Use manual

System controller
for modulating absorption methane condensing heat pump +
renewable aerothermal energy K18
Revision: A
Code: D-LBR771

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1 PREFACE

This User Handbook is a guide to the use and configuration of the K18 system controller. The system controller consists of an electrical enclosure (CSK18), generally installed in a machine room, with an included room unit, and at most two other optional room units which can be added to improve comfort control when the heating system consists of two or three separate heating circuits, or two or three zone valves.

This handbook assumes that you are familiar with the products Robur and information contained in the equipment’s respective installation, user and maintenance manuals.

This manual is specifically intended for:
▶ for end users for the operation of the appliance according to their own requirements;
▶ for installers of the water and electrical circuits, as a supplement to the K18 system controller installation manual (and the KECSK18 system controller expansion kit installation manual, if applicable).

Glossary
DHW domestic hot water.
HC heating circuit
HC1 or C1 Heating circuit 1 (with/without mixer valve)
HC2 or C2 Heating circuit 2 (with/without mixer valve)
HC3 or C3 Heating circuit 3 (without mixer valve)

2 WARNINGS AND GENERAL INFORMATION

2.1 WARNINGS

This manual is an integral and essential part of the product and must be delivered to the user together with the appliance.

Safety

The appliance must only be used for the purposes for which it has been designed. Any other use is considered inappropriate and therefore dangerous. The manufacturer does not accept any contractual or extra-contractual liability for any damage caused by improper use of the appliance.

Failure to observe the above instructions can compromise the safety of the appliance and voids the Robur warranty

Do not operate the appliance if any dangers are present: mains power problems; parts of the appliance flooded or damaged in any way; control and safety equipment tampered with or malfunctioning. In these cases, contact a professional technician for assistance.

Packaging (plastic bags, polystyrene foam, etc.) must be kept out of the reach of children, as they are potentially dangerous.

References

Further information can be found in the following documents:
K18 system controller installation manual (D-LBR770).
KECSK18 system controller expansion kit installation manual (D-LBR772).
K18 installation, user and maintenance manual (D-LBR687).

The icons in the edge of the manual have the following meanings:

Danger symbol
Warning
Note
Start of procedure
Reference to another part of the handbook or other manual/handbook

2.2 GENERAL INFORMATION

Fig. 2.1 p. 5 shows the equipment of the K18 system controller.
Figure 2.1 – K18 system controller components

LEGEND
A  QAC34 external temperature sensor
B  CSK18 enclosure
C  Room unit 1 (QAA75.611)
D  Room unit 2 (Optional - QAA55.110, shown, or QAA75.611)
E  Room unit 3 (Optional - QAA55.110, shown, or QAA75.611)
P  K18 fault reset button
3 USER INSTRUCTIONS: QAA75.611 ROOM UNIT

3.1 LEGEND OF COMMANDS

Figure 3.1 – QAA75.611 room unit

Description of QAA75.611 room unit controls

3.2 DISPLAY SYMBOLS

Table 3.1 – Symbols shown on the display

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Sun]</td>
<td>Current heating mode: Comfort setpoint</td>
</tr>
<tr>
<td>![Moon]</td>
<td>Current heating mode: Reduced setpoint</td>
</tr>
<tr>
<td>![Heater]</td>
<td>Current heating mode: Anti-icing protection setpoint</td>
</tr>
<tr>
<td>![Processing]</td>
<td>Processing – please wait</td>
</tr>
<tr>
<td>![Holiday]</td>
<td>Holiday program active</td>
</tr>
<tr>
<td>![Circuit]</td>
<td>Indicates that the data on the display refer to heating circuit 1, 2 or 3, depending on the digit to the left or right of the symbol.</td>
</tr>
<tr>
<td>![Special]</td>
<td>Special mode / Maintenance</td>
</tr>
<tr>
<td>![Error]</td>
<td>Error message</td>
</tr>
<tr>
<td>![Protection]</td>
<td>Protection mode</td>
</tr>
<tr>
<td>![Info]</td>
<td>Info level active</td>
</tr>
<tr>
<td>![Prog]</td>
<td>Programming active</td>
</tr>
<tr>
<td>![Eco]</td>
<td>Heating system inactive, summer mode</td>
</tr>
<tr>
<td>![HeatPump]</td>
<td>Indicates that the heat pump is running</td>
</tr>
<tr>
<td>![Heater2]</td>
<td>Indicates that the supplementary heater (e.g. boiler) is running</td>
</tr>
</tbody>
</table>
3.3 SELECTING THE HEATING MODE

If multiple heating circuits are present (two or three), configured with a single room unit (factory setting), when you first press the button you are prompted to select which circuit you wish to configure; if so:
1. Turn knob G (fig. 3.1 p. 6) to select heating circuit 1, 2 or 3.
2. Press OK (D in fig. 3.1 p. 6) to confirm.
3. Press, multiple times if necessary, key B (fig. 3.1 p. 6) to set the heating mode.

Automatic mode

Automatic mode maintains the room temperature at the comfort or reduced level, depending on the time program. Characteristics of automatic mode:
- Comfort or reduced heating mode, depending on time programming.
- Anti-icing protection functions active.
- Automatic summer/winter mode switching (ECO functions) and 24 hour daily heating limit enabled.
- Current heating mode (depending on time program): Comfort
- Current heating mode (depending on time program): Reduced

or continuous mode

Continuous mode always maintains the comfort or reduced room temperature
- Comfort mode heating
- Reduced mode heating

Characteristics of continuous mode:
- Constant heating mode, does not follow the time programming.
- Anti-icing protection functions active.
- Continuous operation in Comfort mode: automatic summer/winter mode switching (ECO functions) and 24 hour daily heating limit disabled (i.e. heating remains active, the said functions have no effect).

Anti-icing protection mode

Protection mode maintains the room temperature at the (configurable) Anti-icing protection level. Characteristics of protection mode:
- Constant heating mode at the anti-icing protection setpoint.
- Anti-icing protection functions active.
- Automatic summer/winter mode switching (ECO functions) and 24 hour daily heating limit enabled.

3.4 MODIFYING THE ROOM TEMPERATURE SETPOINT

Knob G (fig. 3.1 p. 6)

If multiple heating circuits are present (two or three), configured with a single room unit (factory setting), when you first turn the knob you are prompted to select which circuit you wish to configure; if so:
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Turn the knob to increase the setpoint (CW) or reduce it (CCW).
3. Confirm by pressing OK.
4. If necessary, key B (fig. 3.1 p. 6) to set the setpoint value.
5. Press OK to confirm.

Modifying the comfort setpoint

Turn the knob to increase the setpoint (CW) or reduce it (CCW). Confirm by pressing OK.

Modifying the reduced setpoint

The reduced setpoint can only be adjusted in programming mode. Proceed as follows. For further information, refer to section 5 p. 11
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK.
3. Turn the knob to select the “Heating circuit 1,” “Heating circuit 2” or “Heating circuit 3” menu, depending on which circuit you want to configure.
4. Press OK.
5. Turn the knob clockwise to select “Reduced setpoint”
6. Press OK.
7. Turn the knob to set the value
8. Press OK to confirm.
9. Press ESC twice to go back to the start screen.

3.5 OCCUPANCY BUTTON

If, during heating in comfort mode, the rooms are unoccupied for a period of time, you can press the occupancy key L (fig. 3.1 p. 6) to switch to reduced mode and save heating costs.

When the rooms are occupied again, simply press the key once more to restore normal comfort mode heating.

In the same way, press the key once when in reduced mode to switch to comfort mode and press it again to restore reduced mode.

The occupancy key is only active in automatic mode. The setting applied by pressing the occupancy key remains active until the next change in heating mode set in the time program. For example, if you press the occupancy key while the system is in comfort mode, thus switching to reduced mode, the system will automatically return to comfort mode the next time the time program switches from reduced to comfort mode.

If multiple heating circuits (two or three) are present, configured to a single room unit (factory setting), the occupancy key affects all circuits.

3.6 SELECTING THE DHW MODE

DHW mode

Press key A (fig. 3.1 p. 6), multiple times if necessary, to set activation (two modes) or deactivation of the DHW production system. System activation is indicated on the display by one or two hyphens under the symbol.

DHW mode

- **On** (two hyphens): the system produces DHW at the DHW comfort setpoint, over the 24 hours or during the periods set in the DHW time program, if active; in the latter case, DHW is held at the DHW reduced setpoint for the remainder of the time.
- **Eco On** (one hyphen): the system produces DHW at the DHW reduced setpoint over the 24 hours.
- **Off** (no hyphen): the system does not produce DHW, but the anti-icing protection function for the buffer tank is active.

DHW forced charging function

This function forces a single charging cycle to prepare DHW at the DHW comfort setpoint. The function can be activated independently of the DHW mode setting.

To activate the function, press and hold down the DHW mode button until the message DHW charging on displays temporarily to confirm initiation of the charging cycle.

Activating this function does not modify the DHW mode setting; when the single charging cycle terminates, the current DHW mode resumes.

3.7 INFORMATION DISPLAY

Pressing the Info key (C in fig. 3.1 p. 6) starting from the start screen, displays the system’s status and operating data.

If you are not sure that the display is showing the start screen, press ESC twice before pressing Info (C).

If the system has a fault, as indicated by the symbol on the start screen, the first data displayed when you press Info (C) is the fault code and description (fig. 3.4 p. 8).

Figure 3.4 – Fault code and description in the Information screen

If a fault is present, refer to SECTION 6 p. 18.

Pressing Info (C) repeatedly displays:
- Room temperature read by room unit 1
- Room temperature read by room unit 2 (if present)
- Room temperature read by room unit 3 (if present)
- Heat pump status
- Supplementary heater status (auxiliary boiler)
- Stato ACS
4 User instructions: QAA55.110 room unit

4.1 Legend of commands

Figure 4.1 – QAA55.110 room unit

Description of QAA55.110 room unit keys

4.2 Display symbols

Table 4.1 – Display symbols

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☀</td>
<td>Current heating mode: Comfort setpoint</td>
</tr>
<tr>
<td>☾</td>
<td>Current heating mode: Reduced setpoint</td>
</tr>
<tr>
<td>☢</td>
<td>Error message</td>
</tr>
</tbody>
</table>

(1) The circuit 1 and 2 outlet temperature is indicated only if the circuits are of the mixed type; circuit 3 is always of the not mixed type. The outlet setpoint only displays if the circuit is requesting heat.

Continuing to press Info (↓) cycles through the data.
To return to the start screen, press ESC.
4.3 SELECTING THE HEATING MODE

Press, multiple times if necessary, key A (fig. 4.1 p. 9) to select the heating mode. The selected mode displays with a hyphen under the respective symbol.

In contrast with the QAA75.611 room unit, the QAA55.110 unit is always associated with a single heating circuit and hence its settings apply only to that circuit. In the K18 system controller, this type of room unit is optionally used to control the second and third heating circuit (if present); in this case, the included QAA75.611 room unit is associated only with the first heating circuit during installation and commissioning. It follows that in this case the direct settings (i.e. those not made in programming mode) described in par. 3.3 p. 7, 3.4 p. 7 and 3.5 p. 8 apply solely to the first heating circuit.

However, you can also change all settings for the second and third heating circuits with the included QAA75.611 room unit in programming mode.

Automatic mode

Automatic mode maintains the room temperature at the comfort or reduced level, depending on the time program.

Characteristics of automatic mode:

- Comfort or reduced heating mode, depending on time programming.
- Anti-icing protection functions active.
- Automatic summer/winter mode switching (ECO functions) and 24 hour daily heating limit enabled.

Continuous operation in Comfort mode: automatic summer/winter mode switching (ECO functions) and 24 hour daily heating limit disabled (i.e. heating remains active, the said functions have no effect).

Protection mode

Protection mode maintains the room temperature at the (configurable) Anti-icing protection level.

Characteristics of protection mode:

- Constant heating mode at the anti-icing protection setpoint.
- Anti-icing protection functions active.
- Automatic summer/winter mode switching (ECO functions) and 24 hour daily heating limit enabled.
4.4 MODIFYING THE ROOM TEMPERATURE SETPOINT
Knob B (fig. 4.1 p. 9)

Figure 4.3 – Setpoint knob

Modifying the comfort setpoint
Turn the knob to increase the setpoint (CW) or reduce it (CCW). Confirm by pressing OK.

Modifying the reduced setpoint
The reduced setpoint can only be modified in programming mode on a QAA75.611 room unit, as described in par. 3.4 p. 7.

4.5 OCCUPANCY BUTTON

If, during heating in comfort mode, the rooms are unoccupied for a period of time, you can press the occupancy key C (fig. 4.1 p. 9) to switch to reduced mode and save heating costs. When the rooms are occupied again, simply press the key once more to restore normal comfort mode heating. In the same way, press the key once when in reduced mode to switch to comfort mode and press it again to restore reduced mode.

The occupancy key is only active in automatic mode. The setting applied by pressing the occupancy key remains active until the next change in heating mode set in the time program. For example, if you press the occupancy key while the system is in comfort mode, thus switching to reduced mode, the system will automatically return to comfort mode the next time the time program switches from reduced to comfort mode.

5 PARAMETERS AND SETTINGS

Par. 5.1 p. 11 describes how to set parameters with the user interface of the QAA75.611 room unit, and illustrates an example configuration procedure graphically. The following paragraphs detail the main user-configurable parameters.

5.1 PROGRAMMING

Settings which cannot be done directly with the room unit’s knob and keys are done by means of programming. To display and modify the parameters of the system controller, proceed as follows:
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK on the room unit; this displays the list of menus.
3. Turn the knob to select the menu, then press OK to display it.
4. Turn the knob to select the parameter you wish to view/modify; the display shows its current value.
5. To modify the value, press OK; the displayed value will start flashing:
   - Turn the knob to select the desired value.
   - Press OK to confirm it, or
   - Press ESC to abort the change.
6. If you want to view and modify other parameters in the same menu, turn the knob to display them; modify them as explained in point 5.
7. Once you have finished viewing and modifying the parameters of a given menu, press ESC to go back to the list of menus.
8. To access other menus, repeat steps 3 to 7 for each menu in question.
9. Once you have finished working with the menus, press ESC to return to the start screen.

If you do nothing for 8 minutes the device will automatically return to its start screen.

We illustrate below a sample setting: setting the time.
Select the “Time of day and date” menu

**Figure 5.1 – The display shows the time/date setting menu**

LEGEND
Press **OK** (in the start menu), the display will show a list of menus.
Turn the knob until the **Time of day and date** menu displays.
Press **OK** to access the menu.

Select parameter: “Hours / minutes”

**Figure 5.2 – The display shows the hours and minutes for modification**

LEGEND
The bottom of the screen displays the first parameter in the **Time of day and date** menu.
Turn the knob until the parameter **Hours / minutes** displays.
Press **OK** to select the parameter.

Modify the hour

**Figure 5.3 – The display shows the hours, flashing**

LEGEND
The display shows the hours, flashing
Turn the knob to set the hours.
Press **OK** to confirm.

Modify the minutes

**Figure 5.4 – The display shows the minutes, flashing**

LEGEND
The display shows the minutes, flashing
Turn the knob to set the minutes.
Press **OK** to confirm.

Hours and minutes modified

**Figure 5.5 – The display shows the set time**

LEGEND
The settings have been saved. The display stops flashing.
Turn the knob to display the **Day / month** and **Year** parameters; to set them, proceed in the same way. After making the settings, press **ESC** once to return to the list of menus, and again to go back to the start screen.
5.2 LANGUAGE
To set the language, proceed as follows:
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK on the room unit; this displays the list of menus.
3. Turn the knob to select the Operator section menu.
4. Press OK to access the menu.
5. Parameter 20 (Language) displays; to adjust it:
   - press OK, the current language, at the bottom right of the screen, starts flashing;
   - turn the knob to select your language;
   - press OK to confirm; the new language selection displays without flashing.
6. Press ESC once to return to the list of menus, and again to return to the start screen.

5.3 DATE AND TIME
The controller has an annual clock with the following main characteristics:
- Automatic leap year adjustment
- Automatic switching between summer and winter time
- Backup charge to handle temporary power faults

To use the time programs and holiday programs, the date and time must be set correctly.

The switch from winter to summer time happens at 02:00 of the last Sunday of March (at 02:00 the timer is set back to 01:00); the switch from summer to winter time happens at 03:00 of the last Sunday of October (at 03:00 the timer is set back to 02:00).

To set the date and time, proceed as follows (this procedure is also given as an example with illustrations in par. 5.1 p. 11):
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK on the room unit; this displays the list of menus.
3. Turn the knob to select the Time of day and date menu.
4. Press OK to access the menu.
5. Parameter 1 (Hours / minutes) displays; to adjust it:
   - press OK, the two leftmost digits (hours) start flashing;
   - turn the knob to set the hours;
   - press OK to confirm; the new value of the hours displays without flashing, while the two right most digits (minutes) start flashing;
   - turn the knob to set the minutes;
   - press OK to confirm; the new time (hours and minutes) displays without flashing.
6. Turn the knob to select parameter 2 (Day / month); to adjust it:
   - press OK, the two leftmost digits (month) start flashing;
   - turn the knob to set the month;
   - press OK to confirm; the new value of the month displays without flashing, while the two right most digits (day) start flashing;
   - turn the knob to set the day;
   - press OK to confirm; the new month and day display without flashing.
7. Turn the knob to select parameter 3 (Year); to adjust it:
   - press OK, the year digits start flashing;
   - turn the knob to set the year;
   - press OK to confirm; the new year value displays without flashing.

Once you have set the date and time, press ESC to return to the list of menus; you can now make other settings, or press ESC again to go back to the start screen.

Table 5.1 p. 13 lists the codes of the parameters used to set the date and time.

<table>
<thead>
<tr>
<th>Parameter code</th>
<th>Description of parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hours/minutes HHHMM</td>
</tr>
<tr>
<td>2</td>
<td>Day/month DDMM</td>
</tr>
<tr>
<td>3</td>
<td>Year YYYY</td>
</tr>
</tbody>
</table>

5.4 TIME PROGRAMS
The heating circuits (or zones) and DHW system (if present) each have their own dedicated weekly time program. As described in par. 3.3 p. 7 and 4.3 p. 10, the time program associated with a given heating circuit is activated when automatic mode is selected for the circuit in question.

For a DHW system, you can activate/deactivate the time program, but this can only be done by a TAC. The factory setting has this time program inactive (DHW comfort setpoint maintained all 24 hours). Even modifications to the DHW reduced setpoint (factory set to 45.0 °C) must be done by the TAC.

Each time program enables you to set up to 3 periods of operation with the comfort setpoint for each day of the week; outside these periods, the system maintains the reduced setpoint. The factory setting for the heating circuit time programs provides, for each day of the week, a period using the comfort setpoint from 06:00 to 22:00; the DHW time program (when activated by the TAC) has two periods with the comfort setpoint: from 00:00 to 05:00 and 17:00 to 21:00.

These settings can be changed as follows:

Heating circuit 1 time program
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK on the room unit; this displays the list of menus.
3. Turn the knob to select the Time prog heating/cooling 1 menu.
4. Press OK to access the menu.
5. Parameter 500 (Preselection) displays, the value of which indicates the days of the week for which the following settings will apply; you can set the values:
   - Mo - Su to set all days of the week to the same settings
   - Mo - Fr to set all working days to the same settings
   - Sa - Su to set the weekend days to the same settings
   - Mo, Tu, We, Th, Fr, Sa, Su to program the days individually.

To modify the initial setting (Mo - Su):
- press OK, the parameter’s value will start flashing;
- turn the knob to set the value;
- press OK to confirm; the new preselection value will display without flashing at the bottom right; the following settings will apply to the days in question.
6. Turn the knob to select parameter 501 (1st period on) the value of which indicates the start time (hours and minutes) of the first daily period with the comfort setpoint; to modify this value:
   ► press OK, the parameter’s value will start flashing:
   ► turn the knob to set the value:
   ► press OK to confirm; the new value displays without flashing at the bottom right.

7. Turn the knob to select parameter 502 (1st period off) the value of which indicates the end time (hours and minutes) of the first daily period with the comfort setpoint; to modify this value:
   ► press OK, the parameter’s value will start flashing:
   ► turn the knob to set the value:
   ► press OK to confirm; the new value displays without flashing at the bottom right.

8. If you need to set a second daily period with the comfort setpoint, proceed as indicated in steps 6 and 7 to set the value of parameters 503 (2nd period on) and 504 (2nd period off).

9. If you need to set a third daily period with the comfort setpoint, proceed as indicated in steps 6 and 7 to set the value of parameters 505 (3rd period on) and 506 (3rd period off).

10. If you need to program other days of the week, turn the knob to select 500 (Preselection) again and proceed as indicated in step 5 to set a new value; then repeat steps 6 and 7 as many times as required to set one or more daily periods with the comfort setpoint for the days of the week in question.

An inactive period is indicated by hyphens ( - -:- - ) in place of the time (hours and minutes) for the respective “Period on” and “Period off” parameters. To set a parameter to the disabled setting, turn the knob clockwise until the hyphens display.

You can also copy all programming of a given preselection of days of the week, excepting Mo - Su, to specific days of the week, using parameter 515 (Copy):
   ► set parameter 500 (Preselection) to the days of the week you wish to copy, as described in steps 1 – 5 above.
   ► turn the knob to select parameter 515 (Copy)
   ► press OK, the parameter’s value will start flashing
   ► turn the knob to set the day of the week to copy the values from the preselected days of the week to.
   ► press OK to confirm; all the programming of the preselected day/s of the week will be copied to that day.

Once you have finished setting the time program parameters for heating circuit 1, press ESC to return to the list of menus; you can now configure other time programs, or press ESC again to go back to the start screen.

Heating circuit 2 and 3 time programs, and DHW system time program (if present)
These programs are set in the same way as for heating circuit 1, with the following differences:
   ► In step 3, select the menu:
      ► Time prog heating/cooling 2
      ► Time prog heating/cooling 3
      ► Time program 4/DHW
   depending on the time program you wish to set.

For the rest of the procedure, refer to table 5.2 p. 15 for the parameter codes.

If the Time program 4/DHW is not displayed, this means that the DHW time program is deactivated (factory setting, comfort setpoint maintained throughout 24 hours); contact the TAC to have it activated if necessary.

Once you have finished setting the time program parameters, press ESC to return to the list of menus; you can now configure other time programs, or press ESC again to go back to the start screen.
### 5.5 HOLIDAY PROGRAMS

Each heating circuit (or zone) also has its own holiday program. As for time programming, each holiday program is active only when the heating circuit in question is running in automatic mode; refer to par. 3.3 p. 7 and 4.3 p. 10.

Each holiday program allows you to set up to 8 periods of absence over the year; for each period you can specify whether the room units should maintain the reduced or anti-icing protection setpoints.

To set the holiday programs, proceed as follows:

**Heating circuit 1 holiday program**
1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK on the room unit; this displays the list of menus.
3. Turn the knob to select the Holidays zone 1 menu.
4. Press OK to access the menu.
5. Parameter 641 (Preselection) displays, the value of which indicates the period of absence for which the following settings will apply; you can set the values:
   - Period 1, Period 2, …, Period 8.
   - To modify the initial setting (Period 1):
     - Press OK, the parameter’s value will start flashing;
     - Turn the knob to set the value;
     - Press OK to confirm; the new preselection value will display without flashing at the bottom right; the following settings will apply to the period in question.

6. Turn the knob to select parameter 642 (Period 1: Start) the value of which indicates the date (day and month) on which the first period of absence starts; to modify this value:
   - Press OK, the two leftmost digits (month) start flashing;
   - Turn the knob to set the month;
   - Press OK to confirm; the new value of the month displays without flashing, while the two leftmost digits (day) start flashing;
   - Turn the knob to set the day;
   - Press OK to confirm; the date displays without flashing.

7. Turn the knob to select parameter 643 (Period 1: End) the value of which indicates the date (day and month) on which the first period of absence ends; to modify this value:
   - Press OK, the two leftmost digits (month) start flashing;
   - Turn the knob to set the month;
   - Press OK to confirm; the new value of the month displays without flashing, while the two leftmost digits (day) start flashing;
   - Turn the knob to set the day;
   - Press OK to confirm; the date displays without flashing.

**Heating circuit 2 and 3 holiday programs**
For the rest of the procedure, refer to table 5.3 p. 16 for the parameter codes.

---

### Table 5.2 – Time program parameter codes

<table>
<thead>
<tr>
<th>Parameter code</th>
<th>Description of parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 HC1 520 HC2 540 HC3 560 4/DHW</td>
<td>Preselection Mo – Su / Mo – Fr / Sa – Su / Mo / Tu / We / Th / Fr / Sa / Su</td>
</tr>
<tr>
<td>501</td>
<td>1st period On HH:MM [factory setting: HC1, HC2, HC3: 06:00; DHW: 00:00]</td>
</tr>
<tr>
<td>502</td>
<td>1st period Off HH:MM [factory setting: HC1, HC2, HC3: 22:00; DHW: 05:00]</td>
</tr>
<tr>
<td>503</td>
<td>2nd period On HH:MM [factory setting: HC1, HC2, HC3: – – – –; DHW: 17:00]</td>
</tr>
<tr>
<td>504</td>
<td>2nd period Off HH:MM [factory setting: HC1, HC2, HC3: – – – –; DHW: 21:00]</td>
</tr>
<tr>
<td>505</td>
<td>3rd period On HH:MM [factory setting: HC1, HC2, HC3: – – – –]</td>
</tr>
<tr>
<td>506</td>
<td>3rd period Off HH:MM [factory setting: HC1, HC2, HC3, DHW: – – – –]</td>
</tr>
<tr>
<td>515</td>
<td>Copy Mo / Tu / We / Th / Fr / Sa / Su</td>
</tr>
</tbody>
</table>

---

An inactive period of absence is indicated by hyphens (-) in place of the date (day and month) for the respective "Period n: Start" and "Period n: End" parameters. To set a parameter to the disabled setting, turn the knob counterclockwise until the hyphens display.

Once you have finished setting the holiday program parameters for heating circuit 1, press ESC to return to the list of menus; you can now configure other holiday programs, or press ESC again to go back to the start screen.
Once you have finished setting the holiday program parameters, press ESC to go back to the list of menus; you can now configure other holiday programs, or press ESC again to return to the start screen.

### Table 5.3 – Holiday program parameter codes

<table>
<thead>
<tr>
<th>Parameter code</th>
<th>Description of parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC1 641</td>
<td>Preselection Period 1 / Period 2 / … / Period 8</td>
</tr>
<tr>
<td>HC2 651</td>
<td></td>
</tr>
<tr>
<td>HC3 661</td>
<td></td>
</tr>
<tr>
<td>HC1 642</td>
<td>Period n: Start (n: 1 – 8) DD:MM [factory setting: - -.- -]</td>
</tr>
<tr>
<td>HC2 652</td>
<td></td>
</tr>
<tr>
<td>HC3 662</td>
<td></td>
</tr>
<tr>
<td>HC1 643</td>
<td>Period n: End (n: 1 – 8) DD:MM [factory setting: - -.- -]</td>
</tr>
<tr>
<td>HC2 653</td>
<td></td>
</tr>
<tr>
<td>HC3 663</td>
<td></td>
</tr>
<tr>
<td>HC1 648</td>
<td>Operating level Protection / Reduced</td>
</tr>
<tr>
<td>HC2 658</td>
<td></td>
</tr>
<tr>
<td>HC3 668</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter code</th>
<th>Description of parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>Operating mode Protection / Automatic / Reduced / Comfort</td>
</tr>
<tr>
<td>710</td>
<td>Comfort setpoint (Ambient comfort setpoint) CC.C °C [factory setting: HC1, HC2, HC3: 21.0 °C]</td>
</tr>
<tr>
<td>712</td>
<td>Reduced setpoint (Ambient reduced setpoint) RR .R °C [factory setting: HC1, HC2, HC3: 18.0 °C]</td>
</tr>
<tr>
<td>714</td>
<td>Protection setpoint (Ambient frost protection setpoint) PPP °C [factory setting: HC1, HC2, HC3: 7.0 °C]</td>
</tr>
<tr>
<td>720</td>
<td>Heating curve slope 0.10 – 4.00 [factory setting: HC1, HC2: 0.76; HC3: 1.26]</td>
</tr>
<tr>
<td>730</td>
<td>Summer/winter heating limit LLL °C [factory setting: 18.0 °C]</td>
</tr>
<tr>
<td>742</td>
<td>Flow temp setpoint room stat - - - °C (Do not change this setting)</td>
</tr>
</tbody>
</table>

**5.6 HEATING CIRCUIT SETTINGS**

Each heating circuit (or zone) has some own menu in which you can set its operating parameters. The most commonly used parameters operating (mode and comfort setpoint) can also be set directly, as described in par. 3.3 p. 7 and 4.3 p. 10, 3.4 p. 7 and 4.4 p. 11; par. 3.4 p. 7 also describes how to set the reduced setpoint in programming mode. 3.4 p. 7 also describes how to set the reduced setpoint in programming mode.

This paragraph is thus only of interest to the end user if he wishes to make special settings; in case of doubt, contact the TAC.

To access the settings menu, proceed as follows:

1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK; this displays the list of menus.
3. Turn the knob to select the menu:
   - Heating circuit 1
   - Heating circuit 2
   - Heating circuit 3

   depending on which circuit you wish to configure.

4. Press OK to access the menu.
5. Turn the knob to select the parameter, with reference to Table 5.4 p. 16.
6. Press OK, the parameter's value will start flashing
7. Turn the knob to set the value
8. Press OK to confirm.
9. If you wish to set other parameters in the same menu, repeat steps 5, 6, 7 and 8 for each parameter in question.

Once you have finished setting the parameters for a given heating circuit, press ESC to return to the list of menus; you can now configure other heating circuits, or press ESC again to return to the start screen.

### Table 5.4 – Heating circuit parameter codes

<table>
<thead>
<tr>
<th>Parameter code</th>
<th>Description of parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC1 700</td>
<td>Operating mode Protection / Automatic / Reduced / Comfort</td>
</tr>
<tr>
<td>HC2 1000</td>
<td></td>
</tr>
<tr>
<td>HC3 1300</td>
<td></td>
</tr>
<tr>
<td>HC1 710</td>
<td>Comfort setpoint (Ambient comfort setpoint) CC.C °C [factory setting: HC1, HC2, HC3: 21.0 °C]</td>
</tr>
<tr>
<td>HC2 1010</td>
<td></td>
</tr>
<tr>
<td>HC3 1310</td>
<td></td>
</tr>
<tr>
<td>HC1 712</td>
<td>Reduced setpoint (Ambient reduced setpoint) RR .R °C [factory setting: HC1, HC2, HC3: 18.0 °C]</td>
</tr>
<tr>
<td>HC2 1012</td>
<td></td>
</tr>
<tr>
<td>HC3 1312</td>
<td></td>
</tr>
<tr>
<td>HC1 714</td>
<td>Protection setpoint (Ambient frost protection setpoint) PPP °C [factory setting: HC1, HC2, HC3: 7.0 °C]</td>
</tr>
<tr>
<td>HC2 1014</td>
<td></td>
</tr>
<tr>
<td>HC3 1314</td>
<td></td>
</tr>
<tr>
<td>HC1 720</td>
<td>Heating curve slope 0.10 – 4.00 [factory setting: HC1, HC2: 0.76; HC3: 1.26]</td>
</tr>
<tr>
<td>HC2 1020</td>
<td></td>
</tr>
<tr>
<td>HC3 1320</td>
<td></td>
</tr>
<tr>
<td>HC1 730</td>
<td>Summer/winter heating limit LLL °C [factory setting: 18.0 °C]</td>
</tr>
<tr>
<td>HC2 1030</td>
<td></td>
</tr>
<tr>
<td>HC3 1330</td>
<td></td>
</tr>
<tr>
<td>HC1 742</td>
<td>Flow temp setpoint room stat - - - °C (Do not change this setting)</td>
</tr>
<tr>
<td>HC2 1042</td>
<td></td>
</tr>
<tr>
<td>HC3 1342</td>
<td></td>
</tr>
</tbody>
</table>

We explain the parameters listed in Table 5.4 p. 16 below

Comfort, reduced and frost protection modes and setpoints

These parameters are detailed in par. 3.3 p. 7 and 4.3 p. 10,
We recommend making gradual adjustments, so as to avoid major changes to the setting; for example, when using a moderate slope heating curve (1.26), to obtain a variation of 1°C in the room temperature, the slope must be varied by:

- 0.08 at an external temperature of -5 °C
- 0.06 at an external temperature of -10 °C
- 0.04 at an external temperature of -20 °C

For example, if you find that at -10 °C the room temperature is 1 °C lower than that obtained in mild climatic conditions, you should increase the slope by 0.06.

If, on the other hand, you find that at -5 °C the room temperature is 2 °C higher than that obtained in mild climatic conditions, decrease the slope by 0.16.

Furthermore, after each change in the setting, let the system stabilise for 1-2 days to assess its effect.

**Summer/winter heating limit**

For each heating circuit (or zone), a parameter is available to define the external temperature above which the heating system is automatically deactivated and below which it is activated.

- Increasing the value
  - Brings forward activation of the heating system
  - Delays deactivation of the heating system

- Decreasing the value
  - Delays activation of the heating system
  - Brings forward deactivation of the heating system

The external temperature in question is not that measured at a given time, but rather a value filtered to account for the building’s thermal inertia.

**Flow temp setpoint room stat**

For correct operation of the system, do not change the setting of this parameter from the factory value of - - - °C (function disabled).

### 5.7 DHW SYSTEM SETTINGS

The DHW system can be activated and deactivated directly, as described in par. 3.6 p. 8. You can do the same in programming mode; you can also modify the DHW comfort setpoint, i.e. the temperature maintained by the system in the DHW buffer tank.

To access the settings menu, proceed as follows:

1. Make sure the display is showing the start screen; press ESC twice to be certain.
2. Press OK; this displays the list of menus.
3. Turn the knob to select the DHW menu
4. Press OK to access the menu.
5. Turn the knob to select the parameter, with reference to Table 5.5 p. 18.
6. Press OK, the parameter’s value will start flashing
7. Turn the knob to set the value
8. Press OK to confirm.
9. If you wish to set other parameters in the same menu, repeat steps 5, 6, 7 and 8 for each parameter in question.
Once you have finished setting the parameters, press **ESC** to return to the list of menus; you can now configure parameters in other menus, or press **ESC** again to go back to the start screen.

**Table 5.5 – DHW system parameter codes**

<table>
<thead>
<tr>
<th>Parameter code</th>
<th>Description of parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHW 1600</td>
<td>Operating mode (Off / On / Eco)</td>
</tr>
<tr>
<td>1610</td>
<td>Nominal setpoint (Comfort setpoint) 55 °C [factory setting: 55.0 °C]</td>
</tr>
</tbody>
</table>

**Operating mode**

This parameter is described in detail in par. 3.6 p. 8.

- Directly setting the operating mode is exactly the same as setting them in programming mode.

**Comfort setpoint**

The factory setting of 55 °C is suited to the vast majority of household installations. If the DHW buffer tank is oversized, reducing this value to 50 °C will yield cost savings.

If, on the other hand, the tank is relatively small (not an advisable situation), you can increase the value. However, we recommend not exceeding a value of around 57-58 °C; doing so can impact the efficiency of DHW production.

**Activating the DHW time program and modifying the DHW reduced setpoint**

As explained in par. 5.4 p. 13, these settings must be made by a TAC.

**Legionella protection**

The DHW system includes an optional function which regularly runs a thermal cycle to prevent and eliminate legionella bacteria. The cycle consists in periodically raising the DHW temperature to a value which kills off the bacteria.

The function is disabled as the factory default, and must be enabled by a TAC if required.

Once enabled, the factory legionella cycle settings are given in Table 5.6 p. 18. If necessary, the TAC can modify these settings.

**Table 5.6 – Legionella disinfection cycle factory settings**

<table>
<thead>
<tr>
<th>Disinfection cycle characteristics</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming type</td>
<td>Weekly</td>
</tr>
<tr>
<td>Day of execution</td>
<td>Thursday</td>
</tr>
<tr>
<td>Start time</td>
<td>02:00</td>
</tr>
<tr>
<td>Setpoint</td>
<td>60 °C</td>
</tr>
<tr>
<td>Setpoint hold time</td>
<td>45 min</td>
</tr>
</tbody>
</table>

Be aware that, when the legionella cycle is activated, the DHW temperature in the buffer tank will be greater than normal for a few hours after the thermal disinfection cycle executes. **Risk of scalding!**

---

## 6 ERRORS

### 6.1 ERROR LIST

Table 6.1 p. 18 lists the error codes generated by the K18 system controller, along with their descriptions and priorities. The last column of the table lists measures for resolving the problem.

**Table 6.1 – List of system controller errors for K18**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Priority</th>
<th>See:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Outside sensor B9</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>26</td>
<td>Common flow sensor B10</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>30</td>
<td>Flow sensor 1 (1)</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>32</td>
<td>Flow sensor 2 (6)</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>50</td>
<td>DHW sensor 1 (2)</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>60</td>
<td>Room sensor 1 (3)</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>65</td>
<td>Room sensor 2 (4)</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>68</td>
<td>Room sensor 3 (7)</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>83</td>
<td>BSB, short-circuit (5)</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>84</td>
<td>BSB, address collision</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>103</td>
<td>Communication failure</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>127</td>
<td>Legionella temp</td>
<td>6</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>324</td>
<td>BX same sensors</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>330</td>
<td>BX1 no function</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>331</td>
<td>BX2 no function</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>332</td>
<td>BX3 no function</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
<tr>
<td>333</td>
<td>BX4 no function</td>
<td>3</td>
<td>Par. 6.2</td>
</tr>
</tbody>
</table>

Errors are shown on the QAA75.611 room unit’s display with the symbol ⚠️. If you press ⏯ when this symbol is displayed, the unit will display the code and description of the highest priority error. No other errors will be displayed until this error is resolved.
(1) Probe B1 (heating circuit 1 outlet sensor)
(2) Probe B3 (DHW production tank probe)
(3) Room unit 1
(4) Room unit 2
(5) Shown in this form in the error log, accessible to TAC. The information screen displays the text “No connection” without error code.
(6) Probe B12 (heating circuit 2 outlet sensor)
(7) Room unit 3

### 6.2 SYSTEM CONTROLLER ERROR HANDLING

Errors normally reset themselves automatically when their cause is eliminated; only in some cases need they be reset manually, as indicated below.

In presenza di errore di codice 370 (Sorgente termodinamica), si operi come indicato nel Paragrafo 6.3 p. 19.

The presence of other error codes usually indicates fault of a sensor or system cable, or problems due to incorrect configuration of the system controller (e.g. due to an inexper. attempt to modify the configuration).

#### Modifications to the settings described in this manual do NOT cause errors.

In any case, proceed as follows:

1. Nel caso in cui, accedendo alla schermata di informazione dell’errore come descritto nel Paragrafo 6.1 p. 18, compaia in basso a sinistra la scritta Reset ? ed in basso a destra la scritta Si, premendo due volte il tasto OK è possibile eseguire il tentativo di reset dell’errore.
2. If the operation described in point 1 is not applicable (the error information screen does not prompt for a reset) or does not resolve the problem, shut off electrical power to the system controller and then power it on again.
3. If the operation described in point 2 does not resolve the problem, note down the room unit error code and contact the TAC.

### 6.3 K18 ERROR HANDLING

If error code 370 (Thermodynamic source) is reported, to indicate a problem with the K18 heat pump:

1. Wait up to 20-30 minutes. In most cases, a K18 error is reported in response to transitory events which are automatically resolved by the unit’s on-board controller.
2. If the error persists, press either the reset button on the right side of the K18 unit (next to the transparent window over the on-board controller’s display), or the button on the system controller enclosure, shown in fig. 2.1 p. 5.
3. If the error persists or recurs within a few minutes:
   - check that the K18 unit is powered on (the display, visible via the transparent window, is on); if not, restore power;
   - check that the gas supply is present; for example, check whether the check valve is closed. After resolving the problem, press either of the reset buttons as indicated in point 2.

4. If the problem is still not resolved even after restoring electrical power and the gas supply, contact the TAC. If possible, make sure to note down the error code/s on the K18 unit’s display, and report them to the TAC.
   - The display will show one or more flashing codes like u xxx or E xxx; the letter u or E is green, xxx is a three digit numerical code, which displays in red.
   - If multiple fault codes are present, they will be displayed in sequence: note down all the codes.

The error codes display alternately with other information:
- outlet water temperature, preceded by a green symbol
- inlet water temperature, preceded by a green symbol
- difference between the two temperatures, preceded by a green symbol

If at least one error code is present, the green, and symbols will display flashing.

If the display is showing this information, you may therefore have to wait a few seconds before the error codes are displayed.

For further details, refer to the “K18 Installation, user and maintenance manual”.
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