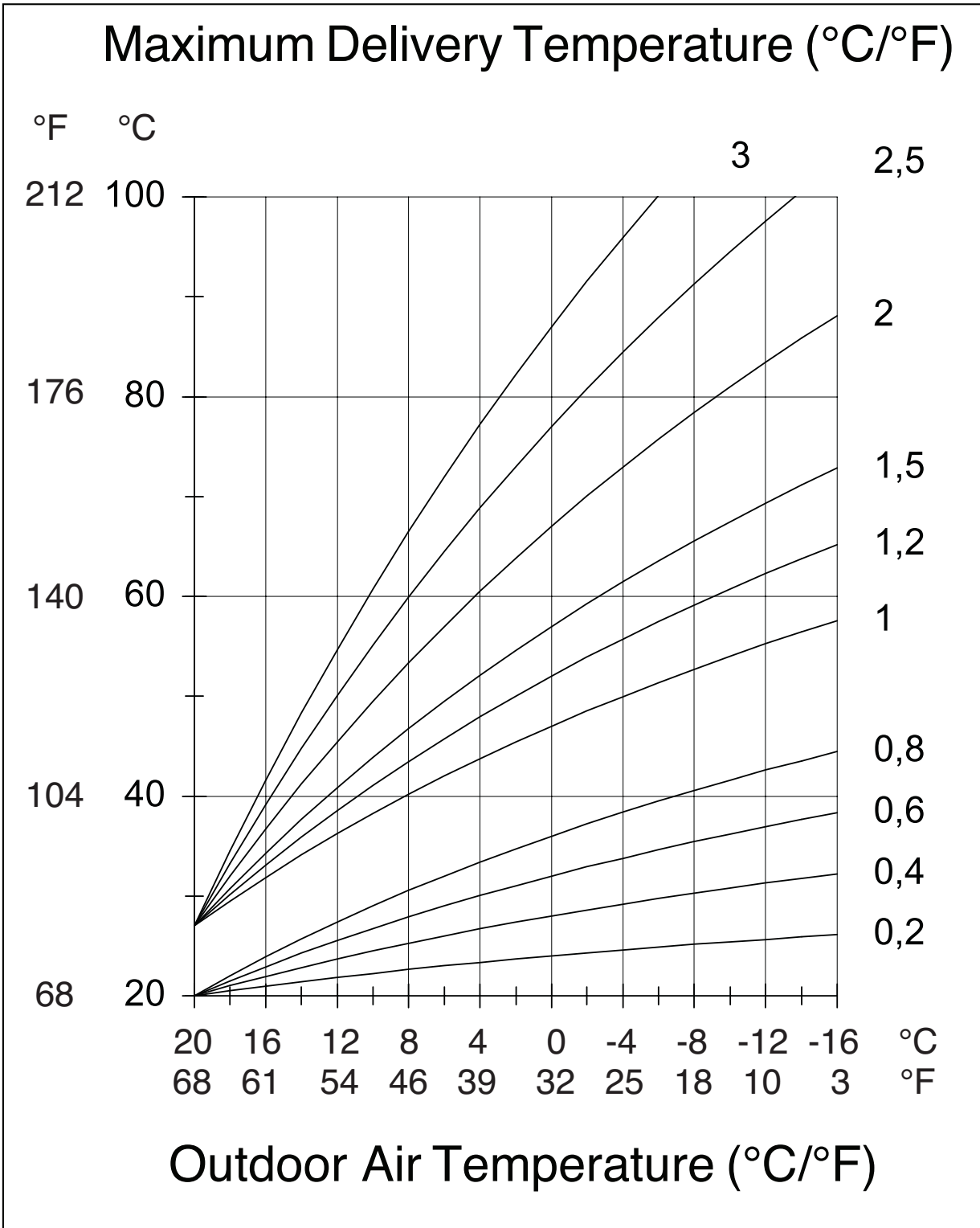
Maximum Delivery Temperature (°C/°F)

°F	°C												

3   2,5

212 100

2

176 80

1,5

1,2

140 60

1

0,8

104 40

0,6

0,4

0,2

68   20

	20	16	12	8	4	0	-4	-8	-12	-16	°C
	68	61	54	46	39	32	25	18	10	3	°F

Outdoor Air Temperature (°C/°F)

Fig. 8: Heat Adjustment Curves for heating water

XPak Fault Codes

CODE	CAUSE	ALARM TYPE	ACTION
AL10	Ignition failure/not flame sensed, condense sensor activated	Final	Reset, check appliance operation
AL20	Limit thermostat fault, blocked flue switch, flue thermostat	Final	Reset, check appliance operation
AL21	External device fault (UHT/CPA)	Final	Reset, check appliance
AL26	Return temperature too high	Final	Reset, check pump, ensure there is sufficient flow sensor temperature). Circulation around heating circuit/s
AL2	Temperature differential inverted (return sensor temperature higher than flowsensor temperature)	Final	Reset, check pump, ensure there is sufficient circulation around heating circuit/s thermistors
AL29	Flue sensor over temperature lock out	Final	Reset check appliance operation
AL34	Fan blower signal fault	Final	Reset check appliance operation, check fan
AL40	Insufficient system water pressure	Final appliance operation	Check/refill system pressure, reset, check
AL41	Insufficient system water pressure	Temporary	Check/refill system pressure, check appliance operation
AL52	Internal fault	Final	Reset, check boiler operation
AL55	Jumper tag fault	Final	Check jumper tag configuration
AL60	Jumper tag fault	Temporary	Check jumper tag configuration
AL71	Primary (flow) sensor fault	Temporary	Check primary thermistor, check wiring
AL73	Return sensor fault	Temporary	Check return thermistor, check /wiring
AL74	Variation on temperature of primary	Final	Reset, check boiler operation, check and/or return too high pump, ensure there is sufficient circulation around heating circuit/s
AL79	Flow temperature too high, or temperature differential between primary and return too high	Final	Reset, check appliance operation, check thermistors
AL91	The main heat exchanger need to be cleaned	Advice	Call Raypak technical service

Table B: XPak Fault Codes