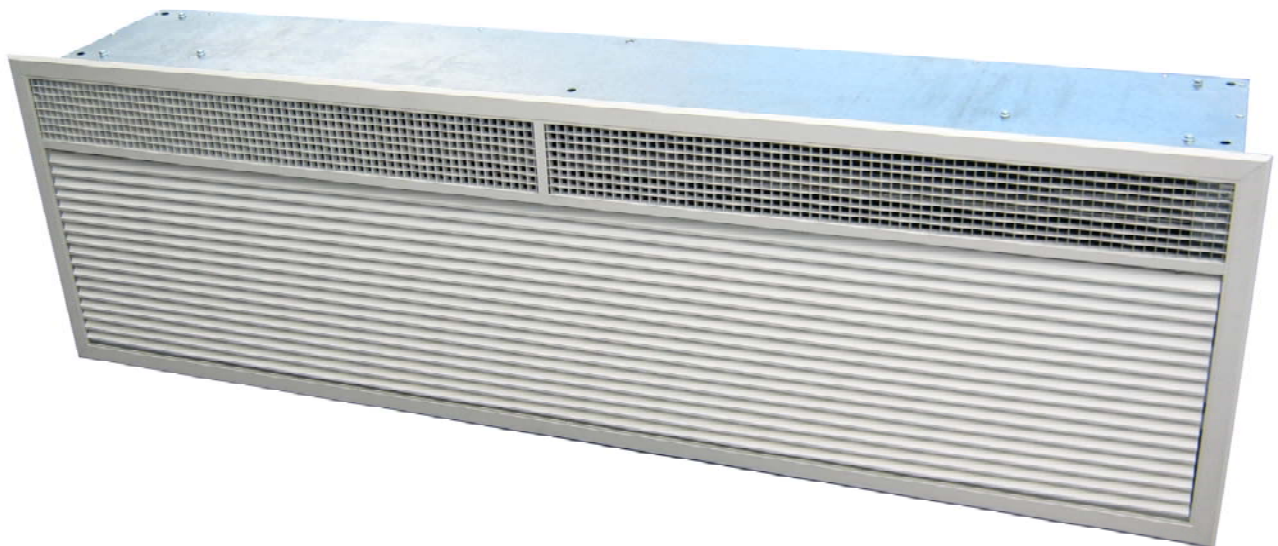


HX Series. Recessed Range



INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

English

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2. IMPORTANT INSTRUCTIONS

When using electrical appliances, basic precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Read all instructions before installing or using this air curtain heater.
2. This air curtain heater can be hot when in use. To avoid burns, do not let bare skin touch hot surfaces. To avoid a fire situation keep combustible materials, such as paper, curtains, blinds, clothing, etc. at least 4 feet (1.2m) from any part of the air curtain heater; front, sides and rear and away from the warm air discharge.
3. Extreme caution is necessary when the air curtain heater is used by or near children or invalids and whenever the unit is left operating and unattended.
4. Do not operate the air curtain heater if it malfunctions. Disconnect electrical power at service panel and have unit inspected by a reputable electrician before reusing.
5. Do not install or use the air curtain heater outdoors.
6. To disconnect the air curtain heater, turn off at the remote control (see Section 16. Remote Control Operation) and turn off electrical power to air curtain heater circuit at main disconnect panel (or operate local disconnect switch if provided)
7. Do not insert or allow foreign objects to enter any air inlet or discharge opening as this may cause an electric shock or fire, or damage the air curtain heater.
8. To prevent a possible fire, do not block air inlets or discharge openings in any manner.
9. An air curtain heater has hot and arcing or sparking parts inside. Do not install and use it in areas where gasoline, paint or flammable vapors or liquids are used or stored.
10. Use this air curtain heater only as described in this instruction manual. Any other use not recommended by the manufacturer may cause fire, electric shock or injury to persons.
11. If this air curtain heater is electric heated it has an overheat safety cut-out system which will operate if temperatures at the electric heating elements get excessive and prevent the electric heating elements functioning. This is indicated by flashing LEDs on the Remote Control. If this happens refer to Section 19.1 Overheat Safety cut-out for further instructions.
12. "SAVE THESE INSTRUCTIONS"



Conforms to: CAN CSA-C22.2 no.46-13 & UL 2021(Ed.3): 2013

3. ELECTRICAL SAFETY

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 1 phase or 3 phase local Disconnect, provided by others in accordance with Electrical Code and Local Electrical Codes, with a contact separation of at least 3mm (1/8in) on all poles, must be fitted in the electrical supply to the air curtain and located in an accessible position adjacent to the unit. Units with dual electrical supplies (see * in Table below) must have a common disconnect to switch off both supplies simultaneously.
- The appliance must be connected by cables having an appropriate heat resistant temperature rating.
- All supply cables, circuit breakers and other electrical installation equipment must be correctly sized for the air curtain model being installed; see Section 4. Specifications.
- Models operating on a 480V or 600V, 3 phase electrical supply - see Section 4. Specifications, Electrical Supply * – also need a separate 208V to 240V electrical supply to operate fan motors and controls.
- A 25mm / 1in size cable gland or conduit connector of IP21 rating or above should be used for the Electrical Supply into the air curtain.
- See Wiring Diagrams for connecting electrical supply and control cables to the air curtain. The air curtain must be grounded.

4. SPECIFICATIONS

Table 1

Air Curtain Model No	Electrical Supply (V/ph/Hz)	Rated Electrical Power Input (kW)	Rated Current per phase (A)	Heat Output [Low/High] (kW)	Effective Width of Airstream (m / in)	Weight (kg / lbs)
HX1000AR	208...240/1/60	0.35	1.4	–	1.10 / 43	45 / 99
HX1500AR	208...240/1/60	0.5	2.0	–	1.63 / 64	66 / 146
HX2000AR	208...240/1/60	0.7	2.8	–	2.15 / 85	80 / 176
HX1000WR	208...240/1/60	0.35	1.4	6.0 / 12.0	1.10 / 43	52 / 115
HX1500WR	208...240/1/60	0.5	2.0	9.0 / 18.0	1.63 / 64	75 / 165
HX2000WR	208...240/1/60	0.7	2.8	12.0 / 24.0	2.15 / 85	93 / 205
HX1000ER (208V)	208/3/60	10.55	29.7	5.1 / 10.2	1.10 / 43	46 / 101
HX1500ER (208V)	208/3/60	15.80	44.5	10.2 / 15.3	1.63 / 64	67 / 148
HX2000ER (208V)	208/3/60	21.10	59.4	10.2 / 20.4	2.15 / 85	84 / 185
HX1000ER (480V)	480/3/60 * + 208...240/1/60	12 0.35	14.5 1.4	6.0 / 12.0	1.10 / 43	46 / 101
HX1500ER (480V)	480/3/60 * + 208...240/1/60	18 0.5	21.7 2.0	12.0 / 18.0	1.63 / 64	67 / 148
HX2000ER (480V)	480/3/60 * + 208...240/1/60	24 0.7	28.9 2.8	12.0 / 24.0	2.15 / 85	84 / 185
HX1000ER (600V)	600/3/60 * + 208...240/1/60	12 0.35	11.6 1.4	6.0 / 12.0	1.10 / 43	46 / 101
HX1500ER (600V)	600/3/60 * + 208...240/1/60	18 0.5	17.3 2.0	12.0 / 18.0	1.63 / 64	67 / 148
HX2000ER (600V)	600/3/60 * + 208...240/1/60	24 0.7	23.1 2.8	12.0 / 24.0	2.15 / 85	84 / 185

4. INTRODUCTION

Established in the 1960s, Thermoscreens is a leading air curtain manufacturer that exports to over 60 countries worldwide.

As with all our products, the HX range of air curtains is designed with energy efficiency in mind.

HX models suffixed ER, WR or AR are designed to be recess mounted inside a building and located horizontally over a doorway.

They must not be installed on the outside of a building.

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.



Thermoscreens Ltd
1210 Balmoral Rd.
Cambridge, ON N1T 1A5
CANADA

Email: warranty@carver-na.com — <http://www.thermoscreens.ca>

Tel: 1-877-445-3739

6. DELIVERY CONTENTS

The following items are supplied in the box at delivery.

NOTE: If any parts are missing or damaged contact your place of purchase.

HX Recessed Mounted Air Curtain



Note: The recessed grille is packed separately

Ecopower Remote Control



Supplied with 6m / 20ft RJ Control Cable

Outdoor Air Thermostat (Optional – supplied by Installer)



Used for simple weather compensation control
(disables heating on a warmer day)

Door Switch



1m, 1.5m - x1
2m - x2

NOTE: On water heated units a 3-port water heating valve is factory fitted inside the air curtain.

7. TOOLS REQUIRED

The following tools are required for installation:

- Flat blade screwdrivers
- Phillips head screwdrivers
- 10mm wrench
- Adjustable wrench
- Electric drill
- Ladders
- Appropriate lifting equipment
- Appropriate tools for cutting ceiling aperture

8. INSTALLATION

The air curtain is designed to be recessed within ceiling voids or bulkheads within a building and located horizontally over a doorway. It must not be installed outside of the building.

8.1 Location

Mount the air curtain above and as close to the doorway as possible, with:

- the recessed grille not more than:
3.3m / 10ft 10in above floor level - 208v operation
3.5m / 11ft 6in above floor level - 230v operation
- the air discharge (see 1, Fig 1) section of the recessed grille nearest the doorway and the air inlet section (see 2, Fig 1) furthest from the doorway

Beware of doorway top edges, structural beams, door opening/closure devices, etc., which may interfere with the air stream and affect the location of the unit.

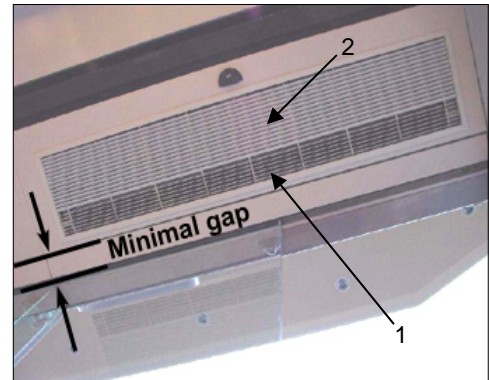


Fig 1

NOTE: For the air curtain to work well the width of the open doorway should be less than the effective width of the airstream, see Table 1.

8.2 Ceiling Suspension

Step 1 Cut an aperture in the ceiling to the dimensions in Appendix 1. Cut notches, if necessary, to clear screws in the air curtain casing.

NOTE: For LPHW models, pipework will need to be installed above the curtain. Allow sufficient access and height clearance within the ceiling void to do this.

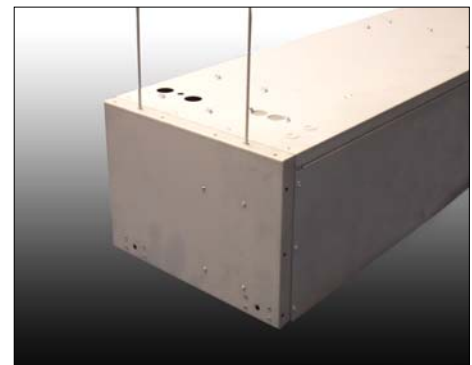


Fig 2

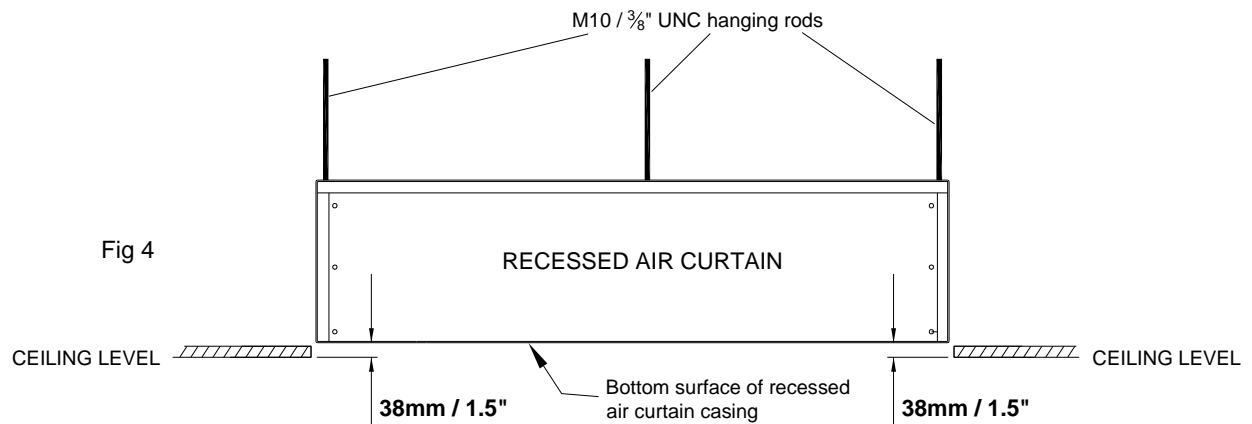
Step 2 Fix *M10* or *3/8 UNC* threaded rods (not supplied) through the 2 holes at each end in the top casing (see Fig 2). Feed the rods through the casing and attach to fixing brackets near the bottom of the unit (see Fig 3, looking up into the air curtain). Use *M10* or *3/8 UNC* lock-nuts either side of the fixing bracket to secure the hanging rod.

NOTE: Do not let these four hanging rods come below the bottom of the unit casing or they may prevent the recessed grille fitting properly.



Fig 3

Step 3 If you are installing model HX1500R or HX2000R, fit a 5th M10 or 3/8 UNC threaded rod into the hanging point in the middle of the unit. Refer to Appendix 1 and Fig 4.



Step 4 Secure each rod to a suitable structure that can support the weight of the unit (see Section 4: Specifications for weights).

WARNING: It is the sole responsibility of the installer to ensure that the fixing locations and suspension system used are suitable for the air curtain being installed.

Step 5 Adjust the height of the unit on its hanging rods so the bottom surface of the casing goes 38mm or 1.5 inches up into the ceiling as shown in Fig 4. Ensure the unit is level.

8.3 Attaching the recessed grille to the air curtain

The recessed grille consists of:

- Metal frame
- Cellular discharge grille
- Hinged inlet grille

There are 4 fixing points on the HX1000R, 6 on the HX1500R and 7 on the HX2000R (see Fig 5).

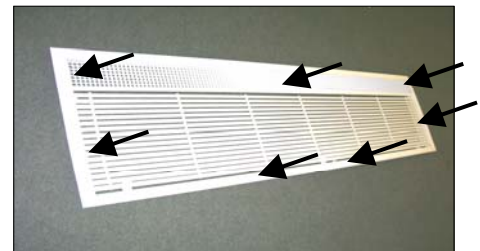


Fig 5 (HX2000R shown)

Fix the grille as follows:

- Step 1** Open the hinged inlet grille using a flat bladed screwdriver to release the quarter turn fasteners (see Fig 6). There are two fasteners on the HX1000R unit and three fasteners on HX1500R and HX2000R units.

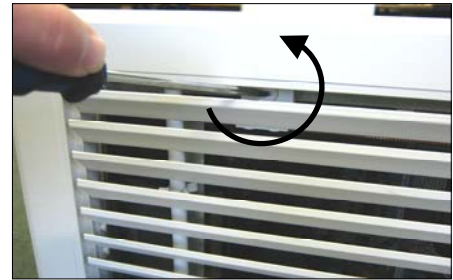


Fig 6

- Step 2** Make sure the grille will go the correct way around (cellular discharge nearest to doorway). Offer the recessed grille up through the cut-out in the ceiling and attach it to the bottom of the air curtain casing using M4 philips head screws supplied. Start with the screws shown in Fig 7 and then fit the two at each end of the discharge grille.



Fig 7

- Step 3** If fitting model HX1500R or HX2000R units insert 1 or 2 screws towards the middle of the unit as shown in Fig 8.



Fig 8

- Step 4** On model HX1500R or HX2000R units fit 1 screw in the middle of the discharge grille. This screw is easier to access if the hinged inlet grille is temporarily shut.

- Step 5** With the hinged inlet grille open again adjust the hanging rods (see Fig 9) so the grille frame fits neatly against the ceiling. Ensure the grille frame is a snug fit against the ceiling with no gaps all the way around.



Fig 9

NOTE: Open the hinged grille core to gain access to electrical connections, and for servicing and maintenance.

9. LPHW MODELS

For LPHW models ensure that water isolation valves are fitted in the flow and return pipework adjacent to the air curtain and connected correctly as shown in the diagram in Appendix 1.

For the design of the water pipework system and pump, water flow rates and pressure drops for maximum heat output of the air curtain are given in Table 2 below.

Table 2

Air Curtain	Water Flow Rate (l/min at 82/71°C / US Gall/min at 180/160°F)	Water Pressure Drop (kPa / psi / ft H ₂ O)
HX1000WR, 2-row (12kW)	15.6 / 4.1	6.8 / 0.99 / 2.3
HX1500WR, 2-row (18kW)	23.4 / 6.2	13.4 / 1.94 / 4.5
HX2000WR, 2-row (24kW)	31.2 / 8.2	22.6 / 3.28 / 7.5
Air Curtain	Water Flow Rate (l/min at 60/40°C / US Gall/min at 140/100°F)	Water Pressure Drop (kPa / psi / ft H ₂ O)
HX1000WR, 4-row (12kW)	8.6 / 2.3	9.6 / 1.39 / 3.2
HX1500WR, 4-row (18kW)	12.9 / 3.4	10.3 / 1.49 / 3.4
HX2000WR, 4-row (24kW)	17.1 / 4.5	10.5 / 1.52 / 3.5

NOTE: Water Pressure Drop is across the flow and return connections of the air curtain and includes for the coil and valve fitted inside the unit.
Water flow rates and pressure drops at different water temperatures can be calculated using the Thermoscreens coil calculation programme. Visit the Thermoscreens website for details.

10. REMOTE CONTROL INSTALLATION

Mount the Ecopower remote control in a convenient position directly to the wall or onto a switch box.

10.1 Wall mounting

- Step 1** Using a screwdriver undo the screw on the top of the remote control case and pull the back case away (see Fig 10).
- 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.

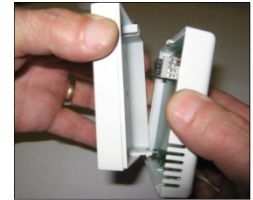


Fig 10

10.2 Switch box mounting

- Step 1** Using a screwdriver undo the screw on the top of the remote control case and pull the back case away (see Fig 10).
- 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)(see Fig 11).
- Step 3** Connect the RJ plug to the RJ socket on the PCB in the remote control.
- Step 4** Refit the front case.

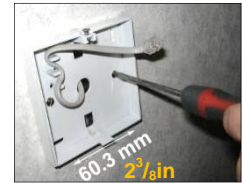


Fig 11

NOTE: For optional remote control settings see Section 11. Remote Control Settings

11. REMOTE CONTROL SETTINGS

On the back of the PCB inside the Ecopower Remote Control you will find four DIP switches that provide the following optional features, see Table 3:

Table 3

DIP	Feature	Explanation	Default	Notes
1	Reset on power-up	On restoring power after an electrical interruption all Remote Control settings are retained	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)	OFF	
3	Never blow cold	Air curtain always heats in AUTO mode	OFF	Will not go to ambient mode
4	Room air temperature control	Enables the room air sensor in the Remote Control	OFF	Disables all other temperature sensors

12. EXTERNAL CONTROLS

12.1 Remote switch contacts IN0, IN1

Terminals IN0 and IN1 on the Ecopower PCB inside the air curtain can be used to provide different control strategies using remote volt-free contacts (see Fig 12). 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 4 describes the different functions:

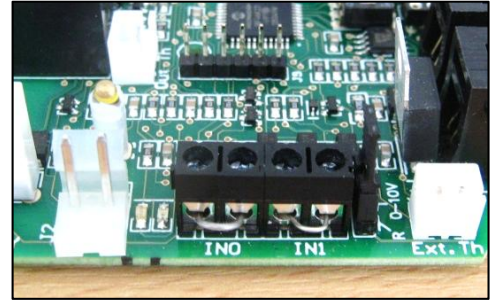










Fig 12

Table 4

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 <i>COLD DAY</i>	Heating is disabled straight away, Fan speeds operate normally from the Remote Control <i>WARM DAY</i>	OFF		Simple weather compensation control using an outdoor air thermostat with volt free contacts (see Section 12.3)

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 Ecopower PCB inside the air curtain.

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

12.2 Overheat safety cut-out indication

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

Volt free changeover contacts (6A 250VAC 30VDC) can be wired via the 3-way screw terminal “HEALTHY” (see Fig 13).

Refer to Section 19.1 Overheat Safety cut out, for how to reset a overheat safety cut-out situation.

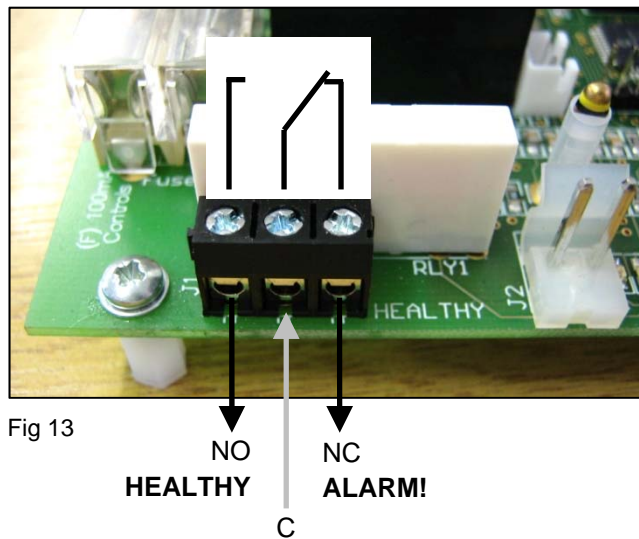


Fig 13

12.3 Weather compensation control

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 Ecopower PCB (see Fig 14)

On the Ecopower PCB, set DIP 4 to OFF as per Table 4, (see Section 12.1 Remote switch contacts IN0, IN1).

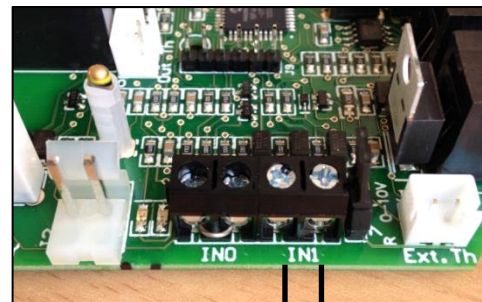


Fig 14

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 Ecopower PCB.

NOTE: To promote increased energy saving a more advanced weather compensation control strategy is available from Thermoscreens. 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 Thermoscreens website for details.

13. MULTIPLE AIR CURTAIN SYSTEMS

For master/slave control, plug and connect units together with Thermoscreen RJ extension cables (not supplied) as per Figure 16 below. Each air curtain must have its own electrical supply.

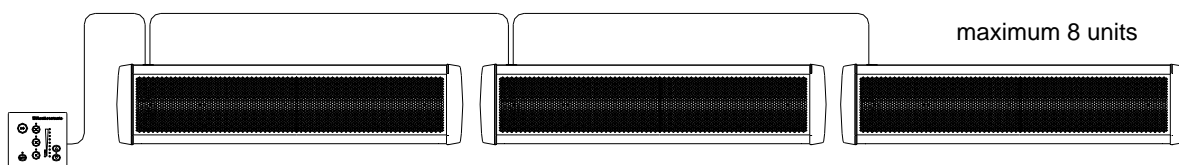


Fig 16

14. SYSTEM CONFIGURATION

14.1 Optional features

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

DIP switches on the air curtain Ecopower PCB (see Fig 17) 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 17

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>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>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>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><u>or</u> Door switch control.</p>	<p>DIP 4</p>	<p>OFF</p> <p>IN1 Weather compensation</p> <p>ON</p> <p>IN1 Door switch</p>	<p>See section 12.1 Remote Switch Contacts IN0 and IN1 for details</p> <p>Weather compensation control is the same as Summer/Winter control</p>

NOTE: ■ — Black rectangle is moveable head of DIP switch.

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

15. FAN SPEED SELECTION

Factory settings for the 3 fan speeds are shown in Table 5 and 6 below:

Fan running on 208V (refer to wiring diagrams in Appendix 2)

Table 5

Fan Speed (air curtain as delivered)	Motor Speed Tapping	Maximum air curtain mounting height (m / ft)	Sound Pressure Level of air curtain [dB(A) at 3m/10ft]	Air Volume Flow Rate (m ³ /h / cfm)
HIGH (black wire)	1 (highest speed) <i>air velocity at discharge is 8.7 m/s / 1700 ft/min</i>	3.3 / 10ft 10in	HX1000R - 57 HX1500R - 58 HX2000R - 58	1375 / 810 1980 / 1165 2480 / 1460
MEDIUM (blue wire)	2	2.9 / 9ft 6in	HX1000R - 55 HX1500R - 56 HX2000R - 56	1190 / 700 1820 / 1070 2165 / 1275
LOW (red wire)	3	2.2 / 7ft 3in	HX1000R - 50 HX1500R - 52 HX2000R - 52	1000 / 590 1630 / 960 1820 / 1070

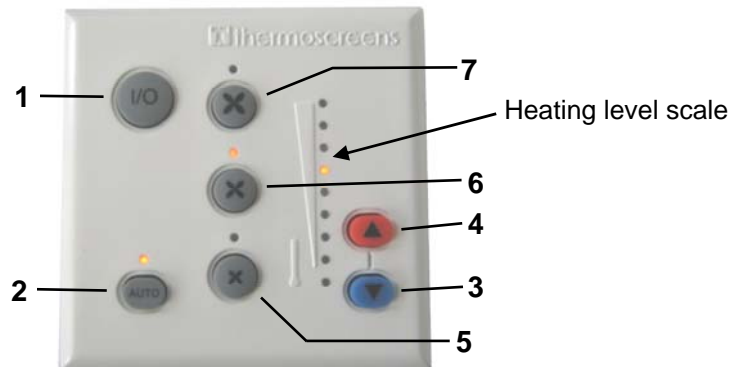
Fan running on 230V (refer to wiring diagrams in Appendix 2)

Table 6

Fan Speed (air curtain as delivered)	Motor Speed Tapping	Maximum air curtain mounting height (m / ft)	Sound Pressure Level of air curtain [dB(A) at 3m/10ft]	Air Volume Flow Rate (m ³ /h / cfm)
HIGH (black wire)	1 (highest speed) <i>air velocity at discharge is 9.4 m/s / 1850 ft/min</i>	3.5 / 11ft 6in	HX1000R - 58 HX1500R - 60 HX2000R - 60	1500 / 885 2160 / 1270 2660 / 1565
MEDIUM (blue wire)	2	3.1 / 10ft 2in	HX1000R - 56 HX1500R - 58 HX2000R - 58	1350 / 795 1990 / 1170 2420 / 1425
LOW (red wire)	3	2.4 / 7ft 10in	HX1000R - 53 HX1500R - 56 HX2000R - 56	1160 / 685 1830 / 1080 2120 / 1250

Sound pressure levels dB(A) at 3m/10ft distance are for a single air curtain mounted at its maximum mounting height, operating in a room with average acoustic characteristics as defined in CIBSE Guide B5 (reverberation time 0.7s at 1kHz) and a room size equivalent to 8 air changes per hour (ac/h). Care needs to be taken when selecting air curtains for an installation as noise levels can be several dB higher if the mounting height is reduced, if the room is more 'live' (i.e. hard surfaces, no furnishings or absorbent materials), if the room is smaller than 8 ac/h equivalent or a combination of these factors. Noise levels will also increase if more than one air curtain is installed at the same doorway (e.g. +3dB(A) for 2 equal point sources: direct field).

16. REMOTE CONTROL OPERATION



Use the Remote Control to operate the air curtain as follows:

1 On/Off

Turns the 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.

NOTE: Do not switch the unit off at the electrical power disconnect as this may cause the overheat safety cut-out system to function on electric heated units, only switch off using the remote control so the fan will run-on if the air curtain has been heating.

2 Manual/Automatic

Switches between Manual and Automatic modes.

The Auto On indicator LED is lit for "Auto Mode" and unlit for "Manual Mode".

3 & 4 Heating level controls

Manual mode

Select heating level from zero, to half heat, to full heat by stepping up or down with the heating level controls. The heating level scale shows the level selected.

Automatic mode

Heat output is controlled automatically according to:

- Inlet air temperature, or
- Room air temperature

This is dependent on the settings made in Section 11. Remote Control Settings (DIP switch 4).

5, 6 & 7 Fan speed

Switch fan speed between Low, Medium and High respectively. The appropriate LED illuminates.

NOTE: On HX-R A (Ambient – non heated) units the LED indicators on the Heating level scale and AUTO button still illuminate but are ignored as nothing happens in the air curtain.

17. COMMISSIONING THE SYSTEM

17.1 Verify system operation

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

- All fans are working.
- Fans operate at Low, Medium and High speeds.
- There is no excessive mechanical noise coming from the fans.
- When heating is selected, the air stream from the discharge grille warms up across the whole length of the air curtain.
- When set to manual with fans set to high speed, heating increases as higher heat is selected.
- Warm air reaches across the doorway with door open or closed.
- Ecopower Remote Control operates correctly in both manual and auto modes.

17.2 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. Children and those with reduced physical, sensory or mental capabilities should not operate the air curtain.

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 inlet grilles must be cleaned regularly and the unit serviced at schedule intervals – see Section 20. Service & Maintenance.

NOTE: Leave these instructions with the customer/end user or their representative!!

18. SIGN OFF

Complete the following once commissioning is completed.

Installer signature		Customer signature	
Installer name		Customer name	
Installer company		Customer company	
Date		Date	

19. FAULT CONDITIONS

19.1 Overheat Safety cut-out

An overheat fault in electric heated units may cause the overheat safety cut-out(s) to operate. They may also operate if the air curtain is turned off at the electrical disconnect or during power outage if the heating elements are working at the time. Only turn off the air curtain using the remote control, see Section 16. Remote Control Operation.

This is indicated by flashing LEDs on the Remote Control and a red status LED on the Ecopower PCB inside the air curtain.

Before resetting ensure there is adequate air flow from the air curtain, air inlets are not blocked, air filters are clean and the unit has been commissioned as per Section 17.

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** Press the Auto button on the Ecopower remote control 4 times.

Air curtain heaters will then operate and after 30 seconds the LEDs on the remote control will stop flashing and the status LED on the Ecopower PCB in the air curtain will flash green.

Do not reset more than 3 times. If this should happen do not reset again but have unit inspected by a reputable electrician.

19.2 Fuses

In the event of an electrical fault internal electrical fuses may operate.

There are two 6.3A(T) internal fuses located in two DIN-rail fused terminals inside the air curtain

There are also two internal fuses located on the Ecopower 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 Ecopower PCB

19.3 Ecopower PCB status indication

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

This indicates the status of the Ecopower 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.
Indicators on Ecopower Remote Control also flash!
(see Section 19.1: Fault Conditions for how to reset)

20. 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.

20.1 Every week

NOTE: Weekly maintenance can be carried out by the Cleaner or Janitor from floor level.

Turn off the air curtain to prevent entry of dust then clean the face of the recessed grille using a vacuum cleaner with an extension tube and brush.

20.2 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 Thermoscreens appointed technician.

Clean and inspect the inside of the air curtain as follows:

Step 1 Open the hinged inlet grill using a flat bladed screwdriver to release the quarter turn fasteners (see Fig 6, Section 8.3).

Step 2 Clean and remove any build-up of dust and dirt within the air-curtain (inlet/outlet grilles, fan impellers, housings and motors) using a vacuum cleaner and soft brush.

NOTE: Build-up of dirt on fan impellers can cause vibration, noise and excessive wear on the motor bearings.

Step 3 Check within the unit to ensure all electrical connections and crimped terminals are tight and that all cables are in good condition.

Step 4 On electric heated air curtains remove the fan deck(s) as follows to inspect electric heaters, electrical wiring and connections and to remove dust, dirt and debris:

- Unclip the fan motor electrical connector.
- Unfasten 4 x M6 nuts/bolts on each fan deck.
- Unfasten M4 screws at bottom edge of fan deck.
- Carefully lift the fan deck away from the air curtain.

Refit fan deck(s) and air inlet grilles after servicing. Reconnect electrical supply and test to ensure correct operation (see Section 17. Commissioning).

21. WARRANTY

All units are covered by a two year warranty.

Failure to adequately maintain the unit may void the warranty. If any problems are encountered, please contact your installer/supplier.

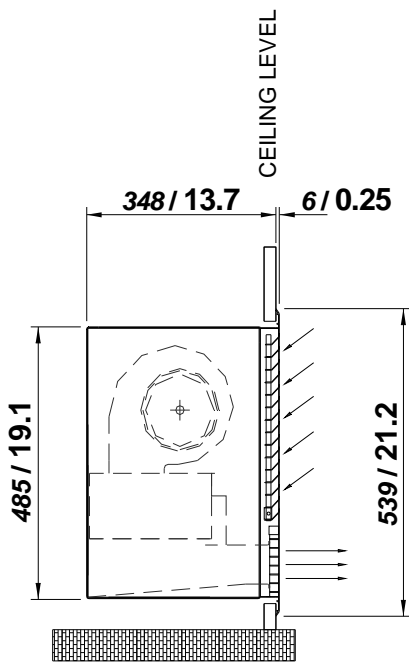
Failing this please contact Thermoscreens Canada.

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

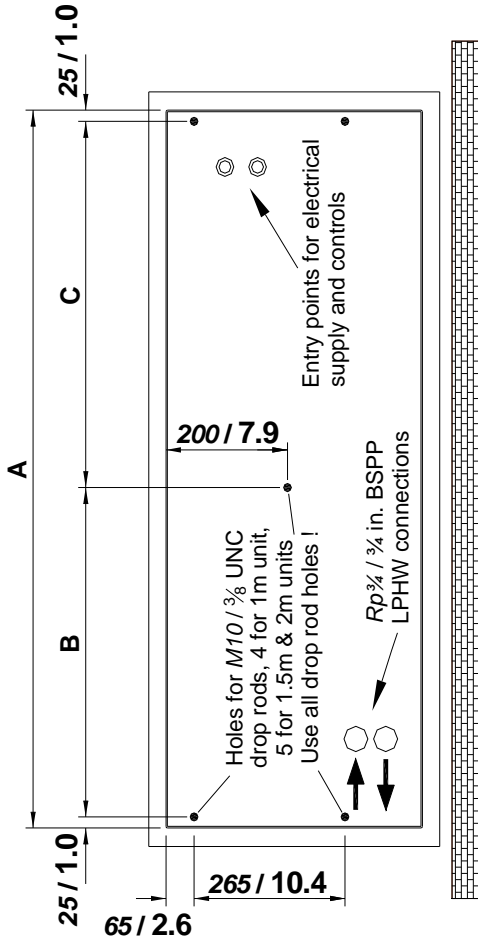
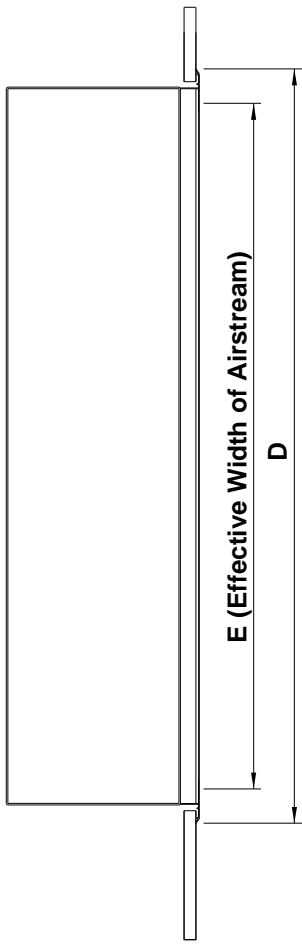
Thermoscreens Ltd.
1210 Balmoral Rd.
Cambridge, Ontario
Canada N1T 1A5

Toll Free: 1-877-445 3739

Email: warranty@carver-na.com

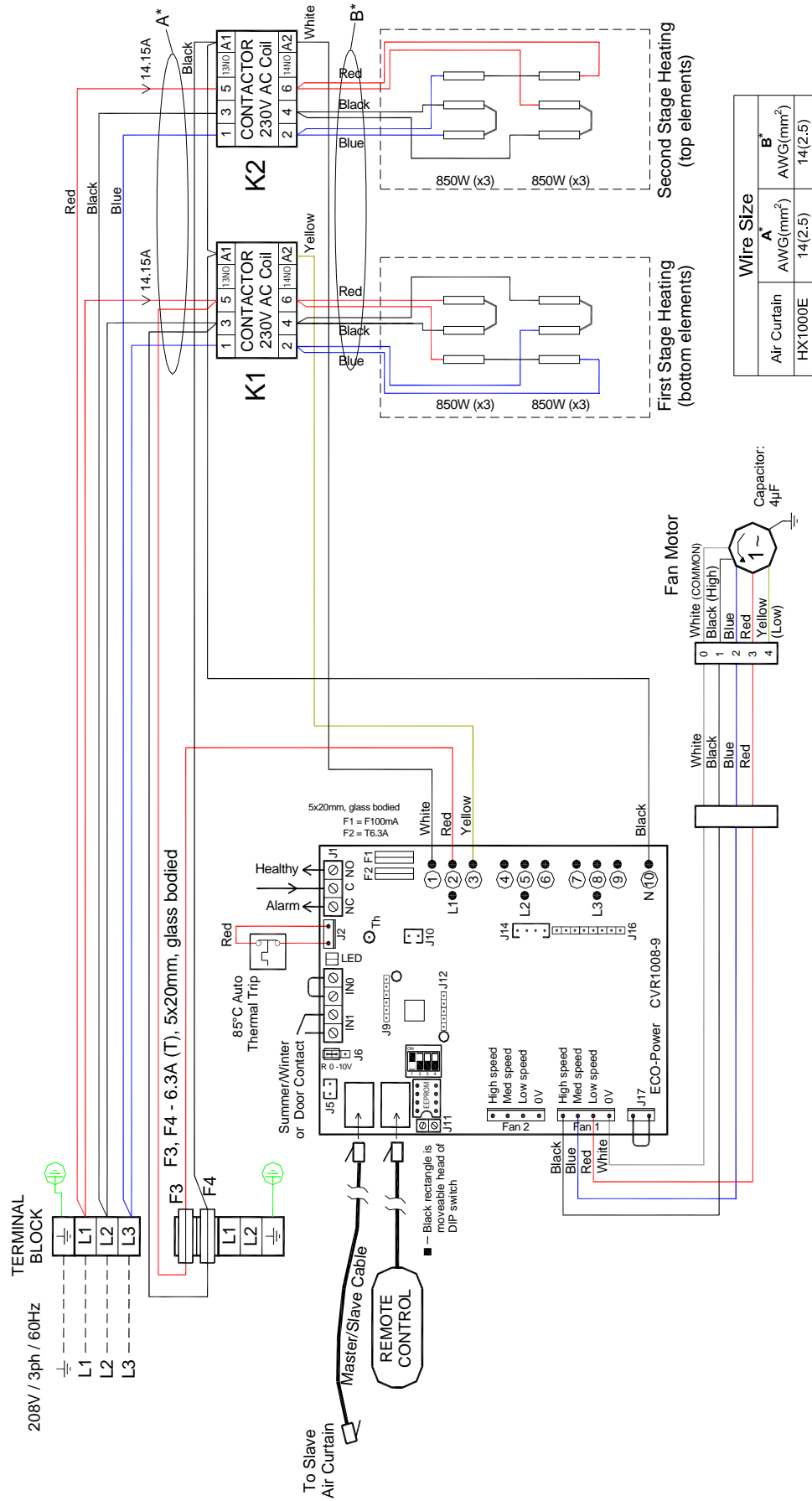


mm / inch



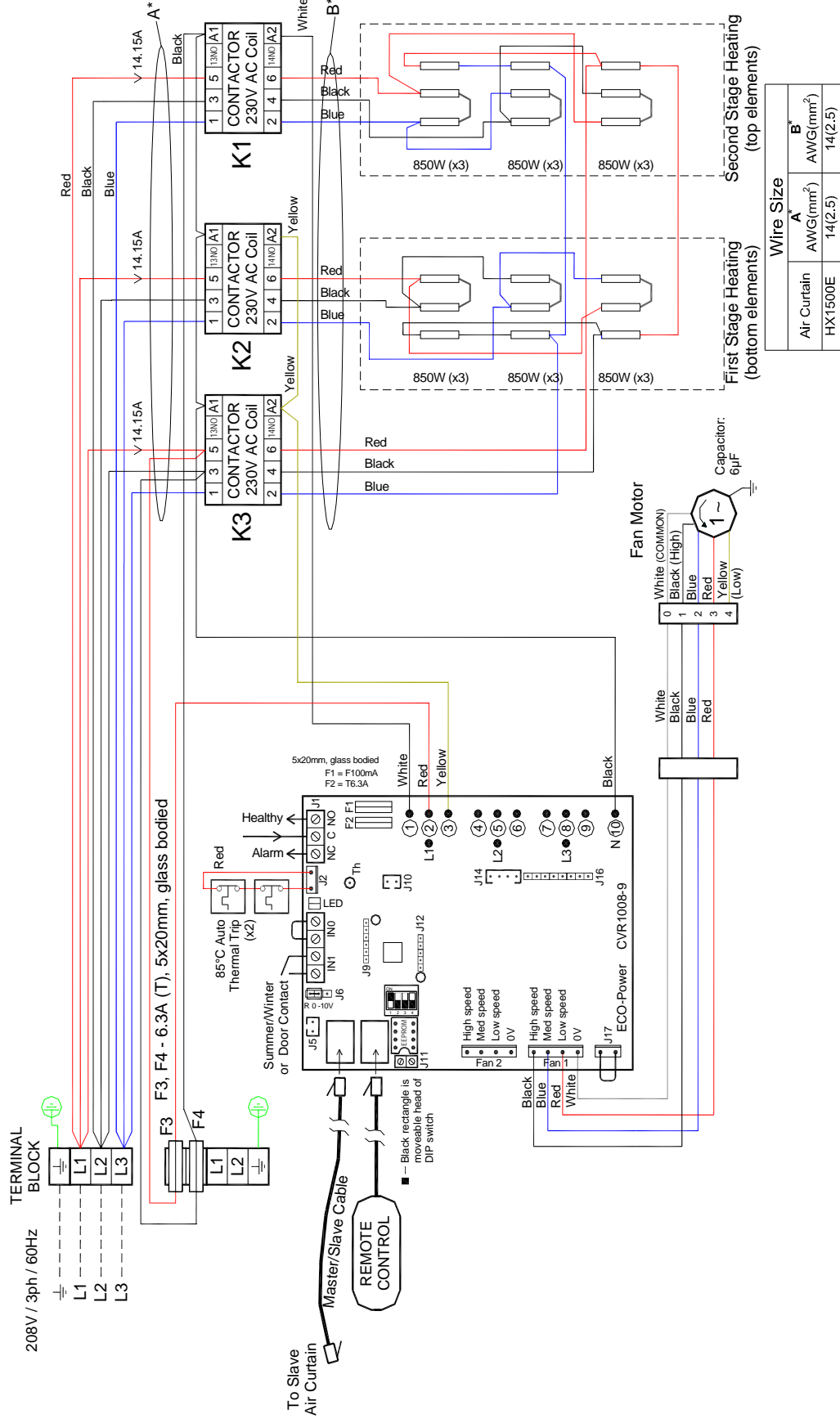
	HX1000R	HX1500R	HX2000R
A	1185 / 46.7	1710 / 67.3	2235 / 88.0
B	-	726 / 28.6	1077 / 42.4
C	-	933 / 36.7	1109 / 43.7
D	1238 / 48.7	1763 / 69.4	2290 / 90.2
E	1100 / 43.3	1630 / 64.2	2150 / 84.7
Length	1185 / 46.7	1710 / 67.3	2235 / 88.0
Width	485 / 19.1	485 / 19.1	485 / 19.1

APPENDIX 1 — Dimensions of HX Recessed Mounted Air Curtain

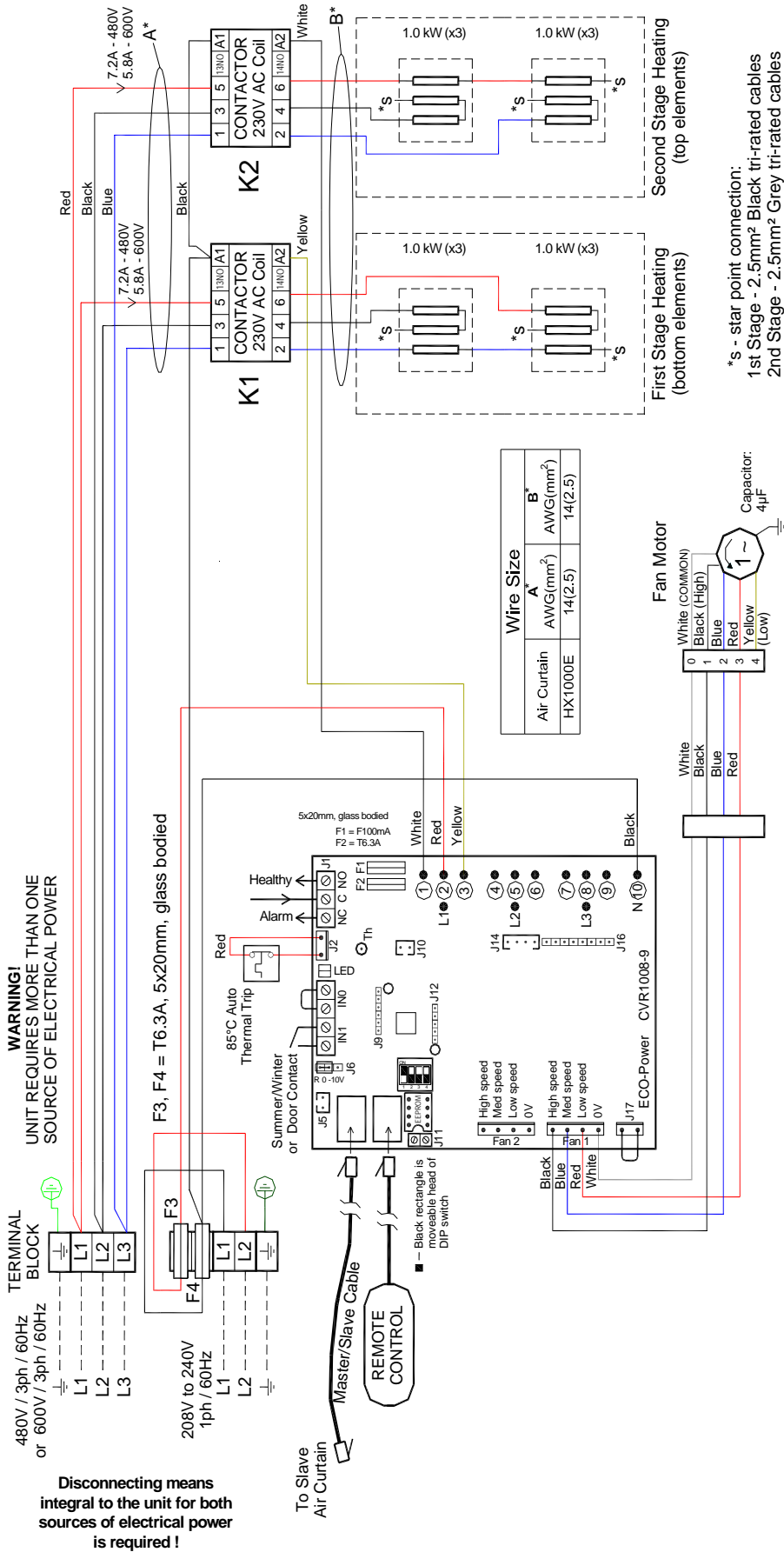


Wire Size	
A	B
Air Curtain	AWG(mm ²)
HX1000E	14(2.5) 14(2.5)

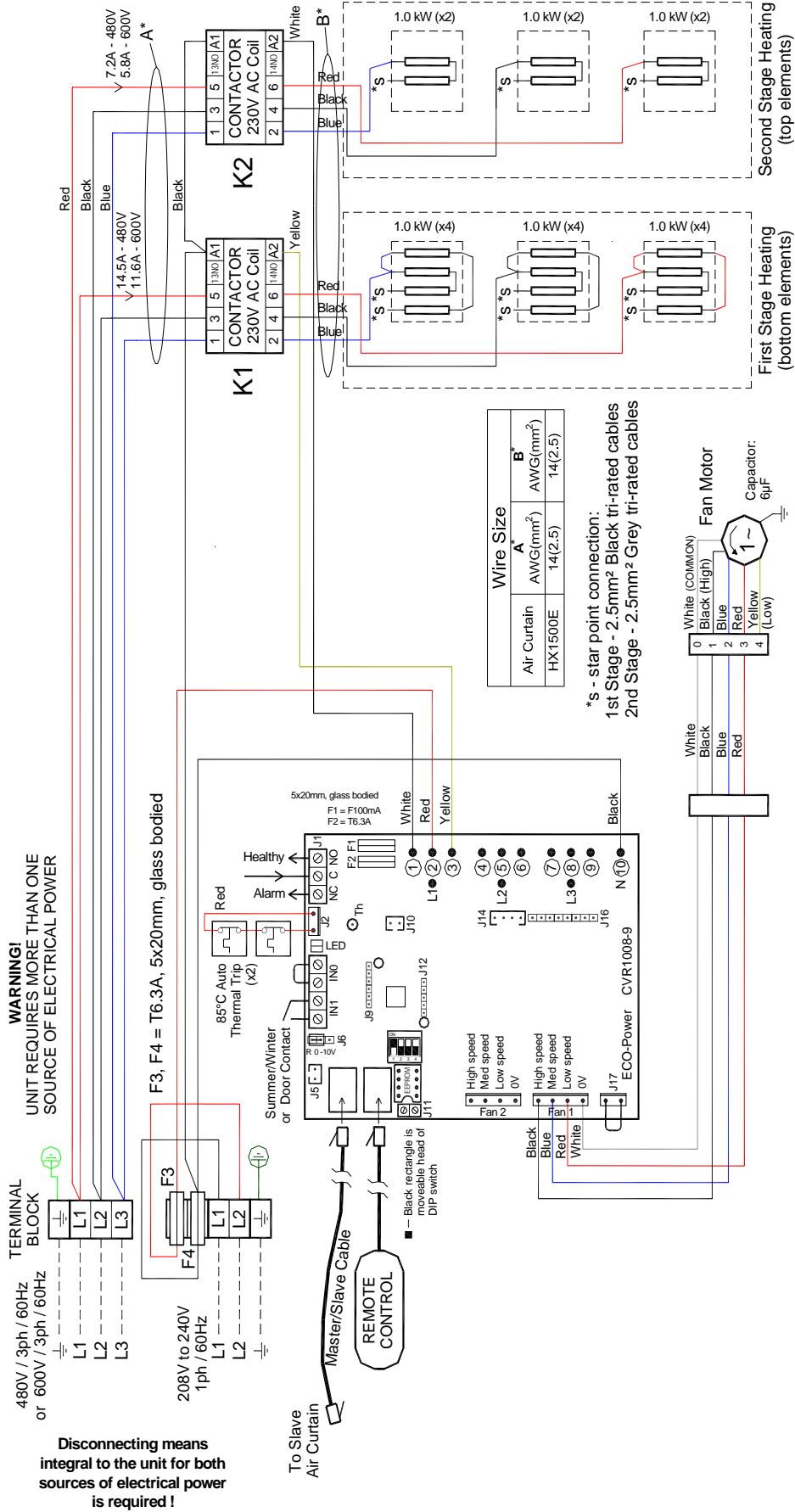
APPENDIX 2A — WIRING DIAGRAM HX1000ER 208V



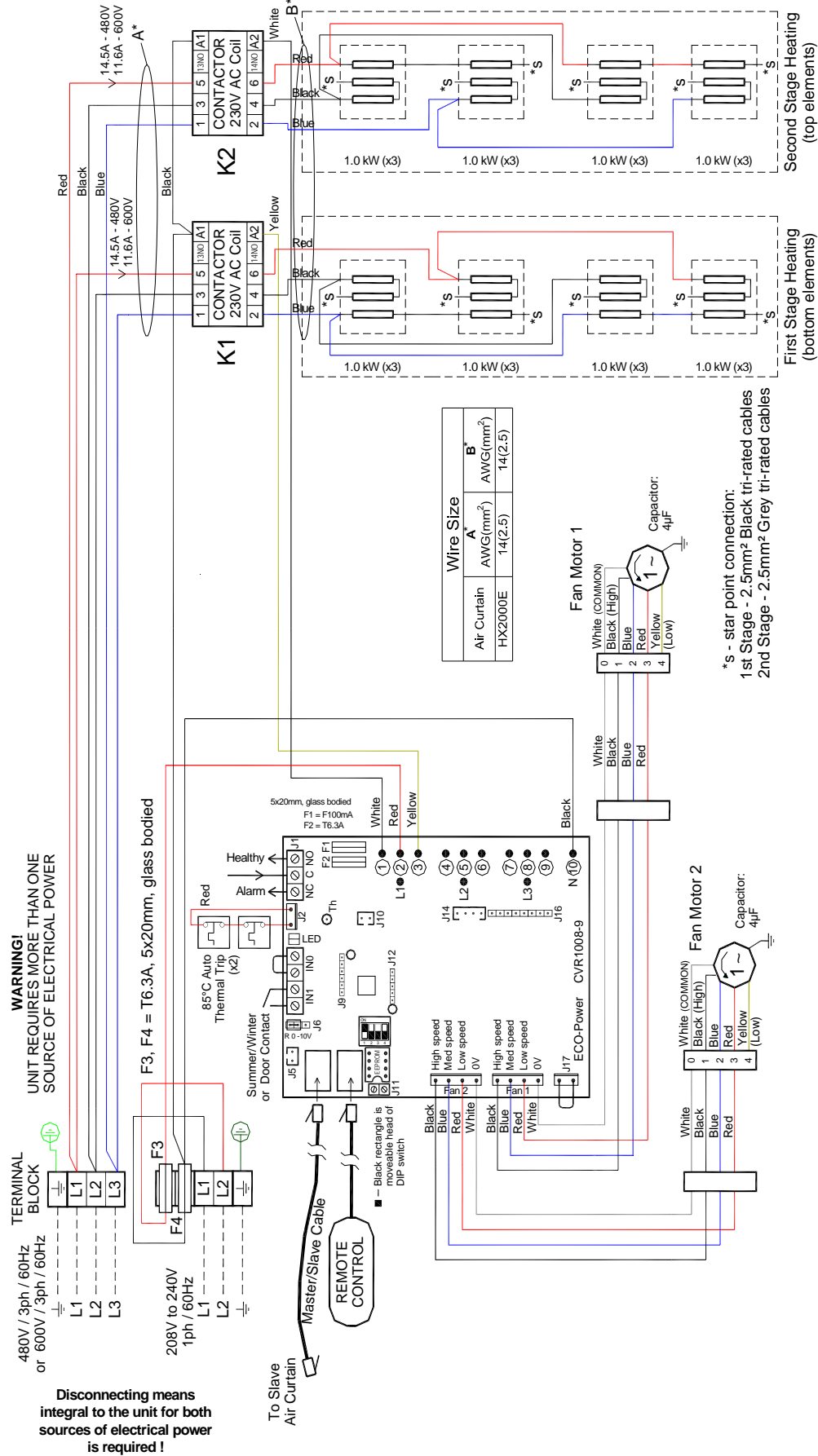
APPENDIX 2B — WIRING DIAGRAM HX1500ER 208V



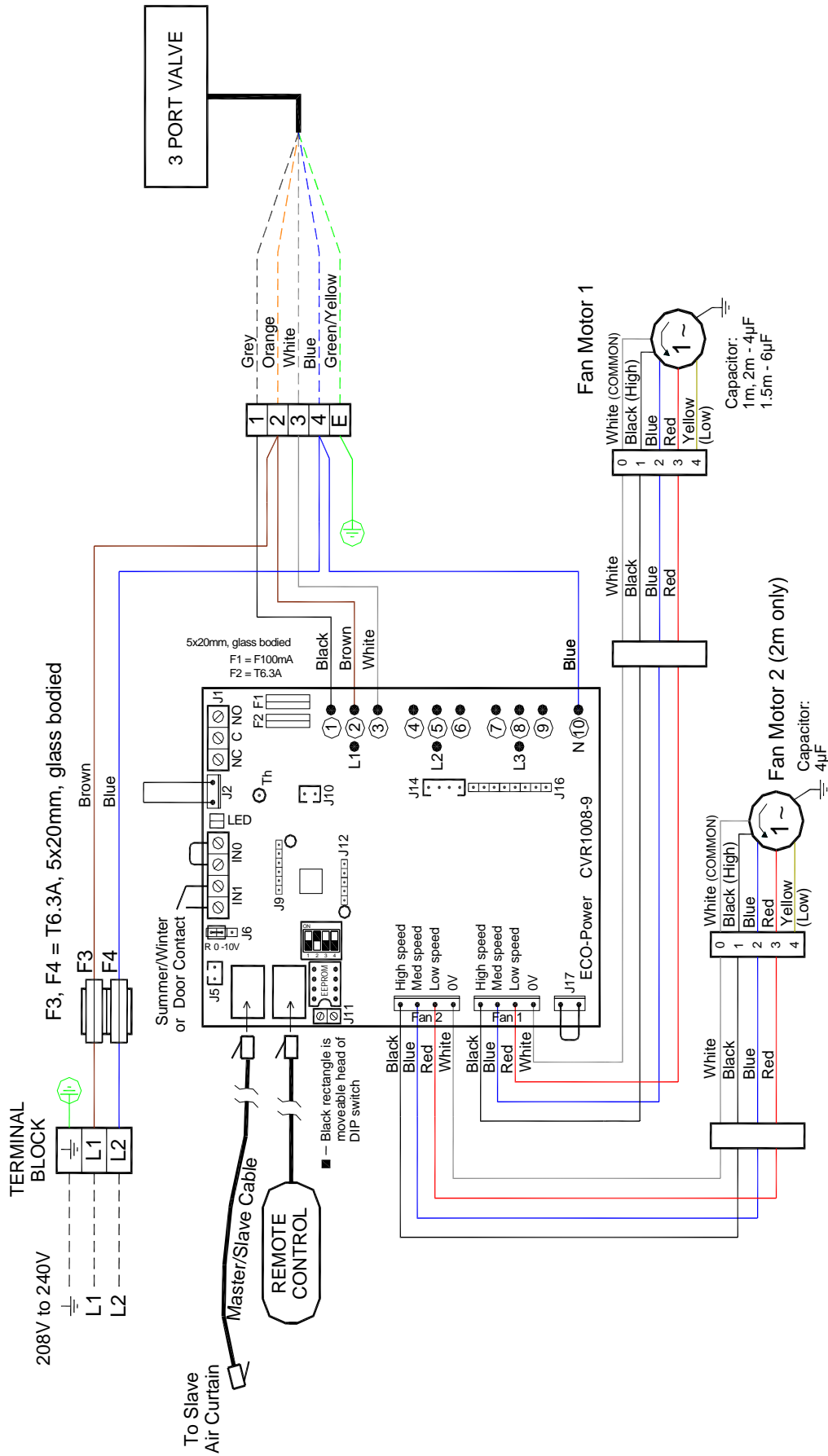
APPENDIX 2D — WIRING DIAGRAM HX1000ER 480V or 600V



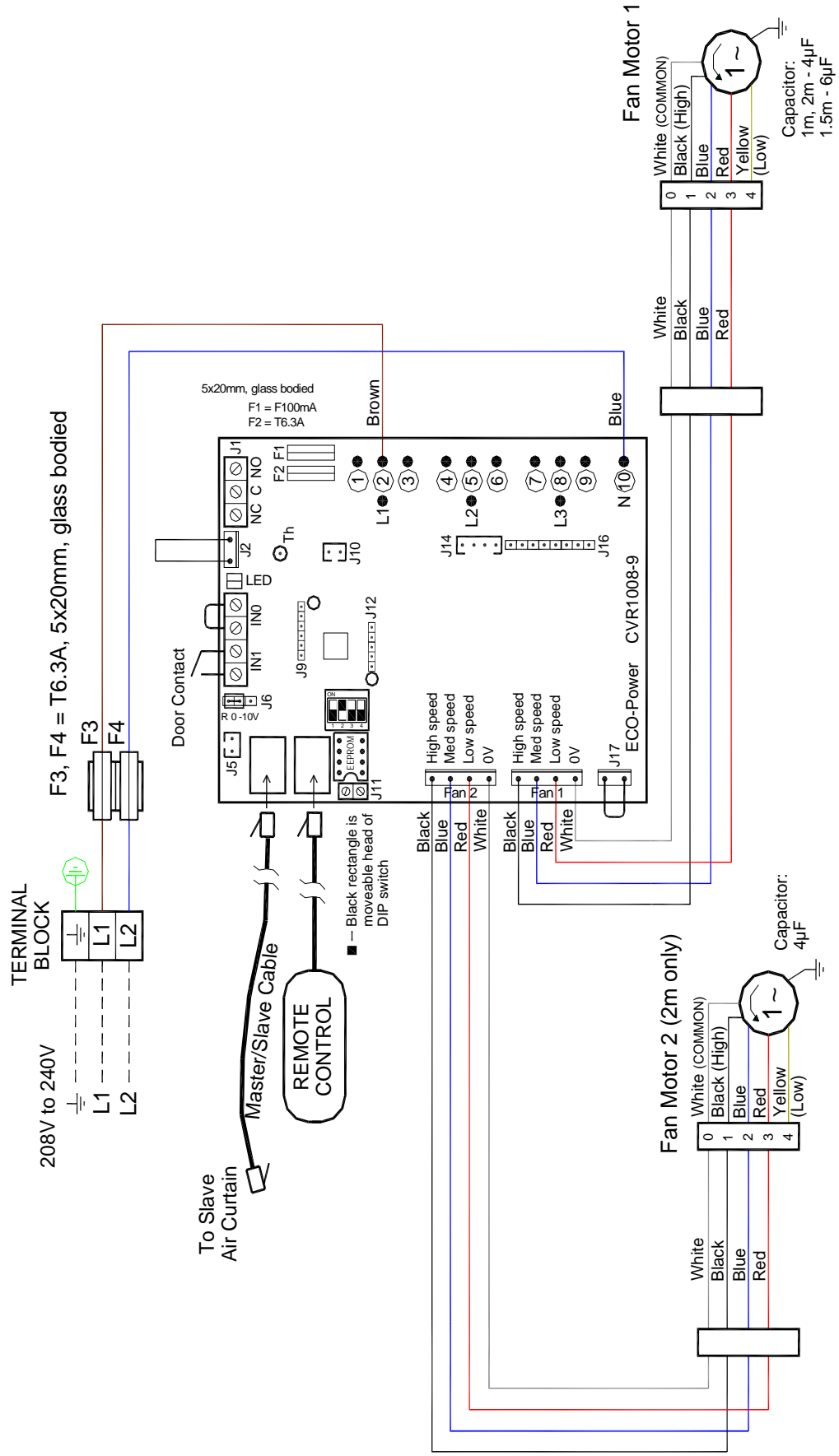
APPENDIX 2E — WIRING DIAGRAM HX1500ER 480V or 600V



APPENDIX 2F — WIRING DIAGRAM HX2000ER 480V or 600V



APPENDIX 2G — WIRING DIAGRAM HX1000WR, HX1500WR and HX2000WR



APPENDIX 2H — WIRING DIAGRAM HX1000AR, HX1500AR and HX2000AR