

# SMARTCOM<sup>3</sup> CONTROL PANEL & NOR-RAY-VAC RADIANT SYSTEM.



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### Warnings

All external wiring **MUST** comply with the current IEE wiring regulations. These instruction **MUST** be used in conjunction with the SmartCom<sup>3</sup> user manual and the appropriate heater manual.



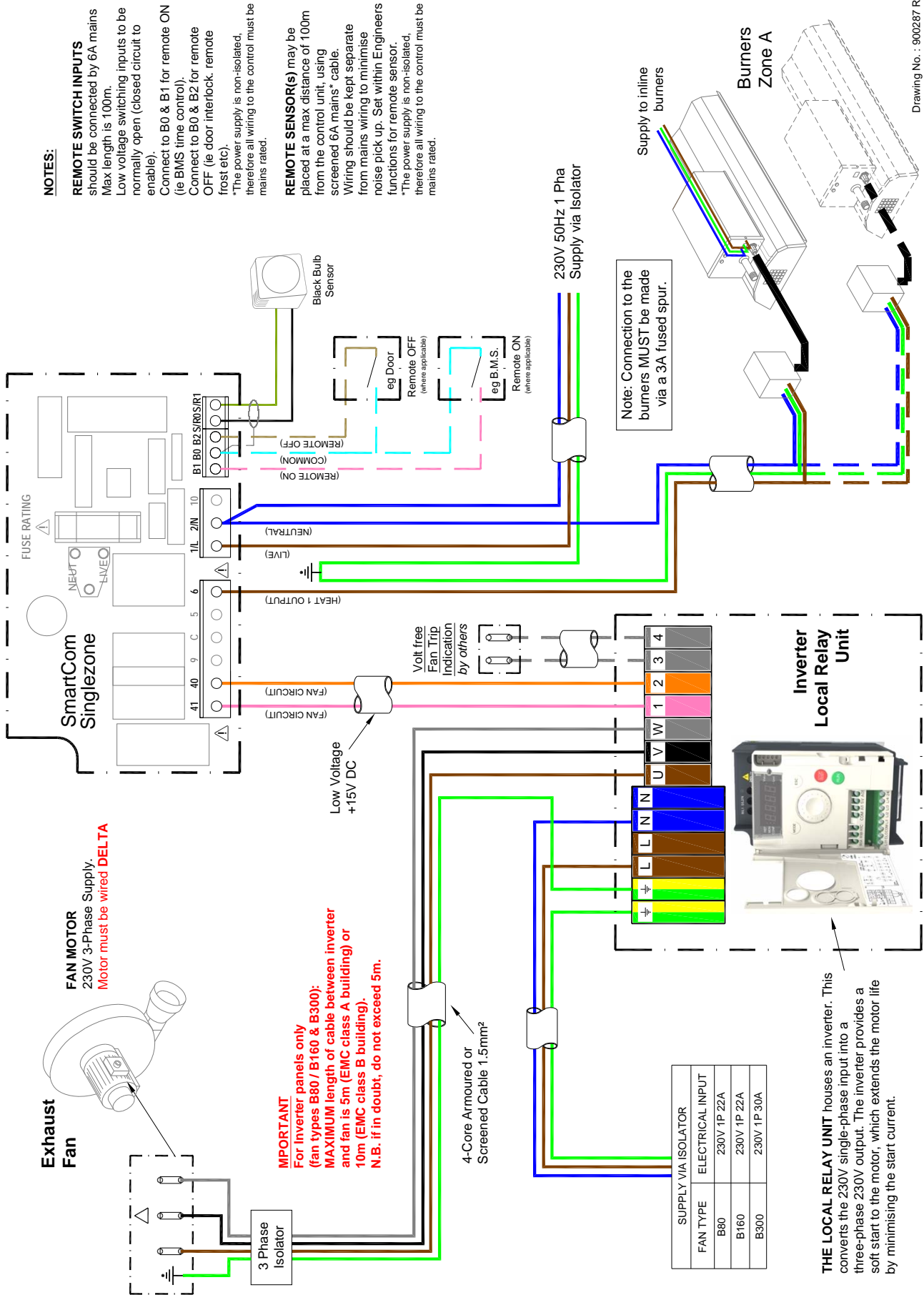
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# 1 Single Zone B80, B160, B300 Fan Systems.

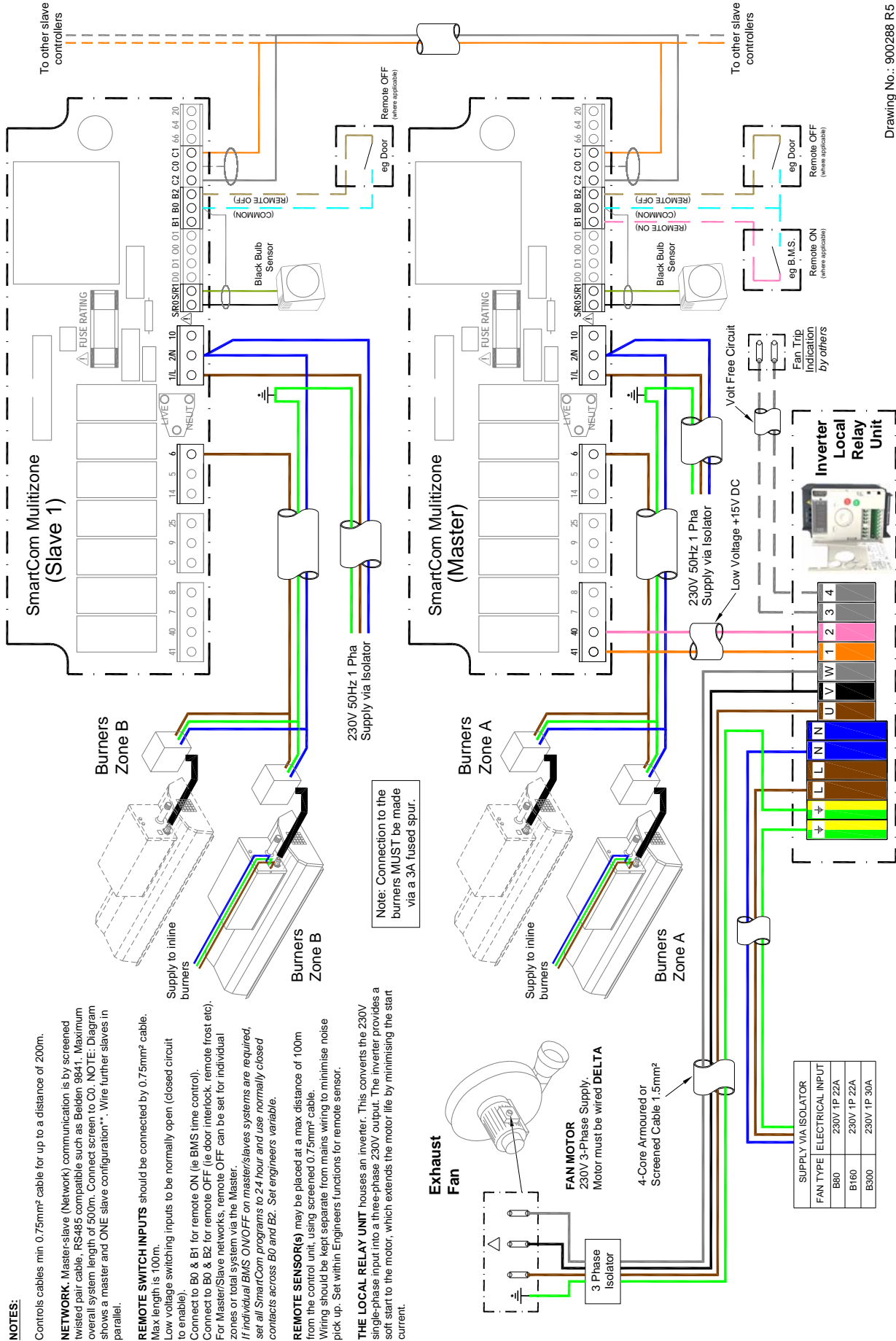
**NOTES:**

**REMOTE SWITCH INPUTS** should be connected by 6A mains. Max length is 100m. Low voltage switching inputs to be normally open (closed circuit to enable). Connect to B0 & B1 for remote ON (ie BMS time control). Connect to B0 & B2 for remote OFF (ie door interlock, remote frost etc). \*The power supply is non-isolated, therefore all wiring to the control must be mains rated.

**REMOTE SENSOR(s)** may be placed at a max distance of 100m from the control unit, using screened 6A mains\* cable. Wiring should be kept separate from mains wiring to minimise noise pick up. Set within Engineers functions for remote sensor. \*The power supply is non-isolated, therefore all wiring to the control must be mains rated.



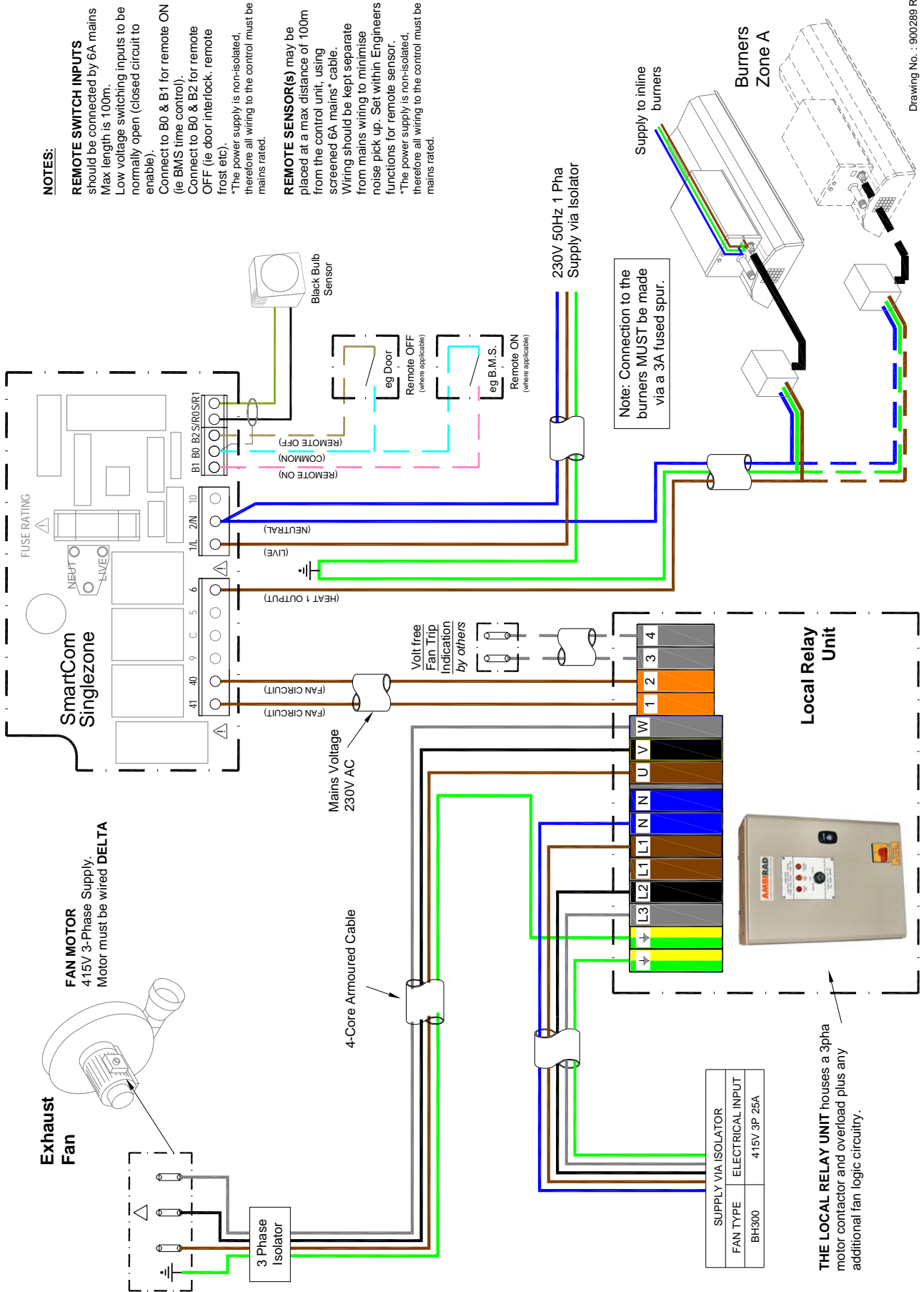
# 2 Split-zone B80, B160, B300 Fan System.



# 3 Single Zone BH300 Fan System.

**NOTES:**

- REMOTE SWITCH INPUTS** should be connected by 6A mains Max length is 100m. Low voltage switching inputs to be normally open (closed circuit to enable). Connect to B0 & B1 for remote ON (ie BMS time control). Connect to B0 & B2 for remote OFF (ie door interlock, remote frost etc).
  - \*The power supply is non-isolated, therefore all wiring to the control must be mains rated.
- REMOTE SENSOR(s)** may be placed at a max distance of 100m from the control unit, using screened 6A mains\* cable. Wiring should be kept separate from mains wiring to minimise noise pick up. Set within Engineers functions for remote sensor.
  - \*The power supply is non-isolated, therefore all wiring to the control must be mains rated.



**FAN MOTOR**  
415V 3-Phase Supply.  
Motor must be wired DELTA

**Exhaust Fan**

3 Phase Isolator

4-Core Armoured Cable

Mains Voltage 230V AC

Volt free Fan Trip Indication by others

230V 50Hz 1 Pha Supply via Isolator

Note: Connection to the burners MUST be made via a 3A fused spur.

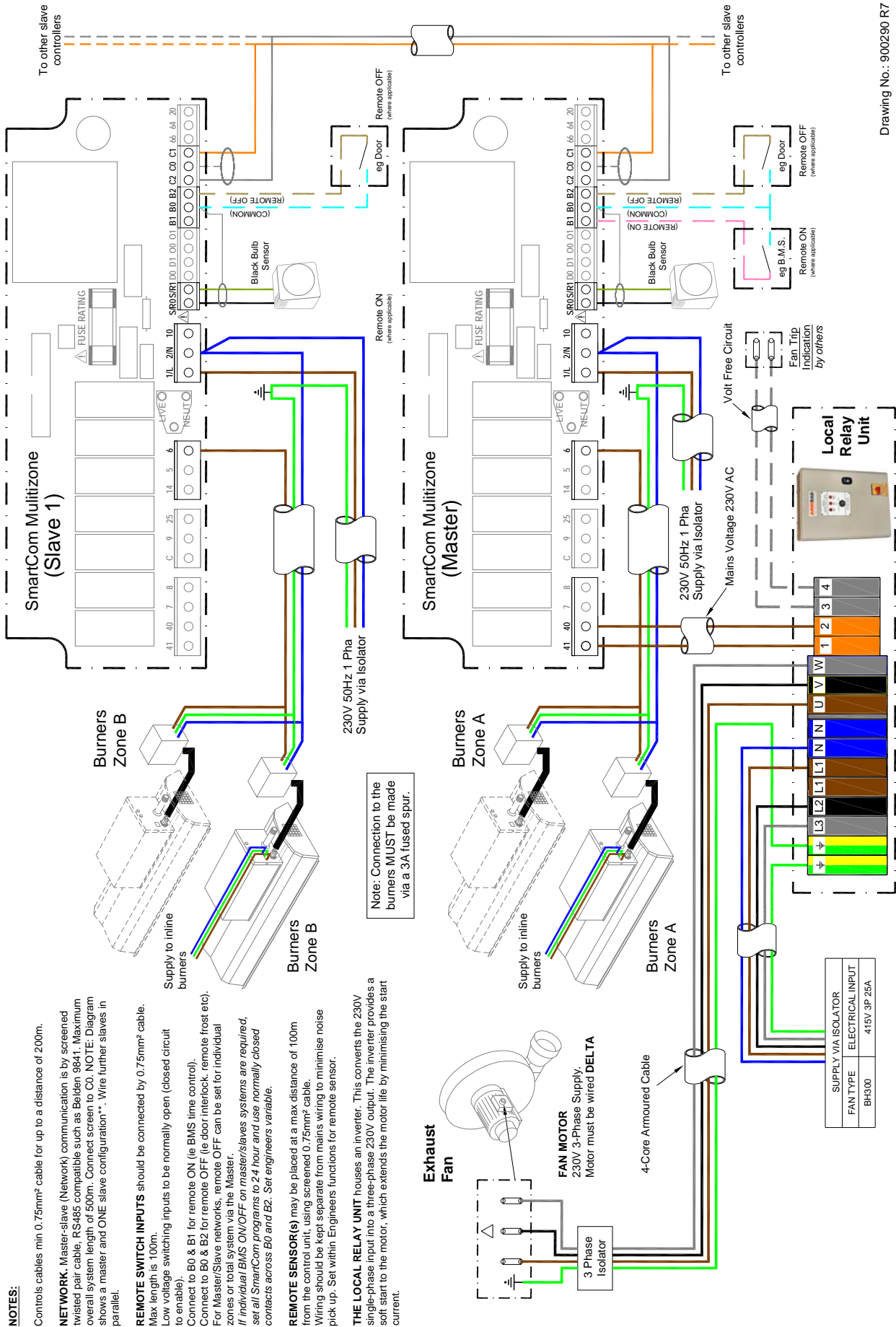
SUPPLY VIA ISOLATOR	
FAN TYPE	BH300
ELECTRICAL INPUT	415V 3P 25A

Local Relay Unit

THE LOCAL RELAY UNIT houses a 3pha motor contactor and overload plus any additional fan logic circuitry.

Burners Zone A

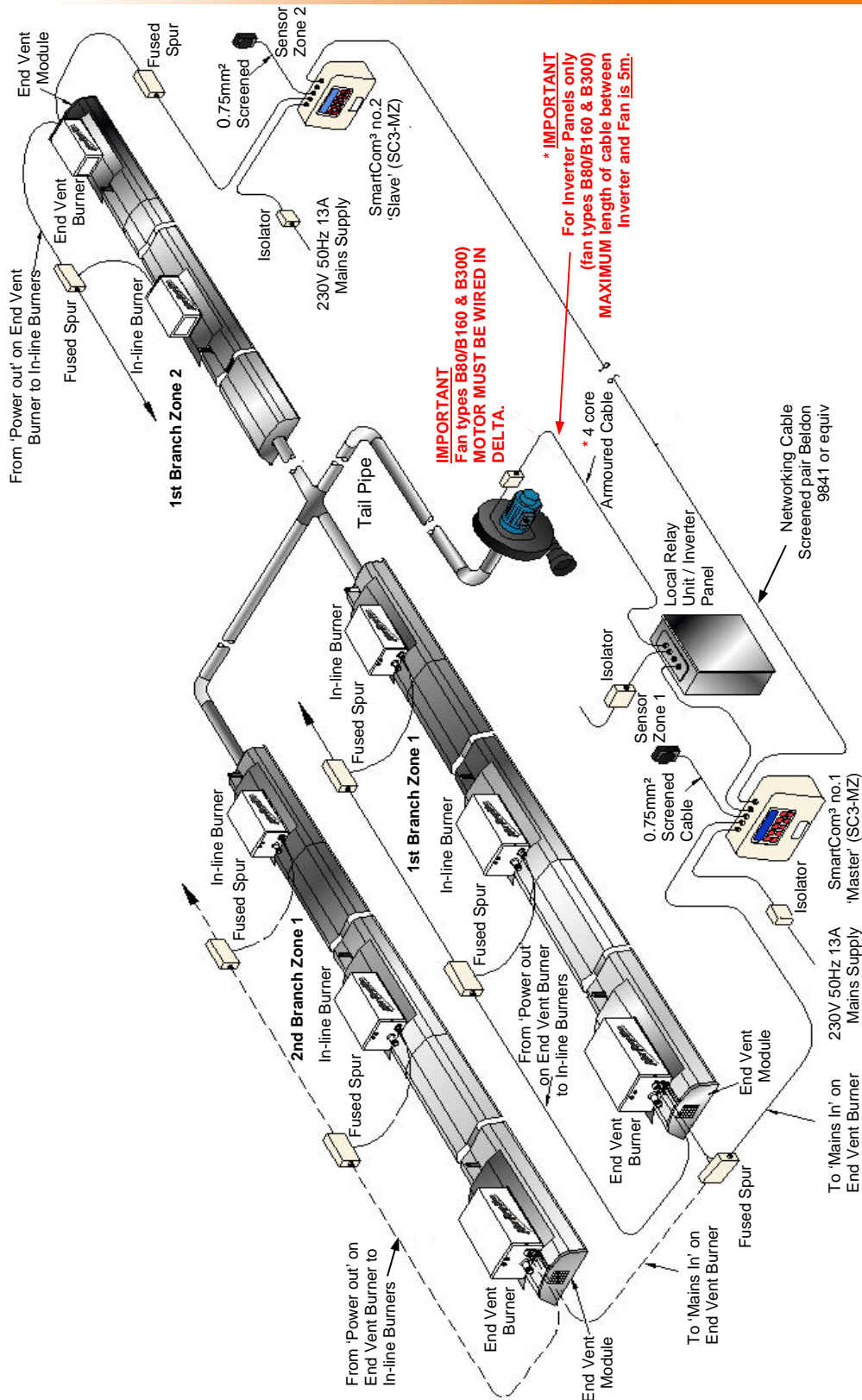
# 4 Split-zone BH300 Fan System.



**NOTES:**

- Controls cables min 0.75mm<sup>2</sup> cable for up to a distance of 200m.
- NETWORK.** Master-slave (Network) communication is by screened twisted pair cable, RS485 compatible such as Belden 9841. Maximum overall system length of 500m. Connect screen to CO. NOTE: Diagram shows a master and ONE slave configuration\*. Wire further slaves in parallel.
- REMOTE SWITCH INPUTS** should be connected by 0.75mm<sup>2</sup> cable. Max length is 100m. Low voltage switching inputs to be normally open (closed circuit to enable). Connect to B0 & B1 for remote ON (ie BMS time control). Connect to B0 & B2 for remote OFF (ie door interlock, remote frost etc). For Master/Slave networks, remote OFF can be set for individual zones or total system via the Master. *If individual BMS ON/OFF on master/slaves systems are required, set all SmartCom programs to 24 hour and use normally closed contacts across B0 and B2. Set engineers variable.*
- REMOTE SENSOR(s)** may be placed at a max distance of 100m from the control unit, using screened 0.75mm<sup>2</sup> cable. Wiring should be kept separate from mains wiring to minimise noise pick up. Set within Engineers functions for remote sensor.
- THE LOCAL RELAY UNIT** houses an inverter. This converts the 230V single-phase input into a three-phase 230V output. The inverter provides a soft start to the motor, which extends the motor life by minimising the start current.

## 5 Schematic Nor-Ray-Vac Multizone System.



## 6 SmartCom<sup>3</sup> Commissioning.

For ease and swiftness of initial start-up, the SmartCom<sup>3</sup> range of electronic controllers is supplied factory pre-set to operate a standard **warm air unit** heater. To operate with a Nor-Ray-Vac system however, the parameters will have to be changed via the engineers

settings.

Follow the step by step instructions overleaf for the correct settings. For more detailed instructions and other engineer settings, refer to the SmartCom<sup>3</sup> user manual GB/SCOM/120/0309.



### 1. BMS controlling time only.

Ensure all the programmed ON times in the SmartCom<sup>2</sup> are turned off (i.e. They read “- :- -”).

### 2. BMS controlling time and temperature.

Ensure all the programmed ON times in the SmartCom<sup>2</sup> are turned off (i.e. They read “- :- -”). Set all the required day temperatures to 30°C.

**B. Remote door interlock.** SmartCom<sup>3</sup> controllers can be connected to a door interlock, remote frost stat or permanent off switch via terminals B2 and B0. When a volt free connection is provided (ie closed circuit to enable) at these terminals, the controller reverts to FROST ONLY mode. Refer to the individual wiring diagrams for wiring configurations and type.

## 7 End Vent Suction Setting Procedure.

The use of an inverter on the B80, B160, B300 fan system allows the end vent suction to be adjusted by varying the fan speed.

The description for adjusting the fan speed is given in the following section. Apart from this change the commissioning section in the manual should be followed.

### End vent suction (B80, B160, B300 )

For these systems the end vent suction is adjusted by altering the low speed setting of the inverter within the local relay unit.

1. Check that the fan damper is fully open and secure.
2. Ensure the SmartCom<sup>3</sup> is in a programmed ON time.
3. Set the required room temperature above the actual room temperature.
4. After a 30s delay the fan should run.
5. The fan should now be running and the inverter should be showing the motor frequency in the display.
6. Check for correct rotation of fan.
7. Press the mode button 3 times until ‘CO<sup>N</sup>F’ appears on the display.
8. Press the jog dial to enter. Rotate jog dial

until ‘LSP’ is displayed. Press jog dial to enter. Rotate jog dial to adjust frequency. Press jog dial to enter new value, causing the inverter to change its speed. Adjust the frequency until the appropriate end vent suction is achieved, this is given in the table below.

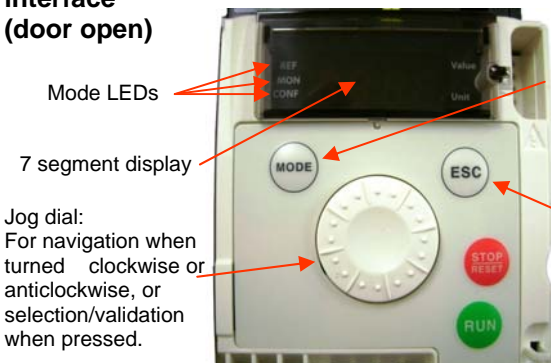
9. Pressing the ESC button twice will return the inverter to the ‘rdY’ display. The setting procedure is now complete.

System	End vent pressure mbar
Standard systems	6.25
Single 32LR End vent only	7.5
Single 38LR End vent only	8.25
Single 46LR End vent only	9.25
Three 46LR in a single branch	5.6

### End vent suction (BH300 ONLY)

This unit does not feature an inverter, the end vent suction adjustment is made using the fan damper, details of this are given in the Nor-Ray-Vac manual.

### The inverter interface (door open)



Mode button:  
Switches between control/programming modes.  
(Only accessible with door open).

Escape button:  
Exits a menu or parameter.

### The local relay unit



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# AMBIRAD

HEATING AND VENTILATION SOLUTIONS

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