System controller
for modulating absorption methane condensing heat pump
+ renewable aerothermal energy K18
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</tbody>
</table>
INTRODUCTION

Manual

This "Installation manual" contains all the information required for installing and configuring the System controller for all K18 Simplygas heat pump units (Gas Absorption Heat Pump) and K18 Hybrigas hybrid units (Gas Absorption Heat Pump and integrated auxiliary boiler module), in line with one of the standard system configurations also described in the document.

Referring to this manual requires familiarity with the products Robur and assumes that certain information included in the product manuals to which this document refers.

I.1 RECIPIENTS

This Manual is intended for:
▶ electrical installers for proper installation of the control equipment;
▶ installers and authorised Technical Assistance Centres Robur (TAC) for configuration.

SYMBOLS AND DEFINITIONS

II.1 KEY TO SYMBOLS

DANGER

WARNING

NOTE

PROCEDURE

REFERENCE (to other document)

II.2 TERMS AND DEFINITIONS

Siemens RVS21.826 = control unit (electronic board).
CSK18 = System controller for K18 installed in the provided enclosure.
Siemens QAA75.611 = advanced room unit.
Siemens QAA55.110 = base room unit.
KECSK18 = expansion kit, not described in this document.
Appliance / Unit K18 = equivalent terms, both used to refer to K18 Simplygas or K18 Hybrigas unit type.
Auxiliary boiler = equipment (e.g. boiler) for the production of heat for space heating and/or DHW, able to integrate or replace the heat pump of the K18 unit. It is always found in the K18 Hybrigas type of unit and consists of an integrated boiler module, whereas it is optional in K18 Simplygas units, not necessarily supplied by Robur, and connected to the plumbing system outside the unit.
TAC = Technical Assistance Centre authorised by Robur.
DHW = domestic hot water.

WARNINGS

III.1 GENERAL AND SAFETY WARNINGS

Installer's qualifications

Installation must exclusively be performed by a Qualified Firm and by Skilled Personnel, with specific knowledge of electrical systems, in compliance with the laws in force in the Country of installation.

Declaration of Conformity

Upon completing installation, the installing firm shall issue to the owner/client the appliance's Workmanlike Conformity Declaration, according to national/local regulations in force and the manufacturer's instructions/provisions.

Misuse

The appliance must only be used for the purposes for which it has been designed. Any other use is deemed hazardous. Incorrect use may affect operation, duration and safety of the appliance. Adhere to the manufacturer's instructions.

Electrocution hazard

- Disconnect the electrical power supply before any intervention/work on appliance components.
- For electrical connections exclusively use compliant components and according to the specifications provided by the manufacturer.
- Ensure the appliance cannot be accidentally switched back on.

Earthing

Electrical safety depends on effective earthing system, correctly connected to the appliance and installed according to the regulations in force.

In the event of failure

Operations on internal components and repairs may exclusively be carried out by a TAC, only using original
In the event of fault of the appliance, do not attempt to repair and/or restore and immediately contact the TAC.

Keep the Manual

This "Installation manual" must always accompany the appliance and must be handed to the new owner or installer in the event of sale or removal.

The equipment must be installed indoors and out of the weather. For its positioning, refer to the protection rating given in par. 2 p. 9.

III.2 CONFORMITY

For the appliance's technical and conformity data, refer to Appendix A p. 40.

III.3 EQUIPMENT

The standard equipment for the System controller (O-QLT019) includes:
- n.1 CSK18 electrical enclosure: contains the Siemens RVS21.826 electronic board, the relays and electrical terminal blocks;
- n.1 Siemens QAA75.611 advanced room unit;
- n.1 Siemens QAC34 ambient temperature probe.
Optional additional room units are available, of types QAA75.611 (optional code ODSP005) and QAA55.110 (optional code ODSP004). The KECSK18 expansion kit is also available as an optional (optional code ODSP030); this allows you to support additional types of circuit, as described in its installation manual.

III.4 EXCLUSIONS OF LIABILITY AND WARRANTY

Any contractual or extra-contractual liability of the manufacturer for any damage caused by incorrect installation and/or improper use and/or failure to comply with regulations and with the manufacturer's directions/instructions shall be disclaimed.

In particular, the warranty on the appliance may be rendered void by the following conditions:
- Incorrect installation/cabling.
- Misuse.
- Failure to comply with the manufacturer's indications on installation, use and maintenance.
- Alteration or modification of the product or any part thereof.
- Extreme operational conditions or however outside of the operational ranges set forth by the manufacturer.
- Abnormal actions transmitted by the plant or installation to the appliance (mechanical stresses, pressure, vibrations, thermal dilations, power surges...).
- Accidental damages or due to force majeure.
1 GENERAL INFORMATION AND SYSTEM DIAGRAMS

The System controller for the models of the K18 family essentially ensures:

► Manage ambient comfort by controlling the heating circuits or zone valves;
► Manage the domestic hot water (DHW) production, by controlling the components dedicated to fill the DHW buffer tank;
► Manage the heat generation, by controlling a K18 Simplygas or a K18 Hybrigas unit.

All this is possible for certain types of system plumbing diagrams indicated in Figures 1.1 p. 6, 1.2 p. 7 and 1.3 p. 7 with regards to the K18 Simplygas unit and Figures 1.4 p. 8, 1.5 p. 8 and 1.6 p. 9 with regards to the K18 Hybrigas unit.

The System controller for K18 unit is supplied preconfigured to facilitate the installation and startup of the types of system illustrated in Figure 1.1 p. 6, 1.2 p. 7 and 1.3 p. 7, 1.4 p. 8, 1.5 p. 8 and 1.6 p. 9. However, it can also support other configurations. For applications other than those indicated in this manual, Robur provides custom consultancy service.

For water circuits with primary circuit only (Figure 1.1 p. 6, 1.2 p. 7, 1.4 p. 8 and 1.5 p. 8) water circulation must be guaranteed to handle the K18 unit’s antifreeze cycle. In the diagrams given in Figure 1.2 p. 7 and 1.5 p. 8 this requires that a outlet/inlet bypass is installed, with overpressure valve set to open only when both zone valves are closed. For the diagrams given in Figure 1.1 p. 6 and 1.4 p. 8 it may be sufficient to ensure circulation in one branch of the distribution; for instance, by not installing the valve (thermostatic or manual) on one of the radiators.

The following diagrams intend to show the hydraulic configurations supported by System controller, including the parts to be connected to it. Ancillary hydraulic components (expansion tanks, safety valves, etc.) are only shown as a guide; for the detailed plumbing layout, refer to the handbook of the K18 range and to the specific installation manual of the K18 unit used.

Figure 1.1 System with K18 Simplygas unit, primary water circuit only and one zone, auxiliary boiler and DHW production options.
Figure 1.2 System with K18 Simplygas unit, primary water circuit only and two zones, auxiliary boiler and DHW production optionals

A  Unit K18 Simplygas
B  Auxiliary boiler (optional)
C  check valve (to be installed only in the presence of an auxiliary boiler)
D  External water pump (only for CO versions)
E  By-pass section with overpressure valve
F  Room unit 1 (QAA75.611)
G  Thermostats (with timer) for zones

Figure 1.3 System with K18 Simplygas unit, primary and secondary water circuits, up to two heating circuits, one of which is optionally mixed, auxiliary boiler and DHW production optionals

A  Unit K18 Simplygas
B  Auxiliary boiler (optional)
C  check valve (to be installed only in the presence of an auxiliary boiler)
D  External water pump (only for CO versions)
E  Decoupling of primary/secondary circuits
F  Room unit 1 (QAA75.611)
H  Room unit 2 for HC2 circuit (optional, QAA75.611 or QAA55.110)
General information and system diagrams

Figure 1.4 System with K18 Hybrigas unit, primary water circuit only and one zone, DHW production optional

Figure 1.5 System with K18 Hybrigas unit, primary water circuit only and two zones, DHW production optional
2 Assembly and installation

All temperature probes (GHP, GHP’, B1, B3) must be placed and fixed in dedicated thermowells, with a length suitable to result immersed in water flow or in water mass, using thermal paste to ensure a good heat transfer.

In case one of the optional DHW preparation tanks is used (code OSRB012 or OSRB004), it is recommended to use the thermowell just above mid height for the probe B3.

Even in case other water tanks are used, place probe B3 in an intermediate position, possibly just above mid height.

2 ASSEMBLY AND INSTALLATION

The System controller for the K18 is supplied preassembled and precabled in an IP55 rated enclosure. The protection rating is reduced if the included cable gland caps are used. Use suitable cable glands (not included) to maintain the indicated protection rating, if necessary.

Before installing the unit, check that the equipment is not connected to its power supply.

The cabling must satisfy the requirements of safety class II, i.e. the mains power cables and the SELV cables must be ducted separately.

Also, keep a distance of at least 50 mm between the ducts that contain mains cables and those which contain safety extra low voltage cables and between the two categories of cables inside the enclosure; to achieve this, with reference to Figure 2.1 p. 10, use:

- **for the mains connections:** the hole on the lower left side of the enclosure and if required, the two holes at the centre and at the top on its left side;
- **for the safety extra low voltage connections:** the two holes at the centre and on the lower right side of the enclosure and if required, the two holes at the centre and at the bottom on its right side.

Do NOT use the holes on the upper side of the enclosure, the hole at the top on its right side and the one on the bottom on the left side.

The CSK18 and any other equipment and accessories must be powered up only when the installation is complete. Failure to observe this instruction incurs a risk of electrocution and short-circuit.

The CSK18 must not be exposed to water.

The unit’s ambient operating temperature range is 0 °C - 50 °C.
2.1  CSK18 SYSTEM CONTROLLER ENCLOSURE

Assembly and installation

Figure 2.1 External overall dimensions for CSK18 enclosure

- A  Input of connections to the mains
- B  Input of safety extra low voltage (SELV) connections
- C  Not used
- P  K18 fault reset button
Figure 2.2 General layout of components and wiring diagram for K18 system controller

The electrical connections are partly done with the terminal blocks inside the bottom of the enclosure, and partly with the included extractable connectors which fit directly onto the board.

Table 2.1 on p. 12 lists the Line Voltage supply and signal connections on the extractable connectors at the left edge of the Siemens RVS21.826 board (with reference to the electronic board orientation inside the enclosure, see Figure 2.1 on p. 10), while Table 2.2 on p. 12 lists the Line Voltage supply and signal connections on the terminal block at the bottom left interior of the CSK18 enclosure.

To identify the position of the connectors and terminal blocks, refer to the wiring diagram given in Fig. 2.2 on p. 11.

To identify the plumbing parts and the sensors that correspond to the Siemens function codes (e.g. Q2, Y1, Y2) refer to the plumbing diagrams in Figures 1.1 on p. 6, 1.2 on p. 7 and 1.3 on p. 7 with regards to applications with K18 Simplygas units and 1.4 on p. 8, 1.5 on p. 8, 1.6 on p. 9 for applications with K18 Hybrigas units.
**Table 2.1** Line Voltage connections to Siemens RVS21.826 board connectors

<table>
<thead>
<tr>
<th>Function (description)</th>
<th>Logo on connector</th>
<th>Siemens connector code</th>
</tr>
</thead>
<tbody>
<tr>
<td>L 230 VAC phase input to RVS21.826</td>
<td>Pre-wired</td>
<td>X10 Green BPZ.AGPSS.03A/109</td>
</tr>
<tr>
<td>Ground connection to RVS21.826</td>
<td>Pre-wired</td>
<td></td>
</tr>
<tr>
<td>N Neutral input to RVS21.826</td>
<td>Pre-wired</td>
<td></td>
</tr>
<tr>
<td>EX1 K18 unit alarm signal input on RVS21.826</td>
<td>Pre-wired</td>
<td>X11 Green BPZ.AGPSS.04D/109</td>
</tr>
<tr>
<td>EX2</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>EX3</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>EX4</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>QX1 Y1 - heating circuit 1 mixer valve open phase output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heating circuit 1 mixer valve neutral output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QX2 Y2 - heating circuit 1 mixer valve close phase output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QX3</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>QX4</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>QX5</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>QX6</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 - Heating circuit 2 water pump neutral output / Zone 2 valve (2)</td>
<td>Pre-wired</td>
<td>X12 Green BPZ.AGPSS.07H/109</td>
</tr>
<tr>
<td>FX3 Phase input for output Q6</td>
<td>Pre-wired</td>
<td></td>
</tr>
<tr>
<td>QX6 Q6 - Heating circuit 2 water pump phase output / Zone 2 valve (2)</td>
<td>Pre-wired</td>
<td></td>
</tr>
<tr>
<td>QX4 DHW diverter valve control phase output (3)</td>
<td>Pre-wired</td>
<td></td>
</tr>
<tr>
<td>QX5 Q3 - DHW diverter valve phase inverse output (1)</td>
<td>Pre-wired</td>
<td>X15 Orange BPZ.AGPSS.07M/109</td>
</tr>
<tr>
<td>N Neutral output</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>QX5 Q2 - Heating circuit 1 water pump phase output / Zone 1 valve</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>N Q2 - Heating circuit 1 water pump neutral output / Zone 1 valve</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>ZX6</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Not used</td>
<td></td>
</tr>
</tbody>
</table>

(1) Not normally used. It may be used:
* in place of Q3 (see Table 2.2 p. 12) if the DHW diverter valve is set to DHW when the phase is NOT present at the output;
* in addition to Q3 if the valve has an actuator with two terminals which are excited alternately to set the valve to Heating or DHW.

(2) If expansion kit KECK18 is used, connect Q6 as shown in table 2.1 of the expansion kit's installation manual.

(3) Connect the valve to the CTRL output (Table 2.2 p. 12).

**Table 2.2** Line Voltage connections to bottom LH terminal block in CSK18 enclosure

<table>
<thead>
<tr>
<th>Function (description)</th>
<th>Group of terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>L 230 VAC phase power input</td>
<td>LINE IN</td>
</tr>
<tr>
<td>N Neutral power input</td>
<td></td>
</tr>
<tr>
<td>Ground connection</td>
<td></td>
</tr>
<tr>
<td>L DHW diverter valve power fixed phase output</td>
<td>DHW Q3</td>
</tr>
<tr>
<td>CTRL Q3 - DHW diverter valve power control phase output (1)</td>
<td></td>
</tr>
<tr>
<td>N DHW diverter valve power neutral output</td>
<td></td>
</tr>
<tr>
<td>Ground DHW diverter valve power ground connection</td>
<td></td>
</tr>
</tbody>
</table>

(1) Output Q5 is active (230 VAC phase present) during DHW service and inactive during space heating service. See note (1) to Table 2.1 p. 12.

Table 2.3 p. 13 lists the SELV supply and signals connections on the extractable connectors at the bottom and right edges of the Siemens RVS21.826 board (once more with reference to the specific position of the board inside the enclosure), while Table 2.4 p. 13 lists the SELV signals connections on the terminal block at the bottom right interior of the CSK18 enclosure.

The connections in Table 2.4 p. 13 include those which connect the System controller to the K18 unit.
Table 2.3  SELV signal connection to Siemens RVS21.826 board

<table>
<thead>
<tr>
<th>Function (Siemens logo on water circuit diagrams and description)</th>
<th>Logo on connector Color</th>
<th>Siemens connector code</th>
</tr>
</thead>
<tbody>
<tr>
<td>BX1  B9 - External temperature sensor input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    B9 - External temperature sensor input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BX2  Not used (available for additional functions)</td>
<td>X80 Grey</td>
<td>BPZ.AGPSS.08N/109</td>
</tr>
<tr>
<td>M    Not used (BX2 return mass)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UX1  Not used (available for additional functions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    Not used (UX1 return mass)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UX2  Not used (available for additional functions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    Not used (UX2 return mass)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BX3  B3 - DHW buffer tank temperature sensor input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    B3 - DHW buffer tank temperature sensor input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BX4  B1 - Heating circuit 1 temperature sensor input (mixed only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    B1 - Heating circuit 1 temperature sensor input (mixed only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS8  BSB+ - QAA75/QAA55 Room Unit data bus connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    BSB-- - QAA75/QAA55 Room Unit data bus ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G+   G+ – QAA75 Room Unit backlighting power output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1   H1 - Heating circuit 1 normally open request signal input (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M    H1/H3 - Heating circuit 1 and 2 request signal input return</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3   H3 - Heating circuit 2 normally open request signal input (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GX1  GX1- 12 VDC power output Pre-wired</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Input H1 is prewired active with a jumper to terminal H1/H3, to insert an external request signal (voltage free contact), remove the jumper and cable it between terminals H1 and H1/H3.
(2) Input H3 is open to keep heating circuit 2 inactive. If this heating circuit is present, fit a jumper between terminals H3 and H1/H3 or insert an external request signal between them (voltage free contact).

Table 2.4  SELV signal connection to bottom RH terminal block in CSK18 enclosure

<table>
<thead>
<tr>
<th>Function (description)</th>
<th>Group of terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>K18 unit alarm signal input</td>
</tr>
<tr>
<td>AL</td>
<td>K18 unit alarm signal input</td>
</tr>
<tr>
<td>G</td>
<td>K18 unit cable shielding braid ground connection</td>
</tr>
<tr>
<td>0</td>
<td>K18 unit 0 – 10V setpoint output ground</td>
</tr>
<tr>
<td>+10</td>
<td>K18 unit 0 - 10V setpoint output</td>
</tr>
<tr>
<td>CDV</td>
<td>K18 unit digital output common ground</td>
</tr>
<tr>
<td>RES</td>
<td>K18 unit alarm reset digital output</td>
</tr>
<tr>
<td>DHW</td>
<td>Service type request digital output to K18 unit (heating/DHW)</td>
</tr>
<tr>
<td>REQ</td>
<td>Service request (request) digital output to K18 unit</td>
</tr>
<tr>
<td>GAHP K18 EXTERN RESET</td>
<td>K18 alarm reset external control input (NO voltage free contact)</td>
</tr>
<tr>
<td>GAHP K18 EXTERN RESET</td>
<td>EXTERNAL RESET</td>
</tr>
</tbody>
</table>

2.2  SIEMENS QAC34 AMBIENT TEMPERATURE PROBE

The external sensor is essential to the operation of the CSK18 system. If this sensor is not connected to the Siemens RVS21.826 board, the system is not operational.

The sensor is used to acquire the external temperature and, in part, also the effects of the sunlight, the wind and the temperature of the wall to which it is mounted.

Technical specifications

Table 2.5  Characteristics of QAC34/101 external sensor

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensor type</th>
<th>Measurement range (°C)</th>
<th>Tolerance (K) (1)</th>
<th>Time constant (min)</th>
<th>Weight (g)</th>
<th>Wire cross section (mm²)</th>
<th>Max. length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QAC34/101</td>
<td>NTC1000 Ω at 25 °C</td>
<td>-50 - 70</td>
<td>± 1</td>
<td>12</td>
<td>73</td>
<td>1.5</td>
<td>120</td>
</tr>
</tbody>
</table>

(1) QAC34/101 over range –10 - +20 °C
Assembly and installation

Figure 2.3 Description of installation procedure for QAC34 external sensor

Figure 2.4 QAC34 external room sensor dimensions
2.3 QAA55.110 BASIC ROOM UNIT (OPTIONAL)

Location

The room unit should be installed in a reference room, usually the living room, bearing the following in mind:

▶ the room unit must be installed about 1.5 m off the ground, in an area which allows the sensor to read the room temperature as accurately as possible, it should therefore be out of the way of draughts, sunlight and other sources of heat;

▶ if wall mounted, leave enough space above the unit for it to be installed and removed when necessary.

Once removed from its base, the room unit is no longer powered and is thus inactive.

Installation

Do not install the room unit in rooms exposed to water or damp.

For further details on the operation, installation and use of the room unit, refer to section 5 p. 31, in particular par. 5.1.5 p. 33 and 5.1.7 p. 34.
2.3.1 Dimensions and installation template

Figure 2.7 Description of mounting holes for room unit QAA55.110

2.3.2 Electrical hookup

Figure 2.8 Description of hookup procedure for room unit QAA55.110

Table 2.6 Room unit QAA55.110 connections

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BSB</td>
<td>Data bus BSB +</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>Data bus BSB -</td>
</tr>
</tbody>
</table>
2.4 QAA75.611 ADVANCED ROOM UNIT

Location

The room unit should be installed in a reference room, usually the living room, bearing the following in mind:

- the room unit must be installed about 1.5 m off the ground, in an area which allows the sensor to read the room temperature as accurately as possible, it should therefore be out of the way of draughts, sunlight and other sources of heat;
- if wall mounted, leave enough space above the unit for it to be installed and removed when necessary.

Once removed from its base, the room unit is no longer powered and is thus inactive.

Installation

Do not install the room unit in rooms exposed to water or damp.

For further details on the operation, installation and use of the room unit, refer to section 5 p. 31, in particular par. 5.1.5 p. 33 and 5.1.7 p. 34.
Dimensions and installation template

Figure 2.11 Description of mounting holes for room unit QAA75.611

Electrical hookup

Figure 2.12 Description of hookup procedure for room unit QAA75.611

Table 2.7 Room unit QAA75.611 connections

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BSB</td>
<td>Data bus BSB +</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>Data bus BSB -</td>
</tr>
<tr>
<td>3</td>
<td>G+</td>
<td>Power 12 V DC</td>
</tr>
</tbody>
</table>
2.5 THE K18 UNIT

For installation considerations, refer to the Installation, use and maintenance manual of the specific mode of K18 unit. For convenience we include the terminal block details for the electrical hookup here.

**Figure 2.13 Terminal block for electrical connections of K18 unit**

1. Connection to CSK18 enclosure (see par. 3.6 p. 26)
2. Modbus connection to RS485 port for optional monitoring
3. GHP temperature sensor connection (see par. 3.7 p. 27)
4. GHP temperature sensor connection (see par. 3.7 p. 27)
5. Connection of 0-10 V signal on the optional external water pump (only for K18 Simplygas C0 models; see manual of specific K18 unit used)
6. Optional auxiliary boiler connection (only for K18 Simplygas models; see Paragraph 3.8 p. 27)
7. Supply connection on the optional external water pump (only for K18 Simplygas C0 models; see manual of specific K18 unit used)
8. Power connection (see K18 unit manual)
9. Earth connections for signal cable shielding
3 ELECTRICAL HOOKUP

3.1 HOOKING UP THE ROOM UNIT

Figure 3.1 Example of connection of two room units, one type QAA75.611, the other (optional) type QAAS.110

A  Grey connector X86 (bottom edge of RVS21.826 board)
B  Room unit 1 (QAA75.611)
C  Ambient unit 2 (QAAS.110) (optional code ODSP004)

NOTE  Use shielded signal cable 3x0.75 mm² (2x0.75 mm² for QAAS.110).
Maximum total length 400 m.
Maximum length between controller and room unit 200 m.
Both room units can also be connected to connector X86.

<table>
<thead>
<tr>
<th></th>
<th>RVS21.826</th>
<th>QAA75.611</th>
<th>QAAS.110</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>G+</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.1 QAA75.611 and QAAS.110 (optional) room unit connection
3.2 TEMPERATURE SENSOR CONNECTION

Figure 3.2 Temperature sensor connection diagram (NTC 10k - Beta 3977) to RVS21.826

A  Grey connector X84 (bottom edge of RVS21.826 board)
B  Grey connector X80 (right edge of RVS21.826 board)
B1  NTC 10k Beta 3977 temperature sensor
B3  NTC 10k Beta 3977 temperature sensor
B9  NTC 1k temperature sensor - included

Use of temperature sensors
B9  always
B1  only if heating circuit 1 is mixed
B3  only if DHW service is provided with K18 (only EVO versions)

Use shielded cable
2 x 0.5 mm² up to 40 m
2 x 0.75 mm² up to 60 m
2 x 1.0 mm² up to 80 m
2 x 1.5 mm² up to 120 m
3.3 WATER CIRCULATION PUMP CONNECTION

3.3.1 Heating circuit 1 pump hookup diagram

**Figure 3.3 Direct or external relay connection of heating circuit 1 pump to RVS21.826**

![Diagram of heating circuit 1 pump connection]

A Orange connector X15 (left edge of RVS21.826 board)
Q2 Heating circuit 1 pump
KC1 Relay (not supplied)

3.3.2 Heating circuit 2 pump connection diagram (if present)

**Figure 3.4 Direct or external relay connection of heating circuit 2 pump to RVS21.826**

![Diagram of heating circuit 2 pump connection]

A Green connector X12 (left edge of RVS21.826 board)
Q6 Heating circuit pump
KC2 Relay (not supplied)

**NOTE**
If expansion kit KECSK18 is used, connect Q6 as shown in figure 3.3 of the expansion kit's installation manual.
3.4 MIXER/DIVERTER VALVE CONNECTION

3.4.1 Q3 diverter valve connection diagrams for DHW service (if present)

**Figure 3.5** Q3 diverter valve connection to CSK18 enclosure terminal block – Case 1 (use of optional code OVLV007 valve)

![Diagram](image1)

**CASE 1**
Valve with power always present; position controlled by signal (230VAC phase):
- no phase: heating
- phase: DHW

**Figure 3.6** Q3 diverter valve connection to CSK18 enclosure terminal block and RVS21.826 – Case 2

![Diagram](image2)

**CASE 2**
Valve with power always present; position controlled by signal (230VAC phase):
- no phase: DHW
- phase: heating
3.4.2 Y1/Y2 mixer valve connection (if present)

**Figure 3.8** Y1/Y2 mixer valve connection (for mixed heating circuit 1) to RVS21.826

A Green connector X12 (left edge of RVS21.826 board)
B Flow from system
C Heating circuit 1 outlet
D Heating circuit 1 inlet
E Y2: close flow from system
F Y1: open flow from system
Y1/Y2 mixer valve
3.5 COLLEGAMENTO CONSENSI ESTERNI

Figure 3.9 Connection of optional external request signals (thermostats, thermostat timers, timers) to RVS21.826

A  Grey connector X86 (bottom edge of RVS21.826 board)
B  NO voltage free contact (must be SELV)
C1  Thermostat (with timer) for zone 1 (or circuit 1)
C2  Thermostat (with timer) for zone 2 (or circuit 2)
3.6 K18 UNIT CONNECTION TO CSK18 ENCLOSURE

Figure 3.10 K18 unit connection to CSK18 enclosure terminal block

A Detail of CSK18 enclosure terminal block
B K18 unit terminal block detail
C Shielded multi-wire cable, type Li - YcY 8x0.75 mm² (available as OCVD009 optional)

Maximum length 50 m.

NOTE
Connect the shield to the ground terminals at both ends.
Using DIN 47100 conforming cable (colour coded) simplifies the hookup (see Table 3.2 p. 26).

Table 3.2 Wire colours per DIN47100

<table>
<thead>
<tr>
<th>Wire n.</th>
<th>Wire colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
</tr>
<tr>
<td>5</td>
<td>Grey</td>
</tr>
<tr>
<td>6</td>
<td>Pink</td>
</tr>
<tr>
<td>7</td>
<td>Blue</td>
</tr>
<tr>
<td>8</td>
<td>Red</td>
</tr>
<tr>
<td>9</td>
<td>Black</td>
</tr>
<tr>
<td>10</td>
<td>Purple</td>
</tr>
</tbody>
</table>
3.7 TEMPERATURE PROBES CONNECTION TO K18 UNIT

Figure 3.11 Collector temperature probes connection to K18 unit

- **A** Detail of K18 unit terminal block
- **GHP** NTC 10k Beta 3977 probe (included with K18 unit)
- **GHP’** NTC 10k Beta 3977 probe (available as OSND004 optional)

**Use of temperature sensors**
- **GHP**: always
- **GHP’** K18 Simplygas models: only if an auxiliary boiler is present and DHW service is made by K18 models K18 Hybrigas pre-installed in the machine; connect as shown in the figure if the DHW service managed by the K18 unit is present

- **Use shielded cable**
  - 2 x 0.5 mm² up to 40 m
  - 2 x 0.75 mm² up to 60 m
  - 2 x 1.0 mm² up to 80 m
  - 2 x 1.5 mm² up to 120 m
  - Connect the shield to a ground terminal on the K18 unit’s terminal block.

3.8 AUXILIARY BOILER CONNECTION (IF PRESENT) TO THE K18 UNIT (ONLY FOR K18 SIMPLYGAS MODELS)

Figure 3.12 ON/OFF request connection, optional 0-10 V output (temperature setpoint) and optional alarm signal for the auxiliary boiler on the unit terminal block

- **A** K18 unit terminal block detail
- **B** Auxiliary boiler
- **C** ON/OFF contact request (2x0.75 mm² cable)
- **D** 0-10V input for setpoint acquisition (*)
- **E** Alarm signalling output (mandatory SELV voltage-free contact) (*)

(*) (optional); shielded cable 2x0.75 mm²
COMMISSIONING

Before commissioning the system, check that the plumbing system and electrical installations are complete in relation to the information contained in sections 1, p. 6, 2, p. 9 and 3, p. 20 of this manual.

The K18 and auxiliary boiler (if present) may start during and at the end of commissioning. Make sure that the plumbing system is complete and filled with water.

Commissioning must be done by a TAC.

USING THE QAA75.611 ADVANCED ROOM UNIT'S INTERFACE

The QAA75.611 room unit is also used for configuring and adjusting the System controller for the K18. This paragraph briefly describes how to use the device's user interface; this allows you to make the settings described in the following paragraphs.

To display and modify the parameters of the System controller, proceed as follows:

1. Press OK on the room unit; this displays the End user menu options list.
2. If you want to access a higher level menu, press Info (Esc) for at least 4 seconds, after which the display will show the menu level (End user, Commissioning, Engineer, OEM)
   - Turn the knob to select the menu level, then press OK to access it; you now have access to the menus of that level.
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 displaying and modifying the parameters in a given menu, press ESC to enter to the menu level selected in point 2 (or End user if you did not execute point 2).
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 the unit does not display this screen, press ESC until it does.

COMMISSIONING PROCEDURE

1. Remove the cover of the System controller CSK18 enclosure and the external housing panel of the K18 located under its fan.
2. Power up the System controller CSK18 enclosure, the K18 unit and, if present, the auxiliary boiler (K18 Simplygas models).
3. Check that all components are actually powered on:
   - System controller: the display of the QAA75.611 room unit is on and the green led in the bottom right corner of the RV521.826 board is on (steady or flashing).
   - K18 Unit: the control electronic user interface display on the right side of the unit is ON.
   - Auxiliary boiler: refer to the manufacturer's manual.

When the System controller for K18 is powered on for the first time, the display of the QAA75.611 room unit will indicate that the system is updating, and will display a
percentage progress indication; this may take several minutes to complete. When the update completes, the unit will display the start screen, as shown in fig. 4.1 p. 28. Updates during subsequent power on cycles will be much quicker.

4. On the K18 unit’s user interface, proceed as follows, with reference to its Installation, user and maintenance manual:
   - Access Menu 4, with the password 1111.
   - Select parameter 47 and set it to 2.
   - Select parameter 210 and set it to 1.
   - If the DHW production managed by the K18 unit is present (models K18 Simplygas EVO and K18 Hybridgas EVO) and, in the case of the K18 Simplygas model, there is also the auxiliary boiler, select parameter 209 and set it to 1.

5. Only if the unit is a K18 Simplygas model and the auxiliary boiler is present must its control interface be configured. While still using the user interface of the K18 unit (Menu 4), and while also referring to the relevant Installation, use and maintenance manual, operate as follows:
   - Select parameter 49 and set it to 1 (interfacing with the auxiliary boiler via the 0-10 V signal) or 2 (interfacing with the auxiliary boiler via ON/OFF signal).
   - If the interface is with the 0-10 V signal configure parameters 52, 53 and 54 by following the instructions provided in the installation manual of the K18 unit.
   - If the alarm signal of the auxiliary boiler has been connected (only mandatory SELV voltage-free contact, i.e. safety extra low voltage) to the specific input of the K18 unit, select parameter 55 and set it to 1 (alarm contact closed in the presence of an alarm) or 2 (alarm contact open in the presence of an alarm).

6. If needed, change the System controller language by operating on QAA75.611 room unit of the System Controller, by accessing the Operator unit menu in the End user menu level and selecting parameter 20 (Language).

7. Again, at the End user level, access the Time of day and date menu and set parameters 1 (Hours/minutes), 2 (Day/month) and 3 (Year).

8. Access the Engineer menu level, then the Configuration menu; select parameter 6200 (Save sensors), set it to yes and confirm.

   The value of parameter 6200 which displays at the end of the configuration procedure will still be no; this is normal (this setting executes an action, i.e. memorization of the actually installed sensors).

   The green led on the RVS21.826 board should now be steady on.

9. Access the Commissioning level, Diagnostics consumers menu; select parameter 8703 (Outside temp attenuated / reset?), set it to yes and confirm.

   The value of parameter 8703 is only shown when it is being modified.

10. Press ESC twice to inlet to the start screen. This completes commissioning; you can now run the functional tests to check that the installation and startup were successful.

4.3 FUNCTIONAL TESTS

These tests are not strictly necessary, however they allow you to quickly identify most problems with the electrical hookup and system anomalies; we strongly recommend running them.

4.3.1 Testing the inputs and outputs

1. Access the Commissioning menu level, select the Input/output test menu and select parameter 7700 (Relay test).

2. Set it to QX5 (QX5 relay output, function Q2 -> Heating circuit 1 pump) and check that the heating circuit 1 pump runs (or the zone 1 valve opens).

3. If heating circuit 1 is of the mixed type:
   - Set the parameter to QX1 (QX1 relay output, function Y1 -> open mixer valve on system outlet line) and check that the mixer valve responds as desired.
   - Set the parameter to QX2 (QX2 relay output, function Y2 -> open mixer valve on heating circuit 1 inlet line) and check that the mixer valve responds as desired.

4. If heating circuit 2 (or zone 2) is present:
   - Set the parameter to QX3 (QX3 relay output, function Q6 -> Heating circuit 2 pump) and check that the heating circuit 2 pump runs (or the zone 2 valve opens).

5. If the Domestic Hot Water function managed by the K18 unit is present (EVO models):
   - Set the parameter to QX4 (QX4 relay output, function Q3 -> set DHW diverter valve to DHW service) and check that the diverter valve responds as desired.

6. Now select parameter 7700 again and set it to No test.

7. Select parameter 7804 (Sensor temp BX1) and check its value (sensor BX1, function B9 -> external temperature).

8. If the Domestic Hot Water function managed by the K18 unit is present (EVO models):
   - Select parameter 7806 (Sensor temp BX3) and check its value (sensor BX3, function B3 -> DHW tank temperature).

9. If heating circuit 1 is of the mixed type:
   - Select parameter 7807 (Sensor temp BX4) and check its value (sensor BX4, function B1 -> Heating circuit 1 outlet temperature).

To facilitate checking the connection of each temperature sensor to its input, you can take them out of their mounts one at a time and heat them up slightly; observe the variation of the readings on the display to check that they are hooked up to the right inputs. Make sure you have restored each sensor to its own mounting afterwards.

10. If an external request signal is connected for heating circuit 1 (or zone 1), for example, with a thermostat or thermostat timer:
    - Select parameter 7844 (Input signal H1) and actuate the external signal’s contact to check that it switches as expected from open (indicated by - - -) to closed (indicated by o o o) and back.

    NOTE: If no external request signal is present, this test must indicate closed (o o o), due to the jumper installed at the factory.

11. If heating circuit 2 (or zone 2) is present, and an external request is hooked up:
    - Select parameter 7858 (Input signal H3) and actuate the external signal’s contact to check that it switches as expected from open (indicated by - - -) to closed (indicated by o o o) and back.

    NOTE: If no external request signal is present, this test
must indicate closed (o o o), due to the jumper added during installation.

12. Now select parameter 7700 (Relay test) and set it to Everything off.

13. Select parameter 7724 (Output test UX3) and set it to 50%.

   - Check that the DC voltage between the COM and DHW terminals is around 17 V.
   - Check that DC voltage between the 0 and +10 terminals of the K18 CONTROL CABLE terminals group is 5 V.
   - Check that the DC voltage between the COM and RES terminals is around 8.5 V.

15. Select parameter 7700 and set it to QX4.

16. Install a temporary jumper between the EXTERN RESET terminals on the CSK18 enclosure terminal block.

17. Accedere alla morsettiera dell’unità K18 (fare riferimento alla Figura 3.10 p. 26):
   - Check the voltage between the COM and DHW terminals again: it should now be around 0 V.
   - Check the voltage between the COM and RES terminals again: it should now be around 0 V.

18. Set parameter 7700 to No test.

19. Select parameter 7724 (Output test UX3) and set it to - - - (test deactivated).

20. Press ESC twice to inert to the start screen.

21. Remove the temporary jumper between the EXTERN RESET terminals on the CSK18 enclosure terminal block.

4.3.2 Checking the start and stop commands on the heat pump

The System controller for K18 is shipped preconfigured with heating circuit 1 and DHW production (if present) already activated.

The K18 unit may therefore start up from the first time the system is powered on and start and stop during the tests described in par. 4.3.1 p. 29.

1. On the K18 unit’s user interface, proceed as follows, with reference to its Installation, user and maintenance manual:
   - Access Menu 4, with the password 1111.
   - Select parameter 49, take note of the set value and then set it to 0 (excluded optional auxiliary boiler for K18 Simplygas models and integrated boiler module for K18 Hybrigas models).

2. Access the Engineer menu level and then the Service/special operation menu.

3. Select parameter 7223 (Disable heat pump) and set it to Active.

4. Select parameter 7212 (Outp selection HP multistage) and set it to Compressor 1.

5. Select parameter 7202 (Commissioning heat pump) and set it to Heating mode.

9. Access the K18 unit’s terminal block and check that the DC voltage between the COM and REQ terminals is around 15 V.

10. Also check the DC voltage between the 0 and +10 terminals on the K18’s terminal block, located directly under the COM terminal; it must be around 0 V.

11. Select parameter 7223 (Disable heat pump) and set it to Inactive.

12. If required, (always for K18 Hybrigas models, only in the presence of the auxiliary boiler for K18 Simplygas models), access Menu 4 of the user interface of the K18 unit, select parameter 49 and reset it to the correct value, which was noted in point 1 of the procedure.

4.3.3 Checking the start and stop commands on the auxiliary boiler (if present)

This Paragraph applies to all units type K18 Hybrigas, as well as to those type K18 Simplygas if an auxiliary boiler is present.

1. On the K18 unit’s user interface, proceed as follows, with reference to its Installation, user and maintenance manual:
   - Access Menu 4, with the password 1111.
   - Select parameter 50, take note of the set value and then set it to 3.
   - Select parameter 217, take note of the set value and then set it to 10.0.
   - Select parameter 218, take note of the set value and then set it to 10.0.

2. Using the room unit QA75.611 of the System Controller, access the Engineer menu level and then the Maint./service operation menu.

3. Select parameter 7223 (Disable heat pump) and set it to Active.

4. Select parameter 7212 (Outp selection HP multistage) and set it to Compressor 1.

5. Select parameter 7202 (Commissioning heat pump) and set it to Heating mode.

When this operation is performed, the integrated boiler module of the K18 Hybrigas unit (or the auxiliary boiler of the K18 Simplygas unit) is started up; complete the next steps 6 - 9 within a few minutes.

If the boiler does not start, verify that it is actually enabled to operate by actuating the relevant control panel: with regards to the K18 Hybrigas unit, consult its Installation, use and maintenance manual and in the case of the K18 Simplygas unit, the manual provided by the manufacturer of the auxiliary boiler.

6. Only for K18 Simplygas units:
   - Access the connection terminal block of the auxiliary boiler, identify the terminals of the ON/OFF request and verify the actual activation of the request from the K18 unit: closed contact, no voltage between the terminals.

7. Only in the case of the K18 Simplygas unit and interface to the auxiliary boiler with the 0-10 V signal:
   - Access the connection terminal block of the auxiliary boiler, identify the terminals of the 0-10 V signal and verify the value of the DC voltage; it must correspond to that required by the boiler to obtain a setpoint of 80.0 °C, according to the settings of parameters 52.
and 53 described in Paragraph 4.2. p. 28.

8. Only for the K18 Simplygas unit and alarm signal of the auxiliary boiler connected to the specific input of the K18 unit:
   - Generate an alarm of the auxiliary boiler (e.g. by provoking a flame lock-out) and verify that the display of the K18 unit shows the E495 error.

9. Select parameter 7202 (Commissioning heat pump) and set it to Off.

When this operation is performed, the service request to the K18 unit is cancelled and the auxiliary boiler is switched off.

10. Only for K18 Simplygas units:
   - Access the connection terminal block of the auxiliary boiler, identify the terminals of the ON/OFF request and verify that the request from the K18 unit is deactivated: open contact, and therefore, DC or AC voltage between the terminals with value depending on the model of the boiler.

11. Only in the case of the K18 Simplygas unit and interface to the auxiliary boiler with the 0-10 V signal:
   - Access the connection terminal block of the auxiliary boiler, identify the terminals of the 0-10 V signal and verify the value of the DC voltage that must be approximately 0 V.

12. Only for the K18 Simplygas unit and alarm signal of the auxiliary boiler connected to the specific input of the K18 unit:
   - Follow the instructions in the manual of the auxiliary boiler to restore its alarms and verify that the E495 error no longer appears on the display of the K18 unit.

13. Select parameter 7223 (Disable heat pump) and set it to Inactive.

14. Access Menu 4 of the user interface of the K18 unit and reset parameters 50, 217 and 218, setting them to the values noted in point 1 of the procedure.

4.4 SETTING THE SYSTEM TO STAND-BY

Once all checks have been completed, if you do not wish to operate the system but simply ensure anti-icing protection, proceed as follows:

1. On the QAA75.611 room unit, access the Heating circuit 1 menu in the End user level, select parameter 700 (Operating mode) and set it to Protection.

2. If a second heating circuit is present, access the Heating circuit 2 menu, select parameter 1000 (Operating mode) and set it to Protection.

3. Press ESC twice to inlet to the start screen.

4. If DHW production is present, press the QAA75.611 room unit’s top left button to deactivate it; the hyphen shown at the top left corner of the display under the water tap symbol disappears.

5. Leave the system powered on and the gas line open.

If you do not wish to ensure anti-icing protection:

1. Run steps 1 - 4 above.

2. Make sure the K18 unit shuts down completely if the unit is running, wait (10 minutes) for it to stop.

3. Leave the system powered off and the gas line closed.

5 SETTINGS

The System controller for the K18 is supplied preconfigured with “moderate” settings, which enable basic heating and DHW service (if present) automatically after commissioning.

However, for best results, it is often necessary to adjust certain parameters to suit the characteristics of the building and the circuits, as well as the client’s specific requirements.

This section contains instructions for satisfactory regulation. Par. 5.1.7 p. 34 also gives information about the options regarding the installation and use of the QAA75.611 and QAA5.110 room units.

For further details, the full manual for the Siemens RVS21.826 controller may be obtained. However, due to the large number of possible controller adjustments, we do not recommend making settings other than those indicated in this document. For special requirements, please contact the Robur Technical Support Centre.

5.1 OPTIMISING HEATING SERVICE

5.1.1 Heating circuit 1 (or zone 1)

This circuit (or zone) is preconfigured active with the main settings given in Table 5.1 p. 31.

Table 5.1 Heating circuit 1 (or zone 1) preconfiguration

<table>
<thead>
<tr>
<th>Preconfiguration</th>
<th>Dependency on parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating mode</td>
<td>Automatic (Comfort 6 – 22 Monday – Sunday)</td>
</tr>
<tr>
<td>Comfort setpoint</td>
<td>21 °C</td>
</tr>
<tr>
<td>Reduced setpoint</td>
<td>18 °C</td>
</tr>
<tr>
<td>Protection setpoint</td>
<td>7 °C</td>
</tr>
<tr>
<td>Heating curve slope</td>
<td>0.76</td>
</tr>
<tr>
<td>Summer/winter heating limit</td>
<td>18 °C</td>
</tr>
<tr>
<td>Flow temp setpoint min</td>
<td>8 °C</td>
</tr>
<tr>
<td>Flow temp setpoint max</td>
<td>40 °C</td>
</tr>
<tr>
<td>Room influence</td>
<td>20%</td>
</tr>
<tr>
<td>Room temperature limitation</td>
<td>2.5 °C</td>
</tr>
</tbody>
</table>

To change the settings of Table 5.1 p. 31, access the Engineer menu level, and then the Heating circuit 1 menu; then select
the parameters indicated in Table 5.1 p. 31 and modify them as desired.

For information about the choice of operating mode and

5.1.2 Heating circuit 2 (or zone 2) (if present)
This circuit (or zone) is preconfigured to be inactive; if present, it must be activated by adding a jumper or external request signal (e.g. zone thermostat or thermostat timer), as described in figure

Table 5.2 Heating circuit 2 (or zone 2) preconfiguration (if present)

<table>
<thead>
<tr>
<th>Preconfiguration</th>
<th>Dependency on parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating mode</td>
<td>Automatic (Comfort 6 – 22 Monday – Sunday)</td>
</tr>
<tr>
<td>Comfort setpoint</td>
<td>21 °C</td>
</tr>
<tr>
<td>Reduced setpoint</td>
<td>18 °C</td>
</tr>
<tr>
<td>Protection setpoint</td>
<td>7 °C</td>
</tr>
<tr>
<td>Heating curve slope</td>
<td>(water setpoint around 40 °C, with external temperature -10 °C)</td>
</tr>
<tr>
<td>Summer/winter heating limit</td>
<td>18 °C</td>
</tr>
<tr>
<td>Flow temp setpoint min</td>
<td>8 °C</td>
</tr>
<tr>
<td>Flow temp setpoint max</td>
<td>40 °C</td>
</tr>
<tr>
<td>Room influence</td>
<td>20%</td>
</tr>
<tr>
<td>Room temperature limitation</td>
<td>2.5 °C</td>
</tr>
</tbody>
</table>

To change the settings of Table 5.2 p. 32, access the Engineer menu level, and then the Heating circuit 2 menu; then select the parameters indicated in Table 5.2 p. 32 and modify them as desired.

For information about the choice of operating mode and time programming, refer to par. 5.1.3 p. 32. For information on the heating curve settings and the min/max water temperature setpoint, see par. 5.1.4 p. 32. For information on the room influence and room temperature limitation settings, see par. 5.1.5 p. 33.

5.1.3 Selecting the operating mode and time programming
The operating mode can be set separately for the heating circuits/zones as described in the two previous paragraphs. The following settings are available:

► Automatic: the circuit (or zone) works with the Comfort or Reduced room setpoint, depending on the time programming.

► Comfort: the circuit (or zone) works with the room setpoint set to Comfort.

This setting forces the heating service to run even when the system is in summer mode.

► Reduced: the circuit (or zone) works with the room setpoint set to Reduced.

► Protection: the circuit (or zone) works with the room setpoint set to Protection (anti-icing).

If you select Automatic mode, the preconfigured time programming includes a daily time period in which the Comfort setpoint applies, from 06:00 to 22:00. Proceed as follows to change this setting.

For heating circuit 1
1. Access the End user menu level, then the Time prog heating/cooling1 menu.
2. Select parameter 500 (Preselection) and set it to the desired value. The value indicates the days of the week for which the following programming operations will apply; the available values are:
   - 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

3. Set some or all of parameters 501 (1st period On), 502 (1st period Off), 503 (2nd period On), 504 (2nd period Off), 505 (3rd period On), 506 (3rd period Off) to program up to three time periods to the Comfort setpoint.

You can also copy all types of programming, excepting Mo - Su, to specific days of the week, using parameter 515 (Copy).

For heating circuit 2
1. In the same way, use menu Time prog heating/cooling 2; in this case the parameters are 520 (Preselection), 521 – 526 (periods) and 535 (Copy).

The operating mode and the comfort setpoint can easily be modified at a later time by the end user, if he so wishes. See the User manual for details.

5.1.4 Setting the heating curve slope and min/max outlet water setpoints
To set the heating curve slope for a heating circuit, refer to fig. 5.1 p. 33 and select the curve that passes through the circuit’s design point (water outlet setpoint required at the minimum outside design temperature, with reference to the room temperature setpoint 20 °C).

For example, if the minimum outside design temperature is – 5 °C and the circuit requires a water outlet temperature in these conditions of 55 °C to maintain a 20 °C room temperature, set the slope to 1.5.
To avoid reaching too high temperatures in unexpectedly harsh climate conditions, we recommend setting the **Flow temp setpoint max** to a suitable value. As a first general criterion, set these parameters to a value that ensures the system and building will not be damaged.

![Special care must be taken in the case of floor heating systems. It is best to ask the system installer and the flooring vendor for advice, especially for parquet floors. Moreover, for floor heating systems it is recommended that the heating be run off a mixed heating circuit.](image)

Furthermore, except for cases in which the system will be operated exclusively with the auxiliary boiler at high thermal loads (i.e. the system is intended to run at a higher water temperature setpoint than the operating limit of the K18 heat pump), we recommend setting these parameters to no more than **65 °C**. To optimise the heating service with certain room heat exchangers (for example, ducted hot air or fan coil heating) it is often also worth setting the values of the **Flow temp setpoint min** parameters to ensure sufficient heat exchange in all room conditions.

**Figure 5.1**  Heating curve graph - Each curve plots the outlet temperature against the external room temperature, when the room setpoint temperature is 20°C

![Heating curve graph](image)

**Tacq**  water temperature  
**Tamb**  external ambient temperature

![5.1.5 Setting the Room influence and Room temperature limitation parameters](image)

When a room unit is installed in a heated room (reference room), it acquires the local temperature and interacts with the control system. In particular, it may:

1. Modify the outlet water setpoint relative to the heating curve setpoint. If the reference room temperature stays below the requested value for too long or reaches it too slowly, the water setpoint is gradually increased. In the opposite case, the water setpoint is gradually decreased. This compensates for errors in selecting the heating curve or due to particular conditions (variations in the internal thermal load, strong winds, etc.). This compensating action can be made more or less effective, to the point of completely substituting the heating curve system, or it can be disabled entirely. Heating circuit 1 and, if present, heating circuit 2, are preconfigured to use this function in relation to the included room unit 1 temperature reading, with a mild compensating action (20%), which is suited to many installations. To modify the degree of influence, or disable the function entirely:
   - Select parameter **750** or **1050** (heating circuit 1 or 2 respectively), as described in par. 5.1.1 p. 31 and 5.1.2 p. 32, and set the influence percentage (%), or - - - to disable the function entirely.

**WARNING:** Setting a value of **100 %** disables the heating curve. It is best not to use this setting, or even very high influence percentages. For most applications, do not exceed a setting of **30 %**.
2. It interrupts the heating service request when the reference room temperature exceeds the setpoint by a configurable amount. This action is similar to that of a normal room thermostat or thermostat timer. Heating circuit 1 and, if present, circuit 2 as well, are preconfigured to use this function in relation to the temperature read by room unit 1 (included), with a value of 2.5 K (the service request is interrupted when room unit 1 reads a temperature 2.5 degrees higher than the setpoint. To change this setting or disable the function:

- Select parameter 760 or 1060 (heating circuit 1 or 2 respectively), as described in par. 5.1.1 p. 31 and 5.1.2 p. 32, and set the desired value, or - - - to disable the function entirely.

5.1.6 Setting the building time constant

Climate regulation does not directly use the external temperature acquired by the sensor, but a value which has passed an inertial filter. This accounts for the thermal inertia of the building, thus damping the variation of the outlet setpoint in relation to changes in the external temperature.

The filter is preconfigured to a value of 10 hours, which is suitable for a vast range of buildings with moderate thermal inertia. To modify this setting, proceed as follows:

1. Access the Engineer menu level, then the Configuration menu.
2. Select parameter 6110 (Time constant building) and set it to the desired value:
   - 0 h Filter disabled (not recommended)
   - < 10 h Building with low thermal inertia
   - 10-20 h Building with moderate thermal inertia
   - > 20 h Building with high thermal inertia

5.1.7 Choice of installation and use of room units

The system is supplied with a QAA75.611 room unit. The room unit is preconfigured as Room unit 1 to acquire the room temperature in a reference heated room served by heating circuit 1, and to influence the regulation of the circuit accordingly and, if present, also that of heating circuit 2 (see par. 5.1.5 p. 33). This setting is suited to the following type of installation:

- Case 1
  - the included room unit is actually installed in a reference heated room
  - heating circuit 2 is not present or if so, no dedicated room unit will be installed
  - if both heating circuits are present: the reference room, served by heating circuit 1, is at least partly also representative of the rooms served by circuit 2.

You can adjust the parameters described in par. 5.1.5 p. 33 to differentiate the settings for the two circuits, to the point even of disabling one or both of the room unit influence functions for heating circuit 2, which does not directly serve the reference room.

If, on the other hand, the situation is as follows:

- Case 2
  - the included room unit is not installed in a reference heated room

3. Proceed as follows:

- the included room unit is actually installed in a reference heated room
- heating circuit 2 is not present or if so, no dedicated room unit will be installed
- if both heating circuits are present: the reference room, served by heating circuit 1, is at least partly also representative of the rooms served by circuit 2.

5.2 OPTIMISING DHW PRODUCTION

5.2.1 Main preconfigured settings

DHW service managed by K18 unit (if present, K18 Simplygas EVO and K18 Hybrigas EVO models) is preconfigured active with the main settings given in Table 5.3 p. 35.
To change these settings, access the **Engineer** menu level, and then the **DHW** menu; then select and modify the parameters given in Table 5.3 p. 35 as desired.

For information about the choice of operating mode and time programming, refer to par. 5.2.2 p. 35. For information about the legionella function settings, refer to par. 5.2.3 p. 35.

### 5.2.2 Selecting the operating mode and time programming

The operating mode for DHW production can be set to the following values:

- **On**: DHW service is active.
- **Off**: DHW production with the K18 unit and (if present) the auxiliary boiler is active with the nominal or reduced setpoint, depending on the value of the parameter **Release** and its time programming, if any.

The **Release** parameter is preconfigured to handle DHW production 24 hours a day at nominal level. If you wish to reduce the setpoint for certain times of the day (e.g. at night) or days of the week, the parameter can be set to the following values:

- **24h/day**: production at the nominal setpoint 24 hours a day, 7 days a week.
- **All time programs HC/CC**: production at the nominal setpoint at all times in which at least one of the time programs of the heating circuits is set to the comfort setpoint; production at the reduced setpoint otherwise.

The system switches from reduced to nominal setpoint one hour ahead of switching from reduced room to comfort setpoint in the heating circuits time programs.

- **Time program 4/DHW**: production at nominal or reduced setpoint depending on time program 4 (specifically for DHW). This provides an additional time program for DHW which is independent of the heating circuit time programs. If this mode is chosen, the preconfigured time programming includes a first daily time period at the nominal setpoint, followed by a second time period from 17:00 to 21:00. To change this setting:
  1. Access the **End user** menu level, then the **Time program 4/DHW** menu.
  2. Select parameter 560 (Preselection) and set it to the desired value. The value indicates the days of the week for which the following programming operations will apply; the available values are:
    - 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.
  3. Set some or all of parameters 561 (1st period On), 562 (1st period Off), 563 (2nd period On), 564 (2nd period Off), 565 (3rd period On), 566 (3rd period Off) to program up to three time periods to the **Nominal** setpoint.

You can also copy all types of programming, excepting **Mo - Su**, to specific days of the week, using parameter 575 (Copy).

### 5.2.3 Setting the legionella function

To activate the legionella function, use the **Legionella function** parameter, which takes the following values:

- **Off**: Legionella function inactive
- **On**: Legionella function active

The legionella function is preconfigured as **inactive**.

If the legionella function is activated, it is preconfigured to run **Thursday** nights from **02:00** with a DHW setpoint of **60 °C**, which must be maintained for **45 minutes**. This can be changed with the parameters listed in par. 5.2.1 p. 34.

### Before modifying the default settings, get in contact with Robur Technical Support Centre.

Before modifying the default settings, get in contact with Robur Technical Support Centre.

Do not set too high a DHW setpoint for the legionella function. If there is no auxiliary boiler, in particular, do not exceed a value of **62 - 63 °C**.

If the legionella function is activated, it is important that the settings allow it to execute completely. If the system determines that it has not completed (e.g., the setpoint was not reached), it will restart it repeatedly. In the winter, this can impact the system's heating service.

For this reason, if the function is activated, make sure to run a test cycle to check that the system can complete the function as programmed.

### 5.3 OPTIMIZING AUXILIARY BOILER MANAGEMENT

A basic configuration is implemented during the commissioning...
operations (see Paragraph 4.2, p. 28, if necessary) of the parameters of the K18 unit, related to the management of the integrated boiler module (models K18 Hybrigas) or the optional auxiliary boiler (models K18 Simplygas). However, you can change various aspects of the control method of the integrated boiler module or the auxiliary boiler by setting other parameters of the K18 unit.

For further details and instructions refer to the Installation, use and maintenance manual of the K18 unit.
6 ERRORS

6.1 LIST OF ERRORS AND TROUBLESHOOTING INSTRUCTIONS

Table 6.1 p. 37 lists the error codes, their descriptions and priorities, which may be generated by the System controller for the K18 when configured to support the circuits envisaged in this manual. The last column of the table lists measures for resolving the problem.

Errors are shown on the QAA75.611 room unit’s display with the symbol \( \text{ } \). If you press (1) 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. Errors are usually reset automatically when the problem in question is resolved; only if the display also shows the wording Reset? at the bottom left and Yes at the bottom right need the error be explicitly reset; to do so, press OK twice (after having resolved the problem in question, otherwise the error will simply repeat).

### Troubleshooting measures

**A Codes 10, 30, 50**

1. Memorize the sensors:
   - Access the Engineer menu level, then the Configuration menu; select parameter 6200 (Save sensors), set it to yes and confirm.

   ![Image](image1.png)

   The value of parameter 6200 which displays at the end of the configuration procedure will still be no; this is normal (this setting executes an action, i.e. memorization of the actually installed sensors).

   - Wait for a minute.
   - If step 1 does not resolve the problem:
     - Check the connection of the sensor in question, correct it and memorize the sensor again as indicated in step 1.
   - If step 2 does not resolve the problem:
     - Disconnect the sensor from the RV521.826 controller and measure the resistance between the cable’s two wires. If the measurement indicates a short or open circuit, identify and resolve the problem, which may be due to the sensor itself or its wiring. Once the problem has been resolved, reconnect the sensor and memorize it again as indicated in step 1.
   - If step 3 does not resolve the problem:
     - Access the Engineer menu level, then the Configuration menu, and select parameter:
       - Error code 10: 5930 (Sensor input BX1); check that it is set to Outside sensor B9; if not, set it to this value.
       - Error code 30: 5933 (Sensor input BX4); check that it is set to the value used by parameter 6014; if not, remaining in the Engineer menu level, menu Configuration, select parameter 6014 (Function mixing group 1) and set it to Heating circuit 1.

   ![Image](image2.png)

   **WARNING:** This sensor is used only if heating circuit 1 is mixed, otherwise no sensor should be connected to input BX4. If a sensor is connected to the input by mistake, remove it, then run sensor memorization again as indicated in step 1.

   - Error code 50: 5932 (Sensor input BX3); check that it is set to DHW sensor B3; if not, set it to this value.

   **WARNING:** This sensor is used only if DHW production is performed by the K18 unit, otherwise no sensor should be connected to input BX3. If a sensor is connected to the input by mistake, remove it, then run sensor memorization again as indicated in step 1.

   - Run sensor memorization again as indicated in step 1.

2. If step 4 does not resolve the problem:
   - Power the System controller off and on again; if the problem persists, contact the Robur Technical Support Centre.

**B Codes 60, 65**

1. Memorize the sensors:
   - Access the Engineer menu level, then the Configuration menu; select parameter 6200 (Save sensors), set it to yes and confirm.

   ![Image](image3.png)

   The value of parameter 6200 which displays at the end of the configuration procedure will still be no; this is normal (this setting executes an action, i.e. memorization of the actually installed sensors).

   - Wait for a minute.
   - If step 1 does not resolve the problem:
     - Check the communications between the controller and the room unit/s and their configuration (see par. 5.1.7 p. 34). Resolve the problem, then run sensor memorization again as indicated in step 1.
   - If step 2 does not resolve the problem:
     - Power the System controller off and on again; if the problem persists, contact the Robur Technical Support Centre.

---

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Priority</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Outside sensor B9</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>30</td>
<td>Flow sensor 1 (1)</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>50</td>
<td>DHW sensor 1 (2)</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>60</td>
<td>Room sensor 1 (3)</td>
<td>6</td>
<td>B</td>
</tr>
<tr>
<td>65</td>
<td>Room sensor 2 (4)</td>
<td>6</td>
<td>B</td>
</tr>
<tr>
<td>83</td>
<td>BSB, short-circuit (1)</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>84</td>
<td>BSB, address collision</td>
<td>3</td>
<td>D</td>
</tr>
<tr>
<td>103</td>
<td>Communication failure</td>
<td>3</td>
<td>C</td>
</tr>
<tr>
<td>127</td>
<td>Legionella terrp</td>
<td>6</td>
<td>E</td>
</tr>
<tr>
<td>324</td>
<td>BX same sensors</td>
<td>3</td>
<td>F</td>
</tr>
<tr>
<td>330</td>
<td>BX1 no function</td>
<td>3</td>
<td>G</td>
</tr>
<tr>
<td>331</td>
<td>BX2 no function</td>
<td>3</td>
<td>G</td>
</tr>
<tr>
<td>332</td>
<td>BX3 no function</td>
<td>3</td>
<td>G</td>
</tr>
<tr>
<td>333</td>
<td>BX4 no function</td>
<td>3</td>
<td>G</td>
</tr>
<tr>
<td>173</td>
<td>Active alarm 3 contact</td>
<td>6</td>
<td>H</td>
</tr>
</tbody>
</table>

(1) Probe B1
(2) Probe B3
(3) Room unit 1
(4) Room unit 2
(5) Shown in this form in the error log (see par. 6.2 p. 39). The information screen displays the text "No connection" without error code.
C Codes 83, 103
1. Check the cables connecting the room unit/s to the RVS21.826 controller:
   - No short circuits between the wires
   - No broken wires
   - Correct wire polarity on controller and room unit/s
   - Stable, secure connection of all cables to all controller and room unit terminals
   Correct any problems.
2. If step 1 does not resolve the problem:
   - Power the System controller off and on again; if the problem persists, contact the Robur Technical Support Centre.

D Code 84
This problem occurs when two room units are connected and they are both configured as the same type of device (e.g., both as room unit 1).
1. Resolve the problem as indicated in par. 5.1.7 p. 34, Case 3, to configure the two room units correctly.
2. If step 1 does not resolve the problem:
   - Power the System controller off and on again; if the problem persists, contact the Robur Technical Support Centre.

E Code 127
This problem is caused by fault to reach and maintain the legionella function setpoint while the function is executing.
1. Check sensor B3:
   - Check the position and thermal contact of probe B3 in its mounting on the DHW tank. Correct the problem.
2. If step 1 does not resolve the problem:
   - Check the setpoint setting (parameter 1645, see also par. 5.2.1 p. 34 and 5.2.3 p. 35) and set a lower value if necessary, especially if no auxiliary boiler is present.
3. If step 2 does not resolve the problem, check the installation’s water circuits:
   - Water outlet during DHW charging.
   - Proper sizing of the coil exchanger in the DHW tank (exchange surface area).
4. If step 3 does not resolve the problem, contact the Robur Technical Support Centre.

F Code 324
This error is generated if two or more BX temperature sensors have been configured to a single function.
1. Check the configuration:
   - Access the Engineer menu level, then the Configuration menu, and select parameters:
     - 6014 (Function mixing group 1); set it to Multifunctional;
     - 5930 (Sensor input BX1); check that it is set to Outside sensor B9; if not, set it to that value;
     - 5931 (Sensor input BX2); check that it is set to none; if not, set it to that value;
     - 5932 (Sensor input BX3); check that it is set to DHW sensor B3; if not, set it to that value;
     - 5933 (Sensor input BX4); set it to none;
     - 6014 (Function mixing group 1); set it to Heating circuit 1.
   - Run sensor memorization: access the Engineer menu level, then the Configuration menu; select parameter 6200 (Save sensors), set it to yes and confirm.

G Codes 330, 331, 332, 333
This problem is due to the physical presence of a sensor connected to one of inputs BX1, BX2, BX3, BX4, to which no function is assigned.
1. Check the configuration:
   - Access the Engineer menu level, then the Configuration menu, and select parameter:
     - Error code 330: 5930 (Sensor input BX1); check that it is set to Outside sensor B9; if not, set it to this value.
     - Error code 331: 5931 (Sensor input BX2); remove the optional sensor connected to input BX2 (not used in the standard configurations).
     - Error code 332: 5932 (Sensor input BX3); check that it is set to DHW sensor B3; if not, set it to that value.
     - Error code 333: 5933 (Sensor input BX4); check that it is set to the value used by parameter 6014; if not, reconfiguring in the Engineer menu level, menu Configuration, select parameter 6014 (Function mixing group 1) and set it to Heating circuit 1.
   - Run sensor memorization: access the Engineer menu level, then the Configuration menu; select parameter 6200 (Save sensors), set it to yes and confirm.

The value of parameter 6200 which displays at the end of the configuration procedure will still be no; this is normal (this setting executes an action, i.e. memorization of the actually installed sensors).

H Code 173
This error is generated when the K18 unit activates its alarm output. This is therefore a signal of an error of the K18 unit and not of System controller.

The value of parameter 6200 which displays at the end of the configuration procedure will still be no; this is normal (this setting executes an action, i.e. memorization of the actually installed sensors).

Wait for a minute.

2. If step 1 does not resolve the problem:
   - Power the System controller off and on again; if the problem persists, contact the Robur Technical Support Centre.

In the case of K18 Hybrigas unit, or K18 Simplygas unit and in the presence of the auxiliary boiler and connection of its alarm signal to the specific input of the K18 unit, the error can also be generated by the auxiliary boiler.

1. You can read the error code (or codes) of the heat pump of the K18 unit by viewing its display through the transparent window on the right side of the casing. The E495 error code indicates the presence of an alarm of the integrated boiler module of the K18 Hybrigas unit or the optional auxiliary boiler connected to the K18 Simplygas unit.

If there are multiple errors, the K18’s display will cycle through their codes. For further details and an explanation of the meanings of the error codes, refer to the K18 unit’s Installation, user and maintenance manual.

2. The error conditions of the heat pump of the K18 unit can be
reset by pressing the button on the lower side of the CSK18 enclosure (detail P Figure 2.1 p. 10), or that on the unit under the transparent window on the right side of the casing.

If error E495 is active:
3. For the K18 Hybriga unit: you can read the error code of the integrated boiler module by viewing its display through the transparent window on the left side of the casing.
   Reset the error condition by pressing the button near this window for 1-2 seconds.

Do not press the button for longer as this activates test functions intended for the Technical Assistance Centre.

For additional information and an explanation of the meanings of the error codes, refer to the Installation, use and maintenance manual of the K18 unit.

4. For K18 Simplygas unit: refer to the manual of the manufacturer of the auxiliary boiler for the interpretation of any error code displayed on its control panel and for the reset instructions.

5. If steps 2 and/or 3/4 do not resolve the problem, or if it reoccurs after a while, contact the Robur Technical Assistance Centre for the K18 unit.

6.2 ERROR LOG

The controller keeps the 10 most recent errors in memory; new errors overwrite the oldest ones as they occur. To access the log:

- Access the Engineer menu level, then the Fault menu; select parameters 6800 (History 1), 6802 (History 2), etc., up to 6818 (History 10).

The data are kept in chronological order, from the most recent to the oldest (History 1 contains the most recent error; History 10 the oldest).

7 SPECIAL OPERATIONS AND CONFIGURATIONS

7.1 RESTORING FACTORY SETTINGS

If you wish to restore the controller’s factory setting, proceed as follows:
1. Access the Engineer menu level, select the Configuration menu; select parameter 6205 (Reset to default parameters), and set it to yes.

The value of parameter 6205 which displays at the end of the configuration procedure will still be no; this is normal (this setting executes an action, i.e. restoration of the factory settings).

The factory settings can only be restored if any previous settings have not already been saved, using parameter 6204 (Save parameters). If so, using parameter 6205 will simply recall the settings saved to memory.

Since saving a configuration overwrites the factory defaults, we recommend not doing so; this means you can always recall the factory settings if you think your custom configurations are mistaken.

Alternatively, you can save the controller’s final configuration, but only after being absolutely sure that the system is working as desired.

7.2 LOCKING THE ROOM UNITS

7.2.1 Locking programming of type QAA75.611 room units

Programming can be inhibited on the QAA75.611 room unit; the menus can then only be used in read mode.
1. Access the Engineer menu level from the room unit you wish to lock, then access the Operator section menu.
2. Select parameter 27 (Programming lock) and set it to On.

To unlock programming temporarily:
1. Access the desired menu level, then hold down the OK and ESC keys together for more than three seconds, after which the display will read Programming temporarily unlocked.
2. Do the programming as desired.
3. The program lock is restored once you inlet to the start screen.

To unlock programming permanently:
1. Access the Engineer menu level.
2. Unlock programming temporarily as described above.
3. Access the Operator section menu.
4. Select parameter 27 (Programming lock) and set it to Off.

7.2.2 Locking room unit controls

You can exclude the quick setting commands normally available on the QAA75.611 and QAA55.110 room units.

These commands are detailed in the User manual of the System controller for the K18.

QAA75.611 room unit

- Access the Engineer menu level from the room unit you wish to lock, then access the Operator section menu.
- Select parameter 26 (Operation lock) and set it to On.

To unlock the commands, set parameter 26 to Off in the same way.

QAA55.110 room unit

- On the room unit you wish to lock, hold down the occupancy key  for at least 3 seconds, until the display reads ru...
- Press the occupancy key again, the display will read P2.
- Turn the knob to set P2 = 1.
- Wait for the display to inlet to its normal screen.

To unlock the commands, set P2 = 0 in the same way.
## APPENDIX A: TECHNICAL DATA

### Table: RVS21.826 technical data

<table>
<thead>
<tr>
<th>Power supply</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supply voltage</strong></td>
<td>AC 230 V (+10%/-15%)</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>50 / 60 Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>max. 9.5 VA</td>
<td></td>
</tr>
<tr>
<td><strong>Power supply protection</strong></td>
<td>Thermal-magnetic circuit breaker: max. 13 A (EN60898-1) or fuse: max. 10 AT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cabling</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>230 VAC supply and outputs; bars or braided cables (with/without terminals)</strong></td>
<td>1 cable: 0.5 - 2.5 mm², 2 cables: 0.5 - 1.5 mm²</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Software class</strong></td>
<td>A</td>
<td></td>
</tr>
<tr>
<td><strong>Operation per EN 60730</strong></td>
<td>1.8 (automatic operation)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inputs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>230 VAC inputs EX1 - EX4</strong></td>
<td>max. 230 VAC, 0 - 253 VAC, &lt; 170 VAC, &gt; 100 kΩ</td>
<td></td>
</tr>
<tr>
<td><strong>Digital inputs H1, H3</strong></td>
<td>Safety Extra Low Voltage (SELV) for voltage free contacts DC 12 V, DC 3 mA</td>
<td></td>
</tr>
<tr>
<td><strong>Analogue inputs H1, H3</strong></td>
<td>Safety Extra Low Voltage (SELV) DC 0 - 10 V, &gt; 100 kΩ</td>
<td></td>
</tr>
<tr>
<td><strong>Pulse count inputs H1, H3</strong></td>
<td>Safety Extra Low Voltage (SELV) for voltage free contacts DC 12 V, DC 3 mA, min. 20 ms</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency measurement inputs H1, H3</strong></td>
<td>Safety Extra Low Voltage (SELV) DC 0 - 12 V, &lt; 1.7 V, 2.7 - 12 V, &gt; 100 kΩ, max. 500 Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Digital inputs D1, D17</strong> (on connector X75)</td>
<td>Safety Extra Low Voltage (SELV) for voltage free contacts DC 12 V, DC 3 mA</td>
<td></td>
</tr>
<tr>
<td><strong>Sensor inputs BX1 - BX4</strong></td>
<td>NTC 1k (QAC34, external sensor), NTC 10k (QAZ36, QAD36), Pr1000 (optional for solar collector and exhaust gas sensor) 5053…9671 Ω (room setpoint modification function)</td>
<td></td>
</tr>
<tr>
<td><strong>Sensor cables (copper)</strong></td>
<td>0.25 0.5 0.75 1.0 1.5 (mm²), 20 40 60 80 120 (m)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relay outputs QX1 - QX5</strong></td>
<td>- AC 0.02 - 2 (2) A, max. 15 A for ≤1 s, max. AC 10 A (total, all 230 VAC outputs) AC 24 - 230 V (for voltage free contact outputs)</td>
<td></td>
</tr>
<tr>
<td><strong>Triac output TX6</strong></td>
<td>AC 0.02 - 2 (2) A (On/Off operation), AC 0.02 - 1.2 (1.2) A (speed control) max. 4 A for ≤1 s max. AC 10 A (total, all 230 VAC outputs)</td>
<td></td>
</tr>
<tr>
<td><strong>Analogue outputs UX1, UX2, UX3 (UX3 on connector X75)</strong></td>
<td>Safety Extra Low Voltage (SELV) outputs with short-circuit protection Uout = 0...10.0 V max. ±2 mA RMS, ±2.7 mA peak ≤ ± 80 mVpp ≤ ± 130 mV</td>
<td></td>
</tr>
<tr>
<td><strong>Outputs PWM UX1, UX2, UX3 (UX3 on connector X75)</strong></td>
<td>Safety Extra Low Voltage (SELV) outputs with short-circuit protection High level 10 VDC, low 0 VDC Ux = min. 6 V @ 5 mA 3 kHz</td>
<td></td>
</tr>
<tr>
<td><strong>Digital outputs D1, D2, D3 (on connector X75)</strong></td>
<td>Internal pull-up High level 12 VDC, low 0 VDC max. 2.5 mA</td>
<td></td>
</tr>
<tr>
<td><strong>Power G+</strong></td>
<td>Safety Extra Low Voltage (SELV), outputs with short-circuit protection 11.3 - 13.2 V max. 88 mA</td>
<td></td>
</tr>
<tr>
<td><strong>Power GX1 (configurable)</strong></td>
<td>Safety Extra Low Voltage (SELV), outputs with short-circuit protection 4.75 - 5.25 V, 11.3 - 13.2 V, max. 20 mA</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A: technical data

**Interfaces**
- BSB
  - Base unit/peripheral cable length
  - Total cable length
  - Cross section
- LPB (optional with LPB OCI345 06/101 adapter connected to X70)
  - Cable length:
    - with power from controllers on bus (per controller)
    - with central power on bus
    - Bus load number
- Modbus (optional with OCI350.01 Modbus adapter on X60)
  - for details, see the OCI350.01 Modbus adapter technical data

**Protection rating and safety class**
- Enclosure protection rating per EN60529
  - IP 00 (without enclosure)
- Safety class per EN60730
  - for LV parts, if correctly installed
- Degree of contamination per EN60730
  - degree of contamination normal

**Standards, safety, EMC, etc.**
- CE conformity (EU)
  - CE1T2355xx04
- CE directive
  - 2004/108/EC
  - EN61000-6-2
  - 2006/95/EC
  - EN60730-1, EN50090-2-2
- Low voltage
  - EN 60730-1, EN50090-2-2

**Climatic conditions**
- Storage, per EN60721-3-1
  - class 1K3, -20 - 65 °C
  - class 2K3, -25 - 70 °C
  - class 3K5, -20 - 50 °C (non condensing)
- Operation, per EN60721-3-3
  - class 1K3, -20 - 65 °C
  - class 2K3, -25 - 70 °C
  - class 3K5, -20 - 50 °C (non condensing)

**Weight**
- Packaging excluded
  - QAA75.611: 170 g
  - QAA55.110: 115 g

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**Table QAA75.611 / QAA55.110 technical data**

<table>
<thead>
<tr>
<th>Power supply</th>
<th>BSB</th>
<th>Bus powered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>0 - 50 °C</td>
<td></td>
</tr>
<tr>
<td>Per EN12098:</td>
<td>- Range 15 - 25 °C</td>
<td></td>
</tr>
<tr>
<td>- Range 0 - 15 °C or 25 - 50 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>- tolerance 0.8 K</td>
<td></td>
</tr>
<tr>
<td>- tolerance 1.0 K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 1/10 K</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interfaces**
- BSB
  - Base unit/peripheral cable length
  - Cross section
- Two-wire connection (not invertible)
  - max. 200 m
  - max. 400 m (max. cable capacity: 60 nF)

**Protection rating and safety class**
- Enclosure protection rating per EN60529
  - IP 20
- Safety class per EN60730
  - safety class II for LV parts, if correctly installed
- Degree of contamination per EN60730
  - degree of contamination normal

---

**Room temperature measurement**
- Per EN12098:
  - Range 15 - 25 °C
  - Range 0 - 15 °C or 25 - 50 °C
- Resolution
  - tolerance 0.8 K
  - tolerance 1.0 K
  - 1/10 K

---

**Protection rating and safety class**
- Enclosure protection rating per EN60529
  - IP 20
- Safety class per EN60730
  - safety class II for LV parts, if correctly installed
- Degree of contamination per EN60730
  - degree of contamination normal

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**Standards, safety, EMC, etc.**
- CE conformity (EU)
  - CE1T2355xx04
- CE directive
  - 2004/108/EC
  - EN61000-6-2
  - 2006/95/EC
  - EN60730-1, EN50090-2-2
- Low voltage
  - EN 60730-1, EN50090-2-2
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