

Installation manual

System controller

for modulating absorption methane condensing heat pump
+ renewable aerothermal energy K18



Revision: A

Code: D-LBR807

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I 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.

II 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.

III 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

parts.

- 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.

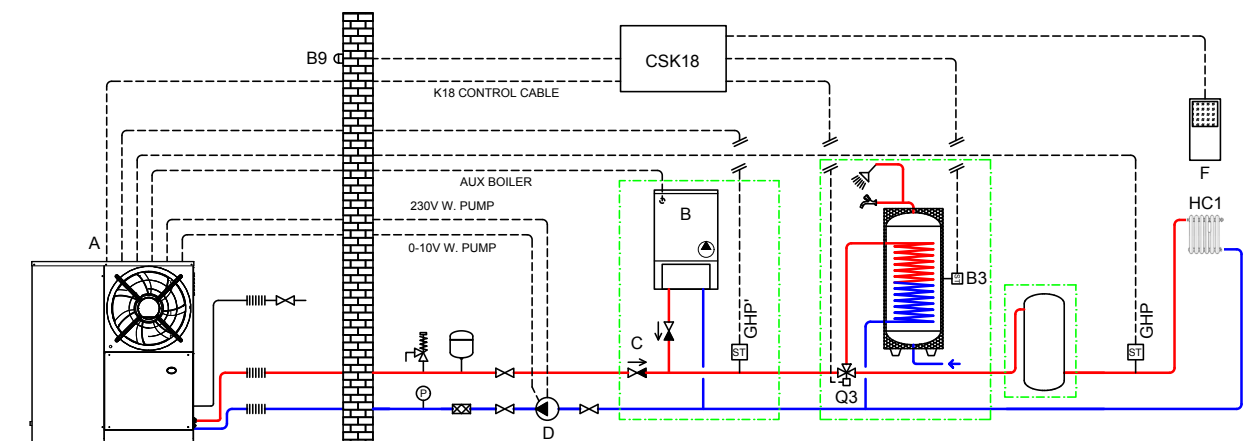


For water circuits with primary circuit only (Figure 1.1 p. 6, 1.2 p. 7, 1.4 p. 8 e 1.5 p. 8) water circulation must be guaranteed to handle the K18 unit's antifreeze cycle. In the diagrams given in Figure 1.2 p. 7 and 1.5 p. 8 this requires that a outlet/inlet bypass is installed, with overpressure 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.

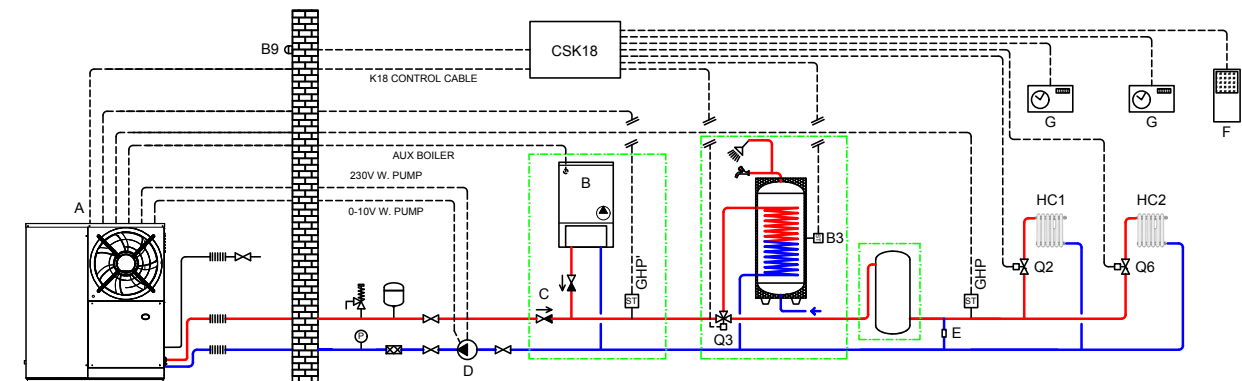
Figure 1.1 System with K18 Simplygas unit, primary water circuit only and one zone, auxiliary boiler and DHW production optional



- A Unit K18 Simplygas
 B Auxiliary boiler (optional)
 C check valve (to be installed only in the presence of an auxiliary boiler)

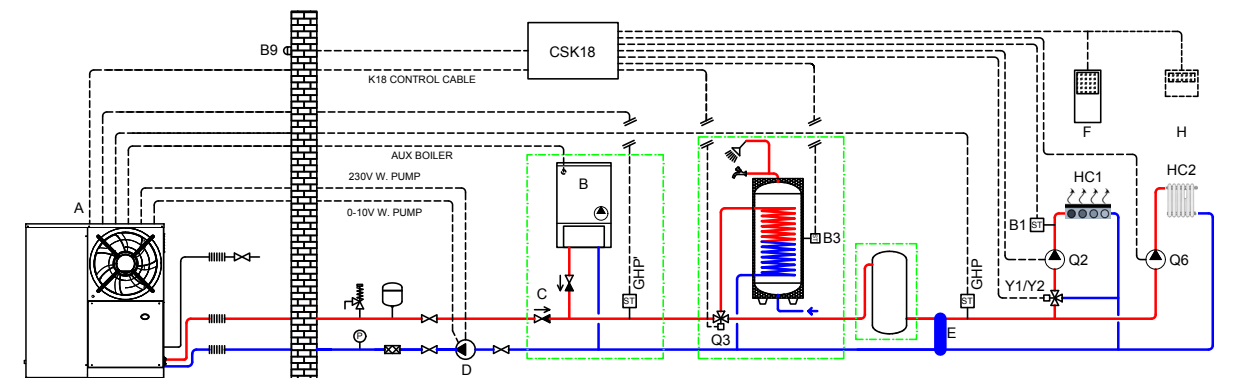
- D External water pump (only for C0 versions)
 E Room unit 1 (QAA75.611)

Figure 1.2 System with K18 Simplygas unit, primary water circuit only and two zones, auxiliary boiler and DHW production optional



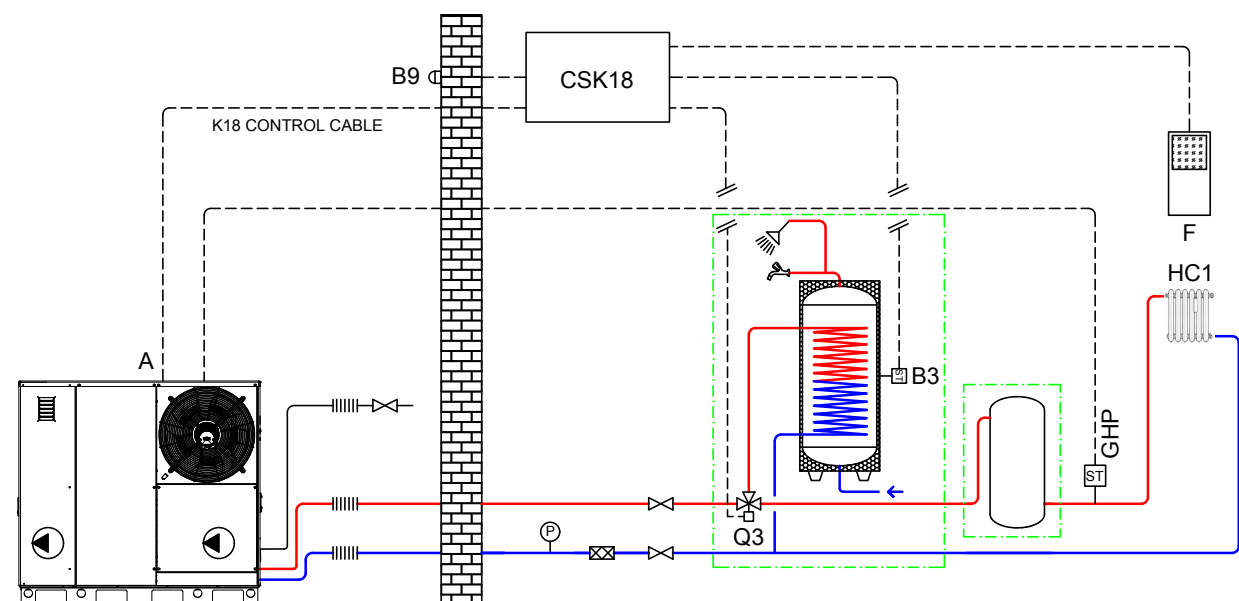
- | | | | |
|---|---|---|---|
| A | Unit K18 Simplygas | E | By-pass section with overpressure valve |
| B | Auxiliary boiler (optional) | F | Room unit 1 (QAA75.611) |
| C | check valve (to be installed only in the presence of an auxiliary boiler) | G | Thermostats (with timer) for zones |
| D | External water pump (only for C0 versions) | | |

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 optional



- | | | | |
|---|---|---|---|
| A | Unit K18 Simplygas | E | Decoupling of primary/secondary circuits |
| B | Auxiliary boiler (optional) | F | Room unit 1 (QAA75.611) |
| C | check valve (to be installed only in the presence of an auxiliary boiler) | H | Room unit 2 for HC2 circuit (<i>optional</i> , QAA75.611 or QAA55.110) |
| D | External water pump (only for C0 versions) | | |

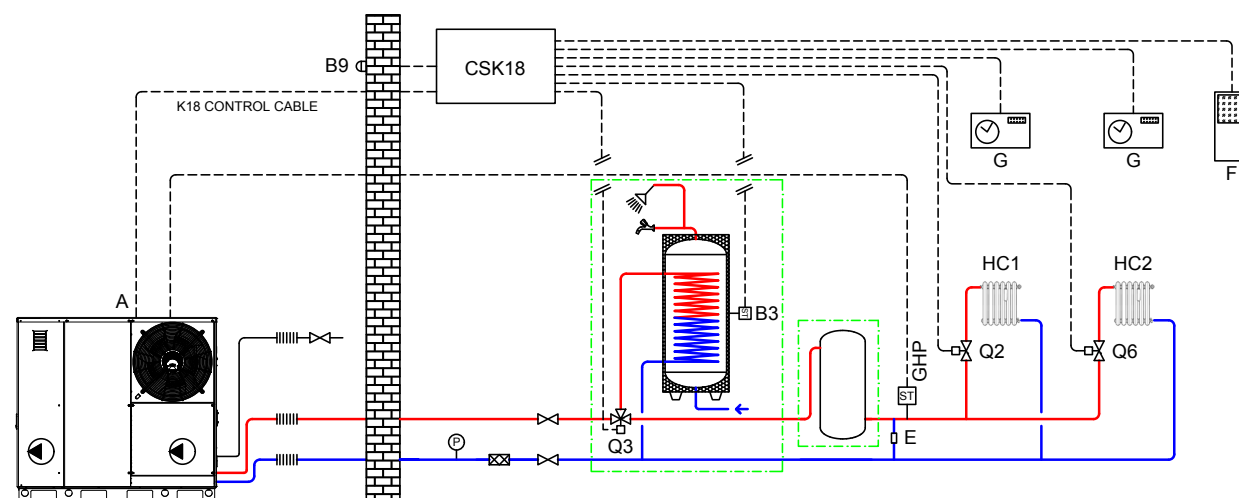
Figure 1.4 System with K18 Hybrigas unit, primary water circuit only and one zone, DHW production optional



A K18 Hybrigas unit

F Room unit 1 (QAA75.611)

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



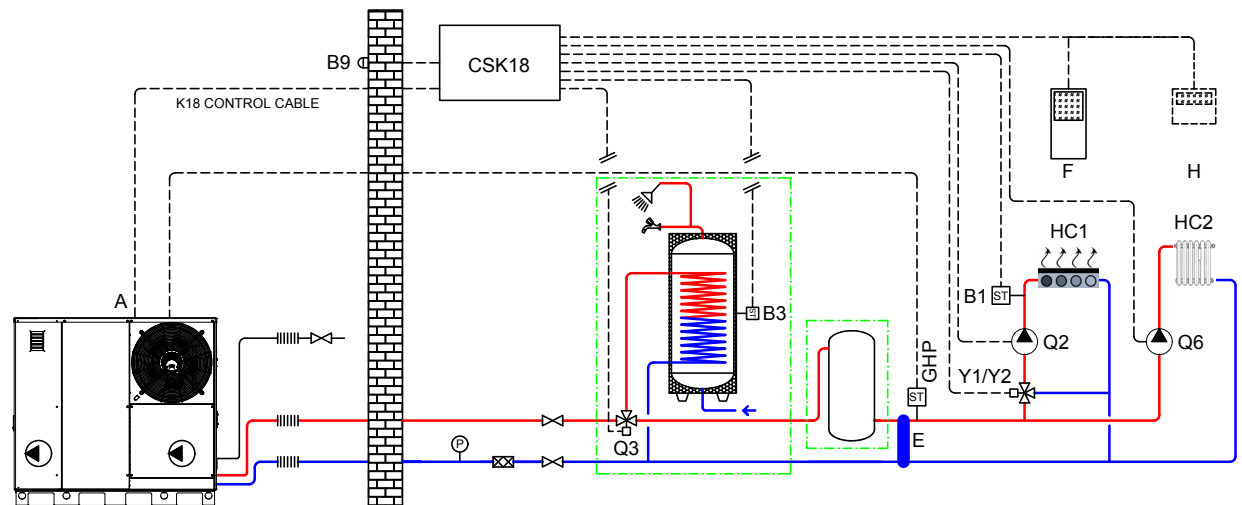
A K18 Hybrigas unit

E By-pass section with overpressure valve

F Room unit 1 (QAA75.611)

G Thermostats (with timer) for zones

Figure 1.6 System with K18 Hybrigas unit, primary and secondary water circuits, up to two heating circuits, one of which is optionally mixed, DHW production optional



A K18 Hybrigas unit
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)

i 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.

i 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

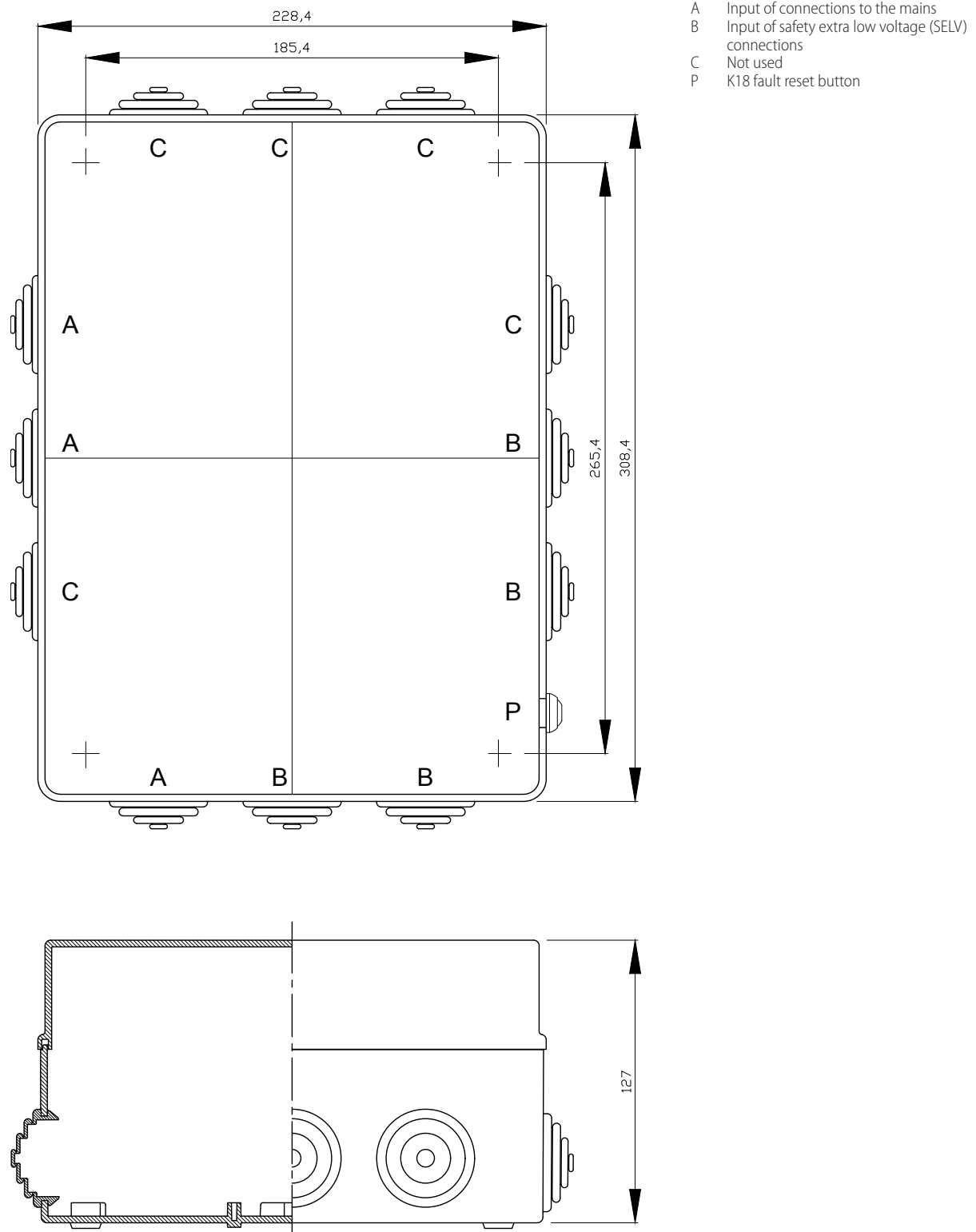
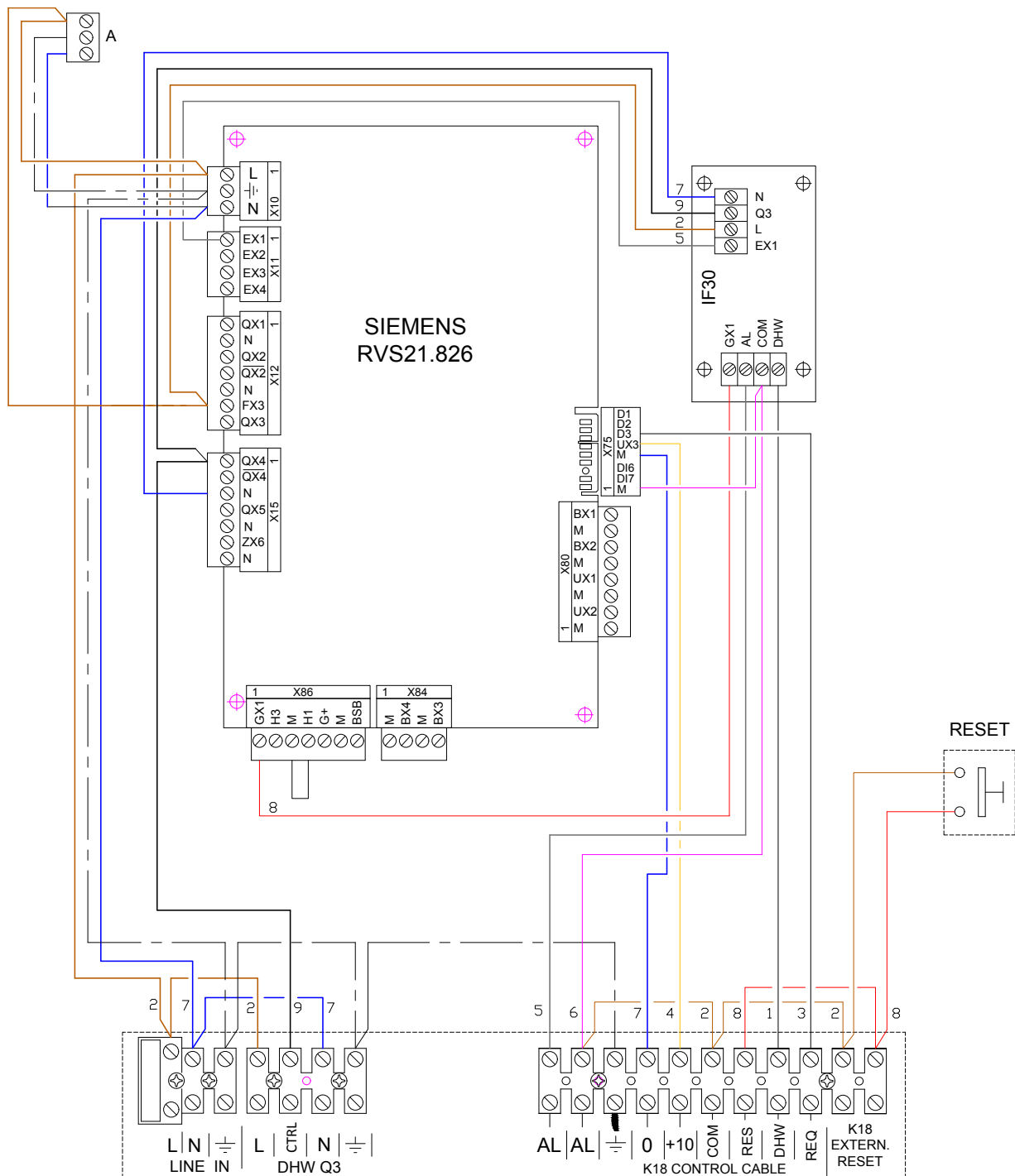


Figure 2.2 General layout of components and wiring diagram for K18 system controller



A Optional expansion board power connector



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 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 p. 10), while Table 2.2 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 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 p. 6, 1.2 p. 7 and 1.3 p. 7 with regards to applications with K18 Simplygas units and 1.4 p. 8, 1.5 p. 8, 1.6 p. 9 for applications with K18 Hybrigas units.

Table 2.1 Line Voltage connections to Siemens RVS21.826 board connectors

Function (Siemens logo on water circuit diagrams and description)			Logo on connector Color	Siemens connector code
L	230 VAC phase input to RVS21.826	Pre-wired	X10 Green	BPZ:AGP5S.03A/109
	Ground connection to RVS21.826	Pre-wired		
N	Neutral input to RVS21.826	Pre-wired		
EX1	K18 unit alarm signal input on RVS21.826	Pre-wired	X11 Green	BPZ:AGP5S.04D/109
EX2	Not used			
EX3	Not used			
EX4	Not used			
QX1	Y1 - heating circuit 1 mixer valve open phase output		X12 Green	BPZ:AGP5S.07H/109
N	Heating circuit 1 mixer valve neutral output			
QX2	Y2 - heating circuit 1 mixer valve close phase output			
	Not used			
N	Q6 - Heating circuit 2 water pump neutral output / Zone 2 valve (2)		X15 Orange	BPZ:AGP5S.07M/109
FX3	Phase input for output QX3	Pre-wired		
QX3	Q6 - Heating circuit 2 water pump phase output / Zone 2 valve (2)			
QX4	DHW diverter valve control phase output (3)	Pre-wired		
	Q3 - DHW diverter valve phase inverse output (1)			
N	Neutral output	Pre-wired		
QX5	Q2 - Heating circuit 1 water pump phase output / Zone 1 valve			
N	Q2 - Heating circuit 1 water pump neutral output / Zone 1 valve			
ZX6	Not used			
N	Not used			

- (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 KECSK18 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

	Function (description)	Group of terminals
L	230 VAC phase power input	LINE IN
N	Neutral power input	
	Ground connection	
L	DHW diverter valve power fixed phase output	DHW Q3
CTRL	Q3 - DHW diverter valve power control phase output (1)	
N	DHW diverter valve power neutral output	
	DHW diverter valve power ground connection	

- (1) Output Q3 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

Function (Siemens logo on water circuit diagrams and description)			Logo on connector Color	Siemens connector code
BX1	B9 - External temperature sensor input		X80 Grey	BPZ:AGP5S.08N/109
M	B9 - External temperature sensor input			
BX2	Not used (available for additional functions)			
M	Not used (BX2 return mass)			
UX1	Not used (available for additional functions)			
M	Not used (UX1 return mass)			
UX2	Not used (available for additional functions)			
M	Not used (UX2 return mass)		X84 Grey	BPZ:AGP5S.04E/109
BX3	B3 - DHW buffer tank temperature sensor input			
M	B3 - DHW buffer tank temperature sensor input			
BX4	B1 - Heating circuit 1 temperature sensor input (mixed only)			
M	B1 - Heating circuit 1 temperature sensor input (mixed only)		X86 Grey	BPZ:AGP5S.07K/109
BSB	BSB+ - QAA75/QAA55 Room Unit data bus connection			
M	BSB-- - QAA75/QAA55 Room Unit data bus ground			
G+	G+ - QAA75 Room Unit backlighting power output			
H1	H1 - Heating circuit 1 normally open request signal input (1)			
M	H1/H3 - Heating circuit 1 and 2 request signal input return			
H3	H3 - Heating circuit 2 normally open request signal input (2)			
GX1	GX1- 12 VDC power output	Pre-wired		

- (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

	Function (description)	Group of terminals
AL	K18 unit alarm signal input	GAHP K18 CONTROL CABLE
AL	K18 unit alarm signal input	
\perp	K18 unit cable shielding braid ground connection	
0	K18 unit 0 – 10V setpoint output ground	
+10	K18 unit 0 - 10V setpoint output	
COM	K18 unit digital output common ground	
RES	K18 unit alarm reset digital output	
DHW	Service type request digital output to K18 unit (heating/DHW)	
REQ	Service request (request) digital output to K18 unit	EXTERNAL RESET
GAHP K18 EXTERN RESET	K18 alarm reset external control input (NO voltage free contact)	
GAHP K18 EXTERN RESET	K18 alarm reset external control input (NO voltage free contact)	

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

Model	Sensor type	Measurement range (°C)	Tolerance (K) (1)	Time constant (min)	Weight (g)	Wire cross section (mm ²)	Max. length (m)
QAC34/101	NTC1000 Ω at 25 °C	-50 - 70	± 1	12	73	1.5	120

- (1) QAC34/101 over range -10 - +20 °C

Assembly and installation

Figure 2.3 Description of installation procedure for QAC34 external sensor

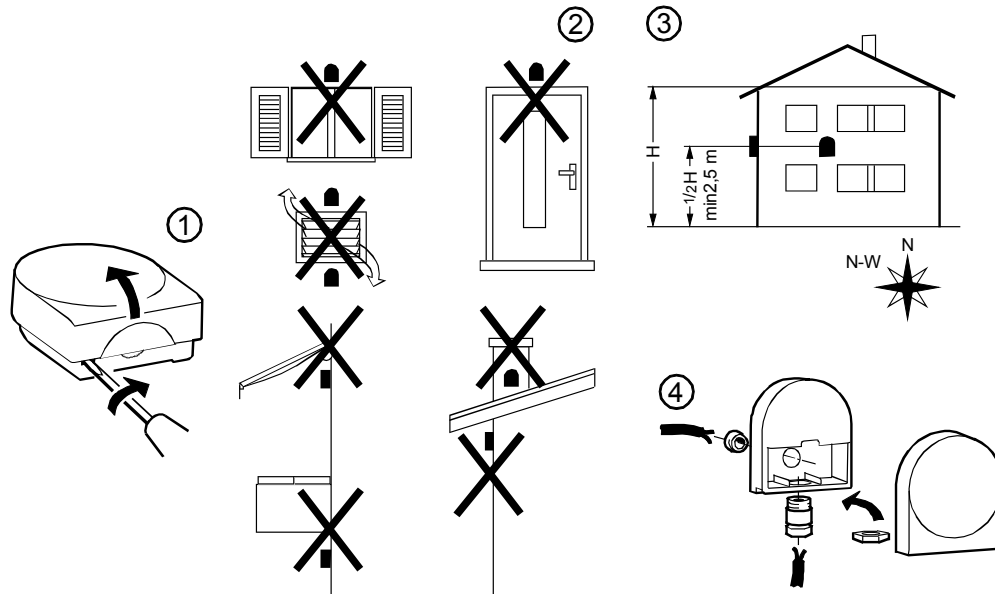
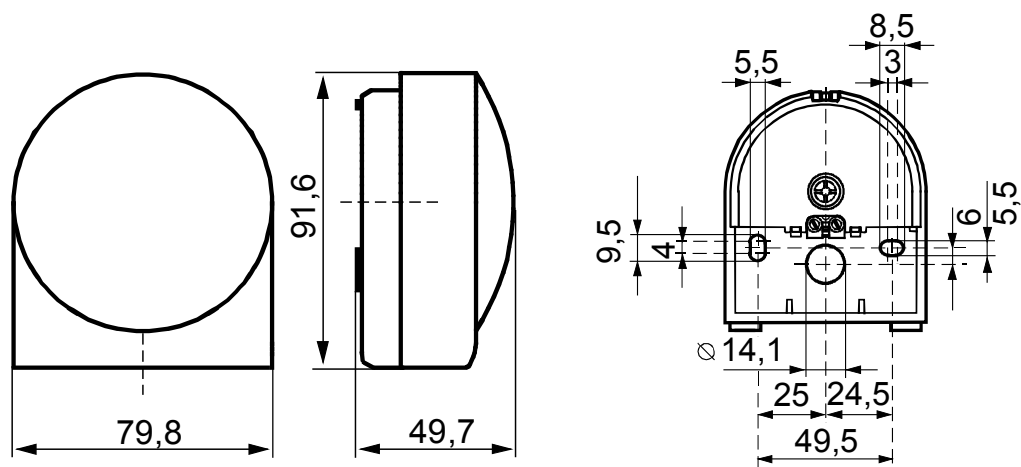


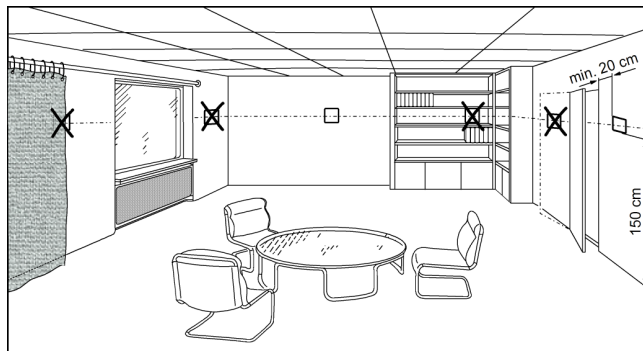
Figure 2.4 QAC34 external room sensor dimensions



2.3 QAA55.110 BASIC ROOM UNIT (OPTIONAL)

Location

Figure 2.5 Description of installation position of room unit



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;

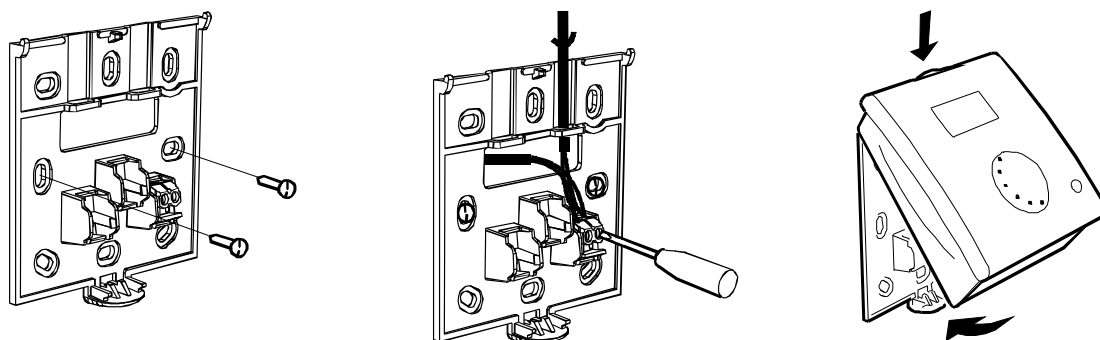
- ▶ if wall mounted, leave enough space above the unit for it to be installed and removed when necessary.



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

Installation

Figure 2.6 Description of installation procedure for room unit QAA55.110



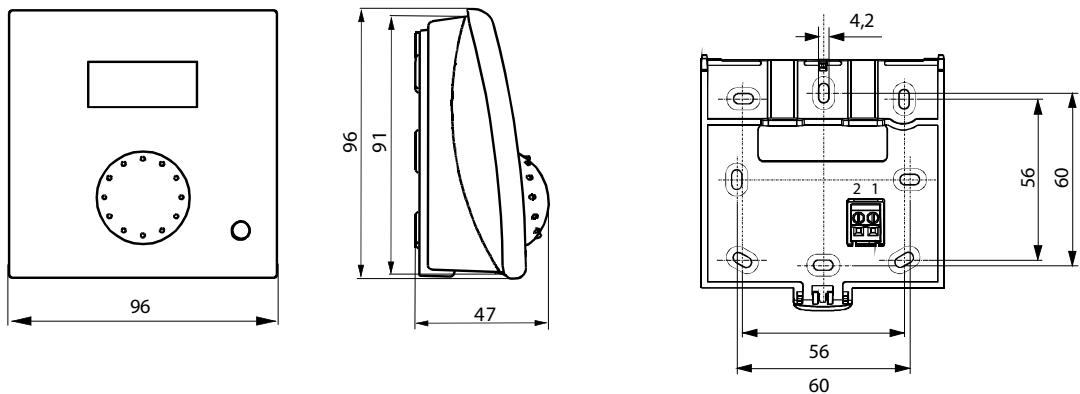
Do not install the room unit in rooms exposed to water or damp.



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

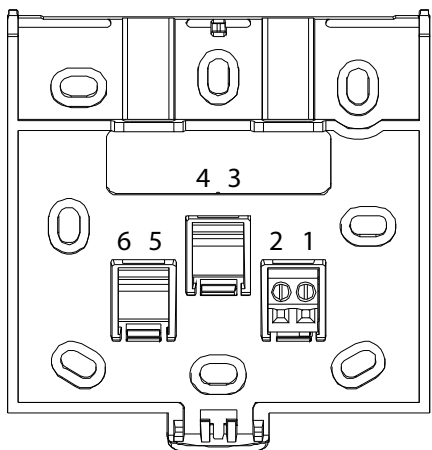


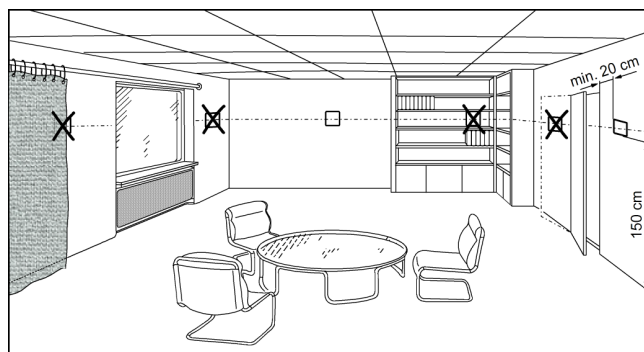
Table 2.6 Room unit QAA55.110 connections

Terminal	Name	Description
1	BSB	Data bus BSB +
2	M	Data bus BSB -

2.4 QAA75.611 ADVANCED ROOM UNIT

Location

Figure 2.9 Description of installation position of room unit



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

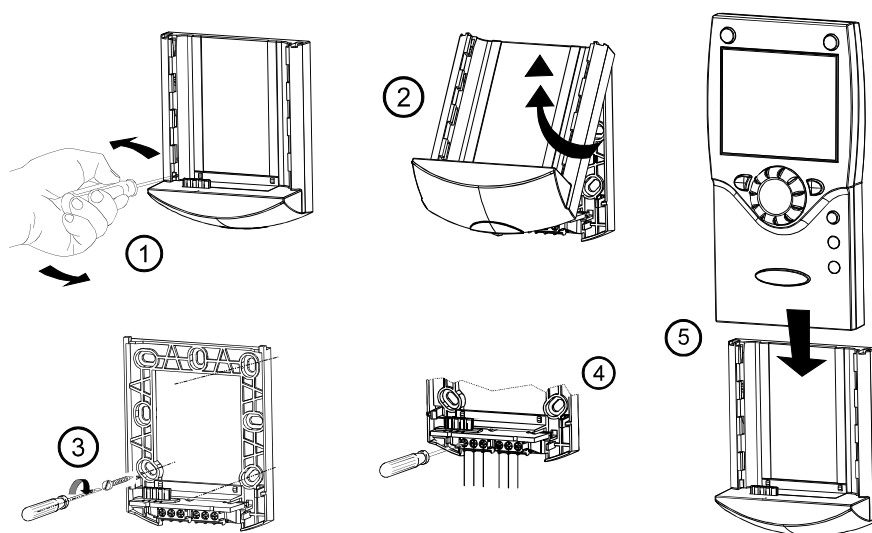
- ▶ the room unit must be installed about 1.5 m off the ground, in an area which allows the sensor to read the room temperature as accurately as possible, it should therefore be out of the way of draughts, sunlight and other sources of heat;

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

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

Installation

Figure 2.10 Description of installation procedure for room unit QAA75.611



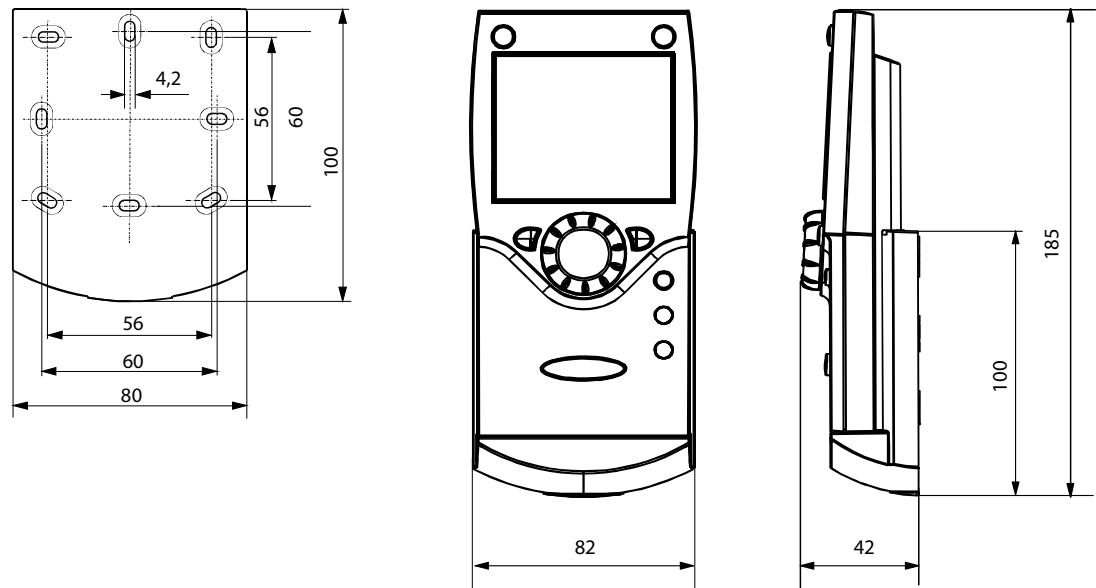
i Do not install the room unit in rooms exposed to water or damp.



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

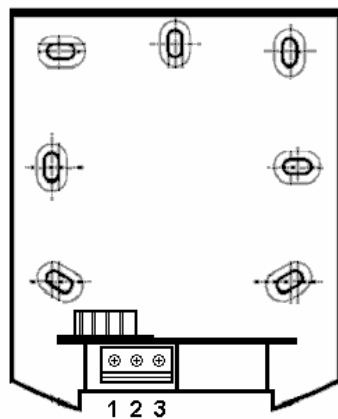


Table 2.7 Room unit QAA75.611 connections

Terminal	Name	Description
1	BSB	Data bus BSB +
2	M	Data bus BSB -
3	G+	Power 12 V DC

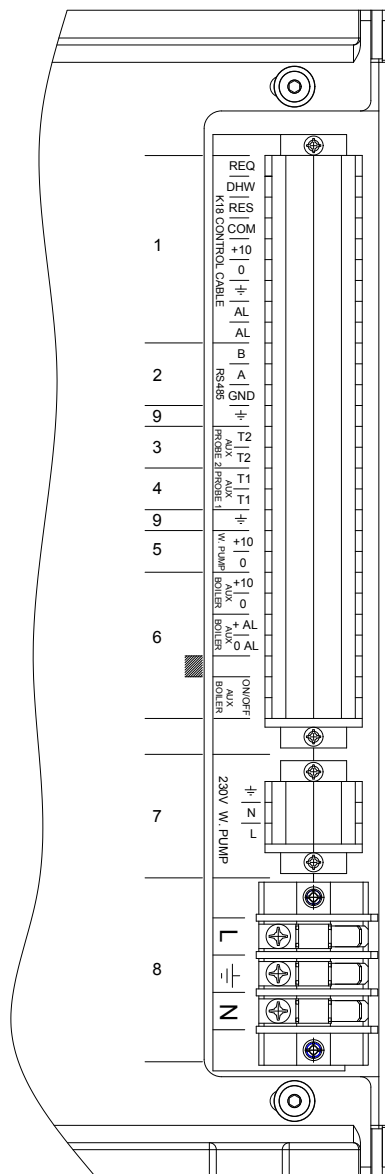
2.5 THE K18 UNIT

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

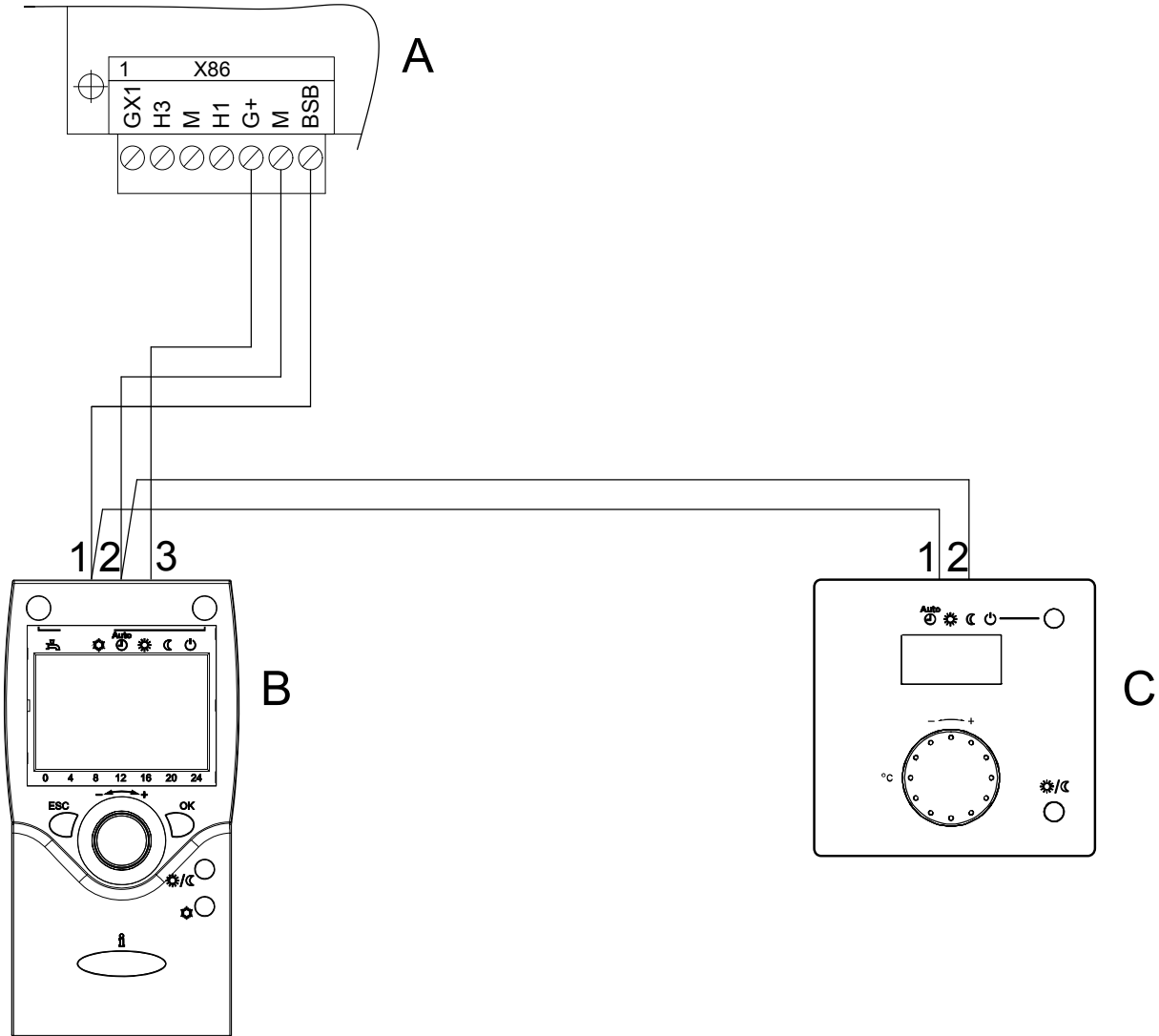


- 1 Connection to CSK18 enclosure (see par. 3.6 p. 26)
- 2 Modbus connection to RS485 port for optional monitoring
- 3 GHP' temperature sensor connection (see par. 3.7 p. 27)
- 4 GHP temperature sensor connection (see par. 3.7 p. 27)
- 5 Connection of 0-10 V signal on the optional external water pump (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 QAA55.110



- A Grey connector X86 (bottom edge of RVS21.826 board)
- B Room unit 1 (QAA75.611)
- C Ambient unit 2 (QAA55.110) (optional code ODSP004)

NOTE Use shielded signal cable 3x0.75 mm² (2x0.75 mm² for QAA55.110).
Maximum total length 400 m.
Maximum length between controller and room unit 200 m.

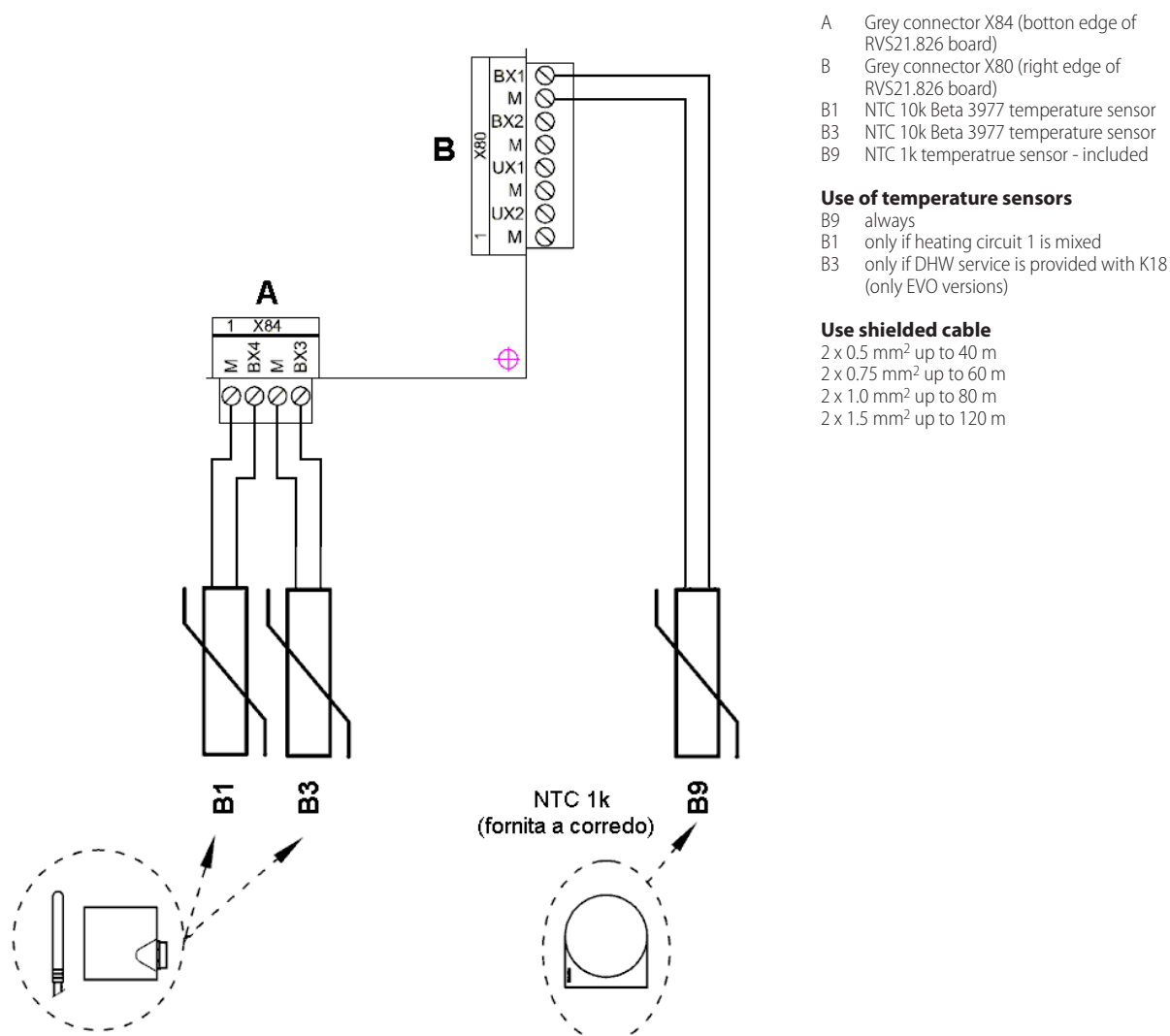
Both room units can also be connected to connector X86.

Table 3.1 QAA75.611 and QAA55.110 (optional) room unit connection

RVS21.826	QAA75.611	QAA55.110
BSB	1	1
M	2	2
G+	3	-

3.2 TEMPERATURE SENSOR CONNECTION

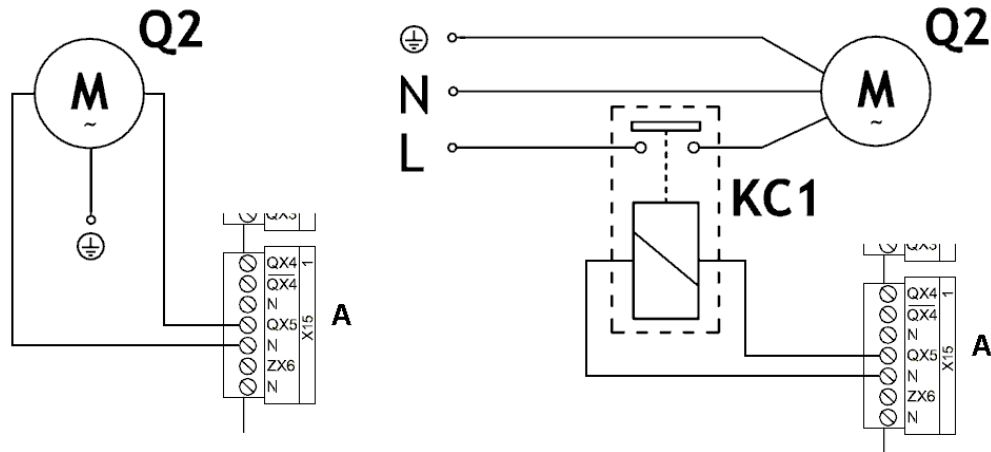
Figure 3.2 Temperature sensor connection diagram (NTC 10k - Beta 3977) to RVS21.826



3.3 WATER CIRCULATION PUMP CONNECTION

3.3.1 Heating circuit 1 pump hookup diagram

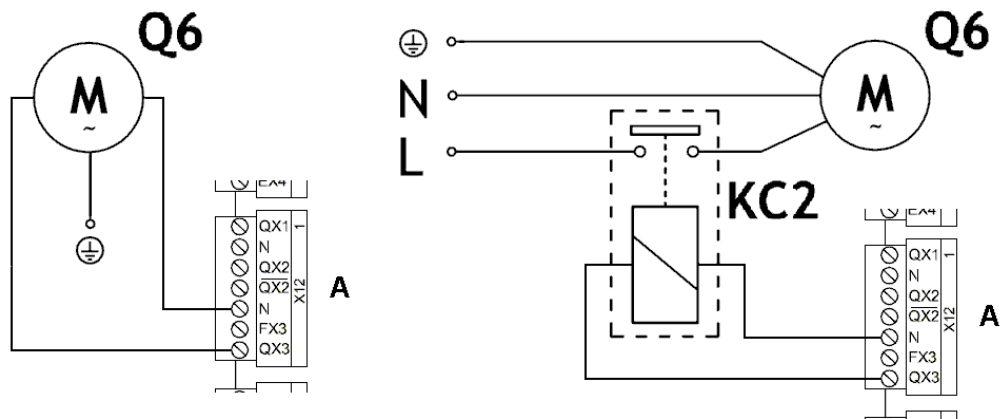
Figure 3.3 Direct or external relay connection of heating circuit 1 pump to RVS21.826



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



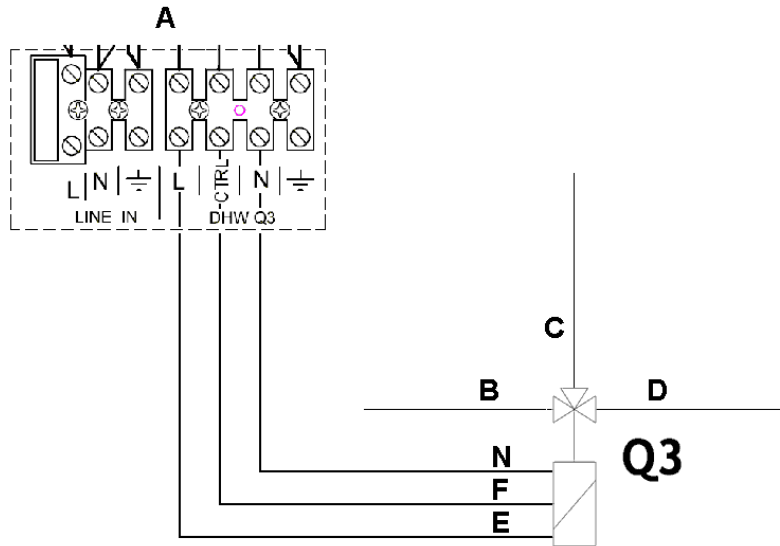
A Green connector X12 (left edge of RVS21.826 board)
 Q6 Heating circuit 2 pump
 KC2 Relay (not supplied)

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)

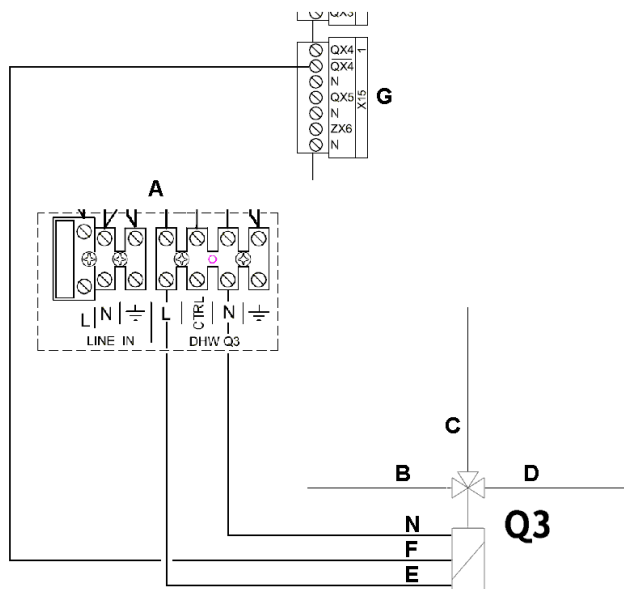


- A Detail of CSK18 enclosure terminal block
- B Flow from K18
- C DHW coil outlet
- D Heating outlet
- E Fixed phase power
- F Signal (phase present in DHW service)
- N Neutral
- Q3 Diverter valve

CASE 1

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

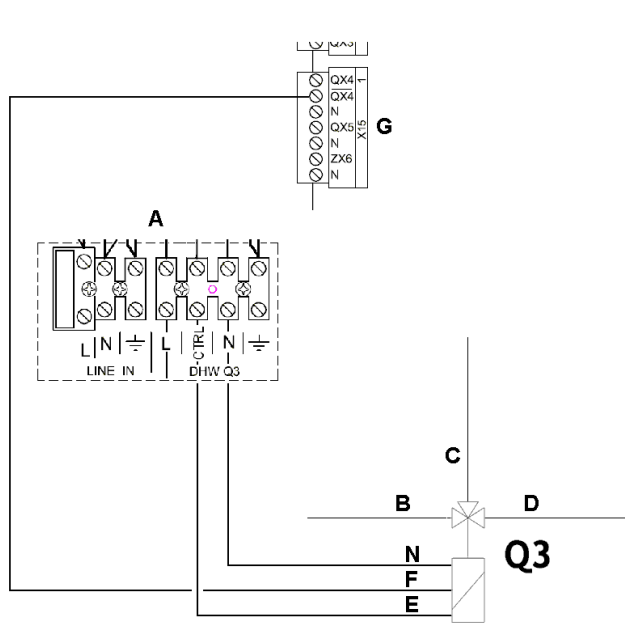
Figure 3.6 Q3 diverter valve connection to CSK18 enclosure terminal block and RVS21.826 – Case 2



- A Detail of CSK18 enclosure terminal block
- B Flow from K18
- C DHW coil outlet
- D Heating outlet
- E Fixed phase power
- F Signal (phase present in heating service)
- G Orange connector X15 (left edge of RVS21.826 board)
- N Neutral
- Q3 Diverter valve

CASE 2

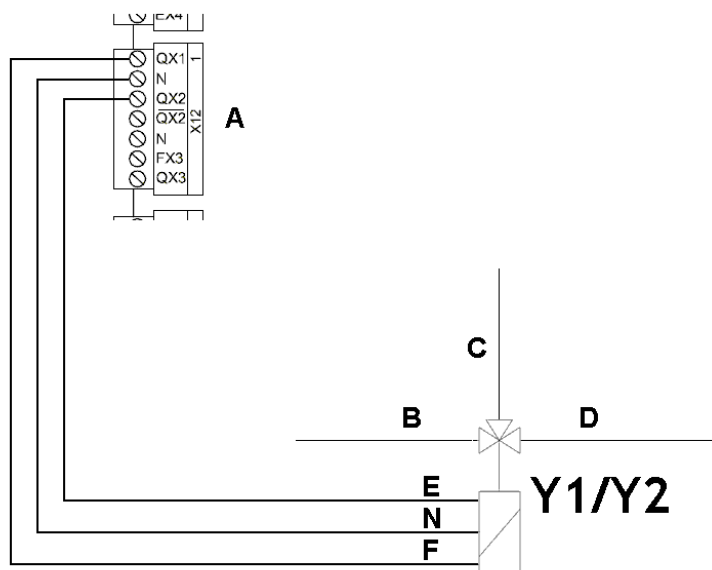
Valve with power always present;
position controlled by signal (230VAC phase):
no phase: DHW
phase: heating

Figure 3.7 Q3 diverter valve connection to CSK18 enclosure terminal block and RVS21.826 – Case 3

- A Detail of CSK18 enclosure terminal block
- B Flow from K18
- C DHW coil outlet
- D Heating outlet
- E Signal (phase present in DHW service)
- F Signal (phase present in heating service)
- G Orange connector X15 (left edge of RVS21.826 board)
- N Neutral
- Q3 Diverter valve

CASE 3

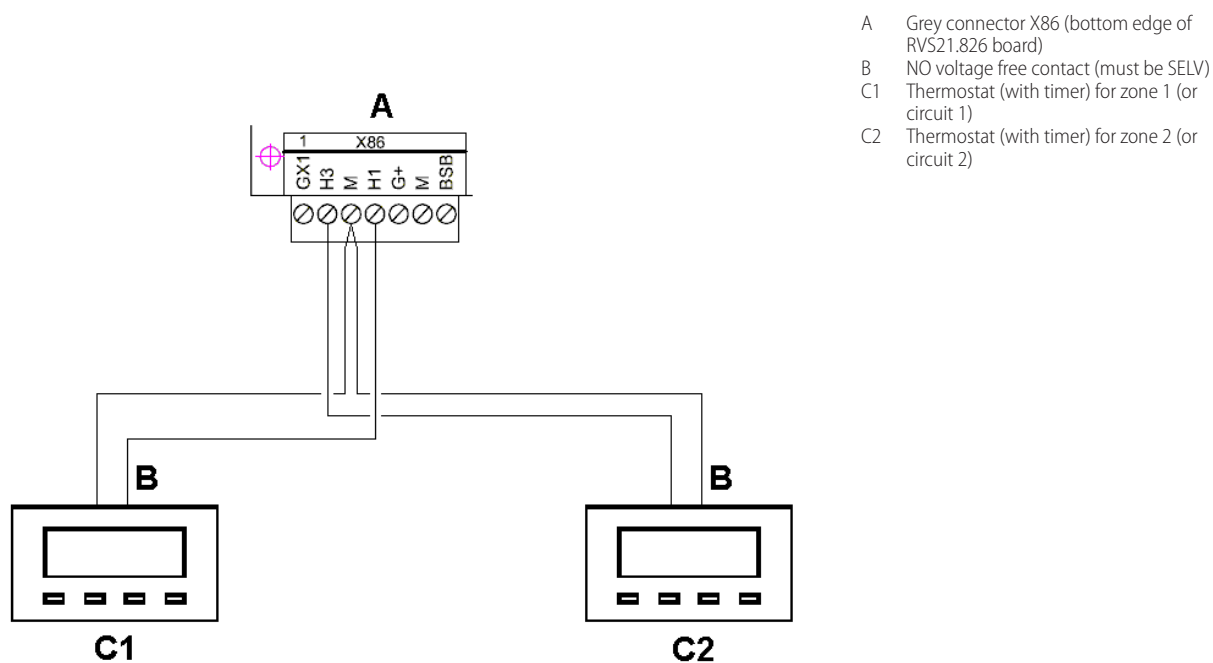
Valve with two signals (230VAC phase) alternatively active for DHW and heating

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

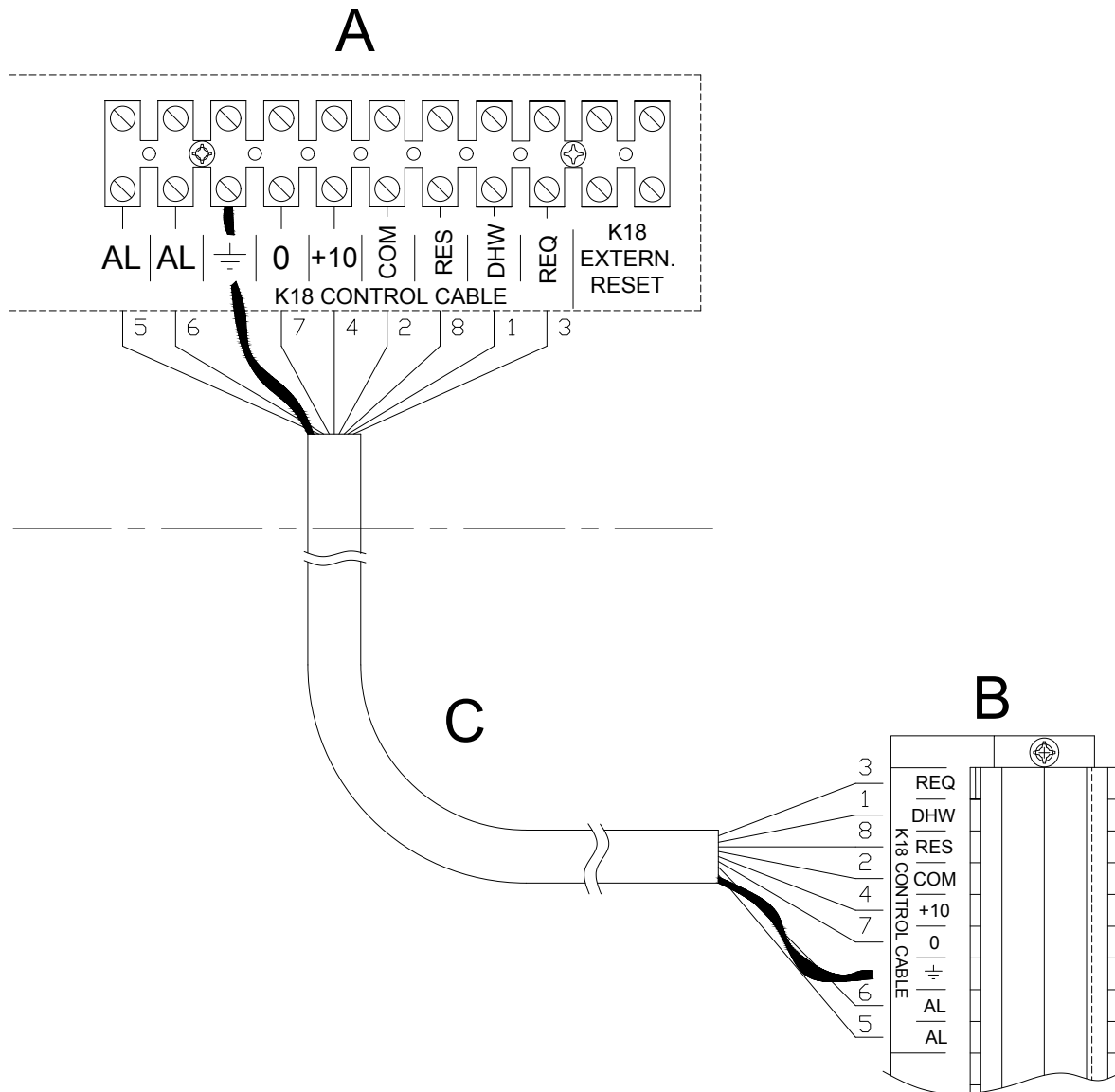
3.5 COLLEGAMENTO CONSENSI ESTERNI

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



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 OCVO009 optional)
 Maximum length 50 m.

NOTE

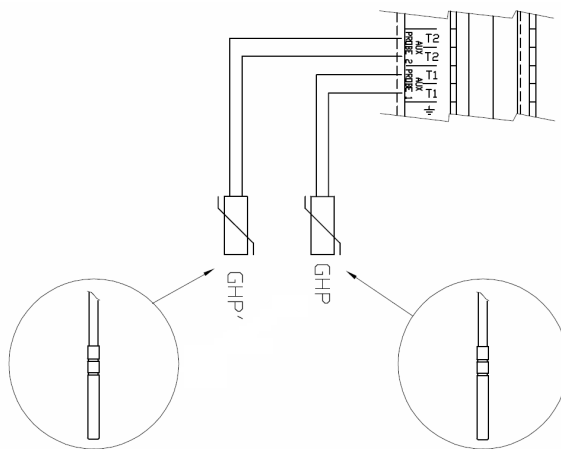
Connect the shield to the ground terminals at both ends.
 Using DIN 47100 conforming cable (colour coded) simplifies the hookup (see Table 3.2 p. 26).

Table 3.2 Wire colours per DIN47100

Wire n.	Wire colour
1	White
2	Brown
3	Green
4	Yellow
5	Grey
6	Pink
7	Blue
8	Red
9	Black
10	Purple

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

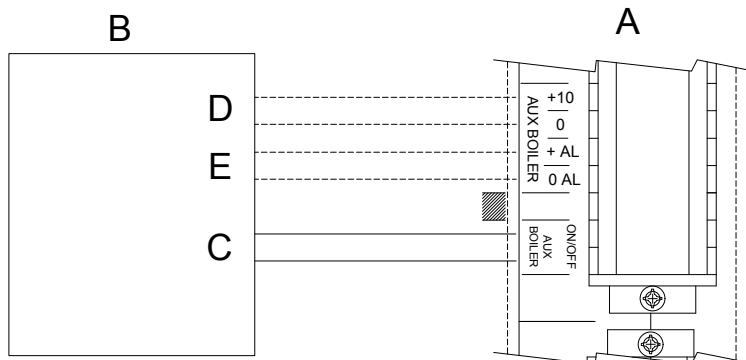
- GHP always
 GHP' **K18 Simplygas** models: only if an auxiliary boiler is present and DHW service is made by K18 models **K18 Hybrigas**: pre-installed in the machine; connect as shown in the figure if the DHW service managed by the K18 unit is present

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

4 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.

4.1 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 (i) 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 inlet 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 you want to access a different menu level, inlet to the start screen (point 9) and then execute steps 1 and 2.



If you do nothing for 8 minutes the device will automatically inlet to its main page.



The menu levels (*End user, Commissioning, Engineer, OEM*) vary both in the number of their submenus and the number of parameters in each submenu. Work at the menu level indicated in the description of an operation,

and not at a higher level, to avoid involuntarily modifying parameters which may be critical to the system's operation.

As an example, we show how to modify the user interface language at the *End user* level.

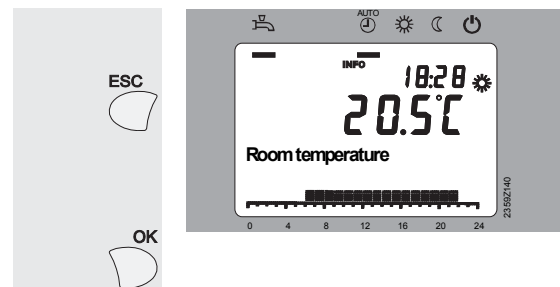
1. Check that the display is showing the start screen, fig. 4.1 p. 28



If it is showing a different screen, press **ESC**.

2. Press **OK**.
3. Turn the knob to select the **Operator section** menu.
4. Press **OK** to access the menu.
5. The first parameter in this menu displays, as follows:
 - the top right shows the number of the parameter, in this case **20**; the bottom left shows the name of the menu, in this case **Operator section**, and below that the parameter's description, in this case **Language**. Finally, the value of the parameter displays at the bottom right, in this case **English**.

Figure 4.1 Initial display screen.



If the unit does not display this screen, press **ESC** until it does.

6. Press **OK**, the value will start flashing.
7. Turn the knob to select the new value, e.g. **English**.
8. Press **OK** to confirm the new value.
9. Press **ESC** once to return to the list of menus, and again to return to the start screen.

4.2 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 RVS21.826 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%**
14. Accedere alla morsettiera dell'unità K18 (fare riferimento alla Figura 3.10 p. 26):
 - 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 inlet 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**.



When this operation is performed, the heat pump of the K18 unit turns on **after about 3 minutes**; complete the next steps 6 - 8 **within a few minutes after start-up**.

6. Access the K18 unit's terminal block and check that the **DC** voltage between the **COM** and **REQ** terminals is around **0 V**.
7. 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 **10.0 V**.
8. Select parameter **7202 (Commissioning heat pump)** and set it to **Off**.



This inhibits the (operational) request to the K18 unit.

Some of its components may continue to run for a few minutes, as it runs its shutdown cycle. The following steps can be run without waiting for the unit to shut down completely.

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 QAA75.611 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 re-set 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

QAA55.110 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

	Preconfiguration	Dependency on parameter
Operating mode	Automatic (Comfort 6 – 22 Monday – Sunday)	700
Comfort setpoint	21 °C	710
Reduced setpoint	18 °C	712
Protection setpoint	7 °C	714
Heating curve slope	0.76 (water setpoint around 40 °C with external temperature -10 °C)	720
Summer/winter heating limit	18 °C	730
Flow temp setpoint min	8 °C	740
Flow temp setpoint max	40 °C	741
Room influence	20%	750
Room temperature limitation	2.5 °C	760

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

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.

5.1.2 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

3.9 p. 25.

Once activated, the preconfigured settings are those given in Table 5.2 p. 32.

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

	Preconfiguration	Dependency on parameter
Operating mode	Automatic (Comfort 6 – 22 Monday – Sunday)	1000
Comfort setpoint	21 °C	1010
Reduced setpoint	18 °C	1012
Protection setpoint	7 °C	1014
Heating curve slope	0.76 (water setpoint around 40 °C with external temperature -10 °C)	1020
Summer/winter heating limit	18 °C	1030
Flow temp setpoint min	8 °C	1040
Flow temp setpoint max	40 °C	1041
Room influence	20%	1050
Room temperature limitation	2.5 °C	1060

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.

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)**.

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 **6:00** 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

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.

Furthermore, except for cases in which the system will be operated exclusively with the auxiliary boiler at high thermal loads

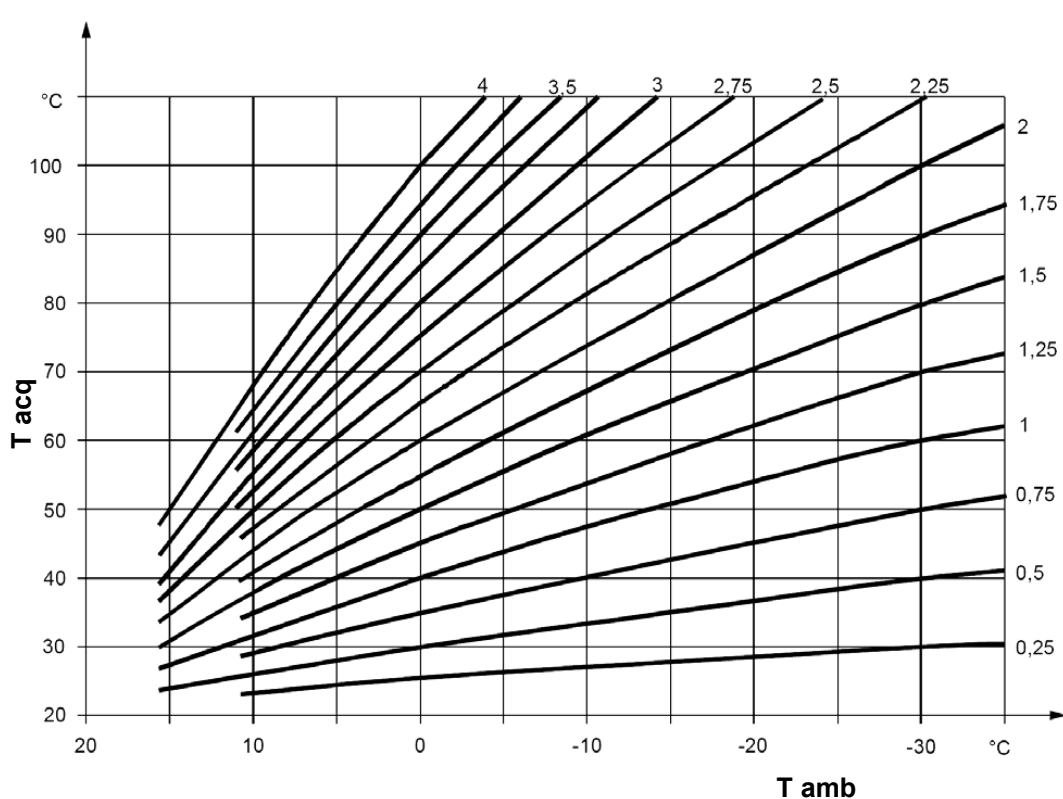
(i.e. the system is intended to run at a higher water temperature setpoint than the operating limit of the K18 heat pump), we recommend setting these parameters to no more than **65 °C**.

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.



Since the efficiency of the K18 heat pump (GUE, Gas Utilization Efficiency) is greater the lower the water temperature, it is good to set these parameters to the lowest value compatible with the needs of distribution. This enables you get the most out of heating curve operating mode, and boosts efficiency.

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



T_{acq} water temperature
 T_{amb} external ambient temperature

5.1.5 Setting the Room influence and Room temperature limitation parameters

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, serviced 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, for example, it is in the machine room

In this case, one must configure the room unit so as not to provide the room temperature signal to the system. Proceed as follows:

1. Access the *Engineer* menu level, then the **Operator section** menu.
2. Select parameter **40 (Used as)** and set it to **Operator unit 1**.
3. Still from the *Engineer* menu level, access the **Configuration** menu.
4. 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).

Finally, in the following situation:

Case 3

- both heating circuits are present
 - a second room unit dedicated to heating circuit 2 is present
- In this case, you must configure the first room unit, installed in a reference room served by circuit 1, so that it is dedicated to that circuit. Proceed as follows, **working on the first room unit**:

1. Access the *Engineer* menu level, then the **Operator section** menu.
2. Select parameter **40 (Used as)** and set it to **Room unit 1**.
3. Select parameter **47 (Room temperature device 1)** and set it to **Heating circuit 1 only**.
4. Select parameter **48 (Occupancy button device 1)** and set it to **Heating circuit 1 only**.

You must now configure the second room unit, installed in a reference room served by heating circuit 2. Proceed as follows, depending on the type of room unit:


Second room unit type QAA75.611

Proceed as follows, **working on the second room unit**:

- Access the *Engineer* menu level, then the **Operator section** menu.
- Select parameter **40 (Used as)** and set it to **Room unit 2**.

Second room unit type QAA55.110

Proceed as follows, **working on the second room unit**:

- Press the occupancy button  for at least 3 seconds, until the display reads ru = 1, ru = 2, or ru = 3.
- Turn the knob to set the parameter to ru = 2.
- Wait for the text ru = 2 to clear from the display.

Now, **on the first room unit**, proceed as follows:

5. Access the *Engineer* menu level, then the **Configuration** menu.
6. 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).

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.

Table 5.3 DHW service preconfiguration (if present)

	Preconfiguration	Dependency on parameter
Operating mode	On	1600
Nominal setpoint	55 °C	1610
Reduced setpoint	45 °C	1612
Release	24h/day	1620
Legionella function	off	1640
Legionella function week day	Thursday	1642
Legionella function time	02:00	1644
Legionella function setpoint	60 °C	1645
Legionella function duration	45 min	1646

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:

- **Off:** DHW service is inactive.
- **On:** 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 from **00:00 to 05:00**, 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
Mo, Tu, We, Th, Fr, Sa, Su to program the days

individually

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.



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 . 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. 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).

Table 6.1 List of system controller errors for K18

Code	Description	Priority	Action
10	Outside sensor B9	6	A
30	Flow sensor 1 ⁽¹⁾	6	A
50	DHW sensor 1 ⁽²⁾	6	A
60	Room sensor 1 ⁽³⁾	6	B
65	Room sensor 2 ⁽⁴⁾	6	B
83	BSB, short-circuit ⁽⁵⁾	8	C
84	BSB, address collision	3	D
103	Communication failure	3	C
127	Legionella temp	6	E
324	BX same sensors	3	F
330	BX1 no function	3	G
331	BX2 no function	3	G
332	BX3 no function	3	G
333	BX4 no function	3	G
173	Active alarm 3 contact	6	H

- (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.

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.



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:
 - Check the connection of the sensor in question, correct it and memorize the sensor again as indicated in step 1.
3. If step 2 does not resolve the problem:
 - Disconnect the sensor from the RVS21.826 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.
4. 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**.
 - 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.

5. 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.



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:
 - 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.
3. 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.

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



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.

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 this value.
 - Error code 333: **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**.
- 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).

- 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.

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.



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:

- For the **K18 Hybrigas** 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.

- 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.

- If steps **2** and/or **3/4** do not resolve the problem, or if it re-occurs 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:

- 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.

- Access the *Engineer* menu level **from the room unit you wish to lock**, then access the **Operator section** menu.
- Select parameter **27 (Programming lock)** and set it to **On**.
To unlock programming temporarily:
 - 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**.

- Do the programming as desired.
- The program lock is restored once you inlet to the start screen.

To unlock programming permanently:

- Access the *Engineer* menu level.
- Unlock programming temporarily as described above.
- Access the **Operator section** menu.
- 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

Power supply	Supply voltage	AC 230 V (+10%/-15%)				
	Frequency	50 / 60 Hz				
	Consumption	max. 9.5 VA				
	Power supply protection	Thermal-magnetic circuit breaker: max. 13 A (EN60898-1) or fuse: max. 10 AT				
Cabling	230 VAC supply and outputs; bars or braided cables (with/without terminals)	1 cable: 0.5 - 2.5 mm ² 2 cables: 0.5 - 1.5 mm ²				
Function	Software class	A				
	Operation per EN 60730	1.B (automatic operation)				
Inputs	230 VAC inputs EX1 - EX4 • Functional range • Low state voltage • High state voltage • Internal resistance	max. 230 VAC 0 - 253 VAC < 170 VAC 190 VAC > 100 kΩ				
	Digital inputs H1, H3 • Open contact voltage • Closed contact current	Safety Extra Low Voltage (SELV) for voltage free contacts DC 12 V DC 3 mA				
	Analogue inputs H1, H3 • Functional range • Internal resistance	Safety Extra Low Voltage (SELV) DC 0 - 10 V > 100 kΩ				
	Pulse count inputs H1, H3 • Open contact voltage • Closed contact current • Pulse duration	Safety Extra Low Voltage (SELV) for voltage free contacts DC 12 V DC 3 mA min. 20 ms				
	Frequency measurement inputs H1, H3 • Functional range • Low state voltage • High state voltage • Internal resistance • Frequency	Safety Extra Low Voltage (SELV) DC 0 - 12 V < 1.7 V 2.7 - 12 V > 100 kΩ max. 500 Hz				
	Digital inputs DI6, DI7 (on connector X75) • Open contact voltage • Closed contact current	Safety Extra Low Voltage (SELV) for voltage free contacts DC 12 V DC 3 mA				
	Sensor inputs BX1 - BX4	NTC 1k (QAC34, external sensor), NTC 10k (QAZ36, QAD36), Pt1000 (optional for solar collector and exhaust gas sensor) 5053...9671 Ω (room setpoint modification function)				
	Sensor cables (copper) • Cross section • Max. length	- 0.25 20	0.5 40	0.75 60	1.0 80	1.5 (mm ²) 120 (m)
	Relay outputs QX1 - QX5 • Current range • Switching ON current • Total current • Voltage range	- 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)				
Outputs	Triac output ZX6 • Current range • Switching ON current • Total current	- 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)				
	Analogue outputs UX1, UX2, UX3 (UX3 on connector X75) • Output voltage • Current • Ripple • Zero level accuracy • Error over rest of range	Safety Extra Low Voltage (SELV) outputs with short-circuit protection U _{out} = 0 ... 10.0 V max. ±2 mA RMS; ±2.7 mA peak ≤ 50 mVpp ≤ ± 80 mV ≤ 130 mV				
	Outputs PWM UX1, UX2, UX3 (UX3 on connector X75) • Output voltage • Current • Frequency	Safety Extra Low Voltage (SELV) outputs with short-circuit protection High level 10 VDC, low 0 VDC U _x = min. 6 V @ 5 mA 3 kHz				
	Digital outputs D1, D2, D3 (on connector X75) • Output voltage • Current	Internal pull-up High level 12 VDC, low 0 VDC max. 2.5 mA				
	Power G+ • Output voltage • Current	Safety Extra Low Voltage (SELV), outputs with short-circuit protection 11.3 - 13.2 V max. 88 mA				
	Power GX1 (configurable) • Output voltage 5 V • Output voltage 12 V • Current	Safety Extra Low Voltage (SELV), outputs with short-circuit protection 4.75 - 5.25 V 11.3 - 13.2 V max. 20 mA				

Interfaces	BSB • Base unit/peripheral cable length • Total cable length • Cross section	Two-wire connection (not invertible) max. 200 m max. 400 m (max. cable capacity: 60 nF) min. 0.5 mm ²
	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	copper cable 1.5 mm ² two-wire connection (not invertible) - max. 250 m max. 460 m E = 3
	Modbus (optional with OCI350.01 Modbus adapter on X60)	for details, see the OCI350.01 Modbus adapter technical data
	Connection cable X100 to AVS55.19x expansion module • Cable length	ribbon cable (18 pole) - max. 1000 mm
Protection rating and safety class	Enclosure protection rating per EN60529	IP 00 (without enclosure)
	Safety class per EN60730	safety class II for LV parts, if correctly installed
	Degree of contamination per EN60730	degree of contamination normal
Standards, safety, EMC, etc.	CE conformity (EU)	CE1T2355xx04
Climatic conditions	Storage, per EN60721-3-1	class 1K3, -20 - 65 °C
	Transport, per EN60721-3-2	class 2K3, -25 - 70 °C
	Operation, per EN60721-3-3	class 3K5, -20 - 50 °C (non condensing)
Weight	Packaging excluded	193 g

Table QAA75.611 / QAA55.110 technical data

Power supply	Bus powered	BSB
	Measurement range	0 - 50 °C
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
Interfaces	BSB • Base unit/peripheral cable length • Cross section	Two-wire connection (not invertible) max. 200 m min. 0.5 mm ²
Protection rating and safety class	Enclosure protection rating per EN60529	IP20
	Safety class per EN60730	safety class II for LV parts, if correctly installed
	Degree of contamination per EN60730	degree of contamination normal
Standards, safety, EMC, etc.	CE conformity (EU) • EM directive • Immunity • Emissions • Low voltage • Electrical safety	- 2004/108/EC EN61000-6-2 EN61000-6-3 2006/95/EC EN 60730-1, EN50090-2-2
Climatic conditions	Storage, per EN60721-3-1 Transport, per EN60721-3-2 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

Robur mission

Robur is dedicated to dynamic progression
in research, development and promotion
of safe, environmentally-friendly, energy-efficiency products,
through the commitment and caring
of its employees and partners.



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