

The CAB & DAB Air Curtains

Frequently Asked Questions

General Positioning	Page 2
Electrical & Connection	Page 4
Electric Heated	Page 5
Electronic door triggered shutdown feature (Electric)	Page 5
Electronic shutdown control logic (Electric)	Page 7
Ambient & Cold Store models	Page 8
Water Heated models	Page 9
Electronic door triggered shutdown feature (Ambient & Water)	Page 10
Electronic shutdown control logic (Ambient & Water)	Page 11
Recessed Applications	Page 12
Special Applications	Page 13
Trouble Shoot Guide	Page 14-17

General Positioning

My door width is 1.5m wide, can I fit a 1m unit in the centre of the doorway?

Not advisable unless the amount the door opens (bi-parting door) is restricted to 1m or less. The air curtain will act as an over-door heater only.

I would like to install the air curtain at 2.3m above the floor, will this affect the performance of the product?

OK for CAB series / Low fan speed setting available for lower mounting heights.

I am considering fitting an air curtain to a 3m high door, which model is suitable?

Generally, a CAB model is suited in optimum conditions. However, if wind pressure around the door is significant, a DAB should be considered.

How close to the door should I mount the air curtain?

As close as possible ensuring the air stream does not affect a PIR door sensor or cover exit signs.

I have glass above the doorway and need to hang the air curtain. How do I do this?

M8 Threaded rod (4 per module) or support of similar strength (cable / chain...)

I would like to fit the air curtain over an "up and over" door. How do I do this?

Framework will need to be made from either side of the doorway such that the air-curtain can be mounted below the door path.

Ensure that the new height restriction is not a problem.

Can I fit the air curtain over a roller door?

Framework will need to be made from either side of the doorway such that the air-curtain can be mounted below the door path.

Ensure that the new height restriction is not a problem.

I need to mount the air curtain behind a bulkhead, what clearance should be left in front of the product?

200mm front clearance to the inlet grille for either CAB or DAB models.

How do I fit the air curtain into a suspended ceiling?

*Rods through the ceiling to a solid supporting member above.
Electric recessed models may be directly recessed as a single unit (twin for 2m variant)
LPHW & Ambient are recessed using the appropriate recessing kit supplied.
(the core of the supplied grille is designed to fit into a 600mm ceiling tile matrix.*

I already use a static strip air curtain, but can I fit an air curtain to improve performance?

*Recommend removal of the static strips as these will impede the air curtain performance, and can be dangerous due to poor 'through' visibility.
If both systems are to be employed, they should be positioned at separated openings, with the air curtain to the 'warmer' side.*

How far from the air curtain can I position the wall mounted controller?

Up to 90m total cable length

What size aperture is needed to fit the wall mounted controller?

To suit standard 2 gang wall pattress.

The air flow from the air curtain feels cold, is there a problem with it?

Check heat selected at switch box.

If yes: the following steps can be carried out by a suitably qualified electrician.

Thermal trips cause the air-curtain to stop completely – so not activated.

If 'No' heat:

Try both heat settings

Check switch box connections, and heat connection from switch box to PCB.

Check Ethernet CAT5 cable connections (dependant on model)

If supply OK at these points, check resistance of elements, if all same, recommend replacement of PCB.

How do I position the unit around the emergency exit sign?

Advise - move sign in front of air-curtain without blocking the air inlet.

How do I position the unit around a PIR auto door sensor?

Advise - move sensor in front of air-curtain without blocking the air inlet.

Electrical & Connection

What electrical supply do I need to power the air curtains?

Refer to Spec table or instructions provided.

Can I link the electrical supply of more than one air curtain together?

Supply should be such that wire size and circuit breakers are adequate for the load. Separate circuits may be required.

How do I connect the wall mount controller to a multiple air curtain system?

Connect control to chosen 'master module'. Other air-curtains will act as Slave modules if connected to this master unit using the modular installation kit. A simple CAT5 cable makes connections between units fast and easy.

I have a BMS system and need to control the air curtain from it, what control will be offered through the BMS link?

*Electrically heated modules: On/Off, Heat select, Fan speed
Water heated / ambient modules: On/Off, Fan speed.*

How do I connect the air curtain to the BMS system?

Direct connections to the PCB (refer to wiring diagram)

Do the air curtains offer any fault reporting through the BMS system?

No

Can I connect the air curtains to a single phase 230/240v supply?

Water/Ambient only suited to 1ph supply.

Electrically heated models can be adapted to run at max ½ load on 1ph supply – A separate down-rating kit is available for this purpose.

Which type of MCB is suitable for use with the air curtains?

Type C at the appropriate rating for the product rating.

Are the motors inductive or resistive and what are the start-up currents?

Motors are inductive but with low ratings (see table), start-up currents are negligible.

How do I connect a timer to the air curtain?

Whilst a timer and contactors can be used to isolate power to the air curtain, Dimplex recommend using a timer with a volt free contact connected to the "Bus 12v" input or the "Door Sensor" input on the PCB. Either ensures the shutdown sequence still operates cooling the elements. Use "Bus 12v" for a 30 second run back or "Door Sensor" for a staged 3 minute run back sequence. This ensures the shutdown sequence is still able to operate and cool the elements prior to shutdown.

Electrically Heated

How do I re-set the thermal cut-outs?

2 thermal cut-outs are accessible from below the air curtain.

If the trip has activated, the reset button will spring out. Depress to reset.

All surface mounted models have top mounted resets.

CAB electric recessed models have resets inside, visible from below.

Other recessed models must be accessed through pre-cut holes in the intake ducting, situated on top of the unit.

What electrical isolation should be provided?

Suitably rated local isolation and fusing of supply circuit.

How can I control the energy used by the air curtain system to minimize running costs?

All Electric models have a built in tamperproof thermostat set on installation.

The air curtain will then cycle dependant on the ambient temperature set.

In addition fitting a simple door sensor or compatible PIR sensor can provide energy savings in line with usage patterns.

Can I use any type of door switch or PIR sensor with the air curtain?

Please see our Quick Start Guide for more details.

How is the door switch connected to the air curtain?

Direct to PCB. Refer to wiring diagram

What functionality is offered when using a door switch?

The Dimplex control runs a staged shut down following a door closure; this will have the following benefits for persons sited within the vicinity of the door:

The run-on gives an additional heating period to counter any cold air-introduced through the door when opened.

In high door use periods, the 'start-up' period where the fan and heating elements are running inefficiently can be reduced or eliminated.

The cyclic noise variation of the air-curtain in periods of high door use will be reduced, and is therefore less intrusive.

For persons entering the building in 'high-use' periods, the air-curtain will be 'pre-heated' and the curtain of air will be warm.

By dropping to a ½ heat set-back condition after 1 minute (see flow charts below), there is an energy saving of 25% over a 2 minute full-heat run on-period.

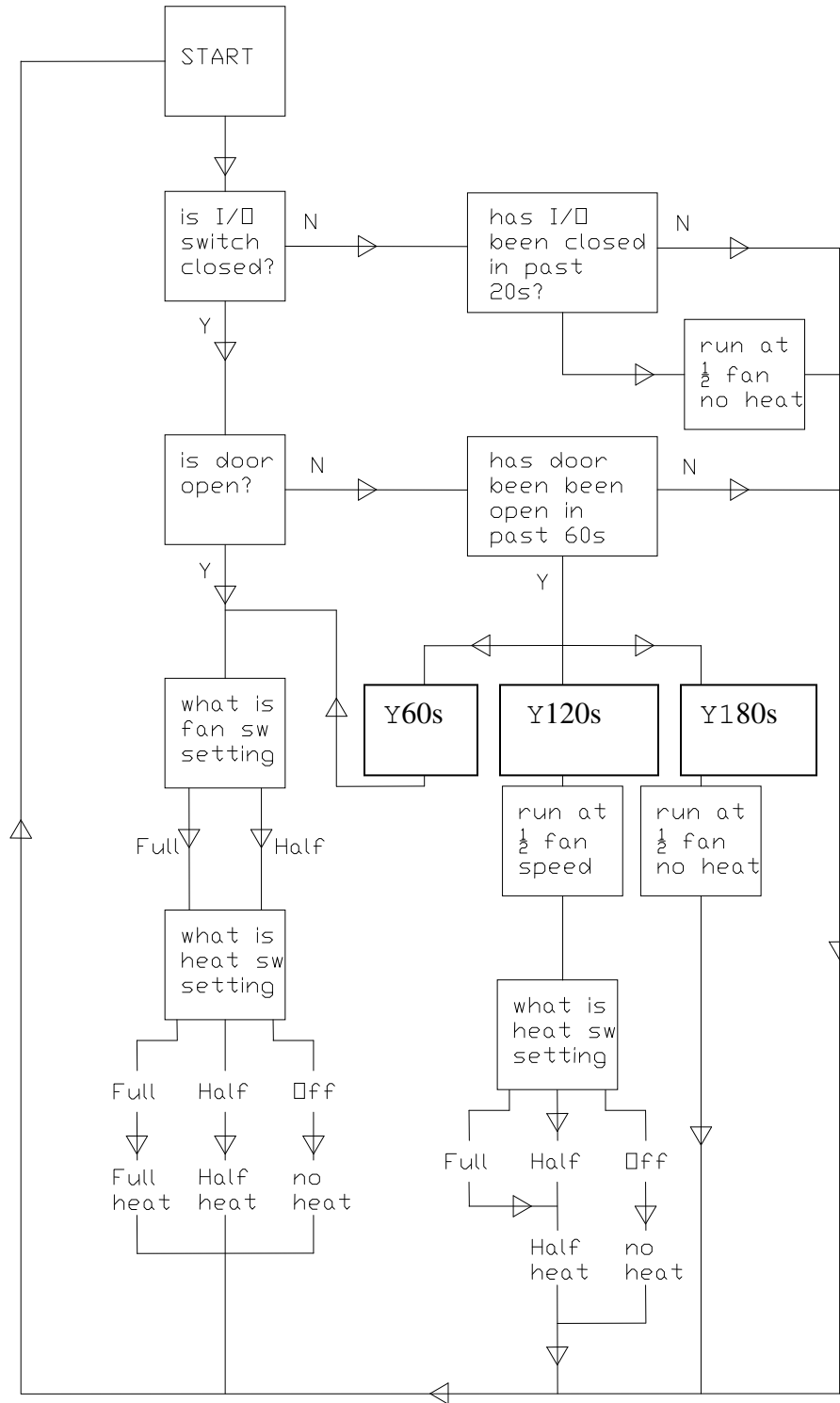
The Dimplex Air-Curtain control runs as follows in conjunction with a door switch

1 minute at set heat and fan speed condition → 1 minute at ½ heat and ½ fan speed condition → 1 minute at 0 heat and ½ fan speed.

(where full fan speed = c. 1400 rev/min and ½ fan speed = c 900 rev/min)

For a correctly designed heating installation, the requirement for heat from the air-curtain will drop off with time following a door opening/closure.

*CAB/DAB Electrically Heated
Control Logic*



Ambient / Cold Store

Why is an air curtain more effective than a static strip curtain?

Primarily, Visibility / Safety – As strip curtains become scratched by passing traffic, visibility through the doorway they are protecting becomes increasingly difficult.

The seal offered by a strip curtain when traffic is passing is also poor.

How do I position the air curtain when fitting in a cold store environment?

Outside cold area, mounted to clear any door mechanisms.

(not suitable for external applications)

How do I position the air curtain when used in an air conditioned environment?

Generally inside the air-conditioned environment.

Can the air curtain be used in wet / damp atmospheres?

High humidity applications should be avoided as the life of the air curtain will be reduced. At no time should the air curtain be subjected to direct water spray.

Should the cold room door always be kept closed?

Yes – When access not required.

Can a BMS system control a product fitted in a cold store / air conditioned environment?

Yes.

Water heated (Low Pressure Hot Water)

What water temperature do you recommend for use with the air curtains?

Any below 120°C and 10 bar pressure.

To give the rated output however an 82°C supply and a flow rate to give a 71°C return water temperature is required.

Other performances can be calculated.

What is the temperature of the air as it leaves the product?

Dependant on the water conditions and the supply air-condition.

What is the heating output of the water models?

Refer to the following Spec table:

Model	Door Area	Airflow	Max Input power (W)	Heat Output @ 82/71°C water & 18°C air input	Electrical Supply
CAB10W	1.0m x 3.0m	8.5m/s	100W	9.0kW	220-240VAC 1PN
CAB15W	1.5m x 3.0m	8.5m/s	130W	13.5kW	220-240VAC 1PN
DAB10W	1.0m x 4.0m	13.0m/s	400W	12.0kW	220-240VAC 1PN
DAB15W	1.5m x 4.0m	13.0m/s	570W	18.0kW	220-240VAC 1PN

Should I use shut-off valves and where should they be positioned?

Yes – In case coil / air-curtain removal is required.

As close to the product as possible.

What is the maximum system pressure and temperature under normal conditions?

120°C / 10 bar

Does the water system need to contain special air-bleed valves and drainage points for maintenance?

Included in the coil design. Any other possible air / water traps in the supply pipe-work should have suitable valves fitted.

I would like to connect the water from the right-hand side of the unit. Is this possible?

Yes (coil reversible)

How do you switch the coil around for right-hand connection?

Unbolt (from outside product – top panel) remove and reverse.

When fitting more than one unit, can the units be fixed together or are they simply placed next to each other?

Fixed using the modular installation kit and 2 lengths of 25x50mm uni-strut cut to cover the complete length of the assembly.

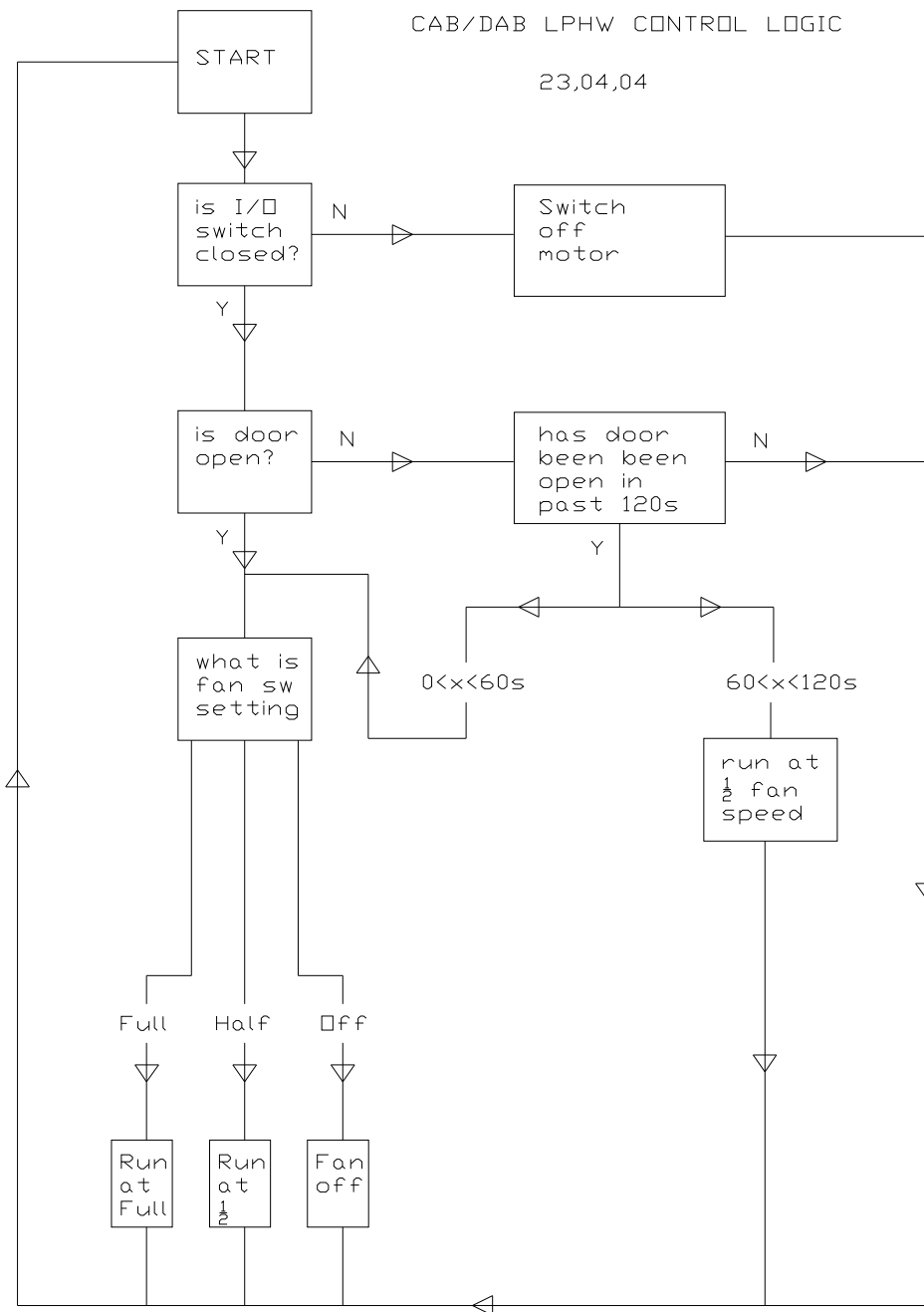
How do you connect the controller to more than one unit?

The controller is connected to one “master” unit with all other units operated through this unit. (Master–Slave operation).

How does the product operate when used with a door switch?

The Dimplex Air-Curtain LPHW control runs as follows in conjunction with a door switch

*1 minute at set fan speed condition → 1 minute @ ½ fan speed condition
(where full fan speed = c.1400 rev/min and ½ fan speed = c 900 rev/min)*



Will the air curtains offer savings in energy?

This is possible. A correctly installed and commissioned air curtain should reduce facility HVAC running costs by up to 33% compared to a building with an "Open door policy" and no air curtain.

A simple door switch or PIR sensor can be connected into the system to reduce energy according to usage pattern.

Recessed Applications

Is there a specific Dimplex model suited to recessed installation?

All CAB & DAB models can be supplied for recessed installation.

In addition a new range of electric recessed CAB models with installer friendly features completes the range.

Can the air curtains be mounted within a suspended ceiling?

Yes

Can the air curtains be mounted within a plastered ceiling?

Yes

How do you gain access to service a product when it is recess mounted?

Grille core can be removed.

How does the product draw its air when recess mounted?

Through the ceiling grille.

Can I fit two modules together in a recessed installation?

Yes

How can I re-set the thermal cut-outs on a recessed product?

1st remove grille core and then reach through the pre-cut holes in the intake duct to the cut-out buttons, which are positioned on top of the product.

For CAB electric recessed the cut-outs are visible inside the unit after grille core removal.

How do I gain access to the electrical connections when recess mounted?

Remove grille core, outlet vane and lower panel.

For CAB electric recessed only the grille needs removing.

Special Applications

Can I install the product into a dusty environment?

Within reason (periodic cleaning with a vacuum should be increased when fitted in these environments) – dust with a metallic component should be avoided.

Are there any special considerations when using air curtains near paint lines?

No

Can the air curtains be used for drying purposes?

Not suitable for use in wet areas such as car wash applications, and not for high pressure air-flow 'air-knife' applications. Otherwise - Yes

Does the air stream stop flies from entering through the doorway?

Fly stop applications require the maximum possible air-velocity, and are never 100% effective.

The DAB series could be used for fly-stop applications to a height of about 2.5m.

Trouble Shoot - Checklist

	Symptoms	Checks	Notes
1	Power	Check electrical supply – 3 phase & neutral Check 230/240v between any phase & neutral Check manual reset cut-outs (cuts all power)	Ensure power to the unit(s) is constant and capable of supporting heat load(s)
2	Heat	Check manual reset cut-outs (2 per air curtain module)	Press button reset
3	Power or Heat	Check connections within the wall mounted switchbox are all as per the instructions	CAT5 plug & socket Door switch connections
4	Heat without Power	Check the rotors turn freely	Regular maintenance
5	Units not working as a system	Check power & signal to each unit	See item 7
6	Limited Fan or Heat Control	Check for 'clicking' noise from PCB when switchbox selections made	'Clicking' relays confirms PCB operation ok.
		Check and adjust setting of thermostat – too low and it may cut the heat output	Raise setting to maximum to test operation
7	Strange / Unusual Operation	Check power is connected to all units	
		Switch Auto/Man switch to Man if no door switch or PIR sensor fitted	Auto only used with external sensors / switches
		Check PCB LED status <ul style="list-style-type: none"> • On = PCB ok • Flashes for 3 seconds = PCB ok • Flashes constantly = Bad connection / PCB fault 	Ensure connections are double checked prior to replacement
		Check CAT5 cable is connected correctly and has no wiring cross-over in the plug	Not <i>all</i> are wired the same
		Remove BUS12V & BUSGRD on slave boards only	Switch plate only requires 12v power from one of the PCB's

Trouble Shoot Guide

	Symptoms		Fault	Notes
1.	Unit is dead at switch-on No relay click at power-on Fan doesn't come on PCB LED not lit	a.	Three phase supply not wired correctly No neutral connected to the distribution board Manual reset cut-out tripped (cuts all power)	For all xxxxE units, the fan will operate for 30 seconds at power-on independent of switch settings
		b.	Three phase supply to unit not present or fuse blown in supply circuit.	
		c.	Internal control circuit fuse (F2 fuse, printed circuit mounted, 5AT 20mm x 5mm) may be blown	
		d.	Cut-out has triggered – Manual reset required	
2.	No fan or heat in Auto mode	a.	Check for heat or fan selection at the switchbox Otherwise, check door switch mechanism	In Auto mode a switch is open when door is opened causing the unit to operate as switchbox settings.
		b.	Thermostat has disabled low heat setting – increase thermostat setting.	
		c.	Door is closed and operation disabled - Use manual mode to control heat & fan speed independently	
3.	No fan or heat in Manual mode	a.	Check for heat or fan selection at the switchbox	
		b.	Thermostat has disabled low heat setting – increase thermostat setting	

	Symptoms		Fault	Notes
4.	Unit blows air but with no heat output	a.	Check for heat selected at the switchbox	Thermostat disables low heat by design, if high heat selected unit will operate at low heat when thermostat open.
		b.	Thermostat is not requesting heat – increase heat setting on thermostat and ensure high heat and full fan on the switchbox.	
5.	Heat switches on without fan – unit cuts out after a period of time	a.	Fan motor may be faulty (open circuit) causing too much heat build up inside the unit tripping the thermal cut-outs – check problem cause prior to manual reset required	If switching from off to fan only produces a “click” fan relay is ok.
6.	Heat and low fan operate but will not switch over to high fan. Eventual high fan & high heat cause thermal tripping.	a.	High fan relay or associated control faulty	
7.	Heat and high fan operate but will not switch over to low fan. Eventual high fan & heat cause thermal tripping.	a.	Low fan relay or associated control faulty	High heat/low fan not selectable. Unit will automatically switch to high fan if high heat selected.
8.	Unit will not work in fan only mode but relays heard “clicking” when fan setting changed at switch box.	a.	Motor fault	

Trouble Shoot Guide – (Systems comprising multiple units)

	Symptoms		Fault	Notes
1.	Units do not operate at switch-on (No relay “clicking”) (Fans do not operate) PCB LED’s not lit	a.	Three phase supply not wired correctly No neutral connection Cut-outs tripped	Incorrect phase to neutral wiring will cause control board fuse to blow. Rectify & replace fuse
		b.	Master/Slave connection cable not properly connected	All link cables must be securely pushed home for system control to work.
		c.	Three phase supply to unit not present or mains supply fuse blown	All xxxxxE models will operate the fan for 1min at power-on.
		d.	Internal control circuit fuse on master printed circuit board may be blown (F2 fuse, printed circuit mounted, 5AT 20mm x 5mm)	Only the control board fuse in the master unit is in circuit. (All slave units control fuses are bypassed)
		e.	Cut-out in one of the units has triggered – manual reset required.	Thermal tripping in any unit will cut supply to control circuitry in all units.
2	Units operate at low heat or if down-rated no heat only.		Check tamperproof thermostat in every air curtain is not cutting in.	A single operating thermostat will affect all connected units together