

SMARTELEC³

ENERGY SAVING CONTROL

INSTALLATION AND OPERATING MANUAL



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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 This appliance must be earthed.

1. General Information.

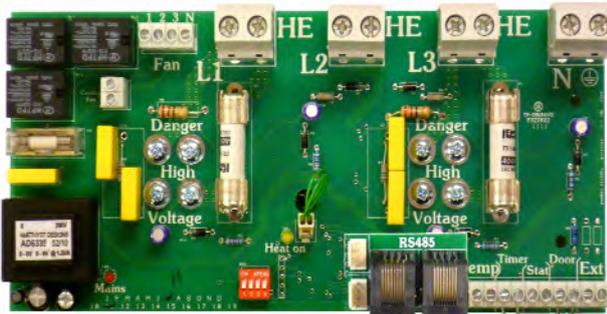
Introduction

This instruction manual describes the SmartElec3 control that can be fitted to the Airbloc electric air curtains.

This control is exclusive to Airbloc and as such the instructions detailed in this manual must be followed to ensure safe and reliable operation.

The SmartElec3 control can be used with 9,12,18 and 24kW Airbloc air curtains.

The SmartElec3 consists of a base unit (installed within the air curtain) and a program panel that can be installed remote from the air curtain.



The factory fitted base unit shown above provides terminals for 3 phase + neutral supply connection and low voltage program panel wires.

The SmartElec3 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 when compared to an air curtain without the SmartElec3 control. For further information detailing the potential energy savings of the SmartElec3, please contact Airbloc direct. (contact details on the back of this manual.)

Usually, the program panel is mounted at low level from the air curtain for user access and up to a maximum distance of 110m. The base unit and program panel are linked by a RJ45 low voltage cable as specified in these instructions.



The program panel shown opposite allows the user to control either a single air curtain, or a network of up to 16 air curtains, & provides the following functions:

- Heat on or off.
- Off or low, medium and high fan speeds.

For full details of all functions please refer to section 6, User instructions, in this manual.

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.

Electrical

This appliance must be earthed.

It is recommended that the electrical supply to the SmartElec3 base unit is via an appropriate 4 pole isolator in accordance with the regulations in force in the country of use, and must have a minimum contact separation of 3mm on all poles.

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

Remote unit is wired to the base unit via a 4 core factory supplied screened cable.

Networked air curtain interconnects are via a 4 core factory supplied screened cable.

Fixing details

The SmartElec3 base unit is pre-installed inside the air curtain unit.

The SmartElec3 program panel is a separate unit and can be either surface mounted or flush wall mounted.

The distance between the base unit and the program panel can be up to 110m maximum.

Health and safety

Sole liability rests with the installer to ensure that all site safety procedures are adhered to during installation, including the use of personal protective equipment.

Do not rest anything, especially ladders, against the product.

Standards

Units conform to the European electrical standard BS EN 60335-2-30, and to the following European CE directives: 73/23/EEC low voltage, 89/336/EEC and 98/68/EEC electromagnetic compatibility.

2. Dimensions & Technical Specification.

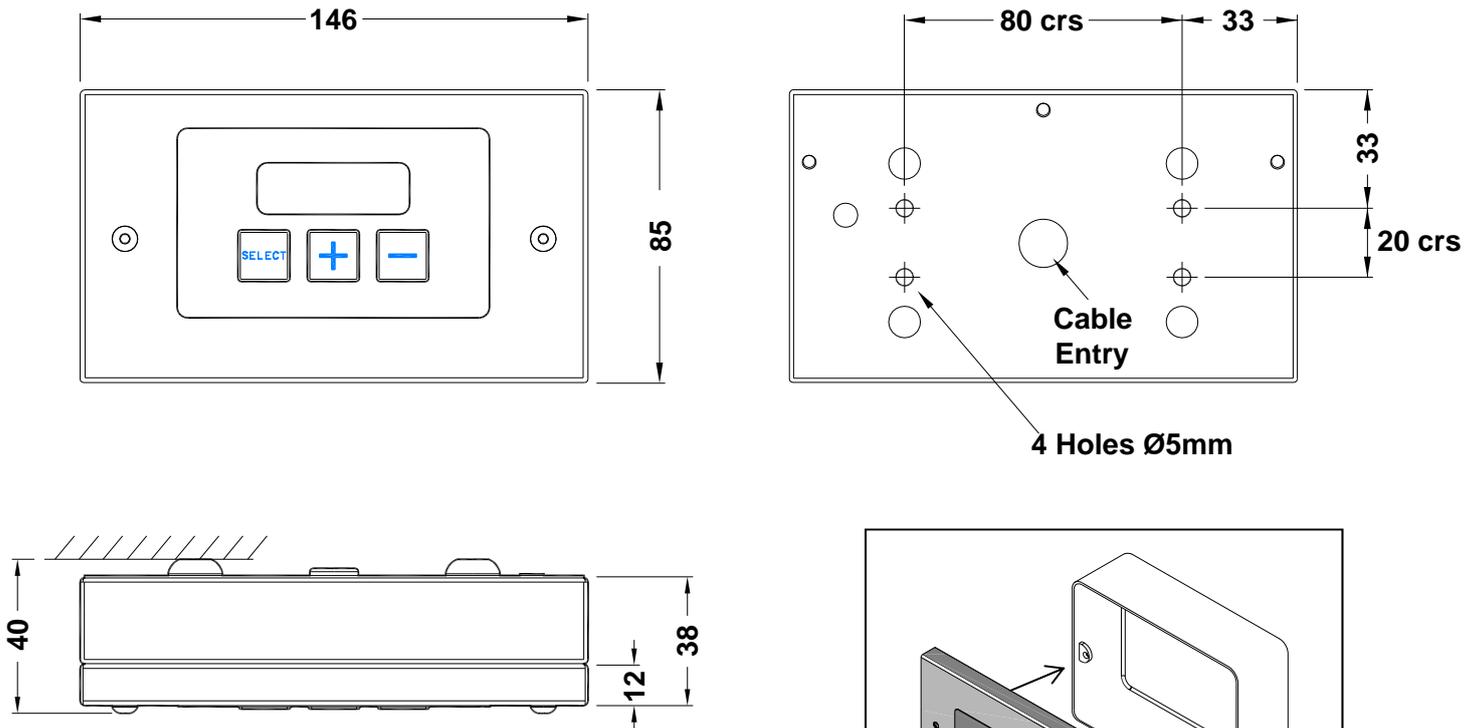


Figure 1. Dimensions (mm) program panel (surface mount shown, factory supplied).

Technical specification.

Sensor input	NTC
Control setpoint	16°C to 35 °C in steps of 1 °C
Temperature control	PID
Minimum power	3%
Maximum power	97 %
Cycle time	0.9 second fixed
Protection	2 x fuses for the protection of the heater switching thyristors
Fan output	3 off relays for high, medium and low fan setting 3A max 240Vac
Connections	Screw terminals 4 for supply, 3 for heater output, 4 for fan output, 2 for sensor input, 2 for external thermal trip, 2 for door switch, 2 for external sensor, 2 for BMS
Supply	415 V rms +/-15% 50Hz. Electronics 1.5VA max.
Dimensions	Program panel 146mm(L) x 85mm(W) x 38mm(H) max.
Mounting positions	Program panel fixing centres 80mm x 20mm
Temperature	0°C to 40 °C operating temperature
Display	Triple 7 segment red LCD for parameter display
Push buttons	3 positive feedback tactile push buttons

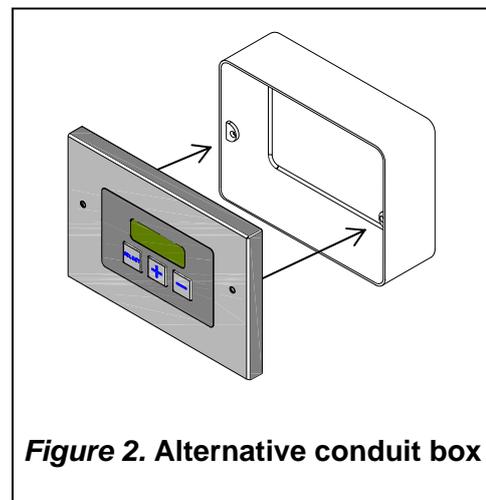
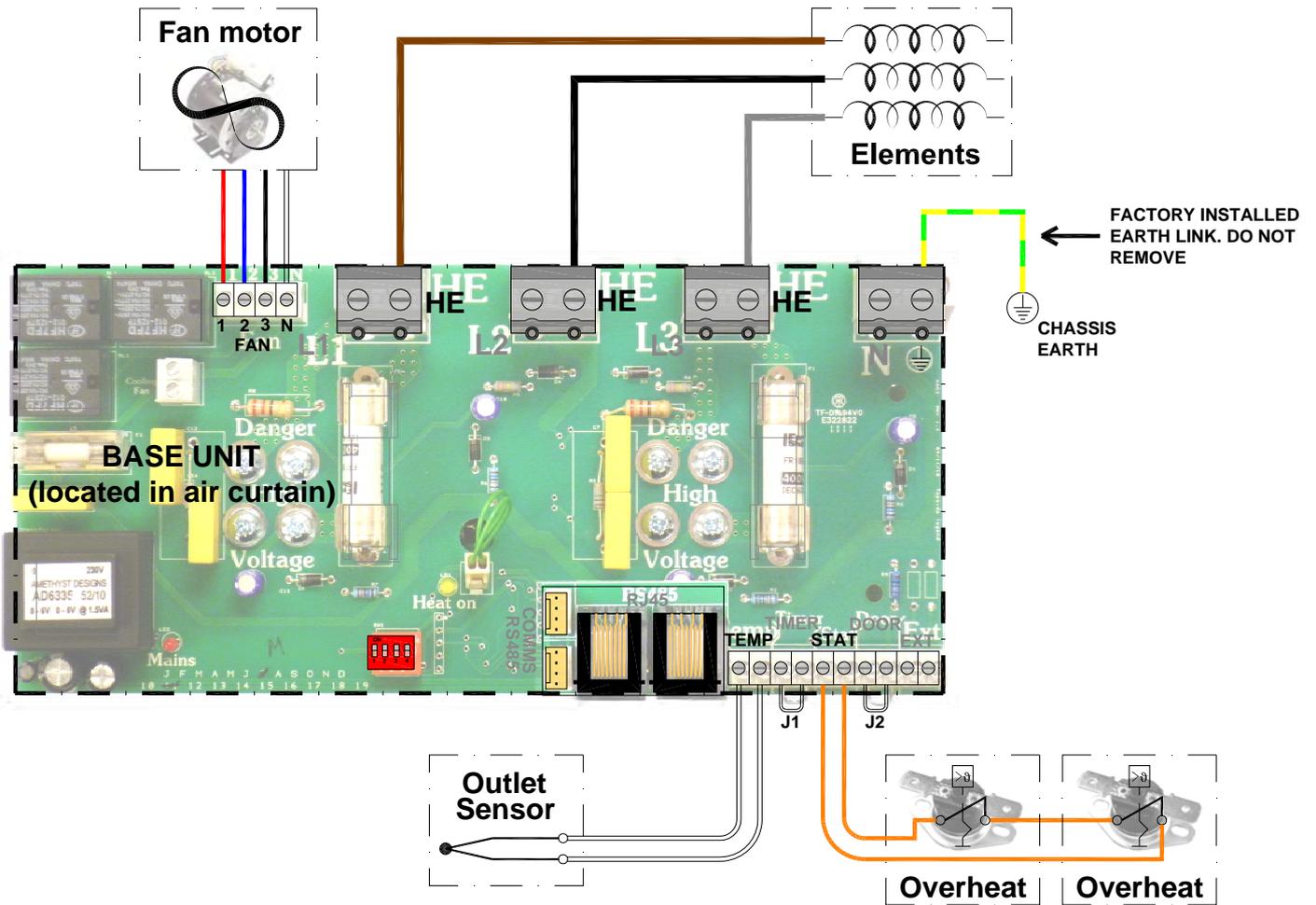


Figure 2. Alternative conduit box

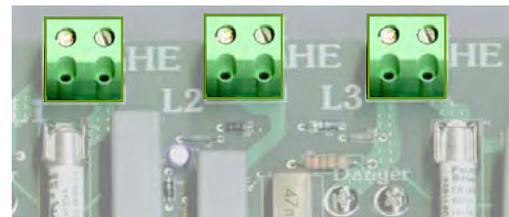
3. Factory Supplied Wiring.

All Electrically Heated with SmartElec3 except **



* ACR shown (AC has only ONE overheat)

Terminal	Description	Cable
HE	Heating elements phase 1	10mm ² max
HE	Heating elements phase 2	
HE	Heating elements phase 3	
N	Neutral to fan	1.5mm ² max
1	Fan - low speed	
2	Fan - medium speed	
3	Fan - high speed	
Temp	Air sensor pair (non-polarised)	RJ45
Stat	Ext thermal trip pair, n.c. (volt-free)	
Comms	Keypad/network connectors	



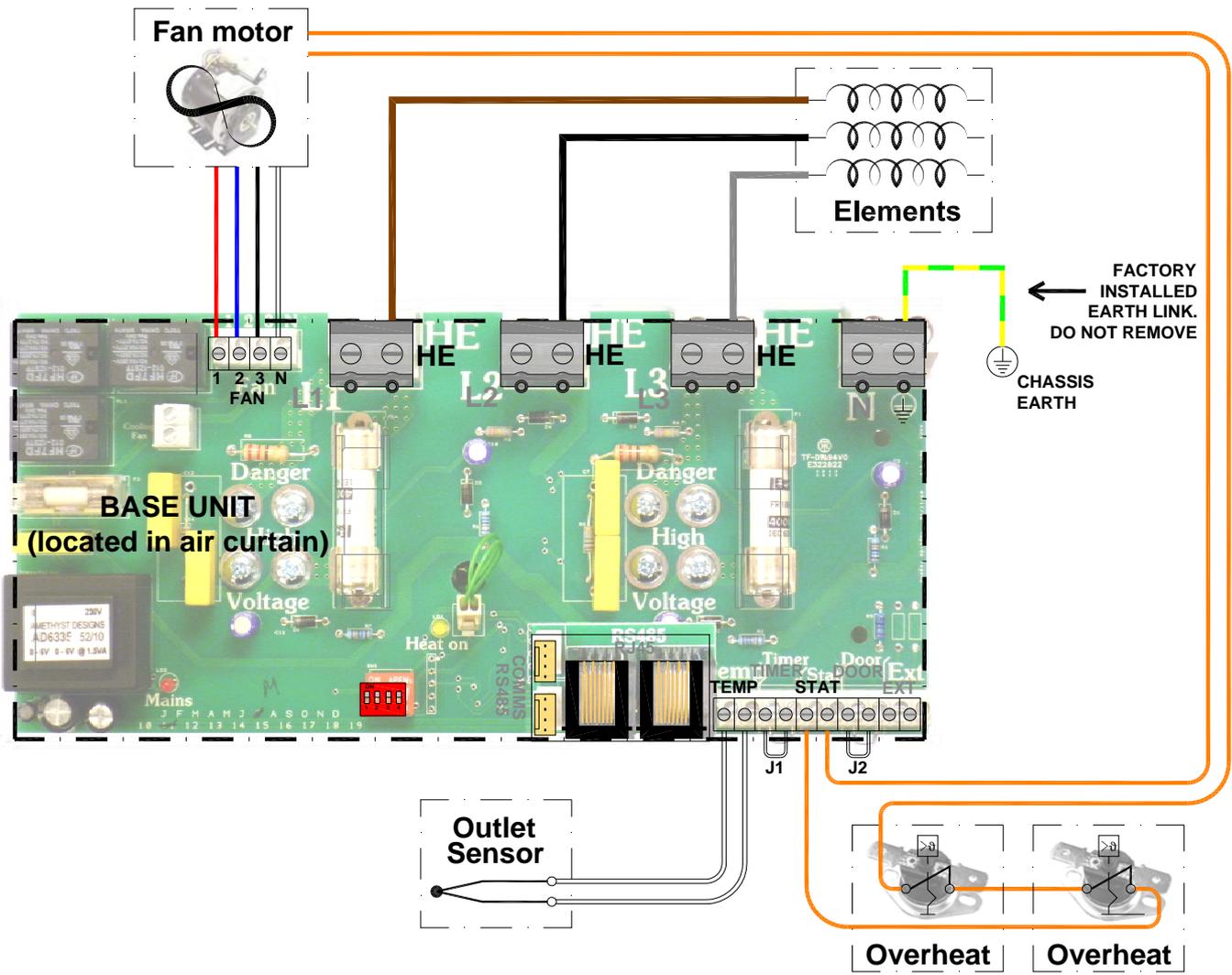
The heater element outputs are connected to the right hand side of three terminal blocks and are marked 'HE'. (See below).

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.

**** Electrically Heated ACR100/ACR150/ACT120 with SmartElec3.**



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



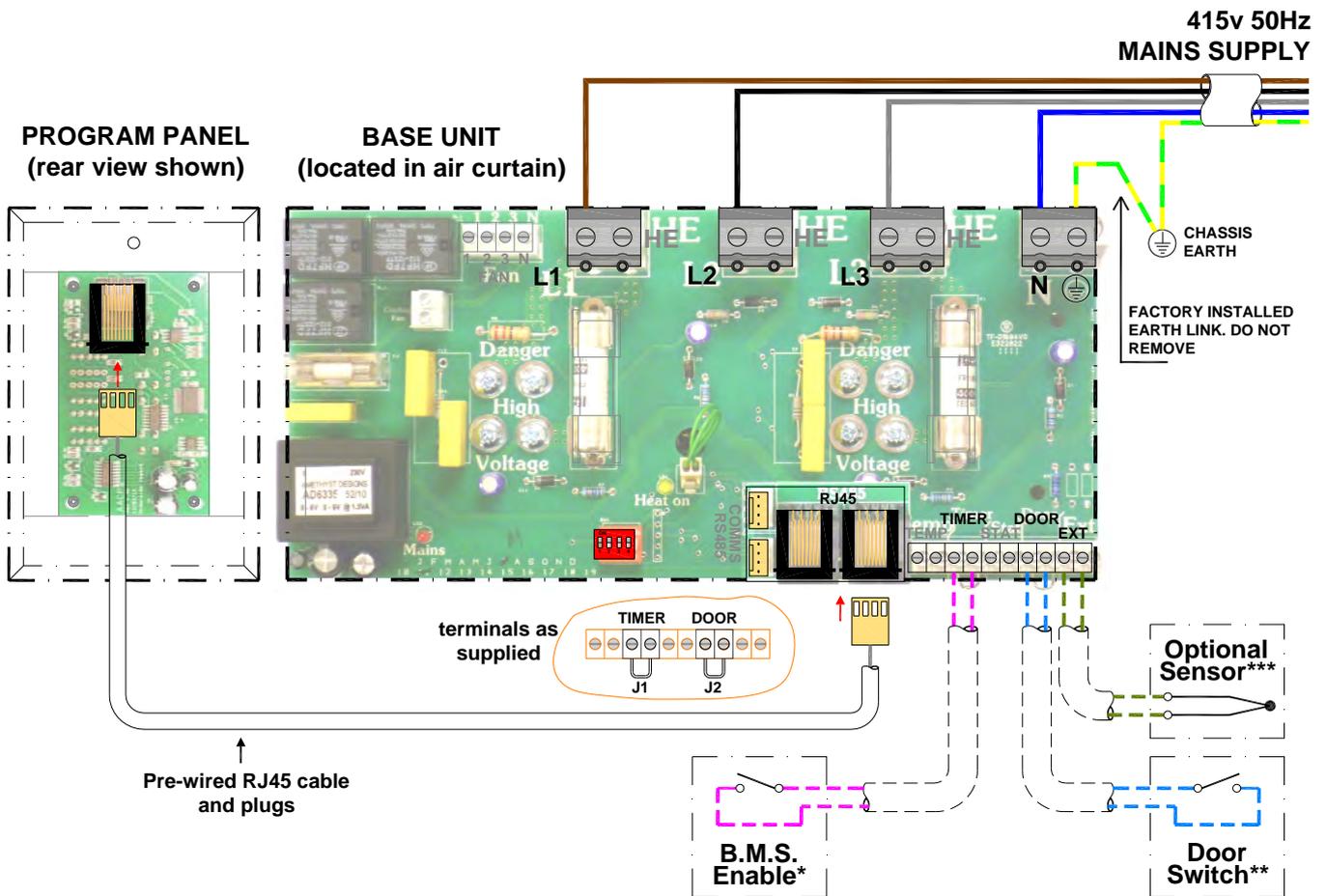
The heater element outputs are connected to the right hand side of three terminal blocks and are marked 'HE'. (See below).

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.

4. Installer Wiring Details.



Interconnecting wiring

The program panel is connected to the base unit via a pre-wired RJ45 cables as shown and 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.

Optional wiring

* **External switch** (ie BMS enable) to be volt free and wired via normally open contacts to terminal pair 'TIMER'. (Contacts closed to enable). Remove factory fitted jumper J1.

** **Door switch** to be volt free and wired via normally closed contacts to terminal pair 'DOOR'. (Contacts open to enable door mode). Remove factory fitted jumper J2. refer section 6.6.1 - Door link settings.

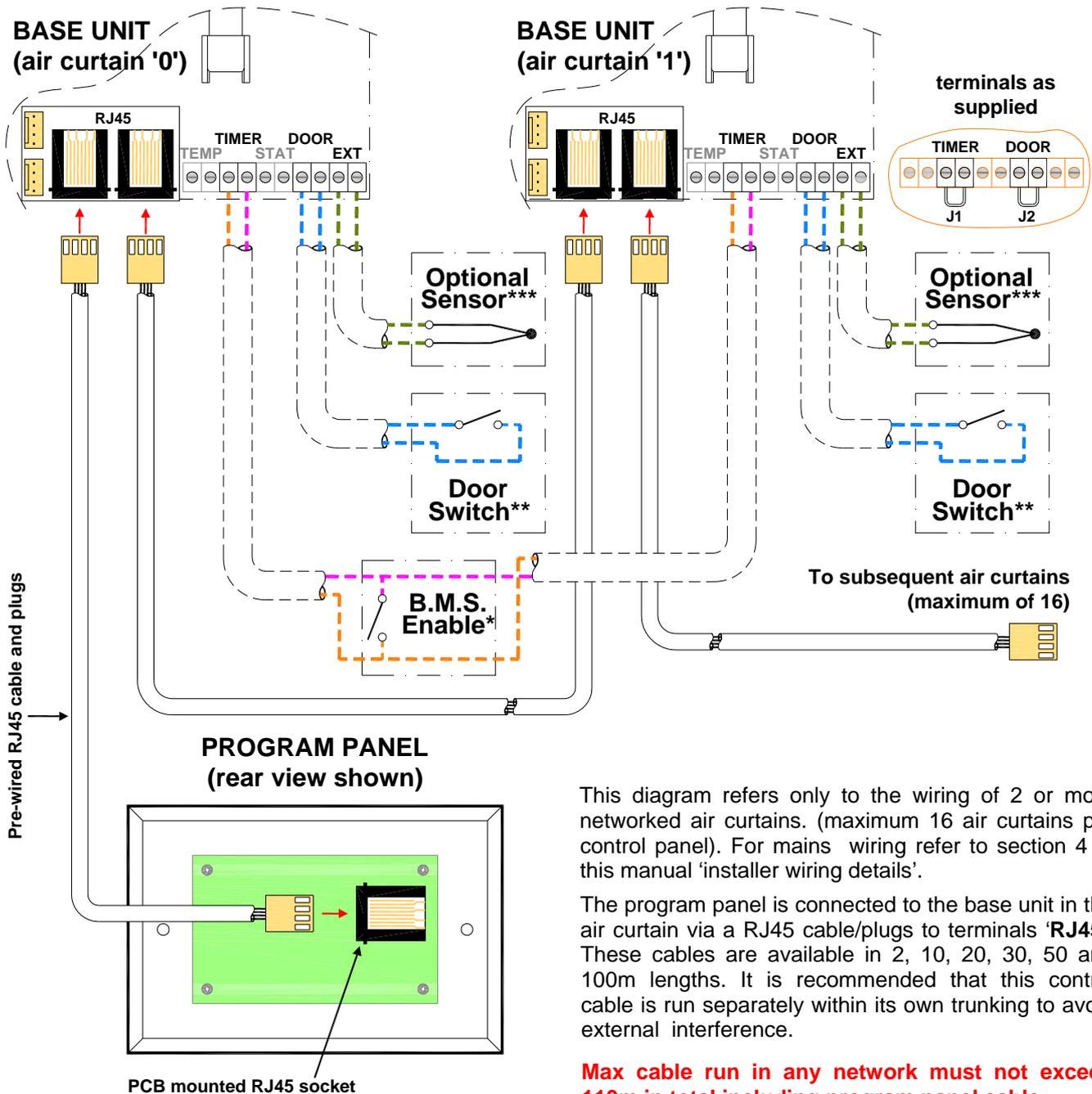
*** **Internal/external sensor** to be wired to terminal pair 'EXT'. refer section 6.6.4 - External Temperature.

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.

Terminal	Description	Cable
N	Neutral	10mm ² max
L1	3 phase supply	
L2	3 phase supply	
L3	3 phase supply	
E	Mains earth	1.5mm ² max
Timer*	BMS pair (volt -free)	
Door**	Door interlock pair, n.c. (volt free)	
Ext***	External sensor pair (non-polarised)	

Network Wiring Electrically Heated with SmartElec3 Control.



This diagram refers only to the wiring of 2 or more networked air curtains. (maximum 16 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 air curtain via a RJ45 cable/plugs to terminals 'RJ45'. These cables are available 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.

Max cable run in any network must not exceed 110m in total including program panel cable.

Note: All air curtains connected within the network system will operate under the settings of the single keypad.

Any air curtain within the network can be connected with and respond to the following optional circuits:

* **External switch** (ie BMS enable) where required, to be volt free and wired **in PARALLEL** via normally open contacts to each terminal pair 'TIMER'. (Contacts closed to enable). Only air curtain(s) wired this way will respond to the enable signal. Remove factory fitted jumpers J1. **NOTE: terminals are polarity sensitive**

** **Door switches** where required, to be volt free and wired to **INDIVIDUAL** base units via normally closed contacts to each terminal pair 'DOOR'. (Contacts open to enable door mode). Only air curtain(s) wired this way will respond to the door mode. Remove factory fitted jumper J2. refer section 6.6.1 - Door link settings.

*** **Internal/external sensors**, where required, to be wired to **INDIVIDUAL** base units to each terminal pair 'EXT'. Only air curtain(s) wired this way will respond to the sensor setting. If a sensor is fitted to more than one air curtain then the value is displayed as an average. refer section 6.6.4 - External temperature.

5. Installation Details.

The SmartElec3 base unit is pre-installed inside the air curtain. All the external electrical connections are via screw terminals and plug/socket onto this base unit.

The SmartElec3 program panel is installed in a separate housing and surface mounted in a suitable location. Please see figure 3a.

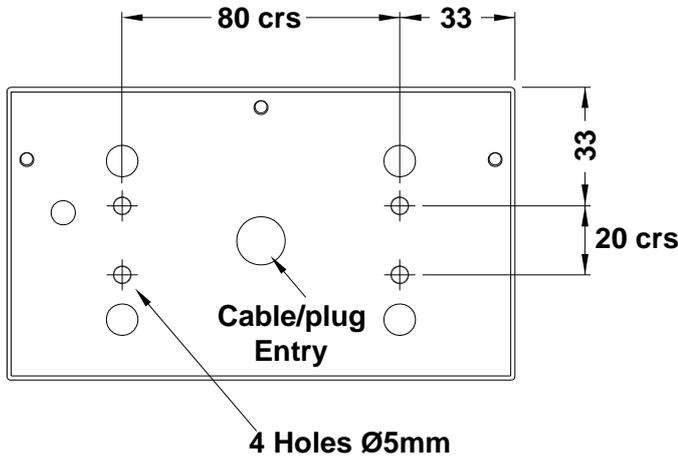


Figure 3a. Surface mount location holes.

Alternatively, the program panel can be flush wall mounted with the addition of a standard double gang conduit box. Please see figure 3b.

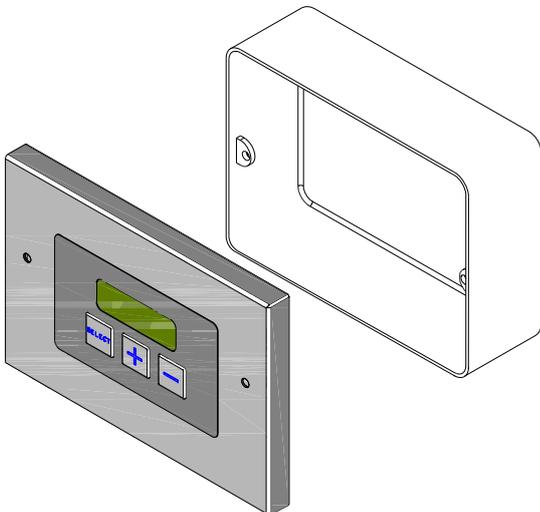


Figure 3b. Alternative rear conduit box.

The cable distance between the base unit and the program panel can be up to 110m.

The total cable distance between networked air curtains can be up to 110m. (First to last air curtain, plus program panel).

3 Phase mains supply

The 3 phase mains supply is connected to the terminals marked 'L1' 'L2' & 'L3' and the neutral

is connected to the terminals marked 'N'. The **earth terminal** is marked with the earth symbol.



External time/BMS switching

Each air curtain comes complete with a pair of external terminals for on/off or timed operation. To utilise this facility, simply remove the jumper cable J1 between the TIMER terminals and connect to an external switching source*.

* please note: external switch must be volt free.

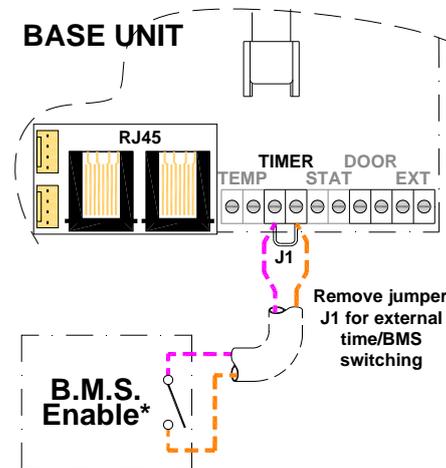


Figure 4. External time/BMS switching

Multi external time/BMS switching

If a single external switch is required on a network of 2 or more air curtains, this can be achieved by using the BMS connection on one (master) air curtain, then using the link group interlock setting as described in section 6.6.2. Using this method all air curtains in the network will respond to the signal from the master air curtain.

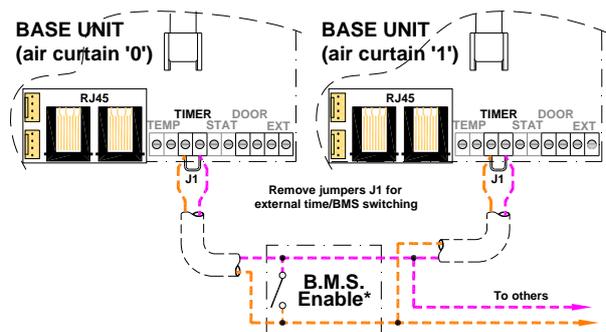


Figure 5. External time/BMS switching

6. User Instructions.



fig.6. SmartElec3 Programmer

6.1 Keypad buttons



The buttons have the following functions:



Press the select button to allow navigation.



Press the + button to increase a setting.



Press the - button to decrease a setting.

6.2 Keypad display

6.2.1 Normal mode displays

Display	Meaning
- -	First power up
E rr	No air curtains found
0 25	Curtain address and temperature set point

6.2.2 Normal Operation

During normal operation mode the display is dimmed.

Pressing the  button, will put the panel into active mode. If no button is pressed for several seconds the display reverts to normal mode.

During normal operation the unit will display for example:

 where '0' is the curtain address, and '25' the temperature measured for the unit.

Where multiple air curtains exist in a network, the display scrolls through each unit in turn, changing approximately once every second.

If the air curtain is in operation and under heat demand, a 'decimal point' is shown after the air curtain address.

6.3 OFF mode.

During normal operation, press and hold the  button for approximately two seconds. The display blanks until you release the button. The heating and fans are now turned off. Releasing the button in less than this time and the action has no effect.

Where multiple air curtains exist in a network, this action turns off all air curtains.

6.4 Settings Mode

6.4.1 Activate settings display

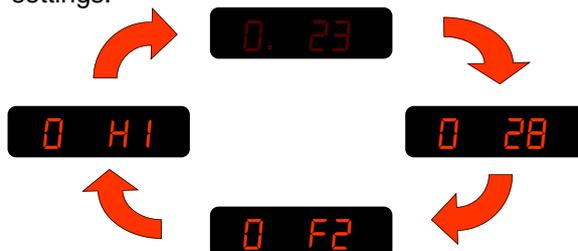
To enter the Settings mode press the  button. This will illuminate the screen. Press the  button till the desired setting is shown.

By pressing the  button it will also advance to the next setting.

Note: If a setting has been altered by using the  or  buttons, it must be confirmed by pressing the  button.

6.4.2 Settings displays

Press the  button to advance through the settings.



Where multiple air curtains exist in a network and controlled from a single keypad, these will be detected and displayed in turn, for example:



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

6.5 Set-up configurations

6.5.1 Set fan speed

Once the display becomes illuminated press the  button once. Display shows the fan speed.

Press  to increase fan speed.

Press  to decrease fan speed.

Three speeds and an 'off' setting are available:

 Speed 1  Speed 2
 Speed 3  Fan 'off'

6.5.2 Set heat

Press the  button again Display shows the heat setting.

Press  to set heat 'on'.

Press  to set heat 'off'.

If no button pressed for 2 seconds, display will revert to normal user. eg 

6.5.3 Set temperature

Press the  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: 

6.5.4 Networked air curtains

Where multiple air curtains exist in a network and controlled from a single keypad, these will be detected and displayed in turn, for example:




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

6.6 Engineers settings

Other options are available in engineer's mode.

To access the engineers mode *either*:
press and hold the  button for a few seconds until the display goes blank, then press  briefly. The display will show 
or

Power-up the system with the  and  buttons pressed and release when the display goes blank the display will show 

As in normal mode, Engineers set-up mode is started by pressing the  button whereupon the display will illuminate. Advance through the normal modes settings of temperature, fan and heat by pressing the  button.

Pressing the  button again advances to further options to allow other settings of the system. The engineers set-up options listed herewith depend various factors e.g. optional door switch, multiple air curtains etc.

Notes: If a panel has never before been run, it automatically starts in engineer's mode when first powered-up.

Engineer's mode automatically self-clears after approximately 10 minutes of non-activity on the switches.

6.6.1: Door link settings:

This provides an alternative fan speed and heat setting which is activated only when the door link is open circuit.

The fan speed is accessed by pressing the  button until the display shows:  Use the  and  buttons to change the setting.

Display	Meaning
	Fan off
	Fan speed 1
	Fan speed 2
	Fan speed 3

The temperature setting when the door link is open circuit is accessed by pressing the  button until the display shows . Use the  and  buttons to alter the temperature value.

Display	Meaning
	Heat off
	5°C
	10°C
	15°C
	20°C
	25°C
	30°C
	35°C

6.6.2 Link-group interlock

If there is more than one air curtain, a group interlock option may be set. This provides an alternative fan speed and heat setting when activated by certain external connections on individual air curtains.

This function is accessed by pressing the  button until the display shows  (where '0' is the air curtain address to be used as a master unit for interlocks.)

Display	Meaning
	Default setting
 to 	Master setting range
	Other air curtains

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

6.6.3 All air curtains

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

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

6.6.4 External temperature

This is only displayed if the factory supplied optional external temperature sensor is connected to the air curtain.

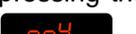
This function is accessed by pressing the  button until the display shows .

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

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

Note: for multiple air curtains - more than one 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).

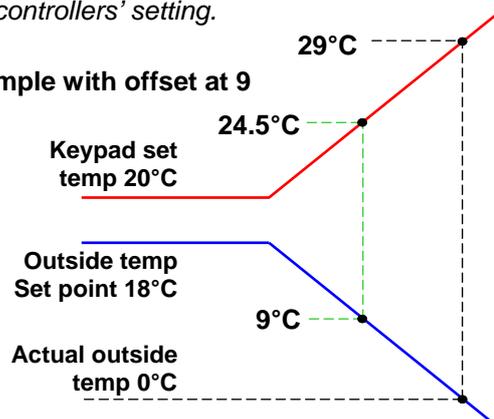
6.6.5 External temperature offset

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

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 .

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

Example with offset at 9



6.6.6 Temperature limits

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

6.7 Power-up Manual Reset

The system can be reset by powering-up the panel whilst holding down the  and  buttons.

The display shows the 'start' pattern but then goes blank.

Release the buttons where upon the display resumes and the system addressing commences, finding only those air curtains which are actually connected and working.

If  appears on the display, press and hold the  button for a few seconds then release. The display will then return to the normal mode.

6.8 Air curtain addressing

All air curtains work on an address address to communicate with the keypad and are supplied with an default address of '0'.

Where multiple air curtains exist in a network they must be re-addressed using a unique address (0-9/A-F). This is achieved using a 4 way bitswitch mounted on the base unit PCB (see photo opposite)

The keypad will check all addresses on first power up and this is displayed as the first digit on the display (in a network set up, all addressees will be viewed in rotation).

Note: If any address is altered after initial power up or an air curtain removed after initial installation, the keypad will also retain the original address although unable to respond.

To remove this unwanted address(s) follow the details in 6.7 Power-up Manual Reset.

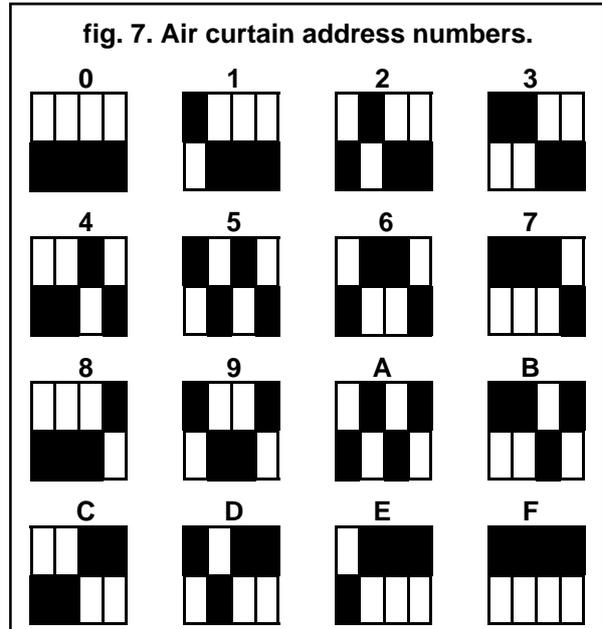
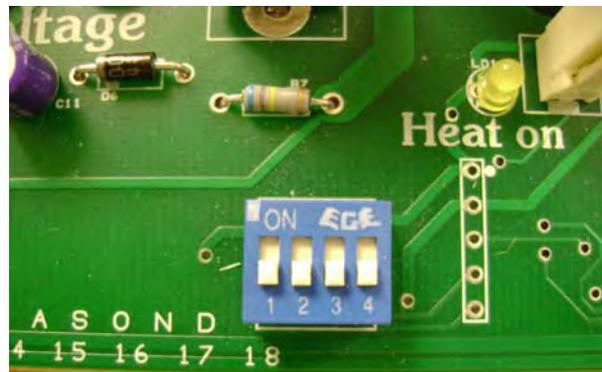
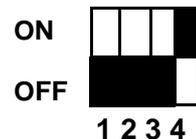


fig. 8. Bitswitch position

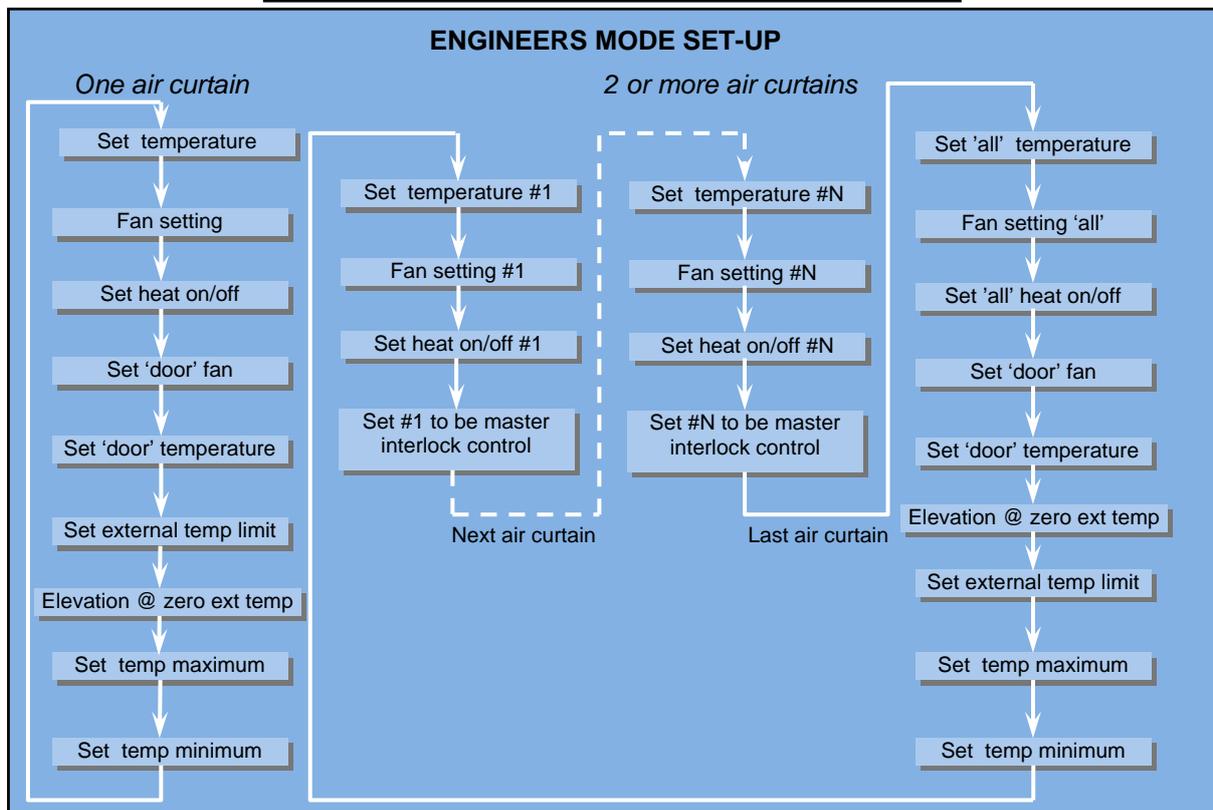
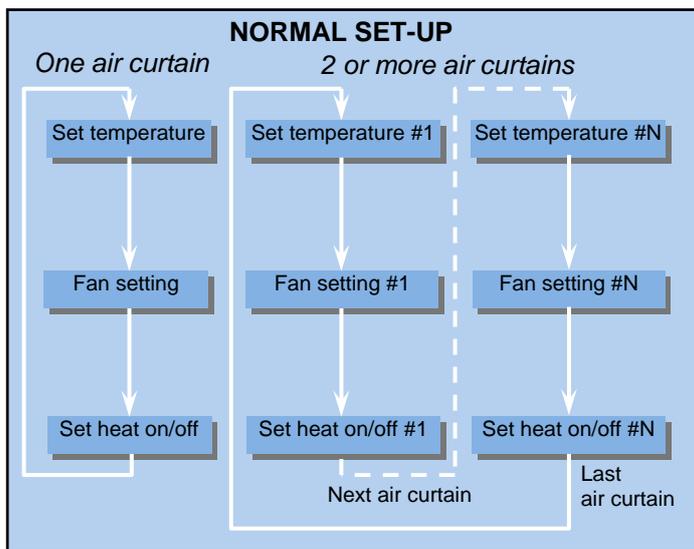
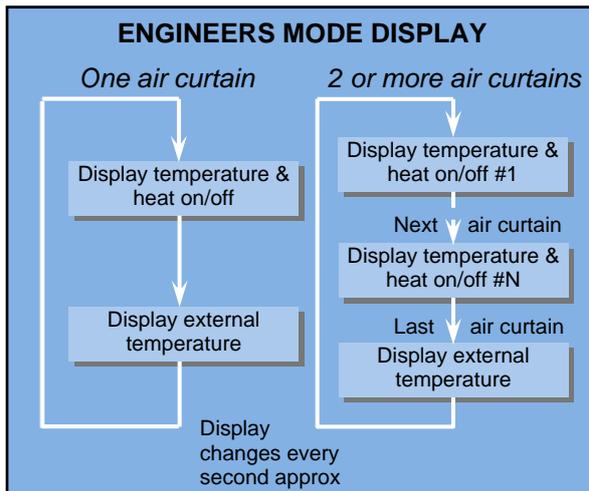
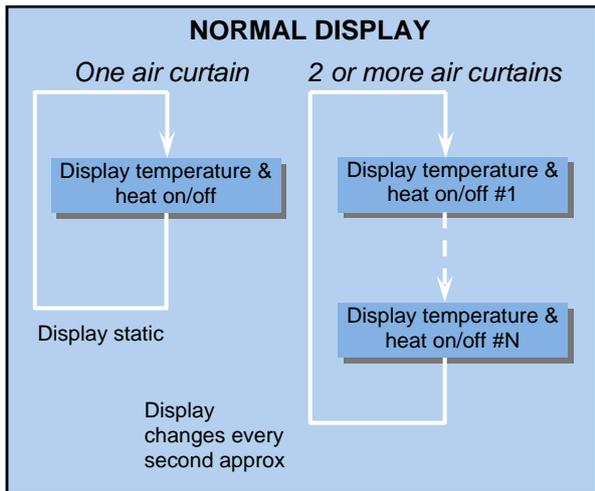


The black shaded areas represent the switch position.

The example shows the **ON** air curtain set to No.8.



6.9 Keypad sequences



6.10 MODBUS Protocol

The modbus hardware is configured as follows:

- RS485 serial half-duplex interface
- 9600 baud
- 8 bits
- even parity / no parity (see below)
- 1 start bit
- 1 stop bit
- RTU mode

This means the same software will run in a standard panel driven display and also in modbus mode, but in a modbus installation only 8 maximum controllers may be supported.

Modbus address – the unit will respond to its own coded address as set by the bitswitches as follows: It will also respond to 'broadcast' mode 0.

Even parity settings (biswitch 3 OFF)		No-parity settings (biswitch 3 ON)	
Modbus Address	Switch Setting	Modbus Address	Switch Setting
16	0	24	8
17	1	25	9
18	2	26	A
19	3	27	B
20	4	28	C
21	5	29	D
22	6	30	E
23	7	31	F

Modbus function codes supported:

Codes	Descriptions	Range of Arguments
01, 02	Read coils, read discrete inputs (equivalent)	Coils 24 to 56
03, 04	Read Holding registers, input registers (equivalent)	Registers 0, 122 to 126
05	Write single coil	Coils 24, 42 to 56
06	Write single register	Registers 125, 126

All other MODBUS function codes will generate exception code 01, function not recognised.

Function arguments — Registers

0	Controller type	Read only	(undefined)
122	Air outlet (control) temperature	Read only	
123	Outside air temperature	Read only	
124	Power ratio	Read only	
125	Set point temperature	Read/write	
126	Set point temperature on door down	Read/write	(always to nearest 5°C)

Function arguments - Coils

Arguments which are outside the ranges for registers and coils in the lists below will cause exception code 02 error address out of range

24	-	write	system reset (*)
25	mode	Read only	(undefined)
26	fan1	Read only	set if fan 1 actually running
27	fan2	Read only	set if fan 2 actually running
28	fan3	Read only	set if fan 3 actually running
29	heat on	Read only	set if heating elements A are on
30	heat2	Read only	set if heating elements A & B are on
31	status_temp	Read only	set if air outlet temp measurement fail
32	status_fail	Read only	set if fail status activated
33	door_link	Read only	set if door link opencircuit
34	timer_link	Read only	set if timer link opencircuit
35	(not used)	Read only	

36	(not used)	Read only	
37	blocked_filter	Read only	set if blocked filter detected
38	(not used)	Read only	
39	status_ext	Read only	set if external temperature measurement fail
40	ext_exists	Read only	set if external thermistor not fitted
41	(not used)	Read only	
42	set_fan1	Read/write	switch fan 1
43	set_fan2	Read/write	switch fan 2
44	set_fan3	Read/write	switch fan 3
45	heat	Read/write	switch heat demand on/off A
46	heat2	Read/write	switch heat demand on/off A and B
47	(not used)	Read/write	set to force door link open circuit operation
48	(not used)	Read/write	set to force timer link open circuit operation
49	door_link_mask	Read/write	
50	timer_link_mask	Read/write	
51	(not used)	Read/write	
52	(not used)	Read/write	
53	blocked_filter_mask	Read/write	set to force blocked filter link open circuit op
54	set_doorfan1	Read write	switch fan 1 when door link open circuit
55	set_doorfan2	Read write	switch fan 2 when door link open circuit
56	set_doorfan3	Read write	switch fan 3 when door link open circuit

(*) A read or write to this coil causes the addressed controller to execute a restart as if being powered up.

There is no response and the unit will not respond to further commands until approximately 1 second has elapsed.

7. Fault Indicators.

The SmartElec3 control raises an alarm if any of its inputs are outside their normal working scope. Alarms are displayed on the program panel as a code with a prefix "E" . The first number represents the air curtain address. See chart over.

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

Apart from the communication failure alarm  which could be due to a broken connection of the data link and air curtain not found alarm,  which could be due to incorrect addressing, all other alarms will cause the base unit to switch off the heater output.

The SmartElec3 base unit is protected from any short circuit on the air sensor  or heat sink sensor  as the error will cause the temperature to rise and trigger over temperature alarm. 

There are five 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 6.8

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.

If a panel has never before been run, it automatically starts in engineer's mode when first powered-up. To exit this mode, press and hold the  button.

Alternatively, the engineer's mode automatically self-clears after approximately 10 minutes of non-activity on the switches.

The system can be reset by powering-up the panel whilst holding down the  and  buttons.

The display shows the 'start' pattern but then goes blank.

Release the buttons where upon the display resumes and the system addressing commences, finding only those air curtains which are actually connected and working.

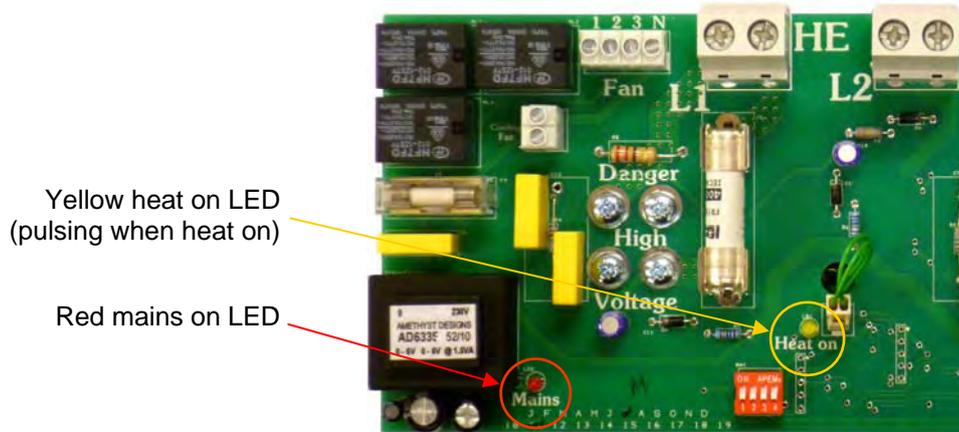
*NOTE: '#' denotes the controller number.

7.1 SmartElec3 fault codes

Code	Description	Symptom	Possible cause	Remedy
#* _ _	COMMUNICATION FAILURE.	No control on faulty unit	Bad data cable connection	Check data cable(s) and plugs
			Damaged cable	Repair/replace damaged cable
# E1	AIR SENSOR TEMPERATURE TOO HIGH or AIR SENSOR FAILURE.	Fan operating, no heat	High ambient air temperature	Check ventilation
			Impeller turning in wrong direction	Check rotation of impeller
		Fan operating, no heat	Motor failure	Check motor & replace if necessary
			Air sensor cable disconnected	Check cable
# E3	HEATSINK TOO HOT	Fan operating, no heat	Air sensor broken	Replace air sensor
			High ambient air/faulty base unit	Replace SmartElec3 base unit
# E4	HEATSINK SENSOR FAILURE	Fan operating, no heat	Heatsink sensor wiring disconnected/faulty	Check wiring
			Heatsink sensor faulty	Replace SmartElec3 base unit
# 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
# E6	OVERHEAT THERMOSTAT OPEN CIRCUIT	Fan operating, no heat	Overheat thermostat open circuit	Reset/replace overheat thermostat

7. Fault Indicators cont.

SmartElec3 base unit LED indicator location/function:



8. Servicing.

The air curtain should be serviced annually. Airbloc offer a service facility, call 01384 489250.

Servicing should only be undertaken by a competent person.

Any repair or alteration carried out to this product without the prior authority from Nortek Global HVAC Limited will invalidate warranty.

Refer to air curtain Installation and operating instruction manual for details.

Ensure electrical power is isolated from the product before commencing any service work.

9. Spares & Accessories.

! Due to the nature of their construction, it is not advisable to attempt to repair damaged electronic components on either the SmartElec3 base unit or program panel.

Description		All models	Description		All models
	Program Panel	108221-RJ45		Control fuse	900473
	Panel P.C.B	AC-ACRRP45		Outdoor sensor	SC-OS
	Base Unit	SELEC3BU45		Data cable c/w plugs	2M RJ45-CABLE-2 10M RJ45-CABLE-10 20M RJ45-CABLE-20 30M RJ45-CABLE-30 50M RJ45-CABLE-50 100M RJ45-CABLE-100
	Heat Sensor	SELEC2HS			
	Fuse	900471			

Notes:



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