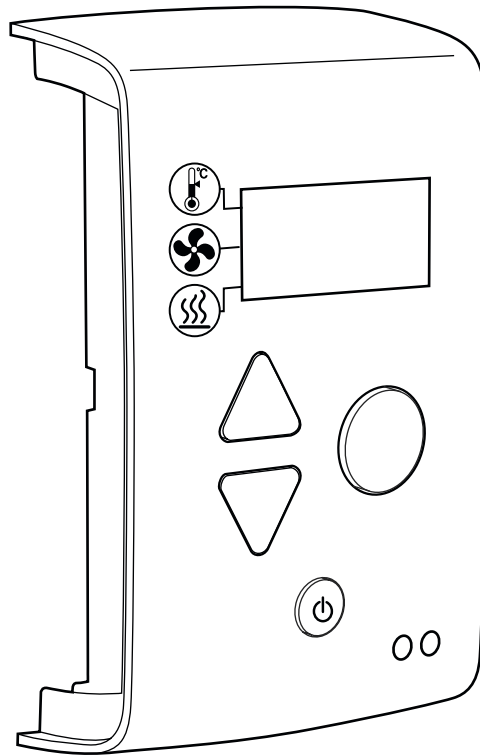


# PLS Basic Air Curtains Water

With quick guide

## PLSB



GB

For wiring diagram, please see last pages

**Quick guide/start up**

Check that all constituent parts are present (see section Constituent parts).

**Advice about location**

Control unit PLSUB1 has an integrated room temperature sensor and is installed so that it is easily accessible to the user.

RJ12 (6p/6c) modular cables, which are available in different lengths, are used to connect the PC board and the control unit. Longer cables are available as options. Maximum cable lengths see section Options.

To prevent unauthorised people from accessing the Control unit it can instead be placed in another area and an external room sensor, PLSRTX (option), can be installed in the premises to sense the correct temperature.

**Connect the system**

In PC board Base PLSB1(X) the unit is connected further with RJ12 (6p/6c) modular cable if several units are to be connected in parallel. If an external room temperature sensor PLSRTX is used it is connected using modular cable RJ11 (4p/4c) on PLSB1(X).

PC board Base PLSB1X in/at the unit and control unit PLSUB1 is connected with RJ12 (6p/6c) modular cable when the other units are powered up. If an external room temperature sensor PLSRTX (option) is used it is connected using modular cable RJ11 (4p/4c) on HUB PLSB1(X).

The actuator is connected to the PC board Base PLSB1(X).

For fixed installation requirements, remove the supplied cable and plug. Perform the installation in accordance with applicable regulations.

**Wiring diagrams**

The wiring diagrams are in a separate section at the end of this manual.

When external PC board Base PLSB1X is used, wiring between the PC board base and the air curtain unit must be done. Please see separate manual for PLSB1X.

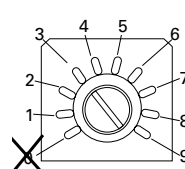
**Enter ID/Operation without control unit**

The control system can control one or more units in parallel (max 9). Each unit must get a unique ID number (1-9) which is set in the ID selector of the PC board. E.g. Unit 1: ID=1, unit 2: ID=3

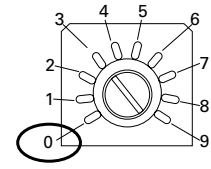
If the external control for some reason has not been installed the unit can still be run temporarily. The ID selector is then set to mode 0 see the image below.

The function is half speed and heating is on.

When the ID number must be changed the unit must be disconnected from power.



Each unit should have a unique ID on its PLSB1X card.



To run the unit temporarily without external control select mode 0.

**Start up**

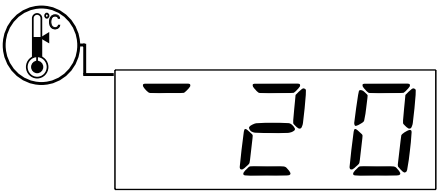

System supplied with power. Three digits 1.4.0. (software version) is quickly shown in the status window followed by three horizontal lines. After about 30 seconds the prevailing room temperature is then shown in the status window.

Use arrow up/down and set the desired room temperature, fan speed step and heating step. To change a setting push the round button (confirm), the setting will start to flash and can be adjusted by using the arrow up/down.

Factory settings gives manual control of fan and heating controlled by thermostat. For more setting alternatives see section Operating modes.

At the first start up alarm and error codes can occur, these can usually be reset without action.

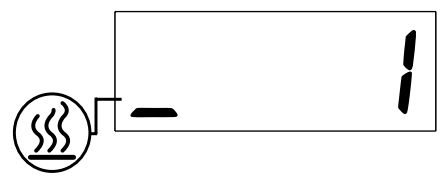

Choose desired room temperature 5 - +30 °C

Choose fan step 1-5




Activate heat  
 0 = No heat  
 1 = Heat step 1 possible  
 2 = Heat step 2 possible  
 (3 = Heat step 3 possible)  
 Heat steps controlled by thermostat



## Contents

### Quick guide/start up

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### Constituent parts

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### Operating modes

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### Control unit PLSUB1

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### Installer menu

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### Alarm and error codes

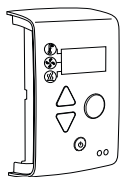
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|                                  |    |
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| Overheat protection              | 11 |
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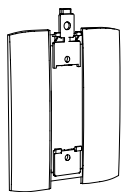
Wiring diagrams, see last pages

## Constituent parts

### PLSB

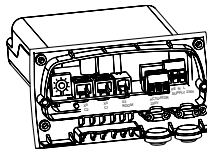


PLSUB1,  
control unit Basic

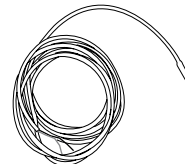


Wall unit cover

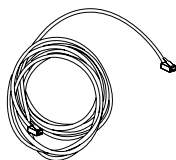
Integrated in the air curtain



PLSB1, integrated  
PC Board Base



PLSIT, internal  
temperature  
sensor



CC,  
modular cable

### Dimensions constituent parts

| Typ    | Description                 | HxWxD<br>[mm] | L<br>[m] |
|--------|-----------------------------|---------------|----------|
| PLSUB1 | Controll unit               | 120x70x35     |          |
| PLSB1  | Integrated PC board Base    |               |          |
| PLSIT  | Internal temperature sensor |               | 1        |
| CC605  | Modular cable RJ12 (6/6)    |               | 5        |

**Option**

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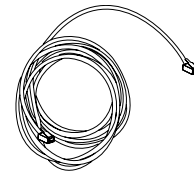
PLSRTX, external room temperature sensor



CJ4, joint piece



CJ6, joint piece



CC,  
modular cable

| Type   | Description                         | HxWxD    | L [m] |
|--------|-------------------------------------|----------|-------|
| PLSRTX | External room temperature sensor    | 70x33x23 | 10    |
| CJ4    | Joint piece for two pcs. RJ11 (4/4) |          |       |
| CJ6    | Joint piece for two pcs. RJ12 (6/6) |          |       |
| CC603  | Modular cable RJ12 (6/6)            |          | 3     |
| CC605  | Modular cable RJ12 (6/6)            |          | 5     |
| CC610  | Modular cable RJ12 (6/6)            |          | 10    |
| CC615  | Modular cable RJ12 (6/6)            |          | 15    |
| CC403  | Modular cable RJ11 (4/4)            |          | 3     |
| CC405  | Modular cable RJ11 (4/4)            |          | 5     |
| CC410  | Modular cable RJ11 (4/4)            |          | 10    |
| CC415  | Modular cable RJ11 (4/4)            |          | 15    |

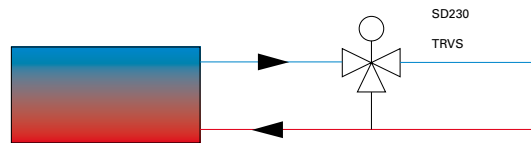
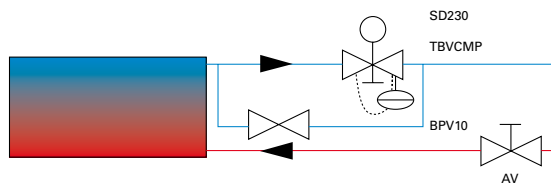
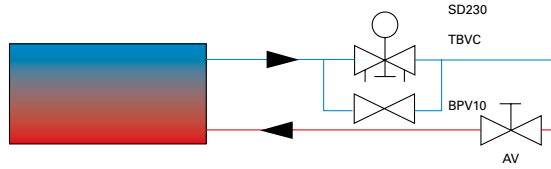
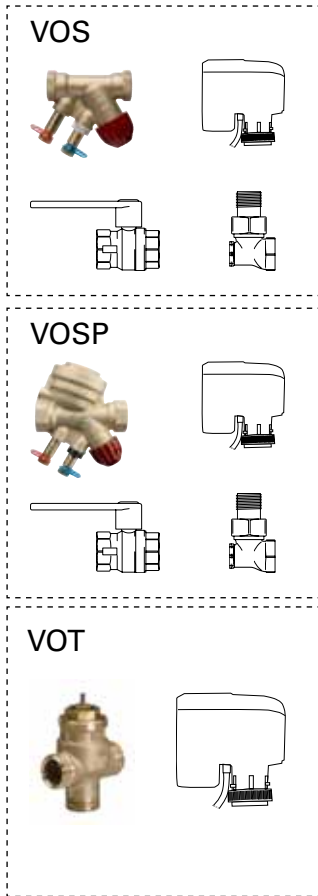
**Max. cable lengths**

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- Modular cable RJ12 (6p/6c) between PLSUB1 and PLSB1(X): max 50 m.
- Modular cable RJ12 (6p/6c) between two PLSB1(X): max 50 m.
- Modular cable RJ11 (4p/4c) to room sensor PLSRTX: max 20 m.

Total cable length is permitted in the system is a maximum of 300 m.

**Water control - valve kit**



**Water control - option**



VAT, adjustment tool for valve package.

| Type     | RSK-no.   | Description                         | Connection |
|----------|-----------|-------------------------------------|------------|
| VOS15LF  | 673 09 35 | On/off                              | DN15       |
| VOS15NF  | 673 09 36 | On/off                              | DN15       |
| VOS20    | 673 09 37 | On/off                              | DN20       |
| VOS25    | 673 09 38 | On/off                              | DN25       |
| VOSP15LF | 673 09 43 | Pressure independent                | DN15       |
| VOSP15NF | 673 09 44 | Pressure independent                | DN15       |
| VOSP20   | 673 09 45 | Pressure independent                | DN20       |
| VOSP25   | 673 09 46 | Pressure independent                | DN25       |
| VOT15    |           | Three way valve and actuator on/off | DN15       |
| VOT20    |           | Three way valve and actuator on/off | DN20       |
| VOT25    |           | Three way valve and actuator on/off | DN25       |
| VAT      | 482 98 30 | Adjustment tool for valve package   |            |

## Operating modes

### Operating modes

Factory settings gives manual control of fan and heating controlled by thermostat on/off.

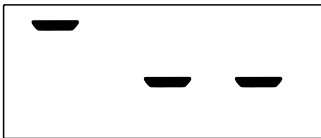
### Auto mode

Change parameter P04 from 0 to 1 (see list of parameters on next page) to active auto mode. Thermostat controls both fan and heating

### Manual mode

Decrease the temperature setting below 5 °C and the following symbols are shown in the status window = manual mode.

In manual mode both fan- and heating steps are controlled manually.

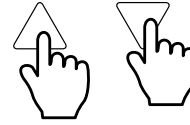


### Fan over run

When heat has been activated the fan will continue to run to cool down the unit. The over run time is 180 seconds or shorter if the internal temperature has dropped below +30 °C (only valid for units with internal temperature sensor).


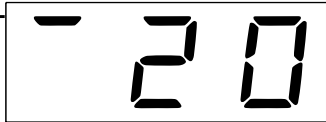




### Set values

Use arrow up /down to choose desired room temperature, fan speed step and heating step.



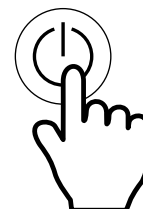
Push the confirm button and the digit(s) starts to flash. The value can now be adjusted using the arrow up /down, and confirm.



|                |   |   |
|----------------|---|---|
| Temperature    |    |   |
| Fan speed step |  |  |
| Heating step   |  |  |

### System on/off

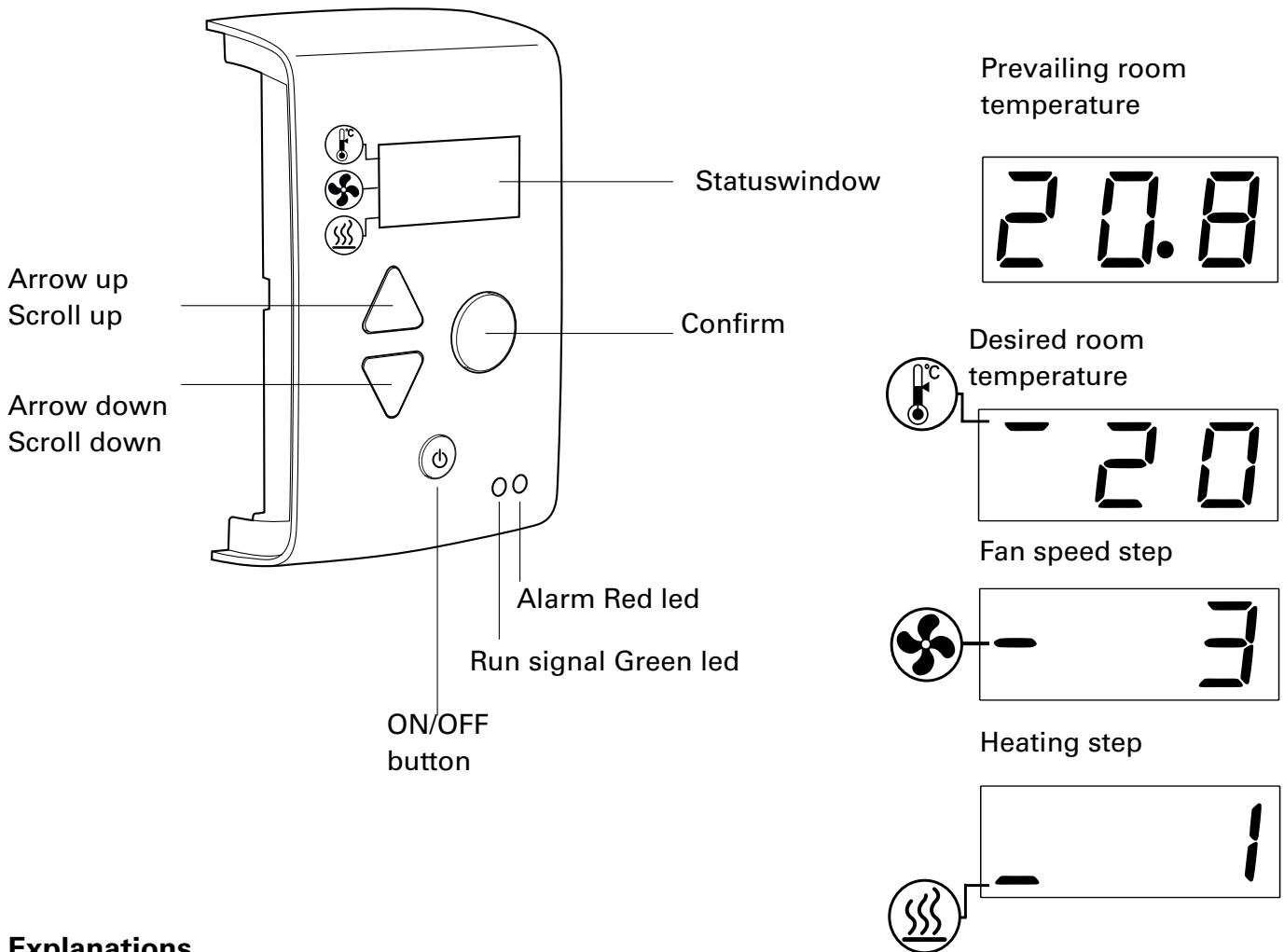
Press the ON /OFF button for 2 seconds to switch off the system. The unit's safety functions are still active when the system is switched off, which means that the fan can continue to run for a moment after mode OFF has been selected.





# Control unit PLSUB1

## Overview



## Explanations

### Status window

The status window has four main displays: prevailing and desired room temperature, fan and heating steps. Alarm codes and parameter settings can also be shown in the status window.

### Arrow up

Scroll up in menu / increase a setting.

### Arrow down

Scroll down in menu / decrease a setting.

### Confirm

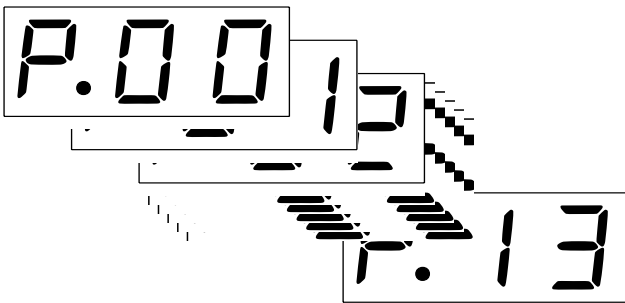
To have access to the Installers menu, choose parameters and confirm an adjusted setting.

After about 20 seconds the control unit goes back to displaying the prevailing temperature.

## Installer menu

### Parameter menu

Keep Confirm button pressed until P00 is shown in the status window. Use arrow up / down to scroll between the parameters. Press Confirm button once to change a setting in the parameter menu. Flashing values can be adjusted using the arrow up/down and then confirm. Keep the Confirm button pressed to return to the status window. (Returning automatically to the status window after about 50 seconds).



### Parameter description

#### P00 Temperature difference heating steps

Sets the difference between the heating steps (only valid for units with electric heat)

#### P01 Overheating alarm ON/OFF

Possibility to block the alarm (only valid for units with internal temperature sensor).

#### P02 Over run time

Time when the fan continue to run when the heat has been activated (only valid for units with internal temperature sensor).

#### P03 Temperature limit for over run

Over run time is cancelled if the internal temperature drops below this set value (only valid for units with internal temperature sensor).

#### P04 Fan control

Choose manul (0) or auto (1) mode, read more under section Operating mode.

#### P05 Internal temperature

Prevailing internal temperature. Only the peak value is shown when several units are connected (only valid for units with internal temperature sensor).

#### P06 - P13 Run time

Run time for fan and heating steps.

### List of parameters

| Parameter-number | Description  | Setting range | Factory setting |
|------------------|--|---------------|-----------------|
| P.00             | Temp. diff. between heating steps (only for electric heat) | 0,5-10        | 1.0 °C          |
| P.01             | Overheting alarma ON/OFF ON=1; OFF=0                       | 1/0           | 1               |
| P.02             | Over run time when heat has been activated                 | 10-300        | 180 seconds     |
| P.03             | Temperature limit for fan over run                         | 10-40         | 30 °C           |
| P.04             | Fan control: Manul rorAuto; 0=Manul, 1 = Auto              | 0/1           | 0               |
| P.05             | Display of unit internal/outlet temperature                | 0-100         |                 |
| P.06             | Run time fan step 1  | 0-99999       |                 |
| P.07             | Run time fan step 2  | 0-99999       |                 |
| P.08             | Run time fan step 3  | 0-99999       |                 |
| P.09             | Run time fan step 4  | 0-99999       |                 |
| P.10             | Run time fan step 5  | 0-99999       |                 |
| P.11             | Run time heating step 1                                    | 0-99999       |                 |
| P.12             | Run time heating step 2                                    | 0-99999       |                 |
| P.13             | Run time heating step 1+2                                  | 0-99999       |                 |

## Alarm and error codes

### Overheat protection

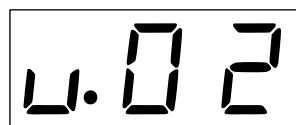
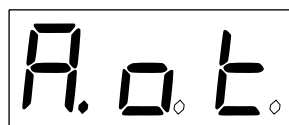
Only applies to units with internal sensor. The over heating protection is intended to restrict the exhaust temperature to +40 °C. At +40 °C the actuator for heat supply will close. Actuator will open again if the internal temperature drops below +35 °C. If the temperature continues to rise despite this, for example because of a faulty valve/actuator, the fan will start to spin at +46 °C to keep the temperature down. At the same time there is an over heating alarm (Table - Alarm). At internal temperatures of +50 °C the fan runs at maximum speed.

If the unit cools, the heat is engaged again. The alarm remains in the control unit's display. If the unit overheats twice within an hour, the alarm must be reset before the heating can be engaged again, the fan operates until the alarm is reset.

Note! In event of repeated alarms and over heating alarms, carry out a thorough check and if the fault cause cannot be found contact authorised service person.

### Displaying alarm and error codes

In event of alarm or error the alarm/error code and the unit it applies to is shown in the status window. Alarm error codes see Table - next page. The status window alternate the display of the alarm/error code and faulty unit ID causing the problem.



### Reset alarm

Note! Before resetting, check that the fault is rectified and there is nothing to prevent the unit from being recommissioned!

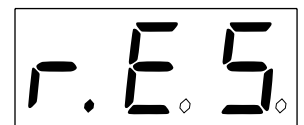
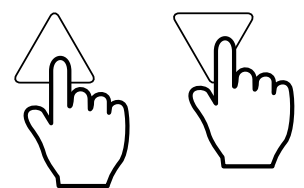
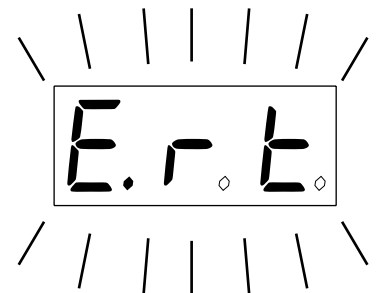
When the fault is rectified, the alarm is reset according to description below.

If "wrong" button is pressed the alarm display disappears but returns in status window after about 20 seconds.

At the first start up alarm and error codes can occur, these can usually be reset without action.



Alarm code starts to flash



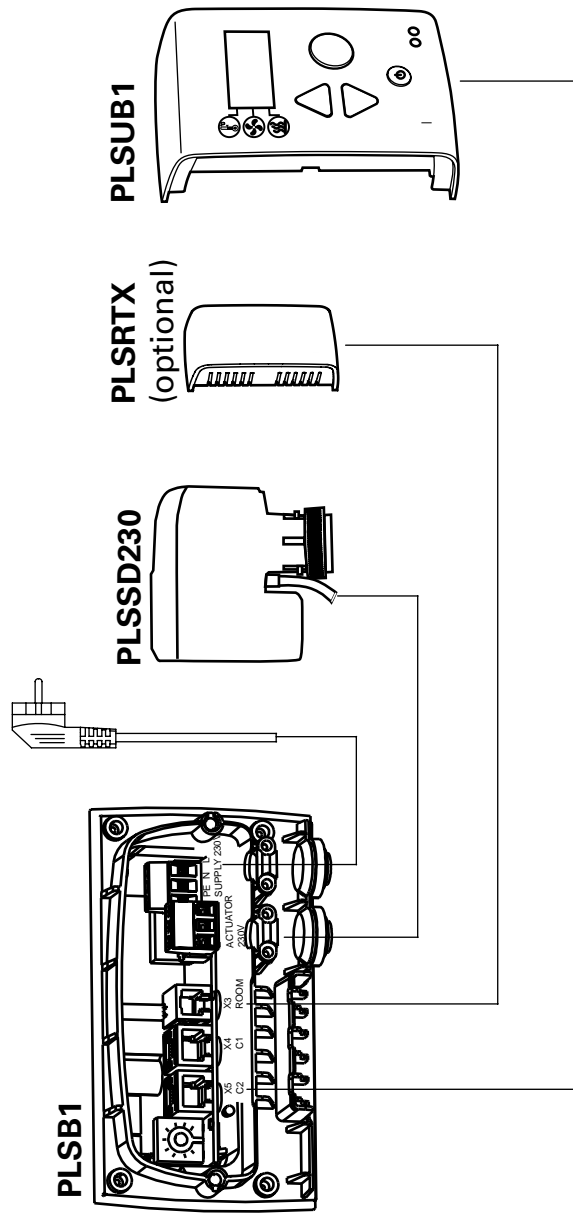
**Table - Alarm**

| <b>Alarm</b>            | <b>Cause</b>  | <b>Action</b>  |
|-------------------------|---|--|
| A.FA Motor alarm        | Thermal switch has deployed. One or several motors have overheated. (Only units with withdrawn thermal switches.)                 | Check that nothing is obstructing the unit's air intake and exhaust. When the overheated motor has cooled the thermal switch shuts again and the alarm can be reset. At repeated alarms, check the motor replace damaged motors. |
| A.ot Over heating alarm | The temperature in the unit has exceeded the alarm limit for overheating. (Only applies to units with internal unit temperature.) | Check that nothing is obstructing the unit's air intake and exhaust, the function of the actuator/valve, return water and internal temperature sensors in the unit   |

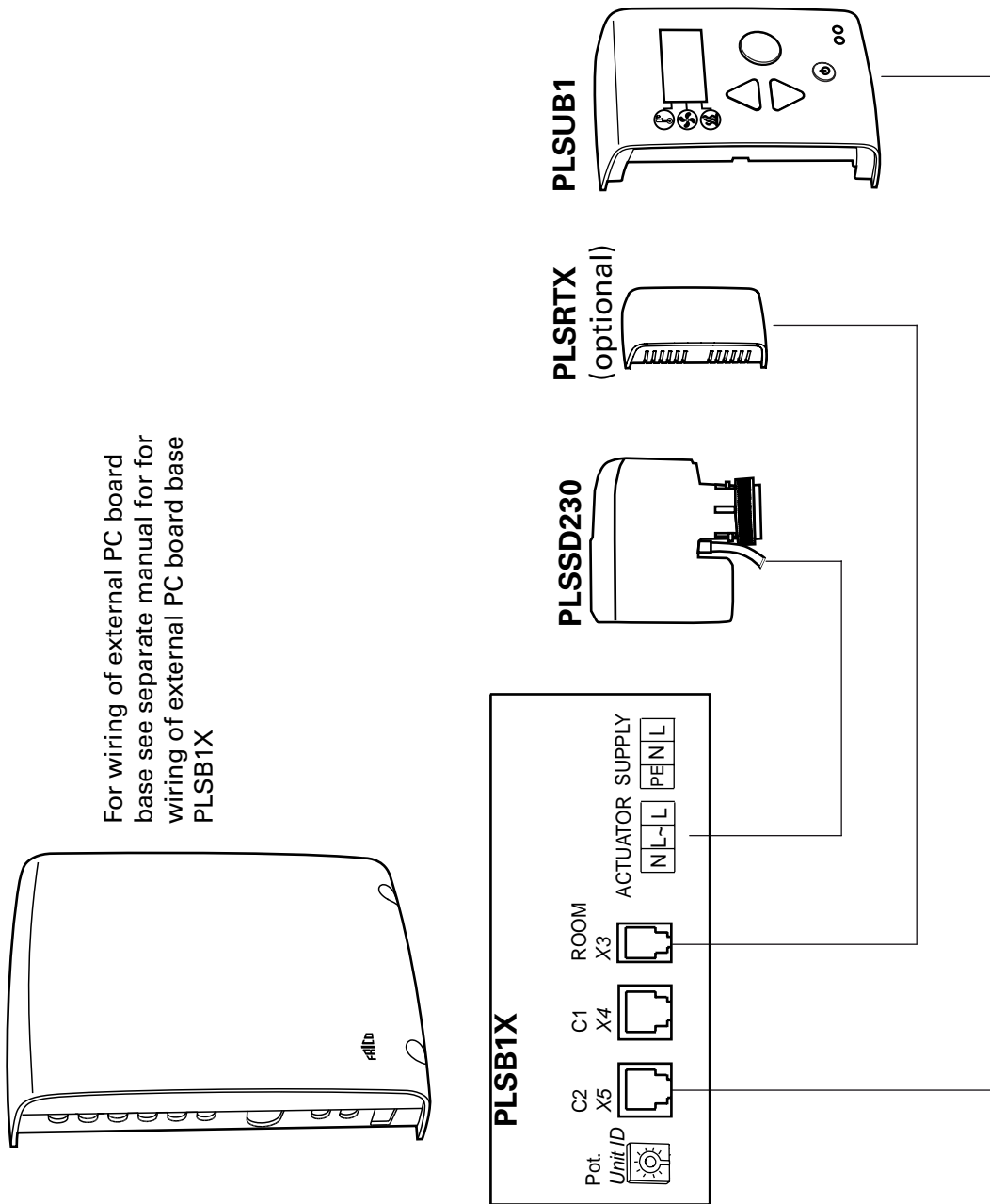
**Table - Error codes**

| <b>Alarm</b>               | <b>Cause</b>   | <b>Action</b>  |
|----------------------------|--|--|
| E.co Communication         | PLSB1(X) has no contact with PLSUB1.   | Check connection between the PLSB1(X) and PLSUB1. Replace any modular cables.  |
|                            | PC board PLSB1(X) has no ID = 0  | Interrupt the power supply and select different ID numbers for all PLSB1(X) in the system.   |
|                            | Two or more PLSB1(X) have the same ID-number.  | Interrupt the power supply and select different ID numbers for all PLSB1(X) in the system.   |
|                            | One or more PLSB1(X) do not have programs.   | Contact technical support.   |
| E.cF ID-error              | Two or more PLSB1(X) in the system have different programs.                              | Contact technical support.   |
| E.rt Room sensor error     | Error in or missing external room sensor PLSRTX connected to PLSB1(X).                   | Always disconnect the power supply when connecting or disconnecting sensors. Check connection of the sensor.   |
| E.lt Internal sensor error | Fault on or missing internal sensor in the unit (applies to units with internal sensor). | Check connection of the sensor. If there is no sensor, contact technical support.  |
| E.ru Room sensor error     | Fault on internal room sensor in the control unit PLSUB1.                                | Check connections between PLSUB1 and PLSB1(X). Replace any modular cables. Check if an external sensor PLSRTX is working. If the error is not rectified the PLSUB1 must be replaced. |

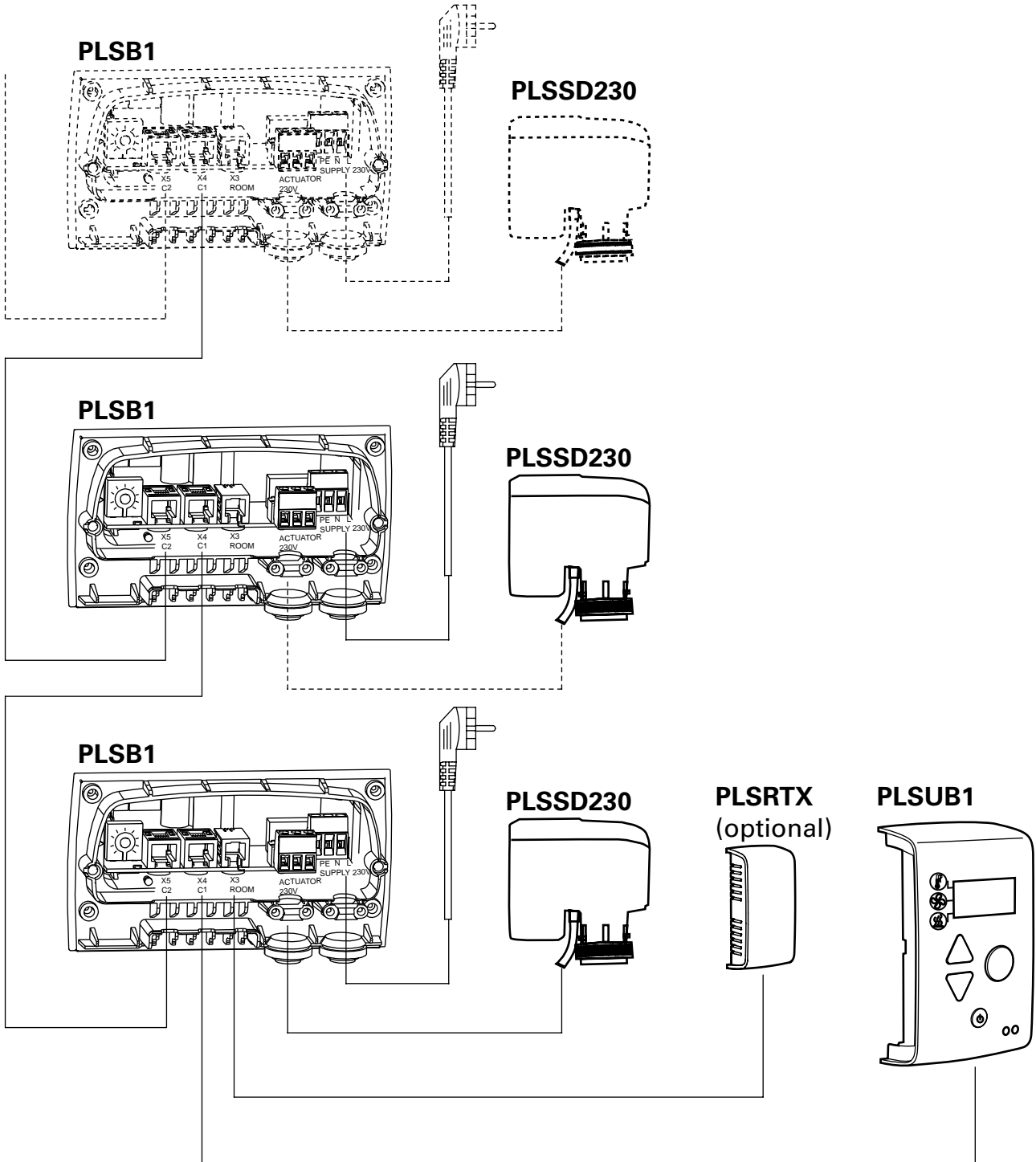
**Wiring diagram - Basic**  
Internal PC Board Base



**Wiring diagram - Basic**  
**External PC Board Base**



Wiring diagram - Basic



Technical Support - tel. +46 313368600