ACR35

VEAB Heat Tech AB

GB **Installation and maintenance instruction for air curtains**

IMPORTANT: Read these instructions before the product is installed and used.

Art.nr: 172787-01

Assembly and operating instructions

Safety

- For all installations of electrically heated products should a residual current circuit breaker 300 mA for fire protection be used.
- Keep the areas around the air intake and exhaust grilles free from possible obstructions!
- CAUTION! During operation the surfaces of the unit can be hot!
- The unit must not be fully or partially covered with clothing, or similar materials, as overheating can result in a fire risk! (E)
- The appliance can be used by children, aged from 8 years and above, and by persons (children included) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
  Children shall not play with the appliance.
  Cleaning and user maintenance shall not be made by children without supervision.
  Children, of less than 3 years of age, should be kept away unless continuously supervised.
  Children, aged from 3 years and less than 8 years, shall only switch on/off the appliance, provided that it has been placed or installed in its intended normal operating position and they have been giving supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children, aged from 3 years and less than 8 years, shall not plug in, regulate and clean the appliance or perform user maintenance.

Technical data is on p.19.

General instructions

Read these instructions carefully before installation and use. Keep this manual for future reference.
The guarantee is only valid if the units are used in the manner intended by the manufacturer and in accordance with the VEAB mounting and operating instructions.

Application area

The Thermo zone ACR35 air curtain unit is supplied with electrical heating or hot water coil and is intended for installation above entrances and smaller doors up to 3.5 metres in height.

ACR35 is recessed in false ceilings above entrances.
Protection class above false ceiling: IP44, below false ceiling: IP20

Operation

Air is drawn in from underneath and blown out downwards towards the entrance so that it shields the door opening and minimises heat loss. To get the best curtain effect the unit must extend the full width of the door opening.
The grille for directing exhaust air is adjustable and is normally angled outwards to achieve the best protection against incoming cold air.
The air speed is adjusted to the desired airflow.
The efficiency of the air curtain(s) depends on the air temperature, pressure differences across the doorway and any wind pressure.
NOTE! Negative pressure in the building considerably reduces the efficiency of the air curtain. The ventilation should therefore be balanced!

Installation

The air curtain unit is installed horizontally with the supply air grille facing downwards as close to the door as possible, concealed in the false ceiling. The only visible part of the unit is the underside that is level with the ceiling.
For the protection of wider doorways, several units can be mounted next to each other.
Ensure that the service hatch is accessible and can be fully opened.

Mounting on threaded bars inside unit.

1. The mounting brackets (4x) are fixed to the unit during transport. Loosen them and screw them into place inside the unit in the intended holes.
2. Hang up on threaded bars (M8) according to figure 2b (not included). Note that the brackets are at different heights and threaded rods shall be of different lengths.
3. Adjust the height using the lower nut so that the frame is on the level of the ceiling. Lock using the upper nut.

Electrical installation

The installation, which should be preceded by an omnipolar switch with a contact separation of at least 3 mm, should only be wired by a competent electrician and in accordance with the latest edition of IEE wiring regulations.
The control system is pre-installed in the air curtain with an integrated control card, (see fig 5). PLS is supplied pre-programmed with quick-release connections.
Modular cables are connected to the control board Base, by opening the service hatch, as shown in fig. 3 and 5.
See manual for PLS.

1. The service hatch is opened by loosening the snap fixings located on the down side (turn 90°). See fig.3.
2. ACR35-W: The unit is fitted with cable and plug. ACR35-E: The unit is supplied through cable glands on the side of the unit. For units with electrical heating, power and control should be supplied separately. Control (230V~) and power supply for heat (400V3N~) should be connected to a terminal block in the terminal box. The largest cable diameter for the terminal block is 16 mm^2. The cable glands used must meet the protection class requirements. In the distribution board it is to be indicated that "the air curtains can be supplied from more than one connection".
3. Close the service hatch and make sure that the snap fixings lock properly.

See wiring diagrams.

Type	Output [kW]	Voltage [V]	Minimum area [mm^2]
ACR35-10-E	9	400V3N~	2,5
ACR35-15-E	13,5	400V3N~	4
ACR35-20-E	18	400V3N~	10

Start-up

Note! When using for the first time or when starting up after a long period of disuse, a small amount of smoke and a slight odour may occur temporarily, which is completely normal.

Connecting the water coil (ACR35-W)

The installation must be carried out by an authorised installer.
The water coil has copper tubes with aluminium fins and is suitable for connection to a closed water heating system. The heating coil must not be connected to a mains pressure water system or an open water system.Note that the unit shall be preceded by a regulating valve, see VEAB valve kit.
To access the connections (DN20, 3/4", outside thread) the service hatch and intake grille must be opened. The water coil is connected inside the unit through holes which are made (during installation) on the upper side or through the side of the unit, possible places are marked with punch marks.
The connections to the heating coil must be equipped with shut off valves to allow problem free removal.

Adjustment of the air curtain and air flow

The direction and speed of the air flow should be adjusted considering the load on the opening. Pressure forces affect the air stream and make it bend inwards into the premises (when the premises are heated and the outdoor air is cold).
The air stream should therefore be directed outwards to withstand the load. Generally speaking, the higher the load, the greater the angle that is needed.

Basic setting fan speed

The fan speed when the door is open is set using the speed control. Note that the air flow direction and speed may need fine adjustment depending on the loading of the door.

Filter (ACR35-W)

The heat coil fin distance, in combination with the whole diameter of the intake grille, protects against dirt and blockage and makes a separate filter unnecessary.

Service, repairs and maintenance

For all service, repair and maintenance first carry out the following:
1. Disconnect the power supply.
2. The service hatch is opened by loosening the snap fixings located on the down side (turn 90°). See fig. 3.
3. After service, repairs and maintenance close the service hatch and make sure that the snap fixings lock properly.

Maintenance

Since fan motors and other components are maintenance free, no maintenance other than cleaning is necessary. The level of cleaning can vary depending on local conditions. Undertake cleaning at least twice a year. Inlet and exhaust grilles, impeller and elements can be vacuum cleaned or wiped using a damp cloth. Use a brush when vacuuming to prevent damaging sensitive parts. Avoid the use of strong alkaline or acidic cleaning agents.

Overheating

The air curtain unit with electric heater is equipped with an overheat protector. If it is deployed due to overheating, reset as follows:

1. Disconnect the electricity with the fully isolated switch.
2. Allow the electrical coil to cool.
3. Determine the cause of overheating and rectify the fault.

Reset is performed as follows:

1. Locate the red button inside the air curtain unit. It is visible and accessible by opening of the service hatch and inlet grille. The button is on the left side seen from inside the room looking out. On the 2 metre variant, two red buttons are installed in the middle of the unit.
2. Press the red button until a click is heard.
3. Connect the air curtain again.

All motors are equipped with an integral thermal safety cut-out. This will operate, stopping the air curtain should the motor temperature rise too high. The cut-out will automatically reset when the motor temperature has returned to within the motor's operating limits.

Temperature control

Temperature control of PLS maintains the exhaust temperature at +40 °C. If the temperature should exceed anyway there is an overheating alarm. For more information see the manual for PLS.

Fan replacement

1. Determine which of the fans is not functioning.
2. Disconnect the cables to the relevant fan.
3. Remove the screws securing the fan and lift the fan out.
4. Install the new fan as above in reverse order.

Replacing the electric heater/coil (ACR35-E)

1. Mark and disconnect the cables to the electric heater/coil.
2. Remove the mounting screws securing the electric heater/coil in the unit and lift the electric heater/coil out.
3. Install the new electric heater/coil in reverse order to the above.

Replacing the water coil (ACR35-W)

1. Shut off the water supply to the unit.
2. Disconnect the connections to the water coil.
3. Remove the mounting screws securing the coil in the unit and lift the coil out.
4. Install the new coil in reverse order to the above.

Draining the water coil (ACR35-W)

The drain valve is on the underside of the coil on the connector side. It can be accessed via the service hatch.

Trouble shooting

If the fans are not working or do not blow properly, check the following:

- Operating power supply to the unit; check fuses, circuit-breaker, time switch/thermostat (if any) that starts and stops the unit.
- That the air flow selector is correctly set.
- That the position limit switch is working.
- That the overheat protection for the motors has not been deployed.
- That the intake grille is not dirty.

If there is no heat, check the following:

- That the heat demand exists; check thermostat settings and actual temperature.

For units with electrical heating, check the following:

- Power supply to electric heater coil; check fuses and circuit-breaker (if any).
- That the overheat protection for the motors has not been deployed.

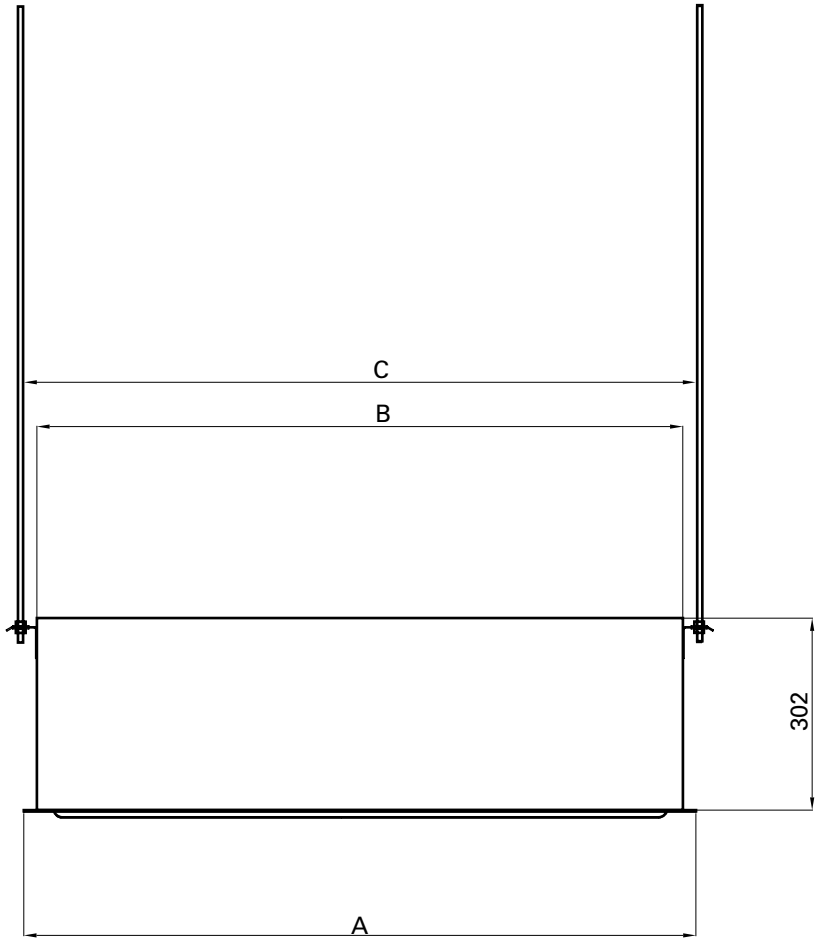
For units with water coil, check the following:

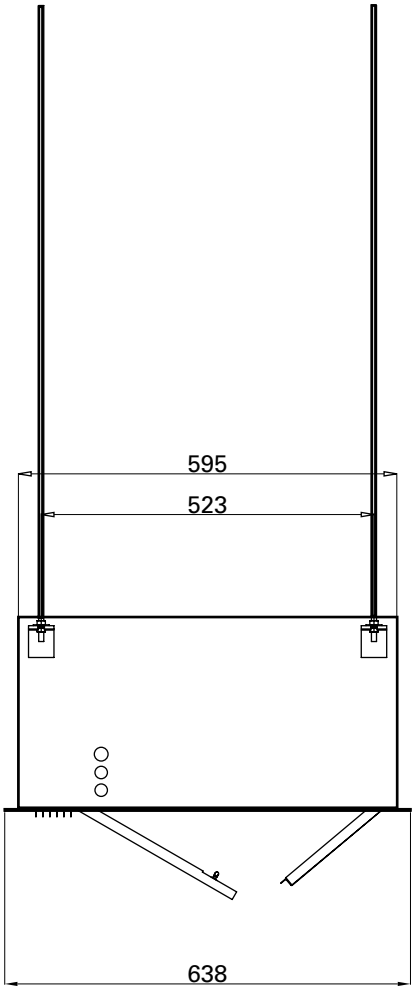
- That the water coil is air free.
- That there is enough water flow.
- That incoming water is heated enough.

If the fault cannot be rectified, please contact a qualified service technician.

Residual current circuit breaker

(applies to units with electric heater)
When the installation is protected by means of a residual current circuit breaker, which trips when the appliance is connected, this may be due to moisture in the heating element. When an appliance containing a heater element has not been used for a long period or stored in a damp environment, moisture can enter the element.
This should not be seen as a fault, but is simply rectified by connecting the appliance to the mains supply via a socket without a safety cut-out, so that the moisture can be eliminated from the element. The drying time can vary from a few hours to a few days. As a preventive measure, the unit should occasionally be run for a short time when it is not being used for extended periods of time.





Type	A (mm)	B (mm)	C (mm)
ACR35-10	1057	1016	1067
ACR35-15	1567	1526	1577
ACR35-20	2073	2031	2083

Mounting

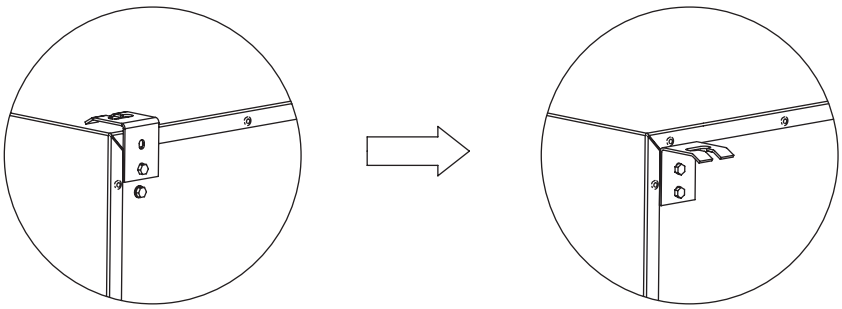


Fig. 1: The mounting brackets on delivery.

Mounting

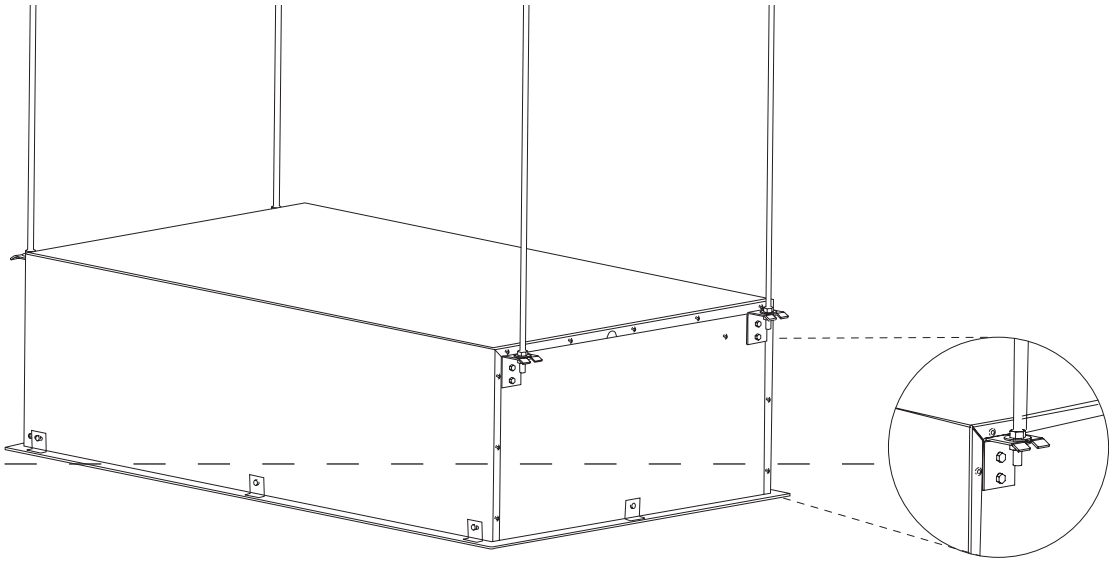


Fig. 2a: Mounting on threaded bars.

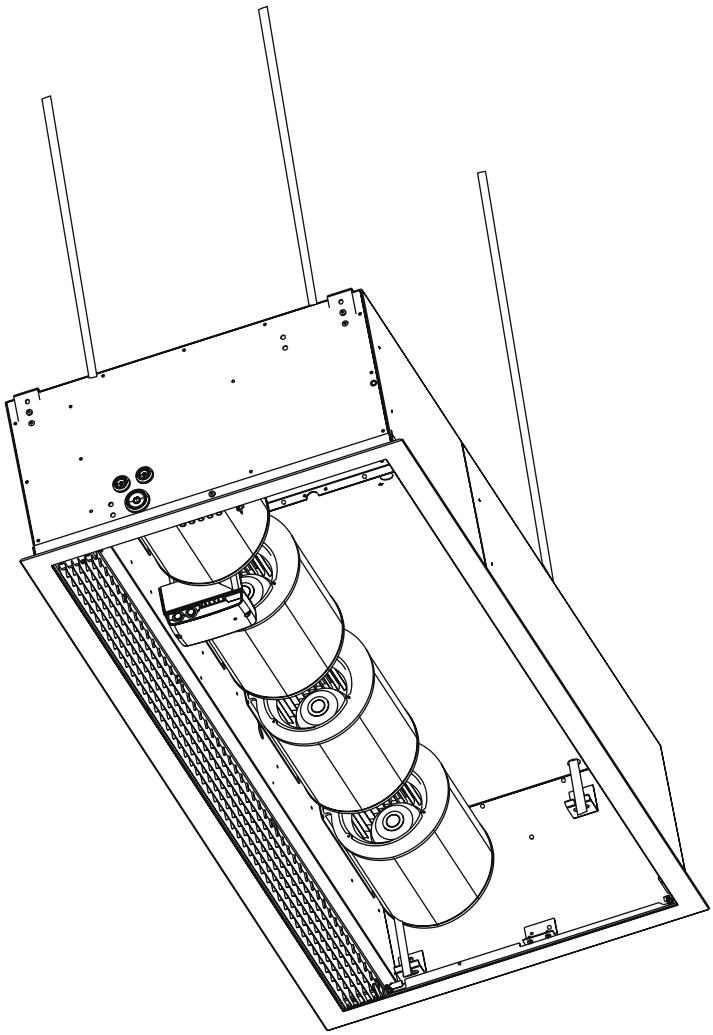


Fig. 2b: Mounting on threaded bars inside unit.

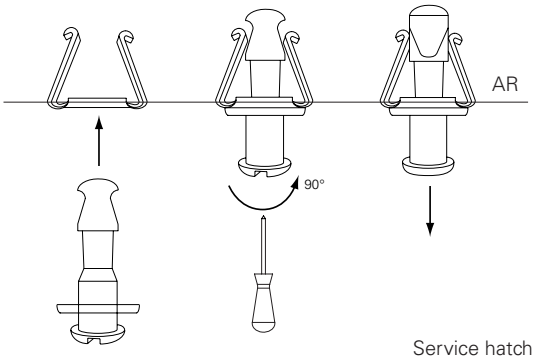


Fig. 3: Function of the snap fixing.

Water connections

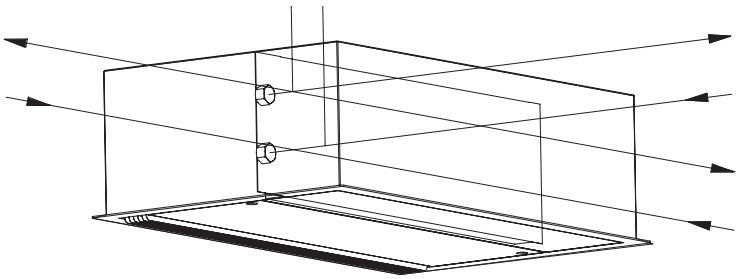


Fig. 4:
The water coil is connected inside the unit through holes which are made (during installation) on the upper side or through the side of the unit, possible places are marked with punch marks.

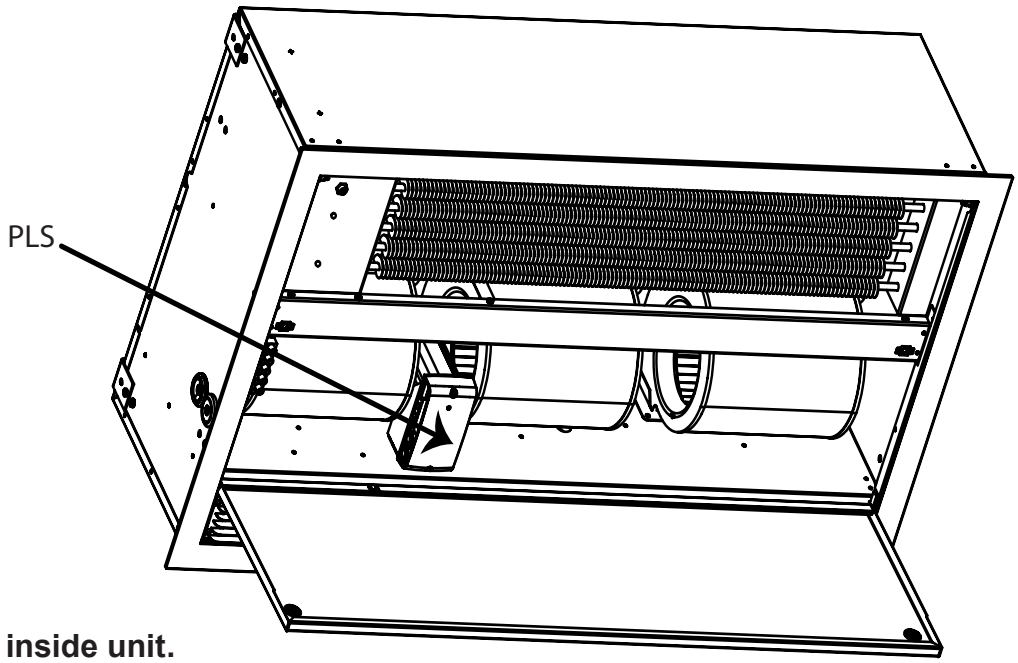


Fig. 5: PLS inside unit.

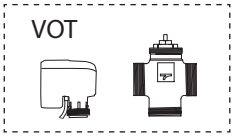
Regulations alternatives

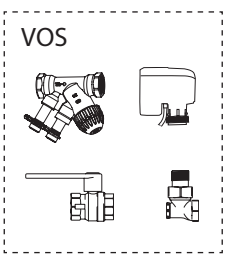
This aircurtain is supplied with an intelligent and well designed low voltage control system PLS which can be customized for each unique application and environment. The control system is pre-installed in the aircurtain with an integrated control card. PLS is supplied pre-programmed with quick-release connections and is very easy to use and install. There are two different levels with different functionality to choose from, Basic or Competent.

PLSB	Control unit Basic	Incl. control unit PLSUB1 and 5 meter modular cable with RJ12 quick connect. IP30
PLSAC	Control unit Competent	Incl. PLSUA1 control unit, box cover, PLSC1X hub unit, PLSDC door switch, and 2 modular cables with RJ12 quick connects (1 pc 3 m, 1 pc 5 m). IP30
PLSRTX	External room temperature sensor	70x33x23 mm
SIRECJ4	RJ11 coupler (4/4)	Used to join together two RJ11 or RJ12 connectors.
SIRECJ6	RJ12 coupler (6/6)	
SIRECC403	RJ11 modular cable (4/4)	Length 3 m
SIRECC405		Length 5 m
SIRECC410		Length 10 m
SIRECC415		Length 15 m
SIRECC603	RJ12 modular cable (6/6)	Length 3 m
SIRECC605		Length 5 m
SIRECC610		Length 10 m
SIRECC615		Length 15 m

Control valves for water systems (optional)

Type	Description	Voltage	Connection
VOS15LF	Valve kit on/off	230 V	DN15
VOS15NF	Valve kit on/off	230 V	DN15
VOS20	Valve kit on/off	230 V	DN20
VOS25	Valve kit on/off	230 V	DN25
VOT15	Three way valve and actuator on/off	230 V	DN15
VOT20	Three way valve and actuator on/off	230 V	DN20
VOT25	Three way valve and actuator on/off	230 V	DN25
VAT	Adjustment tool for valve kit VOS	230 V	

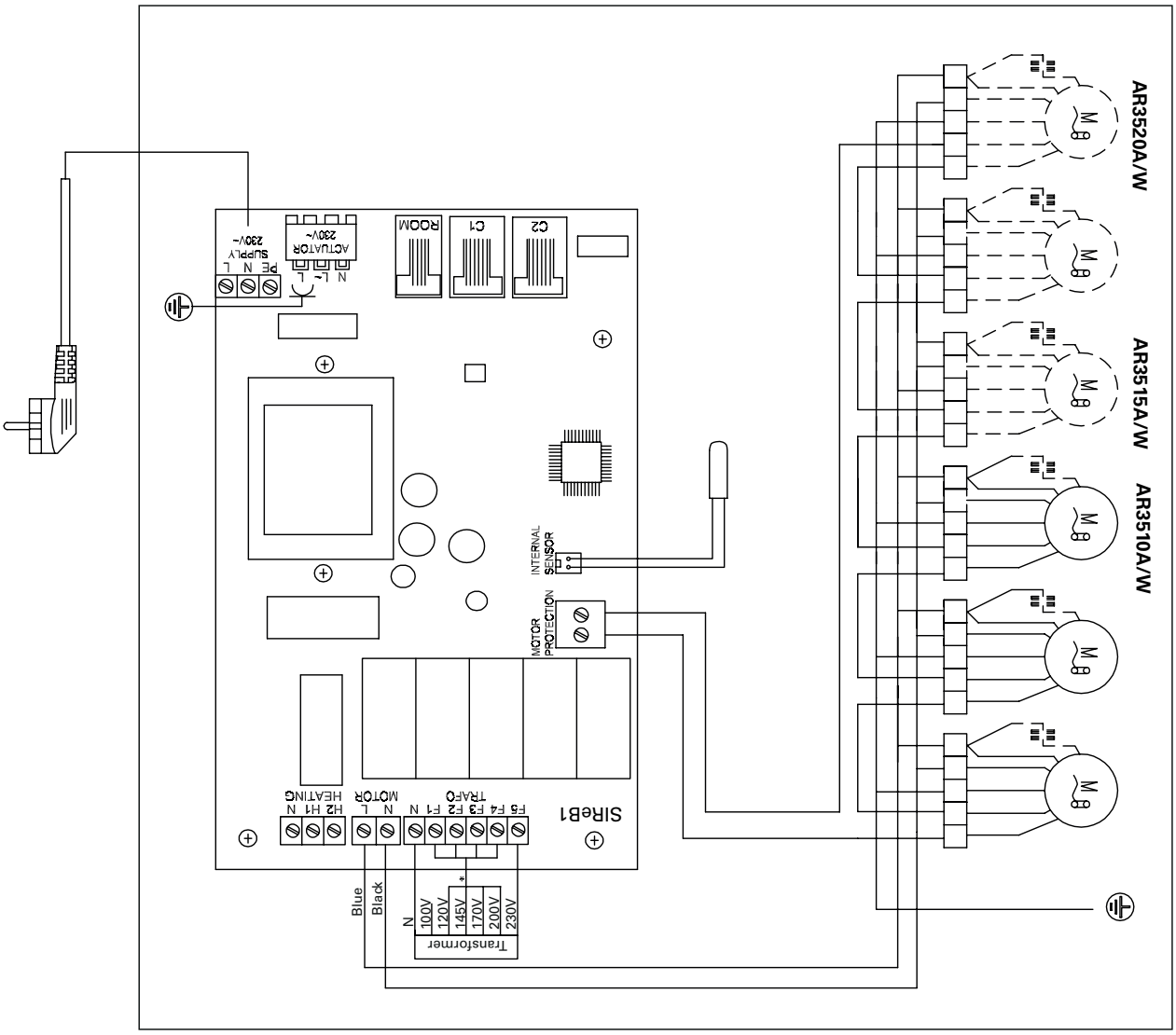




Wiring diagrams ACR35

Internal wiring diagram

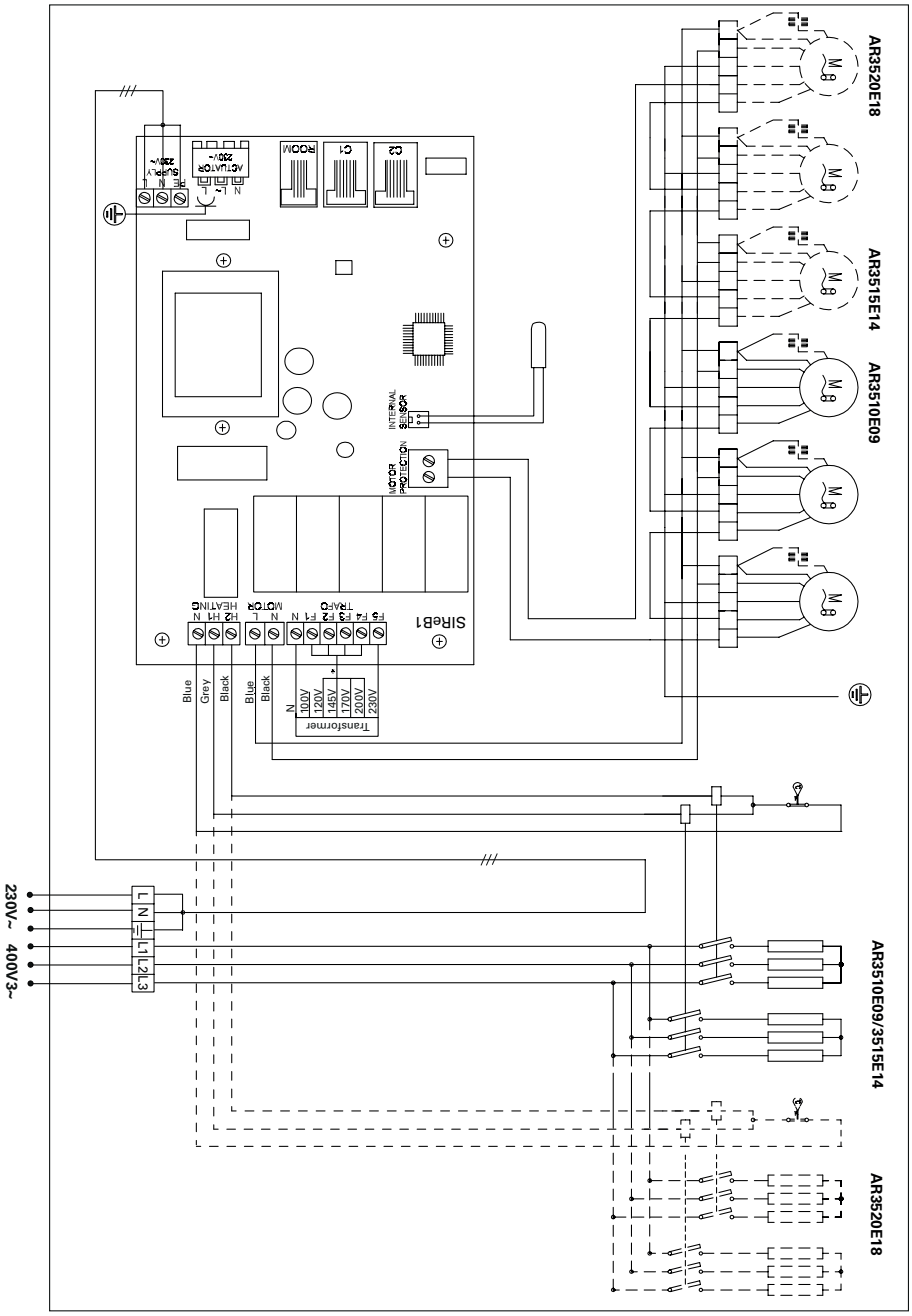
ACR35-W



Wiring diagrams ACR35

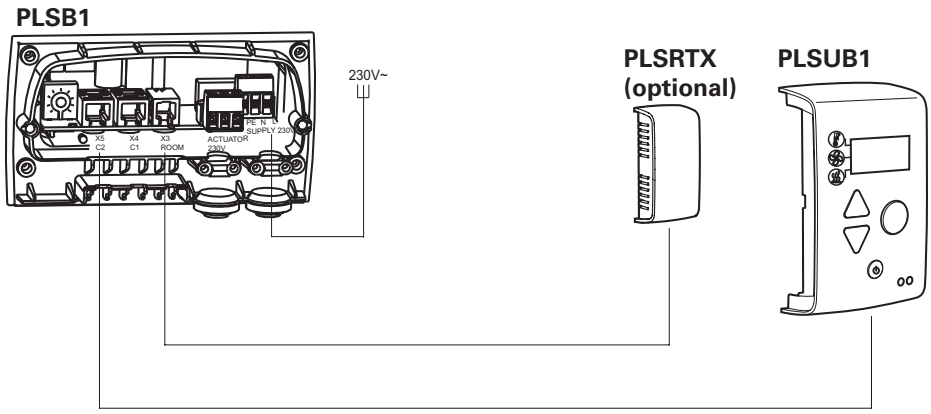
Internal wiring diagram

ACR35-E

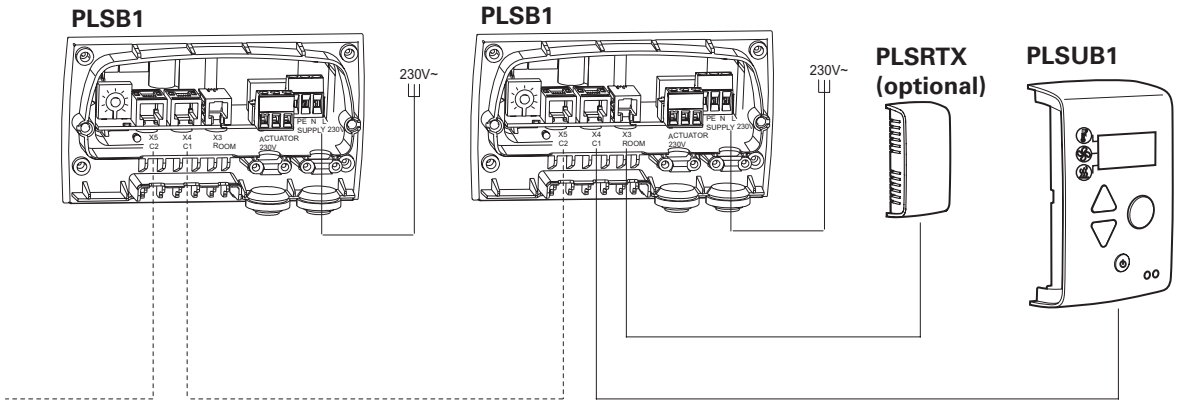


Wiring diagrams - Electric

Basic



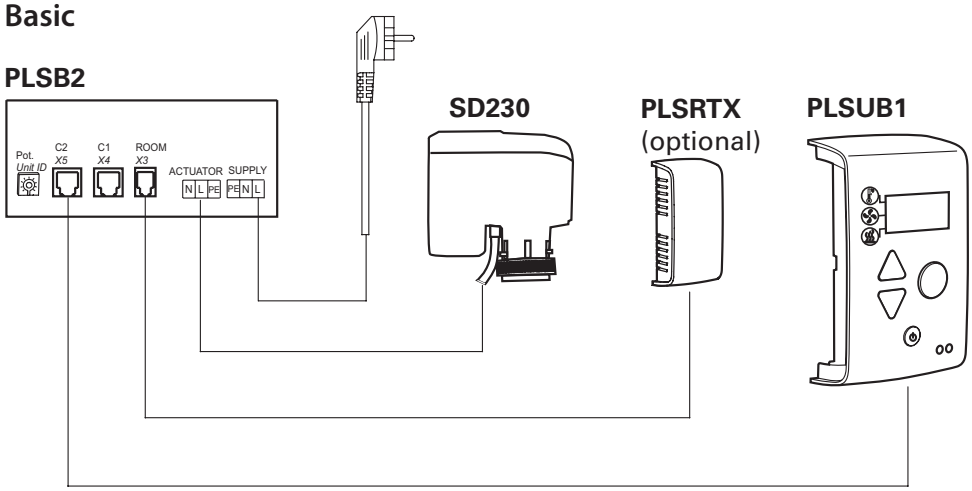
Basic - parallell



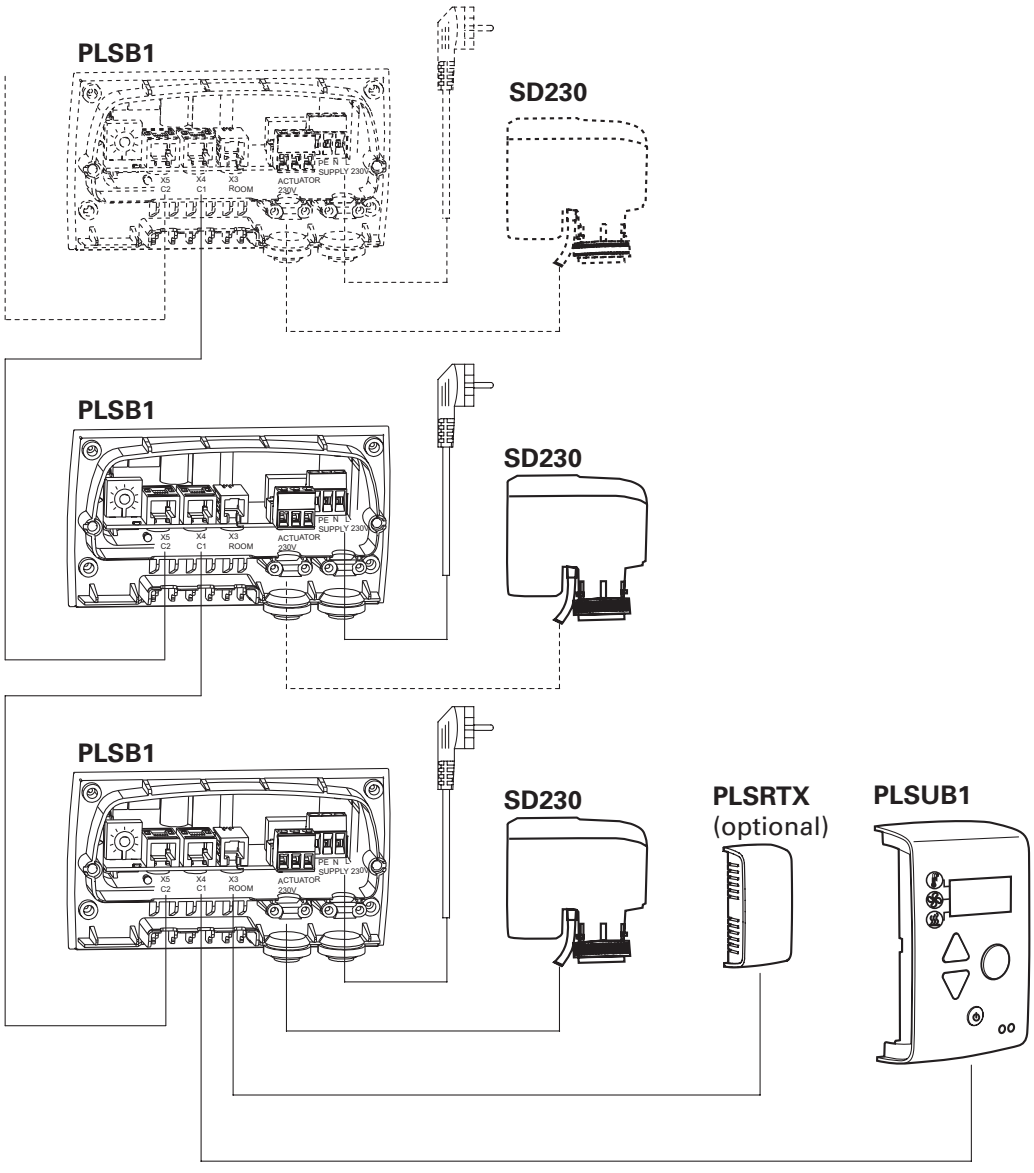
Wiring diagrams for PLSAC Competent, see manuals for PLS

Wiring diagrams - Water

Basic



Basic - parallell



Wiring diagrams for PLSAC Competent, see manuals for PLS

NB: We reserve us from typographical errors and the right to make changes and improvements to the contents of this manual without prior notice.

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