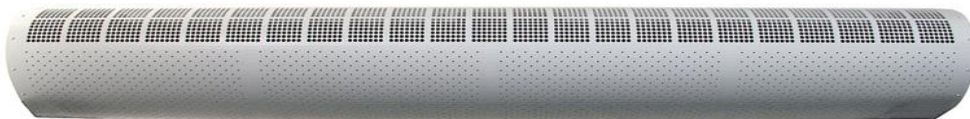




INVISIDOR STYLE₂ AIR CURTAIN
INSTALLATION, OPERATION &
MAINTENANCE ORIGINAL
INSTRUCTIONS



LANGUAGE: ENGLISH

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WARRANTY

Please refer to Biddle's Terms of Sales and Delivery for warranty and liability conditions. Biddle excludes liability for consequential loss at all times and under all circumstances. Failure to adequately maintain the unit may void the warranty. If any problems are encountered, please contact your installer/supplier. Failing this, please, contact the Biddle warranty department.

Care has been taken in compiling these instructions to ensure they are correct. Biddle. disclaims all liability for damage resulting from any inaccuracies and/or deficiencies in this documentation. Biddle retain the right to change the specifications stated in these instructions.

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The units described in this manual are designed to be surface mounted inside a building and located horizontally over a doorway or vertical on the side of the doorway. They must not be installed on the outside of a building or built into a cabinet or recessed in any way.

Please complete the following details for your reference:

Date of Purchase:

Place of Purchase:

Serial Number:

Proof of purchase is required to make a claim under warranty.

ABOUT THIS MANUAL

This manual describes the installation, operation and maintenance of the **Invisidor Style₂** air curtain unit. The manual also provides information on service and fault conditions.

IMPORTANT INFORMATION

Electrical Supply and Wiring to the Air Curtain

All electrical wiring and connections **MUST** be carried out by a competent qualified electrician in accordance with the latest edition of national and local wiring regulations and/or local statutory regulations. **“Danger: Disconnect electrical supply before servicing”**.

- A single phase or 3 phase local isolator having a contact separation of at least 3mm on all poles must be fitted in the electrical supply to the air curtain and located in an accessible position adjacent to the unit.
- The appliance must be connected by cables having an appropriate heat resistant temperature rating. For two air curtains in a vertical stack, electrical power must be connected separately to the bottom air curtain and to the top air curtain. The electrical supply to the top air curtain may be routed via the bottom air curtain.
- All supply cables, circuit breakers and other electrical installation equipment must be correctly sized for the air curtain model being installed – refer to Technical Specifications section.
- On a 3 phase electrical supply the unit requires a neutral connection (3N~)
- See Wiring Diagrams for connecting electrical supply/s and control cables to the air curtain. The air curtain must be earthed.

CAUTION – Some parts of this product can become very hot and cause burns. Particular attention has to be given where children and vulnerable people are present

Attention!!

For stainless steel units the inlet casing and back casings are coated in an easy to peel protective film. Please ensure all the protective film is removed before the air curtain is put into service.

DELIVERY CONTENTS

The following items are supplied in the box at delivery. Any missing or damaged parts should be reported to the place of purchase:

- Invisidor Style₂ Air Curtain
- Touchpad Remote Control (Supplied with 6m RJ Control Cable)
- 3-port Control Valve (For Water Heated Units)
- Wall or Ceiling Brackets (if applicable)

Check the unit and all its packaging for correct delivery. Make sure that all components and accompanying parts have been supplied. Immediately report to the supplier if anything is missing or damaged

TRANSPORT, STORAGE AND DISPOSAL

The product must be stored in a dark, dry, frost free and well-ventilated place out of the reach of children. Storage temperatures should be within those specified in the Technical Specifications section. The original packaging should be used for long term storage.

Prior to transporting the product, it should be removed and stowed safely so as to not incur damage. The original packaging should be used wherever possible and the product should be protected from any significant temperatures, moisture or vibration.

During installation, maintenance and decommissioning the air curtain it will be necessary to move the product.

This product will offer many years of service when used and maintained in line with these instructions. When the product does need to be disposed of, please recycle the product where facilities exist. Waste electrical products should not be disposed of with household waste.

TECHNICAL DATA TABLE

| Air Curtain | | Electrical Supply (V/ph/Hz) | Rated Power Input (kW) | Current per phase (A) | Heat Output (kW) | Weight (kg) |
|--|--------------------|-----------------------------|------------------------|-----------------------|----------------------|-------------|
| Ambient Units | | | | | | |
| Style ₂ 100A H | | 230/1/50 | 0.30 | 1.5 | N/A | 59 |
| Style ₂ 150A H, Style ₂ 150A V | | 230/1/50 | 0.40 | 2.0 | N/A | 72 |
| Style ₂ 200A H, Style ₂ 200A V | | 230/1/50 | 0.60 | 2.9 | N/A | 98 |
| Style ₂ 250A V (Stacked Unit) | Top air curtain | 230/1/50 | 0.30 | 1.5 | N/A | 131 |
| | Bottom air curtain | 230/1/50 | 0.40 | 2.0 | N/A | |
| Style ₂ 300A V (Stacked Unit) | Top air curtain | 230/1/50 | 0.30 | 1.5 | N/A | 157 |
| | Bottom air curtain | 230/1/50 | 0.60 | 2.9 | N/A | |
| Water Heated Units | | | | | | |
| Style ₂ 100W H | | 230/1/50 | 0.30 | 1.3 | See Quotation | 66 |
| Style ₂ 150W H, Style ₂ 150W V | | 230/1/50 | 0.40 | 1.8 | | 82 |
| Style ₂ 200W H, Style ₂ 200W V | | 230/1/50 | 0.60 | 2.7 | | 112 |
| Style ₂ 250W V (Stacked Unit) | Top air curtain | 230/1/50 | 0.30 | 1.3 | | 148 |
| | Bottom air curtain | 230/1/50 | 0.40 | 1.8 | | |
| Style ₂ 300W V (Stacked Unit) | Top air curtain | 230/1/50 | 0.30 | 1.3 | | 178 |
| | Bottom air curtain | 230/1/50 | 0.60 | 2.7 | | |
| Electric Heated Units | | | | | | |
| Style ₂ 100E H | | 400/3/50 | 12.30 | 18.7 | 6.0/12.0 | 62 |
| Style ₂ 150E H, Style ₂ 150E V | | 400/3/50 | 18.40 | 27.9 | 9.0/18.0 | 76 |
| Style ₂ 200E H, Style ₂ 200E V | | 400/3/50 | 24.60 | 37.5 | 12.0/24.0 | 104 |
| Style ₂ 250E V (Stacked Unit) | Top air curtain | 400/3/50 | 12.30 | 18.7 | 6.0/12.0 | 138 |
| | Bottom air curtain | 400/3/50 | 18.40 | 27.9 | 9.0/18.0 | |
| Style ₂ 300E V (Stacked Unit) | Top air curtain | 400/3/50 | 12.30 | 18.7 | 6.0/12.0 | 166 |
| | Bottom air curtain | 400/3/50 | 24.60 | 37.5 | 12.0/24.0 | |

Table 1. Product Code and Electrical Specifications

Above information based on high fan speed operation. Weights include 6kg for hanging brackets used with a horizontal overdoor unit. Foot plate for vertical unit weighs 16kg. Vertical stacked units require a top support wall bracket which weighs 3kg.

| Unit Operation Conditions | |
|--|--------------------|
| IP Rating | IP20 |
| Maximum Temperature (Storage) | -10°C – 60°C |
| Maximum Temperature (Operating – Heating Models) | 0°C – 30°C |
| Maximum Temperature (Operating – Ambient Models) | 0°C – 40°C |
| Relative Humidity | 95% Non-Condensing |

INSTALLATION

Horizontal Style₂ Air Curtain

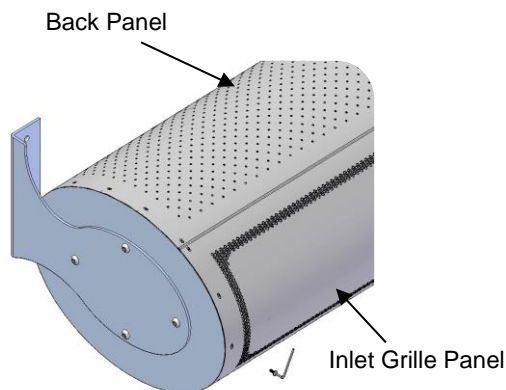
The Invisidor Style₂ Air Curtain should be surface mounted inside the doorway and not exposed to the external environment or moist conditions. It should not be built-in or recessed in any way.

Location

Ensure that the unit is mounted within its height specification of 1.8m to 3.2m maximum (from floor level to the underside of the unit) with the air discharge grille positioned nearest to the door. The air curtain should be located as close to the door opening as possible for best performance, obstructions such as door opening devices, structural beams etc will reduce the efficiency of the air curtain. There must be at least 200mm clearance at the air inlet for air to enter the air curtain.

For maximum effectiveness it is essential to ensure the width of the air curtain is slightly wider than the width of the door when it is open.

Using the 2.5mm hexagon key wrench supplied, unfasten and remove all casing screws from air curtain inlet grille and carefully detach the casing. All screws should be kept safe as they will be required later in the installation.



Wall and Ceiling Fixing

Before fitting the unit to the wall or ceiling ensure suitable wall fixing bolts are used, taking into account unit weight (see Table 1)*.

Style₂ horizontal air curtains are supplied with two steel wall or ceiling brackets fitted to each end of the unit. Refer to Figure 3 for wall mounting details and Figure 4 and Figure 5 for ceiling mounting details.

Ensure all fixings are correctly fitted and securely tightened. Figure 5 shows special ceiling bracket for use with drop rod covers designed to hide services.

*** It is the sole responsibility of the installer to ensure that all the fixing points and suspension system used are suitable for the air curtain being installed.**

Lifting with Eye Bolts

A set of eye bolts are supplied with each horizontal air curtain to assist vertical lifting and positioning of wall and ceiling mounted air curtains. The back panel case should be removed before lifting air curtain into position with eye bolts. Using appropriate lifting equipment plan the safe and secure lift of the air curtain.

Each eye bolt should be located and secured, as detailed in Figure 1, ensuring all the nuts are securely tightened. Remove all eyebolts once the air curtain has been safely lifted and secured into position.

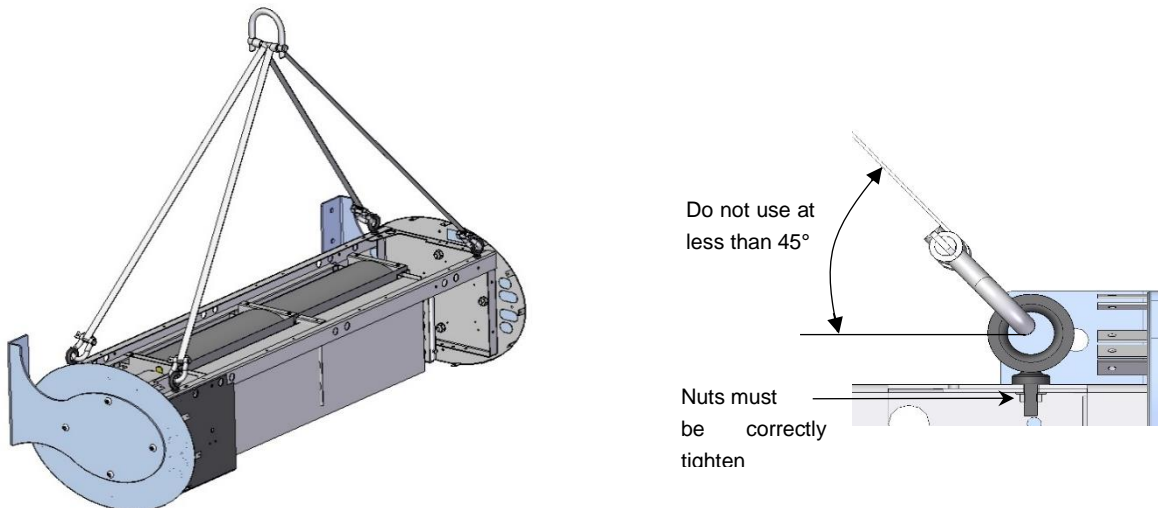


Figure 1 Lifting Air Curtain with Eye Bolts

ALWAYS

- Ensure lifting operations are planned, supervised and carried out in a safe manner.
- Ensure all lifting equipment and accessories are free of damage and suitable for the proposed use.
- Attach lifting equipment securely to the load ensuring load will remain stable when lifted.
- Ensure the load is balanced and will not tilt or fall.
- Refer to the relevant local or statutory codes for safe lifting practices.

NEVER

- Allow inexperienced personnel to operate lifting equipment.
- Use damaged accessories or equipment.
- Attempt to shorten, twist, knot or tie slings.
- Overload slings.
- Hammer, force or wedge slings or accessories into position.
- Allow personnel to ride on loads.
- Stand directly below the load whilst lifting.

Multiple Air Curtains

For multiple air curtains joined together over a doorway an additional wall bracket (6811940) or ceiling bracket (6811950) must be fitted at each joining point, refer below to Figure 2. Inlet casings should only be fitted after all functional tests have been completed and verified (refer to section 4 - Commissioning).

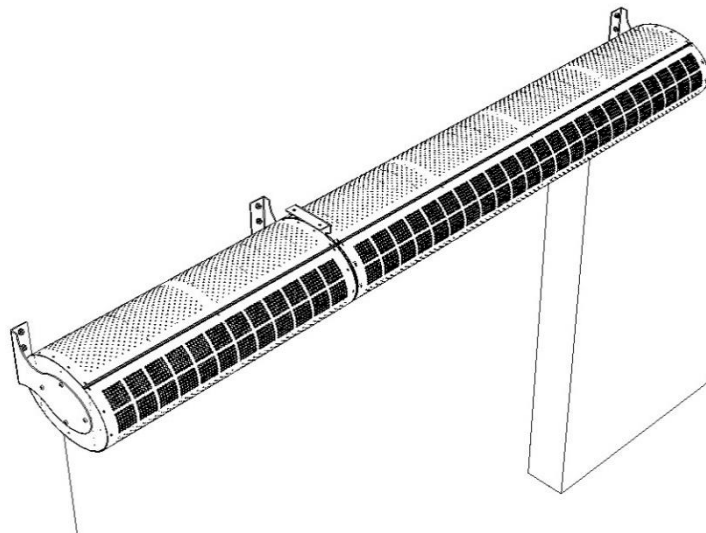


Figure 2. Horizontal Multiple Installation above doorway

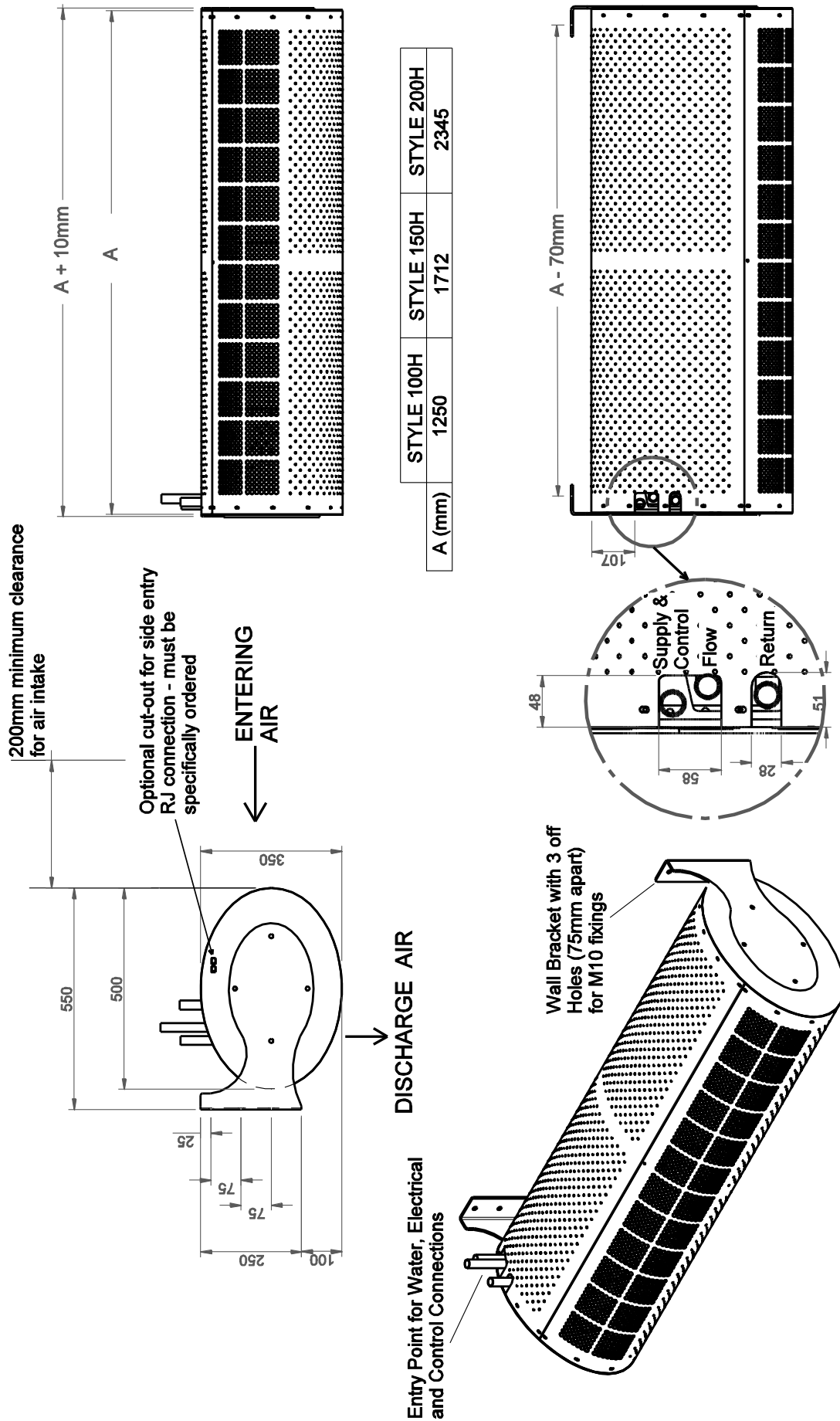


Figure 3 Wall Mounted Horizontal Style₂ Air Curtain

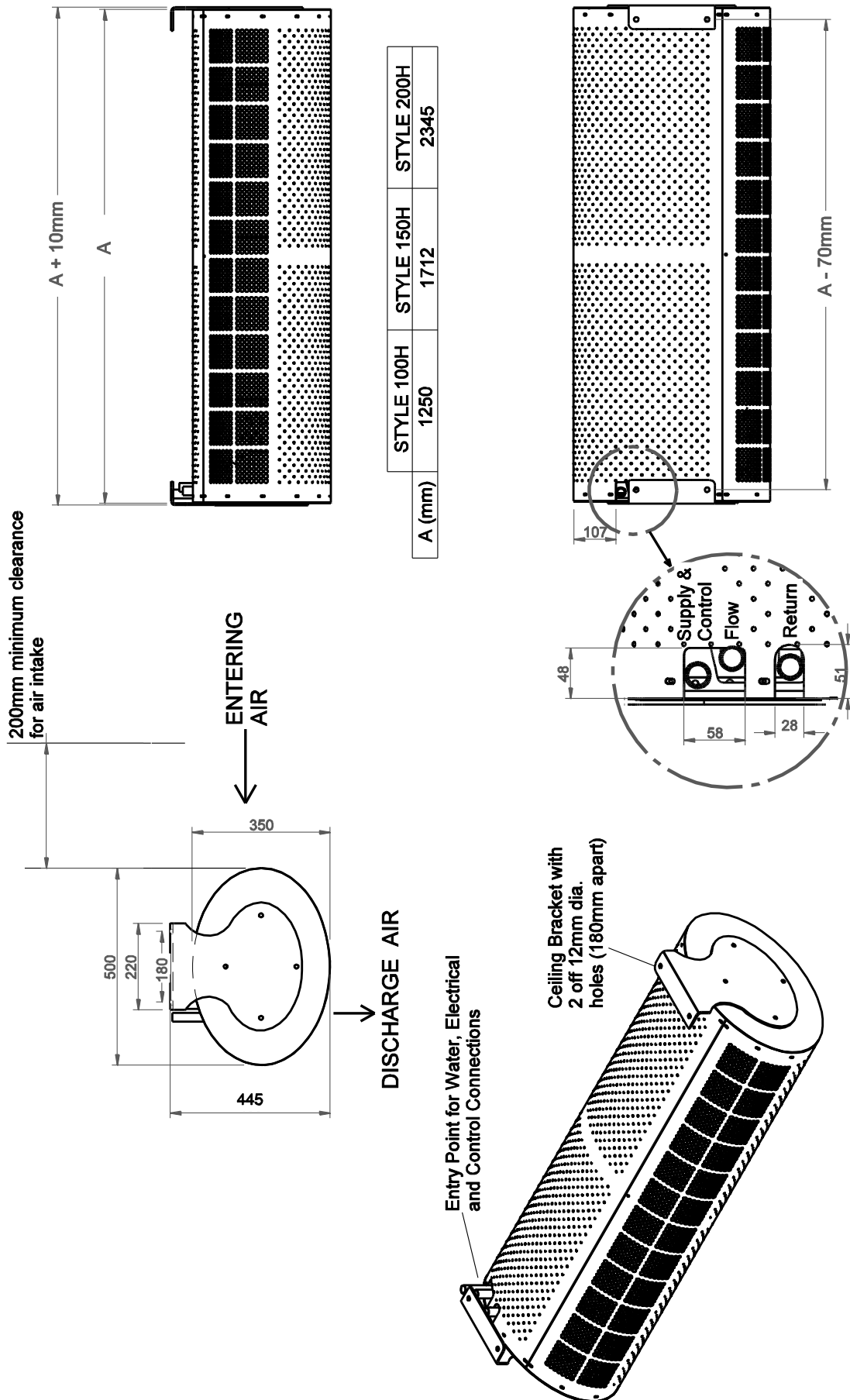


Figure 4 Ceiling Mounted Horizontal Style₂ Air Curtain

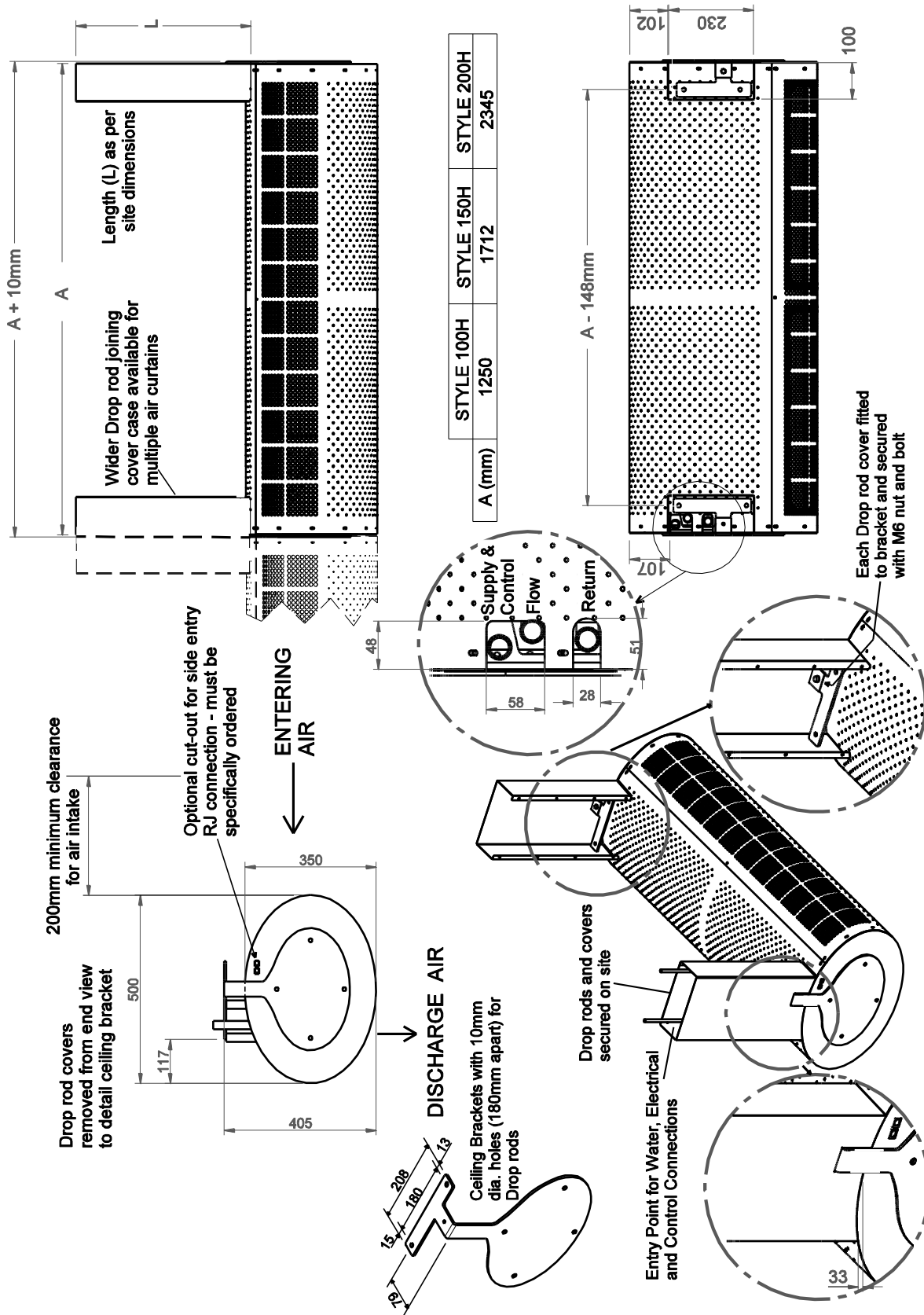


Figure 5 Ceiling Mounted Horizontal Style₂ Air Curtain with Drop Rod Covers

Vertical Style₂ Air Curtain

The air curtain must be surface mounted within the building and not exposed to the external environment or moist conditions. Do not install the air curtain in a doorway situation where there is a likelihood, or there has been a history of, rain ingress. The air curtain must not be built into a compartment or recessed.

Location

Prior to commencing any vertical installation it is essential to ensure the correct handing has been selected, i.e. Left Hand (LH) or Right Hand (RH) - . see “Handing Guide” in Figure 6. Maximum doorway width = 2.5m per air curtain.

For maximum effectiveness, it is essential to ensure the height of the air curtain is slightly higher than the opening height of the door. Obstructions such as door opening devices, structural beams etc will reduce the efficiency of the air curtain. There must be at least 200mm clearance at the air inlet for air to enter the unit, see Figure 6.

Floor Fixing

Using the 2.5mm hexagon key wrench supplied, unfasten and remove all the casing screws from the air curtain and carefully detach both sections of casing. All screws should be kept safe as they will be required later in the installation.

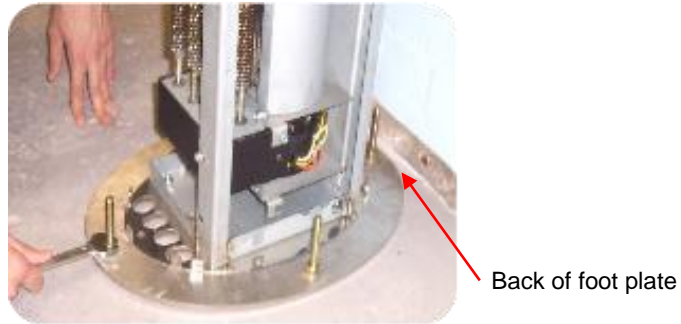
Before installing the Style₂ air curtain obtain four suitable fixing bolts, taking into account floor type and unit weight (see Table 1)*. Rawlplug[®] M10 Projecting Rawlbolt[®] 44356 type may be suitable. For dimensional details refer to the general assembly drawing, Figure 6.

Style₂ vertical air curtains are supplied with the foot plate fitted. Determine and place the unit at its most favourable position. A wall bracket must be fitted to the top of the unit for Style₂ 250V and Style₂ 300V stacked air curtains to tether the top of the unit to the wall. In order to use the wall bracket supplied ensure the back of the foot plate is no more than 25mm away from the wall. If skirting board, with maximum depth of 25mm is fitted, ensure the back of the foot plate is touching the skirting board.

Using the foot plate as a template, mark the location of the four holes, as indicated in the adjacent picture. Using a suitable masonry drill bit, correctly drill the four marked out holes. Place M10 fixing bolts into each hole, ensuring all bolts are upright.

Reposition the air curtain foot plate over the projecting bolts. Tighten each M10 nut as indicated in the adjacent picture. Ensure the vertical unit is secure, upright and square.

It is the sole responsibility of the installer to ensure that the floor and any fixing points are suitable for the air curtain being installed.



Using a hacksaw carefully cut the projecting bolts flush with the nut, ensuring the foot plate is not damaged or marked in any way.



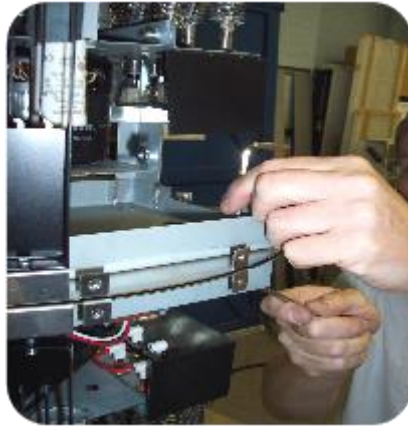
Remove only one M10 nut and refit and secure bolt with a stainless steel M10 dome nut supplied. Repeat for each of the other three projecting bolts one at a time. Both sections of the casing should be fitted only after all functional tests have been completed and verified (see Commissioning).



Stacking Air Curtains

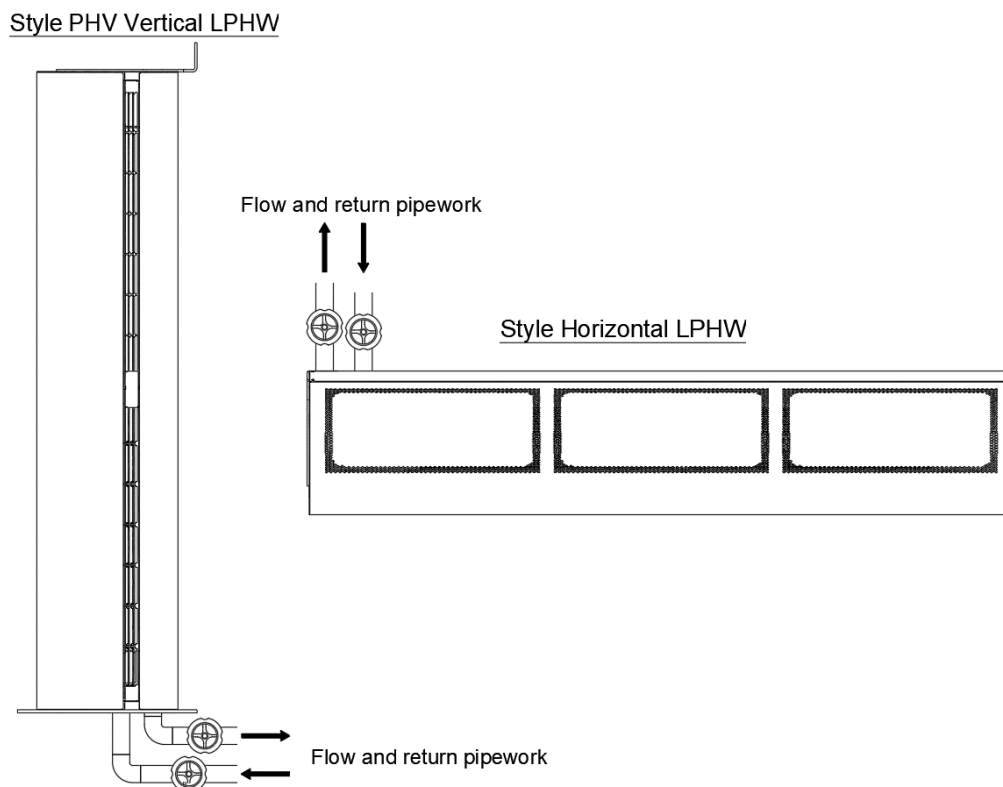
Only a single Style₂ 100 stacking vertical air curtain should be mounted on top of another vertical unit.

Using fixing kit components supplied, the vertical stack frames are joined together using four M8 x 35mm hexagonal bolts and M8 nuts (see picture). Feed each hexagonal bolt from the top unit and fasten with M8 nuts. All stacked units must be secured with a wall bracket at the top of the stack, refer to Figure 6.

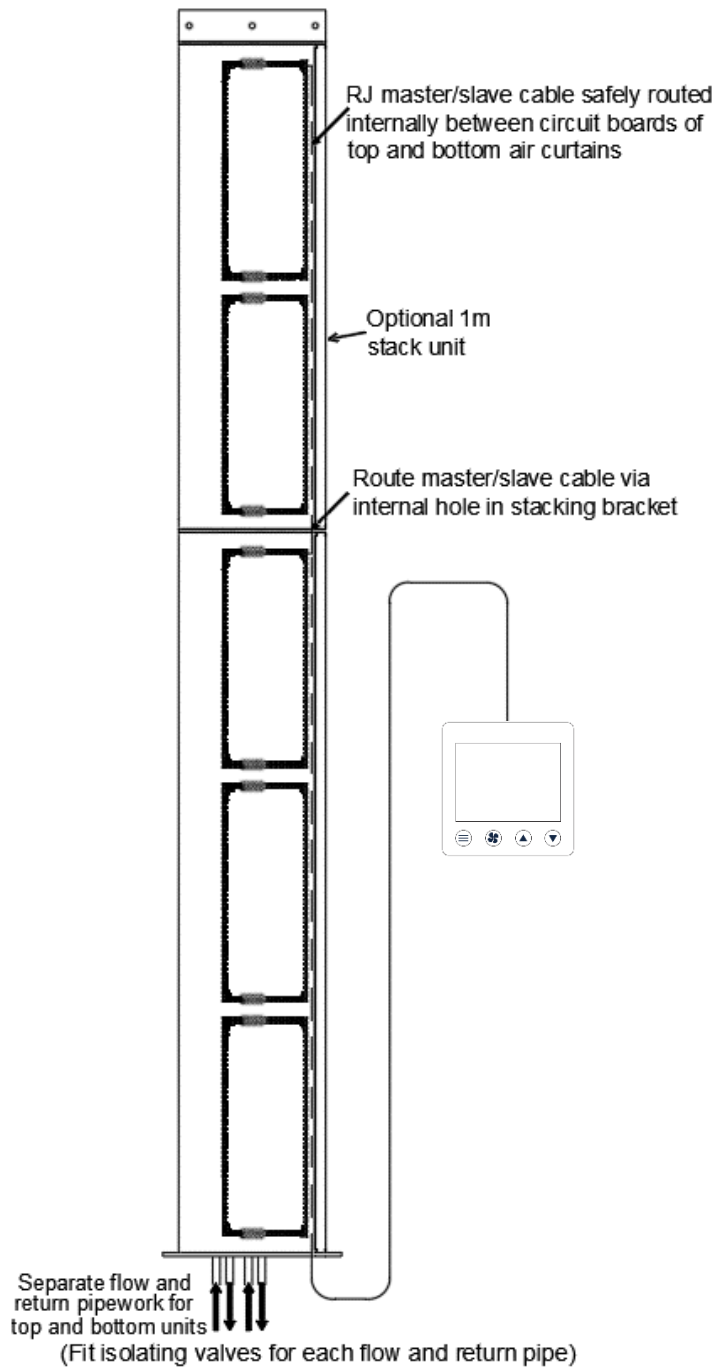


LPHW Models

For LPHW models ensure suitable water isolating valves, as detailed below, are fitted to both the flow and return pipework.



For the Style₂ air curtain the 3 port valve is fitted inside each unit. There must be a removable section of pipe between the isolating valve in the flow pipe and the inlet into the 3-port valve, to allow for removal of the 3 port valve if it ever needs to be replaced.



Each Style₂ LPHW air curtain is fitted with the 3 port valve inside the casing of the air curtain. For two air curtains in a stack each air curtain requires its own separate water flow and return connection.

In order to obtain optimum heat output, all air from the system and the heating coil must be vented.

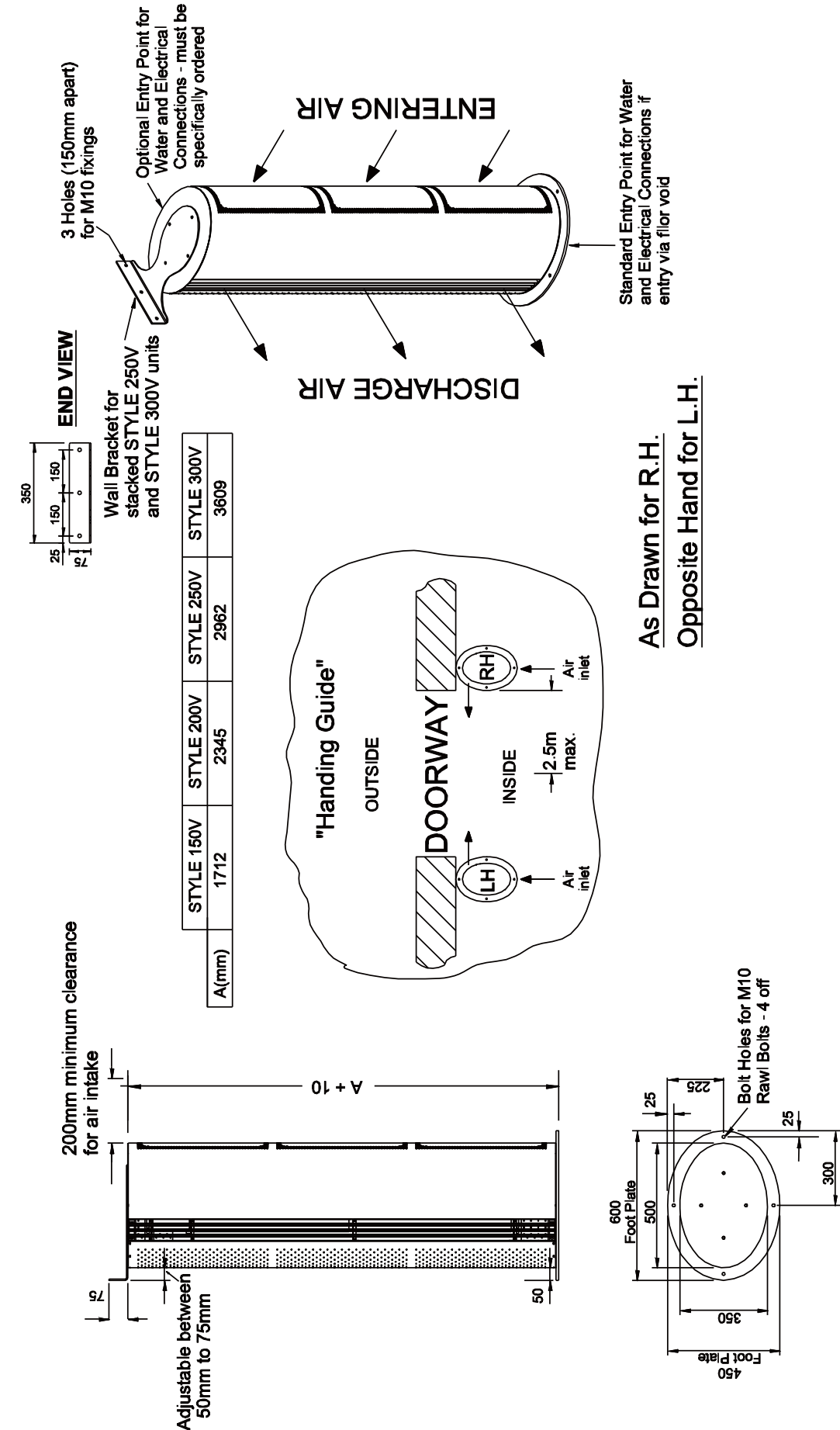


Figure 6 Vertical Mounted Style₂ Air Curtain

MOUNTING AND CONNECTING CONTROLLER

Mount the Touch Controller in a convenient position directly to the wall or onto a switch box.

Wall Mounting

Step 1 Press release button on side of Controller case and pull the back case away.

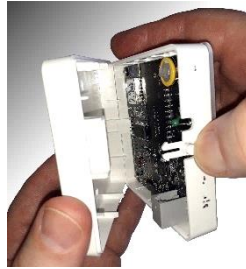


Figure 7.

Step 2 Feed one end of the RJ control cable through the back case, secure it, then screw the back case to the wall using suitable fixings (not supplied).

Step 3 Connect the RJ plug to the RJ socket on the PCB in the remote control.

Step 4 Refit the front case.

Switch box Mounting

Step 1 Press release button on side of Controller case and pull the back case away (Figure 7)

Step 2 Feed one end of the RJ control cable through the switch box, feed and secure the RJ control cable through the back case and secure back case to switch box using 2 mounting screws (not supplied).

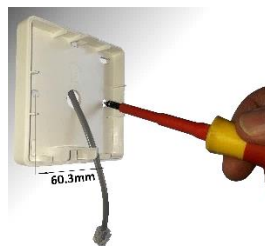


Figure 8.

Step 3 Connect the RJ plug to the RJ socket on the PCB in the remote control.

Step 4 Refit the front case.

USING THE SYSTEM

Basic (Wall Controller) Operation

The air curtain can be operated using the wall controller. The wall controller must be connected via RJ communications lead to CCS PCB.



Home Speed Up Down

On/Off

Press and hold Home touchpad for 2 seconds to turn air curtain ON or OFF.

NOTE: If an electric heated air curtain is heating when switched off the fan will run-on for approximately 2 minutes to dissipate excess heat.



Manual/Automatic

With Controller turned ON tap Home touchpad to switch between Automatic and Manual mode.


The screen displays either **A** for “Auto Mode” or **M** for “Manual Mode”.

Heating level control

Manual mode




Select heating level and cycle between zero, half heat  and to full heat  with each short Up or Down touchpad press.

Automatic mode

Heat output is controlled automatically according to inlet air and the desired temperatures. The inlet air temperature is the upper temperature indication on the Controller adjacent to  on the LCD screen.

Fan speed

Short press Switch touchpad to switch and cycle fan speed:

- low 
- Medium 
- High 

Date and Time Settings

Configure Date and Time settings either via App or on Controller as below.

Turn Controller ON and hold Speed touchpad for 2 seconds.

Follow instructions on LCD screen with:

- Tap Up touchpad to increase value
- Tap Down touchpad to decrease value
- Tap Speed touchpad to confirm values

Wifi Operation

This air curtain can be operated remotely via an app. The app gives additional functionality such as scheduled start/stop, keypad locking and remote diagnostic readouts.

Setting up Wifi connectivity

1. Download and install the Biddle air curtain app from the Apple App Store or Google Play Store
2. Follow on screen instructions to link the device to your app.

Additional Features

Please refer to the in-app help manual on how to use the additional features in the app.

Remote control Settings

Touch Controller with four default software Flag settings provide optional features detailed in

Table 2. If required, software Flag values can be changed by entering advanced settings as below.

With Controller ON, long press both Up and Down touchpad – 01 Flag menu displayed on screen. Tap Home touchpad to detail Flag 01 Reset on powerup.

Follow instructions on LCD screen with:

- Tap Speed touchpad to cycle Flags 1 to 4
- Tap Up or Down touchpad to change selected Flag value.

Tap Home touchpad to confirm value.

| FLAG | Feature | Explanation | Default | Notes |
|------|------------------------------|--|----------|---|
| 1 | Reset on power-up | On restoring power after an electrical interruption all Remote Control settings are retained | 01 (ON) | WARNING! – Fans start on their own after power is restored |
| 2 | Stop fan on cold | Fans are switched off when heating level is achieved (AUTO mode only) | 00 (OFF) | |
| 3 | Never blow cold | Air curtain always heats in AUTO mode | 00 (OFF) | Will not go to ambient mode |
| 4 | Room air temperature control | Enables the room air sensor in the Remote Control | 00 (OFF) | Disables all other temperature sensors |

Table 2.

EXTERNAL CONTROLS

Remote switch contacts IN0, IN1

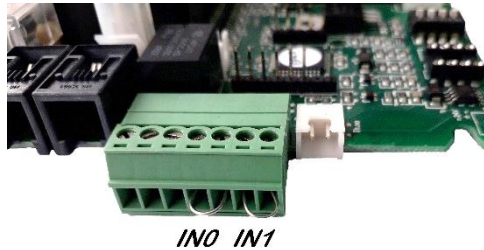




Figure 9

Terminals IN0 and IN1 on the CCS PCB inside the air curtain can be used to provide different control strategies using remote volt-free contacts (see Fig 9). This could be to provide remote On/Off from a timer or BMS Digital/Output contact, to work with a door switch or for simple weather compensation control to disable heating when outdoor air temperatures become warmer. Table 3 describes the different functions:

| Function | IN0 | | Notes |
|-------------------------|---|---|---|
| |  |  | |
| Remote On/Off (INHIBIT) | Unit operates normally in MANUAL Mode or AUTO Mode from the Remote Control | Unit switches off after 15s, with fan run-on at Medium fan speed if DIP 2 = OFF | Use the Remote Control to set up unit and then hide it away if required. * On/Off is then done via IN0 using a remote volt-free contact. |





| Function | IN1 | | DIP 4 | IN0 | Notes |
|---------------------|--|--|-------|---|--|
| |  |  | | | |
| Door Switch Control | After 30s the heating is disabled and the fan goes to low speed | Unit operates normally in MANUAL Mode or AUTO Mode from the Remote Control | ON |  | Door Open:- Normal Control Door Closed:- Heating Off Low Fan Speed |
| Summer Winter | Unit operates normally in MANUAL Mode or AUTO Mode from the Remote Control COLD DAY | Heating is disabled straight away, Fan speeds operate normally from the Remote Control WARM DAY | OFF |  | Simple weather compensation control using an outdoor air thermostat with volt free contacts (see Section 11.3) |

Table 3

NOTE: Wire volt-free, remote switch contacts to 2-way screw terminals IN0 and IN1 using 2-core cable.

WARNING: Do not apply any voltage to terminals IN0 and IN1 as this will damage the CCS PCB inside the air curtain.

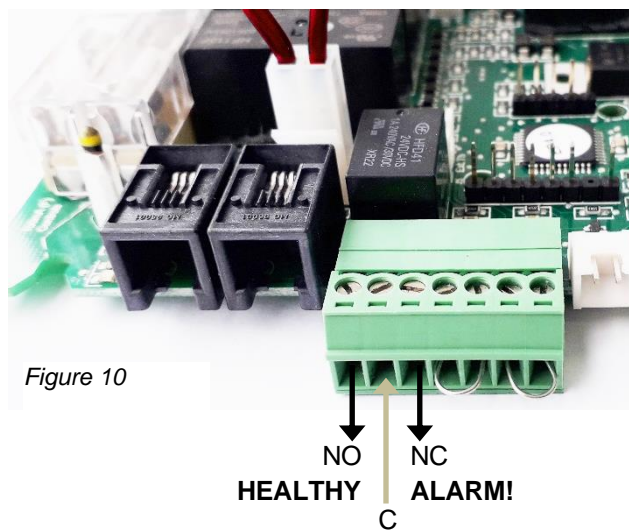
NOTE: The Controller must stay plugged-in for the air curtain to keep working. An optional plug-in EEPROM is available from Biddle so the Remote Control can be un-plugged and the air curtain stay working. Visit the Biddle website for details.

Overheat safety cut-out indication

For electric heated air curtains the CCS PCB includes a fault indication signal for if the overheat safety cut-out on the electric heater operates.

Volt free changeover contacts (1A 240VAC 30VDC) can be wired via the 7-way screw terminal (see Fig 10).

Refer to Section Overheat Safety cut out, for how to reset a overheat safety cut-out situation.



Weather compensation control (Summer/Winter)

To save heating energy on warmer days a simple weather compensation (Summer/Winter) heat control strategy can be used. Fit an outdoor air thermostat with volt-free contacts (supplied by the installer) to a north facing wall.

Use a 2-core cable to connect the outdoor air thermostat to 2-way terminal IN1 on the CCS PCB (see Fig 11) and on the CCS PCB, set DIP 4 to OFF as per Table 3.

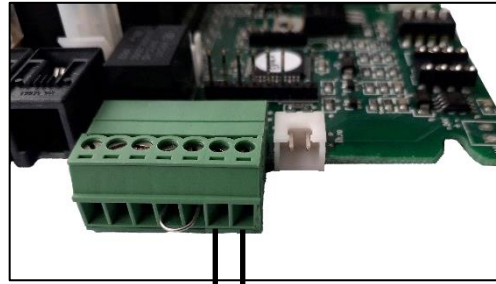


Figure 11

Switch Contact Closed = Heating Enabled (cold day)
Switch Contact Open = Heating Disabled (warm day)



WARNING: Do not apply any voltage to terminal IN1 as this will damage the CCS PCB.

NOTE: To promote increased energy saving a more advanced weather compensation control strategy is available from Biddle. Using a heating curve, the discharge air temperature of the airstream coming from the air curtain is controlled against the outside air temperature. Visit the Biddle website for details.

MULTIPLE AIR CURTAIN SYSTEMS

To Master/Slave two or more air curtains together, or if there are two air curtains in a vertical stack, the remote control is plugged into the first unit (the Master) and a RJ extension lead then connected from the Master to the Slave unit(s).

For horizontal and vertical Master/Slave configuration an independent mains supply as per Table 1 must be supplied to each air curtain. The electrical supply to the top air curtain may be routed via the bottom air curtain. Horizontal application air curtains, up to a maximum of eight units, may be connected as indicated below. 3m RJ extension leads are available and should be ordered separately. They are supplied as standard with vertical stack units.

SYSTEM CONFIGURATION

Optional features

WARNING: Isolate and disconnect air curtain from the power source before making any changes.

DIP switches on the air curtain CCS PCB (see Fig 13) provide the following optional features, as explained below:

- Fan heat interlock
- Disable fan run-on
- Thermostat master (for master/slave installations)
- Weather compensation heat control (Summer/Winter)
- Door switch control

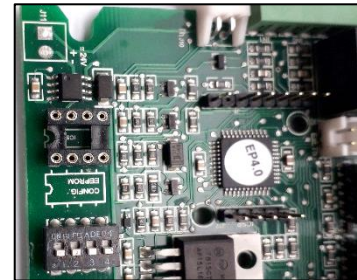


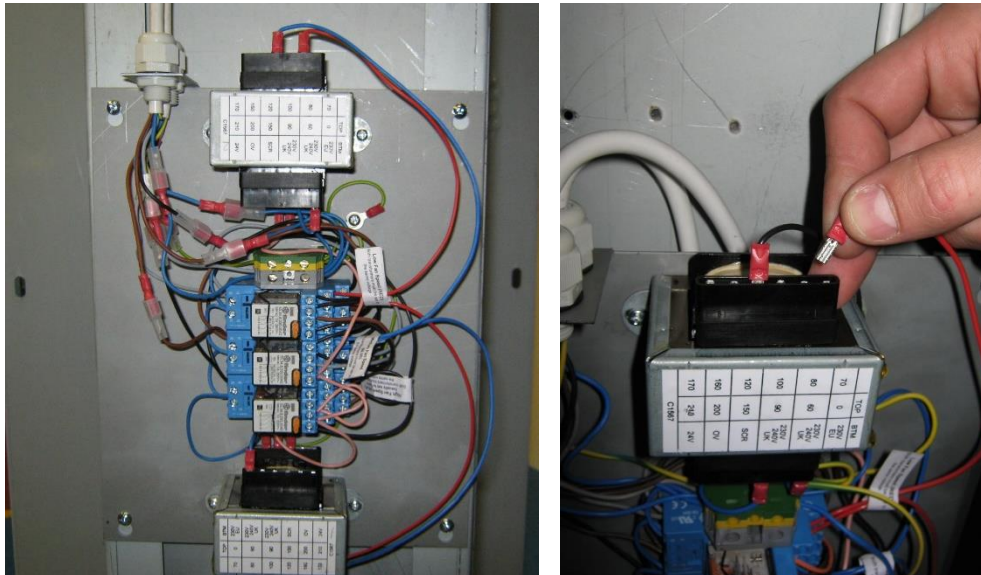
Fig 13

| Feature | DIP setting | Default | Notes |
|--|--|--|---|
| <p>Fan heat interlock Allows fan speed to govern heat output on electric heated units.</p> <p>If low or medium fan speed is selected, a lower heat output results. High heat operates only on high fan speed.</p> | <p>DIP 1</p> <p>ON</p> <p>1 2 3 4</p> | <p>ON</p> <p>Heat output is governed by fan speed.</p> | <p>This feature is only used with electric heated air curtains to limit very high air temperatures.</p> <p>Set DIP1 to OFF if unit is water heated or ambient.</p> |
| <p>Disable fan run-on The 2 minute fan run-on after switch off is enabled or disabled on electric heated air curtains.</p> | <p>DIP 2</p> <p>ON</p> <p>1 2 3 4</p> | <p>OFF</p> <p>Fan run-on at medium speed enabled.</p> | <p>Must only be used for water heated or ambient air curtains. Each air curtain must have DIP2 set to ON for no fan run-on.</p> |
| <p>Thermostat master For master/slave installations. Only the air sensor in the thermostat master air curtain is used to measure air temperature.</p> <p>Set DIP 3 to ON in the air curtain that will be the master unit.</p> | <p>DIP 3</p> <p>ON</p> <p>1 2 3 4</p> | <p>OFF</p> <p>Air curtains in master/slave systems all act independently.</p> | <p>Air sensor thermistors in all slave air curtains will be ignored.</p> <p>Stops some units blowing cold air and others blowing warm air in master/slave systems on larger doorways.</p> |
| <p>Weather compensation control or Door switch control</p> <p>Simple weather compensation control to save heating energy.</p> <p>or Door switch control.</p> | <p>DIP 4</p> <p>ON</p> <p>1 2 3 4</p> | <p>OFF IN1 Weather compensation</p> <p>ON IN1 Door switch</p> | <p>See section 11.1 Remote Switch Contacts IN0 and IN1 for details</p> <p>Weather compensation control is the same as Summer/Winter control</p> |
| <p>NOTE: ■ — Black rectangle is moveable head of DIP switch.</p> | | | |

NOTE: A range of advanced factory fitted and plug-in control options are available from Biddle to enhance the performance of the CCS PCB inside the air curtain. These include advanced weather compensation control using a heating curve, outlet air temperature control, ECObus® BACnet/Modbus BMS control, modulating heater outputs and EEPROMs for non-standard control strategies. Visit the Biddle website for details.

TRANSFORMER SPEED CONTROLLER

The transformer speed controller fitted to each Style₂ air curtain provides adjustable fan speed control (see below). The transformer tapping output voltages are factory set to three suitable voltages for high, medium and low fan speeds. For 2m air curtains both transformers are connected. For 1m and 1.5m units only one transformer is connected. If fan speed voltage adjustment is required for any of the speeds, move the appropriate fan speed voltage cable (Black – High Speed wire, Blue – Medium Speed wire and Red – Low Speed wire) to a different transformer voltage tapping.



The Black, Blue and Red wires for the fan speeds **must be** connected to the same voltage tapings on both transformers i.e. if the Blue medium speed wire is connected to 100V tapping on one transformer it must be connected to the 100V tapping on the other transformer.

COMMISSIONING THE SYSTEM

Verify System Operation

To commission the system, verify the following conditions are met:

- With the casing **still removed** check the air curtain fans operate correctly and there is no excessive mechanical noise. All fans are working.
- Fans operate at Low, Medium and High speeds.
- When heating is selected, the air stream from the discharge grille warms up across the whole length of the air curtain.
- Verify the operation of the Style₂ remote control in Manual Mode. Then select Auto Mode and increase the heating set point until the air stream warms up. Reduce the heating set point until the airstream goes cold. Once all functional tests have been carried out and the air curtain operates satisfactorily, hook and locate the inlet casing in between its fixing tabs ensuring all fixing holes are correctly aligned with tab inserts. Secure panel using the casing screws supplied.
- Warm air reaches across the doorway with door open or closed.
- For electric and water heated air curtains Controller operates correctly in both manual and auto modes.

SIGN OFF

Complete the following once commissioning is completed:

| | | | |
|----------------------------|--|---------------------------|--|
| Installer signature | | Customer signature | |
| Installer name | | Customer name | |
| Installer company | | Customer company | |
| Date | | Date | |

Instruct customer and hand over

Before leaving site, hand over the installation to the customer/end user or their representative.

Explain that any person operating the air curtain must be given supervision and instruction by the person responsible for their safety, concerning the safe use of the unit and to understand any hazards involved. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Recommend that the doorway should be closed whenever possible but that during times of high pedestrian use it will become an 'open doorway'. The air curtain then serves an essential purpose by saving energy and providing comfort to occupants.

Explain that the air inlet surface must be cleaned regularly and the unit serviced at schedule intervals – see section 19: Service & Maintenance.

| |
|---|
| <p>NOTE: Leave these instructions with the customer/end user or their representative</p> |
|---|

FAULT CONDITIONS

Touch Controller Reset Overheat Safety cut-out

This is indicated by flashing warning symbol on Touch Controller and a red status LED on the CCS PCB inside the air curtain.

To reset a overheat safety cut-out:

Step 1 Switch off the electrical supply to the air curtain.

Step 2 Allow time for the air curtain to cool down, typically 10 minutes.

Step 3 Switch on the electrical supply to the air curtain.

Step 4 If Controller is switched off, press and hold Home button for 2 seconds to turn Controller ON.

Step 5 Press the Home touchpad on Controller 8 times.

Air curtain heaters will then operate and after 30 seconds the Controller warning symbol will disappear and status LED on CCS PCB flash green.

Fuses

In the event of an electrical fault internal electrical fuses may operate. There are two internal fuses located on the CCS PCB inside the air curtain:

- Fuse 6.3A(T) supplies the fan motors within the air curtain.
- Fuse 100mA(F) controls the circuitry of the CCS PCB

CCS PCB status indication

There is a status LED on the CCS PCB inside the air curtain (See LED shown on Wiring Diagrams in the Appendix).

This indicates the status of the CCS Control system as follows:

1. LED flashing green – operation normal.
2. LED flashing red – low supply voltage, remote control not plugged in or RJ cable fault.
3. LED permanently red – overheat safety cut-out(s) open circuit from an overheat situation (see Section: Fault Conditions – Overheat safety cut-out for how to reset)

SERVICE & MAINTENANCE

WARNING: Failure to adequately maintain the unit and provide a suitable cleaning schedule will result in a loss of performance and reduced life expectancy of the air-curtain and possible overheating and fire risk with electric heated units.

Every 3 months

WARNING: Before servicing, isolate and disconnect the air curtain from the electrical power.

WARNING: The following servicing and maintenance must be carried out by a competent electrician or a Biddle appointed technician.

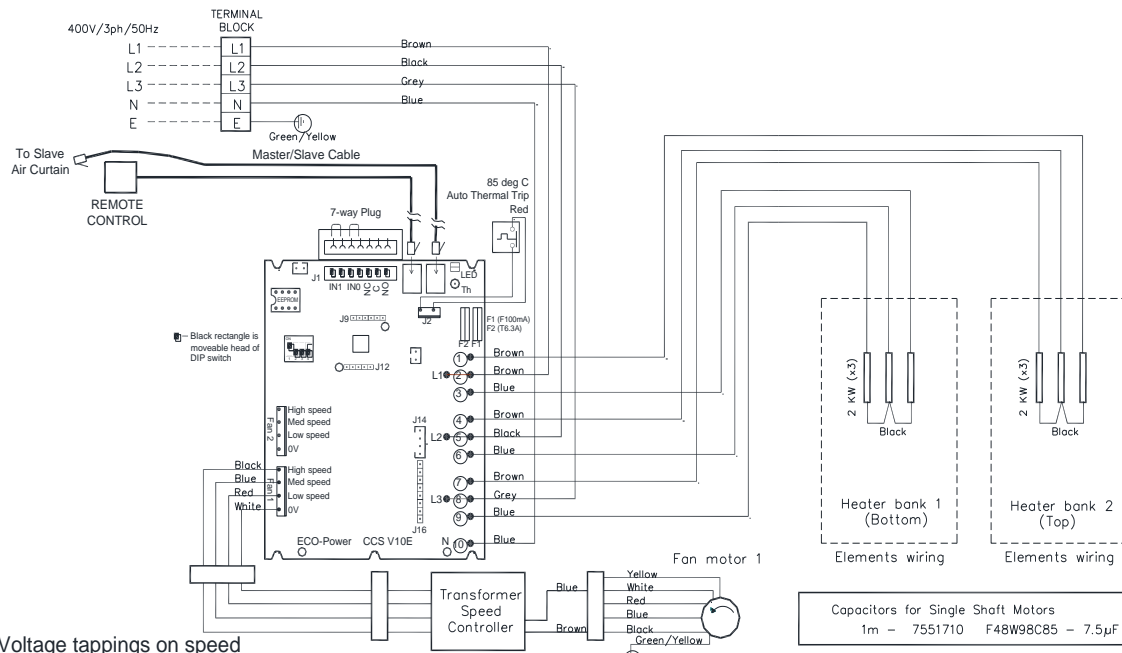
Always disconnect and isolate the mains electrical supply before installing, maintaining or repairing this equipment. With 2.5m or 3m vertical air curtains there are two air curtains, one stacked on top of the other. Isolate the mains supply to both top and bottom air curtains.

To ensure the air curtain operates at full efficiency the back casing and inlet casing panel, fan impellers, housings and motors must be kept free of dust and debris. Build up of dust on the fan impellers can cause vibration, noise and excessive wear on the motor bearings.

Frequency of cleaning will depend on the environment, but we would recommend that the unit be cleaned a minimum of every 3 months (failure to adequately maintain the unit and provide a suitable cleaning schedule will result in performance degradation and reduce the life expectancy of the air-curtain).

Remove the inlet casing panels from the air curtain. Vacuum and clean the build-up of dirt and debris within the air-curtain (*please note that the motor(s) are permanently lubricated and require no additional lubrication*).

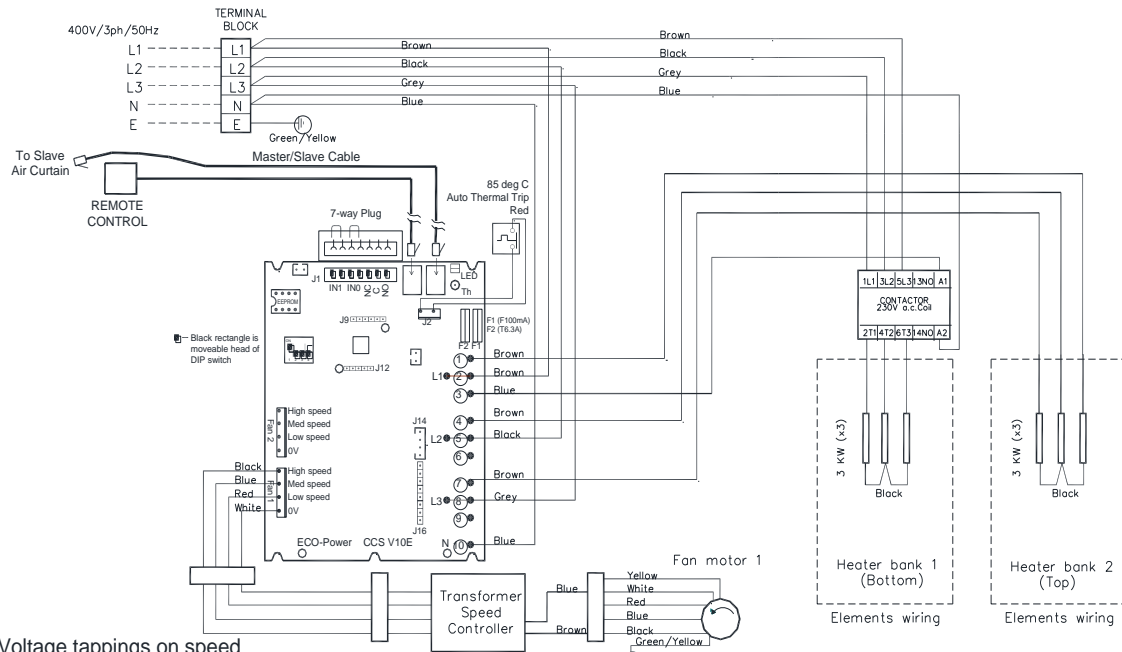
If the outer casing requires cleaning this should be done using a warm soft cloth. Do not use solvents or abrasive materials.



Voltage tappings on speed controller can be re-set to adjust fan speeds to suit site conditions

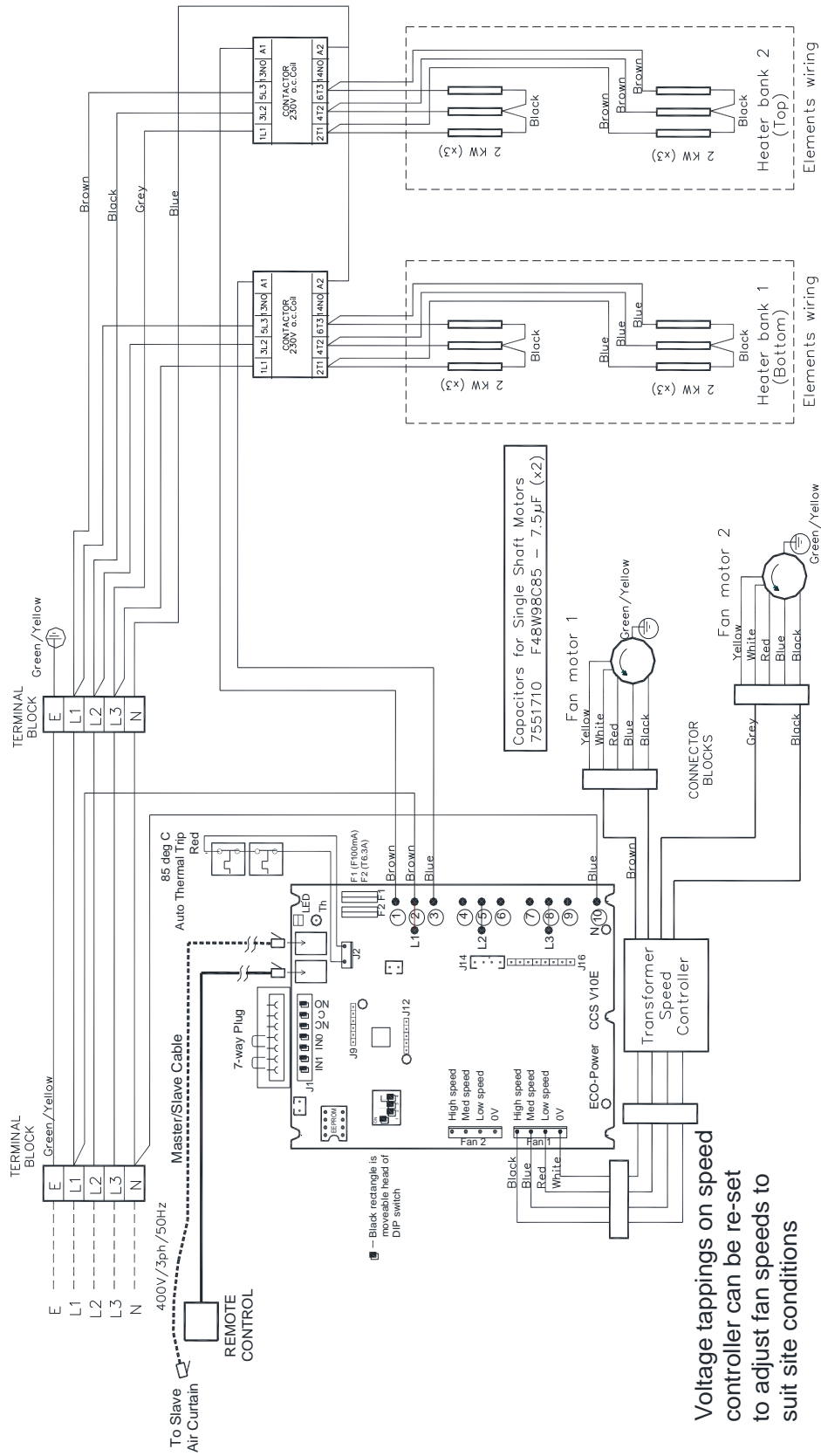
Style 100E H and Style 100E V*

* used as top air curtain for vertical stacking only



Voltage tappings on speed controller can be re-set to adjust fan speeds to suit site conditions

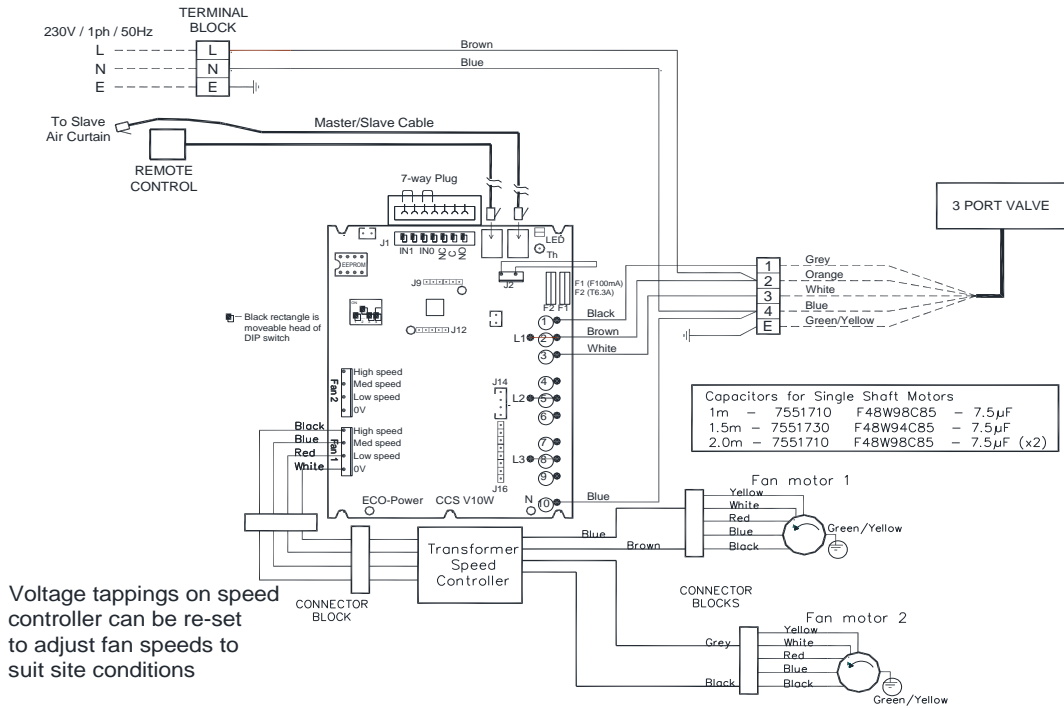
Style 150E H and Style 150E V



Voltage tappings on speed controller can be re-set to adjust fan speeds to suit site conditions

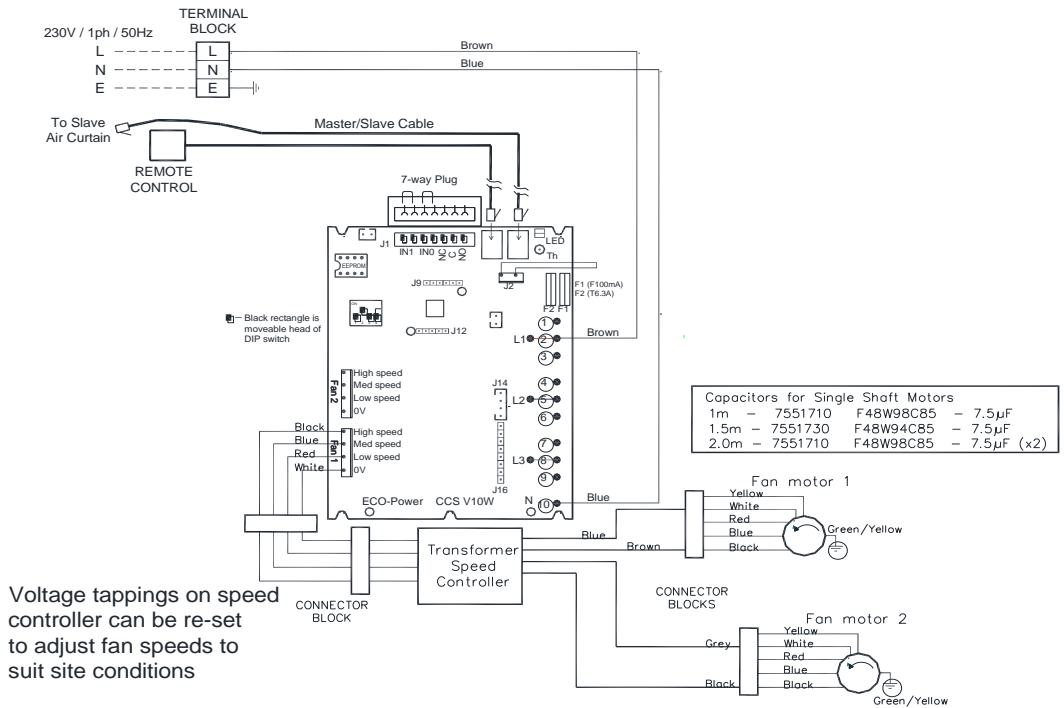
Style 200E H and Style 200E V

APPENDIX 2 — Wiring Diagram



Style 100W H, Style 150W H, Style 200W H, Style 100W V*, Style 150W V and Style 200W V

* used only as top air curtain for vertical stacking



Style 100A H, Style 150A H, Style 200A H, Style 100A V*, Style 150A V and Style 200A V

* used only as top air curtain for vertical stacking