Thermoscreens

Slim CS

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

(IMAGES ARE FOR ILLUSTATION PURPOSES ONLY)

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.
   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.
2. Do not install or use the air curtain heater outdoors.
3. 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.
4. To prevent a possible fire, do not block air inlets or discharge openings in any manner.
5. 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 vapours or liquids are used or stored.
6. Use this air curtain only as described in this instruction manual. Any other use not recommended by the manufacturer may cause fire, electric shock or injury to persons.
7. “SAVE THESE INSTRUCTIONS”

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 IEE wiring regulations and local statutory regulations if applicable.

- A 1 phase local isolator having a contact separation of at least 3mm on Live and Neutral 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.

- All supply cables, circuit breakers and other electrical installation equipment must be correctly sized for the air curtain model being installed; see section 3: Specifications.

- 20mm size cable glands or conduit connectors of IP44 rating or above must be used for the Electrical Supply and Control Cables into the air curtain.

- See Wiring Diagrams for connecting electrical supply and control cables to the air curtain. The air curtain must be earthed.

4. SPECIFICATIONS

Table 1

Air Curtain Model No	Electrical Supply (V/ph/Hz)	Rated Electrical Power Input (kW)	Max. Air Volume Flow rate (m^3/h)	Rated Current per phase (A)	Weight (*kg* / lbs)
SCS 1000	230/1/50	0.115	1803	0.5	*21* / 46
SCS 1500	230/1/50	0.161	2213	0.7	*23* / 51
SCS 2000	230/1/50	0.230	3097	1.0	*33* / 73

5. 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 SCS range of air curtains is designed with energy efficiency in mind.

SCS curtains are designed to be surface mounted inside a building and located horizontally or vertically besides the doorway.

They must not be installed on the outside of a building or built into a cabinet or recessed in any way.

“Caution: This equipment has been investigated with regard to safety from electrical fire and shock hazard only. The mechanical features have not been investigated and are subject to approval by the inspection authority having jurisdiction.”

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

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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.

C Surface Mounted Air Curtain

Note: End caps are supplied loose to be fitted during installation

Wall Brackets and M6 Fixing Bolts

3 brackets for SCS1500 & SCS2000 units

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

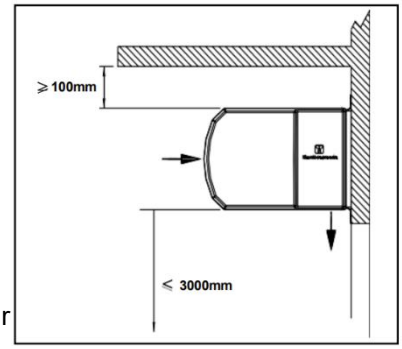
8. INSTALLATION

The air curtain is designed to be 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 height of the discharge grille above floor level to be no more than as indicated in Fig 1
- at least 100mm clearance (air gap) air curtain, see Fig 1



Beware of doorway top edges, structural beams, door opening/closur interfere with the air stream and affect the location of the unit.

8.2 Wall Fixing

NOTE: Use suitable wall fixing bolts (not supplied) to fix the unit to the wall, taking into account the type of wall and the weight of the unit (see Section 4. Specifications).

Step 1 Bolt all wall brackets to the rear face of the unit as shown in Fig 2, using the M6 fixing bolts supplied.

Step 2 Drill fixing points in the wall, referring to Appendix 1 for correct positioning.

Step 3 Screw in the top wall bolts leaving a small gap between the screw head and the wall.

Step 4 Lower the unit onto the bolts via the key-hole slots in the top of the wall brackets and screw in the bottom wall bolts.

Step 5 Tighten all fixing bolts until the air curtain is safely secured to the wall.

Fig 2

8.3 Ceiling Suspension

M6 Threaded rods (not supplied) are used to suspend the unit from the ceiling.

Suspend the unit from the ceiling as follows:

Step 1 Screw the threaded rods into all of the holes in the top face of the unit as shown in Fig 3.

NOTE: Do not screw hanging rods too far in as they could interfere with internal components.

Step 2 Fit M6 locking nuts (not provided) to prevent the rod rotating and coming away from the casing.

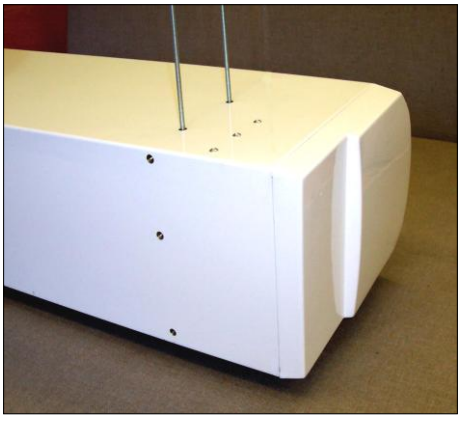


Fig 3

Step 3 Secure each suspension 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.

Fig 4

9.1 How to access terminals

To gain access to the air curtain for connection and commissioning, remove air inlet grilles and bottom access panel as explained below.

First remove the plastic end caps at each end of the unit, if fitted, by pulling off to the side.

> **NOTE:** All air curtain panels are protected in a plastic film. When access panels are removed this film can be removed.

9.1.1 Remove air inlet grilles

Using a Philips No 1 screwdriver, remove each grille.

To remove, insert screwdriver into the bottom corner of the grille (see Fig 5) and turn remove screw.

Fig. 5

9.1.2 Remove bottom access panel

Unfasten the securing screw at each end (see 1, Fig 6) and, if applicable, two screws in the centre (SCS1500 and SCS2000 units only).

To remove, slide the access panel (see 2, Fig 6) out forwards.

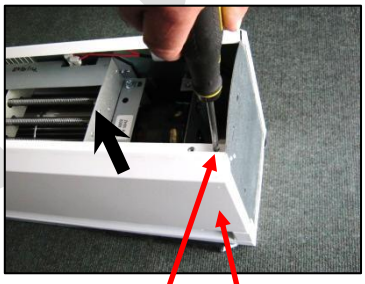


Fig. 6

9.1.3 Mounting the Control Box (Modbus)

Mount the control box outside of the cold store in a dry location.

Remove 4-off screws for access to CCS PCB

Fixing brackets are provided on either side for ease of installation.

12. EXTERNAL CONTROLS

12.1 Remote switch contacts IN0, IN1

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 7). 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 2 describes the different functions:

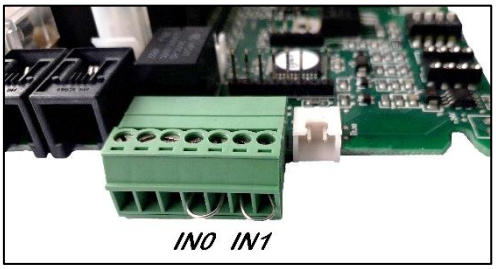


Fig 7

Table 2

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	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

13. SYSTEM CONFIGURATION

13.1 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 8) provide the following optional features, as explained below:

- Disable fan run-on
- Thermostat master (for master/slave installations)
- Door switch control

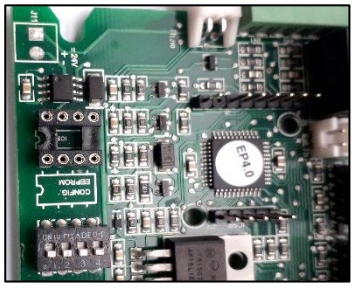
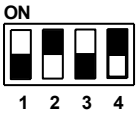


Fig 8

DIP setting	Notes

	Controller not required. i.e operates via Modbus. Customer set to Dip 2 & 4 on. EEPROM +25- 0 to 1

NOTE: A range of advanced factory fitted and plug-in control options are available from Thermoscreens 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 Thermoscreens website for details.

17. COMMISSIONING THE SYSTEM

17.1 Verify system operation

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

- All fans are working.
- There is no excessive mechanical noise coming from the fans.

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

19.2 Fuses

In the event of an electrical fault check the fuses. The Control Box within the air curtain is fitted with a 5 x 20mm cartridge anti-surge 6.3A fuse. See Wiring Diagrams in Appendix 3 - 8.
The motors are also fitted with internal thermal overload protection that under normal operation shouldn't activate. If you find they have, refer to the Warranty section at the end of this set of instructions.

19.3 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. Indicators on CCS Remote Control also flash!

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 air inlet grilles 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 Remove plastic end caps at each end of the unit by pulling off to the side.

Step 2 Use a Philips No.1 screwdriver to remove air inlet grilles by releasing the fasteners at the bottom corners of each air inlet grille. See Fig 5, Section 9.1.1.

Step 3 Clean and remove any build-up of dust and dirt within the air-curtain (inlet/outlet grilles, electric heaters, 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 4 Check within the unit to ensure all electrical connections and crimped terminals are tight and that all cables are in good condition.

Refit 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 the Thermoscreens warranty department.

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

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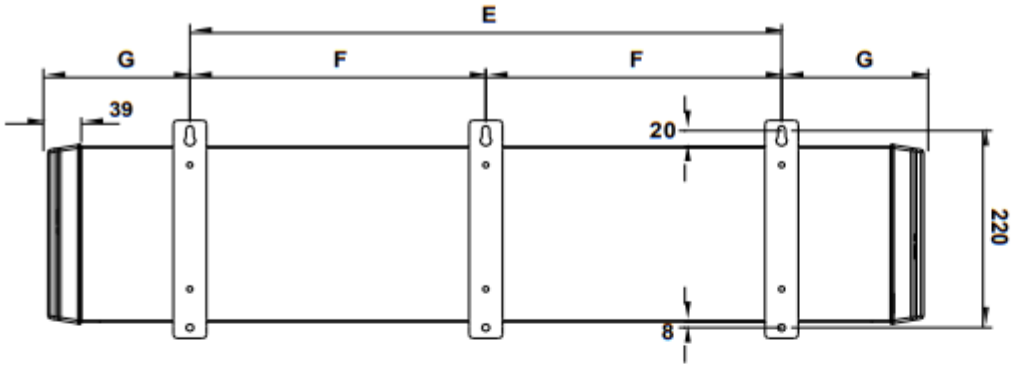
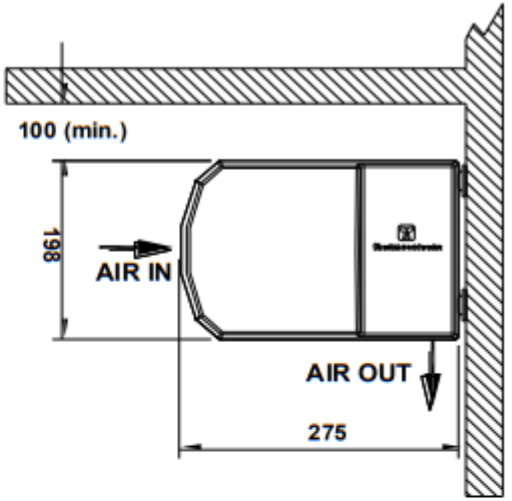
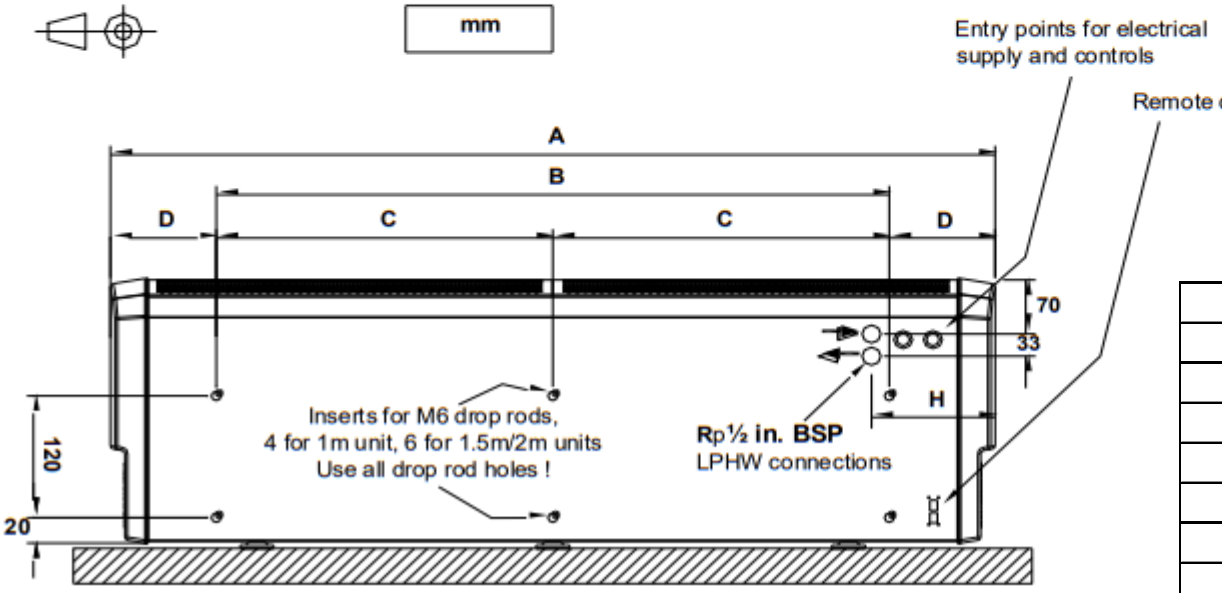
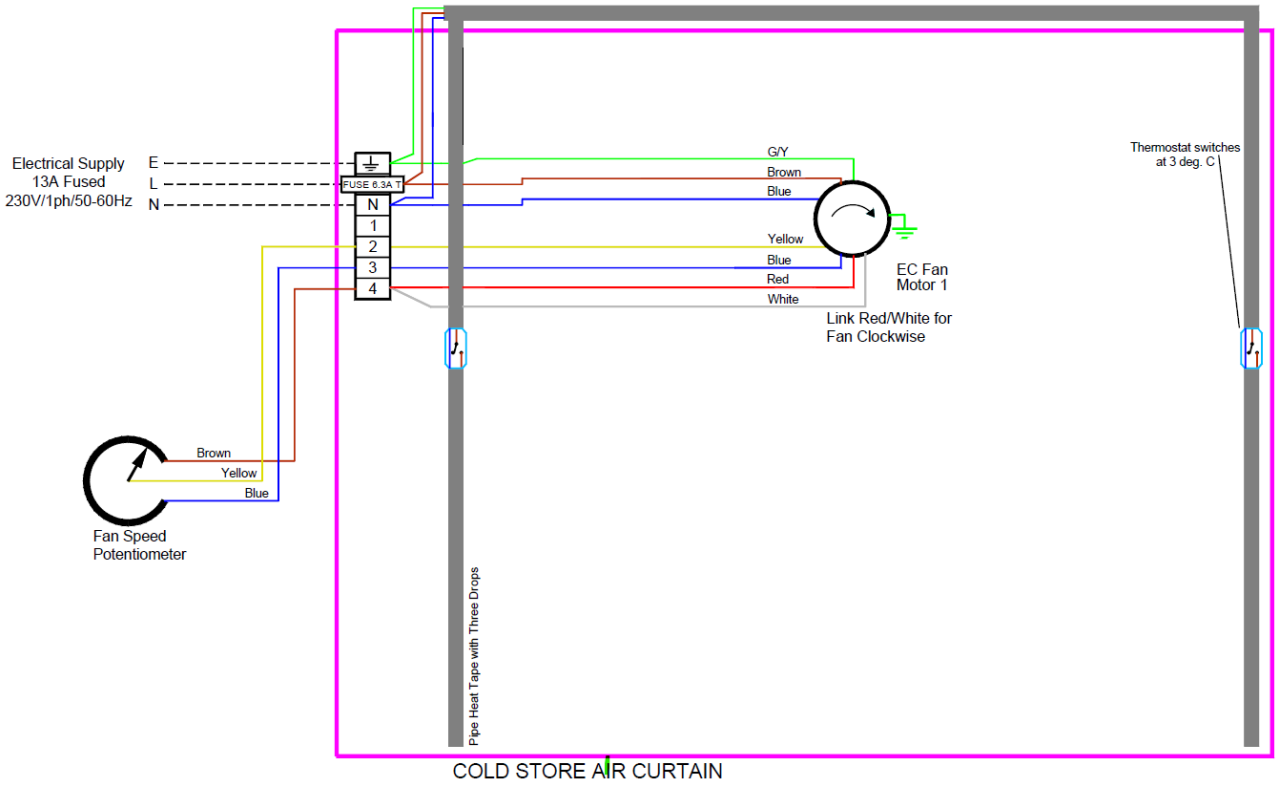


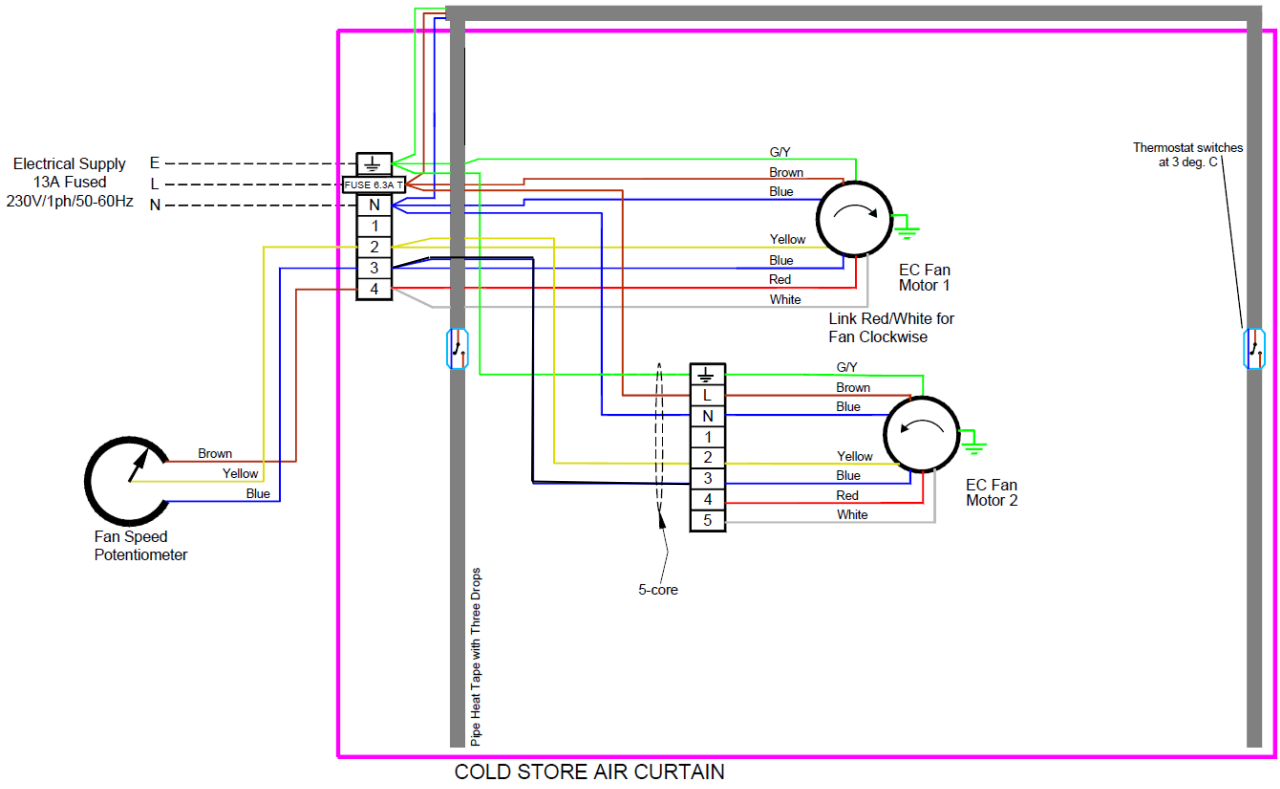


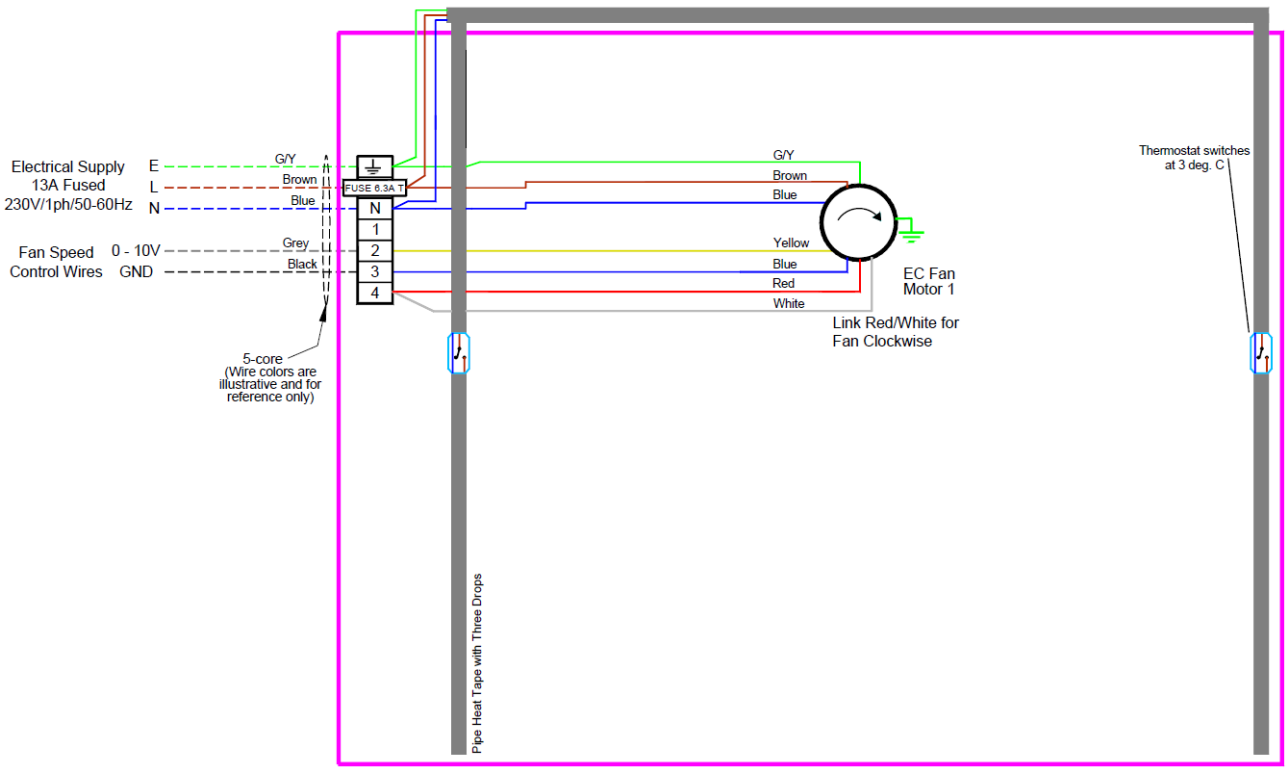


	SCS 1000	SCS 1500	SCS 2000
A	1137	1669	2200
B	908	1408	1928
C	-	704	964
D	115	131	136
E	710	1208	1748
F	-	604	874
G	214	231	226
H	152	172	172

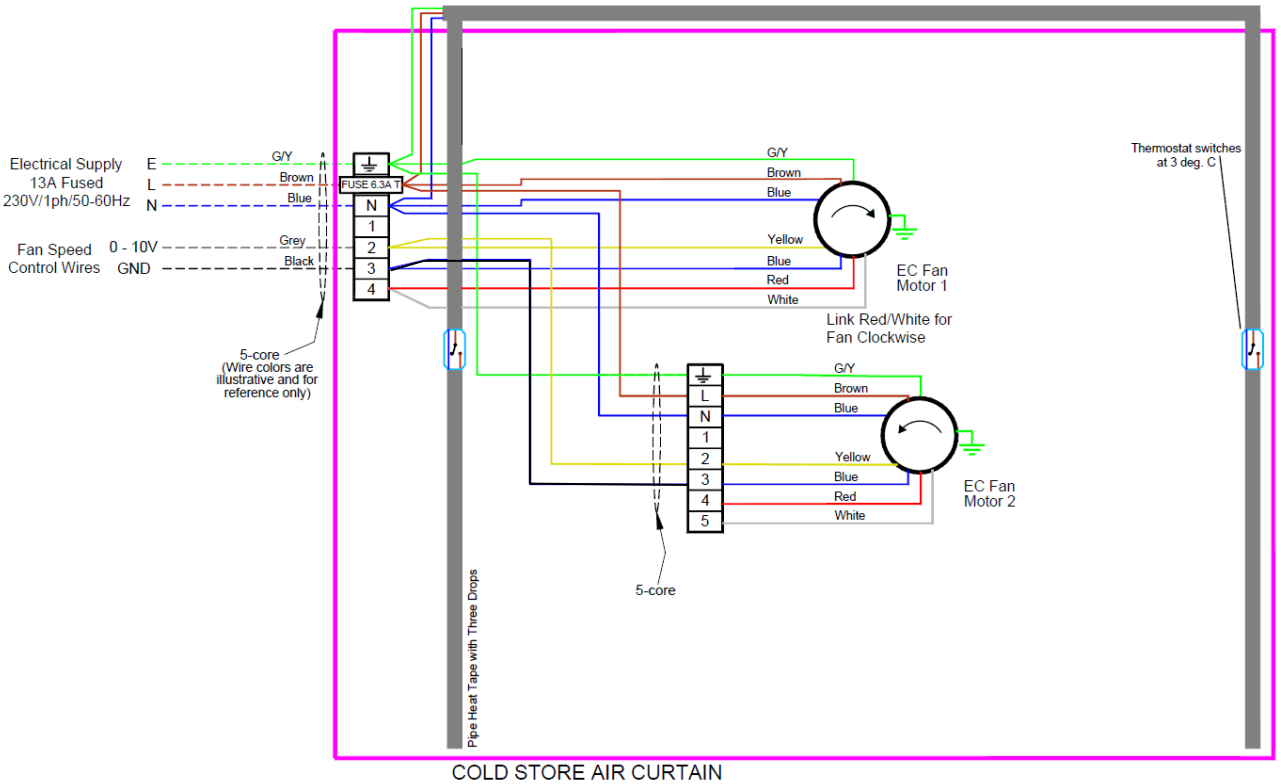
APPENDIX 1 — Dimensions of SCS Surface Mounted Air Curtain


Electrical Supply
13A Fused
230V/1ph/50-60Hz
E
L
N
FUSE 6.3A T
N
1
2
3
4
G/Y
Brown
Blue
Yellow
Blue
Red
White
EC Fan
Motor 1
Link Red/White for
Fan Clockwise
Thermostat switches
at 3 deg. C
Brown
Yellow
Blue
Fan Speed
Potentiometer
Pipe Heat Tape with Three Drops
COLD STORE AIR CURTAIN

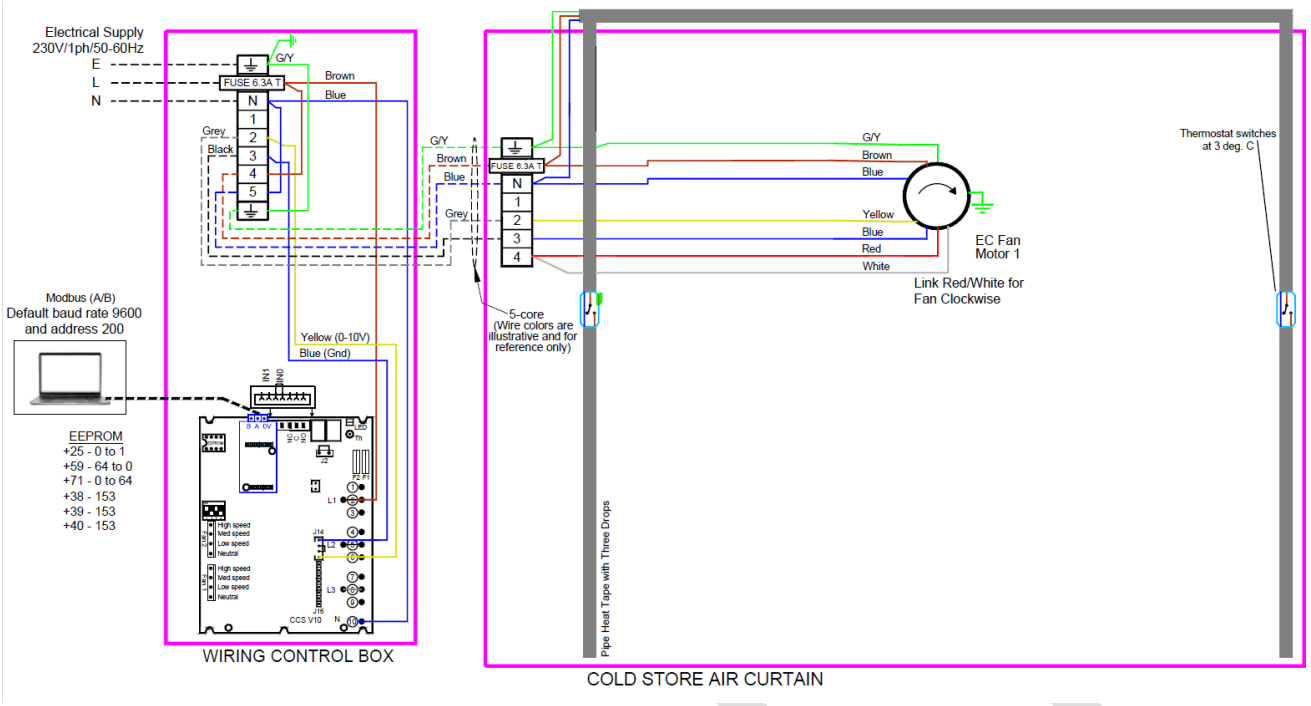

Electrical Supply
13A Fused
230V/1ph/50-60Hz
E
L
N
FUSE 6.3A T
N
1
2
3
4
G/Y
Brown
Blue
Yellow
Blue
Red
White
EC Fan
Motor 1
Link Red/White for
Fan Clockwise
Thermostat switches
at 3 deg. C
L
N
1
2
3
4
5
G/Y
Brown
Blue
Yellow
Blue
Red
White
EC Fan
Motor 2
5-core
Brown
Yellow
Blue
Fan Speed
Potentiometer
Pipe Heat Tape with Three Drops
COLD STORE AIR CURTAIN

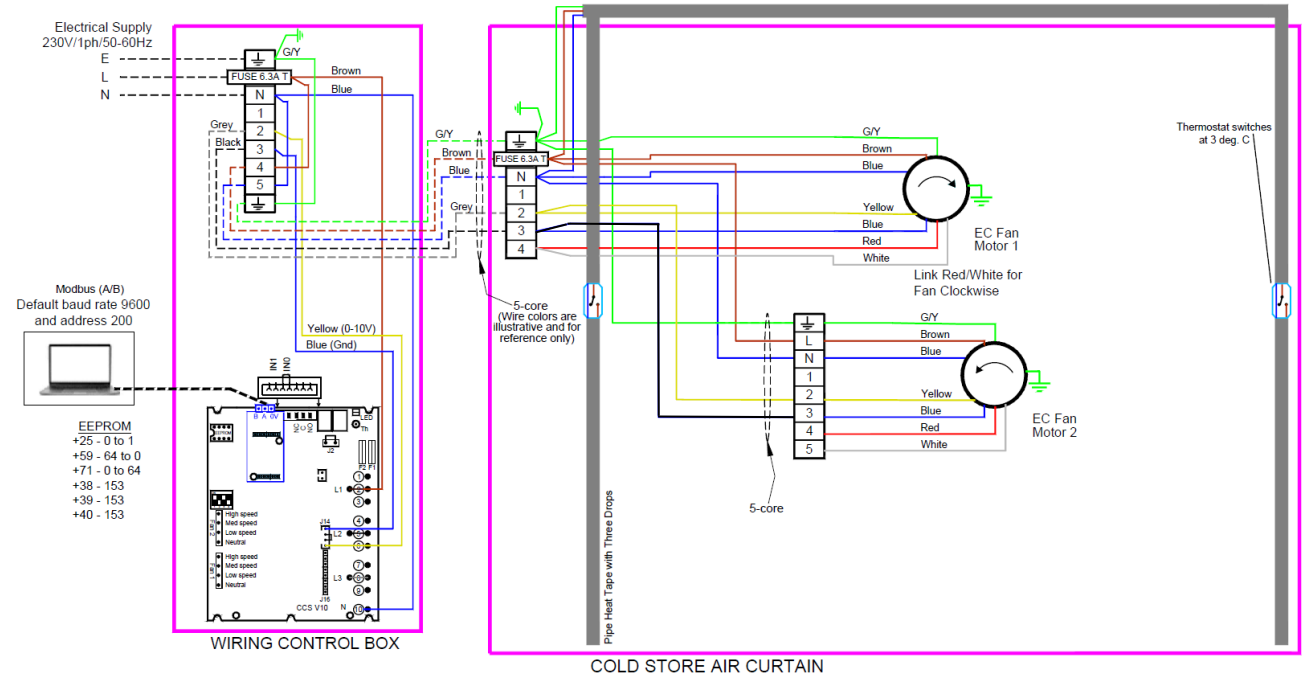


COLD STORE AIR CURTAIN



COLD STORE AIR CURTAIN


Electrical Supply
230V/1ph/50-60Hz
E
L
N
G/Y
FUSE 6.3A T
Brown
Blue
Grey
Black
Modbus (A/B)
Default baud rate 9600
and address 200
EEPROM
+25 - 0 to 1
+59 - 64 to 0
+71 - 0 to 64
+38 - 153
+39 - 153
+40 - 153
Yellow (0-10V)
Blue (Gnd)
WIRING CONTROL BOX
5-core
(Wire colors are
illustrative and for
reference only)
Yellow
Red
White
EC Fan
Motor 1
Link Red/White for
Fan Clockwise
Thermostat switches
at 3 deg. C
Pipe Heat Tape with Three Drops
COLD STORE AIR CURTAIN


Electrical Supply
230V/1ph/50-60Hz
E
L
N
G/Y
FUSE 6.3A T
Brown
Blue
Grey
Black
Modbus (A/B)
Default baud rate 9600
and address 200
EEPROM
+25 - 0 to 1
+59 - 64 to 0
+71 - 0 to 64
+38 - 153
+39 - 153
+40 - 153
Yellow (0-10V)
Blue (Gnd)
WIRING CONTROL BOX
5-core
(Wire colors are
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reference only)
Yellow
Red
White
EC Fan
Motor 1
Link Red/White for
Fan Clockwise
EC Fan
Motor 2
5-core
Thermostat switches
at 3 deg. C
Pipe Heat Tape with Three Drops
COLD STORE AIR CURTAIN

22. DECLARATION OF CONFORMITY

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www.thermoscreens.com

EC DECLARATION OF CONFORMITY
as defined by the EC Council Directive on Machinery 2006/42/EC,
the Low Voltage Directive 2014/35/EC, Electromagnetic Compatibility Directive 2014/30/EU
and the Energy related Products Directive 2009/125/EC

Herewith we declare that the air movement equipment designated below, on the basis of its design and construction in the form brought onto the market by us in accordance with the relevant safety, health and performance requirements of the Machinery. If alterations are made to the machinery without prior consultations with us, this declaration becomes invalid.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Designation of Equipment: AIR CURTAINS

Series Type: SCS 1000, SCS 1500 and SCS 1500
Motor Type: EC

Relevant EC Council Directives:
the Machinery Directive (2006/42/EC)
the Low Voltage Directive (2014/35/EU)
the Electromagnetic Compatibility Directive (2014/30/EU)
the Energy related Products Directive (2009/125/EC)

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery - BS EN ISO 12100:2010, BS EN ISO 13857:2008
LVD - EN 60335-1:2012+A13:2017, EN 60335-2-30:2009+A11:2012
EMC - EN 61000-6-1:2007, EN 61000-6-3:2007+A1:2011, EN 61000-3-2:2014+A2:2009, EN 61000-3-3:2013
ErP - Commission Regulation (EU) No.327/2011, ISO 5801:2017, ISO 12759:2010

Basis of Self Attestation:
Quality Assurance to BS EN ISO 9001:2015
B.S.I. Registered Firm Certificate Number FM 02234
SGS Test Report ELS150049/2/R/DC/11;
SGS Test Report EMC150049/1
CE Marking Association Test Report 6799 and 6800

Responsible Person: Patrick Ward, Group Operations Director.

Date: 1st January 2025

Signed: