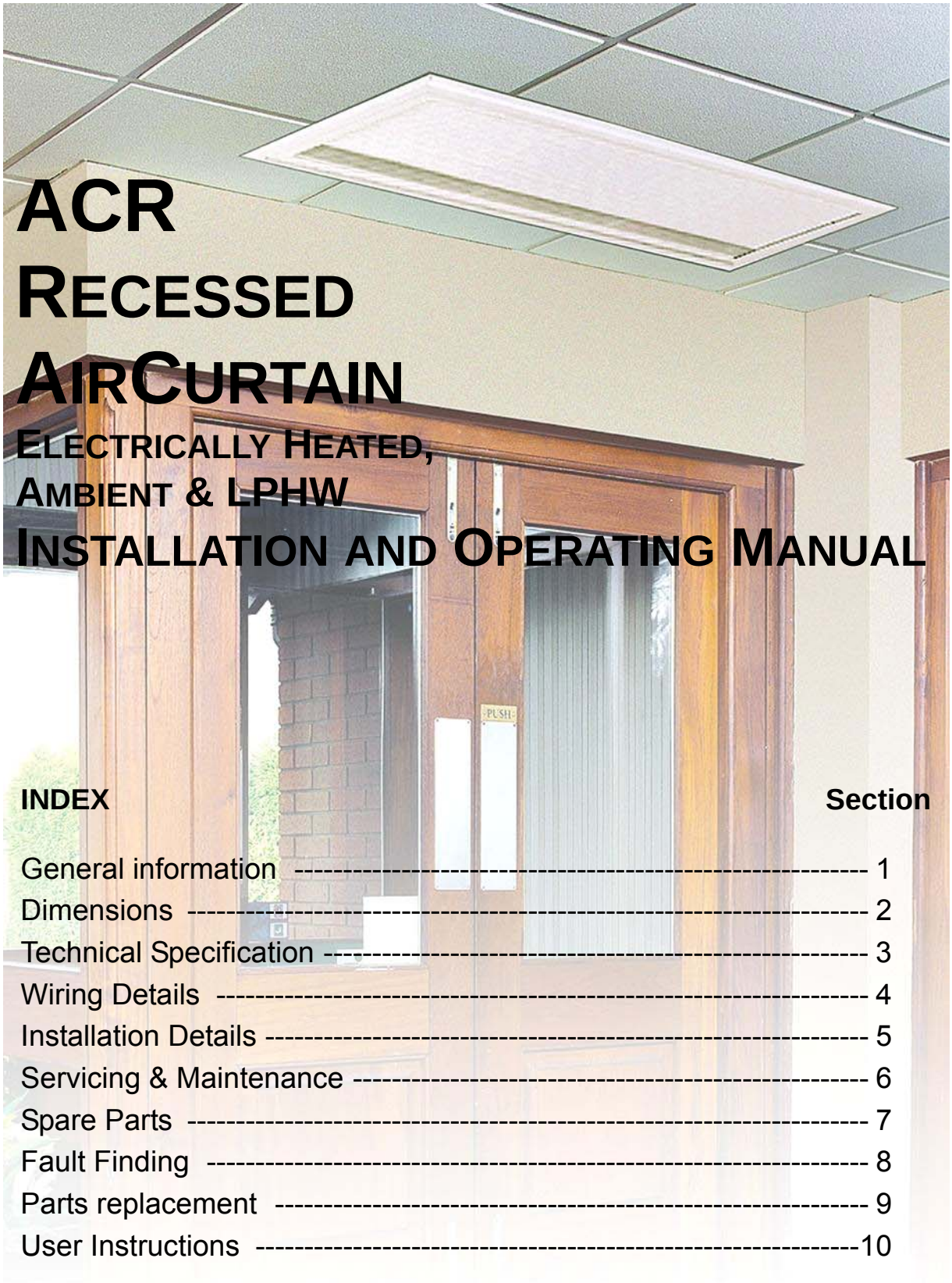
Instruction Manual.

AIRBLOC



ACR
Recessed
AirCurtain
Electrically Heated, Ambient & LPHW
Installation and Operating Manual

INDEX **Section**

WARNINGS

1 This appliance must only be installed by a competent person in accordance with the requirements of the Codes of Practice or the rules in force.
2 All external wiring MUST comply with the current IEE wiring regulations.
3 Warning this appliance must be earthed.

An AmbiRad Group brand

Document Index.

1.1 Introduction

This instruction manual describes the Airbloc ACR Recessed range of air curtains.

Models range from 1000mm to 2000mm in length, in both Standard and High capacity and are available in either Electrically heated, Ambient or LPHW. They are designed for discreet positioning in a suspended ceiling or bulkhead in the doorways of retail or commercial premises. Optional case for doorways with restricted space and no suspended ceiling or bulkhead

Each air curtain is supplied with a fully electronic controller giving multi fan and heat settings (electrically operated units) via a simple key pad which can be mounted up to 50m from the air curtain. Optional BMS time control, external thermostats and door interlocks can be installed.

fig.1. AC-ACR-PANEL program keypad

The **AC-ACR-PANEL programmer** shown above allows the user to control either a single air curtain, or a network of up to 6 air curtains with the same settings, and provides the following functions:-

- Heat On Off or Auto via optional thermostat
- Off or Low, Medium and High Fan Speeds
For further details please refer to section 10.2

Alternatively on electrically heated models, an optional SmartElec2 control system consists of a base unit (installed within the air curtain) and a program panel that can be installed remote from the air curtain. Usually, the program panel is mounted at a low level from the air curtain for user access and to a maximum distance of 100m. The base unit and program panel are linked by low voltage cable as specified in these instructions.

The **SmartElec2 factory fitted base unit** provides terminals for 3 phase supply connection and the low voltage program panel wires. The SmartElec2 base unit rapidly pulses energy to the heating elements. This combined with the inbuilt intelligent sensor control, maintains a fixed outlet temperature, thereby reducing energy consumption as compared to an air curtain without the SmartElec2 control.

fig.2. SmartElec2 Controller

The **SmartElec2 program panel** shown above allows the user to control either a single air curtain, or a network of up to 16 air curtains, each with different settings if required, and provides the following functions:-

- Heat On or Off
- Off or Low, Medium and High Fan Speeds
- Air Outlet Temperature

For further details please refer to section 10.4

1.2 General

All installations must be in accordance with the regulations in force in the country of use.

These instructions must be handed to the user on completion of the installation.

Installers and service engineers must be able to demonstrate competence and be suitably qualified in accordance with the regulations in force in the country of use.

To ensure continued and safe operation it is recommended that the appliance is serviced annually.

The manufacturer, offers a maintenance service. Details are available on request.

The air curtain outlet grille and case air inlet slots must not be obstructed during use.

1.3 Electrical Supply.

For full electrical loadings, please refer to the individual technical data sheets within this manual.

It is recommended that the electrical supply to the base unit in the air curtain is via an appropriate switched isolator in accordance with the regulations in force in the country of use and must be via a fused isolator having a contact separation of greater than 3mm in all poles.

BMS control, time switches, room thermostats and door interlocks can be installed at the discretion and responsibility of the installer.

All units must be wired in accordance with I.E.E regulations for the Electrical Equipment of Buildings and the installer should ensure that a suitable isolating switch is connected in the mains supply.

Warning
For safety reasons a good earth connection must ALWAYS be made to the heater and control box.

1.3.1 Electronic controller

Electrically heated supply is either 230V 1 phase (6 and 9kW options) or 415V 3 phase (9 to 24kW), Neutral and Earth. Max cable inlet size is 4mm².

Ambient and LPHW supply is 230V 1 phase, Neutral and Earth. Max cable inlet size is 4mm².

Remote unit is wired to the base unit via a Belden 9174 cable (or direct equiv).

1.3.2 SmartElec2 controller

Electrically heated supply is 415V 3 phase, neutral and earth. Max cable inlet size is 10mm².

Remote unit is wired to the base unit via pre-wired 4core cable.

Networked air curtain interconnects via pre-wired 4 core cable.

1.4 Location.

Airbloc units should be installed horizontally directly over the door opening. It is recommended that the air curtain is installed on the inside of the building, within the ceiling void or roof space.

Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct working operation of the air curtain. The discharge opening should be as close to the top of the door as possible and to cover the entire door width.

Units can be mounted adjacent to each other to cover the full door opening across wider entrances.

1.5 Clearance distances

It is recommended that a minimum clearance of 100mm is allowed around the case sizes detailed below. The clearance allows for cable entry and prevents combustible surfaces overheating.

The minimum mounting height (floor to grille) is 1.8m. The recommended mounting height is 3m for standard and 4m for high capacity models.

1.6 Health and Safety

Sole liability rests with the installer to ensure that all site safety procedures are adhered to during installation.

Sole liability rests with the installer to ensure that protective safety wear such as hand, eye, ear and head protection is used during installation of the product.

Do not rest anything especially ladders against the product.

1.7 Standards

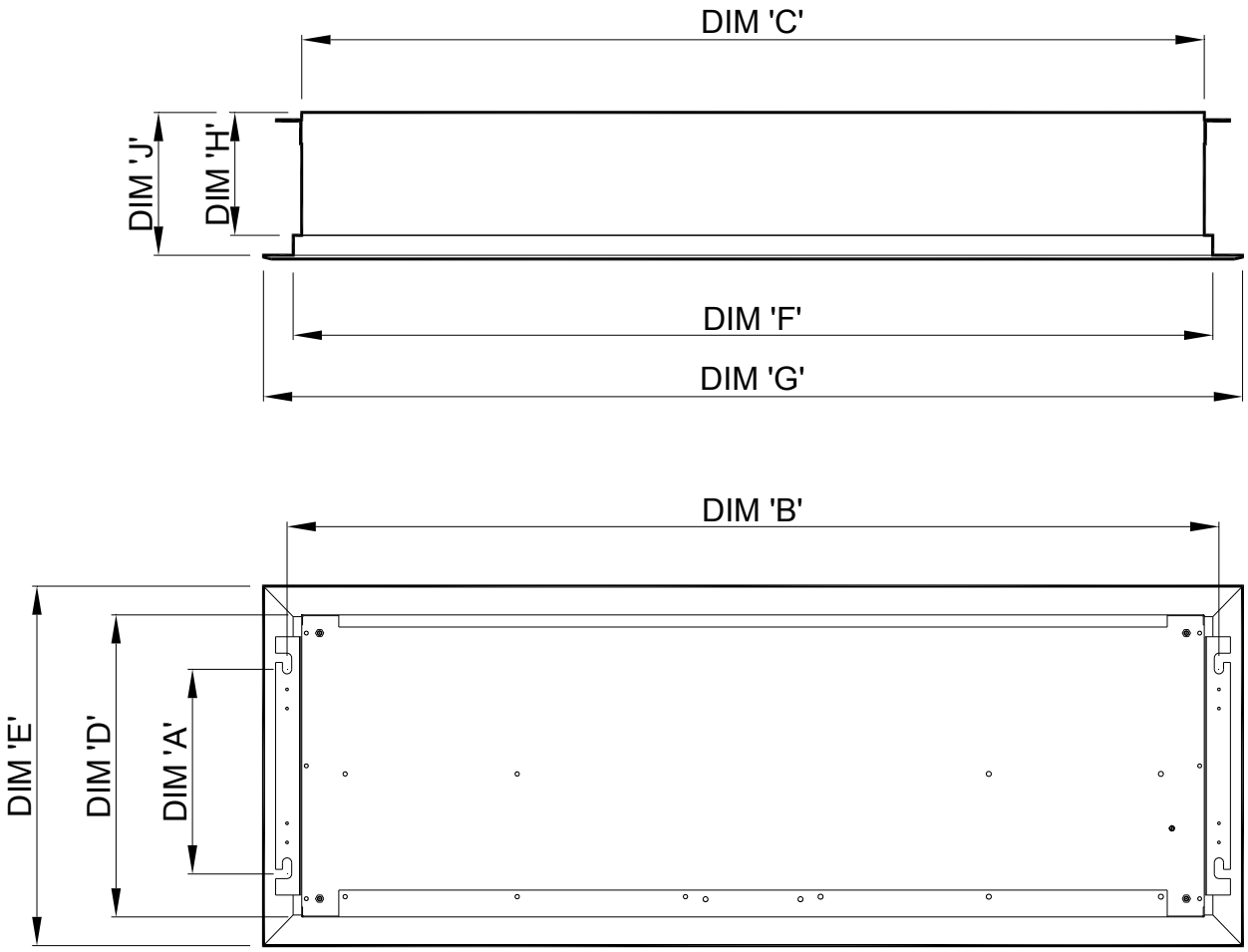
Units conform to the European electrical standard BS EN 60335-2-30 and to the following European CE directives-

2006/95/EC - low voltage;

2004/108/EC - electromagnetic compatibility.

2. Dimensions.

2.1 ACR Air Curtain



Dimensional detail (mm)

Size	ACR100SE6/9; ACR100SW9; ACR100SA	ACR150SE12; ACR150SW12; ACR150SA	ACR200SE18; ACR200SW18; ACR200SA	ACR120HE12; ACR120HW12; ACR120HA	ACR180HE18; ACR180HW18; ACR180HA
A	253			407	
B	1220	1520	2020	1185	1785
C	1182	1482	1982	1150	1750
D	395			550	
E	454			608	
F	1205	1505	2005	1150	1750
G	1242	1542	2095	1210	1810
H	160			180	
J	200			220	

2.2 AC-ACR-PANEL program keypad

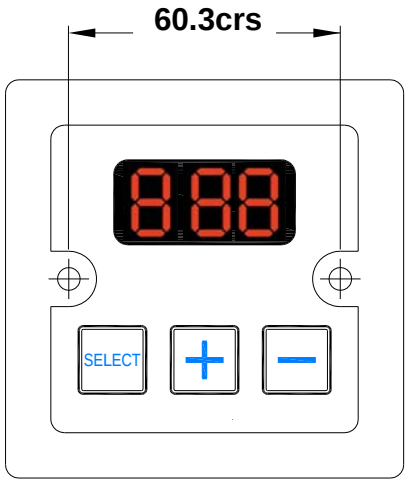


Fig.3. Surface mount

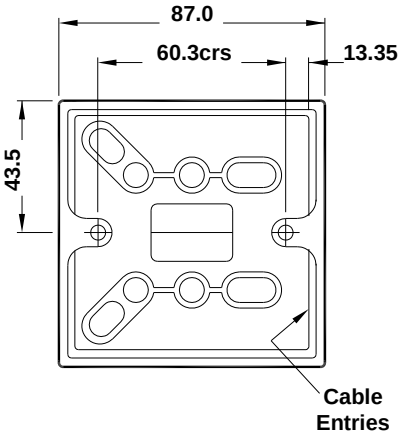
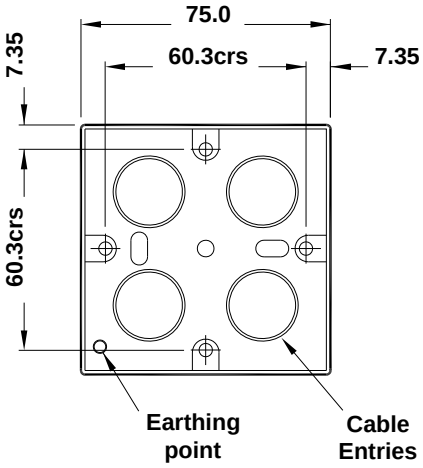
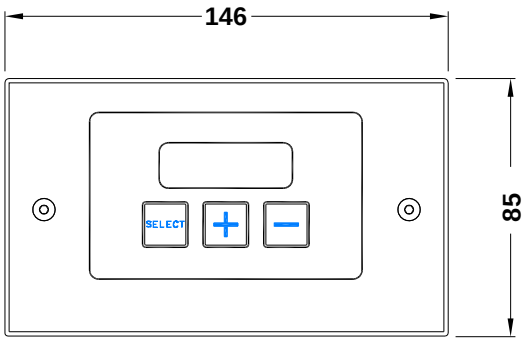
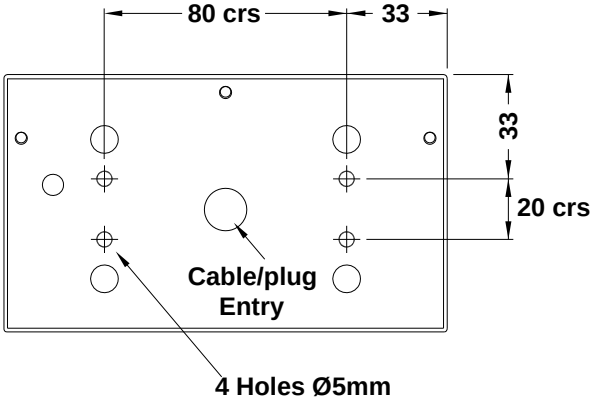


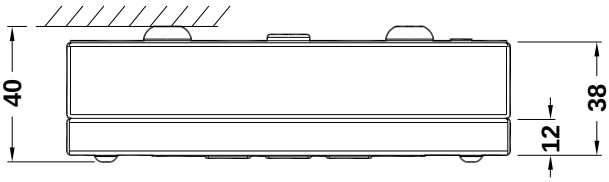
Fig.4. optional flush mount



2.3 Optional SmartElec2 Controller dimensions







3. Technical Specification.

3.1 (Single Phase only)			ACR100SE6-1PH	ACR150SE6-1PH	ACR200SE9-1PH
General Data					
Maximum height		M	3.0		
Door width		M	1.0	1.5	2.0
Heat medium			Electric heated		
Heat setting		kW	3 / 6		4.5 / 9
Fan type / dia			Crossflow / 100mm		
Fan settings			3		
Switching type			AC-ACR-PANEL		
Weight		kg	28.0	34.0	49.0
Electrical Data					
Supply voltage			230V 1ph 50Hz		
Total load		kW	6.1		9.1
		amps	26.5		39.6
Motor power		W	60		90
Max Starting current*		amps	0.96		1.5
Max Running current*		amps	0.65		0.75
External fuse size amps		amps	32		45
Programmer keypad		pt. no.	AC-ACR-PANEL		
Program keypad control wiring			Belden 9174 (or similar)		
Cable terminal size			6.0mm² Max		
Mains terminal block position			Separate din rail L1; N & E		
Control terminal block position			Right side of base unit terminals +12V, DATA & GND		
Air Data					
Air volume	*Low speed*	m³/h	1164	1475	2013
	Medium speed	m³/h	1405	1780	2432
	High speed	m³/h	1646	2085	2851
Air velocity	*Low @ 0M*	m/s	4.3		5.4
	Medium @ 0M	m/s	5.6		6.9
	High @ 0M	m/s	7.0		8.4
	High @ 1M	m/s	3.5		4.2
	High @ 2M	m/s	1.6		2.1
	High @ 3M	m/s	0.8		1.0
Delta T	*Low speed*	°C	17	13	26
	Medium speed	°C	15	11	23
	High speed	°C	13	9	20
Noise level @ 1M *Free field*	*Low speed*	dBA	59		
	Medium speed	dBA	62		
	High speed	dBA	64		
Dims Data					
Length		mm	1182	1482	1982
Depth (width)		mm	395		
Total height*		mm	200		
Outlet length		mm	1125	1425	1945
Outlet depth (width)		mm	85		
Grille height		mm	40		
Mounting bracket centres length		mm	1220	1520	2020
Side to 1st bracket centre		mm	18		
Mounting bracket centres height		mm	Flush with top of unit		
Top to 1st bracket centre		mm	Flush with top of unit		

* Motor current only at high speed

3.2			ACR100SE9	ACR150SE12	ACR200SE18
General Data					
Maximum height		M	3.0		
Door width		M	1.0	1.5	2.0
Heat medium			Electric heated		
Heat setting		kW	4.5 / 9	6 / 12	9 / 18
Fan type / dia			Crossflow / 100mm		
Fan settings			3		
Switching type			AC-ACR-PANEL / SmartElec2		
Weight		kg	28.0	34.0	49.0
Electrical Data					
Supply voltage			415V 3ph 50Hz		
Total load		kW	9.1	12.1	18.1
		A/pha	12.6	16.8	25.2
Motor power		W	60		90
Max Starting current*		amps	0.96		1.5
Max Running current*		amps	0.65		0.75
External fuse size amps		A/pha	16	20	32
Programmer keypad		pt. no.	AC-ACR-PANEL		
Program keypad control wiring			Belden 9174 (or similar)		
Cable terminal size			4.0mm² Max		6.0mm² Max
Mains terminal block position			Bottom of base unit. Terminals N; L1; L2 & L3		Separate din rail E: N; L1; L2 & L3
Control terminal block position			Right side of base unit terminals +12V, DATA & GND		
*** SmartElec Energy Saving Control		pt. no.	SELEC2BU		
SmartElec Energy Saving Control wiring			4 core pre-wired		
Cable terminal size			10.0mm² Max		
Mains terminal block position			SmartElec2 Base Unit - terminals N; L1; L2 & L3		
Control terminal block position			SmartElec2 Base Unit		
Air Data					
Air volume	*Low speed*	m³/h	1164	1475	2013
	Medium speed	m³/h	1405	1780	2432
	High speed	m³/h	1646	2085	2851
Air velocity	*Low @ 0M*	m/s	4.3		5.4
	Medium @ 0M	m/s	5.6		6.9
	High @ 0M	m/s	7.0		8.4
	High @ 1M	m/s	3.5		4.2
	High @ 2M	m/s	1.6		2.1
	High @ 3M	m/s	0.8		1.0
Delta T	*Low speed*	°C	26	25	21
	Medium speed	°C	23	22	20
	High speed	°C	20	19	19
Noise level @ 1M *in free field*	*Low speed*	dBA	59		
	Medium speed	dBA	62		
	High speed	dBA	64		
Dims Data					
Length		mm	1182	1482	1982
Depth (width)		mm	395		
Total height*		mm	200		
Outlet length		mm	1125	1425	1945
Outlet depth (width)		mm	85		
Grille height		mm	40		
Mounting bracket centres length		mm	1220	1520	2020
Side to 1st bracket centre		mm	18		
Mounting bracket centres height		mm	Flush with top of unit		
Top to 1st bracket centre		mm	Flush with top of unit		

* Motor current only at high speed
**Suffix with –SM for SmartElec2 Energy Saving Control.

3.3			ACR120HE12	ACR180HE18
General Data				
Maximum height		M	4.0	
Door width		M	1.0	1.5
Heat medium			Electric heated	
Heat setting		kW	6 / 12	9 / 18
Fan type / dia			Crossflow / 150mm	
Fan settings			3	
Switching type			AC-ACR-PANEL / SmartElec2	
Weight		kg	38.0	55.0
Electrical Data				
Supply voltage			415V 3ph 50Hz	
Total load		kW	12.4	18.4
		A/pha	17.3	25.6
Motor power		W	370	
Max Starting current*		amps	5.0	
Max Running current*		amps	2.1	
External fuse size amps		A/pha	20	32
Programmer keypad		pt. no.	AC-ACR-PANEL	
Program keypad control wiring			Belden 9174 (or similar)	
Cable terminal size			4.0mm² Max	6.0mm² Max
Mains terminal block position			Base unit N; L1; L2 & L3	Separate din rail E; N; L1; L2 & L3
Control terminal block position			Right side of base unit terminals +12V, DATA & GND	
*** SmartElec Energy Saving Control		pt. no.	SELEC2BU	
SmartElec Energy Saving Control wiring			4 core pre-wired	
Cable terminal size			10.0mm² Max	
Mains terminal block position			SmartElec2 Base Unit - terminals N; L1; L2 & L3	
Control terminal block position			SmartElec2 Base Unit	
Air Data				
Air volume	*Low speed*	m³/h	1300	1600
	Medium speed	m³/h	1850	2400
	High speed	m³/h	2300	3300
Air velocity	*Low @ 0M*	m/s	6.0	
	Medium @ 0M	m/s	8.5	
	High @ 0M	m/s	11.0	
	High @ 1M	m/s	5.4	5.5
	High @ 2M	m/s	3.6	3.7
	High @ 3M	m/s	2.6	2.5
	High @ 4M	m/s	1.5	1.6
Delta T	*Low speed*	°C	35	35
	Medium speed	°C	28	27
	High speed	°C	22	22
Noise level @ 3M *in free field*	Low speed	dBA	50	
	Medium speed	dBA	55	
	High speed	dBA	60	
Dims Data				
Length		mm	1150	1750
Depth (width)		mm	550	
Total height*		mm	227	
Outlet length		mm	1090	1690
Outlet depth (width)		mm	85	
Grille height		mm	6	
Mounting bracket centres length		mm	1185	1785
Side to 1st bracket centre		mm	17.5	
Mounting bracket centres height		mm	Flush with top of unit	
Top to 1st bracket centre		mm	Flush with top of unit	

* Motor current only at high speed
**Suffix with –SM for SmartElec2 Energy Saving Control.

3.4			ACR100SA	ACR150SA	ACR200SA
General Data					
Maximum height		M	3.0		
Door width		M	1.0	1.5	2.0
Heat medium			Ambient		
Fan type / dia			Crossflow / 100mm		
Fan settings			3		
Switching type			AC-ACR-PANEL		
Weight		kg	28	34	49
Electrical Data					
Supply voltage			230V 1ph 50Hz		
Total load		kW	0.06		0.09
		amps	0.26		0.4
Motor power		W	60		90
Max Starting current*		amps	0.96		1.5
Max Running current*		amps	0.65		0.75
External fuse size amps		amps	3		
Programmer keypad		pt. no.	AC-ACR-PANEL		
Program keypad control wiring			Belden 9174 (or similar)		
Cable terminal size			4.0mm² Max		
Mains terminal block position			Base unit L1; N + E		
Control terminal block position			Right side of base unit terminals +12V, DATA & GND		
Air Data					
Air volume	*Low speed*	m³/h	1164	1475	2013
	Medium speed	m³/h	1405	1780	2432
	High speed	m³/h	1646	2085	2851
Air velocity	*Low @ 0M*	m/s	4.3		5.4
	Medium @ 0M	m/s	5.6		6.9
	High @ 0M	m/s	7.0		8.4
	High @ 1M	m/s	3.5		4.2
	High @ 2M	m/s	1.6		2.1
	High @ 3M	m/s	0.8		1.0
Noise level @ 1M *in free field*	*Low speed*	dBA	59		62
	Medium speed	dBA	62		64
	High speed	dBA	64		66
Dims Data					
Length		mm	1182	1482	1982
Depth (width)		mm	395		
Total height*		mm	200		
Outlet length		mm	1125	1425	1945
Outlet depth (width)		mm	85		
Grille height		mm	40		
Mounting bracket centres length		mm	1220	1520	2020
Side to 1st bracket centre		mm	18		
Mounting bracket centres height		mm	Flush with top of the unit		
Top to 1st bracket centre		mm	Flush with top of the unit		

* Motor current only at high speed

3.5			ACR120HA	ACR180HA
General Data				
Maximum height		M	4.0	
Door width		M	1.0	1.5
Heat medium			Ambient	
Fan type / dia			Crossflow / 150mm	
Fan settings			3	
Switching type			AC-ACR-PANEL	
Weight		kg	40.0	58.0
Electrical Data				
Supply voltage			230V 1ph 50Hz	
Total load		kW	0.4	
		amps	1.6	
Motor power		W	370	
Max Starting current*		amps	5.0	
Max Running current*		amps	2.1	
External fuse size amps		Amps	10	
Programmer keypad		pt. no.	AC-ACR-PANEL	
Program keypad control wiring			Belden 9174 (or similar)	
Cable terminal size			4.0mm² Max	
Mains terminal block position			Base unit L1; N + E	
Control terminal block position			Right side of base unit terminals +12V, DATA & GND	
Air Data				
Fan setting			2	
Air volume	*Low speed*	m³/h	1300	1600
	Medium speed	m³/h	1850	2400
	High speed	m³/h	2300	3300
Air velocity	*Low @ 0M*	m/s	6.0	
	Medium @ 0M	m/s	8.5	
	High @ 0M	m/s	11.0	
	High @ 1M	m/s	5.5	5.2
	High @ 2M	m/s	3.7	3.6
	High @ 3M	m/s	2.5	2.4
	High @ 4M	m/s	1.6	1.4
Noise level @ 3M *in free field*	Low speed	dBA	50	
	Medium speed	dBA	55	
	High speed	dBA	60	
Dims Data				
Length		mm	1150	1750
Depth (width)		mm	550	
Total height*		mm	227	
Outlet length		mm	1090	1690
Outlet depth (width)		mm	85	
Grille height		mm	6	
Mounting bracket centres length		mm	1185	1785
Side to 1st bracket centre		mm	17.5	
Mounting bracket centres height		mm	Flush with top of unit	
Top to 1st bracket centre		mm	Flush with top of unit	

* Motor current only at high speed

3.6			ACR100SW9	ACR150SW12	ACR200SW18
General Data					
Maximum height		M	3.0		
Door width		M	1.0	1.5	2.0
Heat medium			LPHW		
Heat setting		kW	9	12	18
Fan type / 100mm			Crossflow / 100mm		
Fan settings			3		
Switching type			AC-ACR-PANEL		
Weight		kg	28	34	49
Electrical Data					
Supply voltage			230V 1ph 50Hz		
Total load		kW	0.06		0.09
		amps	0.26		0.4
Motor power		W	60		90
Max Starting current*		amps	0.96		1.5
Max Running current*		amps	0.65		0.75
External fuse size amps		amps	3		
Programmer keypad		pt. no.	AC-ACR-PANEL		
Program keypad control wiring			Belden 9174 (or similar)		
Cable terminal size			4.0mm² Max		
Mains terminal block position			Base unit L1; N + E		
Control terminal block position			Right side of base unit terminals +12V, DATA & GND		
Air Data					
Air volume	*Low speed*	m³/h	1164	1475	2013
	Medium speed	m³/h	1405	1780	2432
	High speed	m³/h	1646	2085	2851
Air velocity	*Low @ 0M*	m/s	4.3		5.4
	Medium @ 0M	m/s	5.6		6.9
	High @ 0M	m/s	7.0		8.4
	High @ 1M	m/s	3.5		4.2
	High @ 2M	m/s	1.6		2.1
	High @ 3M	m/s	0.8		1.0
Delta T	*Low speed*	°C	26	25	21
	Medium speed	°C	23	22	20
	High speed	°C	20	19	19
Noise level @ 1M *in free field*	*Low speed*	dBA	59		62
	Medium speed	dBA	62		64
	High speed	dBA	64		66
LPHW Data					
LPHW flow		l/s	0.20		0.40
Fluid pressure drop		kPA	3.8	17.6	20
Flow & return connection		mm	15		22
Inlet temp		°C	82		
Outlet temp		°C	71		
Dims Data					
Length		mm	1182	1482	1982
Depth (width)		mm	395		
Total height*		mm	200		
Outlet length		mm	1125	1425	1945
Outlet depth (width)		mm	85		
Grille height		mm	40		
Mounting bracket centres length		mm	1220	1520	2020
Side to 1st bracket centre		mm	18		
Mounting bracket centres height		mm	Flush with top of the unit		
Top to 1st bracket centre		mm	Flush with top of the unit		

* Motor current only at high speed

3.7			ACR120HW12	ACR180HW18
General Data				
Maximum height		M	4.0	
Door width		M	1.0	1.5
Heat medium			LPHW	
Heat setting		kW	12	18
Fan type / dia			Crossflow / 150mm	
Fan settings			3	
Switching type			AC-ACR-PANEL	
Weight		kg	40.0	58.0
Electrical Data				
Supply voltage			230V 1ph 50Hz	
Total load		kW	0.4	
		amps	1.6	
Motor power		W	370	
Max Starting current*		amps	5.0	
Max Running current*		amps	2.1	
External fuse size amps		amps	10	
Programmer keypad		pt. no.	AC-ACR-PANEL	
Program keypad control wiring			Belden 9174 (or similar)	
Cable terminal size			4.0mm² Max	
Mains terminal block position			Base unit L1; N + E	
Control terminal block position			Right side of base unit terminals +12V, DATA & GND	
Air Data				
Air volume	*Low speed*	m³/h	1600	2900
	Medium speed	m³/h	2400	4100
	High speed	m³/h	3300	5000
Air velocity	*Low @ 0M*	m/s	6.0	
	Medium @ 0M	m/s	8.5	
	High @ 0M	m/s	11.0	
	High @ 1M	m/s	5.5	5.2
	High @ 2M	m/s	3.7	3.6
	High @ 3M	m/s	2.5	2.4
	High @ 4M	m/s	1.6	1.4
Delta T	*Low speed*	°C	35	35
	Medium speed	°C	28	27
	High speed	°C	22	22
Noise level @ 3M *in free field*	Low speed	dBA	50	
	Medium speed	dBA	55	
	High speed	dBA	60	
LPHW Data				
LPHW Flow		l/s	0.40	0.53
Fluid Pressure Drop		kPA	23	24
Flow & Return connection		mm	15	15
Inlet temp		°C	82	
Outlet temp		°C	71	
Dims Data				
Length		mm	1150	1750
Depth (width)		mm	550	
Total height*		mm	227	
Outlet length		mm	1090	1690
Outlet depth (width)		mm	85	
Grille height		mm	6	
Mounting bracket centres length		mm	1185	1785
Side to 1st bracket centre		mm	17.5	
Mounting bracket centres height		mm	Flush with top of unit	
Top to 1st bracket centre		mm	Flush with top of unit	

* Motor current only at high speed

3.8	Program Controller
General Data	
Sensor input	NTC
Protection	2 x ‘slow blow’ fuse for the protection of the heater switching devices.
Fan Output	3 off Relay for High, Medium and Low Fan setting 3A max 240Vac
Connection	Screw terminals 4 for supply, 6 for heater output, 4 for fan output, 2 for BMS (time) control, 2 for sensor input, 2 for external thermal trip, 2 for external door switch.
Supply	230V 1Ph or 415 3Ph dependent on model type.
Dimensions	Program panel 88mm(L) x 88mm(W) max.
Mounting positions	Program panel fixing centres 60.3mm
Temperature	5 to 50 ºC operating; -20 to 65 ºC storage
Display	Three 7-segment LCD red for parameter display
Push buttons	3 positive feedback tactile push buttons

3.9	SmartElec2 Controller
General Data	
Sensor input	NTC
Control Setpoint	16 to 35 ºC in steps of 1 degree
Temperature Control	Proportional with 1ºC hysteresis
Minimum Power	0% to 99 %
Cycle time	2 seconds fixed
Protection	2 x high speed fuse for the protection of the heater switching devices
Fan Output	3 off Relay for High, Medium and Low Fan setting 3A max 240Vac
Connection	Screw terminals 5 for supply, 3 for heater output, 4 for fan output, 2 for BMS (time) control, 2 for sensor input, 2 for external thermal trip, 2 for external sensor, 2 for door
Supply	415 Vrms +/-15% 50/60Hz 5VA max.
Dimensions	Program panel 146mm(L) x 85mm(W) x 38mm(D) max.
Mounting positions	Program panel fixing centres 80mm x 20mm
Temperature	5 to 50 ºC operating; -20 to 65 ºC storage
Display	Three 7-segment LCD red for parameter display
Push buttons	3 positive feedback tactile push buttons

4. Wiring Diagrams.

4.1 Installer Wiring - Electrically Heated 6 & 9kW SINGLE PHASE ONLY

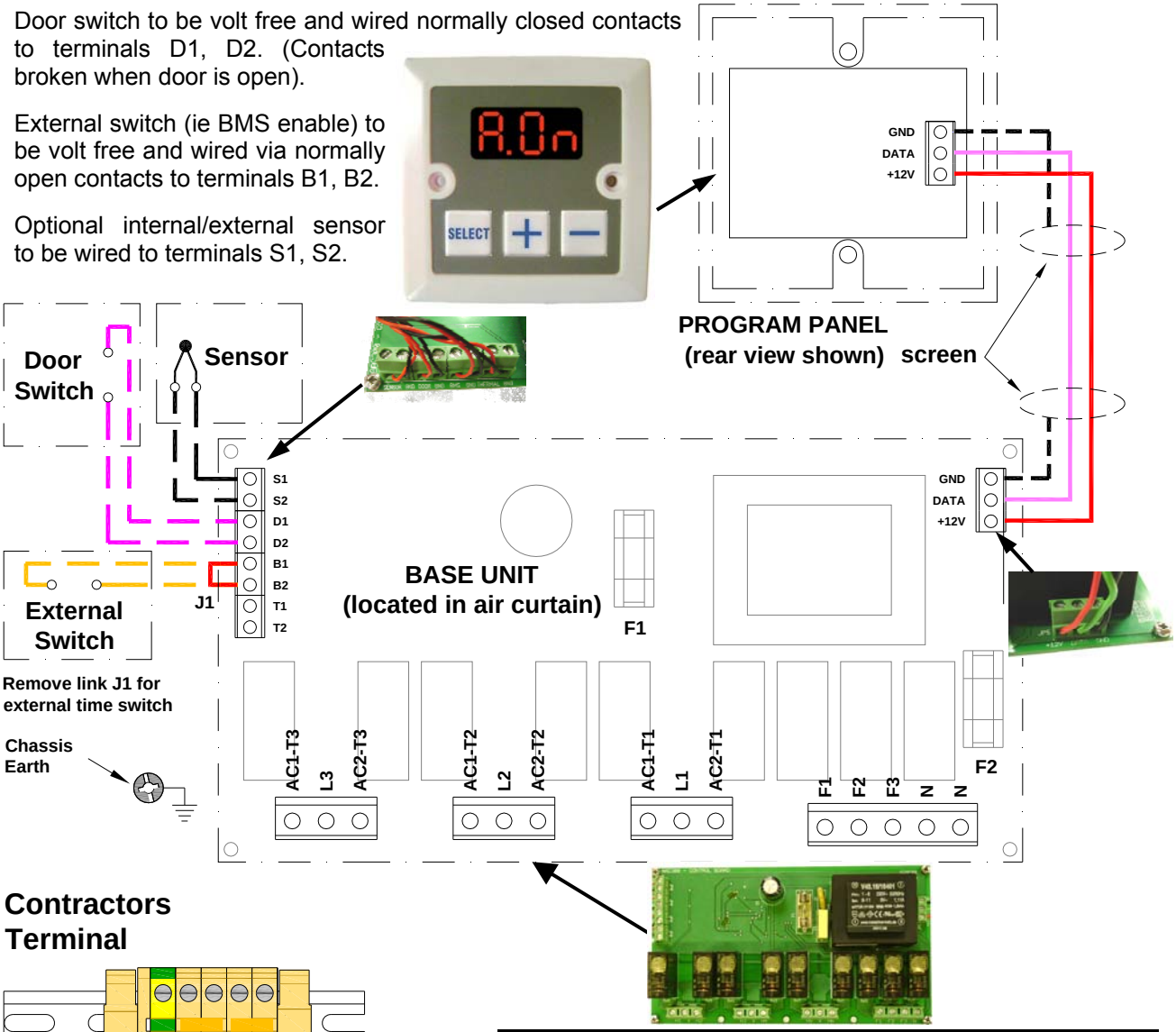
The program panel is connected to the base unit via a set of 3 way connectors marked "+12V", “DATA” and “GND". Interconnecting wiring is via Belden 8132 or equivalent cable as shown. **Max length 50m.**

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

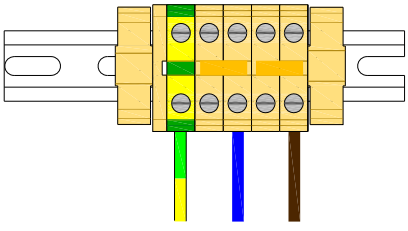
Door switch to be volt free and wired normally closed contacts to terminals D1, D2. (Contacts broken when door is open).

External switch (ie BMS enable) to be volt free and wired via normally open contacts to terminals B1, B2.

Optional internal/external sensor to be wired to terminals S1, S2.



Contractors Terminal



230V 50Hz Mains Supply

Protection

External circuit breaker with the appropriate rating should be installed for the protection of the installation.

Terminal	Description	Cable
N	Neutral	6mm² max
L1	1 phase supply	6mm² max
Pcb Terminal	**Description**	**Cable** 1.0mm² max
+12V	Supply to remote unit	
DATA	Data to remote unit	
GND(s)	0v Terminal	
D1, D2	Option door contact	
B1, B2	Option BMS switch	
S1, S2	Option internal/external sensor	
Pcb Fuses	**Rating (A)**	
F1	T2A (slow blow)	
F2	T3.15A (slow blow)	

4.2 Installer Wiring - Electrically Heated 9 & 12kW THREE PHASE ONLY

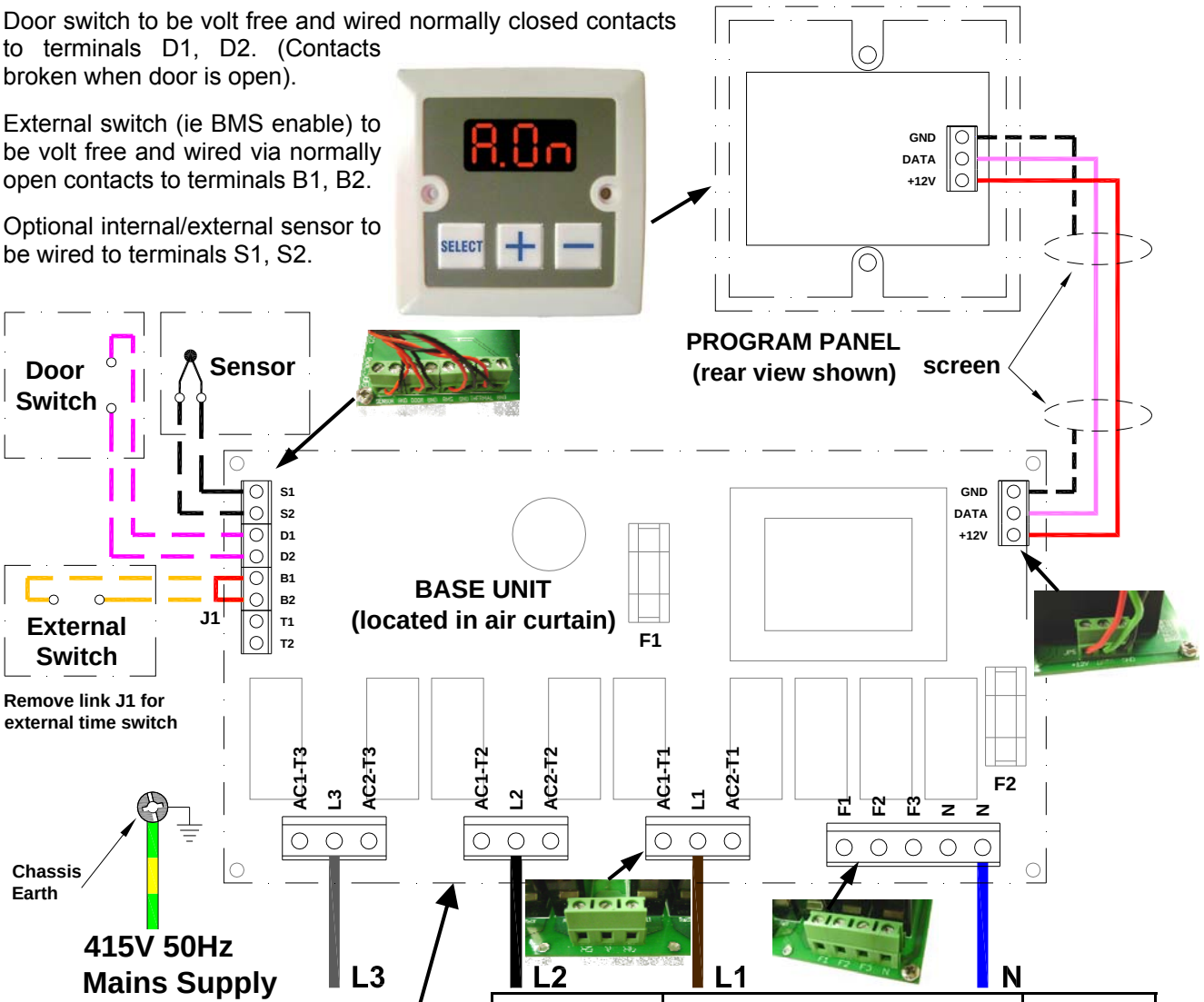
The program panel is connected to the base unit via a set of 3 way connectors marked "+12V", “DATA” and “GND". Interconnecting wiring is via Belden 8132 or equivalent cable as shown. **Max length 50m.**

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

Door switch to be volt free and wired normally closed contacts to terminals D1, D2. (Contacts broken when door is open).

External switch (ie BMS enable) to be volt free and wired via normally open contacts to terminals B1, B2.

Optional internal/external sensor to be wired to terminals S1, S2.



Pcb Terminal	Description	Cable
N	Neutral	4mm² max
L1	3 phase supply	4mm² max
L2	3 phase supply	4mm² max
L3	3 phase supply	4mm² max
+12V	Supply to remote unit	**Cable** 1.0mm² max
DATA	Data to remote unit	
GND(s)	0v Terminal	
D1, D2	option door contact	
B1, B2	option BMS switch	
S1, S2	option internal/external Sensor	
Pcb Fuses	**Rating (A)**	
F1	T2A (slow blow)	
F2	T3.15A (slow blow)	

Protection

External circuit breaker with the appropriate rating should be installed for the protection of the installation.

4.3 Installer Wiring - Electrically Heated 18kW THREE PHASE ONLY

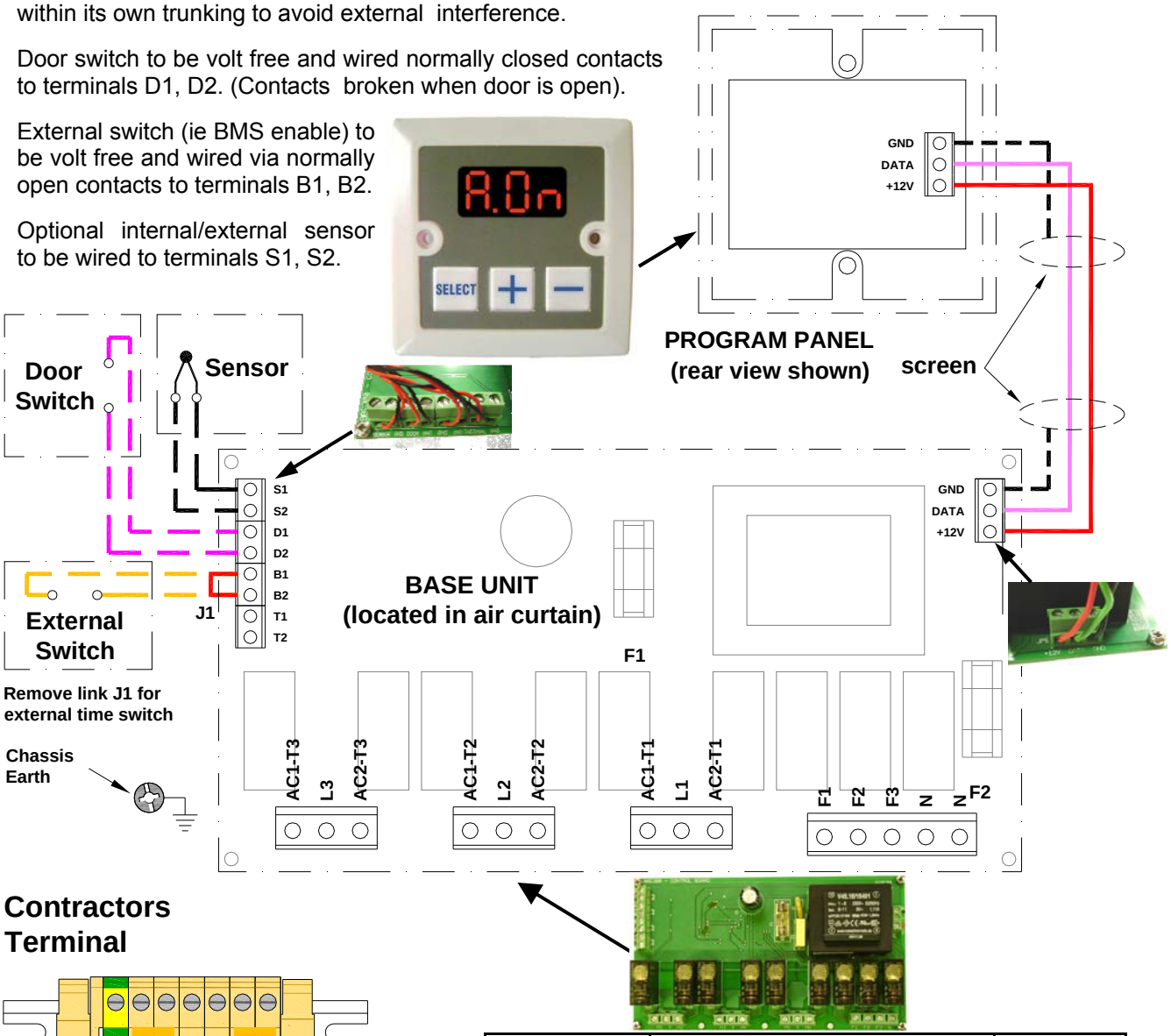
The program panel is connected to the base unit via a set of 3 way connectors marked "+12V", “DATA” and “GND". Interconnecting wiring is via Belden 8132 or equivalent cable as shown. **Max length 50m.**

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

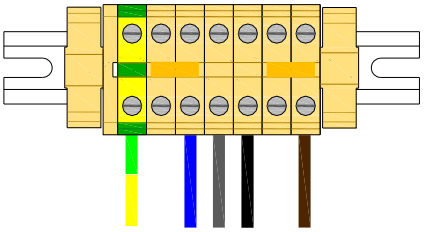
Door switch to be volt free and wired normally closed contacts to terminals D1, D2. (Contacts broken when door is open).

External switch (ie BMS enable) to be volt free and wired via normally open contacts to terminals B1, B2.

Optional internal/external sensor to be wired to terminals S1, S2.



Contractors Terminal



415V 50Hz Mains Supply

Protection

External circuit breaker with the appropriate rating should be installed for the protection of the installation.

Terminal	Description	Cable
N	Neutral	6mm² max
L1	3 phase supply	6mm² max
L2	3 phase supply	6mm² max
L3	3 phase supply	6mm² max
Pcb Terminal	**Description**	**Cable**
+12V	Supply to remote unit	**Cable** 1.0mm² max
DATA	Data to remote unit	
GND(s)	0v Terminal	
D1, D2	Option door contact	
B1, B2	Option BMS switch	
S1, S2	Option internal/external sensor	
Pcb Fuses	**Rating (A)**	
F1	T2A (slow blow)	
F2	T3.15A (slow blow)	

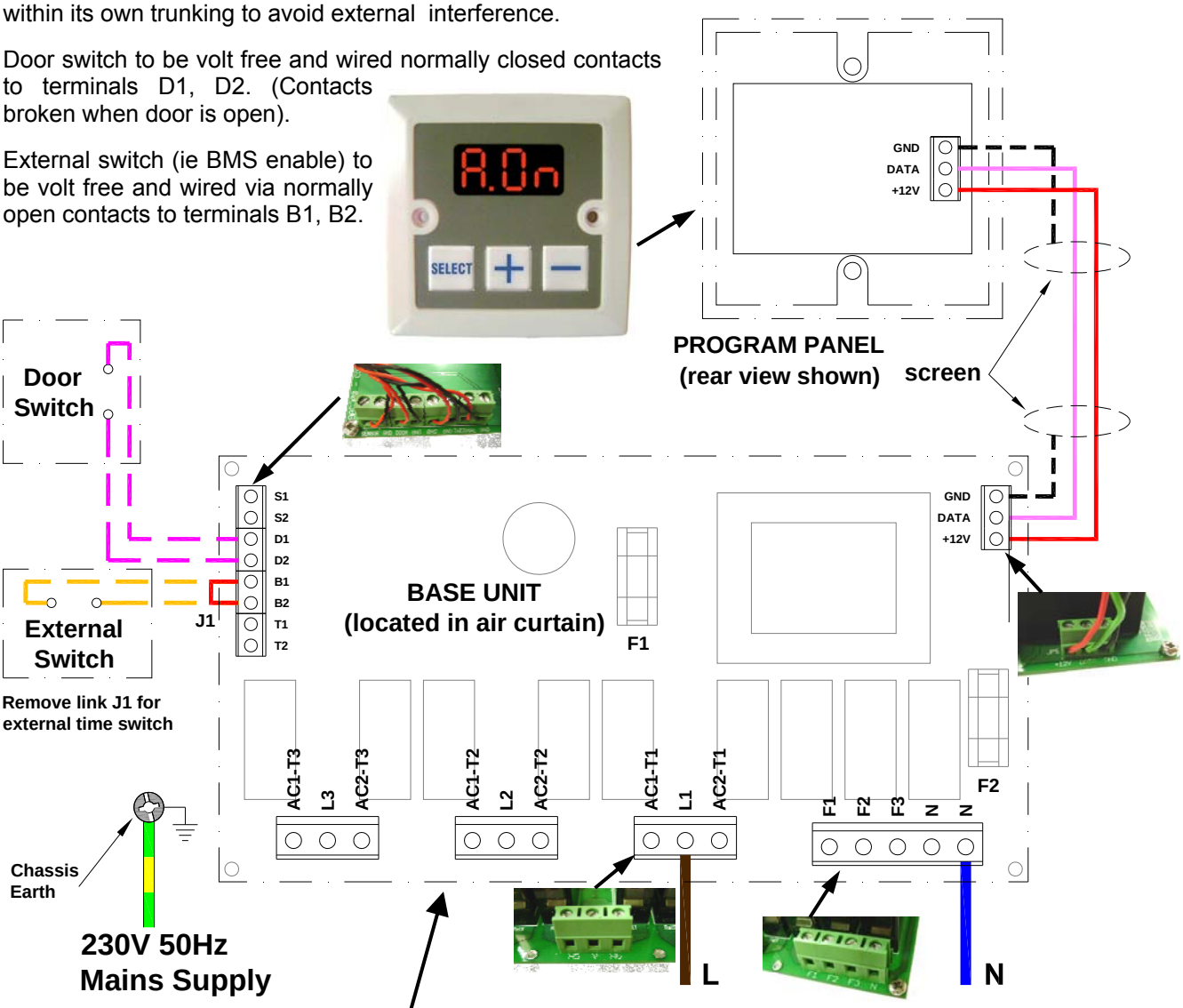
4.4 Installer Wiring - Ambient

The program panel is connected to the base unit via a set of 3 way connectors marked "+12V", “DATA” and “GND". Interconnecting wiring is via Belden 8132 or equivalent cable as shown. **Max length 50m.**

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

Door switch to be volt free and wired normally closed contacts to terminals D1, D2. (Contacts broken when door is open).

External switch (ie BMS enable) to be volt free and wired via normally open contacts to terminals B1, B2.



Pcb Terminal	Description	Cable
N	Neutral	4mm² max
L	1 phase supply	4mm² max
+12V	Supply to remote unit	**Cable** 1.0mm² max
DATA	Data to remote unit	
GND(s)	0v Terminal	
D1, D2	Option door contact	
B1, B2	Option BMS switch	
Pcb Fuses	**Rating (A)**	
F1	T2A (slow blow)	
F2	T3.15A (slow blow)	

Protection

External circuit breaker with the appropriate rating should be installed for the protection of the installation.

4.5 Installer Wiring - LPHW

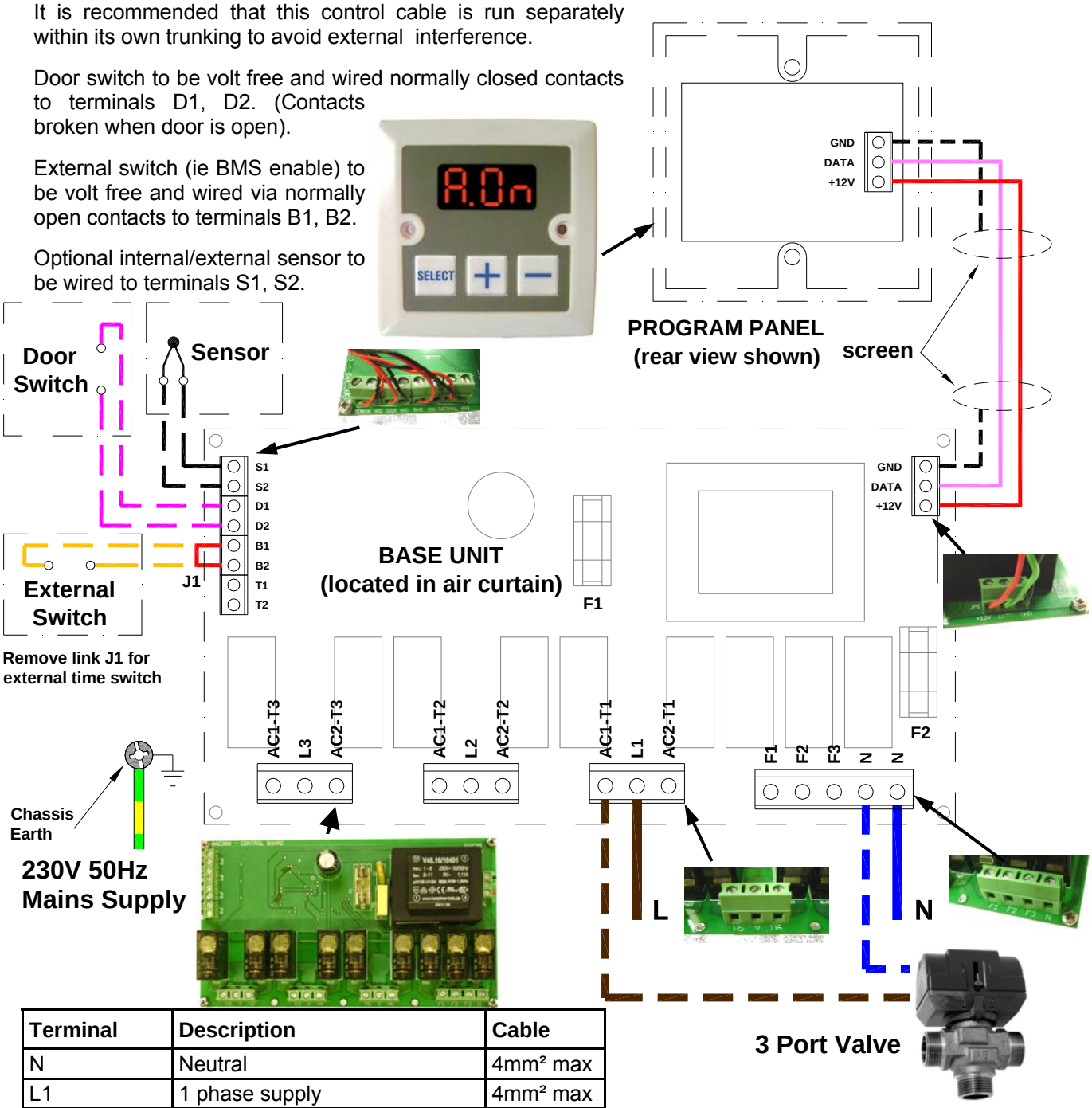
The program panel is connected to the base unit via a set of 3 way connectors marked "+12V", “DATA” and “GND". Interconnecting wiring is via Belden 8132 or equivalent cable as shown. **Max length 50m.**

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

Door switch to be volt free and wired normally closed contacts to terminals D1, D2. (Contacts broken when door is open).

External switch (ie BMS enable) to be volt free and wired via normally open contacts to terminals B1, B2.

Optional internal/external sensor to be wired to terminals S1, S2.

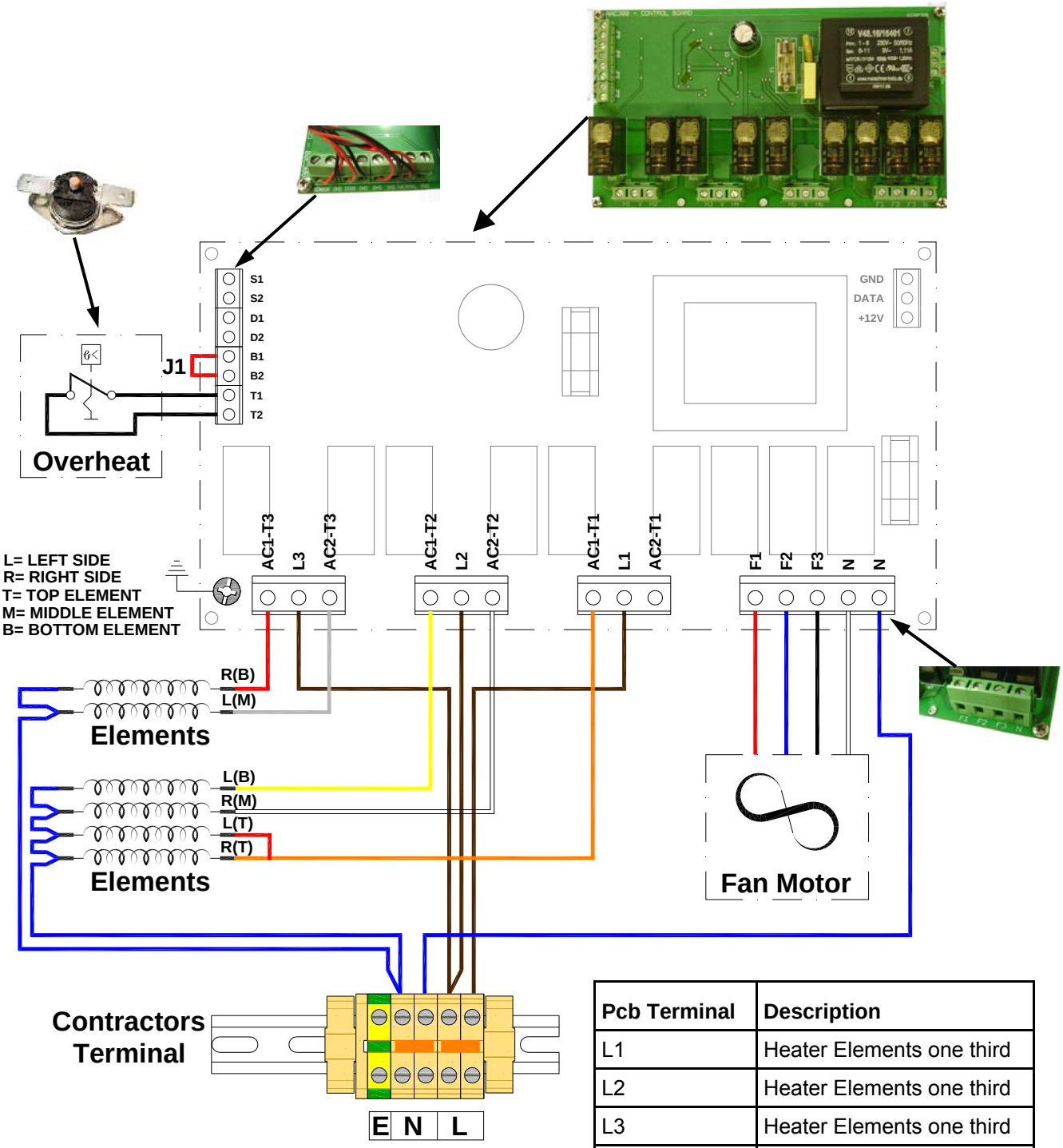


Terminal	Description	Cable
N	Neutral	4mm² max
L1	1 phase supply	4mm² max
Pcb Terminal	**Description**	**Cable** 1.0mm² max
12V	Supply to remote unit	
DATA	Data to remote unit	
GND(s)	0v Terminal	
D1, D2	Option door contact	
B1, B2	Option BMS switch	
S1, S2	Option internal/external sensor	
Pcb Fuses	**Rating (A)**	
F1	T2A (slow blow)	
F2	T3.15A (slow blow)	

Protection

External circuit breaker with the appropriate rating should be installed for the protection of the installation.

4.6 Factory Wiring - Electrically heated 6 & 9kW SINGLE PHASE ONLY



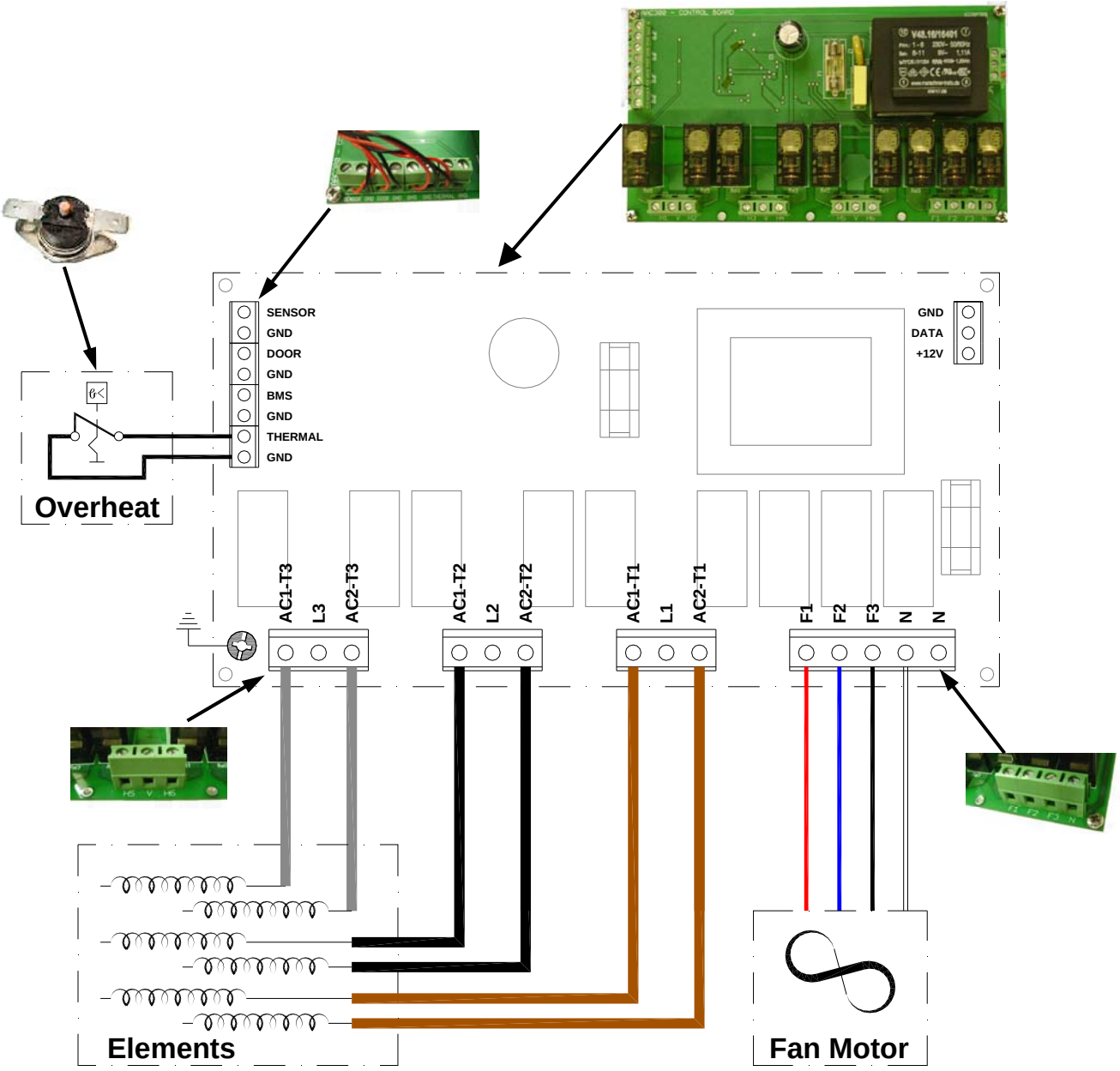
Pcb Terminal	Description
L1	Heater Elements one third
L2	Heater Elements one third
L3	Heater Elements one third
T1	Thermal Overheat trip
T2	Thermal Overheat trip
N	Neutrals
F1	Fan - low speed
F2	Fan - medium speed
F3	Fan - high speed
J1	Factory BMS link

The element output is connected to the right and left side of each terminal block marked "AC1-T1", “AC2-T1”, AC1-T2”, “AC2-T2”, “AC1-T3” and “AC2-T3”

The fan output is connected to a 4 way connector marked "N”, “F1”, “F2” and “F3".

The thermal trip is connected to a 2 way connector marked "T1" & “T2”

4.7 Factory Wiring - Electrically heated 9 & 12kW THREE PHASE ONLY



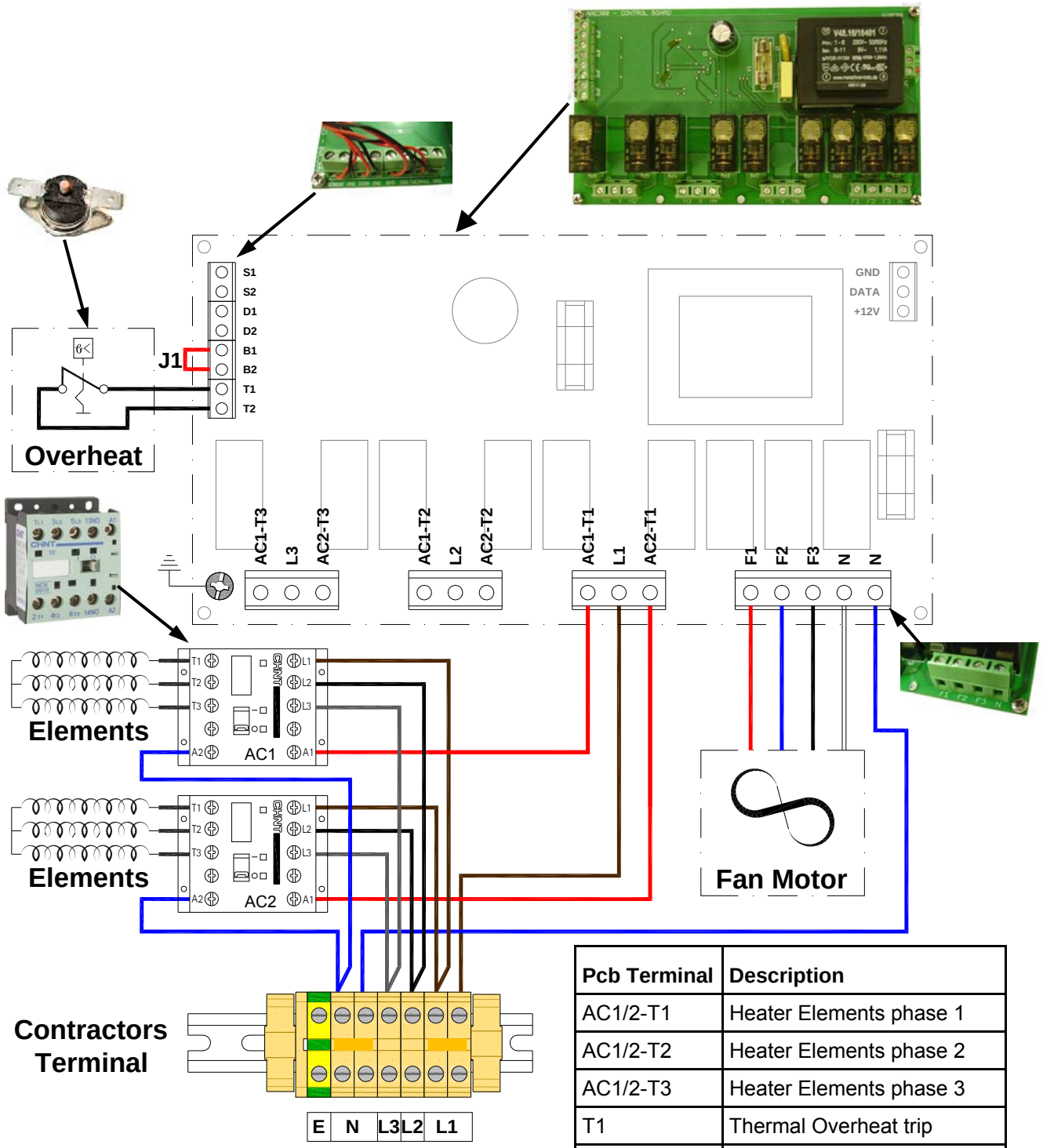
Pcb Terminal	Description
L1	Heater Elements phase 1
L2	Heater Elements phase 2
L3	Heater Elements phase 3
N	Neutral to fan
F1	Fan - low speed
F2	Fan - medium speed
F3	Fan - high speed
T1	Thermal Overheat trip
T2	Thermal Overheat trip
J1	Factory BMS link

The element output is connected to the right and left side of each terminal block marked "AC1-T1", “AC2-T1”, AC1-T2”, “AC2-T2”, “AC1-T3” and “AC2-T3”

The fan output is connected to a 4 way connector marked "N”, “F1”, “F2” and “F3".

The thermal trip is connected to a 2 way connector marked "T1" & “T2”

4.8 Factory Wiring - Electrically heated 18kW THREE PHASE ONLY



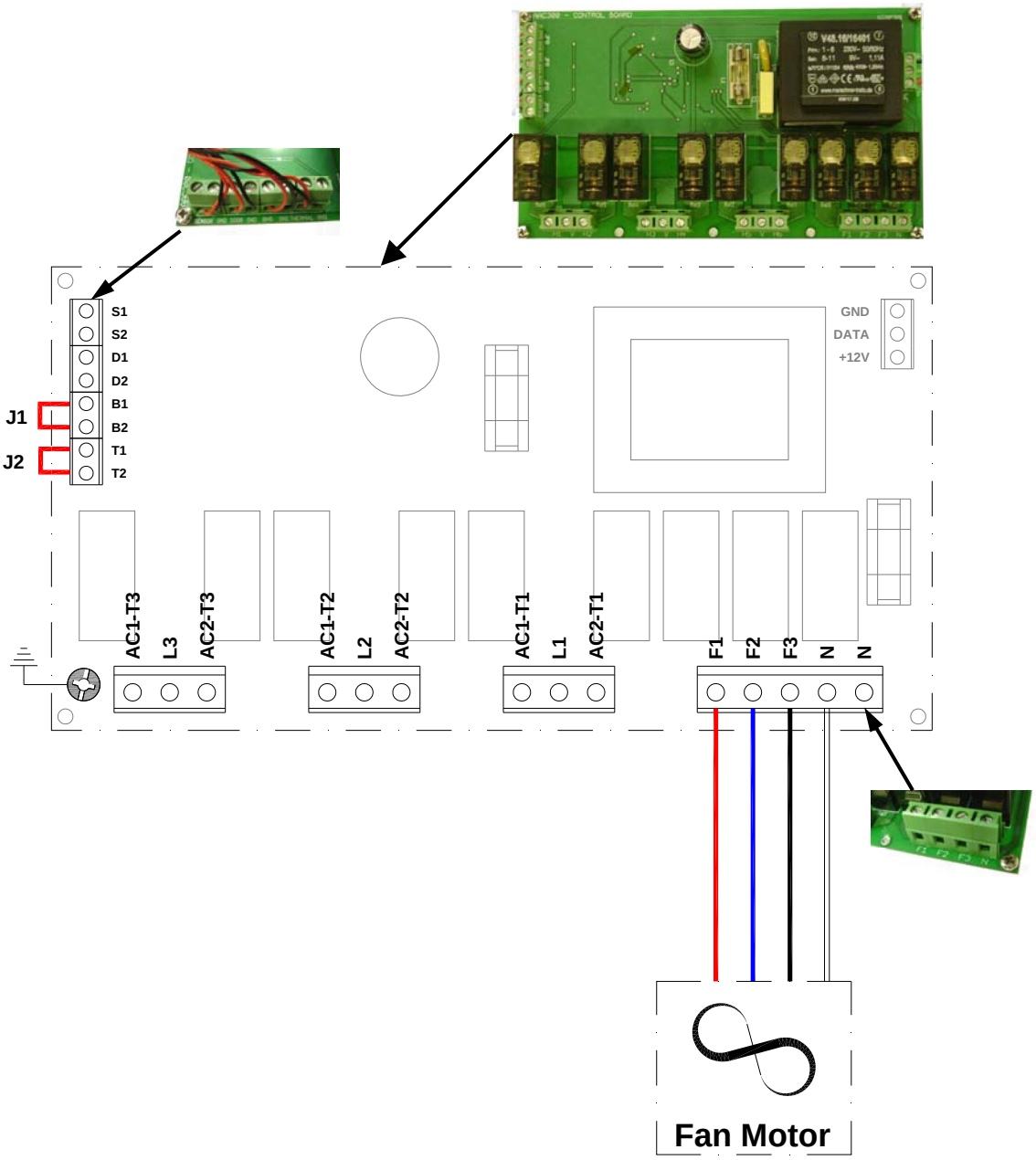
Pcb Terminal	Description
AC1/2-T1	Heater Elements phase 1
AC1/2-T2	Heater Elements phase 2
AC1/2-T3	Heater Elements phase 3
T1	Thermal Overheat trip
T2	Thermal Overheat trip
N	Neutral to fan
F1	Fan - low speed
F2	Fan - medium speed
F3	Fan - high speed
J1	Factory BMS link

The element outputs are connected to contactors "AC1" and “AC2” on terminals T1, T2 and T3.

The fan output is connected to a 4 way connector marked "N”, “F1”, “F2” and “F3".

The thermal trip is connected to a 2 way connector marked "T1" & “T2”

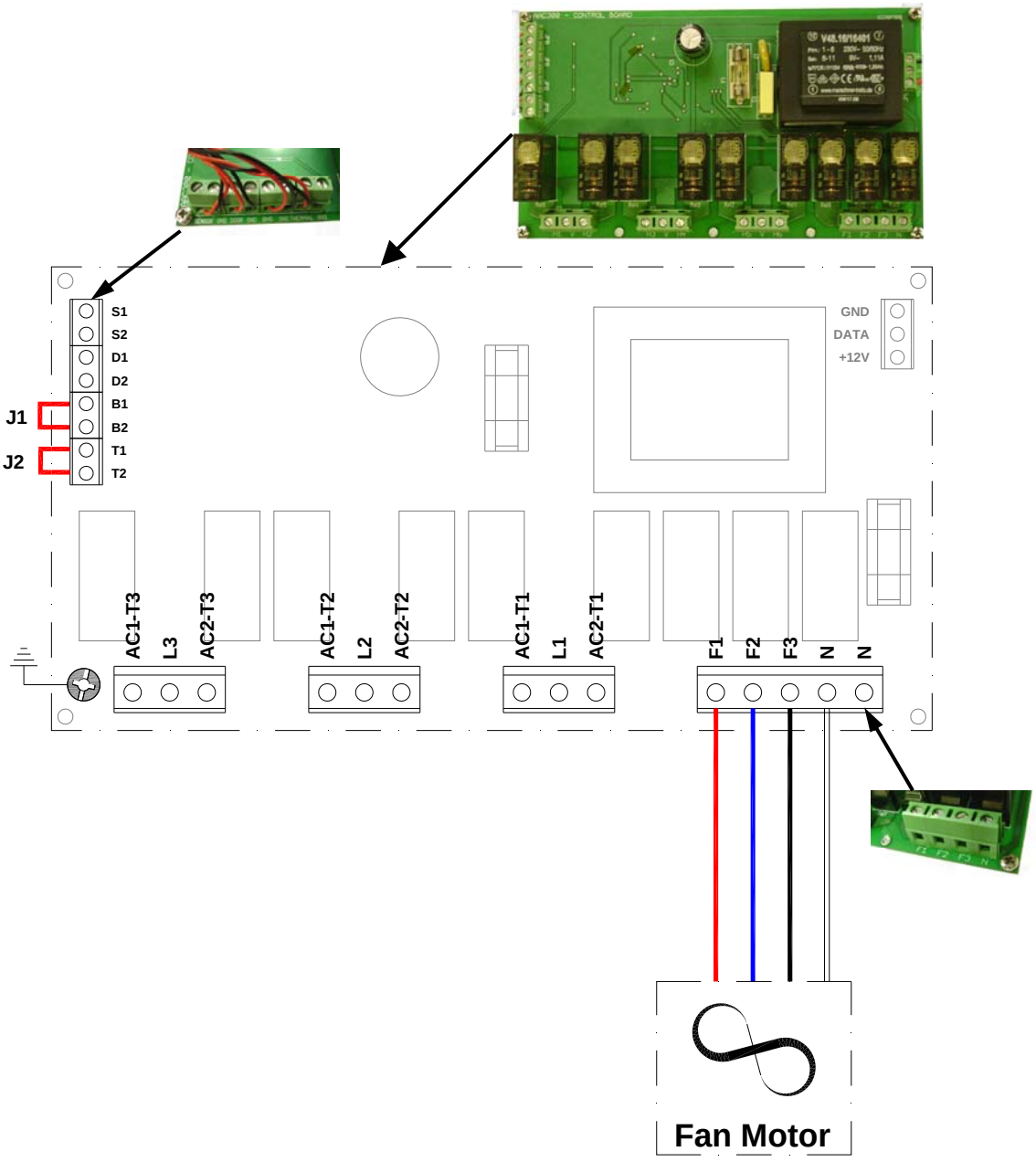
4.9 Factory Wiring - Ambient



Pcb Terminal	Description
N	Neutral to fan
F1	Fan - low speed
F2	Fan - medium speed
F3	Fan - high speed
J1	Factory BMS link
J2	Factory thermal link

The fan output is connected to a 4 way connector marked "N", “F1”, “F2” and “F3".

4.10 Factory Wiring - LPHW

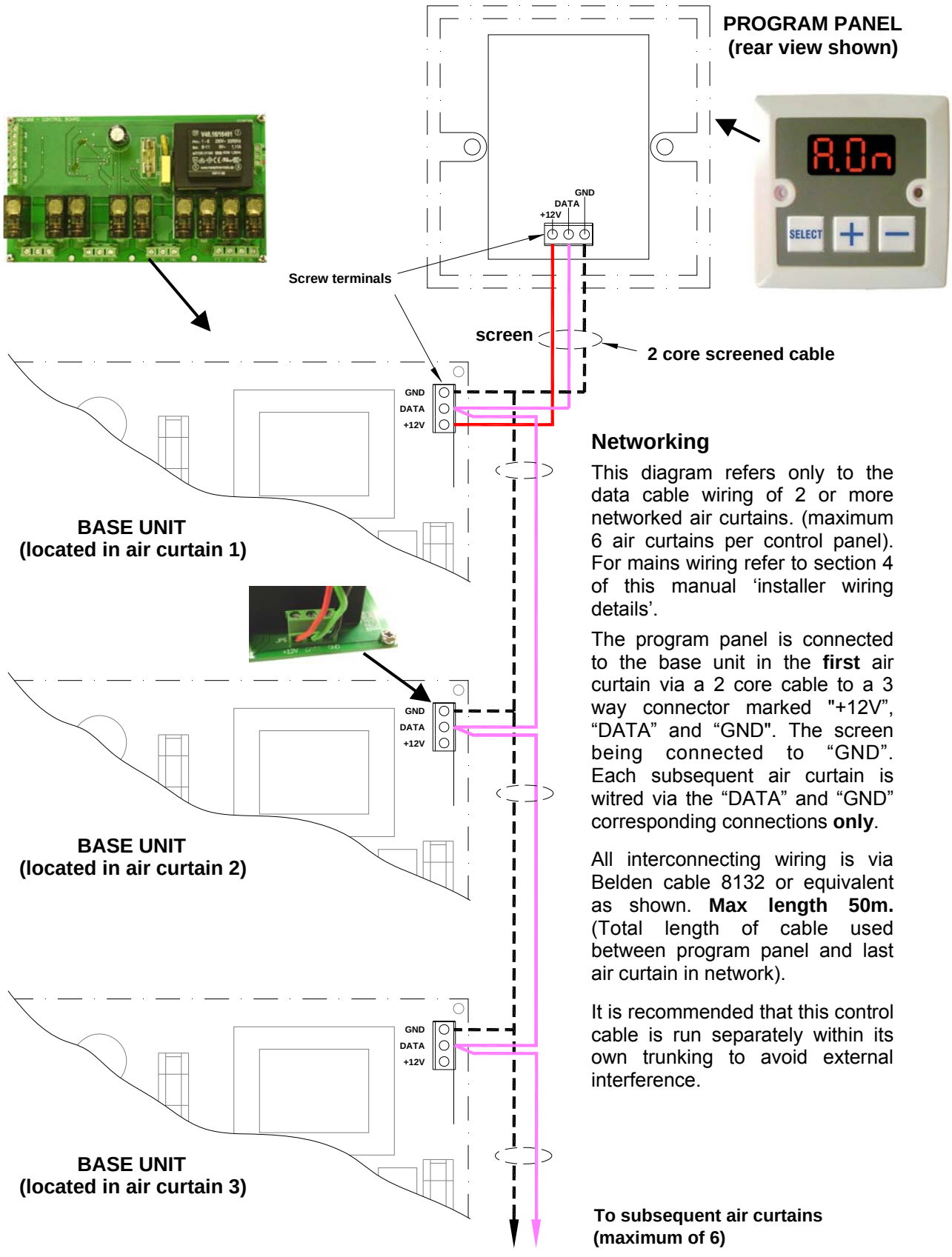


Pcb Terminal	Description
N	Neutral to fan
F1	Fan - low speed
F2	Fan - medium speed
F3	Fan - high speed
J1	Factory BMS link
J2	Factory thermal link

The fan output is connected to a 4 way connector marked "N", “F1”, “F2” and “F3".

The thermal trip is connected to a 2 way connector marked "T1" & “T2”

4.11 Network Wiring - Electronic controller



Networking

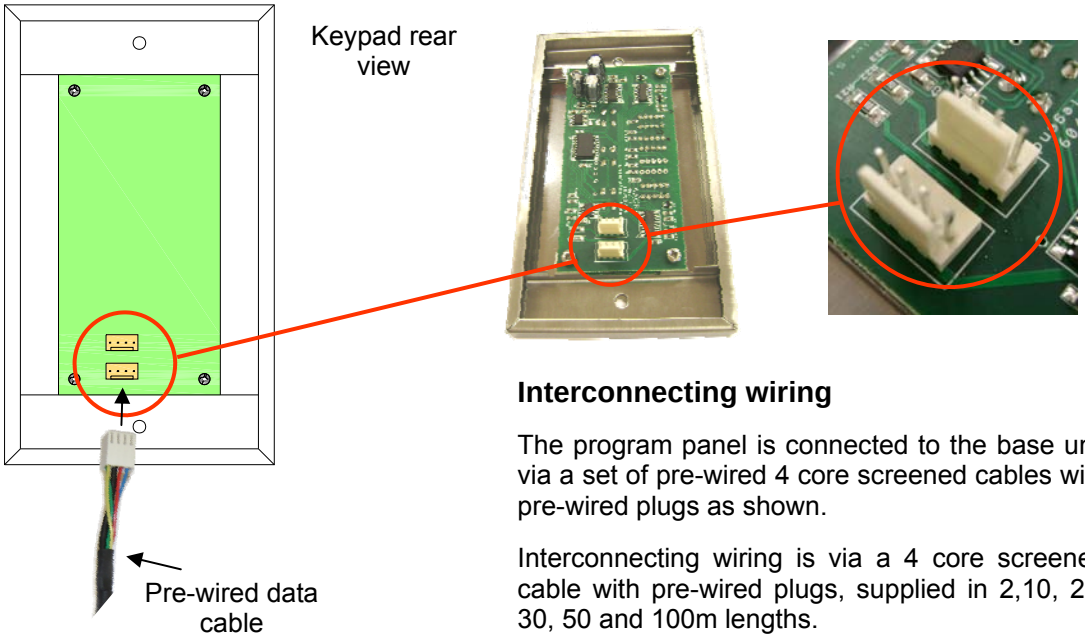
This diagram refers only to the data cable wiring of 2 or more networked air curtains. (maximum 6 air curtains per control panel). For mains wiring refer to section 4 of this manual 'installer wiring details'.

The program panel is connected to the base unit in the **first** air curtain via a 2 core cable to a 3 way connector marked "+12V", "DATA" and "GND". The screen being connected to "GND". Each subsequent air curtain is witred via the "DATA" and "GND" corresponding connections **only**.

All interconnecting wiring is via Belden cable 8132 or equivalent as shown. **Max length 50m.** (Total length of cable used between program panel and last air curtain in network).

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

4.12 Installer wiring diagram Electrically heated with SmartElec2 control.

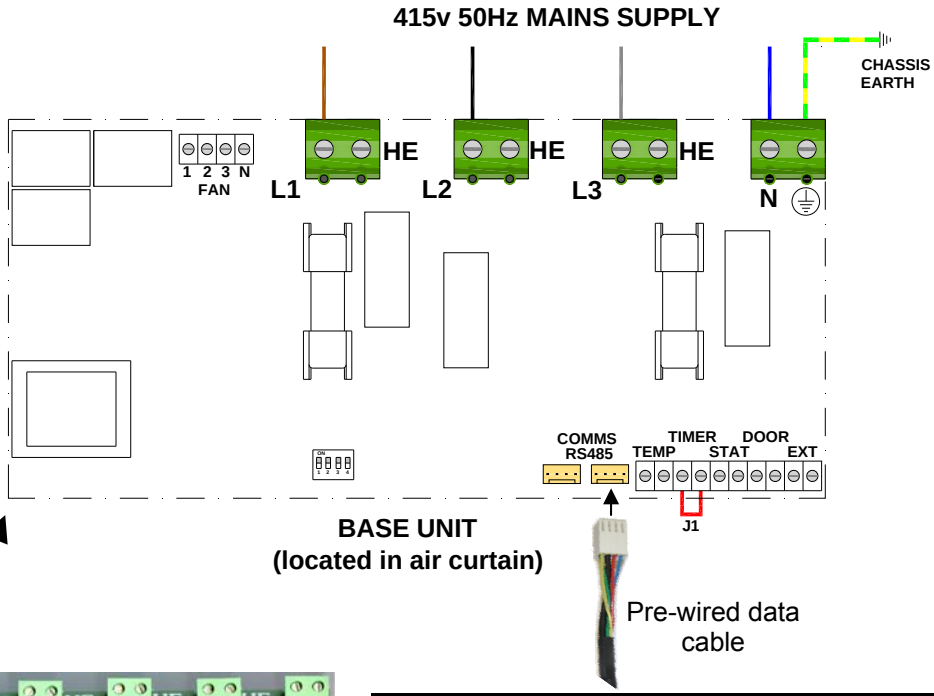


Interconnecting wiring

The program panel is connected to the base unit via a set of pre-wired 4 core screened cables with pre-wired plugs as shown.

Interconnecting wiring is via a 4 core screened cable with pre-wired plugs, supplied in 2,10, 20, 30, 50 and 100m lengths.

It is recommended that this control cable is run separately within its own trunking to avoid external interference.

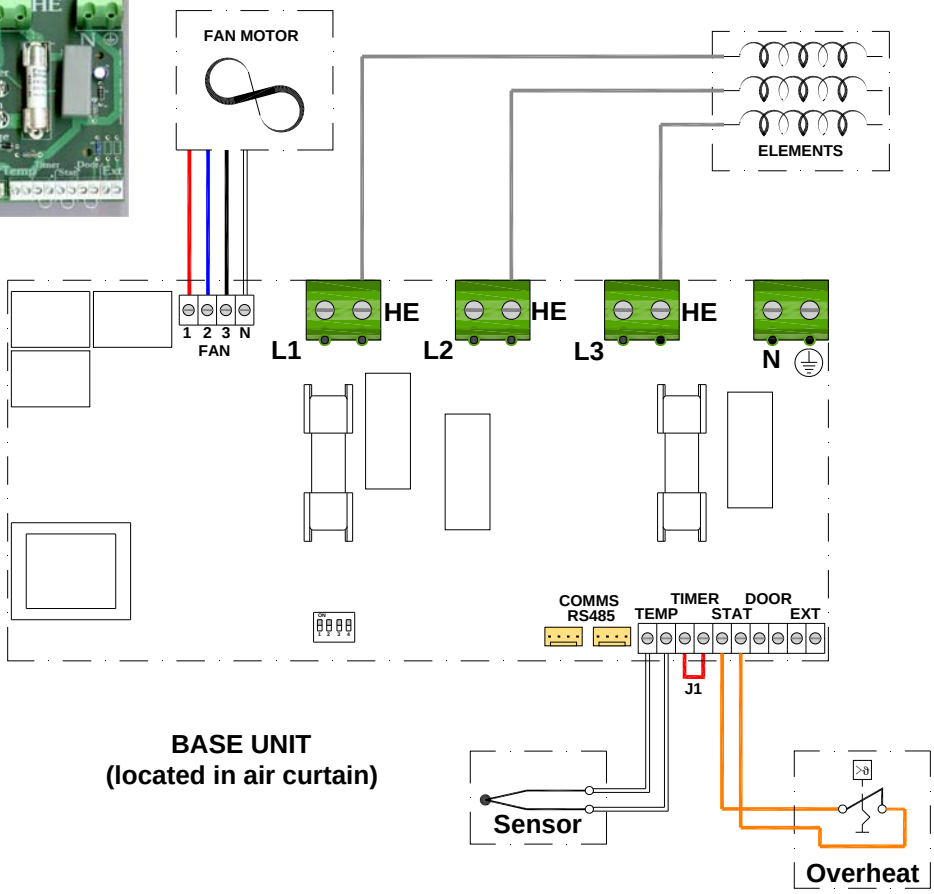


Terminal	Description	Cable
N	Neutral	10mm² max
L1	3 phase supply	10mm² max
L2	3 phase supply	10mm² max
L3	3 phase supply	10mm² max
E	Mains earth	10mm² max

Protection

There are two high speed fuses on the base unit to protect the switching thyristors for the heater. An external circuit breaker with the appropriate rating should be installed for the protection of the installation.

4.13 Factory Installed Wiring. Electrically Heated with SmartElec2 Control.

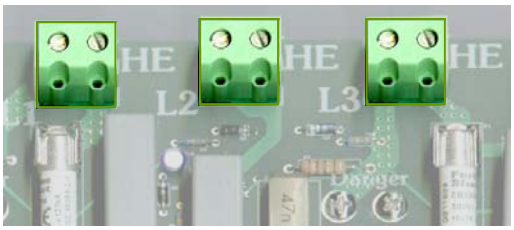


BASE UNIT
(located in air curtain)

Terminal	Description	Cable
HE	Heating elements phase 1	10mm² max
HE	Heating elements phase 2	10mm² max
HE	Heating elements phase 3	10mm² max
N	Neutral to fan	1.5mm² max
1	Fan - low speed	1.5mm² max
2	Fan - medium speed	1.5mm² max
3	Fan - high speed	1.5mm² max
Temp	Air sensor pair (non-polarised)	1.5mm² max
Timer	BMS pair (volt -free)	1.5mm² max
Stat	Ext thermal trip pair, n.c. (volt-free)	1.5mm² max
Door	Door interlock pair, n.c. (volt free)	1.5mm² max
Ext	External sensor pair (non-polarised)	1.5mm² max
Comms	Keypad/network connectors	Pre-wired

The heater element outputs are connected to the right hand side of three terminal blocks and are marked **HE.** (See below).

The fan output is connected to a 4 way terminal block marked **N, 1, 2** and **3.**

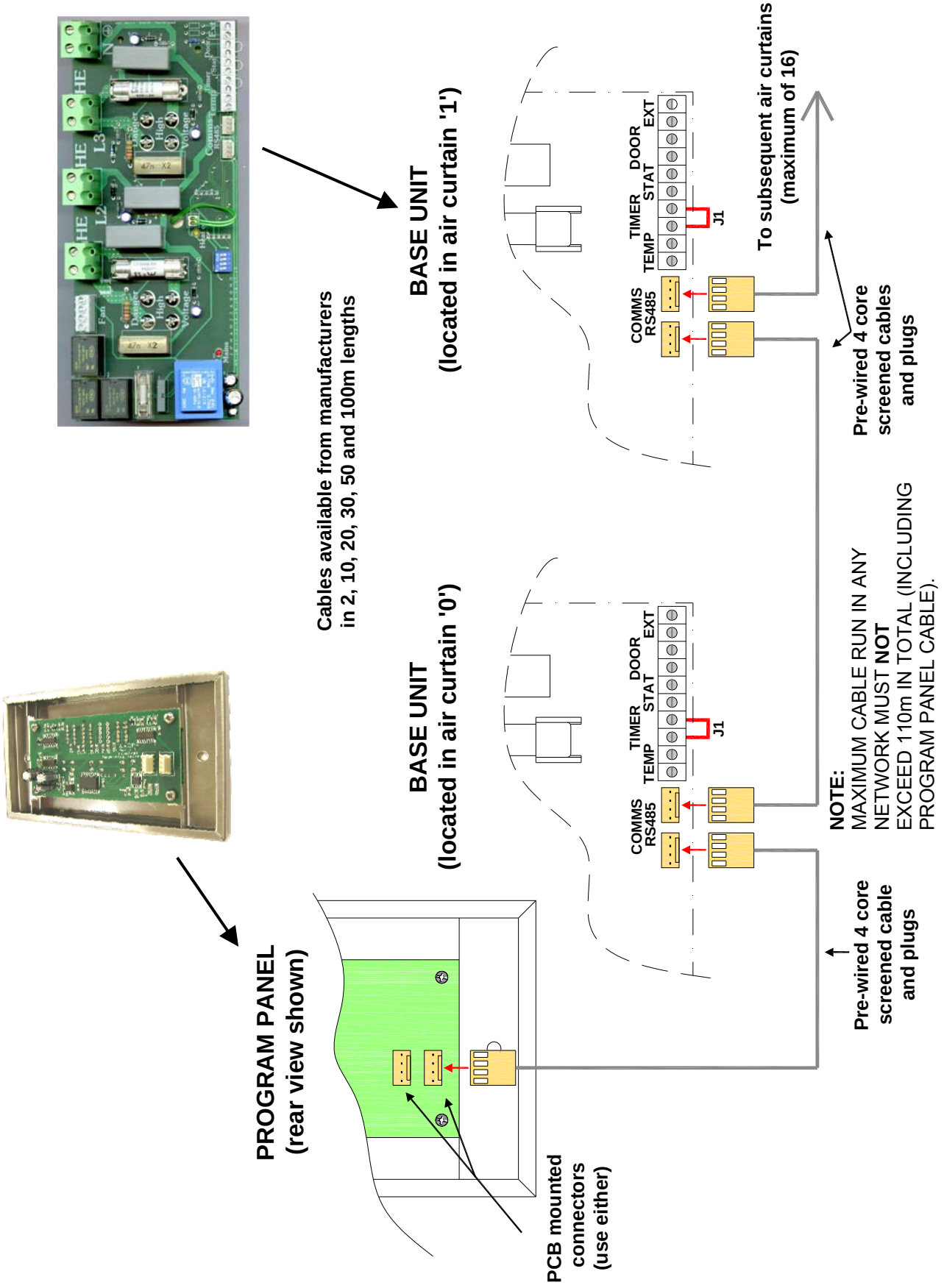


The sensor input (air sensor) is connected to 2 terminals marked **TEMP** on the base unit. The sensor is not polarity sensitive.

The external thermal trip (volt-free) is connected to 2 terminals marked **STAT** on the base unit. The terminals are not polarity sensitive.

After removing link J1, the BMS terminals, marked **TIMER** on the base unit, can be used for external time control via a pair of volt free contacts.

4.14 Network Wiring Electrically Heated with SmartElec2 Control.



5. Installation Details.

5.1 Mounting

Airbloc units should be installed horizontally directly over the door opening. It is recommended that the air curtain is installed on the inside of the building, within the open room space against a wall or ceiling.

Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct working operation of the air curtain. The discharge opening should be as close to the top of the door as possible and to cover the entire door width.

Units can be mounted adjacent to each other to cover the full door opening across wider entrances.

5.2 Electrical Supply.

These units are suitable for connection to a 415 Volt, 50Hz 3 phase and neutral supply for Electrically heated 9-18kW models *or* 230/240 Volt 50 Hz single phase supply for Electrically heated 6kW, 9kW, Ambient and LPHW models.

Electrically heated models consume 6kW and 9kW at 230 volts and 9kW, 12kW & 18kW at 415 volts when switched to the full heat position depending on their model and capacity size.

The appliance shall be connected to the supply via an appropriate switched fused double pole isolator having a contact separation of greater than 3mm. Test for correct operation and refit the cover.

For connection to the mains supply it will be necessary to open the hinged lid from the unit. The base unit is located on a base plate. It will be necessary to connect the mains supply and the lead from the remote key pad prior to refitting the cover. Wire in accordance to diagrams in section 4.1 to 4.5

For optional SmartElec2 controller, wire as shown in diagrams 4.12 to 4.14

For safety reasons, a sound earth connection must always be made to the unit before it is put to use. The unit should be wired in accordance with IEE Regulations for the Electrical Equipment of Buildings.

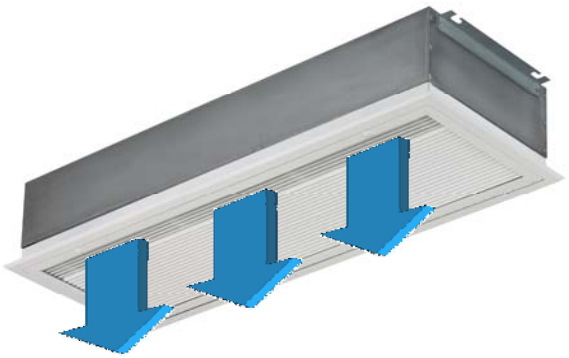
5.3 Installation.

It is the sole responsibility of the installer to ensure that the points of attachment to the building are sound. Consultation with the consultant/architect or owner of the building is recommended to ensure that a sound, mechanically stable installation is achieved.

All attachments must be capable of supporting the weight of the product detailed in Section 3.

Step 1

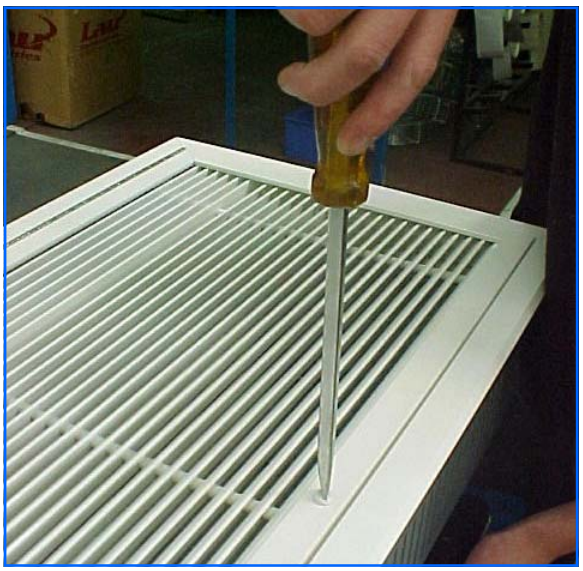
Before fitting or wiring the air curtain, ensure casing faces as below and see general installation guidance notes.



ENSURE AIR OUTLET LOUVRES ARE NEAREST TO DOOR APPERTURE.

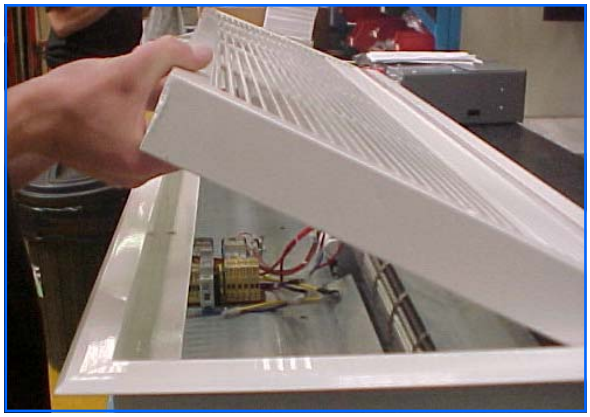
Step 2

Using a pozidrive screwdriver remove the M5 screws at the side of the grille.



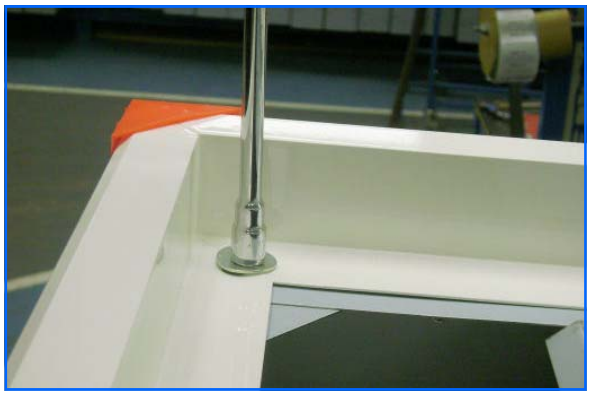
Step 3

Access to the inside of the air curtain grille can be made. Open the grille. The grille is hinged to prevent the inner frame from dropping.



Step 4

The grille assembly can now be removed from the case to allow fitting of the product in the ceiling recess. Remove the screws from the outer frame to the top of the product case.



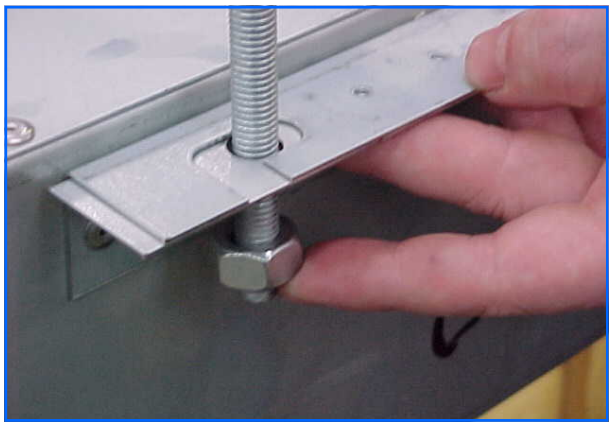
Step 5

Attachment of the air curtain to the ceiling structure is by means of the two brackets attached to the side of the air curtain. The brackets may be removed to assist in passing the air curtain through the recess then reattached when in-situ.

Step 6

Either drop rods or catenary wire (available from manufacturer) can be used to fasten the air curtain to the ceiling support structure.

Note When using drop rods the casing mounting brackets are slotted and the mounting plates provided must be used on assembly.



Step 7

The height between the ceiling face and the face of the air curtain case needs to be adjusted to circa 40mm to enable the grille assembly to fit flush with the ceiling. Adjust accordingly.

After fitting the product in the ceiling recess and adjusting the height to ensure that the grille sits flush to the ceiling (when re-fitted) take the grille assembly and refit using the screws removed during Step 5.

5.4 Installation details - AC-ACR-PANEL programmer

The Electronic base unit is pre-installed inside the air curtain. All the external electrical connections are via screw terminals onto this base unit.

The program keypad is installed on a separate facia plate and connected to a surface mounted back box in a suitable location. Please see fig 5.

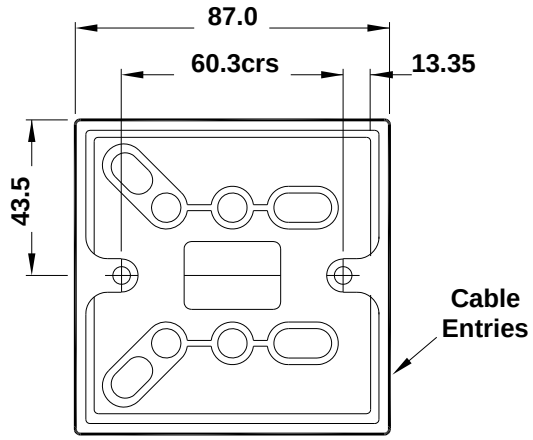


Fig. 5. Surface mount location holes.

Alternatively, the program panel can be flush wall mounted with the addition of a suitable conduit box MK part number 861 ZIC or equivalent.

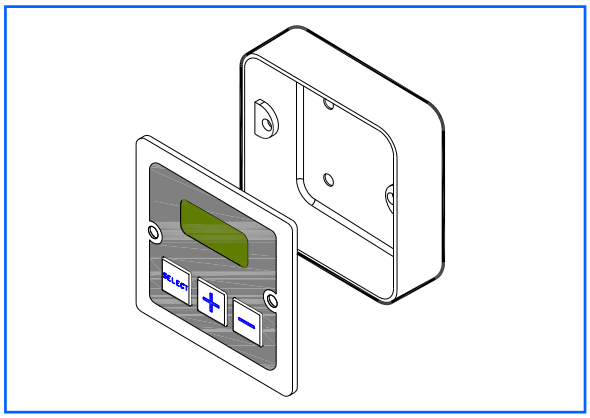


Fig. 6. Alternative conduit box

The distance between the base unit and the program panel can be up to 50m maximum.

5.5 Installation details - Option SmartElec2 Controller

The SmartElec2 base unit is pre-installed inside the air curtain. All the external electrical connections are via screw terminals onto this base unit.

The SmartElec2 program panel is installed in a separate housing and connected to a surface mounted back box in a suitable location. Please see fig 7.

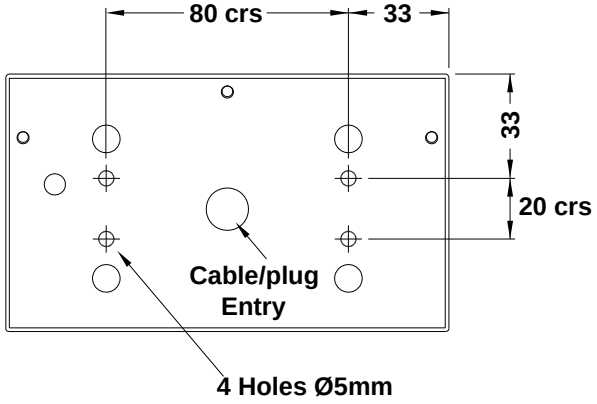


Fig. 7. Surface mount location holes.

Alternatively, the program panel can be flush wall mounted with the addition of a suitable conduit box MK part number 892 ALM or equivalent.

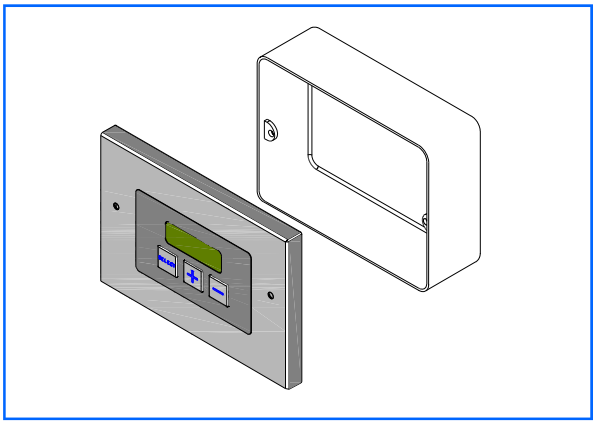


Fig. 8. Alternative conduit box

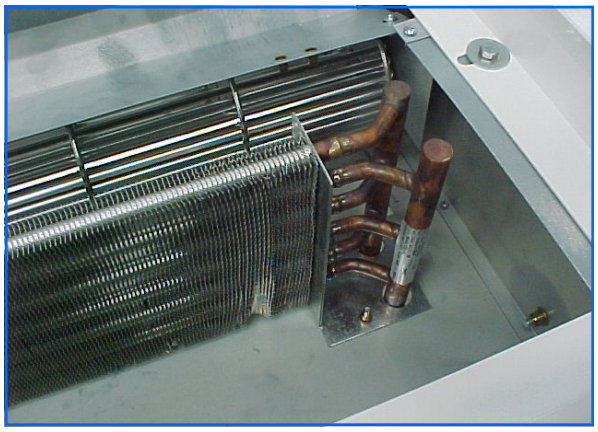
The distance between the base unit and the program panel can be up to 100m maximum.

5.6 Installation details - LPHW Only

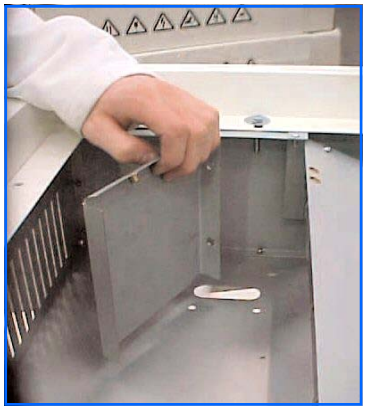
To avoid risk of transit damage to the flow and return connections, ON LPHW STANDARD CAPACITY ONLY the heating coil is provided loose inside the case together with the air deflector plate and side supports. NOTE: HIGH CAPACITY LPHW COILS ARE PRE-FITTED.

To install, unpack the loose items and identify the two side supports as shown below and fit to the inner side of the case using the screws provided.
Note The side supports are handed.

The coils can be handed for right or left hand exit by turning the coil through 180°. Prior to installation decide if you require left hand or right hand exit of the flow and return pipes from the product and then fix the coil in position using the screws provided.



After fitting the coil and side supports fit the air deflector plate to the side supports and rotor cut-off plate using the screws provided.



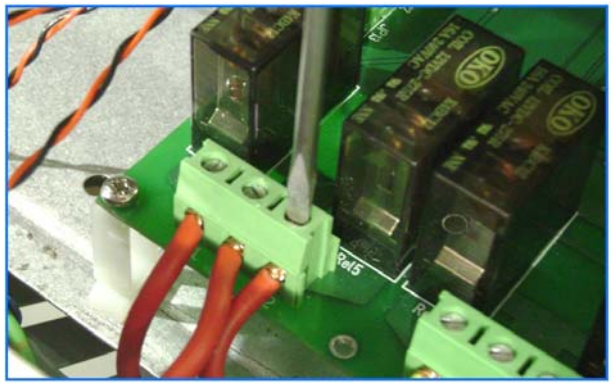
The flow and return pipes are shown below.

Carefully close the grille and refit the fixing screw.

Test product as shown in the User Instructions.

5.7 Installation wiring

With case removed, connect the electrical supply and program panel interconnecting wiring to the appropriate terminals on the controller base unit (See relevant wiring diagram section 4)



6. Servicing & Maintenance.

ALWAYS ENSURE THAT THE MAIN EXTERNAL ELECTRICITY SUPPLY IS SWITCHED OFF BEFORE COMMENCING ANY MAINTENANCE ON THIS HEATER.

To obtain the best results from the heater, it is essential to avoid the accumulation of dust and dirt within the unit on the air inlet and discharge grilles. For this reason regular cleaning is necessary, paying particular attention to the removal of dirt build up on the rotor blades.

Cleaning of the fan is best carried out with a soft brush.

A single drop of light oil should be applied to the motor bearing from time to time.

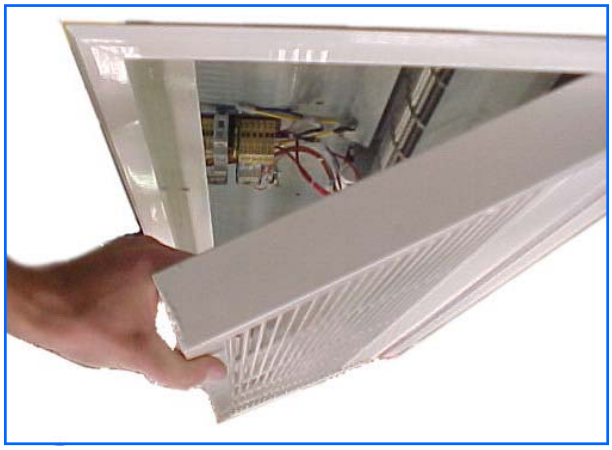
The product should be serviced annually. Servicing shall be undertaken by a competent person. Airbloc offer a service facility, call 01384 489700.

Step 1

Using a pozidrive screwdriver remove the M5 screws at the side of the grille.

Step 2

Access to the inside of the air curtain grille can be made.



Open the grille. The grille is hinged to prevent the inner frame from dropping

Step 3

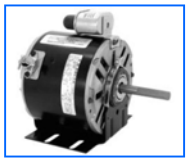
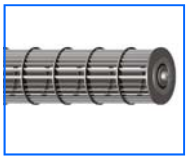
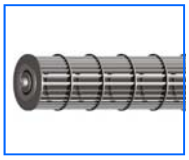
With a soft brush clean away any dust from the motor and elements.

Check all connections and components for soundness or signs of deterioration and replace as necessary.

Re-assemble and test.

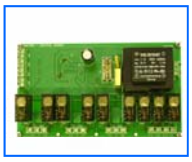
7. Spare parts

7.1 General

	Description	ACR100SE6/ ACR100SE9/ ACR100SW9/ ACR100SA	ACR150SE6/ ACR150SE12/ ACR150SW12 /ACR150SA	ACR200SE9/ ACR200SE18/ ACR200SW18 /ACR200SA	ACR120HE12/ ACR120HW12 /ACR120HA	ACR180HE18/ ACR180HW18 /ACR180HA
	Motor	100003	100003	100012	100535	
	Contactor	n/a		900078	n/a	900078
	Rotor Left Hand	100001	100006	100010	100539	100540
	Rotor Right Hand	100002	100007	100011	100536	100537
	Thermal cut out	900001				

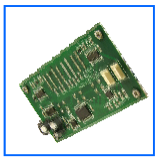
7.2 AC-ACR-PANEL controller

Due to the nature of it's construction, it is not advisable to repair damaged electronic components on either the AC-ACR base unit or AC-ACR-PANEL programmer

	Program Keypad	AC-ACR-PANEL
	Base unit	AC-ACR-PCB
	Outside Air Sensor	SC-OS

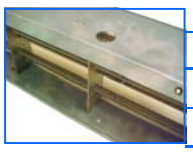
7.3 SmartElec2 controller

Due to the nature of it's construction, it is not advisable to repair damaged electronic components on either the SmartElec2 base unit or Program panel.

	Description	9/12/18 kW models	24 kW models		Description	9/12/18 kW models	24 kW models
	Program Panel	108221			Cooling Fan	n/a	900330
	Panel P.C.B	SELEC2RP			Outdoor sensor	SC-OS	
	Base Unit	SELEC2BU	SELEC2BU		Data cable c/w plugs	2M SE2-CABLE-2 10M SE2-CABLE-10 20M SE2-CABLE-20 30M SE2-CABLE-30 50M SE2-CABLE-50 100M SE2-CABLE-100	
	Heat Sensor	SELEC2HS					
	Fuse	900471	900472				
	Control fuse	900473					

7.4 Heating mediums

Element assembly



Rating	6kW	9kW	12kW	18kW
SE 1Pha Part No	101565/107817	107818	-	-
Length	1.0m/1.5m	2.0m	-	-
SE 3Pha Part No	-	100004	100008	100013
Length	-	1.0m	1.5m	2.0m
HE Part No	-	-	100526	100527
Length	-	-	1.0m	1.5m

Coil LPHW only

Rating	9kW	12kW	18kW
HE Part No	-	103680	103607
Length	-	1.0m	1.5m
SE Part No	100197	100198	100199
Length	1.0m	1.5m	2.0m

8. Fault Finding.

8.1 General

If the air curtain does not operate after running through the detail provided in Section 6, then a suitably competent service engineer should be called to identify the nature of the fault.

Note The manufacturer operates a service function from the address provided in these instructions.

All Air Curtains are fitted with fuse protection and motor thermal protection.

Other faults in relation to the element, motor and wiring should be identified using conventional fault finding techniques.

In the event that electrical components are replaced, please ensure that electrical safety checks in accordance with the regulations in force in the country of use are undertaken.

8.2 Electrically heated units only.

For the service engineer, please note that there is a thermal cut-out incorporated in the air curtain which needs to be manually reset. The cut-out is located near to the mains terminal block.

Re-setting the thermal cut-out may help to identify the nature of the fault however we do not recommend re-set without a thorough investigation into why the cut-out operated.

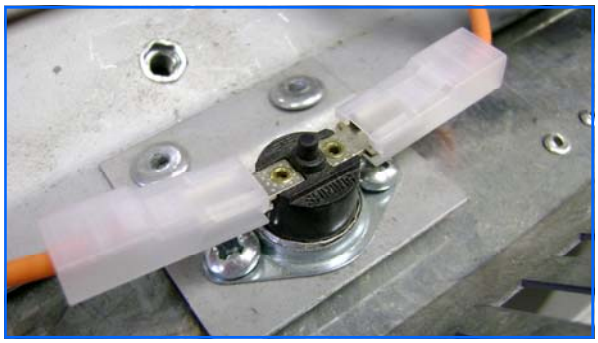


fig.10. Thermal cut-out

8.3 Electronic Controller.

If the air curtain goes into thermal trip (overheat) the AC-ACR-PANEL keypad displays an 'ERR' code. Refer to air curtain instructions to remedy.

The electronic control base unit is protected from any short circuit on the air sensor or heatsink sensor as the short circuit will cause the temperature to go high and trigger over temperature alarm.

fig.11 Electronic controller

8.4 SmartElec2 Controllers.

The SmartElec2 control raises an alarm if any of its inputs are outside their normal working scope. The alarms are displayed on the program panel as an "alarm" code with a prefix "**X**". See chart over.

As the alarms are mutually exclusive, therefore the first alarm code displayed on the program panel will stay on until the fault has been cleared.

Apart from the communication failure alarm [code **X--**], which could be due to a broken connection of the data link, all other alarms will cause the base unit to switch off the heater output.

The SmartElec2 base unit is protected from any short circuit on the air sensor or heatsink sensor as the short circuit will cause the temperature to go high and trigger over temperature alarm.

There are four basic checks to perform should **'X--'** appear on the program panel display. These are as follows:

1: Continuity: Use a multimeter to check continuity between each end of all four cores at the plugs

2: Short circuit: Use a multimeter to check that there are no short circuits between any of the four cores.
N.B. *This test should be done with both ends of the cable disconnected to avoid false readings.*

3: Plugs: Check that the plugs are firmly seated on the circuit board pins in both the program panel and on the base unit.

4: Addressing: (Network versions only). If two or more air curtains are networked, check that each base unit has a unique address as described in section 10.4

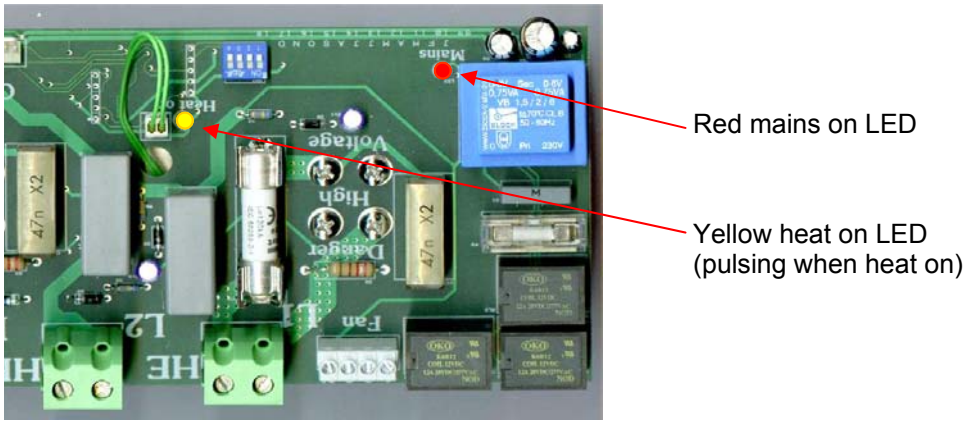
5: Network cables: Ensure that the total run of all cables in the network does not exceed 110m including the cable to the program panel.

8.4.1 SmartElec2 fault codes

Code	Description	Symptom	Possible cause	Remedy
X* _ _	**COMMUNICATION FAILURE.**	No control on faulty unit	Bad data cable connection	Check data cable(s) and plugs
			Damaged cable	Repair/replace damaged cable
X E1**	**AIR SENSOR TEMPERATURE TOO HIGH**	Fan operating, no heat	High ambient air temperature	Check ventilation
			Impeller turning in wrong direction	Check rotation of impeller
			Motor failure	Check motor & replace if necessary
X E1**	**AIR SENSOR FAILURE.**	Fan operating, no heat	Air sensor cable disconnected	Check cable
			Air sensor broken	Replace air sensor
X E3	**HEATSINK TOO HOT**	Fan operating, no heat	High ambient air/faulty base unit	Replace SmartElec base unit
X E4	**HEATSINK SENSOR FAILURE.**	Fan operating, no heat	Heatsink sensor wiring disconnected/faulty	Check wiring
			Heatsink sensor faulty	Replace SmartElec base unit
X E5	**EXTERNAL TEMPERATURE SENSOR FAILURE**	Unit runs, but no external temperature control	External temperature sensor faulty	Replace sensor
			External temperature sensor wiring faulty	Repair/replace faulty wiring
X E6	**OVERHEAT THERMOSTAT OPEN CIRCUIT**	Fan operating, no heat	Overheat thermostat open circuit	Reset/replace overheat thermostat

*NOTE: **'X'** denotes the controller number.
** XE1 represents both air sensor failure modes.

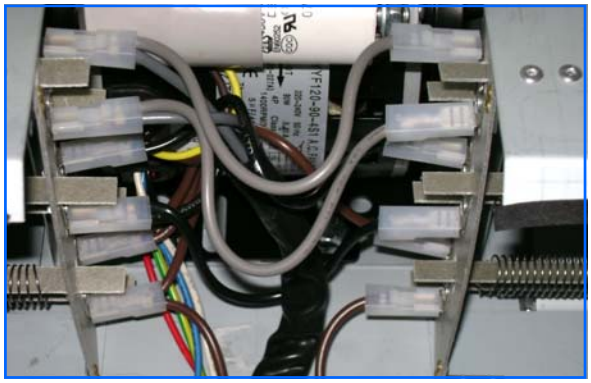
8.4.2 SmartElec base unit LED indicator location/function:



9.1.1 Electrical element replacement SE.

Step 1 Using a pozidrive screwdriver remove the M5 screws at the side of the grille. Access to the inside of the air curtain grille can be made. Open the grille. The grille is hinged to prevent the inner frame from dropping.

Step 2
Disconnect element wires and if necessary remove cut-off plate fixing screws.

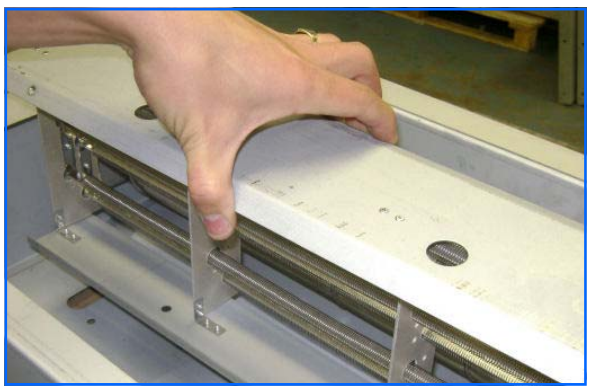


Step 3

Remove element top fixing screws. Locate and remove element fixing screws by inserting a screwdriver through the hole indicated below.

Step 4

Lift out element cartridge, replace as required.

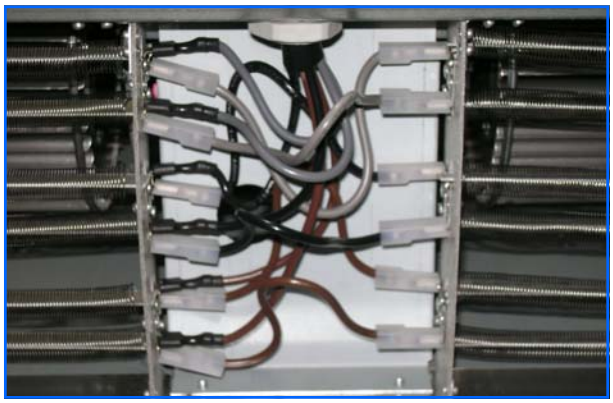


9.1.2 Electrical element replacement HE.

Step 1 Using a pozidrive screwdriver undo screws securing the grille and remove. Remove 4 screws securing the top of the case and remove. Slacken two hinging bolts on both ends. Remove three bolts securing the access plate. Carefully hinge down the access plate. *Note: Take the weight as access plate swings down.*

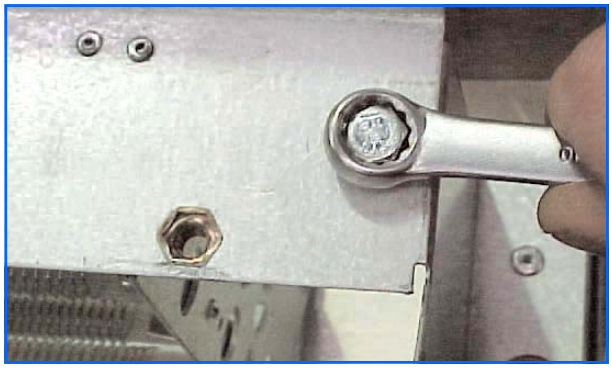
Step 2

Carefully remove connections to the elements, noting wiring configuration.



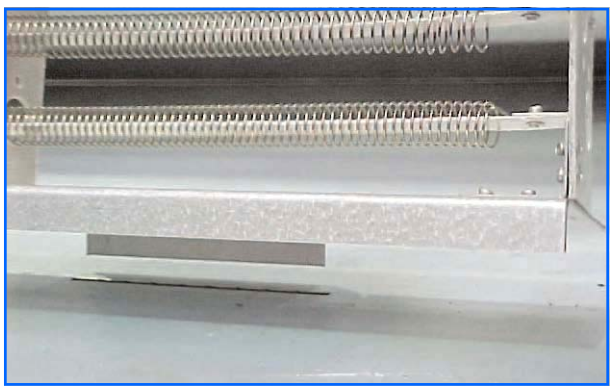
Step 3

Remove two bolts securing elements.



Step 4

Lift out element cartridge, replace as required.



9.2.1 Rotor and motor replacement SE

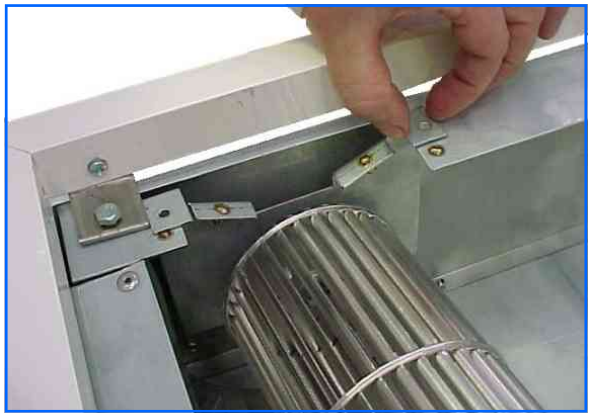
Step 1 Using a pozidrive screwdriver remove the M5 screws at the side of the grille. Access to the inside of the air curtain grille can be made. Open the grille. The grille is hinged to prevent the inner frame from dropping.

Step 2

Remove fastening holding rotor support bracket

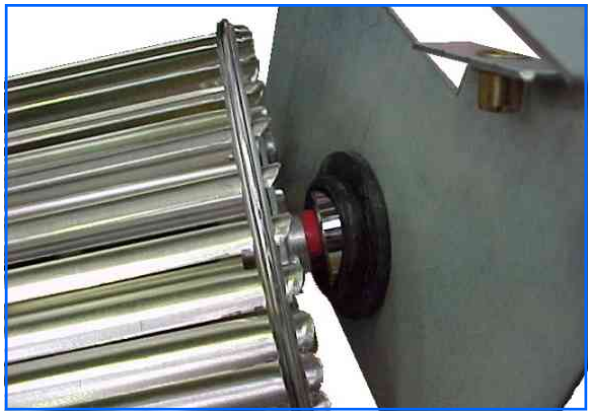
Step 3

Move rotor support bracket towards outside of case.



Step 4

Disengage rotor bearing.



Step 5

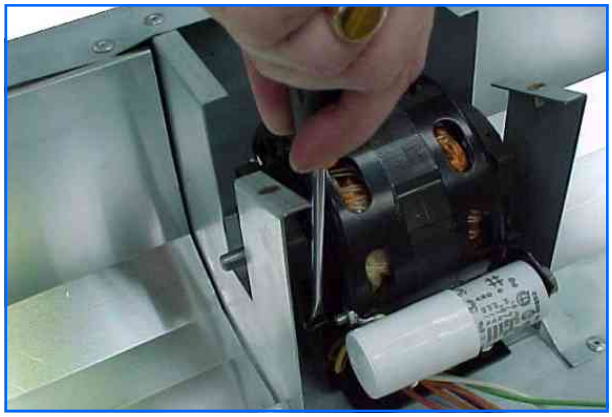
Disconnect rotor from motor shaft.

Step 6

Ensure on replacement of rotor that the flat on the rotor bearing aligns with the flat on the motor shaft.

Step 7

Disconnect motor facing clips (2) using a large screwdriver and exerting downward pressure. A sharp tap can help in releasing the clip. Disconnect the wires from the motor to the mains terminal rail. motor .



Replace motor in reverse order.

Carefully close the grille and refit the fixing screw.

Test product as shown in the User Instructions.

9.2.2 Rotor and motor replacement HE

Step 1 Using a pozidrive screwdriver undo screws securing the grille and remove. Remove 4 screws securing the top of the case and remove. Slacken two hinging bolts on both ends. Remove three bolts securing the access plate. Carefully hinge down the access plate. *Note Take the weight as access plate swings down.*

Step 2

Remove 6 screws securing access panel and carefully remove panel.

Step 3

Remove 8 bolts securing wheel assembly.

Step 4

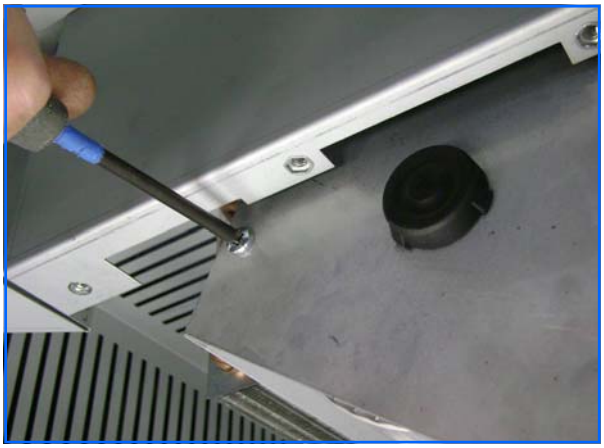
Turn retaining latch to release chassis.

Step 5

Holding handle, carefully pull motor and air wheel assembly forward.

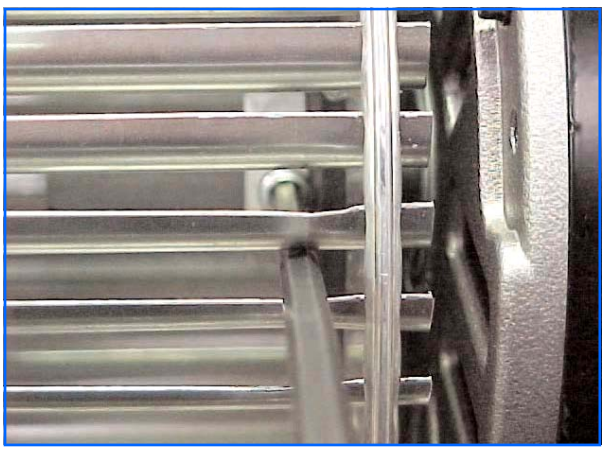
Step 6

Remove screw securing rotor bearing plate. Repeat for opposite side.



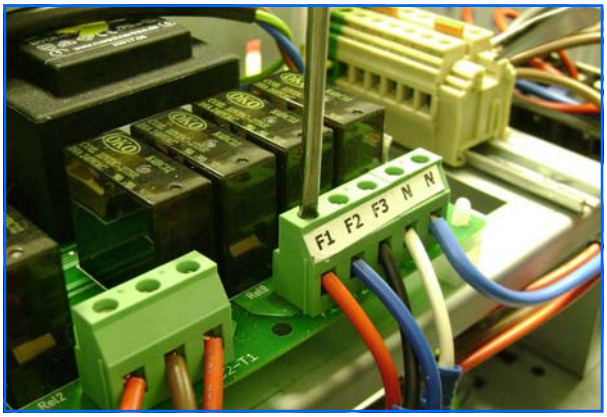
Step 7

Slacken grub screw securing rotors to the motor shaft, remove rotor. Repeat for opposite rotor.



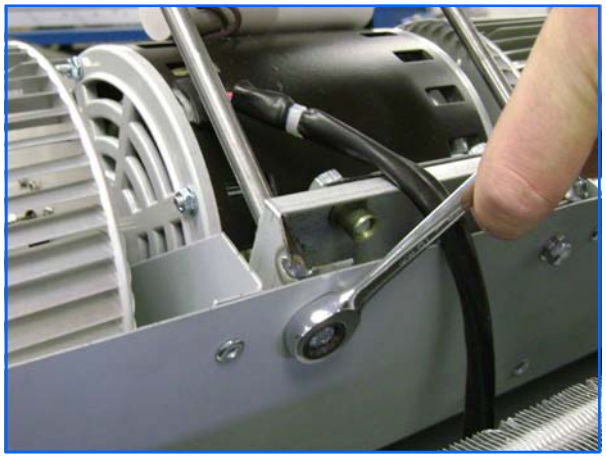
Step 8

Disconnect the wires from the motor to the controller base unit.



Step 9

Remove the bolts securing the motor to the chassis.



Remove motor from air curtain.

Replace motor in reverse order. Carefully close the grille and refit the fixing screw.

Test product as shown in the User Instructions.

9.3 LPHW coil replacement.

Step 1 Using a pozidrive screwdriver undo screws securing the grille and remove. Remove 4 screws securing the top of the case and remove. Slacken two hinging bolts on both ends. Remove three bolts securing the access plate. Carefully hinge down the access plate. *Note Take the weight as access plate swings down.*

Step 2

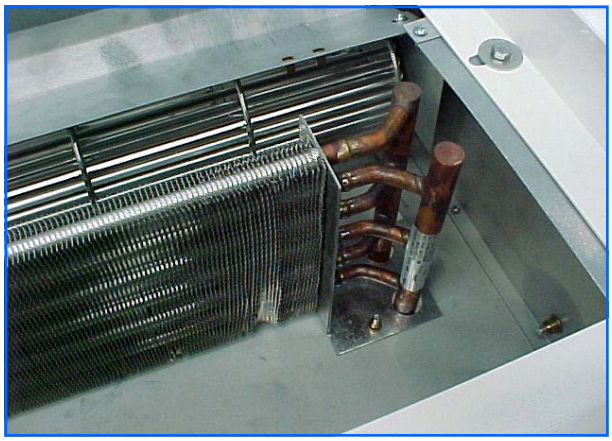
Disconnect flow connections with appropriate tools.

Step 3

Remove coil fixing screws.

Step 4

Remove coil



10. User Instructions.

fig.11. AC-ACR-PANEL Programmer

10.1 Keypad

The SELECT button will allow you to navigate.

The + button will allow you to increase the setting.

The − button will allow you to decrease the setting.

10.2 Operation

On first power up, the display panel will have the following default settings:

F. 0 (no fan)
H. 0 (no heat)
1. 16 (°C. Heat set point - Auto mode only)
2. 7 (°C. half heat set point - Auto mode only)
D. 2 (fan speed in door switch mode)

Note: *Subsequent power ups will retain any entered settings in the display panel internal memory.*

Press the + or − buttons to toggle between the 'F' (Fan), 'H' (Heat) and On/Off Parameters.

Prefix 'F' denotes the **FAN SPEED**. This can be either 1: slow ; 2: medium or 3: fast speed. 0 setting denotes the unit is **OFF**.

To alter the current speed, press the SELECT button. The value will start flashing.

Press the + or − buttons to increase/decrease the desired setting.

Press the SELECT button to confirm new setting. A delay of 7 seconds will return to the original display.

Prefix 'H' denotes the **HEAT** setting. This can be either 1: low heat; or 2: high heat. 0 setting denotes the unit is set at fan only.

To alter the current setting, press the SELECT button. The value will start flashing.

Press the + or − buttons to increase/decrease the desired setting.

Press the SELECT button to confirm new setting. A delay of 7 seconds will return to the original display.

The next parameter will either turn the unit On or Off.

To turn the unit Off, press the SELECT button. ‘On’ will start flashing.

Press the − button. ‘Off’ will start flashing.

Press the SELECT button to confirm new setting.

To turn the unit On, press the SELECT button. ‘Off’ will start flashing.

Press the + button to alter to ‘On.

Press the SELECT button to confirm new setting. A delay of 7 seconds will return to the ‘F’ Fan parameter.

10.3 Engineers settings

10.3.1 Auto Mode

The controller can be set to automatic control only when used in conjunction with an optional outside sensor.

To access the engineers setting, first ensure that the display is in the (H) HEAT parameter. Press and hold the SELECT button for 5 seconds. Set point ‘1’ will appear.

If the outside air temperature is above this value, there is no heat power. If the outside temperature falls below this value but is above set point 2, then the heat will be at half power. (Range: 0 - 30 degrees).

To alter the setting, press the SELECT button then the + or − buttons to increase/decrease the desired setting.

Press the SELECT button to confirm new value and use the + button to move to the next setting. (A delay of 7 seconds will return to the original display.)

If you have previously pressed the SELECT button, Set point ‘2’ will appear.

If the outside air temperature falls below this value, the heat will be at full power. If the outside temperature is above this value but is below set point 1, then the heat will be at half power. (Range: 0 - 30 degrees)

To alter the setting, press the SELECT button then the + or − buttons to increase/decrease the desired setting.

Press the SELECT button to confirm new value.

Press the + button, setting “A.Of” will appear.

This setting will enable the Auto Mode. (Range: On/Off)

To alter the setting, press the SELECT button then the + or − buttons to toggle between the “A.Of” and “A.On” modes. “A.On” enables the air curtain to run under automatic control from the optional outdoor sensor. “A.Of” enables the air curtain to run under normal control.

To return to the engineering setting mode press and hold the SELECT button for 5 seconds.

To return to normal operating mode press and hold the SELECT button for 5 seconds.

10.3.2 Door Switch Mode

The controller can be set to a preset fan speed when the door opens. This function can only when used in conjunction with a door switch.

To access the engineers setting, first ensure that the display is in the (F) FAN parameter. Press and hold the SELECT button for 5 seconds. Setting ‘d’ will appear.

*The air curtain operates as normal under the program of the Fan and Heat settings. As the door opens the air curtain changes state to the settings preset in this mode. As the door closes, the air curtain returns to normal. (Range: 1: slow ; 2: medium or 3: fast speed. 0 setting denotes the unit is **OFF**.)*

To alter the setting, press the SELECT button then the + or − buttons to increase/decrease the desired setting.

Press the SELECT button to confirm new setting. A delay of 2 seconds will return to the original display.

10.4 Option SmartElec2 Controller

10.4.1 Keypad

The buttons

SELECT + −

The buttons have the following functions:

SELECT Press the select button to allow navigation.

\+ Press the + button to increase a setting.

− Press the - button to decrease a setting.

10.4.2 Operation

Normal operation

Display	Meaning
- --	First power up
E rr	No controllers found
0 25	Curtain No. + temperature set point

Set temperature

Press the SELECT button once to allow changes to be made.

Press + to increase temperature set point. (max 35°C)

Press − to decrease temperature set point. (min 16°C)

Display shows for example: 0 25

Set fan speed

Press the SELECT button once, display shows for example 0 F1

Press + to increase fan speed.

Press − to decrease fan speed.

Three speeds and an 'off' setting are available:

0 F1 Speed 1

0 F2 Speed 2

0 F3 Speed 3

0 F0 Fan 'off'

Set heat

Press the SELECT button again, display shows for example 0 H1

Press + to set heat 'on'.

Press − to set heat 'off'.

If no button pressed for 2 seconds, display will revert to normal, for example 0 25

Networked air curtains

When two or more air curtains are linked together and controlled from a single keypad, these will be detected and displayed in turn, for example 0 25

1 22 etc.

Any air curtain in the network can be accessed by pressing SELECT when it's number appears on the display. The settings can then be changed as previously described.

Switching off air curtain

To switch off fan and heat, press and hold the − button for more than 2 seconds. To switch on again, set fan and heat as previously described .

Engineers settings

To access the engineers mode press and hold the + button for a few seconds until the display goes blank, then press SELECT briefly. The display shows E n9

The engineer's mode will allow access to five extra functions:

1: Door link settings:

This provides fan speed and heat settings which activate only when the door link is open circuit.

The fan speed is accessed by pressing the SELECT button until the display shows 0 d0 Use the + and − buttons to change the setting.

Display	Meaning
0 d0	Fan off
0 d1	Fan speed 1
0 d2	Fan speed 2
0 d3	Fan speed 3

The temperature setting is accessed by pressing the SELECT button until the display shows 0 t0 Use the + and − buttons to change the setting.

Display	Meaning
0 t0	Heat off
0 t1	5°C
0 t2	10°C
0 t3	15°C
0 t4	20°C
0 t5	25°C
0 t6	30°C
0 t7	35°C

2: Link-group interlock

If there is more than one controller, a group interlock option may be set.

This function is accessed by pressing the SELECT button until the display shows 0 C0 where '0' is the air curtain number to be used as a master controller for interlocks.

Display		Meaning
0 C0		Default setting
0 C1	to 0 C7	Master setting range
1 C-		Other controllers

See table below for possible settings.

Master setting	Function
1	Timer/BMS interlock
2	Door interlock
3	Timer/BMS/door interlock
4	Stat interlock
5	Timer/BMS/stat interlock
6	Stat/door interlock
7	Timer/BMS/stat/door interlock

3: All controllers

This function is accessed by pressing the SELECT button until the display shows ≡ 25

Using this setting all controllers in a network respond to the same settings. Settings for individual controllers can still be changed if required.

4: External temperature

This function is accessed by pressing the SELECT button until the display shows o 25

This is only displayed if the optional external temperature sensor is connected to the controller.

Use the + and − buttons to change to the desired temperature setting.

If the external temperature is equal to the set temperature, all controllers are turned off. The temperature must then drop to 3°C below the set temperature before the controllers are turned back on.

Note: more than one controller can have an external sensor connected. When this is the case the sensor values are displayed as an average. (If one external sensor goes faulty, the average is worked out from the remaining working ones).

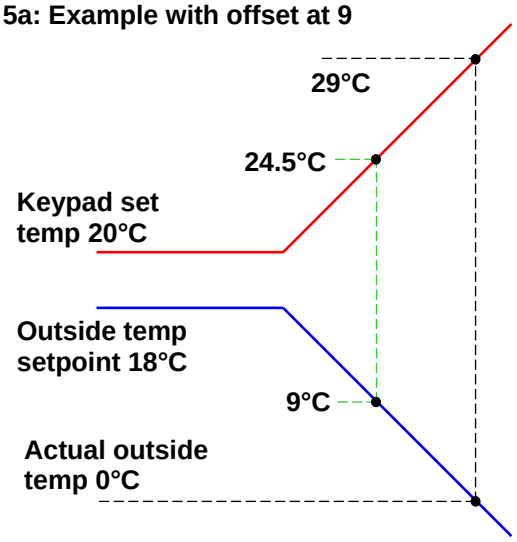
5: External temperature offset

This function is accessed by pressing the SELECT button until the display shows eg. oo4

This setting allows the temperature setpoint to be automatically increased as the external temperature falls to, or below, zero. For instance, a setting of 4 means a +4°C offset at 0°C. The maximum offset is 9°C. If this feature is not required the setting should be oo0

Note: When more than one controller is used, this feature will only work under the ' all controllers' setting.

5a: Example with offset at 9



6: Temperature limits

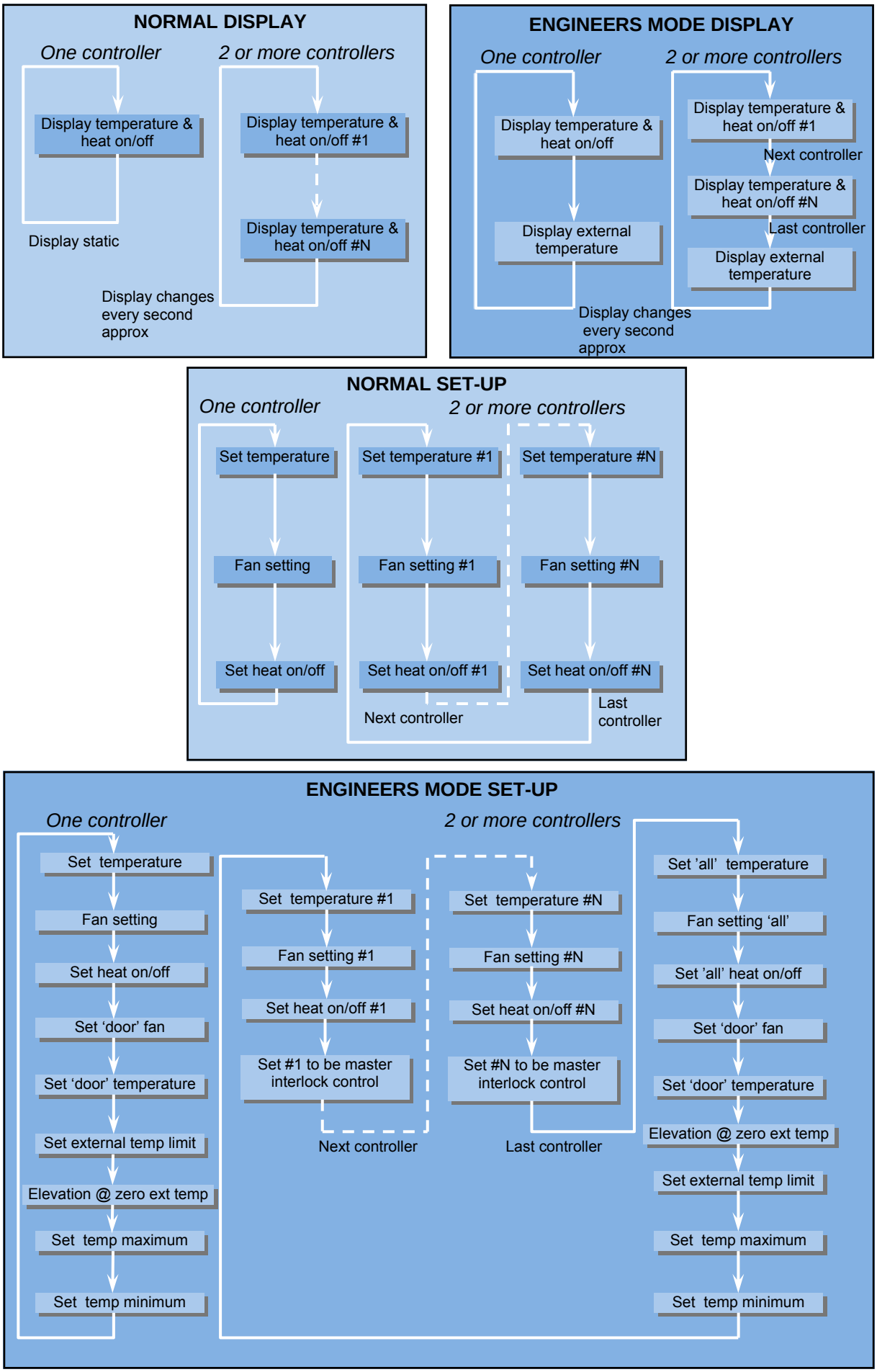
This function is accessed by pressing the SELECT button until the display shows 35 and 16 respectively i.e. maximum and minimum set limits for external temperature.

Use the + and − buttons to change to the desired limit temperature settings.

The maximum (default 35°C) may be set anywhere between the current minimum and 50° C, and the minimum, (default 16°C) may be set anywhere between 3°C and the current maximum.

To exit the engineers mode press and hold the + button for a few seconds.

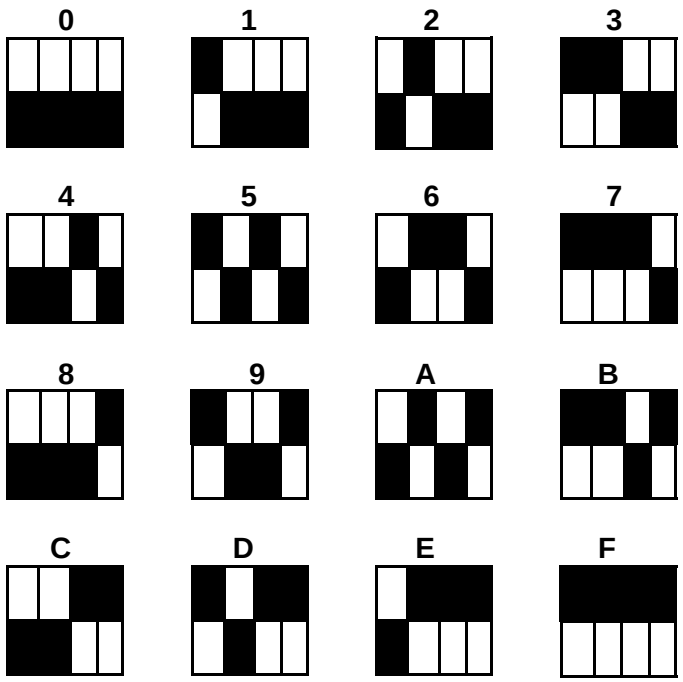
Keypad sequence

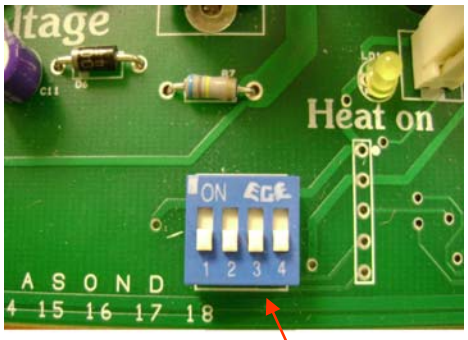


10.4.3 SmartElec2 air curtain addressing

Each air curtain in the network must have a unique address (0-9/A-F) This is achieved using the 4 way bitswitch mounted on the base unit PCB (see photo).

fig. 7. Air curtain address numbers.

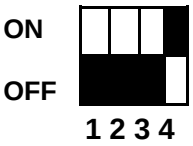




BITSWITCH

The black shaded areas represent the switch position.

The example below shows the air curtain set to No.8.



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