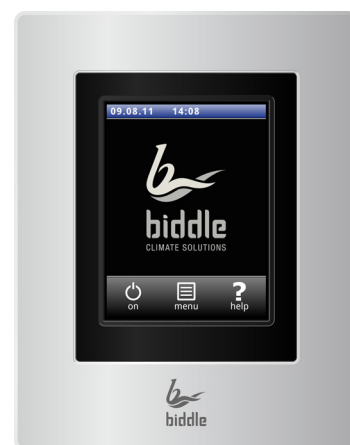
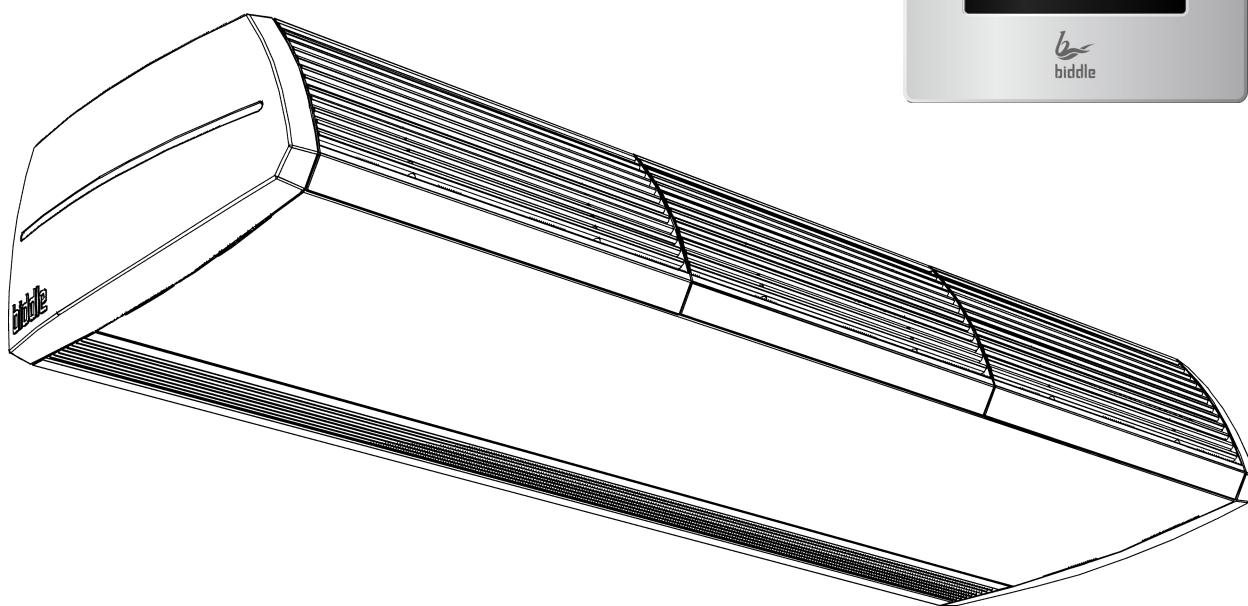


Manual

Comfort Air Curtain

Model CA₂



Version of manual: 6.1
Original manual



CHÍPS



bidde

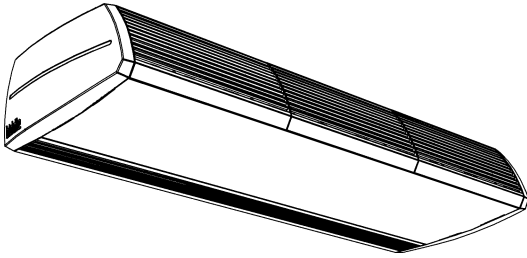
. . . Table of contents

| | | |
|----------|---|-----------|
| I | Introduction | 4 |
| | 1.1 About this manual | 4 |
| | 1.2 About the automatic CHIPS control | 4 |
| | 1.3 How to use this manual | 4 |
| | 1.4 About the unit | 6 |
| | 1.5 Safety instructions | 11 |
| 2 | Installation | 13 |
| | 2.1 Safety instructions | 13 |
| | 2.2 Delivery check | 13 |
| | 2.3 General working method | 13 |
| | 2.4 Fixing the unit | 14 |
| | 2.5 Connect the unit to the central heating installation (CA ₂ W) | 18 |
| | 2.6 Connect the unit to a Daikin system (CA ₂ V and CA ₂ Q) | 20 |
| | 2.7 Connecting the unit to the power supply | 22 |
| | 2.8 Installing control panel and external controls | 25 |
| | 2.9 Finishing the unit | 29 |
| | 2.10 Switching on and checking function | 34 |
| 3 | Operation | 36 |
| | 3.1 Introduction | 36 |
| | 3.2 Switching ON and OFF | 36 |
| | 3.3 The Home screen | 37 |
| | 3.4 CHIPS control | 37 |
| | 3.5 Faults | 39 |
| | 3.6 Main menu | 39 |
| | 3.7 Preferences | 41 |
| | 3.8 Settings | 41 |
| | 3.9 Configuration | 42 |
| | 3.10 Maintenance | 45 |
| | 3.11 USB | 46 |
| 4 | Maintenance | 48 |
| | 4.1 Replacing or cleaning the filter | 48 |
| | 4.2 Cleaning the unit | 50 |
| | 4.3 Scheduled maintenance | 51 |
| 5 | Faults | 52 |
| | 5.1 Safety instructions | 52 |
| | 5.2 Resolving simple problems | 52 |
| | 5.3 Fault messages in control panel | 53 |
| | 5.4 Remediating faults with error message | 54 |
| | 5.5 Remediating faults without message | 58 |

| | | |
|----------|--|-----------|
| 6 | Service | 60 |
| 6.1 | Safety instructions | 60 |
| 6.2 | Access to the interior of the unit | 60 |
| 6.3 | Electronics module | 61 |
| 6.4 | Daikin electronics (CA ₂ V and CA ₂ Q) | 62 |
| 6.5 | Fuses | 63 |
| 6.6 | Removing the discharge section | 63 |
| 6.7 | Venting the heat exchanger | 64 |
| 6.8 | Bleeding the heat exchanger | 64 |
| 6.9 | Entering the unit code | 65 |
| 6.10 | Resetting the PIN code | 66 |
| 6.11 | Configuration of the Biddle control cable | 66 |
| 7 | Dismantling | 67 |

1. Introduction

1.1 About this manual



1.1.1 General

This manual describes the installation, operation and maintenance of the comfort air curtain model CA₂ with CHIPS control. The manual also provides instructions and information on service operations.

1.2 About the automatic CHIPS control

CHIPS

The CHIPS control matches the strength and heat of the air curtain to changing weather conditions. This reduces energy consumption and improves comfort through selection of the optimum setting under all circumstances. CHIPS stands for “Corrective Heat and Impulse Prediction System”.

The operation of the air curtain is based on the outside temperature and the room temperature near the air curtain.

1.3 How to use this manual

If you are unfamiliar with the comfort air curtain, read this manual section by section.

If you are familiar with the device, you may use this manual as a reference. Refer to the table of contents for looking up information.

For CA₂ V and CA₂ Q only:

This manual makes cross-reference to the manuals of the Daikin components (outdoor unit, indoor unit, control panel, etc.).

1.3.1 Symbols used in the manual

The following symbols are used in this manual:



Note:

Draws your attention to an important part of the text.
Read this part of the text thoroughly.



Caution:

If you do not perform this procedure or action correctly, you may damage the device.
Follow the instructions strictly.



Warning:

If you do not perform this procedure or action correctly, you may cause damage and/or bodily injury.
Follow the instructions strictly.



Danger:

This indicates actions which are not permitted.
Ignoring this warning may lead to serious damage or accidents which may involve bodily injury.
The action may be carried out only by qualified staff performing maintenance or repair works.

1.3.2 Pictograms on the unit and in the manual

The pictograms in Table 1-1 warn of potential risks and/or dangers. The pictograms can be found opposite the text discussing risk-entailing operations. The same pictograms will also be found on the unit.

Table 1-1 Pictograms

| PICTOGRAM | DESCRIPTION |
|-----------|--|
| | Warning: You are entering an area of the unit containing 'live' components. Accessible to qualified maintenance staff only. Exercise caution. |
| | Warning: This surface or part can be hot. There is a risk of burns on contact. |

I.3.3 Related documentation

In addition to this manual, the following document has been supplied with the unit:

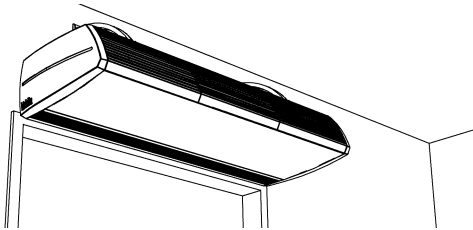
- Wiring diagram for installation and service

I.4 About the unit

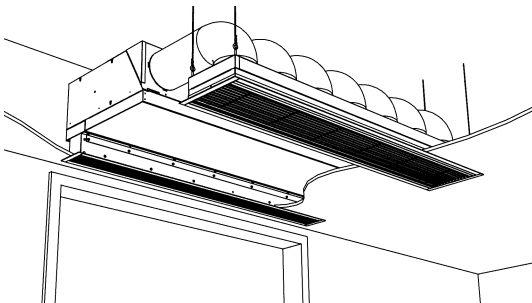
I.4.1 Applications

The comfort air curtain is intended for the separation of climates between two rooms, and for the heating and filtering (filter class EN779-G2) of air. The unit is installed above the doorway, across its full width.

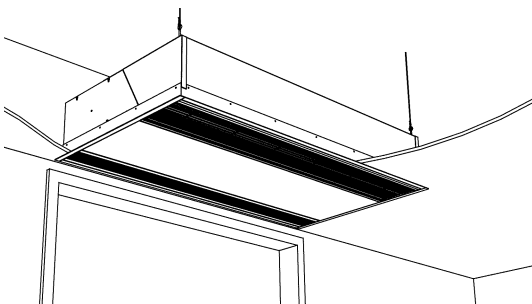
The free-hanging model is designed for free, visible installation above the door.



The recessed model is designed for integration into a false ceiling or into a cove, with the inlet opening possibly at some distance from the unit.



The cassette model is designed for installation above a false ceiling, with the inlet opening close to the unit and with easy access to the unit.



CA₂ V and CA₂ Q

The CA₂ V/CA₂ Q air curtain is connected to a Daikin direct expansion system. The air blown through the unit is heated by the cooling medium. The air curtain is controlled and operated partly by the Daikin system and partly by the Biddle system.

The system has a number of limitations:

- The unit is only suitable for use in Daikin direct expansion systems.
- The unit is not suitable for cooling.
- The temperature control is less accurate than with water or electric heating.
- The Daikin system has to be active at all times.

Other versions and intended use.

On request, versions can be supplied for other applications.



Warning:

Applications other than those described above are not considered to be an intended use. Biddle assumes no responsibility for damage or injury resulting from applications other than the intended use. The intended use also implies observance of and compliance with the instructions in this manual.

I.4.2 Function

The air curtain blows out a stream of heated air straight down, thus achieving the following:

- The exchange of air between two rooms due to temperature differences (convection) is stopped.
- The cold air entering across the floor due to draught is heated.

Depending on the air curtains setting, the unit can also blow unheated air.

I.4.3 Models and type designations

Table I-2 provides an overview of available models of the comfort air curtain and the corresponding type designations. Combined, the type designations constitute the type code, for instance: CA2 S-100-W-F. Not every combination is available.

If some part of the manual applies to certain models only, these will be indicated using the corresponding type designation, for example:

- CA₂ S, M: Models with capacity S or M;
- CA₂ 100: Models with discharge width 100;

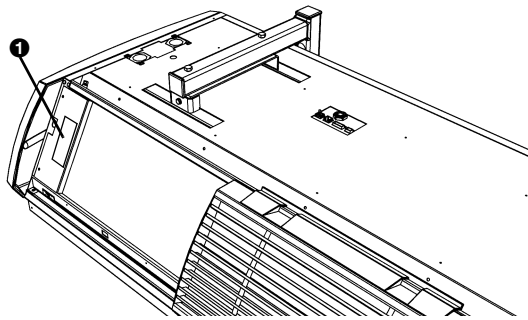
- CA₂ W: Water-heated models;
- CA₂ E: Electrically-heated models;
- CA₂ F: Free-hanging models.

**Note:**

In the illustrations in this manual, the following unit type is used as a general example: CA2 M-150-W-F. The appearance of your unit may be different but its function is the same, unless stated otherwise.

Table I-2 Explanation of the type code

| PART TYPE CODE | DESIGNATION | MEANING |
|--|----------------------|---|
| Product series | CA ₂ | General reference for the series |
| Daikin system | V | For connection to Daikin VRV system ('multi') |
| | Q | For connection to Daikin ERQ system ('pair') |
| Capacity | S, M, L or XL | Small, medium, large or extra large range |
| Discharge width | 100, 150, 200 or 250 | Discharge width in cm |
| Heating | W | Water heating |
| | E | Electric heating |
| | A | Without heating |
| | DK | Heating with Daikin direct expansion system |
| Mounting method | F | Free-hanging model |
| | R | Recessed model |
| | C | Cassette model |
| Valve (only CA ₂ W) | 2-way | Two-way valve installed instead of a three-way valve. |
| Colour (only CA ₂ V and CA ₂ Q) | B | white |
| | S | aluminium |
| | X | non-standard colour |
| Control panel (only CA ₂ V and CA ₂ Q) | C | B-touch control panel included |
| | N | Not included (if several units are connected in one installation) |



| | | | | |
|--|------------------|----------------|----------------------|-----------------|
| Biddle bv Markowei 4 NL-9288 HA Koolsterille | Type | CA M-150-W-F | | |
| | Code | 1213 | U | 230 V 1N~ 50 Hz |
| | N° | 5426/1-1 00-01 | I _{max} L1 | 2.4 A |
| | | | I _{max} L2 | - |
| | M | 60 kg | I _{max} L3 | - |
| | Medium | LPHW | P _{motor} | 0.56 kW |
| | p _{max} | 1400 kPa | P _{heating} | - |

Example of a type plate

1.4.4 Type plate

The type plate ❶ is located on the left at the front of the unit.

This manual refers to the following data on the type plate:

- *Type*: Complete *type code* of the unit;
- *Code*: *Unit code* of the Biddle electronics;
- *M*: *Weight* of the unit;
- *Medium*: *Heating medium*
- *Capacity index*: *Daikin capacity index*
- *P_{max}*: *Maximum permissible working pressure* in the hot water circuit (at 110 °C);
- *U, I_{max}, P_{motor}* and *P_{heating}*: *Maximum load* on the electrical system by the unit.

1.4.5 Field of application

The Comfort Air Curtain is predominantly used in commercial premises at an ambient temperature of max. 40°C. The following limits must thereby be observed:

Table 1-3 Application limits

| | |
|--|----------------------------|
| Ambient temperature | 5°C to 40°C |
| System voltage | see type plate |
| Power | see type plate |
| Maximum discharge temperature | 50°C |
| Heating medium CA W | water with max. 20% glycol |
| Maximum working pressure and temperature | 6 bar at 110°C |
| Maximum valve pressure difference: | |
| - CA S/M | 0.5 bar |
| - CA L/XL | 1.0 bar |



Warning:

The air curtain must not be employed in potentially explosive atmospheres, wet environments, outdoors or in very dusty or aggressive air. Biddle assumes no responsibility for damage or injury resulting from use in these situations.

1.4.6 CE standard



The air curtain satisfies the applicable CE standards. The complete CE declaration can be found at the Biddle website.

I.4.7 Modifications and changes

No changes or modifications may be made to the unit which could influence its safety without the approval of Biddle. Changes or modifications will void the CE declaration.

I.4.8 Components and accessories



Note:

The type code of components and accessories must correspond to that of the unit with which they will be employed.

Components

The following components are delivered separately but always required:

- b-touch control panel (able to control a maximum of 10 units);
- Outdoor sensor;
- Biddle control cable, available in various lengths;
- *only with free-hanging models*: set of end caps.

Accessories

The following accessories are available as options:

- Door contact switch;
- Wall bracket set, 'Standard' or 'Design';
- Threaded rod lining;
- Long-life filter (instead of the standard inlet grates and/or grilles);
- BMS interface module (instead of control panel);
- Air flow sensor (to detect whether the fans are running).

For CA₂ V and CA₂ Q only: Daikin components

The following Daikin components are required for an installation:

- Outdoor unit
- *Optional*: One or more indoor units
- Daikin control panel
- Connections materials, such as cooling lines, wiring, etc.:
See the Installation manual for the outdoor unit

**Caution:**

The control system and capacity index of the Daikin outdoor unit must correspond to those of the Biddle air curtain.

1.5 Safety instructions

1.5.1 Operation

**Warning:**

Do not put any objects in the inlets and outlets.

**Warning:**

Do not block the inlets and outlets.

**Warning:**

The upper surface of the unit becomes hot during operation.

**Caution:**

In exceptional situations, water may run out of the unit. Therefore do not place anything under the unit that could be damaged as a result.

1.5.2 Installation, maintenance and service

**Danger:**

The unit may be opened by qualified technical staff only.

**Warning:**

Perform the following actions before opening the unit:



1. Switch the unit OFF using the control panel.
2. Wait until the fans have stopped.
3. Allow the unit to cool down.



The heat exchanger and/or the heating elements can get very hot. Moreover, the fans may continue to rotate for a while.

4. For CA₂ V and CA₂ Q: Switch off the Daikin system and disconnect the power supply from the Daikin outdoor unit.
5. Disconnect the power supply (remove plug from socket or move isolation switch to OFF).
6. *For water-heated models:* Close the central heating supply (if possible).

**Caution:**

For CA₂ V and CA₂ Q: If the system operates in defrost mode or has been in operation recently, there may be water in the inspection panel.

**Warning:**

The fins of the heat exchanger are sharp.

2 . . Installation

2.1 Safety instructions



Danger:
Installation work on the unit may be performed by qualified technical staff only.



Warning:
Before opening the unit: Observe the safety instructions in section 1.5.

2.2 Delivery check

1. Check the unit and its packaging for correct delivery. Immediately report to the supplier any damage caused in transit.
2. Make sure that all components and accompanying parts have been supplied.

2.3 General working method

Working method

Biddle recommends the following working method for installing the comfort air curtain:

1. Mount the unit (section 2.4).
2. *For water-heated models:CA₂ W:*
Connect the unit to the central heating system (section 2.5).

For models for connection to a Daikin direct expansion system CA₂ V and CA₂ Q:
Install the Daikin components as described in the respective installation manuals:

- Outdoor unit;
- If installed in your system: Indoor unit(s);
- Control panel.

3. Connect the unit to the power supply (section 2.7).
4. Install the control panel, the outdoor sensor and (any optional) connections to external controls (section 2.8).
5. Finish the unit (section 2.9).
6. *For models for connection to a Daikin direct expansion system CA₂ V and CA₂ Q:*
Connect the air curtain unit to the Daikin system (section 2.6).
7. Switch on the power supply.
8. During the first start, the installation guide is started. Follow this through to carry out the most frequently needed settings.

If the installation guide is not displayed, it can be started with [Menu>Maintenance>Installation](#).
9. Check the function of the unit (section 2.10).

General instructions

Some parts of this section are applicable only to certain models. Where this is the case, it will be indicated. If no specific model is referred to, the description applies to all models.



Note:

Make sure you perform all installation operations that are required for your unit.

Check the type plate. Refer to section 1.4.3 if you are not sure about the model or type of your unit.



Note:

Protect the unit from damage and ingress of dust, cement, etc. throughout the installation. You can, for instance, use the packaging for protection.

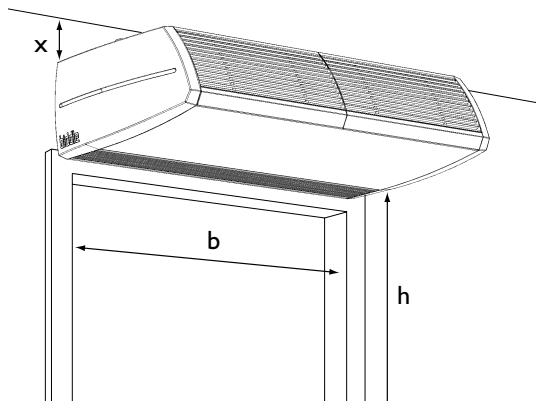
2.4 Fixing the unit

2.4.1 Determining the location of the unit



Danger:

Do not install the unit in a vertical position.



- Make sure that the structure from which the unit is about to be suspended can bear the weight of the unit. The weight is specified on the type plate (see section 1.4.4).
- Note the following dimensions:
 - The unit must be at least as wide as the doorway (dimension b).
 - Position the unit as near to the doorway as possible.
 - The maximum mounting height of the unit (dimension h, measured from the floor to the discharge grille) depends on the unit type and circumstances. If in doubt, ask Biddle for advice on the correct height.

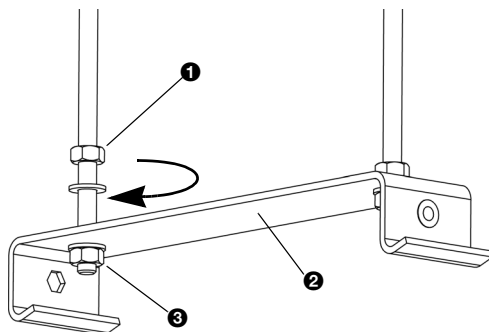


Warning:
The *minimum* mounting height (dimension h) is 1.8 m.



Warning:
The top of the unit may get hot. Mount the unit with a minimum clearance of 25 mm from the ceiling (dimension x).

2.4.2 Fix the suspension brackets



1. Fix four threaded rods M8 according to the dimensions in Table 2-1. Make sure the threaded rods are perpendicular.



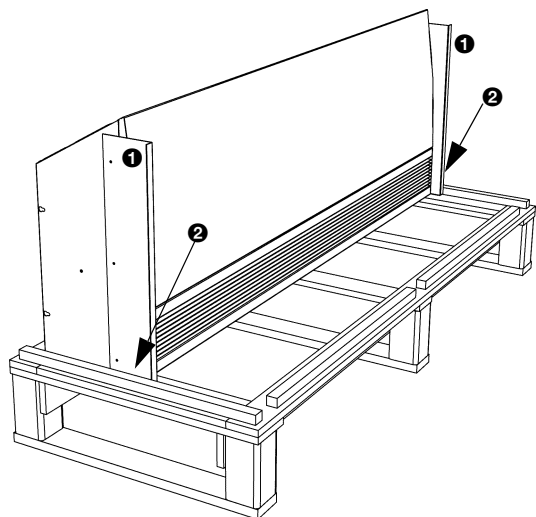
Note:
Units of type CA₂ 250 have three suspension brackets. Fix six threaded rods for that type.

2. Apply a lock nut ❶ to each threaded rod.
3. Apply the suspension brackets ❷ onto the threaded rods, and apply the nuts ❸.
4. Make sure the suspension brackets are suspended horizontally and flush.
5. Secure each suspension bracket by tightening the lock nuts ❶.

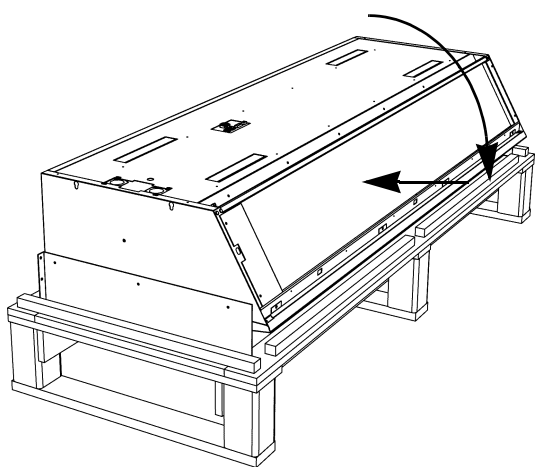
Table 2-1 Dimensions for suspending unit

| | REFERENCE | TYPE | DIMENSIONS |
|---|-----------|---------------------|------------|
| | a | all models | as needed |
| | b | CA ₂ S | 119 mm |
| | | CA ₂ M | 119 mm |
| | | CA ₂ L | 200 mm |
| | | CA ₂ XL | 200 mm |
| | c | all models | 197 mm |
| | d | CA ₂ 100 | 500 mm |
| | | CA ₂ 150 | 1000 mm |
| CA ₂ 200 | | 1500 mm | |
| CA ₂ 250 (six threaded rods) | | 2 x 1,000 mm | |

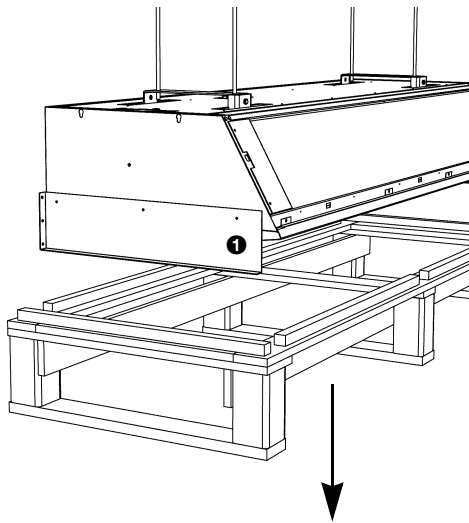
2.4.3 Suspending and securing the unit



1. Remove the components and packaging from the pallet with the unit on it. Leave the unit on the pallet.
2. The unit is fixed to the pallet with two transportation brackets ❶. Remove the screws ❷. Do not remove the brackets from the unit.



3. Tilt the unit across the pallet and lay it down as shown opposite.
4. Lift the pallet, with the unit on it, and hook the unit into the suspension brackets.

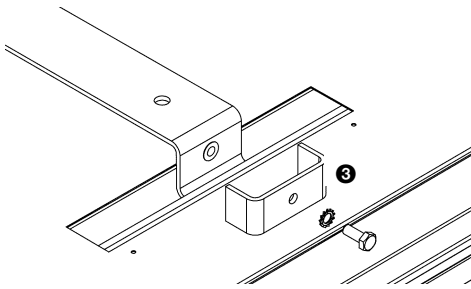
**Caution:**

Depending on the weight (specified on the type plate, see section 1.4.4), either use a lifting device or lift the unit with at least 2 persons.

**Note:**

Always use the pallet when lifting the unit to prevent any damage. This helps to avoid damage.

5. The unit now suspends from the suspension brackets: Take the pallet away.
6. Remove the transportation brackets ❶ from the unit.



7. Fit a lock plate ③ to each suspension bracket.



Warning:

The unit may fall down if you do not secure the suspension.

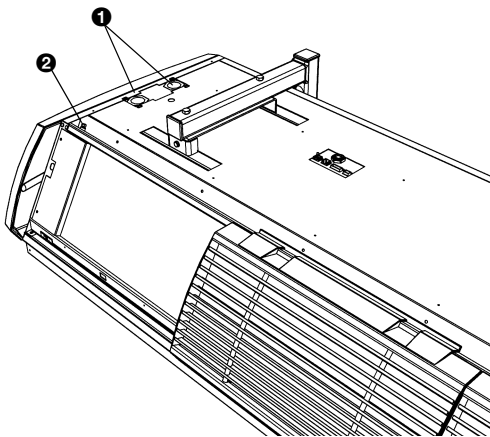
8. Check whether the unit is suspended firmly:
 - Try to push the unit from its suspension.
 - Shake the unit for a few seconds.



Warning:

Ensure you do not run any risk, should the unit drop down.

2.5 Connect the unit to the central heating installation (CA₂ W)



2.5.1 Particulars



Caution:

The supply and return pipes of the central heating system must be connected to the correct corresponding connections ①. The directions are indicated on the unit using arrows.

- The maximum permissible operating pressure of the hot water circuit is specified on the type plate (see section 1.4.4). It is based on a water temperature of 110 °C.



Caution:

The unit has an integrated water control. The central heating connection must **not** be fitted with a control valve.

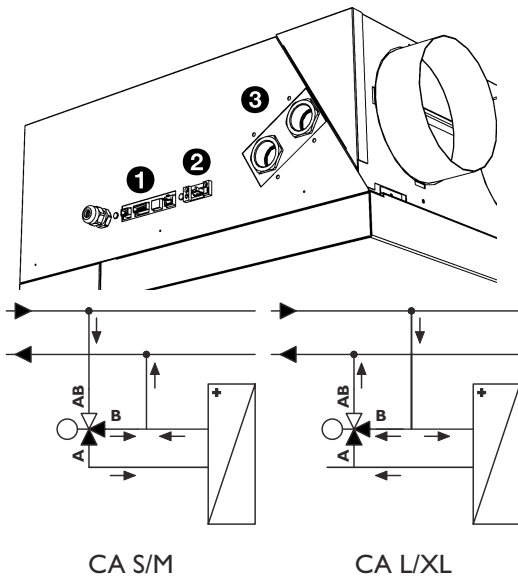
- The water-side control valve is automatically closed as standard if the air curtain and/or the heating is switched off. This can be altered at the control panel via [Menu>configuration>77. Valve open](#).



Caution:

Biddle recommends the inclusion of a valve in each pipe.

- The bleed valve ② of the heat exchanger is located at the left in the top of the unit.



Units with side connection

On request, units with electrical ① ② and water-side ③ connections on the side can be supplied. The water-side control is then not built-in, but has to be connected outside the unit during installation.

1. Connect the valve to the connections ③ as shown in the diagram opposite.
2. Connect the valve drive to terminal ②.

2.5.2 Frost protection

The electronic control features integrated frost protection. It works in two stages:

1. If the discharge air temperature falls to below 5 °C:
 - the control panel will temporarily display fault message E6 (see section 5.3);
 - the valve of the integral water control will open fully;
 - the output on the unit gives a signal for the central heating installation (if function 61a/b. Function of output 1/2 on the operating panel is set to Frost protection).
2. If the discharge air temperature falls to below 2 °C:
 - fault message E6 will become final;
 - the fans will be switched off, but the valve of the water control will stay open.

The frost protection is automatically lifted when the incoming or outgoing air temperature rises to above 8 °C.



Caution:

The frost protection reduces the risk of freezing but does not warrant 100% protection.

Take the following precautions if you install the unit in a room where frost may occur:

- Provide for constant circulation of the water at the right temperature;
- Add up to 20% glycol to the water when the unit is not in operation during the wintertime;
- Or drain the system and the unit (see section 6.8).

2.5.3 Connect the unit

1. Connect the unit to the central heating system.

2. Vent the heat exchanger.
3. Check the connections for leaks.

2.6 Connect the unit to a Daikin system (CA₂ V and CA₂ Q)

2.6.1 Preconditions for connection to a Daikin system

- The Daikin system must always be active when the Biddle air curtain is active.
- A control system must be connected to the Daikin system. This can also be a Daikin control panel that is connected to the Biddle air curtain.



Warning:
Units of type CA₂ V may only be connected to a Daikin VRV system. Units of type CA₂ Q may only be connected to a Daikin ERQ system. These units are not interchangeable.

2.6.2 Connection of the control system

All models



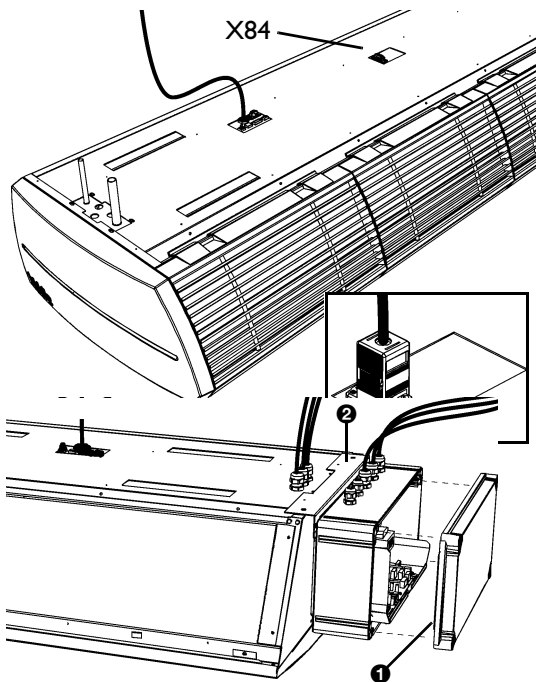
Caution:
 Use cable with a cross-section of min. 0.75 mm².

Models with discharge width 150, 200 or 250

1. Connect the control system of the Daikin system to terminal X84 on the upper side of the air curtain:
 - Connect the control cable of the outdoor unit to F1/ F2.
 - **If installed on your unit:** Connect the Daikin control panel to P1/P2.
2. Install the cable sheath (supplied) on the terminal.

Models with discharge width 100

1. Remove the cover ❶ of the box on the side of the unit.
2. **Optional:** Remove the box from the unit:

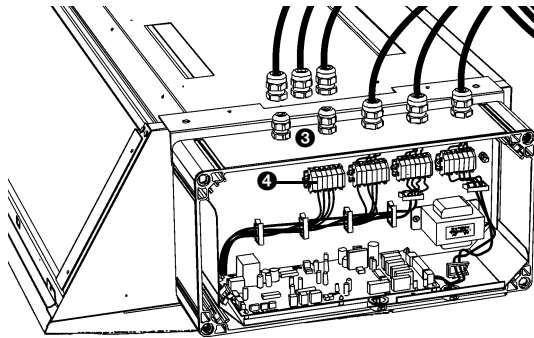


- Remove the bracket ② from the unit and the box.
- Install the box on the wall at an appropriate point.

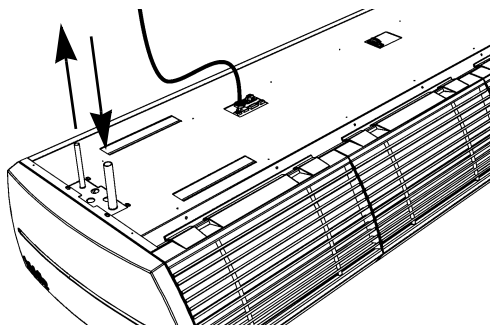


Caution:

Do not disconnect the wiring between the box and the unit.



3. Lay the control cable(s) into the box, through the free cable gland(s) ③.
4. Connect the controller of the system to the terminal block ④:
 - Connect the control cable of the outdoor unit to F1/ F2.
 - **If installed on your unit:** Connect the Daikin control panel to P1/P2.
5. Tighten the cable gland(s).
6. Install cover ① on the box again.



2.6.3 Connection of cooling medium

- Install the lines according to the installation manual of the Daikin outdoor unit.
- Solder the lines to the pipes protruding out of the upper side of the unit.

2.6.4 Settings on the Daikin control panel

You can make local settings on the Daikin control panel as described in the corresponding installation manual.

The units described in this manual have a few additional setting possibilities:.

| MODE NUMBER | FIRST CODE NUMBER | DESCRIPTION OF THE SETTING | SECOND CODE NUMBER | | | |
|-------------|-------------------|--|-----------------------------|-----------------------------|--------------------------------------|----|
| | | | 01 | 02 | 03 | 04 |
| (22) | 3 | Function of air curtain when not heating | unheated (standard setting) | unheated | at standstill (if 23-8 is set to 01) | -- |
| (23) | 8 | Function of air curtain in defrost mode | at standstill | unheated (standard setting) | unheated | -- |

2.7 Connecting the unit to the power supply

2.7.1 All models



Warning:
Do not turn on the unit from the power supply. Use the control panel.



Warning:
Every unit must be separately fused in accordance with table 2-2.

Table 2-2 Fuse values

| MAXIMUM AMPERAGE ON TYPE PLATE L1, L2 OR L3 | MAXIMUM FUSE VALUE A |
|---|----------------------|
| <= 10A | 16A |
| <= 15A | 20A |
| <= 20A | 25A |
| <= 25A | 35A |
| <= 35A | 50A |
| <= 50A | 63A |
| <= 65A | 80A |
| <= 80A | 100A |
| <= 102A | 125A |



Note:
Multiple units may only be served by a common fuse if their total current consumption is less than 10A.

2.7.2 Models with water heating (CA₂ W) and models for connection to a Daikin system (CA₂ V and CA₂ Q)

1. Ensure that an (earthed) power point is available at a maximum of 1.5 m from the left side of the unit.



Warning:
The unit must be grounded.



Warning:

The wall socket must remain accessible after the installation of the unit to be able to disconnect the unit from the mains when maintenance work is to be performed.

2.7.3 Connection of models with electric heating (CA E)

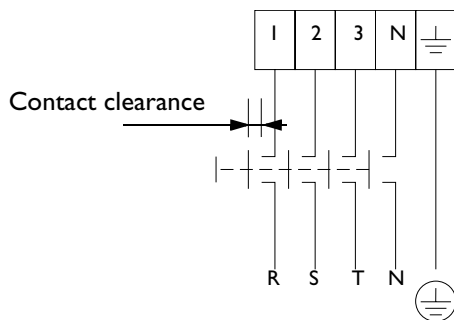


Danger:

Do not perform the connection work unless you are qualified to work with three-phase current.

Particulars

- Connect the unit to the power supply with a 5-core cable (not supplied). The maximum load data are specified on the type plate (see section 1.4.4).
- An isolation switch (not supplied) must be fitted between the unit and the power supply. This switch must:
 - be all-pole;
 - have a minimum contact clearance of 3 mm;
 - be positioned at a maximum of 4 m from the left side of the unit.



Warning:

The unit must not be switchable using the power supply cable: use the control panel for that.



Warning:

The unit must be grounded.



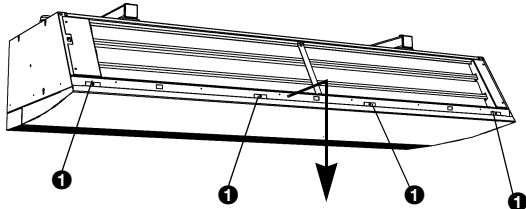
Warning:

Connect the unit in accordance with the applicable local requirements.

Connect the unit



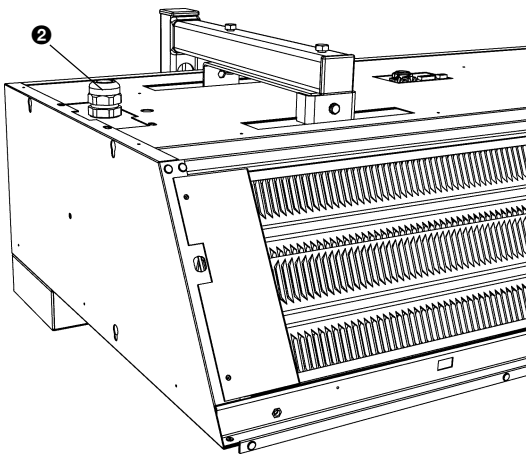
Warning:
Make sure that the power supply you are working on is switched off.



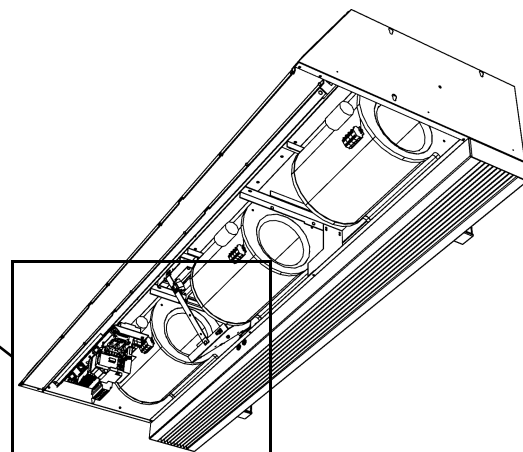
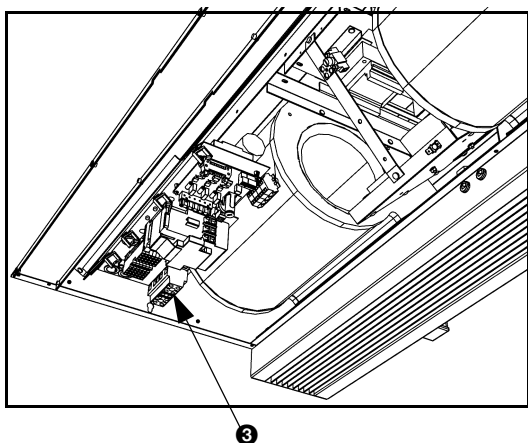
1. Fit the isolation switch and connect it to the power supply.
2. Remove the inspection panel:
 - Remove the screws ❶.
 - Pull the panel a little forward and take it away.



Caution:
 The whole panel will come loose when you pull it forward: Take care it does not fall down.



3. Fix the cable gland ❷ to the unit.
4. Lead the power supply cable through the cable swivel.
5. Connect the cable to the terminal ❸ in the unit according to the wiring diagram.



Note:
 The design in your unit may differ from the illustration.

- Put back and screw down the inspection panel.



Warning:

Always attach the inspection panel using flanged bolts with milled edges: these are needed for the earth connection.

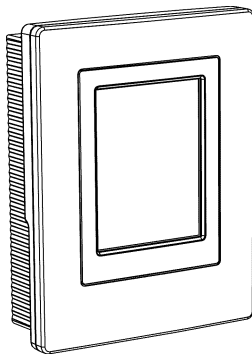
- Connect the power supply cable to the isolation switch.



Caution:

Do not yet switch the power supply on.

2.8 Installing control panel and external controls



2.8.1 Control panel details

Positioning

- You may fix the control panel either to the wall or to a standard socket.

Cabling



Note:

Take the following into account, otherwise faults may occur:

- The control cable between the control panel and the (first) connected unit must not be more than 50 m long.
- Keep control cables away from electromagnetic fields and interference sources such as high-voltage cables and fluorescent-light starters.
- Stretch control cables out or roll them up neatly.
- Do not remove the dummy plug, unless otherwise stated.



Note:

Use only control cables from Biddle. Standard modular telephone cable is *not* suitable.

Multiple units operated from one control panel

- Up to 10 units can be connected to one single control panel. To do so, the units must be interlinked.

| | | | | |
|---|---------------------------|----------------------|---------------------|---------|
| <small>Biddle bv Markovlei 4 NL-9288 HA Kootstertille</small> | Type | CA M-150-W-F | | |
| | Code | 1213 | U 230 V 1N~50 Hz | |
| | N | 9426/1-1 00-01 | I _{max} L1 | 2.4 A |
| | | | I _{max} L2 | - |
| | M | 60 kg | I _{max} L3 | - |
| | Medium | LPHW | P _{motor} | 0.56 kW |
| | P _{max} 1400 kPa | P _{heating} | - | |

- The total length of the control cables is not to exceed 100 m.
- Only units that have the same second digit in the unit code (see “code” on the type plate, section 1.4.4) can be controlled in combination with the same control panel.

2.8.2 External control details

Input on the control panel (X426)

The control panel has one input signal interface. This can be used for an external ON/OFF signal or for an additional temperature sensor.

Input on the unit II-II

The unit has one input signal interface. A timer, a door switch, a room thermostat or a BMS (building management system) signal may be connected to this.



Caution:

Both inputs are designed for controls with potential-free contacts, and are not to be loaded.



Caution:

The inputs of multiple units must *not* be connected to each other.



Warning:

With units connected to a Daikin system (CA₂ V and CA₂ Q), the units must not be frequently switched ON and OFF via the inputs. This can cause damage to the unit or to the Daikin system. With function 60. Function of input, the settings Unit on/off locally, Switch all units on/off are therefore not permitted. With the setting Quick speed up, function 54. Strength with door closed must not be set to zero.



Note:

With the setting All units OFF and with the NC (normally closed) settings of function 61a/b. Function of output 1/2, a jumper must be laid to the input for all the other connected units.

Outputs on the unit O1-O1 and O2-O2

The unit has an interface for two output signals: These can be used, for instance, for controlling the central heating or cooling system or for status messages to a building management system.



Caution:

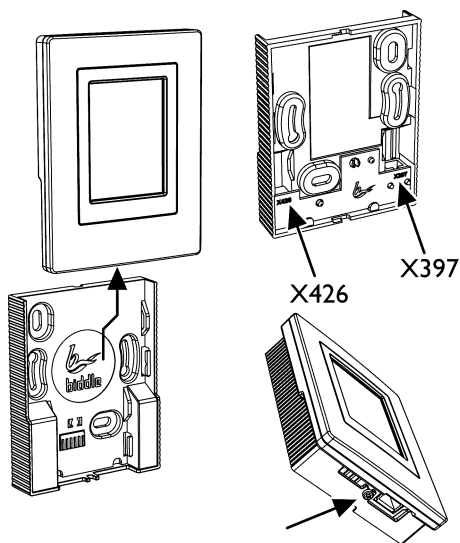
The outputs are potential-free contacts (relays). Their maximum load is 24 V / 1 A.

Options and operation



Options and operation depend on the inputs or output as well as on the control panel settings. These are further described in section [Operation](#).



2.8.3 Mounting and connecting control panel

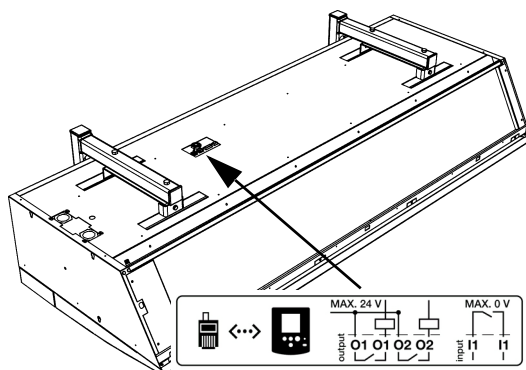
1. Lay the control cable.
2. *If the external-control input in the control panel is used:* lay the necessary cabling. The cable core diameter is not to exceed 0.75 mm.
3. Push the operating panel out of the wall holder.
4. Connect the control cable to terminal X397 and (if installed) the cable for the external control to terminal X426 of the wall holder.
5. Screw the wall holder onto the plug socket or the wall.
6. Place the control panel back in the wall holder.
7. Optional: Lock the control panel with the screw on the underside.



2.8.4 Connecting control panel to unit

The control panel connections  and  are located on the connector plate on the upper side of the unit. The two sockets are identical. One of the two sockets has a dummy plug.

1. Connect the control cable to the free terminal  or .





Note:





Do not remove the dummy plug from the other socket, as this may lead to faults.



Note:

Leave about 30 cm excess cable length: it will be needed to take the electronics out when servicing the unit.

Multiple units operated from one control panel

1. For each unit to be linked, remove the dummy plug from socket  or .
2. Interlink the units: Connect the control cables to  and .



Note:


Do not remove the dummy plug from the last unit, as this may lead to faults.

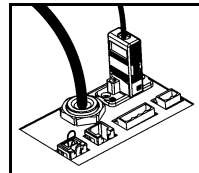
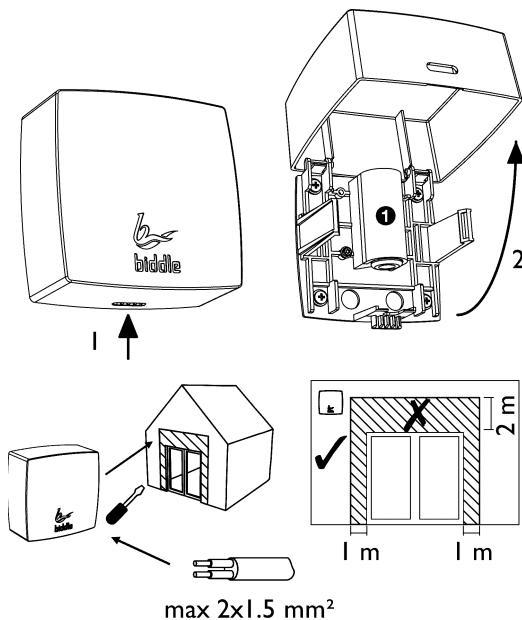
2.8.5 Installing the outdoor sensor



Caution:

The automatic control is less efficient without an outdoor sensor.

1. Install the outdoor sensor on the wall:
 - At least 1 metre to the side of the door opening or at least 2 metres above the door opening
 - out of the sun and protected against rain.
2. Connect a cable (not supplied) between outdoor sensor  and unit.
3. Connect the sensor to terminal X82 on the upper side of the air curtain.
4. Install the cable sheath (supplied) on the terminal.



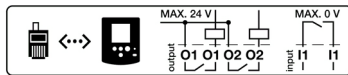


Note:

Leave about 30 cm excess cable length: it will be needed to take the electronics out when servicing the unit.

2.8.6 Connecting external controls to the unit (optional)

The terminals are located in the connector plate on the top of the unit. The corresponding connectors are located in the terminals.



- Connect the cable for the output signals to terminal O1-O1 or O2-O2.
- Connect the cable for the input signal to terminal I1-I1.



Note:

Leave about 30 cm excess cable length: it will be needed to take the electronics out when servicing the unit.

2.9 Finishing the unit

2.9.1 Finishing free-hanging models

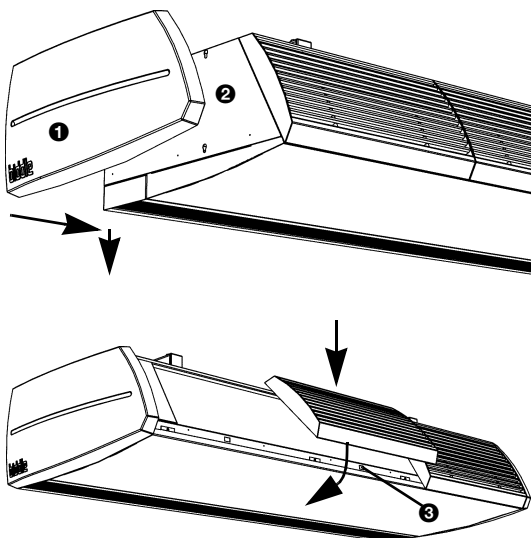
Position the side caps

1. Fit the end caps to either side of the unit:
 - Hook the end caps ① into the slots in side ②.
 - Push the caps down until you hear a click.

If linking two or more units to each other, fit the end caps to the outer ends.

Position the inlet grilles

2. Fit the inlet grilles to the unit:
 - Hook the grilles onto the upper side of the unit.
 - The back of each grille has a projection. Fit the grille with the projection into the rectangular hole ③.



2.9.2 Finishing recessed models

General



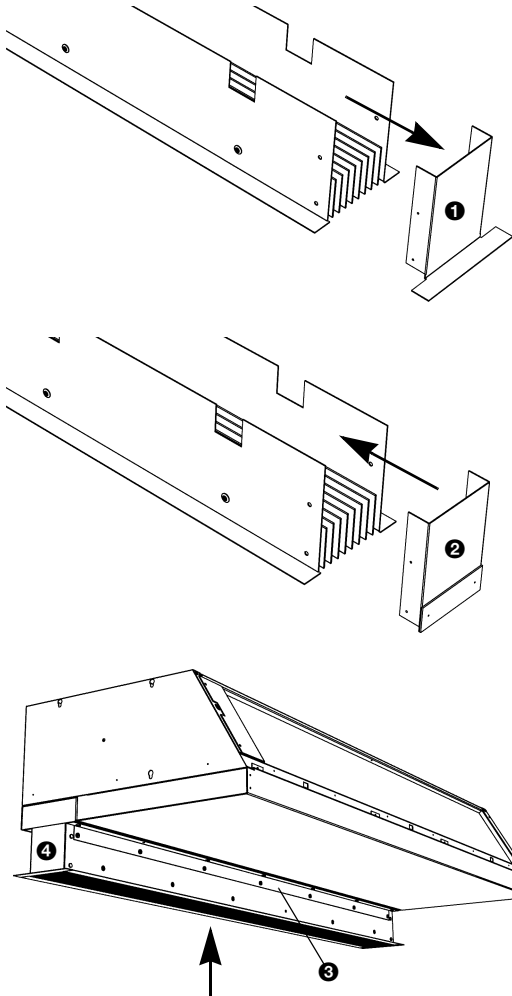
Note:

Ensure that the unit remains accessible for maintenance and repair through, for instance, an inspection hatch.

Adjusting the discharge duct

If linking two or more units to each other, you must adjust the discharge duct so that the finishing edges will not be in each other's way.

1. Remove the end piece with finishing edge ❶.
2. Mount the end piece without finishing edge ❷.

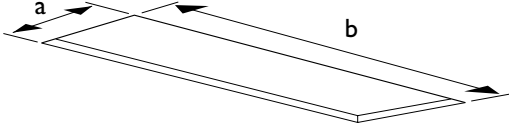


Installing the discharge duct

3. Make a hole in the ceiling for the discharge (for dimensions, see Table 2-3).
4. Fix the two angle sections ❸ with sheet metal screws to the unit, along the edges of the discharge opening.
5. Slide the discharge duct ❹ into the discharge opening until the desired height is reached.

- Using sheet metal screws, fix the discharge duct to the angle sections ❸.

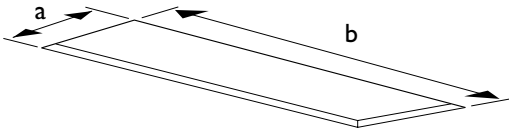
Table 2-3 Discharge section hole dimensions

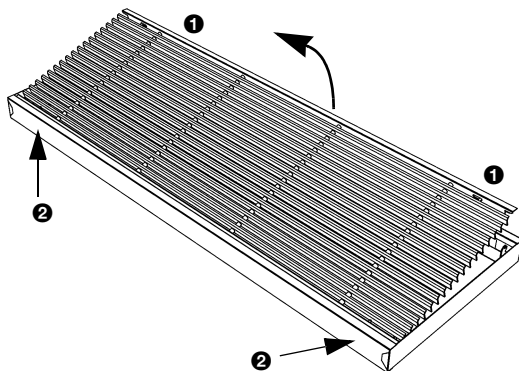
| | REFEREN CE | TYPE | DIMENSIONS |
|---|---------------|-----------------------|------------|
|  | a | CA ₂ S-R | 102 mm |
| | | CA ₂ M-R | 102 mm |
| | | CA ₂ L-R | 133,5 mm |
| | | CA ₂ XL-R | 133,5 mm |
| | b | CA ₂ 100-R | 1008 mm |
| | | CA ₂ 150-R | 1508 mm |
| | | CA ₂ 200-R | 2008 mm |
| | | CA ₂ 250-R | 2508 mm |

Installing the grille plenum of the inlet section

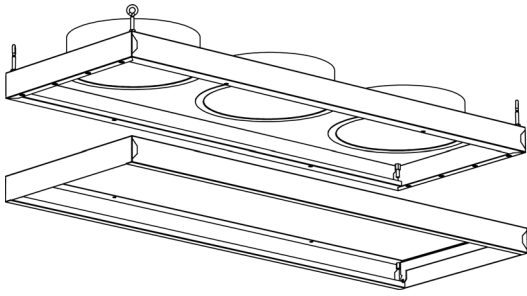
- Make a hole in the false ceiling for the inlet section (see Table 2-4).

Table 2-4 Inlet section hole dimensions

| | REFEREN CE | TYPE | DIMENSIONS |
|---|---------------|-----------------------|------------|
|  | a | CA ₂ S-R | 268 mm |
| | | CA ₂ M-R | 268 mm |
| | | CA ₂ L-R | 368 mm |
| | | CA ₂ XL-R | 368 mm |
| | b | CA ₂ 100-R | 1008 mm |
| | | CA ₂ 150-R | 1508 mm |
| | | CA ₂ 200-R | 2008 mm |
| | | CA ₂ 250-R | 2508 mm |

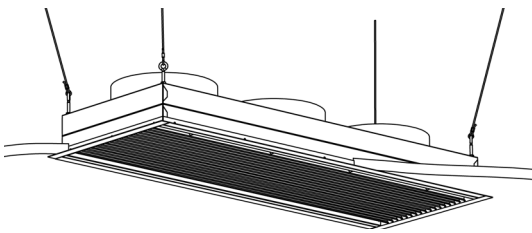


- Take the inlet grille out of its frame:
 - Push the two pins ❶ in the grille towards one another and tilt the grille outward.
 - Push the two pins at ❷ towards one another and take the grille out.



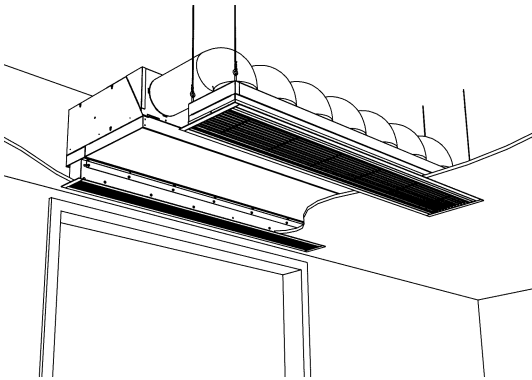
9. Mount the grille plenum to the inlet grille frame.

10. Put the grille back into its frame.



11. Fix the edge finishing strips to the frame.

12. Suspend the inlet section. To do so, use the supplied screw eyes or four threaded rods, M6.



Connect the unit plenum and grille plenum

13. Connect the unit plenum to the grille plenum using flexible ducts. Use hose clips to fix the ducts.

Table 2-5 Plenum duct diameter

| TYPE | DUCT DIAMETER |
|----------------------|---------------|
| CA ₂ S-R | 160 mm |
| CA ₂ M-R | 160 mm |
| CA ₂ L-R | 250 mm |
| CA ₂ XL-R | 250 mm |

2.9.3 Finishing cassette models



Note:

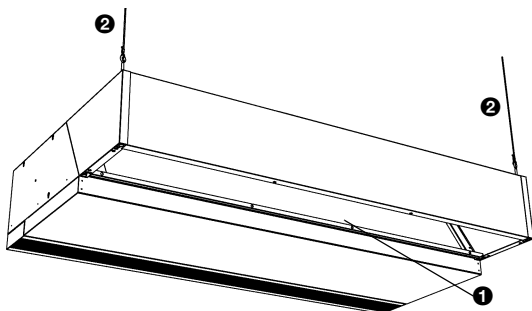
With the unit types CA₂ 200 and CA₂ 250, the components of the inlet section are supplied in two sections.

Installing the inlet case

1. Mount the inlet case on the unit:

- Hook the inlet case onto the upper side of the unit.
- Screw flange ① of the inlet case to the unit.

2. Fix the angle points ② of the inlet case to the ceiling. To do so, use the supplied screw eyes or two threaded rods, M6.



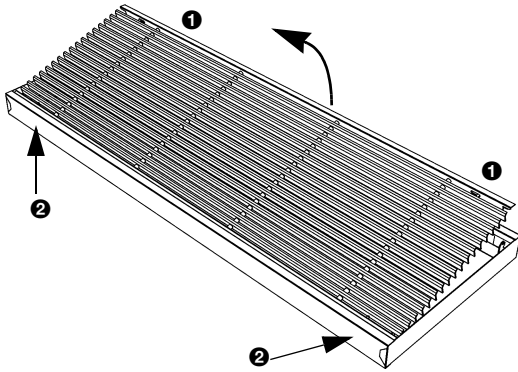


Warning:
If you do not fix the inlet case to the ceiling, the unit may tip over and fall out of the suspension brackets.

Installing the inlet plenum

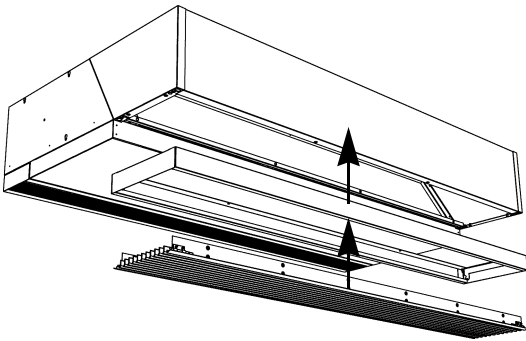
3. Take the inlet grille out of its frame:

- Push the two pins ❶ in the grille towards one another and tilt the grille outward.
- Push the two pins at ❷ towards one another and take the grille out.



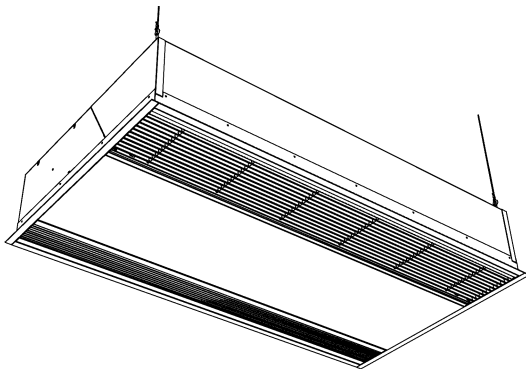
4. Screw the frame onto the inlet case.

5. Put the grille back into its frame.



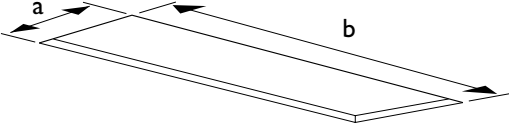
Finishing

6. Fix the edge finishing strips around the unit.



7. Make a hole in the false ceiling with the dimensions stated in Table 2-6.

Table 2-6 Unit hole dimensions

| | REFEREN CE | TYPE | DIMENSIONS |
|---|---------------|-----------------------|------------|
|  | a | CA ₂ S-C | 829 mm |
| | | CA ₂ M-C | 829 mm |
| | | CA ₂ L-C | 1113 mm |
| | | CA ₂ XL-C | 1113 mm |
| | b | CA ₂ 100-C | 1008 mm |
| | | CA ₂ 150-C | 1508 mm |
| | | CA ₂ 200-C | 2008 mm |
| | | CA ₂ 250-C | 2508 mm |

2.10 Switching on and checking function

For models connected to a Daikin system CA₂ V and CA₂ Q:

- Switch on the Daikin indoor units and outdoor unit.

For all models

1. Check the following connections:
 - Power supply;
 - Control cables between control panel and unit (or units);
 - For CA₂ V and CA₂ Q: Control cables between unit(s) and Daikin components.
 - External control components (if used).
2. Switch the power supply on and/or plug in all connected units.

When you switch on the power supply for the first time, the control panel searches for connected units and then immediately displays the number of connected units.

3. During the first start, the installation guide is started. Follow this through to carry out the most frequently needed settings.

If the installation guide is not displayed, it can be started with [Menu>Maintenance>Installation](#).

If the control unit does not function, or if the display shows an error messages, consult section [Faults](#).

For models with water heating or connected to a Daikin system

4. Check that the heat exchanger is connected correctly.
5. Make sure the central heating system or the Daikin system is turned on.
6. Make sure heating is enabled in the control panel.
7. Feel if the discharged air stream gets warm. This may take some time.
8. Vent the heat exchanger, if necessary.

For models with electric heating

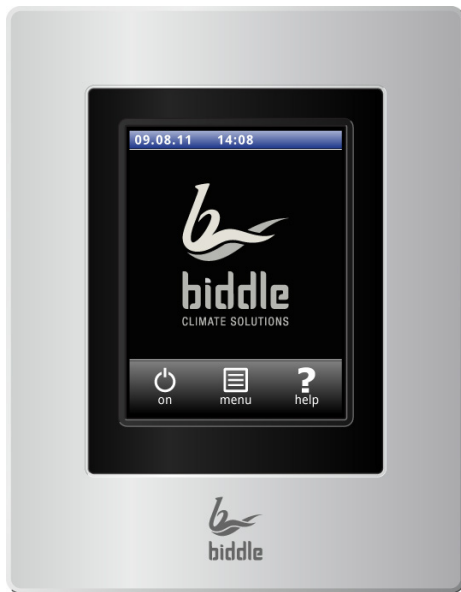
9. Make sure heating is enabled in the control panel.
10. Feel if the discharged air stream gets warm.

For models without heating

11. Feel if the unit discharges air.

3. . Operation

3.1 Introduction



b-touch

This section describes the functions of the b-touch control panel required for the use of the comfort air curtain.

The b-touch control panel has a touchscreen with which all the functions can be controlled:

- Switch the air curtain ON and OFF;
- Set the strength of the air curtain;
- Switch the heating ON and OFF;
- Carry out settings to adapt the function of the air curtain to your situation.

Multiple units operated from one control panel

If multiple units are connected to the b-touch control panel, the settings are the same for all units.

Settings



Select ✓ to save the settings and return to the previous screen.



Select X to return to the previous screen *without* saving the changes.

Help function



You can call up additional information on your momentary point of operation at any time by touching [Help](#).

3.2 Switching ON and OFF

3.2.1 Switching the air curtain ON and OFF

You can switch the air curtain ON and OFF manually. Independently of this, the unit can be controlled by external

controls (see function [53. Control panel input](#) and [60. Function of input](#)).

- Touch **ON/OFF** to switch the air curtain ON or OFF.

When the unit is switched on, the screen will go dark after a short time to save energy. When the screen is touched, it lights up again. This function cannot be deactivated.

When the unit is switched off, the screen will go black after a short time. Touch the screen to activate it again.

3.3 The Home screen



The settings of the air curtain and the room temperature can be adjusted in the Home screen.

Touch the parts of the air curtain icon to select manual or automatic and to adjust the strength of the air curtain or the room temperature.

Touch the air flow icon to obtain brief information on the operation of the unit.

Touch **Menu** to call up the main menu.

3.4 CHIPS control

CHIPS

The air curtain operates as standard with fully automatic control. Depending on the selected settings, the air curtain can also be controlled manually.

In automatic mode, the unit operates under CHIPS control. This control matches the strength and heat of the air curtain to changing weather conditions. This reduces energy consumption and improves comfort through selection of the optimum setting under all circumstances. CHIPS stands for “*Corrective Heat and Impulse Prediction System*”.

The operation of the air curtain is based on the outside temperature and the room temperature near the air curtain.

3.4.1 Automatic or manual control

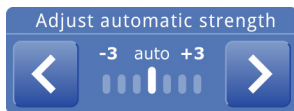
The air curtain has an automatic and a manual mode. These can be selected by touching the uppermost part of the air curtain icon.

When the unit is switched on, it is always in automatic mode. If you wish to operate the unit only in manual mode, switch off the automatic mode via [Menu>Settings>1. Select modes](#).

3.4.2 Adjust the strength of the air curtain

Adjust the automatic strength control

In automatic mode, the strength and temperature of the air stream are controlled automatically. Due to weather conditions, you might want to adjust the automatic setting. If you feel a cold draught along the floor, you can increase the automatic strength.



Note:

The adjustment of the automatic strength is not always directly translated into a different fan speed.

Manual setting of the strength

With the manual setting, you have 6 strengths to choose from. To achieve maximum climate separation with minimum energy consumption, Biddle recommends to select the lowest strength at which no draught occurs. This setting may need to be changed during the day.



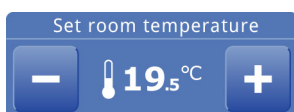
3.4.3 Recommended setting of the air curtain

To obtain the maximum separation effect and the greatest comfort possible with the least possible energy consumption, Biddle recommends use of the fully automatic CHIPS control.

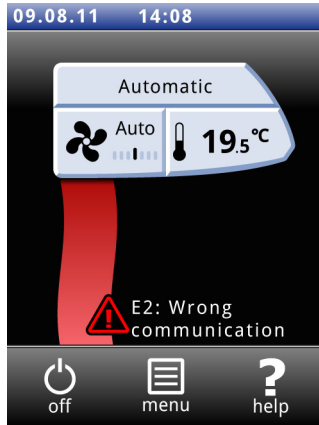
3.4.4 Controlling the temperature


You can set the temperature to a comfortable level. This is the temperature at the air curtain.

With units connected to a Daikin system (CA₂ V and CA₂ Q), the temperature control is less accurate than with water or electric heating.



3.5 Faults




The symbol  indicates that there is a fault. The fault message is displayed alongside.

- Touch this message for further information on the fault and for instructions as to how to react.




Warning:

Some faults may cause damage or danger for persons if they are disregarded. If  is displayed, follow the instructions as to how to react shown on the operating panel.

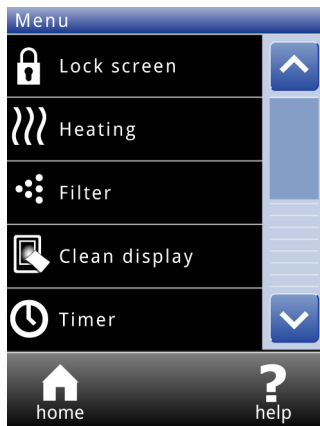


Note:

The symbol  and the fault message remain displayed as long as the fault has not been remedied.



If a fault has remedied itself, a corresponding message will be displayed. Touch this message to display the [Error history](#) and to read out the last five faults and the times of their occurrence. This list can also be read out by touching [Menu>Maintenance>Error history](#).

3.6 Main menu




Touch [Menu](#) to call up the main menu. Here you can set up a number of frequently occurring functions and make settings in sub-menus to adapt the function of the air curtain to your specific situation.

Touch [Home](#) to return to the Home screen again.

 and  allow you to scroll through the list.

If the control panel is not operated for some time, it returns automatically to the Home screen *without* saving the changes.

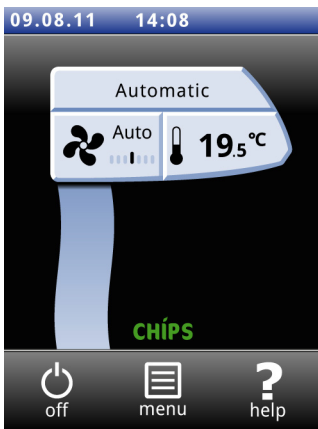
Lock the screen

Select [Lock screen](#) to prevent unauthorised access. The  icon appears on the screen

Unlocking

Touch the screen for 5 seconds to unlock.

Switching the heating ON and OFF



The heating of the air curtain can be switched ON and OFF manually. This can be useful in summertime when no heating is necessary.

Switching the heating OFF disables the room temperature control.

This function can be deactivated via setting 89 in the configuration menu.

- Select **Heating** to switch the heating ON and OFF. When the heating is switched off, the air stream is displayed in blue.

The heating can also be switched off by an external signal at the input of the unit, see [menu>Configuration>60. Function of input](#), setting **Heating OFF**.

Filter

Dirty filters reduce the effectiveness of the air curtain. It is therefore necessary to clean or replace the filters at regular intervals. The service life of the filter is calculated in relation to the use of the air curtain. You can adjust this by setting the maximum service life of the filter.

When the maximum service life is reached, a message appears on the [Home screen](#).

You may clean the filter with, for instance, a vacuum cleaner; see section [Maintenance](#). After some cleanings, however, the filter must be replaced. New filters are available from Biddle.

When using long-life filters:

The service life of the filter must be set to the maximum value.

Cleaning the screen

The use of the touchscreen can leave marks or fingerprints on the screen. The screen can be cleaned using a damp, soft cloth.

Timer

The b-touch control panel has a week timer. You can set two start and stop times for every day of the week. The unit is on between the start time and the stop time. The second start and stop times are optional.

When the button **ON/OFF** is displayed on the screen, the unit can also be switched ON or OFF manually. From the next switching moment the unit then follows the timer again.

When the timer is switched on, the ☉ icon is displayed in the blue bar of the Home screen.

3.7 Preferences

The menu [Preferences](#) allows you to make settings for the use of the control panel.

Set language

You can select a language for the control panel. Select the desired language from the list.

Set date and time

The date and time are necessary for the timer function and in order to track usage statistics of the unit.

The automatic summer time function switches the clock to summer or winter time according to the applicable European rules. If you do not use this function, you can switch to summer time manually. The clock is then set one hour forward.

Display brightness

Set the brightness of the display according to your personal preference or according to the circumstances.

3.8 Settings

The menu [Settings](#) allows you to make setting which influence the day-to-day use of the unit.

1. Select modes

The operating panel offers various operating modes. The function Select modes allows you to choose which of these modes can be selected on the HOME screen.

5. Room temperature

The default room temperature is the temperature setting at every start-up of the unit.

This can be overruled manually.

6. Minimum air temperature

Set the minimum difference between the room temperature and the discharge temperature.

This difference can be increased for more comfort. A small difference saves energy.

9. Calibration

An unfavourable position of the operating panel or using the temperature sensor in the air curtain can be the reason why the temperature displayed differs from the real temperature.

Use this function to adjust the temperature reading.

11. Standard settings

Restores the standard factory settings. The settings made in the [Configuration](#) menu are retained.

3.9 Configuration

The Configuration menu allows you to make settings to adjust the operation of the unit to the room and the system. Usually, this level is used only for installation, maintenance and service purposes.

50. Access protection

Access to the whole operating panel or only to the menu can be protected with a four-digit PIN code.

The default PIN code is 0000.

51. Indoor sensor

Both the unit and the operating panel have a sensor which measures the indoor temperature. Choose one that the system is to use:

- Select the sensor on the unit for automatic control. This is the standard setting.
- Select the sensor on the control panel if you also wish to use the air curtain for heating the room. In this case comfort may be reduced by draughts along the floor.

52. Function of ON/OFF button

The unit can be switched ON and OFF manually. It can also be switched ON and OFF via the internal timer or via an external release signal at the input of the operating panel or of the unit. In this case you can disable the manual switching ON and OFF. The [ON/OFF](#) button is then not displayed on the [Home screen](#).

53. Control panel input

The control panel has one input signal interface. This can be used for an external ON/OFF signal or for an additional temperature sensor.

When the timer is in use, the ON/OFF function of the input of the control panel is deactivated, irrespective of this setting.

If an additional temperature sensor is connected, this takes over the function of the sensor in the control panel.

See also section [2.8](#).

54. Strength with door closed

Set the minimum fan speed when contact is made with the input. Use a door switch here to reduce the fan speed when the door is closed.

This has an effect only when function [60. Function of input](#) is set to [Quick speed up](#) or [Slow speed up](#).

55. Winter setting door

If the difference between the desired and the actual room temperature is larger than this value, contact is made. An automatic sliding door can then be set to half open.

This has an effect only when function [61a/b. Function of output 1/2](#) is set to [Winter setting door](#).

58. Maximum strength

The maximum fan speed can be limited in order to limit the noise level. This function has an effect only in Automatic mode.

Use of this function can reduce the comfort.

60. Function of input

The unit has one input which can be used to have a function controlled by an external accessory such as a door switch, thermostat or a signal from a building management system (BMS).

If several units are connected to one control panel, only one input can be used. The effect of this input is then the same for all the units.

The function [Unit OFF locally](#) has an effect only on the units whose inputs are in use.

When the timer is in use, the function [All units ON/OFF](#) of the input on the unit is deactivated, irrespective of this setting.

With the setting [All units OFF](#) and with the NC (normally closed) settings, a jumper must be laid to the input for all the other connected units.

See also section [2.8](#).

61a/b. Function of output 1/2

The unit has an interface for two output signals: These can be used, for example, for controlling the central heating or cooling system, or for transmitting status reports to a BMS.

The outputs function independently of one another.

Multiple units operated from one control panel

The outputs always have a *global* effect: The signals are always the same in all units connected to the control panel.

See also section [2.8](#).

69. Temperature display

The room temperature is displayed as default. With this function you can select another temperature to display or switch off the temperature display.

72. Error output

Some fault messages may be caused by external factors such as the central heating system and do not necessarily have an influence on the function of the air curtain.

Use this function to suppress these messages. Messages concerning safety are always displayed.

76. Release delay

When you are using an input, you can allow the effect of an incoming signal to continue for some time after the signal has passed (releasedelay').'

This setting can be used, for example, in combination with a door switch to allow the unit to continue to run for a short time after the door has been closed.

77. Valve open

When the unit is switched off, the valve in the unit is closed by default.

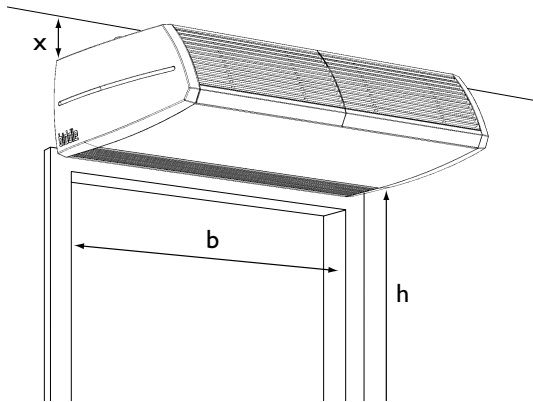
Select [Valve open](#) and set the opening percentage of the valve to always keep a flow over the heat exchanger into the unit.

80. Fan OFF temperature

When there is only a small difference in temperature between outdoors and indoors, there is less need for a climate separation. In order to save energy, the fans can be switched off when there is only a small difference in temperature.

Set this value to zero to allow the fans to run at all times.

82. Installation height



In order to use the automatic control as efficiently as possible and with minimum energy consumption it is necessary to set the installation height of the air curtain correctly.

If there is a continuously large draught through the door, this value can be increased in order to adapt the strength of the air curtain.

The installation height is the distance h between the floor and the underside of the discharge grille.

84. Heating off temperature

If the outdoor temperature rises above this setting, the heating of the air curtain is switched off.

A higher value offers greater comfort, a lower value saves energy.

88. Outdoor temperature

The default outdoor temperature is used if an outdoor sensor is not connected to a unit or has not been recognised.



Caution:

The automatic control is less efficient without an outdoor sensor.

89. Heating off option

Use this function to switch on or off the possibility for the user to switch the heating ON or OFF manually.

3.10 Maintenance

The [Maintenance](#) menu contains information on the use of the unit and offers a number of functions which are necessary for remedying faults.

Status

Provides information on the operation of the unit.

Current error messages

Gives an overview of current errors. The error messages can also be deleted here.

Error history

Gives an overview of the last five errors which have occurred.

Installation guide

This guides you through the most frequently required settings.

Unit code

For the input of the unit code after replacement of a printed circuit board in a unit.

Standard settings

Restores the standard factory settings. The settings made in the Configuration menu are retained.

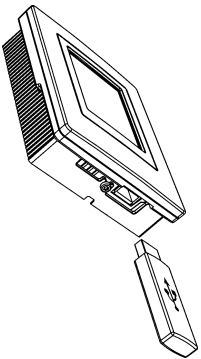
Factory configuration

Restores the standard factory configuration. All settings are then lost.

Reset control panel

The control panel searches for connection to the connected units again.

Use this function when remedying faults and during connection or disconnection of units.

3.11 USB

The control panel has a USB port to which only a USB flash drive can be connected. This is used for

- Updating the software
- Importing and exporting settings
- Exporting of operating data

This menu is automatically activated when a USB flash drive is connected. The menu is closed again when the USB flash drive is disconnected.

**Caution:**

Do not remove the USB flash drive during updates or during the import or export of data.

**Warning:**

Connection of other electronic devices to the USB port can cause serious damage to the control panel or to other electronic components.

Software update

Biddle is working continuously on improving its products and recommends that you update the software of the control panel when updates become available. Consult the Biddle website for availability.

- The installed version of the software can be read out with [Maintenance>Status](#).
- Download the latest version of the software via the Biddle website.

Export/import settings

For copying settings between control panels.

Export log

The Export log functions write data on the operation of the air curtain to the USB flash drive. These data can then be analysed on a computer.

4. . Maintenance

4.1 Replacing or cleaning the filter

4.1.1 Introduction

Dirty filters reduce the effectiveness of the air curtain. It is therefore necessary to clean or replace the filters at regular intervals. The service life of the filter is calculated in relation to the use of the air curtain. You can alter this by setting the maximum service life of the filter.

You may clean the filter with, for instance, a vacuum cleaner. After a few cleanings, however, the filter must be replaced. New filters are available from Biddle.

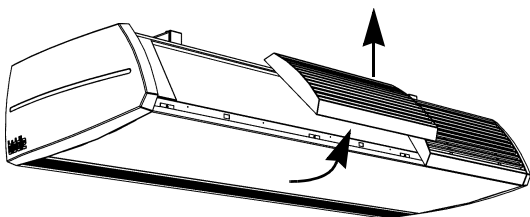
4.1.2 Cleaning the filter

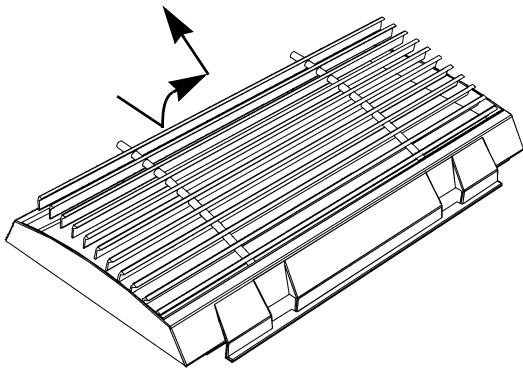
1. Select [Menu](#)>[Filter](#)>[Clean filter](#) on the control panel.
2. Wait until the fans have stopped and the heat exchanger has cooled down.
3. Clean or replace the filters
4. Select OK on the control panel when you have finished cleaning or replacing the filters.
The service life of the filters is then reset to zero.

4.1.3 Removing the filter

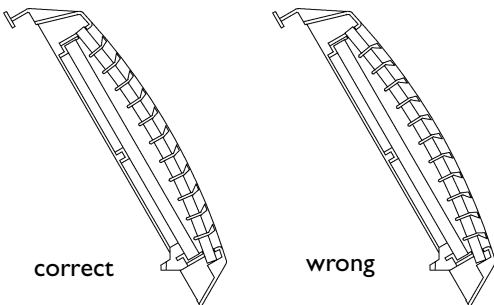
Free-hanging models

1. Remove the inlet grille from the unit:
 - Lift the grille at the bottom and unhook it.





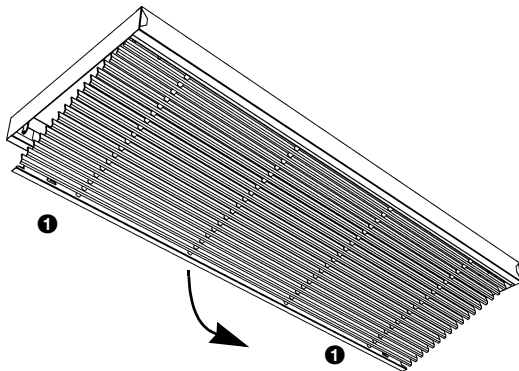
2. Remove the aluminum grille from the inlet grille:
 - Slide the grille upward.
 - Tilt the grille a little up.
 - Remove the aluminum grille from the grille.
3. Clean or replace the filter.



Note:

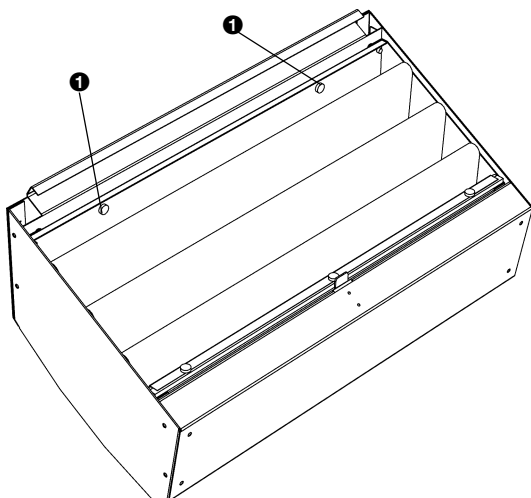
When putting the grille back:

Ensure you put it back correctly into the inlet grille.



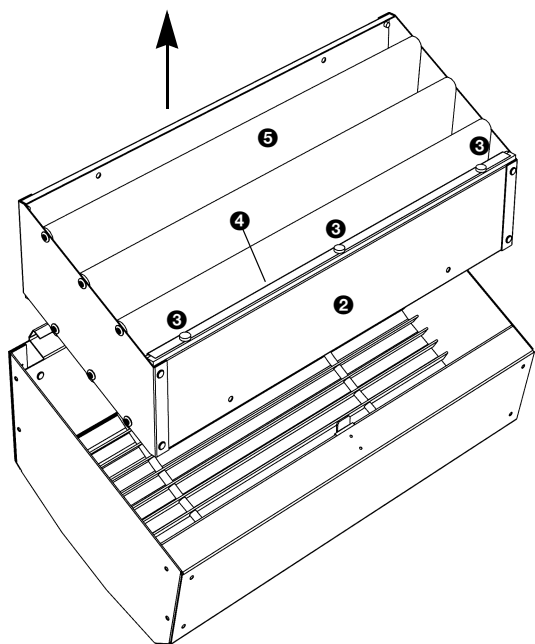
Recessed and cassette models

1. Open the inlet grille:
 - Push the two pins ❶ in the grille towards one another: The grille will tilt down.
2. Slide the filter out of the grille.
3. Clean or replace the filter.

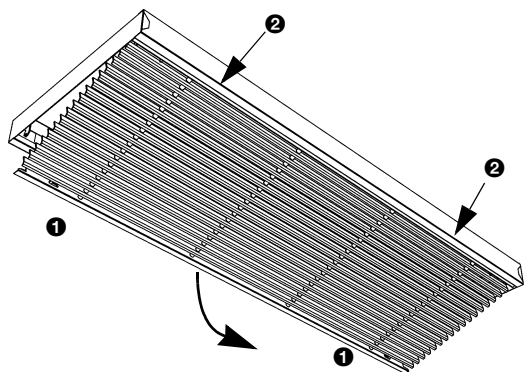


Long-life filter in free-hanging models

1. Remove the inlet grate from the unit:
 - Lift the grate at the bottom and unhook it.
2. Loosen the screws ❶.

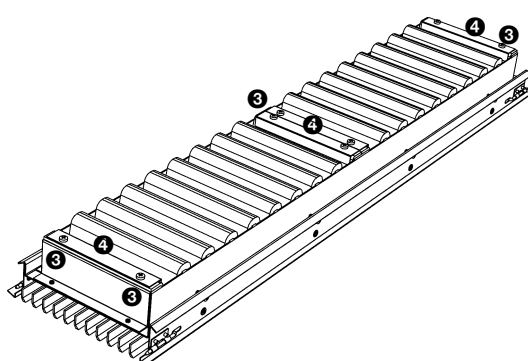


3. Remove the filter module ② from the inlet grate.
4. Remove the filter from the filter module:
 - Loosen the screws ③.
 - Remove the strip ④.
 - Do the same on the other side of the module.
 - Take out the filter material ⑤.
5. Clean or replace the filter.
6. Mount all components in reverse order to the dismantling.



Long-life filter in recessed and cassette models

1. Take the inlet grille out of its frame:
 - Push the two pins ① in the grille towards one another:
The grille will tilt down.
 - Push the two pins (at ②) towards one another and take the grille out.



2. Loosen the screws ③ and remove the strips ④.
3. Slide the filter out of the grille.
4. Clean or replace the filter.
5. Mount all components in reverse order to the dismantling.

4.2 Cleaning the unit

You may clean the exterior of the unit with a damp cloth and a domestic cleansing agent. Do not use any solvents.



Caution:

Make sure no water runs into the unit.

4.3 Scheduled maintenance

Biddle recommends that the following inspection and maintenance work is performed by an installer or other technical expert every year.

- Check if the filter is clean enough and undamaged. Replace the filter if necessary (see section 4.1).
- Check that the heat exchanger or the electric heating elements are clean. Settled dust may cause unpleasant smells.

Gently remove dust with a vacuum cleaner.



Caution:

The fins of the heat exchanger are delicate parts.



Warning:

The fins of the heat exchanger are sharp.

- Check the operation of the fans.
- Check if the control panel has stored any error messages (see section 5.3).

5. . Faults

5.1 Safety instructions




Danger:
Work on the unit's interior shall be performed by qualified technical staff only.









Warning:
Before opening the unit: Observe the safety instructions in section 1.5.

5.2 Resolving simple problems

If you suspect a fault, first try to resolve the problem using the below table. You need not be an expert for this.

| PROBLEM | LIKELY CAUSE | WHAT TO DO |
|---|--|---|
| The unit does not work, and the control panel display is blank. | The unit is switched off. | Activate the display by touching. |
| | No power supply to the control panel. | Check the power supply: <ul style="list-style-type: none"> • plug in power point; • isolation switch; • unit live. |
| The display is on, but does not react to touch. | <i>If the  symbol is shown on the display:</i> The display is locked. | Touch the screen for 5 seconds to unlock. |
| The air curtain is switched Off but is still working. | <i>Only electrically-heated models:</i> unit is cooling down automatically. | This is not a fault. Normally, the unit will automatically shut down within 10 minutes. |
| The unit blows out cold air (without fault message). | <i>If the air current on the display is blue:</i> Heating is switched off. | Switch the heating on via Menu>Heating |
| | The discharge temperature is dependent on the indoor and outdoor temperature | This is not a fault. If this is considered a problem, the value of function 84. Heating off temperature can be increased. |
| The unit is on but the fans are not running. | The fans may be switched off if there is only a small difference in temperature between indoors and outdoors. | This is not a fault. If this is considered a problem, the value of function 80. Fan off temperature can be set to zero. |

| PROBLEM | LIKELY CAUSE | WHAT TO DO |
|---|--|--|
| The display flickers | The power supply is too low or not constant | Reduce the brightness of the display to a level at which flickering no longer occurs |
| | The length of the control cable between control panel and the first unit is too long | Remove unnecessary cable length |
| For units connected to a Daikin system CA₂ V and CA₂ Q: | | |
| The buttons   and  on the Daikin control panel do not function. | These buttons have no function. | The air curtain is operated with the Biddle b-touch control panel. |
| The air curtain discharged unheated air. | A fault has occurred in the Daikin system | Check the settings on the Daikin control panel. |
| | The Daikin system has automatically switched the heating off. | Check the settings on the Daikin control panel. |
| The air curtain discharges unheated or cold air, or does not function, and the Daikin control panel shows    . | The Daikin system is operating in defrost mode. This takes 5 to 10 minutes. | Wait until defrosting has been completed. |

5.3 Fault messages in control panel

5.3.1 Reading out faults

Current faults



Current faults are displayed on the Home screen. If a fault has remedied itself, a corresponding message will be displayed.

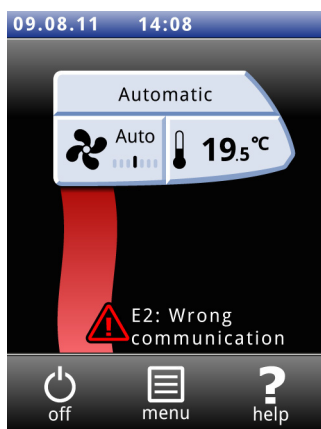
When the error message is touched, an explanation of the actions to be taken appears on the screen. The message disappears from the Home screen only when the fault has been remedied.

There may be more than one fault at the same time. You can read out a list of current error codes via

[Menu](#)>[Maintenance](#)>[Current faults](#).

No-longer-current faults

If a fault has remedied itself, a corresponding message will be displayed. Touch this message to display the [Fault history](#) and to read out the last five faults and the times of their occurrence.



This list can also be read out via [Menu>Maintenance>Fault history](#).

This message disappears when touched or when the unit is switched on again.

5.3.2 Deleting faults

Most fault messages will disappear automatically when the problem is resolved. Certain faults have to be remedied, however, by deleting the error message via [Menu>Maintenance>Current faults](#).

5.3.3 Reconfiguring the control panel

Some faults can be remedied by reconfiguring the control panel via [Menu>Maintenance>Reconfigure](#): The panel then searches for connected units again.

All settings are retained.

5.4 Remediating faults with error message

Try to remedy faults that come with an fault message using the below table. No technical expertise is needed for this.

| CODE | LIKELY CAUSE | WHAT TO DO |
|------|--|--|
| EI | <p>The control panel does not communicate with one or more connected units.</p> <p>This fault may occur:</p> <ul style="list-style-type: none"> • when a connected unit is removed or replaced; • due to a short failure in the power supply to a connected unit; • due to incorrect cabling; • due to a defect. | <ol style="list-style-type: none"> 1. Reset the control panel (see section 5.3.3). 2. Check if power is supplied to all connected units. 3. Check if the dummy plug is present in the connector plate of the last connected unit. 4. Check the control cables: <ul style="list-style-type: none"> - are they connected and free from breaks? - are they stretched out or rolled up neatly? - are they shielded from magnetic fields? 5. Check printed circuit board fuse F2 in all connected units. 6. Check wiring between connector plate and connectors X380 and X390 on the printed circuit board. |

| CODE | LIKELY CAUSE | WHAT TO DO |
|------|---|--|
| E2 | Units that have a not allowed or unknown unit code, or a not allowed combination of unit codes, are connected. | 1. Check and compare the unit codes on the type plate (see sections 1.4.4 and 2.8.1). |
| | The control panel software is outdated. | 1. Check the version number of the software (Menu>Maintenance>Status). |
| | The control panel is live but does not communicate with any unit. | 1. Reset the control panel (see section 5.3.3). 2. Check the control cables: <ul style="list-style-type: none"> - are they connected correctly and free from breaks? - are they stretched out or rolled up neatly? - are they shielded from magnetic fields? 3. Check wiring between connector plate and connectors X380 and X390 on the printed circuit board. |
| E3 | <p><i>Electrically-heated models:</i></p> <p>The control in the unit detected a too high temperature, and switched the heating off, or the temperature sensor (PTC) does not work.</p> <p>If you disregard this fault, damage to the unit may occur.</p> | 1. Delete the fault message (see section 5.3.2). 2. Check the fans. If one or more fans do not work, check: <ul style="list-style-type: none"> - the fan wiring; - the connections on the printed circuit board (connectors X130, X120 and X110); - the transformer fuse; - the transformer itself. If these are OK: Replace the fan. 3. Check the PTC wiring and connection. If these are OK: Replace the PTC. |
| E4 | <p><i>Electrically-heated models:</i></p> <p>The high-limit thermostat switched the unit Off: this is to protect against overheating.</p> <p>This fault may occur:</p> <ul style="list-style-type: none"> • if the unit has been temporarily dead, e.g., due to a power failure; • if the filter is dirty and lets insufficient air through. <p>In other cases, there may be a serious defect that may pose a risk to persons.</p> | 1. Delete the fault message (see section 5.3.2). 2. Check the fans. If one or more fans do not work, check: <ul style="list-style-type: none"> - the fan wiring; - the connections on the printed circuit board (connectors X130, X120 and X110); - the transformer fuse; - the transformer itself. If these are OK: Replace the fan. 3. Check the filter for contamination. Clean or replace it if necessary. Contact Biddle if this fault occurs more often. |

| CODE | LIKELY CAUSE | WHAT TO DO |
|------|--|--|
| E5 | <p><i>Electrically-heated models:</i></p> <p>Heating does not stop because of a faulty relay.</p> <p>This may be a serious defect that may pose a risk to persons.</p> | <ol style="list-style-type: none"> 1. Delete the fault message (see section 5.3.2). 2. Switch the power supply to the unit Off and On. 3. Let the air curtain work for some time with the heating disabled (see section 3.6) and check if the discharged air stays cold. <p>A dangerous defect is concerned if:</p> <ul style="list-style-type: none"> - heating yet continues; - this fault message returns within 30 minutes; - this fault occurs frequently. <p>In any such case, act as follows:</p> <ul style="list-style-type: none"> - disconnect the unit from the power supply immediately. - contact Biddle. |
| E6 | <p><i>For water-heated models:</i></p> <p>Risk of freezing because discharge air temperature is too low. Frost protection has been activated (see section 2.5.2).</p> <p>Freezing may cause damage to the heat exchanger.</p> | <ol style="list-style-type: none"> 1. Ensure that the temperature in the room gets higher than 8 °C. 2. Follow the instructions for fault code F3. <p>You can avoid this fault by having the central heating system switched on by the unit in the event of a frost risk (Set function 61a/b. Function of output to Frost protection).</p> |
| E7 | <p>No air flow.</p> <p>The unit electric heating will be switched off.</p> | <ol style="list-style-type: none"> 1. Delete the fault message (see section 5.3.2). 2. Check the fans. If one or more fans do not work, check: <ul style="list-style-type: none"> - the fan wiring; - the connections on the printed circuit board (connectors X130, X120 and X110); - the transformer fuse; - the transformer itself. <p>If these are OK: Replace the fan.</p> |
| F1 | <p>Fault in air valve.</p> | <ol style="list-style-type: none"> 1. Delete the fault message (see section 5.3.2). 2. Change the heating strength using the control panel, and check if the air valve can move. 3. Remove any obstacles from the air valve's range. 4. Check that the unit is <i>not</i> switched on at the power supply source (if the unit is switched on at the power supply source, this can damage the valve drive) 5. Check wiring and connectors X140 and X210. 6. Replace the valve drive. |

| CODE | LIKELY CAUSE | WHAT TO DO |
|------|--|--|
| F2 | <p><i>For water-heated models:</i></p> <p>Overheating.</p> <p>This fault may occur if the control valve does not work correctly.</p> | <ol style="list-style-type: none"> 1. Switch the air curtain Off using the control panel, wait for one minute, and switch it On again. 2. Check that the connections of the supply and return pipes have not been interchanged. 3. CA S/M: Check the LED on the valve drive: it should come on when the unit is switched Off and On using the control panel. 4. Check the wiring and connectors of the valve drive (X230) and the discharge air temperature sensor (X350). 5. Take the drive from the valve, and check the interior for mechanical operation and defects. |
| F3 | <p><i>For water-heated models:</i></p> <p>The central heating system switches on later than the unit.</p> | <p>You may:</p> <ul style="list-style-type: none"> • switch on the central heating system earlier; • have the central heating system switched on by the unit (Function 61a/b Function of output to Heating ON); • switch off this error message at installer level (Function 72. Set error display to disable). |
| | <p><i>For water-heated models:</i></p> <p>Underheating.</p> <p>This fault may occur:</p> <ul style="list-style-type: none"> • if not enough hot water is supplied; • if the control valve does not work correctly. | <ol style="list-style-type: none"> 1. Check the central heating system: <ul style="list-style-type: none"> - is it turned on? - is it able to supply enough hot water? 2. Check if the entire heat exchange element gets hot: if not, vent it. 3. CA S/M: Check the LED on the valve drive: it must come on when a higher or lower heating strength is being set. 4. Check the wiring and connectors of the valve drive (X230) and the inlet air temperature sensor (X360). 5. Take the drive from the valve, and check the interior for mechanical operation and defects. |
| | <p><i>Electrically-heated models:</i></p> <p>There is too little heating because one or more heating elements do not work.</p> | <ol style="list-style-type: none"> 1. Check the mains fuses. 2. Check the wiring and connections of the heating elements, using the wiring diagram as a reference. If they are OK, a relay is defective: contact Biddle. |
| F3 | <p><i>For all models:</i></p> <p>If the fans do not revolve:</p> | <ol style="list-style-type: none"> 1. Delete the fault message (see section 5.3.2). 2. Check the fans. If one or more fans do not work, check: <ul style="list-style-type: none"> - the fan wiring; - the connections on the printed circuit board (connectors X130, X120 and X110); - the transformer fuse; - the transformer itself. |

| CODE | LIKELY CAUSE | WHAT TO DO |
|------|--|---|
| F4 | The temperature sensor in the control panel is defective. The room temperature control is now based only on the sensor at the unit's air inlet. | Replace the control panel if you wish to have the room temperature controlled with the sensor in the control panel (if function 51. Indoor sensor is set to Control panel). |
| F5 | The temperature sensor in the discharge section does not work. | <ol style="list-style-type: none"> 1. Check the sensor's wiring and connection (connector X350). 2. Replace the sensor. |
| F6 | The temperature sensor in the inlet section does not work. | <ol style="list-style-type: none"> 1. Check the sensor's wiring and connection (connector X360). 2. Replace the sensor. |
| F8 | Air flow sensor is defective. | <ol style="list-style-type: none"> 1. Delete the fault message (see section 5.3.2). 2. Check the wiring of the air flow sensor and the connection of the sensor (connector X370). 3. Replace the sensor. |

5.5 Remediating faults without message

If you suspect a fault but no fault message is displayed:

1. Using section [5.2](#), check if you can easily resolve the problem.
2. Try to resolve the problem using the below table. Technical expertise is required for this.

| PROBLEM | LIKELY CAUSE | WHAT TO DO |
|---|---|---|
| The control panel works normally but the unit does not respond. | The unit is controlled by a signal from an external control. | 1. Check the functions 60. Function of input and 76. Release delay in the menu Configuration . |
| | The fans may be switched off if there is only a small difference in temperature between indoors and outdoors. | This is not a fault. If this is considered a problem, the value of function 80. Fan off temperature can be set to zero. |
| | The fans are dead. | <ol style="list-style-type: none"> 1. Check the transformer fuse. 2. Check the wiring between the transformer and the fans (connectors X120 and X130). 3. Replace the transformer. |

| PROBLEM | LIKELY CAUSE | WHAT TO DO |
|--|--|---|
| The unit is not functioning, the display is black and does not react to touch. | The unit is dead. | 1. Check the power connections and wiring. |
| | The connection between the control panel and the printed circuit board is not correct. | 1. Check the control cable. 2. Check wiring between connector plate and printed circuit board (connectors X380 and X390). |
| | The printed circuit board does not work: the LEDs on the printed circuit board are not lit. | 1. Check fuse F2. 2. Check the power supply cable (connector X110). 3. Replace the printed circuit board. |
| | The control panel is defective. | 1. Check the control panel by connecting it to another unit with another cable. Replace the control panel if it does not work. |
| One fan does not work. | The fan is dead or defective. | 1. Check the wiring of the fan. 2. Check the transformer fuse. 3. Replace the fan. |
| The fans do not operate at a certain strength. | The connection to the relevant tap is not correct. | 1. Check the transformer connections. 2. Check connector X130. |
| For units connected to a Daikin system CA₂ V and CA₂ Q: | | |
| The display of the Daikin control panel is blank. | No power supply to the connected unit. | 1. Check the power supply. 2. Consult the installation manual of the control panel. 3. Contact the supplier. |
| | Poor connection to the control panel. | |
| | The Daikin electronics in the air curtain are defective. | |
| The Daikin control panel signals a fault (flashing LED and/or error code). | Daikin electronics in the unit or outdoor unit detects a fault. | 1. Consult the service manual of the outdoor unit. 2. Contact the supplier. |
| The unit constantly discharges cool air and/or condensation drips from the unit. | There is a fault in the air curtain. Warning: This situation can result in danger and/or damage. | 1. Switch off the whole system immediately. 2. Contact the supplier. |

6. . Service

6.1 Safety instructions



Danger:
Service on the unit may be performed by qualified technical staff only.



Warning:
Before opening the unit: Observe the safety instructions in section 1.5.

6.2 Access to the interior of the unit

For all models

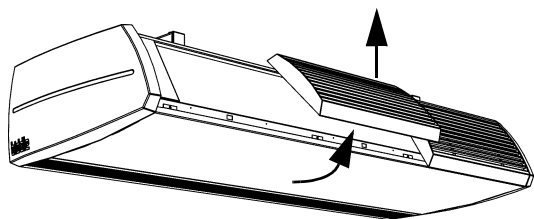
1. Switch the unit OFF using the control panel.



Warning:
Disconnect the power supply (remove plug from power point or move isolation switch to OFF).

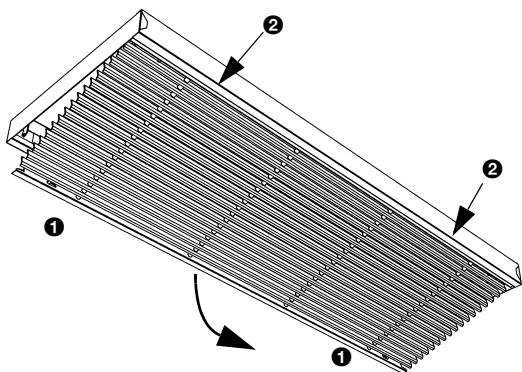
For free-hanging models

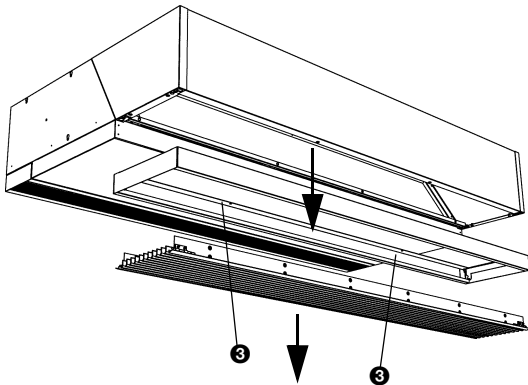
2. Remove the inlet grilles from the unit:
 - Lift the grille at the bottom and unhook it.



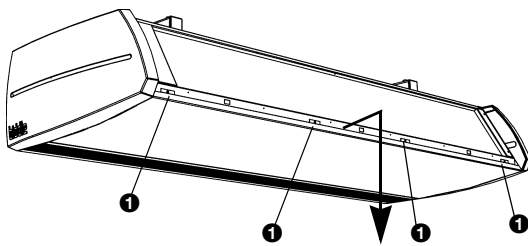
For cassette models

1. Take the inlet grille out of its frame:
 - Push the two pins ❶ in the grille towards one another:
The grille will tilt down.
 - Push the two pins at ❷ towards one another and take the grille out.





2. Loosen screws ③ and remove the frame.



For all models

3. Remove the inspection panel:
 - Remove the screws ①.
 - Pull the panel a little forward and take it away.



Caution:

The whole panel will come loose when you pull it forward: Take care it does not fall down.



Warning:

When replacing the inspection panel, always attach it using flanged bolts with milled edges: These are needed for the earth connection.

6.3 Electronics module

6.3.1 Introduction

The unit contains one electronics module. It includes:

- the transformer;
- the printed circuit board;
- the connector plate;
- the fuses.

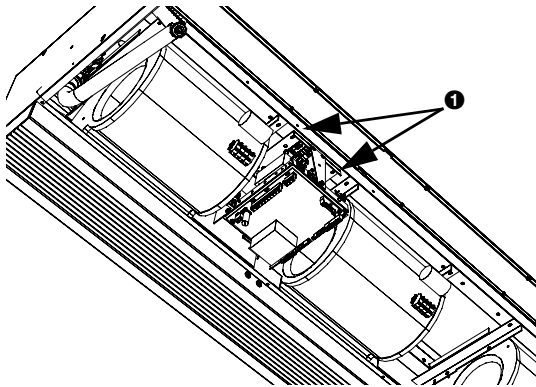
6.3.2 Removing the electronics module out

1. Switch the unit OFF using the control panel.



Warning:
Disconnect the power supply (remove plug from power point or move isolation switch to OFF).

2. Remove the inspection panel (see section 6.2).
3. Disconnect all unit-connected connectors and grounded connections from the printed circuit board.
4. Remove the screws ❶.
5. Remove the electronics module.
6. Disconnect the connectors from the connector plate.



Note:
The electronics module in your unit may look different from the module illustrated opposite.

6.4 Daikin electronics (CA₂ V and CA₂ Q)

6.4.1 Introduction

In addition to the Biddle electronics, the unit also contains a Daikin electronics module.

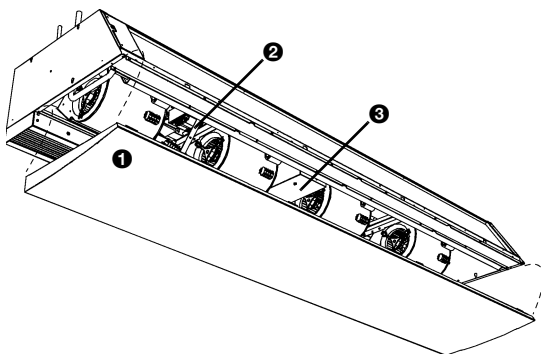
6.4.2 Access to the electronics in the unit

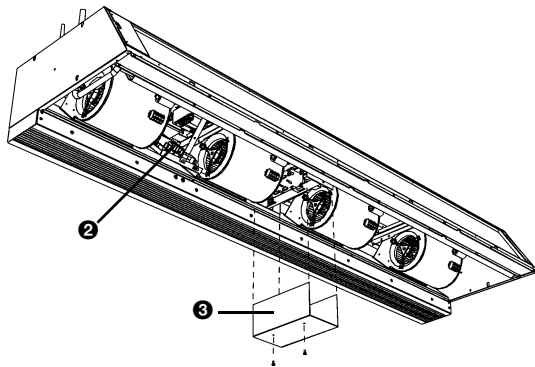


Warning:
Before opening the unit:
Observe the safety instructions in section 1.4.

All models

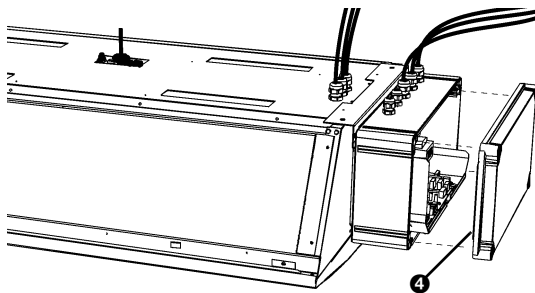
1. Remove the inspection panel ❶ of the unit (see manual of the Air Curtain Model CA).
2. The Biddle electronics is located at ❷.





Models with discharge width 150, 200 or 250

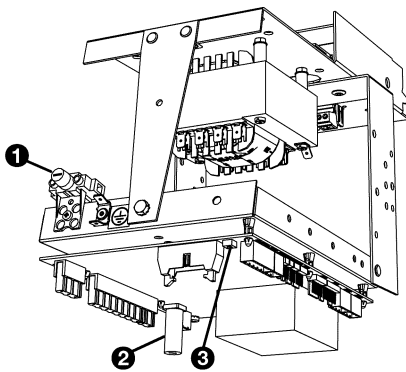
3. Remove cover **3**. The Daikin electronics are located behind this cover.



Models with discharge width 100

4. Remove cover **4** on the side of the unit. The Daikin electronics are located behind this cover.

6.5 Fuses



The unit has two fuses:

- Transformer fuse **1**.
- Fuse **2** (F2) of the printed circuit board;

The values are indicated for the fuses.

For CA₂ V and CA₂ Q only:

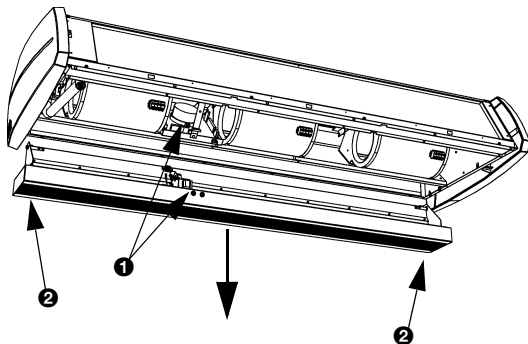
The Daikin electronics module has one extra fuse on the printed circuit board, indicated with FIU.

6.6 Removing the discharge section

The discharge section houses the air valve mechanism and drive.

For recessed models

1. Remove the discharge duct from the unit (see section [2.9.2](#)).



For all models

1. Remove the inspection panel (see section 6.2).
2. The discharge section has the following connections to the electronics module (at 1):

- The valve drive connections on the printed circuit board (connectors XI40 and X210);
- The earth connection.

Disconnect these connections.

3. Between the fins of the discharge grille, there are 4 screws (at 2): Loosen these.

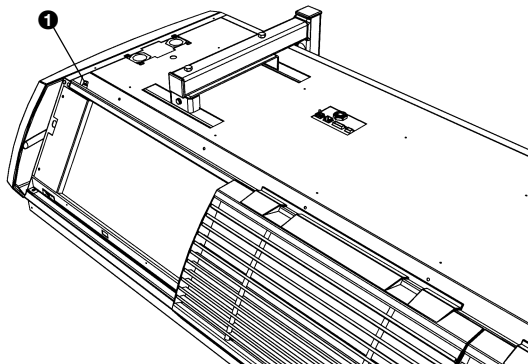


Caution:

Support the discharge section while loosening the screws.

4. The discharge section is now detached: Remove it carefully.

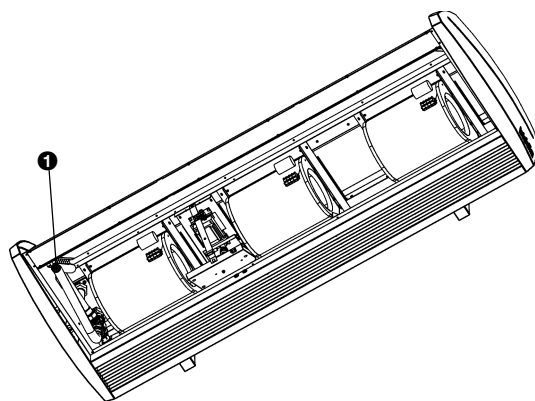
6.7 Venting the heat exchanger



For water-heated models only

The air relief valve 1 is located in the upper left of the unit.

6.8 Bleeding the heat exchanger



For water-heated models only

The drain plug 1 is located on the left of the unit.

6.9 Entering the unit code

6.9.1 Introduction

The unit code must be entered after replacing the printed circuit board in the unit. The unit code depends on the unit type and is indicated on the type plate (see section 1.4.4.)

There are two methods for entering the unit code:

- Directly via the control panel if one unit is connected;
- Via the printed circuit board and the control panel if more than one unit is connected.



Warning:

The input of an incorrect code will result in a poor performance of the unit.

6.9.2 Entering the unit code via the control panel



Caution:

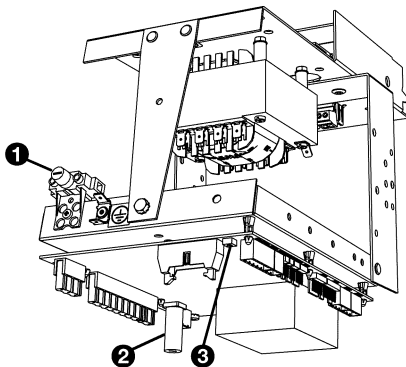
Entering the unit code using this method functions only if one unit is connected to the control panel. If necessary, connect the control panel separately to the unit in question.

1. Select [Menu](#)>[Maintenance](#)>[Unit code](#).
2. Enter the unit code via the control panel and press [OK](#).

The operating panel now searches for the unit again.

6.9.3 Entering the unit code via the printed circuit board and the control panel

1. Connect the power supply (insert plug into power point or move isolation switch to On).



Warning:

Do NOT touch any live parts.

2. Press down the microswitch on the printed circuit board (at ②).

The LED next to the microswitch will start flashing.

The control panel displays four numbers: These represent the unit code.

3. Enter the unit code via the control panel and press [OK](#).



4. Press down microswitch **1**.


The LED next to the microswitch no longer flashes.

The unit code is now set.

5. Reset the control panel (see section [5.3.3](#)).

6.10 Resetting the PIN code

The PIN code of the control panel can be reset using a USB flash drive:

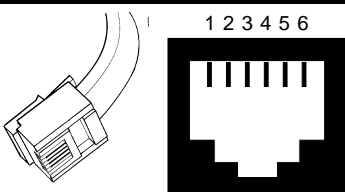
1. Connect a USB flash drive to the control panel.
The USB menu is activated
2. Press  for 10 seconds.
The PIN code is reset and a new PIN code has to be entered.
3. Quit the USB menu by removing the USB flash drive.

6.11 Configuration of the Biddle control cable

The control cable for Biddle units is different from standard modular telephone cables.

The connectors are Type RJ-11, but the connections are straight. The core is connected to the same pin at both ends of the cable.

Table 6-1 Colour codes of Biddle cables

| | PIN | COLOUR |
|---|-----|------------|
|  | 1 | (not used) |
| | 2 | black |
| | 3 | red |
| | 4 | green |
| | 5 | yellow |
| | 6 | (not used) |

7 . . Dismantling



Dismantling the system, handling coolant, oil and other components should be performed by a qualified engineer in compliance with relevant local and national regulations.

Any used electrical/electronic devices must be handed in for processing in compliance with EU regulations. By ensuring that this product is disposed of in the correct manner, you prevent any damage to human health and/or the environment. For more information about this subject, please contact your supplier or local government agency.

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For more information

If you have any comments or questions about specific topics relating to this product, please do not hesitate to contact Biddle.

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