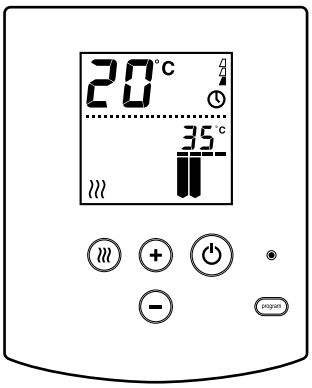
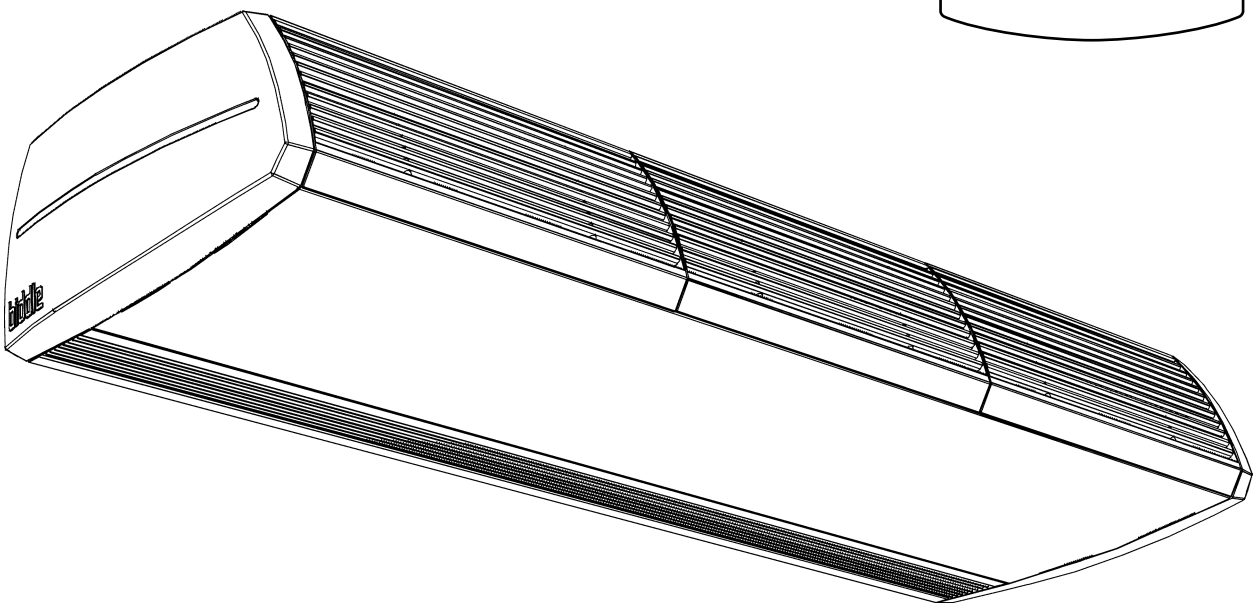
User's and Installer's Manual
Comfort Air Curtain

Model CA





Version of Guide: 4.0

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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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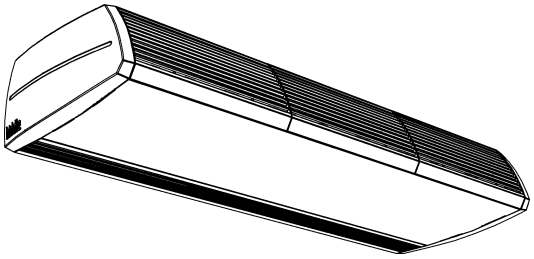
. . . Table of contents

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 CA. The manual also provides instructions and information on service works.

1.1.2 Which model types are covered by this manual?

This manual covers model types CA, produced since February 2004. These can be recognised by the plastic inlet grate (with free-hanging models) or by the flat underside (with recessed models).

This manual is valid as from control panel version 1.7 and as from printed circuit board version 1.7. The control panel's version number can be read out at the installer's level (see section 4.3.3, function no. 70). The printed circuit board's version number is indicated on the board itself (see section 7.3).

1.2 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.

1.2.1 References in the manual

In this guide the following marginal symbols are used:

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.

1.2.2 Symbols used on the unit and in the manual

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

Table 1-1 Symbols

SYMBOL	DESCRIPTION
	**Warning**: You are entering an area which contains 'live' components. Accessible to qualified maintenance staff only. Exert caution.
	**Warning**: This surface or part can be hot. There is a risk of burns on contact.

1.2.3 Related documentation

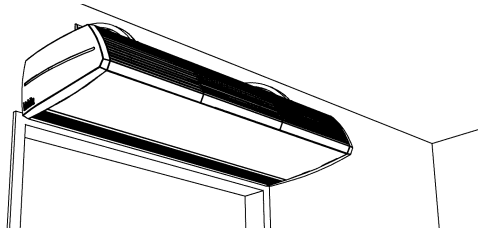
Besides this manual, the following documents come with the unit:

- wiring diagram for installation and service

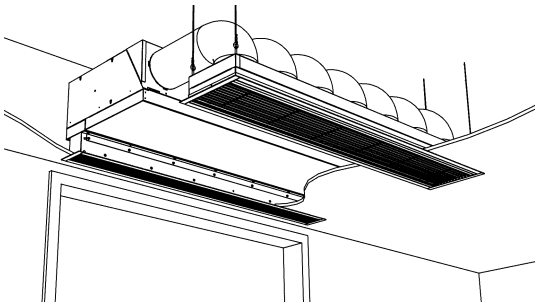
1.3 About the unit

1.3.1 Applications

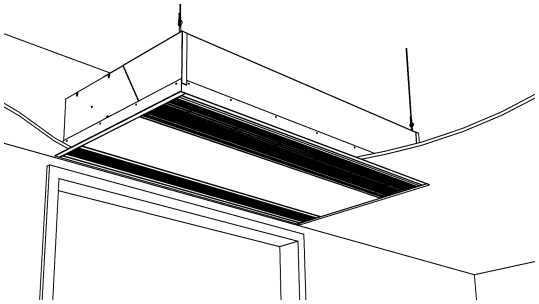
The comfort air curtain is designed to separate the climates between two rooms. The unit is installed above the doorway, across its full width.



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.

1.3.2 Working

The air curtain blows out a warm air stream 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.

1.3.3 Models and type references

Table 1-2 provides an overview of available models of the comfort air curtain and corresponding type references. Combined, the type references constitute the type code, for instance: CA S-100-W-F. Any combination is available.

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

- CA S, M: models with capacity S or M;
- CA 100: models with discharge width 100;
- CA W: water-heated models;
- CA E: electrically-heated models;
- CA F: free-hanging models.

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

Table 1-2 Type code explained

TYPE CODE ELEMENT	REFERENCE	MEANING
product series	CA	general reference for the series
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
	H	hybrid heating: combined water and electric heating
heating	W	water heating
	E	electric heating
mounting method	F	free-hanging model
	R	recessed model
	C	cassette model

biddle	Type	CA M-150-W-F		
Biddle bv Markowei 4 NL-9288 HA Kootstertille	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	-
CE	Medium	LPHW	P_{motor}	0.56 kW
	p_{max}	1400 kPa	$P_{heating}$	-

Example of a type plate

1.3.4 Type plate

The type plate can be found on the top of the unit.

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

- *Type*: full *type code* of the unit;
- *Code*: *unit code* of the electronic controller;
- *M*: weight of the unit;
- P_{max}: maximum permissible operating 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.

1.3.5 Components and accessories

Note:
The type code of components and accessories must correspond to that of the unit to which they will be applied.

Components

The following components are delivered separately but always required:

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

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).

1.4 Safety instructions

1.4.1 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.

1.4.2 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 or, as the case may be, the heating elements can get very hot. Moreover, the fans may keep on rotating for a while.

4. Disconnect power supply (remove plug from socket or move isolation switch to Off).
5. *For water-heated models:* close the main water supply (if possible).

Warning:
The fins of the heat exchanger are sharp.

2 . . Installation

2.1 Safety instructions

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

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

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 (CA W and CA H):* connect the unit to the central heating system (section 2.5).
3. Connect the unit to the power supply (section 2.6).
4. Install the control panel and (any optional) connections to external controls (section 2.7).
5. Finish the unit (section 2.8).
6. Turn on the power supply and check the working of the unit (section 2.9).

7. Perform the following settings on the control panel to adjust the operation of the comfort air curtain to the system (section 4):
   - *if external controllers are used:* the functions of the inputs and outputs (function nos. 52, 60, 61 and, possibly, 76 at the installer's level, see section 4.5);
   - *if long-life filters are used:* the filter life (function no. 3 at the installer's level, see section 4.3);
   - other functions at the installer and/or manager's level (as needed).

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.

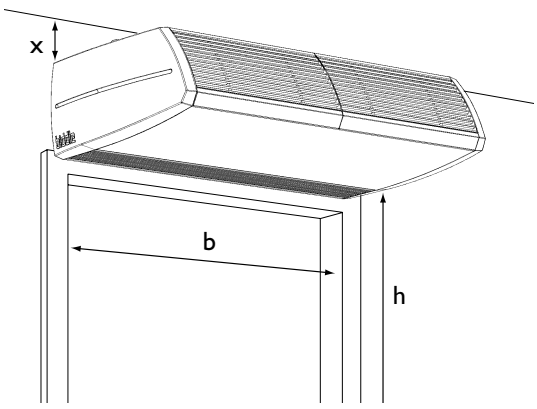
Note:
Make sure you perform all installation operations that are required for your unit.

Check the type plate. Refer to section 1.3.3 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 Mounting the unit

2.4.1 Positioning the unit

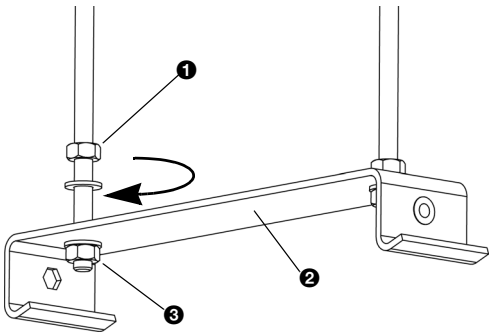


- Make sure that the structure from which the unit is about to be suspended can bear the weight of the unit. The weight is specified on the type plate (see section 1.3.4).
- Note the following dimensions:
  - The unit must be at least as wide as the doorway (dimension b).
  - Position the unit as near 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 not sure, 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 on page 12).

2.4.2 Fixing suspension brackets

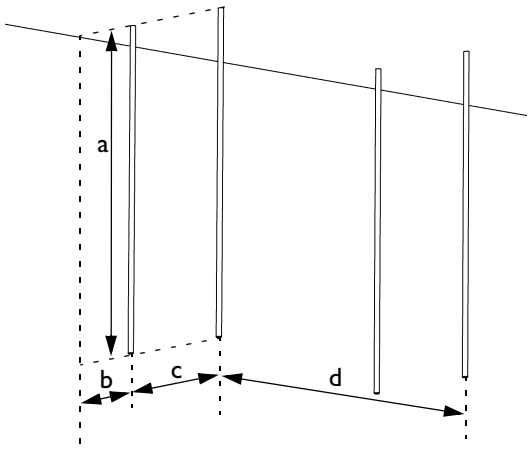


1. Fix four thread rods M8, according to the dimensions in Table 2-1. Make sure the thread rods are perpendicular.

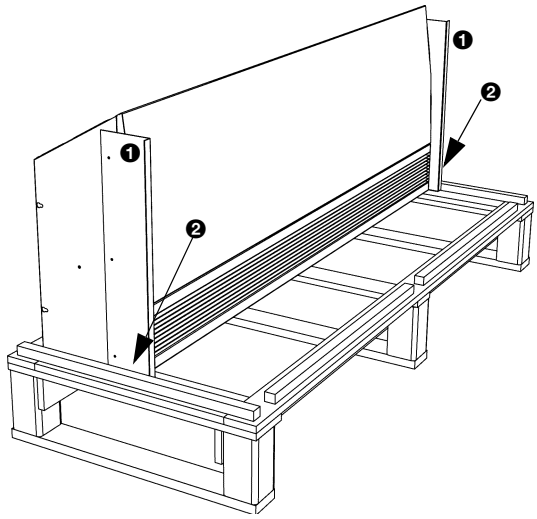
Note:
Units of type CA 250 have three suspension brackets. Fix six thread rods for that type.

2. Apply a lock nut ❶ to each thread rod.
3. Apply the suspension brackets ❷ onto the thread 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

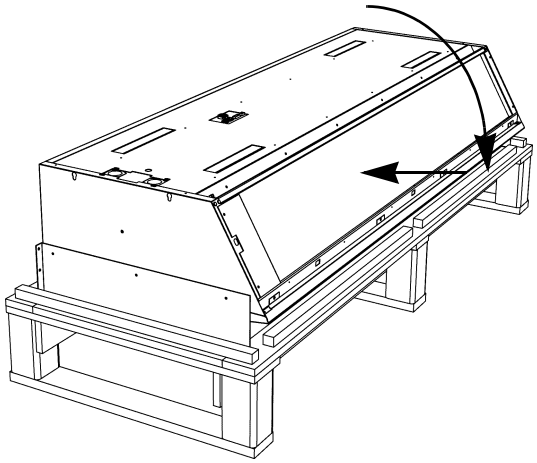
	REFERENCE	TYPE	DIMENSIONS
	a	all models	as needed
	b	CA S	119 mm
		CA M	119 mm
		CA L	200 mm
		CA XL	200 mm
	c	all models	197 mm
	d	CA 100	500 mm
		CA 150	1,000 mm
		CA 200	1,500 mm
		CA 250 (six thread rods)	2 x 1,000 mm

2.4.3 Suspending and securing the unit

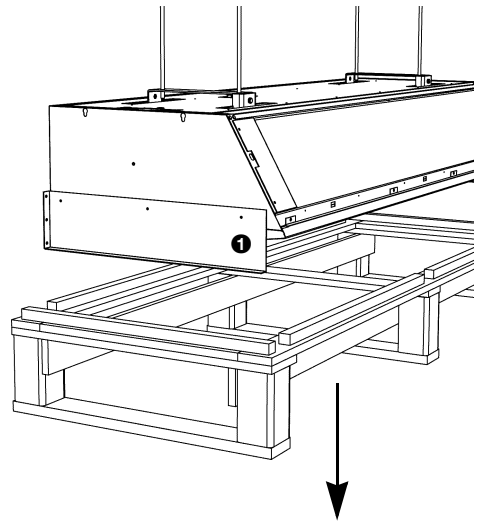


1. Remove the components and packaging from the pallet with the unit on it. Leave the unit on the pallet.

2. The unit is fixed to the pallet with two transportation brackets ❶. Remove the screws ❷. But do not remove the brackets from the unit.



3. Tilt the unit across the pallet and lay it down as shown opposite.



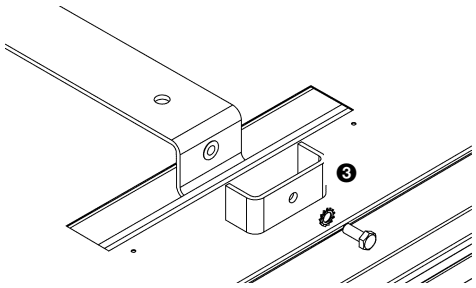
4. Lift the pallet, with the unit on it, and hook the unit into the suspension brackets.

Caution:
Depending on the weight (specified on the type plate, see section 1.3.4), 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.

5. The unit now suspends from the suspension brackets: take the pallet away.

6. Remove the transportation brackets ❶ from the unit.



7. Apply a lock plate ❸ onto each suspension bracket.

Warning:
The unit may come down if you do not secure the suspension.

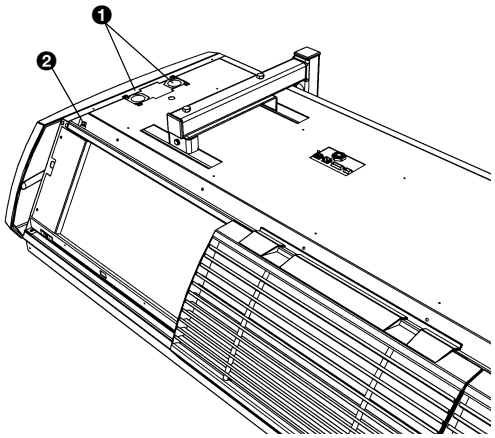
8. Check whether the unit is suspended firmly:
   - Try to push the unit from its suspension.
   - Shake the unit for a few seconds.

Warning:
Ensure you do not run any risk, should the unit come down.

2.5 Connecting unit to central heating system

Water-heated models CA W and CA H only

2.5.1 Particulars



Caution:
The supply and return pipes of the central heating system must be connected to the appropriate corresponding connections ❶. 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 1.3.4). 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 control valve will close automatically if the air curtain and/or the heating is switched off.

Caution:
Biddle recommends the inclusion of a valve in each pipe.

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

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 6.3);
   - the valve of the integral water control will open fully;
   - the unit's output will transmit a signal for the central heating system (if set so, see section 4.5.6, value 15).
2. If the discharge air temperature falls to below 2 °C:
   - fault message E6 will become final;
   - the air curtain is switched off.

The frost protection is automatically lifted when the entering or leaving 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 glycol to the water when the unit is not in operation during the wintertime.

2.5.3 Performing connection

1. Connect the unit to the central heating system.
2. Vent the heat exchanger.
3. Check the connections for leaks.

2.6 Connecting the unit to the power supply

2.6.1 Connecting water-heated models (CA W)

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 earthed.

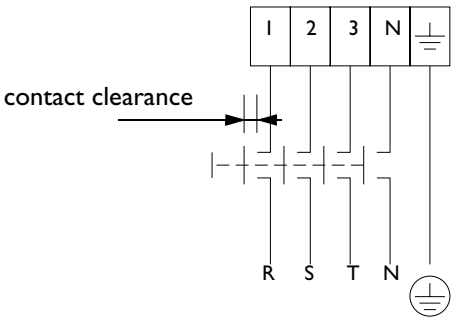
Warning:
The wall socket must remain accessible after the installation of the unit to be able to disconnect the unit from the mains when maintenance work is to be performed.

2.6.2 Connecting electrically-heated models (CA E and CA H)

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 is specified on the type plate (see section 1.3.4).
- 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.

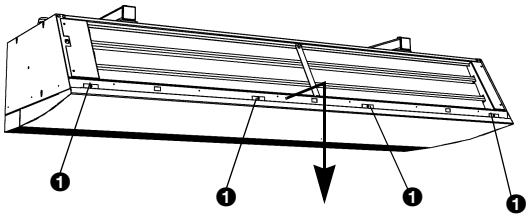


Warning:
The unit must *not* be switchable using the power supply cable: use the control panel for that.

Warning:
The unit must be grounded.

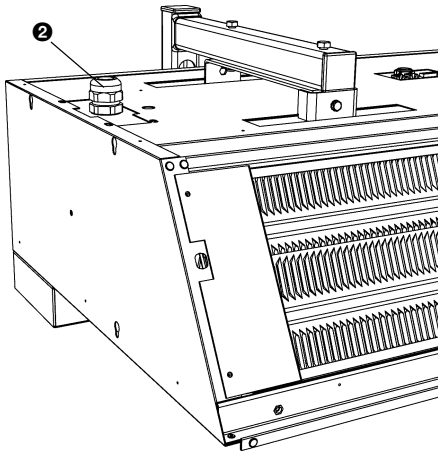
Warning:
Connect the unit in accordance with the applicable local requirements.

Performing connection



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

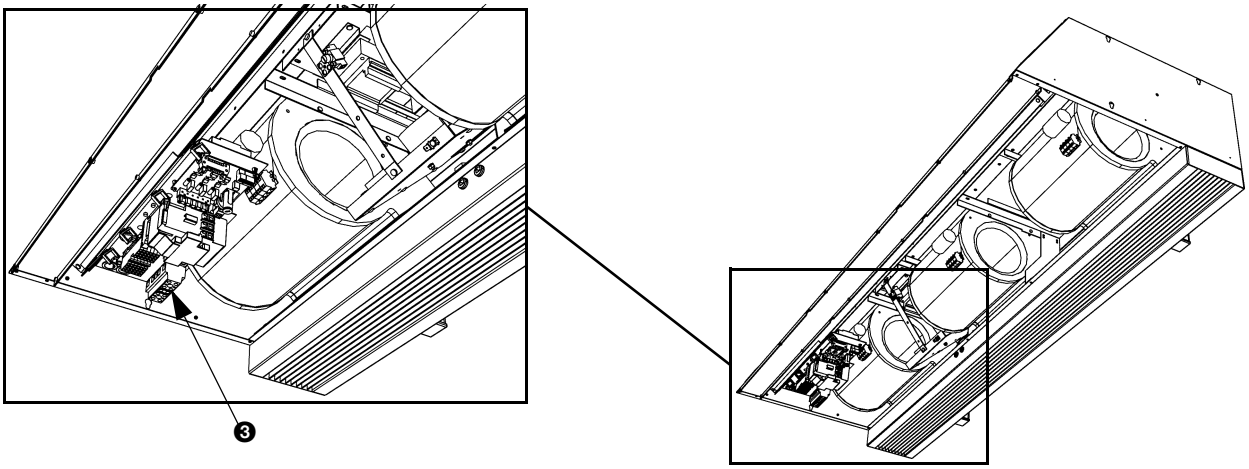
1. Fit the isolation switch and connect it to the power supply.
2. Remove the inspection panel:
   - Remove the screws ❶.
   - Pull the panel a little forward and take it away.



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

3. Fix the cable swivel ❷ to the unit. With the CA H, the position of the cable swivel differs from that shown
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.

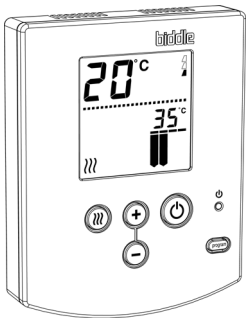
Note:
The design in your unit may differ from the illustration.



6. Put back and screw down the inspection panel.
7. Connect the power supply cable to the isolation switch.

Caution:
Do *not yet* switch the power supply on.

2.7 Installing control panel and external controls



2.7.1 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 may not be longer than 50 m.
- 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.

code

biddle Biddle bv Markowei 4 NL-9288 HA Kootstertille	Type	CA M-150-W-F		
	Code	1213	U	230 V 1N~ 50 Hz
	N°	3426/1-1 00-01	I_{max} L1	2.4 A
			I_{max} L2	-
	M	60 kg	I_{max} L3	-
CE	Medium	LPHW	P_{motor}	0.56 kW
	p_{max}	1400 kPa	$P_{heating}$	-

Multiple units operated from one single control panel

- Up to 10 units can be connected to one single control panel. To do so, the units must be interlinked.
- Only units that have the same unit code (see "code" on the type plate, section 1.3.4) can be operated from one control panel at the same time.
- The total length of the control cables is not to exceed 100 m.

2.7.2 External control details

Control panel input

The control panel has one input signal interface. To this, a timer or a door switch is usually connected.

Unit input

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

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

Unit outputs

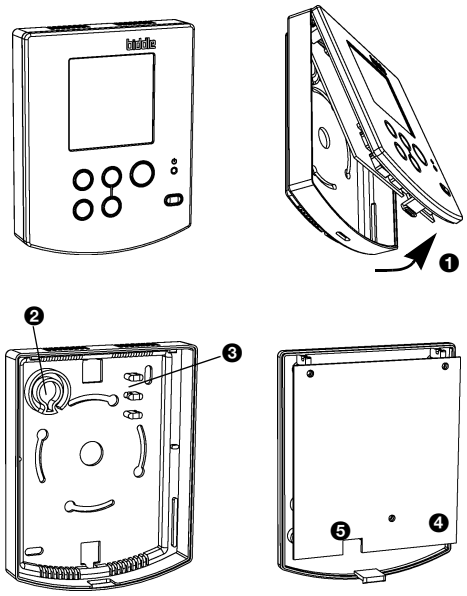
The unit has interfaces for two output signals: these can be used for, for instance, controlling the central-heating or cooling system, or for transmitting status reports to a BMS.

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

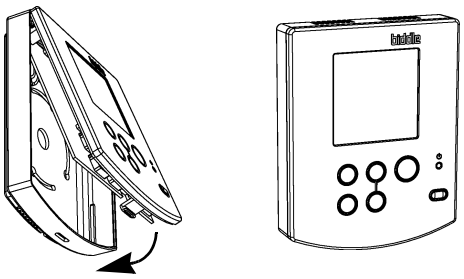
Options and operation

Options and operation depend on the inputs or output as well as on the control panel settings. These are further described in section 4.5.

2.7.3 Mounting and connecting control panel



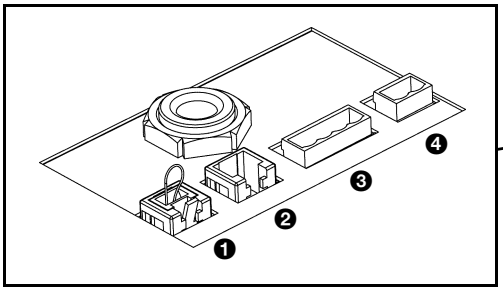
1. Lay the control cable.
2. *If the external-control input in the control panel is used:* lay the necessary cabling. The cable core diameter is not to exceed 0.75 mm².
3. Open the control panel ❶.
4. Lead the control cable and (if applicable) the external control cable through the back plate.
5. Screw the back plate onto the socket or the wall.
6. Lead the cable/s through the pull reliefs.
   - The upper left pull relief ❷ is designed for the control cable, and the upper right pull relief ❸ for the external-control cable.
   - The cable must protrude some 9 cm from the pull relief.

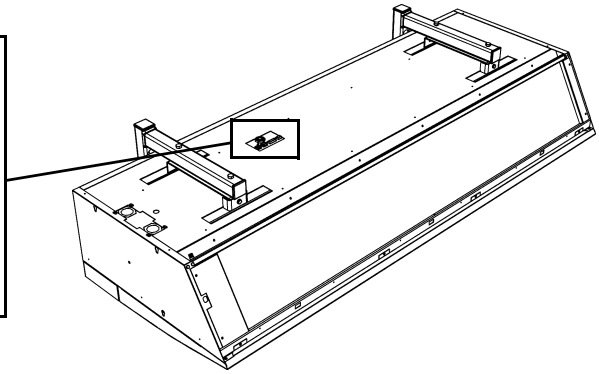


7. Couple the connector to the printed circuit board ❹.
8. Connect the external-control cable (if used) to the terminal on the printed circuit board ❺.
9. Put the front onto the back plate.

2.7.4 Connecting control panel to unit

The controller sockets ❶ and ❷ are located in 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 socket ❶ or ❷.

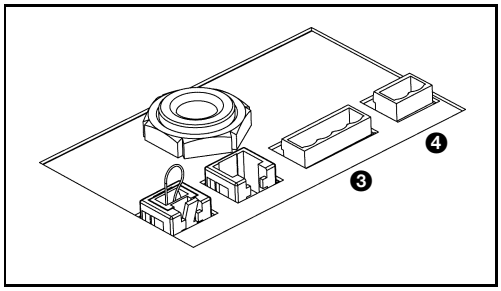
Note:
Do *not* remove the dummy plug from the other socket, as this may lead to faults.

Note:
Allow some 30 cm excess cable length: it will be needed to take the electronics out when servicing the unit.

Multiple units operated from one single control panel

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

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



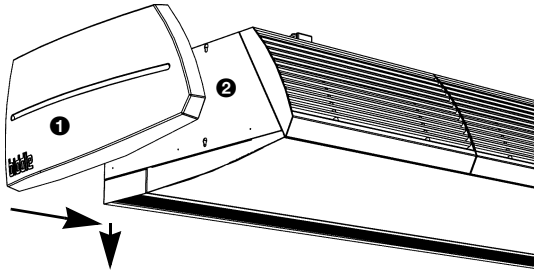
2.7.5 Connecting external controls to unit (optional)

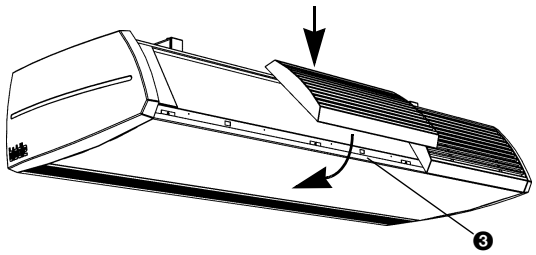
The terminals are located in the connector plate on the top of the unit. The corresponding connectors are located in the terminals.

- Connect the output signal cable to terminal ❸.
- Connect the input signal cable to terminal ❹.

Note:
Allow some 30 cm excess cable length: it will be needed to take the electronics out when servicing the unit.

2.8 Finishing the unit





2.8.1 Finishing free-hanging models

Fitting end panels

1. Fit the end panels to either side of the unit:
   - Hook the end panels ❶ into the key holes in side ❷.
   - Push the panels down until you hear a click.

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

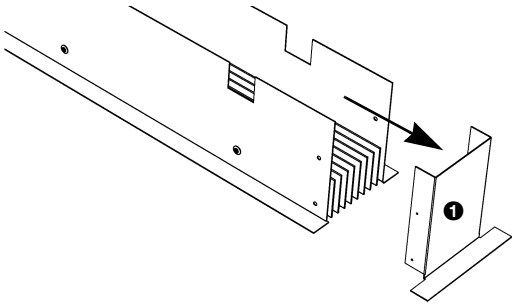
Fitting inlet grates

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

2.8.2 Finishing recessed models

General

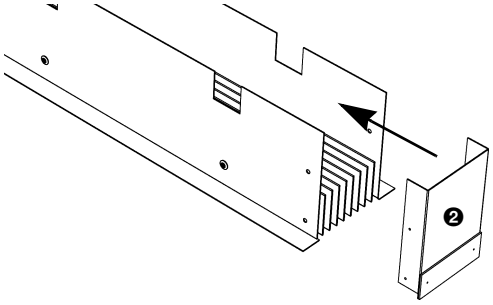
Note:
Ensure that the unit remains accessible for maintenance and repair through, for instance, an inspection hatch.



Adjusting discharge duct

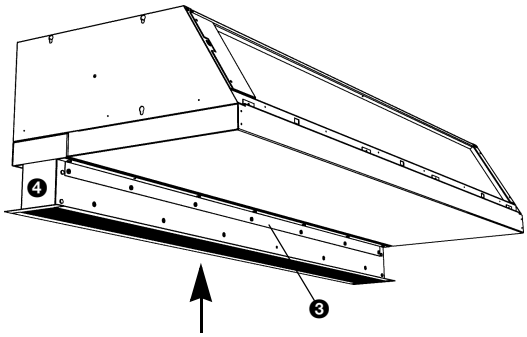
If linking two or more units to each other, you must adjust the discharge duct so that the finishing edges will not be in each other's way.

1. Remove the end piece with finishing edge ❶.



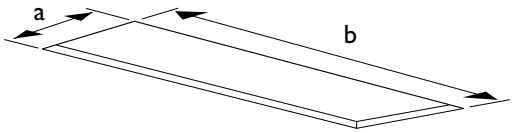
2. Mount the end piece without finishing edge ❷.

Mounting discharge duct

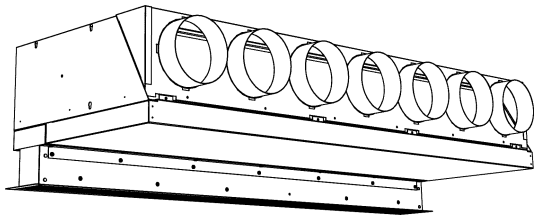


3. Make a hole in the ceiling for the discharge (for dimensions, see Table 2-2).
4. Fix the two angle sections ❸ with sheet metal screws to the unit, along the edges of the discharge opening.
5. Slide the discharge duct ❹ into the discharge opening until the desired height is reached.
6. Using sheet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

Table 2-2 Discharge section hole dimensions

	REFERENCE	TYPE	DIMENSIONS
	a	CA S-R	102 mm
		CA M-R	102 mm
		CA L-R	133.5 mm
		CA XL-R	133.5 mm
	b	CA 100-R	1,008 mm
		CA 150-R	1,508 mm
		CA 200-R	2,008 mm
		CA 250-R	2,508 mm

Mounting unit plenum of inlet section



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

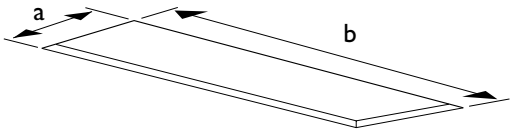
1. Mount the unit plenum to the unit:
   - Hook the plenum onto the upper side of the unit.
   - Screw the plenum to the bottom side.

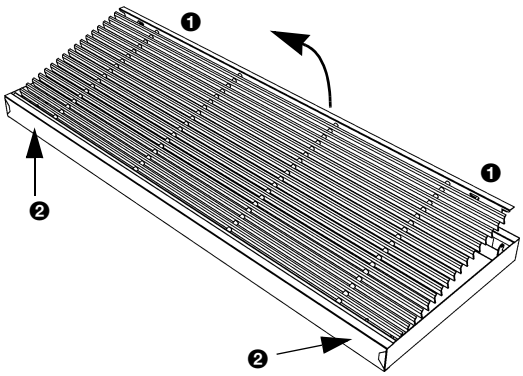
Note:
The unit plenum may come mounted on delivery.

Mounting grille plenum of inlet section

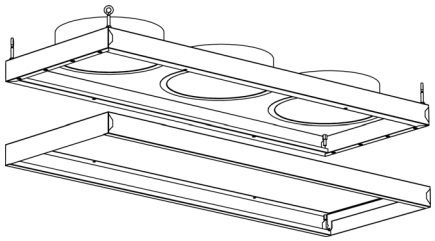
2. Make a hole in the false ceiling for the inlet section (see Table 2-3).

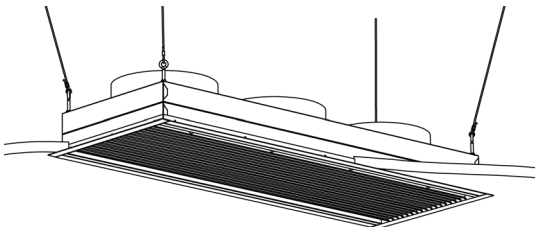
Table 2-3 Inlet section hole dimensions

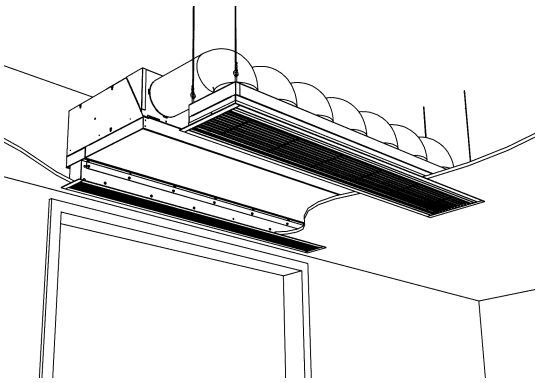
	REFERENCE	TYPE	DIMENSIONS
	a	CA S-R	268 mm
		CA M-R	268 mm
		CA L-R	368 mm
		CA XL-R	368 mm
	b	CA 100-R	1,008 mm
		CA 150-R	1,508 mm
		CA 200-R	2,008 mm
		CA 250-R	2,508 mm



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. Mount the grille plenum to the inlet grille frame.
5. Put the grille back into its frame.

Note:
The grille plenum may come mounted to the inlet grille on delivery.

6. Fix the edge finishing strips to the frame.
7. Suspend the inlet section. To do so, use the supplied screw eyes or four thread rods, M6.

Connecting unit plenum and grille plenum

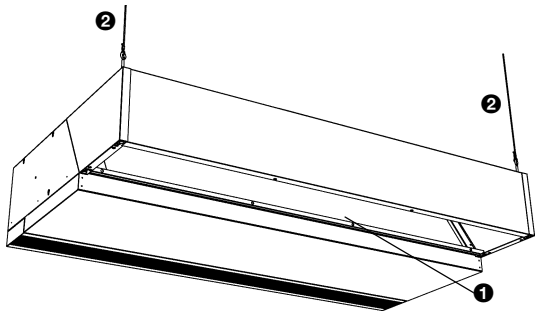
8. Connect the unit plenum to the grille plenum using flexible ducts. Use hose clips to fix the ducts.

Table 2-4 Plenum duct diameter

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

2.8.3 Finishing cassette models

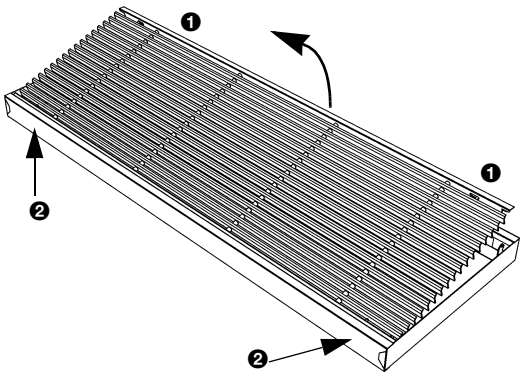
Note:
With the unit types CA 200 and CA 250, the components of the inlet section are supplied in two sections.



Mounting inlet case

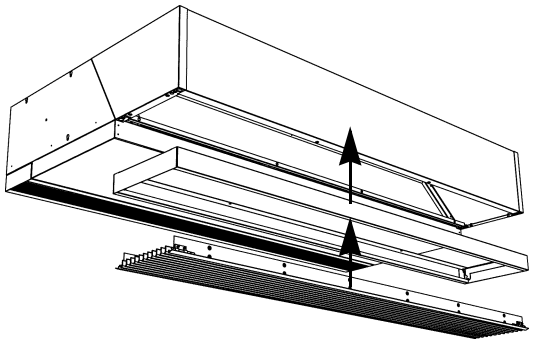
1. Mount the inlet case to the unit:
   - Hook the inlet case onto the upper side of the unit.
   - Screw flange ❶ of the inlet case to the unit.
2. Fix the angle points ❷ of the inlet case to the ceiling. To do so, use the supplied screw eyes or two thread rods, M6.

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

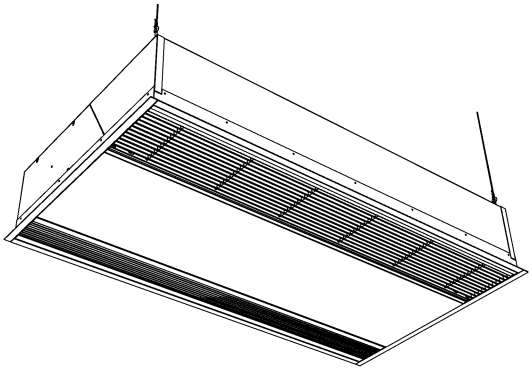


Mounting inlet grille

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.



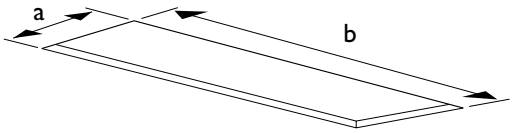
4. Screw the frame onto the inlet case.
5. Put the grille back into its frame.



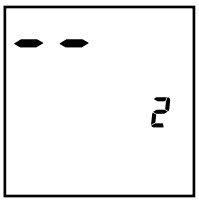
Finishing

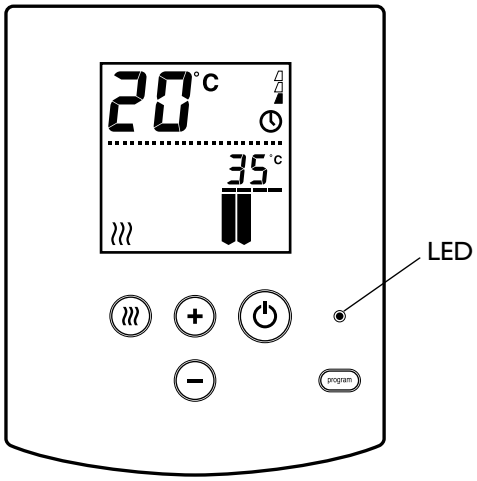
6. Fix the edge finishing strips around the unit.
7. In the false ceiling, make a hole of the dimensions stated in Table 2-5.

Table 2-5 Unit hole dimensions

	REFERENCE	TYPE	DIMENSIONS
	a	CA S-C	829 mm
		CA M-C	829 mm
		CA L-C	1,113 mm
		CA XL-C	1,113 mm
	b	CA 100-C	1,008 mm
		CA 150-C	1,508 mm
		CA 200-C	2,008 mm
		CA 250-C	2,508 mm

2.9 Switching on and checking operation





For all models

1. Check the following connections:
   - power supply;
   - control cables between control panel and unit (or units);
   - external control components (if used).
2. Switch the power supply on and/or plug in all connected units.

   If you switch on the power supply for the first time, the display will briefly show the number of connected units (in opposite example, 2).
3. Press the ⏻ key in the control panel twice.

   If the unit works correctly, the display will show information, as in opposite example, or the LED will be lit:

   If the control panel does not work, or if the display reads SERVICE and/or an fault code (E or F plus a number), refer to section 6 'Faults'.
4. Switch the air curtain on using the control panel (see section 3.1).

For water-heated models

Check if the heat exchanger is connected correctly:

1. Make sure the central heating system is turned on.
2. Make sure heating is enabled in the control panel (see section 3.3).
3. Feel if the discharged air stream gets warm. This may take some time.
4. Vent the heat exchanger, if necessary.

For electrically heated models

5. Make sure heating is enabled in the control panel (see section 3.3).
6. Feel if the discharged air stream gets warm.

3. . Operation

This section describes the functions you should know for the day-to-day use of the comfort air curtain.

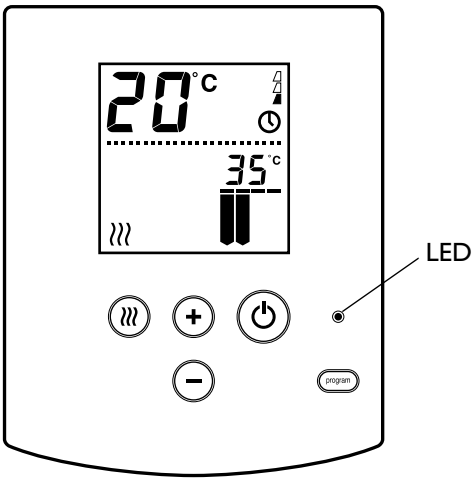
All functions can be operated from the control panel. The control panel allows you to:

- switch the air curtain On and Off;
- set the strength of the air curtain;
- enable and disable heating.

Multiple units operated from one single control panel

If multiple units are connected to the control panel, its settings will be the same for all units.

3.1 Switching On and Off



3.1.1 Switching 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 section 3.4.2).

- Press the ⏻ key briefly to switch the air curtain On or Off.

If the air curtain is switched Off, the LED in the control panel will be lit.

3.1.2 Pause mode

In the pause mode, the unit does not respond to signals from external controls. Frost protection will remain enabled, though.

- Press the ⏻ key for 3 seconds to switch the unit to the pause mode.
- Press the ⏻ key briefly to exit the pause mode.

When the unit is in pause mode, the control panel LED will be lit and the display will be blank.

3.2 Selecting the air curtain strength

3.2.1 Particulars

Depending on its setting (see section 4.2.3, function no. 1), the air curtain operates either with automatic temperature control or with a fixed temperature.

Automatic temperature control

You can choose from 6 strengths. Each strength is an optimum combination of a specific discharge air temperature and discharge air volume. The following combinations are possible:

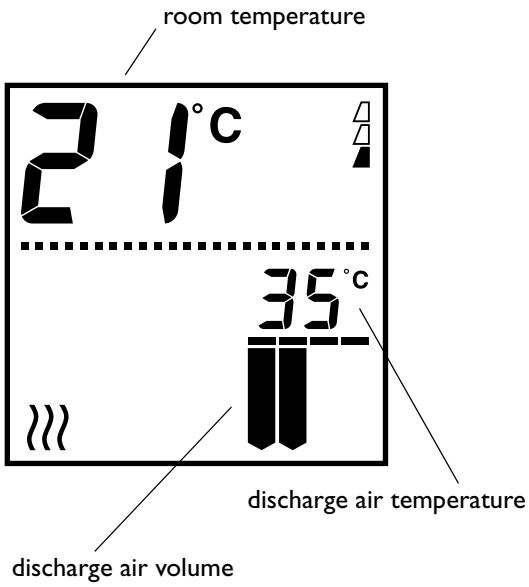
Table 3-1 Air curtain strength options

STRENGTH	DISCHARGE TEMPERATURE	AIR VOLUME
1	30°C	1
2	35°C	1
3	35°C	2
4	35°C	3
5	35°C	4
6	40°C	4

Fixed temperature

If a fixed temperature has been set, the display will show the ✋ symbol.

You can then choose from 4 air volume settings.



3.2.2 Regulating the air curtain strength

- Press the ⊕ key to step up the air curtain one strength.
- Press the ⊖ key to step down the air curtain one strength.

The large digits indicate the room temperature. The room temperature display may be disabled (see section 4.3.3, function no. 69).

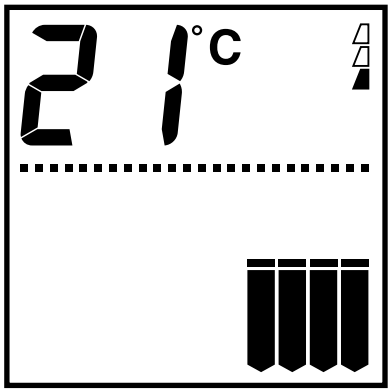
The small digits indicate the discharge air temperature.

The bars indicate the discharge air volume.

3.2.3 Recommended air curtain strength

To achieve maximum climate separation with minimum energy consumption, Biddle recommends to select the lowest strength at which no draught occurs.

3.3 Enabling or disabling heating



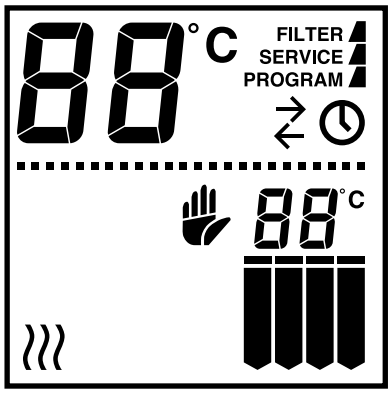
display if heating is disabled

You can disable heating to achieve climate separation without heating the air if, for instance, the air is cooled inside and is colder than outside.

- Press the ≋ key to enable or disable heating. This works independently of the heating strength.

≋ If heating is disabled, the ≋ symbol and the discharge air temperature reading disappear from the display.

3.4 Display messages



3.4.1 Dirty-filter indicator

The number of 'full' triangles indicates the filter's service life: the more triangles, the longer the service life.

When the message FILTER appears, the filter's maximum life has lapsed: you should then clean or replace it (see section 5.1).

These messages will appear only if this function is enabled at the manager's level (see section 4.2.3).

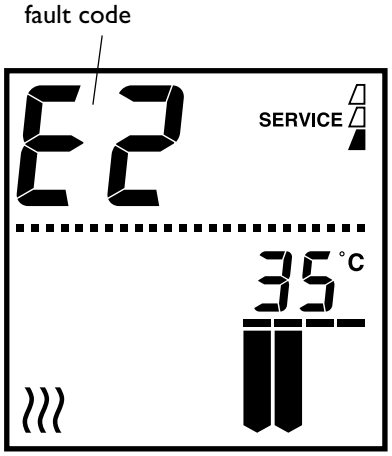
3.4.2 External controls

The ⏲ symbol in the display indicates that the air curtain is switched On or Off by a signal from an external control to the control panel. In that case, the ⏻ key does not work.

The ⇄ symbol indicates that an external control input signal is active for a connected unit.

The working of the unit depends on the external control settings (see section 4.5.3). Some functions may not work, or only to a limited degree.

If settings are changed by the external control, the display will show the actual settings.



3.4.3 Faults

The message SERVICE indicates that there is a fault. Next to it, the fault code is displayed.

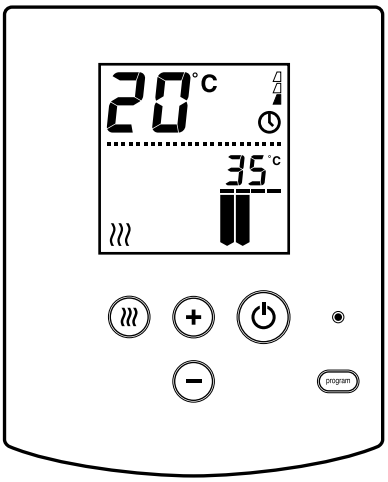
Warning:
Some faults may cause damage or physical injury if disregarded. If SERVICE appears, alert the installer immediately, or refer to section 6.4.

Note:
The fault code will disappear when you press any key. The message SERVICE will however remain visible as long as the fault is not corrected.

If an fault code is displayed without the message SERVICE, the fault occurred in your absence, and has been resolved in the meantime. You need not undertake action unless the fault keeps returning.

4. . Settings

4.1 General



4.1.1 Operation levels

The control panel provides three operation levels:

1. The *user's level* is the level at which the control panel normally operates: it provides the functions you will need for the day-to-day use of the comfort air curtain.
2. At the *manager's level* you can perform use and maintenance settings that you will not be needing each day.
3. At the *installer's level* you can perform settings to adjust the operation of the unit to the room and the system. Usually, this level is used only for installation, maintenance or service purposes.

This section discusses the manager's level and the installer's level. The functions at the user's level are discussed in section 3 'Operation'.

Multiple units operated from one single control panel

If multiple units are connected to the control panel, the settings are global, that is, they apply to all units connected to the control panel.

4.2 Manager's level

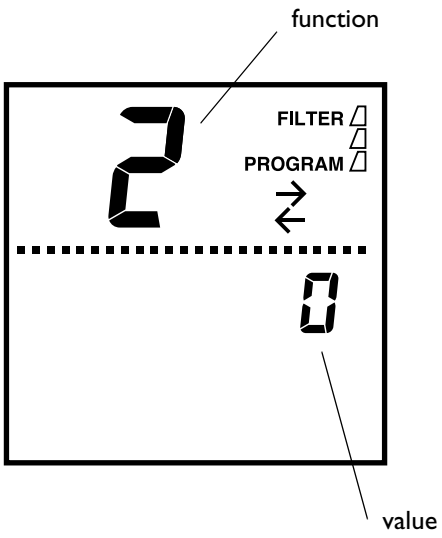
4.2.1 Required settings

If long-life filters are used

The life of the filter must be set at its maximum value (function no. 3).

Other situations

The settings at the manager's level are optional. In most situations, the default settings will do.



4.2.2 Changing settings at the manager's level

Switching from user's level to manager's level

- Press the program key for three seconds.

  The text **PROGRAM** appears in the display. You are now at the manager's level.

Selecting function

The larger digits in the display indicate the function number.

- Press program to go to the next function.
- Press ≈ to go to the previous function.

Changing value

The smaller digits indicate the pre-set value of the function.

- Press + or − to change the value of the function.
- Press + and − simultaneously to set the value to default.

Returning to the user's level

- Press the program key for three seconds to return to the user's level and to store the changes.
- Press ⏻ to return to the user's level *without* storing the changes.

If you do not press any key for two minutes, the control panel will automatically return to the user's level *without* storing the changes.

4.2.3 Functions at the manager's level

NO.	FUNCTION	OPTIONS	YOUR SETTING
1	Automatic temperature control or fixed temperature for the air curtain See also section 3.2.	AU = automatic temperature control (default value) 30, 35 or 40 °C = fixed temperature HI = maximum discharge air temperature With hot-water heating, the maximum is 55 °C, with electric heating 50 °C.	
2	Reading or resetting service life of filter Use this function when replacing or cleaning the filter, see section 5.1.	The service life is expressed in weeks. *Resetting after replacing or cleaning:* • press ⊕ and ⊖ simultaneously You return to the user's level immediately.	X
3	Maximum filter life (service life, on expiry of which filter is considered dirty) See also section 5.1.	Pre-settable between 1 and 52 weeks. (default value = 26 weeks)	
4	Enable/disable filter service life tracking and displaying See also section 3.4.1.	0 = disable tracking and displaying 1 = enable tracking and displaying (default value)	
5	Room temperature control set point See also section 4.4.	Pre-settable between 15 and 30 °C (default value = 25 °C)	
9	Adjusting control panel temperature reading Use this function if the displayed room temperature differs from the actual temperature due to unfavourable position of the control panel.	Pre-settable between -3 and +3 °C (default value = 0 °C (no adjustment))	
10	Reading or deleting current faults See also section 6.3.	*Browsing and reading list:* • press ⊕ or ⊖ *Deleting faults:* • press ⊕ and ⊖ simultaneously You return to the user's level immediately.	X
11	Default settings at the manager's level	dF = all functions have default values -- = there are functions with deviating values *To default all values:* • press ⊕ and ⊖ simultaneously • press program for 3 seconds Function nos. 2 and 10 are not affected.	X

4.3 Installer's level

4.3.1 Required settings

If external controls are used

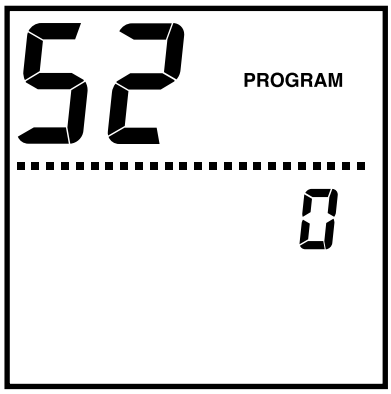
The external control settings (function nos. 60 and 61) must always be performed during installation (see section 4.5).

Other situations

The settings at the installer's level are optional. In most situations, the default settings will do.

4.3.2 Changing settings at the installer's level

Switching from user's level to installer's level



- Press the program key and the ⏻ key simultaneously for three seconds.

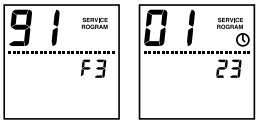
  The text PROGRAM appears in the display. You are now at the installer's level.

Operation at the installer's level

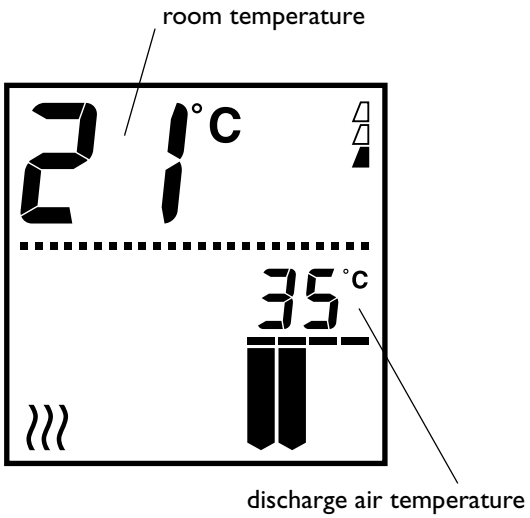
Selecting functions, changing values, and returning to the user's level are all done in the same way as at the manager's level (see section 4.2.2).

4.3.3 Functions at the installer's level

NO.	FUNCTION	OPTIONS	YOUR SETTING
51	Working of the room temperature control See also section 4.4.	0 = no control 1 = control is based on air inlet temperature (default value) 2 = control is based on temperature reading of control panel	
52	Working of the external-control input in the control panel	*See section 4.5.3.*	
58	Installation level *This function has a fixed value for the types CA S.*	0 = level A for favourable conditions (lower discharge air velocity and sound level) 1 = level B for normal conditions (default value)	
60	Working of the external-control input in the unit	*See section 4.5.4.*	
61	Working of the external-control outputs in the unit	*See section 4.5.6.*	
62	*No function*		X
63	*No function*		X
64	*No function*		X
65 66 67	PID factors for temperature control using the unit	*Do not change these settings, unless on Biddle's instructions.*	
69	Room temperature reading in the display See also section 4.4.	0 = no reading 1 = reading (default value)	
70	Version of the control panel software	The version number is displayed. (no options)	
71	Resetting control panel Use this function: • to remedy fault E1 or E2 (see section 6.4); • after replacing a printed circuit board (see section 7.7); • after removing or replacing a connected unit.	dF = all functions have default values -- = there are functions with deviating values *To reset:* • press ⊕ and ⊖ simultaneously. You return to the user's level immediately. This will default all values at the installer's level. **Note down your settings beforehand.**	X
72	Enable/disable reporting of Overheating or Underheating fault	0 = do not report faults F2 and F3 1 = report faults F2 and F3 (default value)	

NO.	FUNCTION	OPTIONS	YOUR SETTING
74	Discharge air temperature reading in the display	0 = display pre-set discharge air temperature 1 = display actual discharge air temperature (default value). The ≫- symbol appears in the display if the discharge air temperature differs from the pre-set temperature.	
76	Release delay of external-control input See section 4.5.2.	Pre-settable between 0 and 99 minutes (default value = 0 (no delay)	
91 92 93 94 95	Reading last 5 fault messages 91 = oldest message 95 = latest message See also section 6.3.1.	A = fault code B = time lapsed since occurrence (01 23 = 123 hrs)  A B A and B are displayed alternately.	X
98	Resetting control panel	*Equal to function 71*	X

4.4 Room temperature control



Working

The room temperature control allows you to prevent the air curtain from overheating the room.

If the temperature in the room exceeds a certain value (the *set point*), the discharge air temperature will be reduced to the *half temperature*.

You set the set point using function no. 5 at the manager's level (see section 4.2.3).

The half temperature is the average of the set point and the discharge air temperature, as pre-set by the user (see section 3.2 'Selecting the air curtain strength').

Options

Function no. 51 at the installer's level (see section 4.3.3) allows you to let the room temperature control work based on either the temperature of the air taken in or the ambient temperature near the control panel.

This is also the temperature that is shown as the room temperature in the display. Function no. 69 at the installer's level allows you to disable its display.

The display shows as standard the actual discharge air temperature. The ≫-symbol appears in the display if the discharge air temperature differs from the pre-set temperature. You can disable this using function no. 74 at the installer's level.

4.5 External controls

4.5.1 General

The comfort air curtain offers the following in- and outputs for signals from external controls:

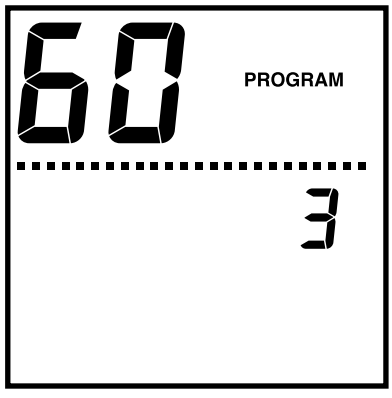
- one control panel input;
- one unit input;
- two unit outputs.

You can write down your external control settings on the label on the back plate of the control panel.

4.5.2 Particulars of the inputs

Working and options

The working of the control panel input depends on the setting of function no. 52 at the installer's level. Refer to the table in section 4.5.3.



The working of the unit input depends on the setting of function no. 60 at the installer's level. Refer to the table in section 4.5.4.

Intervening at the user's level

In general, you cannot stop the effect of an input signal at the user's level. This does not apply for value 0 in function no. 52, nor for value 71 in function no. 60 (see there).

However, you can set the unit to the pause mode at any time (see section 3.1.2): the unit will then not respond to input signals. This does not apply for value 1 in function no. 52 (see there).

Release delay

On release of the signal, you can make the effect of an input signal continue for some time (*release delay*). You set the length of the delay using function no. 76 at the installer's level (see section 4.3.2).

The release delay works only in the unit input.

Multiple units operated from one single control panel

In general, the unit input has a *global* effect: one signal to one unit has the same effect in all units connected to the control panel. This does not apply for values 1 and 51 in function no. 60 (see there).

The control panel input has always a global effect.

4.5.3 Control panel input settings and options

OPTIONS FUNCTION NO. 52		WORKING OF THE INPUT	
NORMALLY OPEN	NORMALLY CLOSED	EFFECT ON INCOMING SIGNAL	EFFECT ON RELEASED SIGNAL
0 (default value)	-	The air curtain is or continues to be switched On. You can switch it Off using the ⏻ key.	The air curtain is or continues to be switched Off. You can switch it On using the ⏻ key.
1	-	The air curtain is always switched On.	The air curtain is always switched Off.
		The display reads 🕒. The ⏻ key does not work (even in pause mode).	
• *Normally open*: The signal comes in when the contact is closed. • *Normally closed*: The signal comes in when the contact is broken.			

4.5.4 Unit input settings and options

OPTIONS FUNCTION NO. 60		WORKING OF THE INPUT	
NORMALLY OPEN	**NORMALLY CLOSED**	**EFFECT ON INCOMING SIGNAL**	**EFFECT ON RELEASED SIGNAL**
1 (default value)	51	The air curtain is or continues to be switched Off. This works only in units to which the input signal is directly connected (*locally*).	The unit operates according to the control panel settings. The release delay (function no. 76) does not work.
2	52	The air curtain operates 1 strength up, if switched on. The display reads ⇄ .	The unit operates according to the control panel settings.
3	53	The air curtain operates 2 strengths up, if switched on. The display reads ⇄ .	The unit operates according to the control panel settings.
4	-	The discharge air temperature is increased by 5 °C. The display reads ⇄ .	The unit operates according to the control panel settings.
5	-	The heating is reduced to the half temperature. The display reads ⇄ .	The unit operates according to the control panel settings.
6	-	The heating is switched off. The display reads ⇄ .	The unit operates according to the control panel settings.
-	71	The air curtain is or continues to be switched On. You can switch it Off using the ⏻ key.	The air curtain is or continues to be switched Off. You can switch it On using the ⏻ key.
		Function no. 52 must be set at value 0 (default value).	
• *Normally open*: The signal comes in when the contact is closed. • *Normally closed*: The signal comes in when the contact is broken.			

4.5.5 Particulars of the outputs

Options and operation

The working of the outputs depends on the setting of function no. 61 at the installer's level. The options are listed in the table in section 4.5.6.

The functions of the two outputs cannot be set individually.

Multiple units operated from one single control panel

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

4.5.6 Options and working of the unit output

OPTIONS FUNCTION NO. 61		MEANING OF THE OUTPUT SIGNAL	
VALUE	WORKING	OUTPUT 1	OUTPUT 2
1 (default value)	normally open	fault	maximum filter life lapsed
2		*equal to value 1*	
3	normally open	fault	heating deficit
4	normally open	fault or maximum filter life lapsed	heating deficit
5	normally open	fault	*no function*
6	normally open	fault or maximum filter life lapsed	*no function*
7	normally open	*no function*	heating deficit
8	normally open	fault	air curtain is switched on
9	normally open	fault or maximum filter life lapsed	air curtain is switched on
13 To be used if you want the unit to switch the central heating system On/Off upon heating being switched On/Off.	normally open	*no function*	*signal to central heating system:* air curtain is switched On, with heating
15 To be used if you want the central heating system to be switched On in case of risk of freezing: see section 2.5.2.	normally open	fault	*signal to central heating system:* risk of freezing
51	normally closed	fault	maximum filter life lapsed

- *Normally open*: The signal is activated when the contact is closed.
- *Normally closed*: The signal is activated when the contact is broken.

5. . Maintenance

5.1 Replacing or cleaning the filter

5.1.1 Introduction

The filter must be cleaned regularly. A dirty filter may cause inadequate heating as well as a high noise level. The interval at which the filter is to be cleaned depends on the local conditions.

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

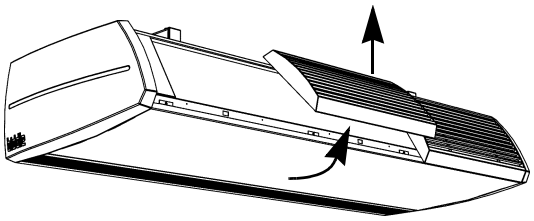
5.1.2 Tracking filter service life

The control panel can track and display the service life of the filter (see section 3.4.1).
You can set the *maximum filter life* (filter service life, on expiry of which the filter is considered dirty) using function no. 3 at the manager's level (see section 4.2.3).

You must reset the service life yourself after replacing or cleaning the filter (function no. 2 at the manager's level, see there).

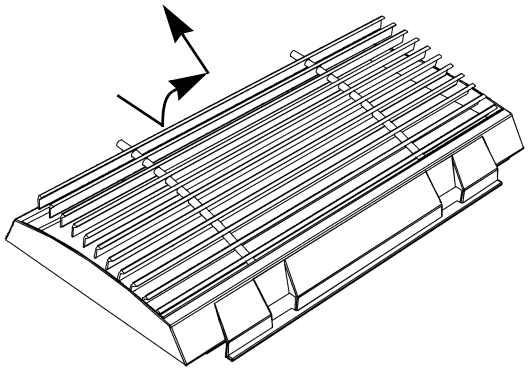
You may also choose to disable the track & display feature (function no. 4 at the manager's level, see there).

5.1.3 Removing the filter

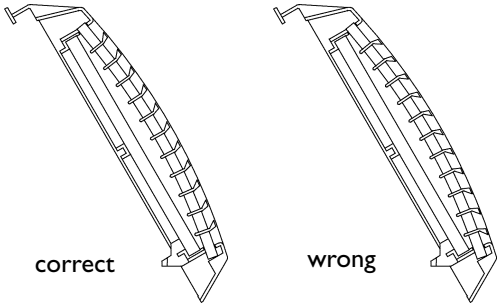


Free-hanging models

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



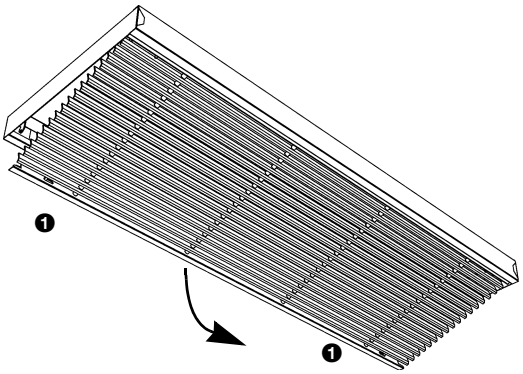
2. Remove the grille from the inlet grate:
   - Slide the grille upward.
   - Tilt the grille a little up.
   - Remove the grille from the grate.
3. Clean or replace the filter.
4. Reset the filter service life using function no. 2 at the manager's level (if tracking is enabled, see section 5.1.2).



Note:
When putting the grille back:

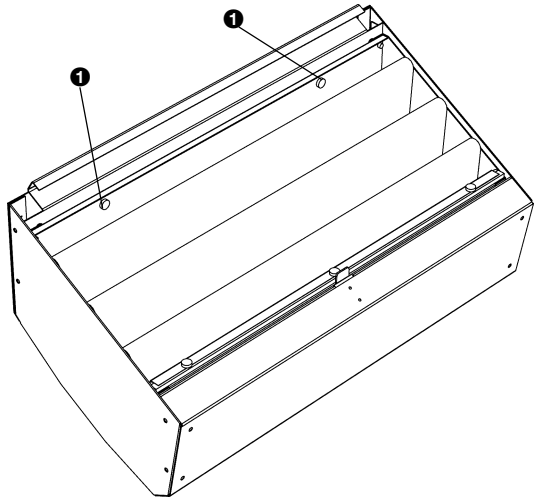
Ensure you put it back correctly into the inlet grate.

Recessed and cassette models

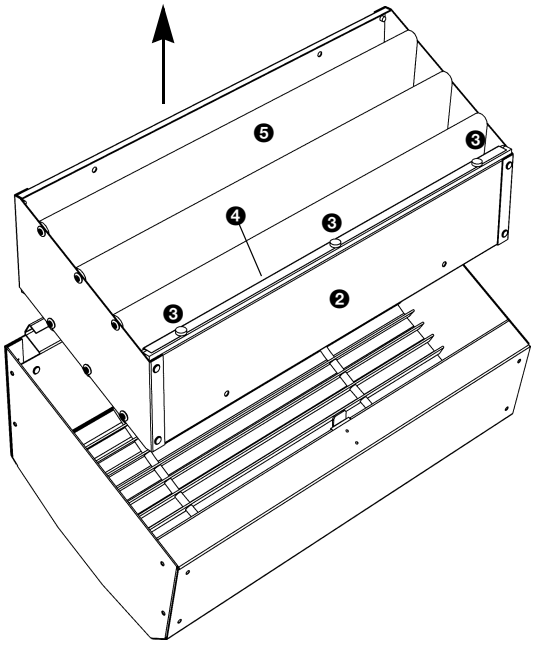


1. Open the inlet grille:
   - Push the two pins ❶ towards one another – the grille will tilt down.
2. Slide the filter out of the grille.
3. Clean or replace the filter.
4. Reset the filter service life using function no. 2 at the manager's level (if tracking is enabled, see section 5.1.2).

Long-life filter in free-hanging models

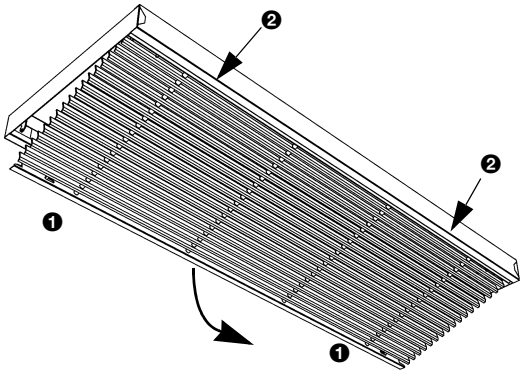


1. Remove the inlet grate from the unit:
   - Lift the grate at the bottom and unhook it.
2. Loosen the screws ❶.

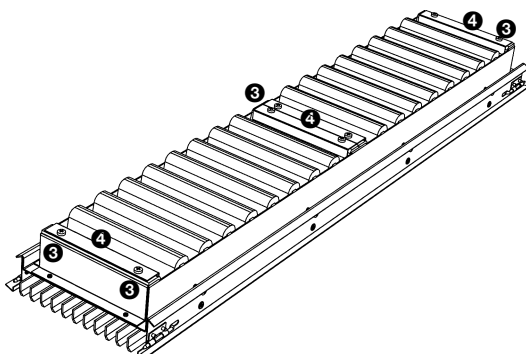


3. Remove the filter module ❷ from the inlet grate.
4. Remove the filter from the filter module:
   - Loosen the screws ❸.
   - Remove the strip❹.
   - Do the same on the other side of the module.
   - Take out the filter material ❺.
5. Clean or replace the filter.
6. Mount all components in reverse order to the dismounting.
7. Reset the filter service life using function no. 2 at the manager's level (if tracking is enabled, see section 5.1.2).

Long-life filter in recessed and 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 the screws ❸ and remove the strips ❹.
3. Slide the filter out of the grille.
4. Clean or replace the filter.
5. Mount all components in reverse order to the dismounting.
6. Reset the filter service life using function no. 2 at the manager's level (if tracking is enabled, see section 5.1.2).

5.2 Cleaning the unit

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

Caution:
Make sure no water runs into the unit.

5.3 Scheduled maintenance

Biddle recommends to have the following inspection and maintenance works performed by an installer or other technical expert each year.

- Check if the filter is clean enough and undamaged. Replace the filter if necessary (see section 5.1).
- Check if 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 fault messages (see section 6.3).

6. . Faults

6.1 Safety instructions

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

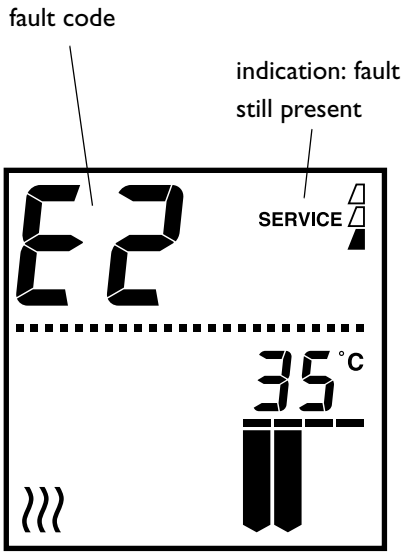
Warning:
Before opening the unit, follow the safety instructions in section 1.4.

6.2 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.	*If the LED is lit:* the unit is in pause mode.	Exit the pause mode by pressing the ⏻ key.
	If the LED is not lit: no power is supplied to the control panel.	Check the power supply: • plug in power point; • isolation switch; • unit live.
One or more keys do not work.	*If the display only shows the room temperature:* the air curtain is switched off.	Switch the air curtain On using the ⏻ key.
	If the display reads 🕐 *or* ⇄ *:* the unit is controlled by an external control.	This is not a fault. Operation is limited by the input signal from the external control.
The air curtain is switched Off but is still working.	*Only electrically-heated models:* 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).	*If the display does not read the* ≀≀≀ *symbol:* heating is disabled.	Enable heating using the ≀≀≀ key.

6.3 Fault messages in control panel



6.3.1 Reading faults

Current faults

If the message SERVICE appears in the display, there is a fault. Next to it, the *fault code* is displayed.

The fault code will disappear when you press any key. The message SERVICE will however remain visible as long as the fault is not corrected.

There may be more than one fault at the same time. You can read out a list of current fault codes at the manager's level (see section 4.2.3, function no. 10).

No-longer-current faults

If a fault occurred in your absence but has been automatically cleared in the meantime, only the fault code is displayed. It will disappear when you press any key.

At the installer's level, you can read out the codes and times of the last five faults (see section 4.2.3, function nos. 91 to 95).

6.3.2 Deleting faults

Most fault messages will disappear automatically when the problem is resolved. However, some faults must be manually removed by deleting the fault message at the manager's level (see section 4.2.3, function no. 10).

6.3.3 Resetting control panel

Some faults may be corrected by resetting the control panel at the installer's level: the panel will then look again for connected units (see section 4.3.3, function no. 71 or 98).

Note:
This will default all settings at the installer's level. Write down your settings in advance, and re-enter them after the reset.

1. Hold both the program key and the ⏻ key pressed for three seconds.
   The text **PROGRAM** appears in the display. You are now at the installer level.
2. Using ⊕ or ⊖, browse through the functions and note down your settings.
3. Using ⊕ or ⊖, go to function 98.
4. Press ⊕ and ⊖ simultaneously, and the control panel will be reset.
5. Re-enter your settings.

6.4 Remedying faults with fault 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
E1	The control panel does not communicate with one or more connected units. This fault may occur: • 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.	**1.** Reset the control panel (see section 6.3.3). **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: - 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 F110 in all connected units. **6.** Check wiring between connector plate and connectors X380 and X390 on the printed circuit board.
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 1.3.4 and 2.7.1).
	The control panel software is outdated.	**1.** Check the version number of the software. (function no. 70 at the installer's level: see section 4.3.3). Please contact Biddle if the version number is lower than 1.7.

CODE	LIKELY CAUSE	WHAT TO DO
E2	The control panel is live but does not communicate with any unit.	**1.** Reset the control panel (see section 6.3.3). **2.** Check the control cables: - 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	*Electrically-heated models:* The control in the unit detected a too high temperature, and switched the heating off, or the temperature sensor (PTC) does not work. **If you disregard this fault, damage to the unit may occur.**	**1.** Delete the fault message (see section 6.3.2). **2.** Check the fans. If one or more fans do not work, check: - 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	*Electrically-heated models:* The high-limit thermostat switched the unit Off: this is to protect against overheating. This fault may occur: • if the unit has been temporarily dead, e.g., due to a power failure; • if the filter is dirty and lets insufficient air through. **In other cases, there may be a serious defect that may pose a risk to persons.**	**1.** Delete the fault message (see section 6.3.2). **2.** Check the fans. If one or more fans do not work, check: - 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	*Electrically-heated models:* Heating does not stop because of a faulty relay. **This may be a serious defect that may pose a risk to persons.**	**1.** Delete the fault message (see section 6.3.2). **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 3.3), and check if the discharged air stays cold. **A dangerous defect is concerned if:** - heating yet continues; - this fault message returns within 30 minutes; - this fault occurs frequently. **In any such case, act as follows:** - disconnect the unit from the power supply immediately. **4.** contact Biddle.
E6	*For water-heated models:* Risk of freezing because discharge air temperature is too low. Frost protection has been activated (see section 2.5.2). **Freezing may cause damage to the heat exchanger.**	**1.** Ensure that the temperature in the room gets higher than 8 °C. **2.** Follow the instructions for fault code F3. You can prevent this fault by allowing the unit to switch the central heating system On in case of freezing risk (see section 4.5.6, option 15).
F1	Fault in air valve.	**1.** Delete the fault message (see section 6.3.2). **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 fuse F100 on the printed circuit board inside the unit. **5.** Check wiring and connectors X140 and X210. **6.** Replace the valve drive.
F2	*For water-heated models:* Overheating. This fault may occur if the control valve does not work correctly.	**1.** Switch the air curtain Off using the control panel, wait for one minute, and switch it On again. **2.** Check if 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.

CODE	LIKELY CAUSE	WHAT TO DO
F3	*For water-heated models:* The central heating system switches on later than the unit.	You may: • switch on the central heating system earlier; • allow the unit to switch on the central heating system (see section 4.5.6, option 13); • disable this fault message at the installer's level (see section 4.3.3, function no. 72).
	For water-heated models: Underheating. This fault may occur: • if not enough hot water is supplied; • if the control valve does not work correctly.	**1.** Check the central heating system: - 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.
	Electrically-heated models: There is too little heating because one or more heating elements do not work.	**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.
	For all models: The connections of the temperature sensors have been interchanged.	**1.** Check connectors X350 and X360: connector X350 must be coded red.
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 want to make the room temperature control work based on the sensor in the control panel (see section 4.3.3, function no. 51).
F5	The temperature sensor in the discharge section does not work.	**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.	**1.** Check the sensor's wiring and connection (connector X360). **2.** Replace the sensor.

6.5 Remedying faults without message

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

1. Using section 6.2 check if you can easily resolve the problem yourself.
2. Try to resolve the problem using the below table. No technical expertise is needed 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 if ⏲ or ⇄ is displayed in the control panel. **2.** Check the setting nos. 60, 61 and 76 at the installer's level (see section 4.5).
	The fans are dead.	**1.** Check the transformer fuse. **2.** Check the wiring between the transformer and the fans (connectors X120 and X130). **3.** Replace the transformer.
The unit does not work, the display is blank, and the control panel LED is not lit.	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 F110. **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.

7 . . Service

7.1 Safety instructions

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

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

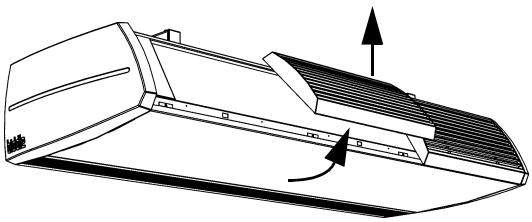
7.2 Access to the interior of the unit

For all models

1. Switch the unit Off using the control panel.

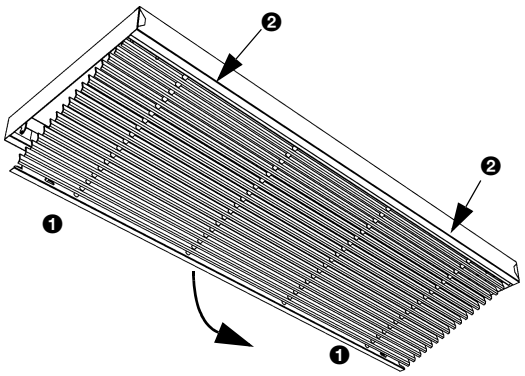
Warning:
Disconnect power supply (remove plug from power point or move isolation switch to Off).

For free-hanging models

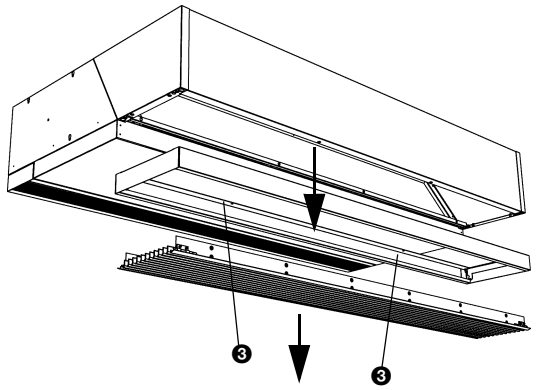


2. Remove the inlet grates from the unit:
   - Lift the grate at the bottom and unhook it.

For cassette models

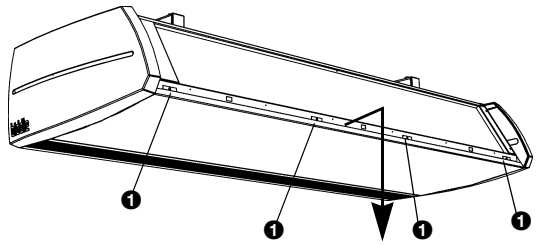


1. Take the inlet grille out of its frame:
   - Push the two pins ❶ in the grille towards one another –
     the grille will tilt down.
   - Push the two pins at ❷ towards one another and take the grille out.



2. Loosen screws ❸ and remove the frame.

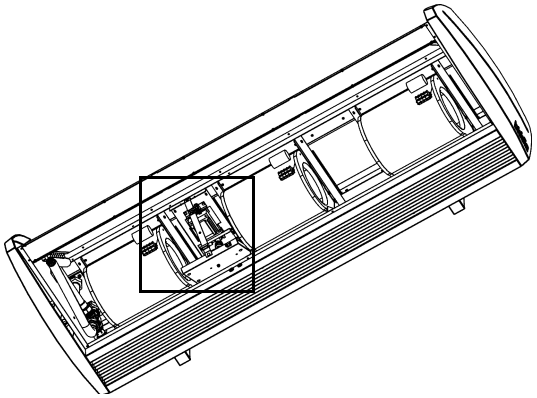
For all models



3. 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.

7.3 Electronics module



7.3.1 Introduction

The unit offers one electronics module. It includes:

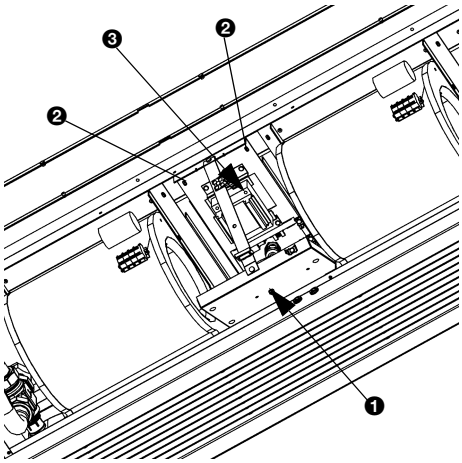
- the transformer;
- the printed circuit board;
- the connector plate;
- the fuses.

7.3.2 Taking electronics module out

1. Switch the unit Off using the control panel.

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

2. Remove the inspection panel (see section 7.2).
3. Disconnect all unit-connected connectors and grounded connections from the printed circuit board (behind ❶).
4. Remove the screws ❷.
5. Take the electronics module out.
6. Disconnect the connectors from connector plate (behind ❸).

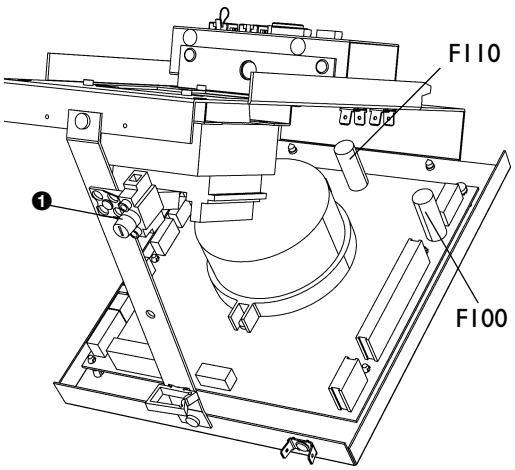


Note:
When putting back and connecting the electronics module:

Do not interchange connectors X350 and X360. Connector X350 is coded red.

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

7.4 Fuses



The unit has three fuses:

- printed circuit board fuses F100 and F110;
- transformer fuse ❶.

The values are indicated for the fuses.

Note:
The figure shows models CA S and CA M. With models CA L and CA XL, the printed circuit board is turned a quarter.

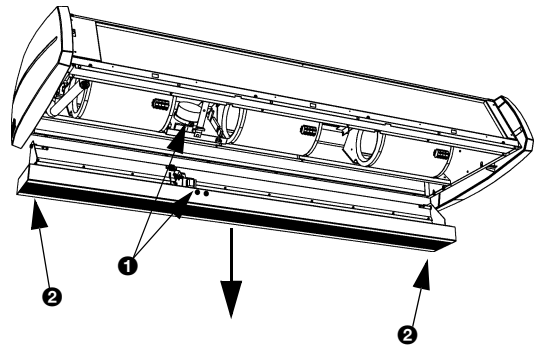
7.5 Taking discharge section out

The discharge section houses the air valve mechanism and drive.

For recessed models

1. Remove the discharge duct from the unit (see section 2.8.2).

For all models



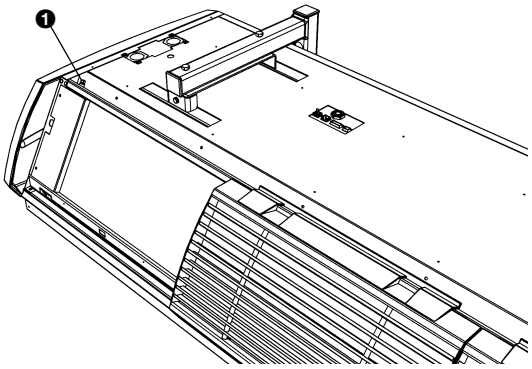
1. Remove the inspection panel (see section 7.2).
2. The discharge section has the following connections to the electronics module (at ❶):
   - the valve drive connections on the printed circuit board (connectors X140 and X210);
   - the earth connection.

   Disconnect these connections.
3. Between the fins of the discharge grille, there are 4 screws (at ❷): loosen these.

Caution:
Support the discharge section while loosening the screws.

4. The discharge section will now come loose – take it out carefully.

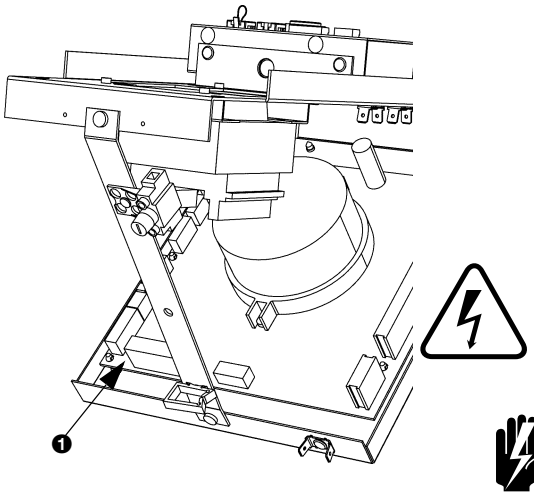
7.6 Venting heat exchanger



For water-heated models only

The air relief valve ❶ is located in the upper left of the unit. The valve can be opened using the supplied key.

7.7 Entering unit code into printed circuit board



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 1.3.4.)

Entering unit code

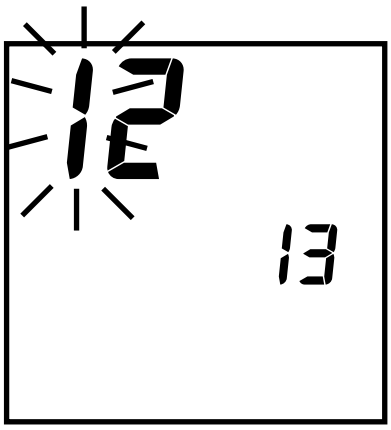
1. Connect the power supply (insert plug into power point or move isolation switch to On).

Warning:
Do NOT touch any live parts.

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

   The LED next to the microswitch will start blinking.

Note:
The figure shows models CA S and CA M. With models CA L and CA XL, the printed circuit board is turned a quarter.



The control panel displays four numbers: these constitute the unit code.

The first number starts blinking.

3. Press ⊕ or ⊖ to increase or decrease the number.
4. Press the program key.

   The second number starts blinking.

5. Repeat the previous two steps until you entered all numbers.

   No number will be blinking any more.

6. Press down microswitch ❶.

   The LED next to the microswitch will start blinking.

The unit code is now entered.

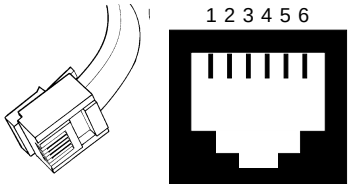
7. Reset the control panel (see section 6.3.3).

7.8 Composition of Biddle control cable

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

The plugs are of the RJ-11 type but the sockets are 'straight' – at both ends of the cable, the core is connected to the same pin.

Table 7-1 Colour codes of Biddle cables

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

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NL **EG-verklaring van overeenstemming (richtlijnen 89/336/EEG en 73/23/EEG)**
Middels dit schrijven verklaren wij, Biddle BV, dat het hieronder genoemde product in overeenstemming is met de bepalingen van de EMC-richtlijn 89/336/EEG en de Laagspanningsrichtlijn 73/23/EEG zoals laatstelijk gewijzigd. Voorts verklaren wij dat de normen EN55014-1 en EN55014-2 zijn toegepast. Door te voldoen aan deze richtlijnen is het product ook in overeenstemming met de nationale wetgeving.

D **EG-Konformitätserklärung (Richtlinie 89/336/EWG und Richtlinie 73/23/EWG)**
Hiermit erklären wir, Biddle BV, daß unterstehendes Produkt die Bestimmungen der EMC-Richtlinie 89/336/EWG und der Niederspannungsrichtlinie 73/23/EWG in ihrer momentan gültigen Fassung erfüllt. Außerdem erklären wir, daß die Normen EN55014-1 und EN55014-2 angewendet worden sind. Mit der Erfüllung dieser Richtlinien entspricht das Produkt auch der nationalen Gesetzgebung.

GB **EC declaration of conformity (directive 89/336/EC and directive 73/23/EC)**
Please take this form as a formal declaration that the product listed below conforms to the regulations of the directive for machines 98/37/EC, the EMC-directive 89/336/EC and the low voltage directive 73/23/EC, including recent changes. Moreover, we declare that the standards EN55014-1 and EN55014-2 have been applied. By complying with these directives, the products are also in accordance with the national law.

F **Déclaration CE (directive 89/336/CEE et directive 73/23/CEE)**
Veuillez considérer ce document comme la déclaration formelle que le produit listé ci-dessous est conforme à la législation EMC 89/336/CEE et à la législation voltage basse 73/23/CEE, ayant récemment modifié la législation sur la sécurité et la santé. De plus nous déclarons que les standards EN55014-1 et EN55014-2 ont été appliqués. Du fait qu'ils respectent ces exigences, les produits sont aussi conformes à la législation nationale.

E **Declaración de la CEE (directiva 89/336/CEE y directiva 73/23/CEE)**
Rogamos sirvanse encontrar este documento como una declaración oficial de que los productos abajo citados cumplen con las normativas la directiva EMC 89/336/CEE y la directiva bajo voltage 73/23/CEE, de acuerdo con la reciente modificación de las normativas de esta ley. Además certificamos que las normas EN55014-1 y EN55014-2 han sido observadas. Al dar cumplimiento a lo anterioremente expuesto, los productos están de acuerdo con la ley nacional.

I **Dichiarazione di conformità (direttiva 89/336/EC e direttiva 73/23/EC)**
Vogliate considerare questo scritto come una dichiarazione formale che i prodotti sotto indicati sono conformi la Direttiva EMC 89/336/EC e la Direttiva bassa tensione 73/23/EC e successive modifiche. Inoltre dichiariamo che le normative EN55014-1 e EN55014-2 sono state rispettate. Rispettando queste direttive i prodotti sono in accordo con la legge nazionale.

S **EG-försäkran om överensstämmelse (direktiv 89/336/EEC och direktiv 73/23/EEC)**
Härmed försäkrar vi, Biddle BV, att nedannämnda produkt överensstämmer med bestämmelserna i EMC-direktivet 89/336/EEC och i Lågspänningsdirektivet 73/23/EEC, inklusive de senaste ändringarna. Fortsättningsvis försäkrar vi att standarderna EN55014-1 och EN 55014-2 har tillämpats. Genom att uppfylla dessa direktiv överensstämmer produkten även med den nationella lagstiftningen.

DK **EU-erklæring direktivet (89/336/EEC og 73/23/EEC)**
Denne erklæring bedes opfattet som en formel bekræftelse af, at det anførte produkt er i overenstemmelse med forskrifterne i EMC-directivet 89/336/EEC og lavspændingsdirektivet 73/23/EEC, som følge af en nylig ændring i loven om regulativerne. Endvidere erklærer vi, at normerne EN55014-1 og EN55014-2 er den standard vi har brugt. Ved at gennemføre disse anvisninger er produktetet i overenstemmelse med den nationale lov.

РУС **Декларация ЕС о соответствии механизмов (директива 89/336/EC и директива 73/23/EC)**
Пожалуйста, воспринимайте данный документ как официальную декларацию того факта, что перечисленные ниже изделия соответствуют положениям нижеследующих директив по механизмам: EMC директива 89/336/EC и директиве по низковольтным устройствам 73/23/EC, включая недавние изменения. Более того, мы заявляем, что здесь применены стандарты EN55014-1 и EN55014-2. Помимо соответствия вышеперечисленным директивам, данные изделия соответствуют нормам национального законодательства.

Brand: BIDDLE
Type: CA CITY S-100, CA CITY S-150, CA CITY S-200, CA CITY S-250,
CA CITY M-100, CA CITY M-150, CA CITY M-200, CA CITY M-250
CA LABO 100, CA LABO 150, CA LABO 200, CA LABO 250
P. Stoelwinder, Managing Director
Biddle BV, Markowei 4, 9288 HA Kootstertille, THE NETHERLANDS