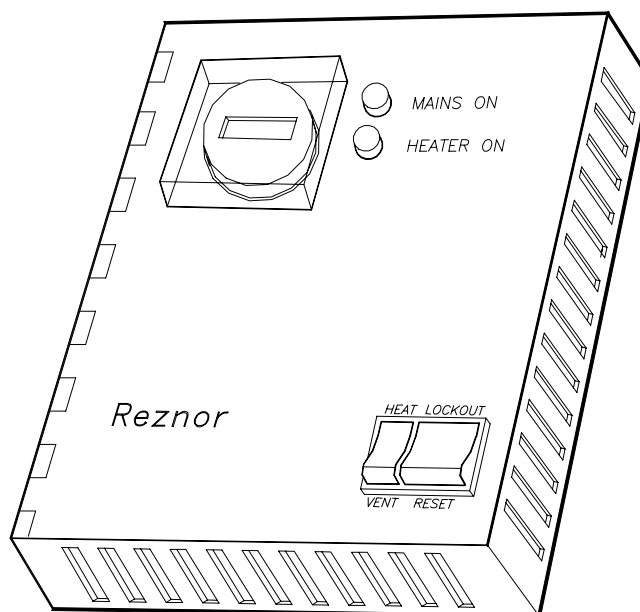


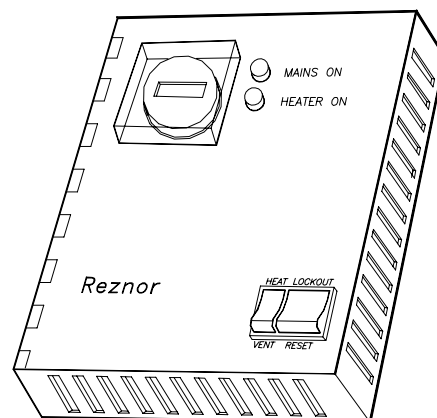
AS1



Warm Air Heater Control Panel

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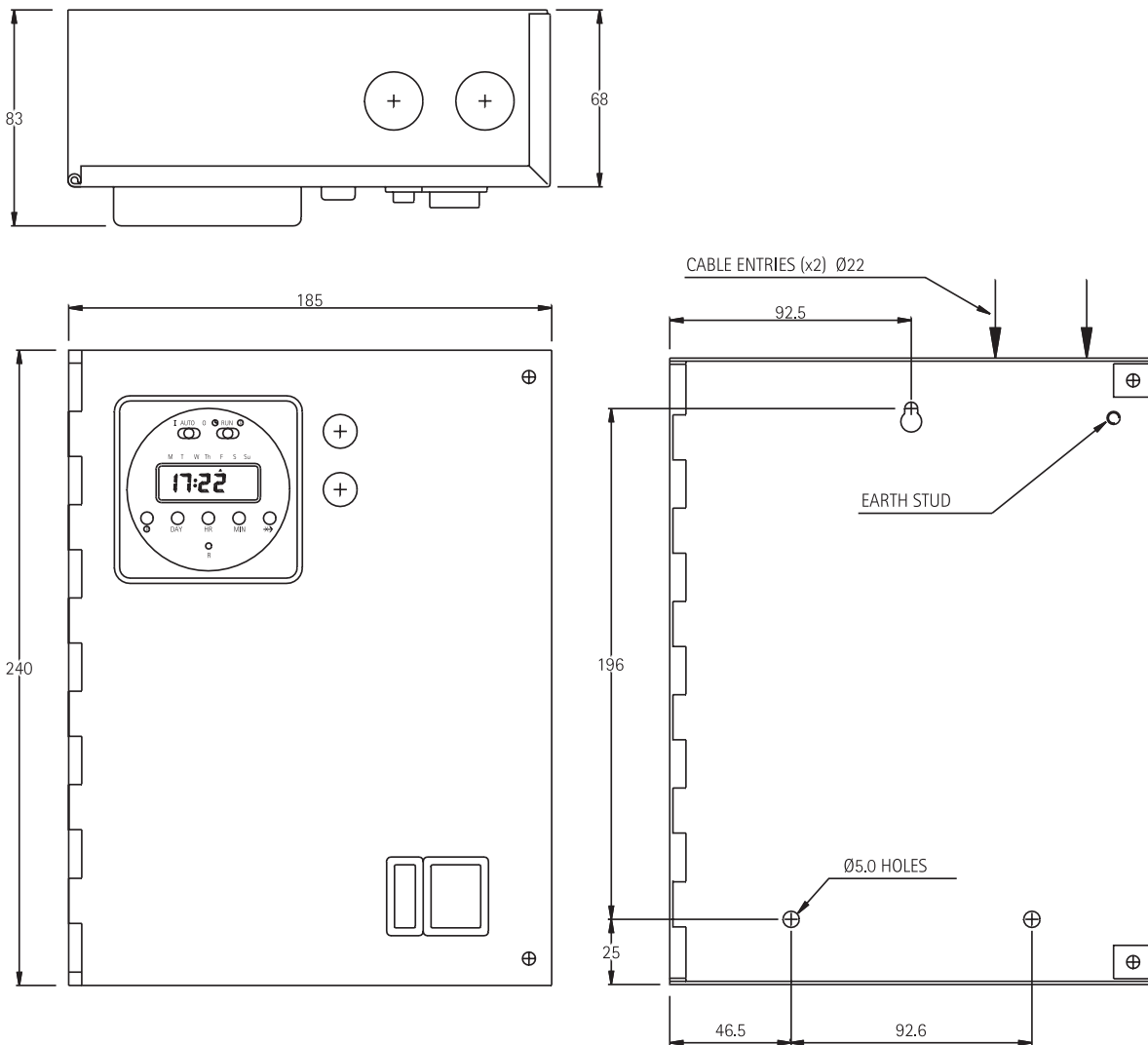


1. INTRODUCTION

The control panel is designed for use with a single Reznor warm air unit heater. The controller comprises of an electronic time clock, air sensing thermostat and frost protection thermostat, a Heat/Vent/Off switch – giving 'fan only' operation on air heaters and 'heating off' facilities (except for frost protection for use during holidays etc.), Lockout Indication/Reset switch and a Clock override function.

Note : Lockout Indication/Reset optional connection for use with automatic ignition units only.

2. TECHNICAL DATA (Dimensions)



3. SPECIFICATIONS

3.1 General

Electrical Supply Requirement	240V 50Hz, Fuse 3A
Heat/Vent Switch Loading	240V ac 10A (resistive) 3A (inductive)
Ambient Temperature Range	-5 to 55°C
Operating Temperature Range	0-30°C
Thermostat Loading	240V ac 10A(resistive) 2.5A (inductive)
Power Indicator	Red LED
Run Indicator	Amber LED

3.2 Time Switch

Display	7mm LCD
Program Instructions	16 (8 on / 8 off)
Shortest Switching Time	1 Minute
Battery Back Up	Battery Life Up to Five Years
Override	Constant on, Constant off, soft Override

4. SITING

4.1 Temperature Sensing

The selection of the correct position for the control panel is particularly important. The unit must be fitted at a point, which will be generally representative of the heated area. Draughty areas, or areas subjected to direct heat (e.g from the sun, radiators, heater outlets etc.) or areas where the air movement is relatively stagnant (e.g recesses) are all positions to be avoided when siting the unit. Ideally, units should be mounted 1.5m from the floor.

5. INSTALLATION

IMPORTANT

The structure onto which the controller is mounted must be stable and vibration free.

5.1 Mounting

- a) Remove the two cover securing screws on the front of the unit and swing open the door away from the base.
- b) Offer the unit up to the intended mounting position and mark the location of the top keyhole slots.
- c) For fixing into wood, drill pilot hole to suit No. 8 screws. On masonry, drill hole (No.10) to accept the wall plugs. If the unit is to be fitted to metalwork, use a 5.5mm drill.
- d) Mount the base panel using No. 8 x 1¼" round-headed screws. On metalwork, use M5 machine nuts and bolts or similar.
- e) Re-position unit and repeat for remaining two holes.

5.2 Electrical Connections

IMPORTANT

Wiring external to the unit must be installed in accordance with current I.E.E. Regulations and any local regulations that apply. Wiring should be contained in conduit, entry for which is provided on the top right of the enclosure.

Heat/Vent circuits are volt free. The use of the Summer Vent operation is optional and requires a single wire from terminal 3 in the controller to the heater.

The use of the remote lockout reset (where applicable) is optional and requires a wire from terminal 4 to the heater. This is a return neutral.

It is important to note that it is not acceptable to provide the main supply to the heater via the controller. Complete the external wiring in not less than 1.5mm² cable.

NOTE: The mains supply to the controller should be taken from the heater.

CAUTION

- a) Insulation test of site wiring must be carried out prior to making connections to a unit. Do not use a Megger once a unit is connected.
- b) For continuity test, use only a low voltage instrument e.g Avonmeter set to OHMS range.

6. DESCRIPTION AND METHOD OF OPERATION

6.1 Heat/Off/Vent

- a) In HEAT position, the air heater(s) will operate under control of the time clock and thermostat.
- b) In VENT position, the main fan of the heater will run continuously; the temperature sensing control circuit being immobilised.
- c) With the switch in the centre position the heating would be OFF except for frost protection (for use during holidays etc).

6.2 Thermostats

a) Frost (night set-back) Thermostat

The frost (night set-back) thermostat should be set low (0°C - 5°C) and operates outside clock settings.

b) Day Thermostat

The day thermostat is set to the desired occupancy temperature and operates during clock settings.

7. SETTING OF DIGITAL TIME SWITCH

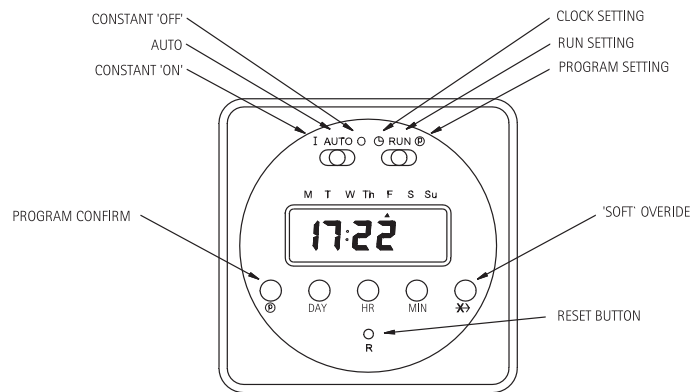


Fig. 2 Time Switch

7.1 General

The timer enables 8 ON and 8 OFF switch selections to be made automatically by setting the day, time of day and selecting the ON and OFF periods required. Features include a soft override function and a permanent ON override or permanent OFF override functions.

7.2 Access to the Program Dial for Time Setting

To gain access to the program dial for time setting, remove the clear plastic cover by lifting off.

7.3 Setting Day of Week and Time of Day (refer to Fig 2).

To prepare the module for programming, clear the memory by pressing the button marked 'R'. Slide the 'RUN' button to the left marked 'O'. Press the 'Day' button until the black triangle indicates the current day of the week. Use the 'HR' and 'MIN' buttons to set the hours and minutes to the actual time.

Rapid selection can be achieved by continuously holding down the HR or MIN buttons. Slide the 'RUN' button back to the centre position.

7.4 Planning a Program

A program is a pair of ON/OFF settings, which will dictate when the heater will switch ON or OFF. Up to 8 ON/OFF settings may be programmed. Odd numbers are program 'ON' and indicated by a 'O', even numbers are program 'OFF'.

Multiple days can be programmed by continuous depressing of the 'DAY' button. These settings can be individual days, Monday to Friday, Monday to Saturday, Monday to Sunday or Saturday and Sunday only.

To program slide the 'RUN' button to the right marked 'P'. Using the 'DAY' 'HR' and 'MIN' buttons, set the first ON program. Depress the button 'P' (situated to the left of the day button) to confirm the setting and program 2 will appear. Set the OFF program time and day(s).

Continue until programs are complete. Slide the 'RUN' button back to the centre position (there is no need to go through all non-used programs). The clock settings and program settings are not complete.

7.5 Manual Override

Under normal circumstances the 'AUTO' button will be the centre position. There are three facilities for override.

1. **CONSTANT ON** Slide the auto button to the left indicated 'I'. The air heater(s) will operate in a constant on state but dependent on stat temperature.
2. **CONSTANT OFF** Slide the Auto button to the right indicated 'O'. The air heaters will not operate unless in a frost condition.
3. **SOFT OVERRIDE** Depress button '☞' at any time during a cycle. This will change the current status to it's opposite i.e. On to Off.

8. COMMISSIONING AND TESTING

NOTE

Ensure that all external electrical connections have been made and that a mains electrical supply is provided to the unit.

8.1 Functional Tests

After setting the clock, carry out the following checks :

- a) Ensure Heat/Vent switch is set to 'HEAT'.
- b) Set clock program constant override to position 'I'.
- c) Turn Day thermostat control clockwise until 'Heater On' indicator lights. This will occur once the thermostat setting exceeds the ambient space temperature.
- d) Slide clock programming constant override to position 'O'. 'Heater ON' indicator extinguishes. Turn 'Frost' thermostat clockwise until 'Heater ON' indicator lights. Turn 'Frost' thermostat anti-clockwise until 'Heater ON' indicator extinguishes.
- e) Slide clock program override to 'AUTO'. Press soft override button marked '☞'. This will be displayed to LED. 'Heater ON' indicator lights. Turn the day thermostat to a low setting. 'Heater ON' indicator extinguishes. Press soft override button - '☞' disappears from LED.
- f) Set 'HEAT/VENT' switch to 'VENT'. Check that the heater fan operates but that the burner is not lit and that 'Heater On' indicator does not illuminate.
- g) Adjust thermostats (and switch settings on clock) to clients' requirements. Ensure that any clock override(s) are re-set to appropriate position to suit program.

9. HANDING OVER TO THE USER

Explain the principles involved in setting up the time switch and demonstrate the operation of the unit.

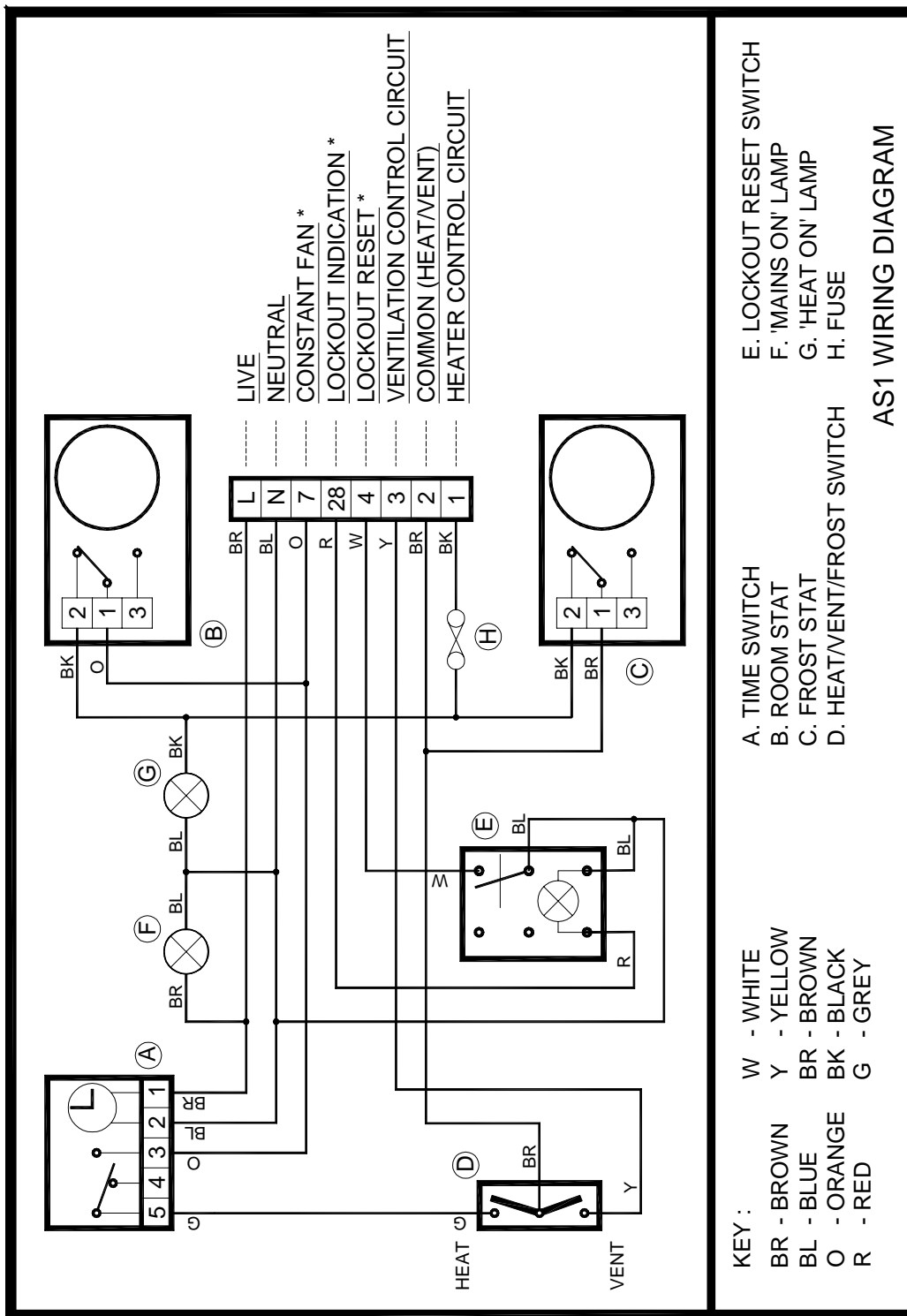
9.1 Normal Automatic Operation

The clock should indicate the correct current time and day of the week. The 'Heating ON' indicator will be illuminated when the thermostat is calling for heat and the clock switching status is 'ON' (or in 'constant ON' or soft override 'ON').

9.2 Frost Protection Operation

During the 'OFF' periods, the heater will operate when the temperature falls below the frost thermostat setting.

10. WIRING DIAGRAM



IMPORTANT WARNING :

WHEN A POWER VENTER FLUE FAN UNIT IS SUPPLIED, DO NOT WIRE AS SHOWN ABOVE BUT USE WIRING CONNECTIONS SHOWN IN INSTRUCTIONS SUPPLIED WITH VENTER.

The following pages are a selection of interconnection wiring details between the heater and the AS1 control panel.

Please refer to the table below to find which interconnection diagram you need to use.

If the wiring diagram number you need is not listed, please consult the Reznor Technical Department.

Please ignore the sections showing 'AS1' or 'Other Controls' wiring.

Heater Model Type	Heater Wiring Diagram Number	Refer to Interconnection Drawing Number
UL and X1000 Series	A16---60A, B or C	Z16X600A
X1000R (Reflex) Series	V16---60A	Z16X600A
UL and X1000 Series	A16---61D or E	Z16X600A
UL and X1000 Series	A16—360A or B	Z16X300A
UL and X1000 Series	A16—361D	Z16X300A
UA, B & C Series	30000E	EMA05-1
XA, B, D & E Series	30001E & 30001E/1	EMA05-1
XA, B, D & E Series	30001EM	EMA05-1
XA, B, D & E Series	30002E, /1 & /2	EMA05-1
XA, B, D & E Series	30005E & /1	EMA05-1
C4000 Series	U16—1A	Z16C300A
UDSA Series (V3)	B16—1B	Z16V300B
T2000 & RPV2000 Series	C16—61A, B or C	Z16T300A
T2000 Series	C16—61A, B or C	Z16T300A
UCA Series	I16—50A	Z16X600A
UPA Series	H16---1A	Z16V300B



Reznor UK

Tel: 01303 259141
 Fax: 01303 850002
 e-mail: sales@reznor.co.uk

Date: 22.10.03

Heater Wiring For: X1000 & UCA Series Permanent Pilot Single Stage

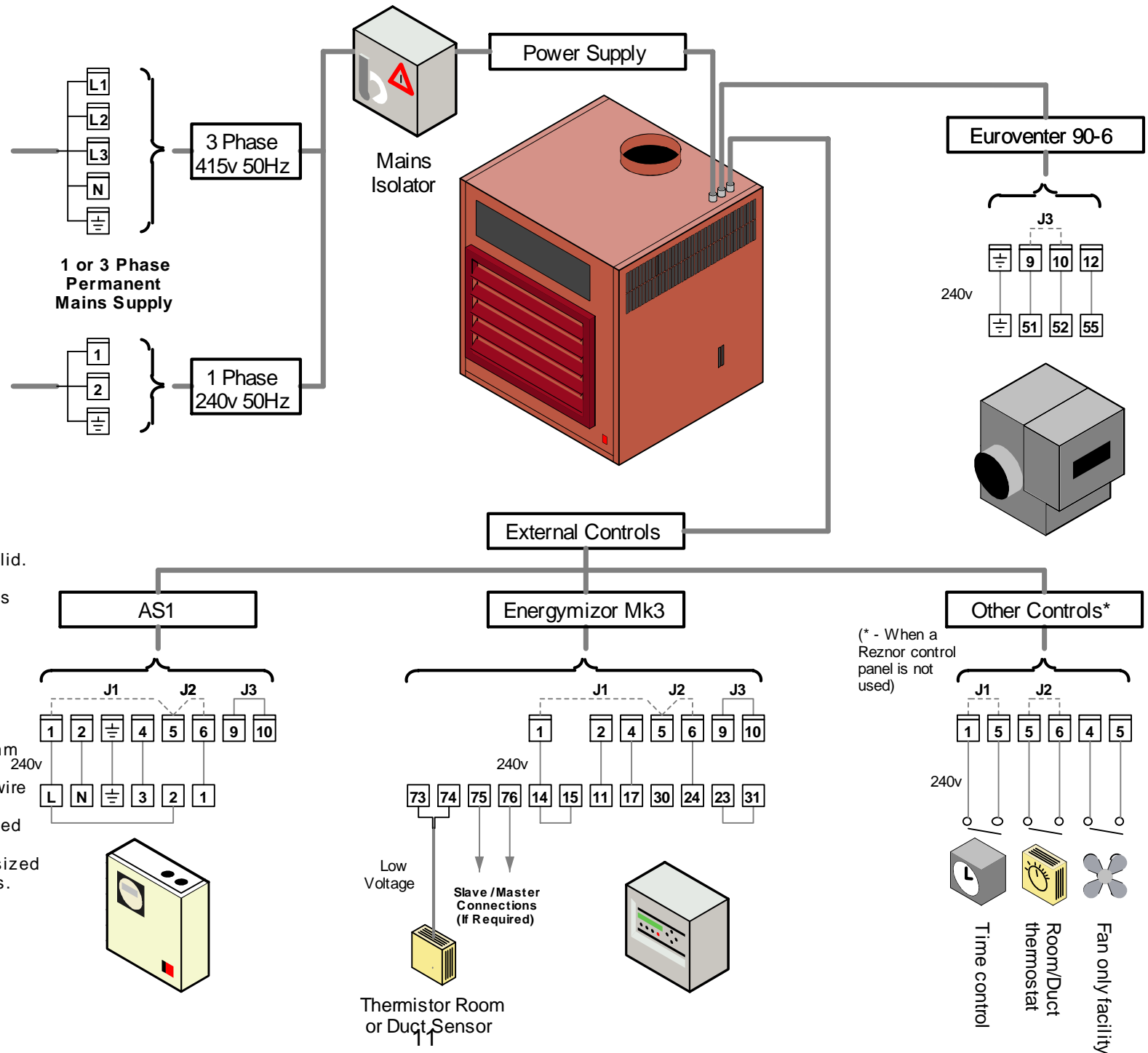
Legend:

-  Heater terminals
-  Controls terminals

Notes:

1. Remove link wires shown dotted.
 2. Retain/insert link wires shown solid.
 3. Terminals shown may not be in numerical order. Unused terminals may not be shown at all.
 4. 1 Phase supply cable 2.5mm minimum.
 5. 3 Phase supply cable dependant upon motor rating.
 6. Controls cables 0.75mm for up to 200 metre run.
 7. Energymizor Sensor cable 0.25mm (screened)
 8. Master/slave cable 0.1mm, bell wire type (no screen necessary)
 9. Electrical isolator must be installed within 1 metre of the appliance
 10. Fuse rating must be sufficiently sized to handle heater & motor loadings.
 11. If in doubt contact the Technical Department on T: 01303 259141
- * Remove only when installing a Euroventer

Drawing No:
Z16X600A-UK



Reznor UK

Tel: 01303 259141

Fax: 01303 850002

e-mail: sales@reznor.co.uk

Date: 22.5.02


Heater Specification:


X1000

HSI

Single Stage

Legend:

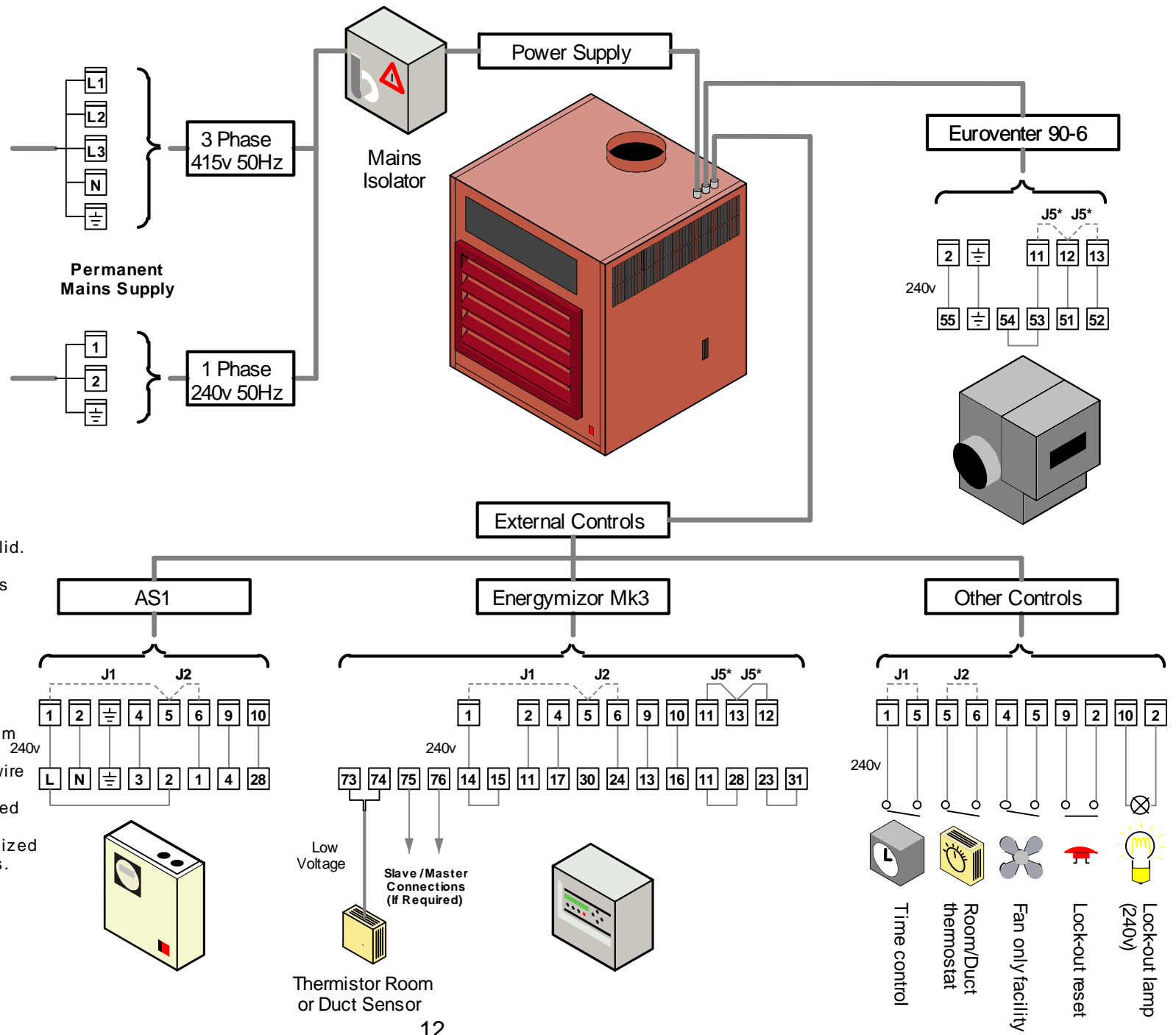
 Heater terminals

 Controls terminals

Notes:

- Remove link wires shown dotted.
- Retain/insert link wires shown solid.
- Terminals shown may not be in numerical order. Unused terminals may not be shown at all.
- 1 Phase supply cable 2.5mm minimum.
- 3 Phase supply cable dependant upon motor rating.
- Controls cables 0.75mm for up to 200 metre run.
- Energymizor Sensor cable 0.25mm (screened)
- Master/slave cable 0.1mm, bell wire type (no screen necessary)
- Electrical isolator must be installed within 1 metre of the appliance
- Fuse rating must be sufficiently sized to handle heater & motor loadings.
- If in doubt contact the Technical Department on T: 01303 259141
- * Remove only when installing a Euroventer

Drawing No:
Z16X300A-UK





Reznor UK

Tel: 01303 259141
 Fax: 01303 850002
 e-mail: sales@reznor.co.uk

Date: 15.10.03

Heater Type:
XA, B, D & E Series
Permanent Pilot
Single Stage

Legend:

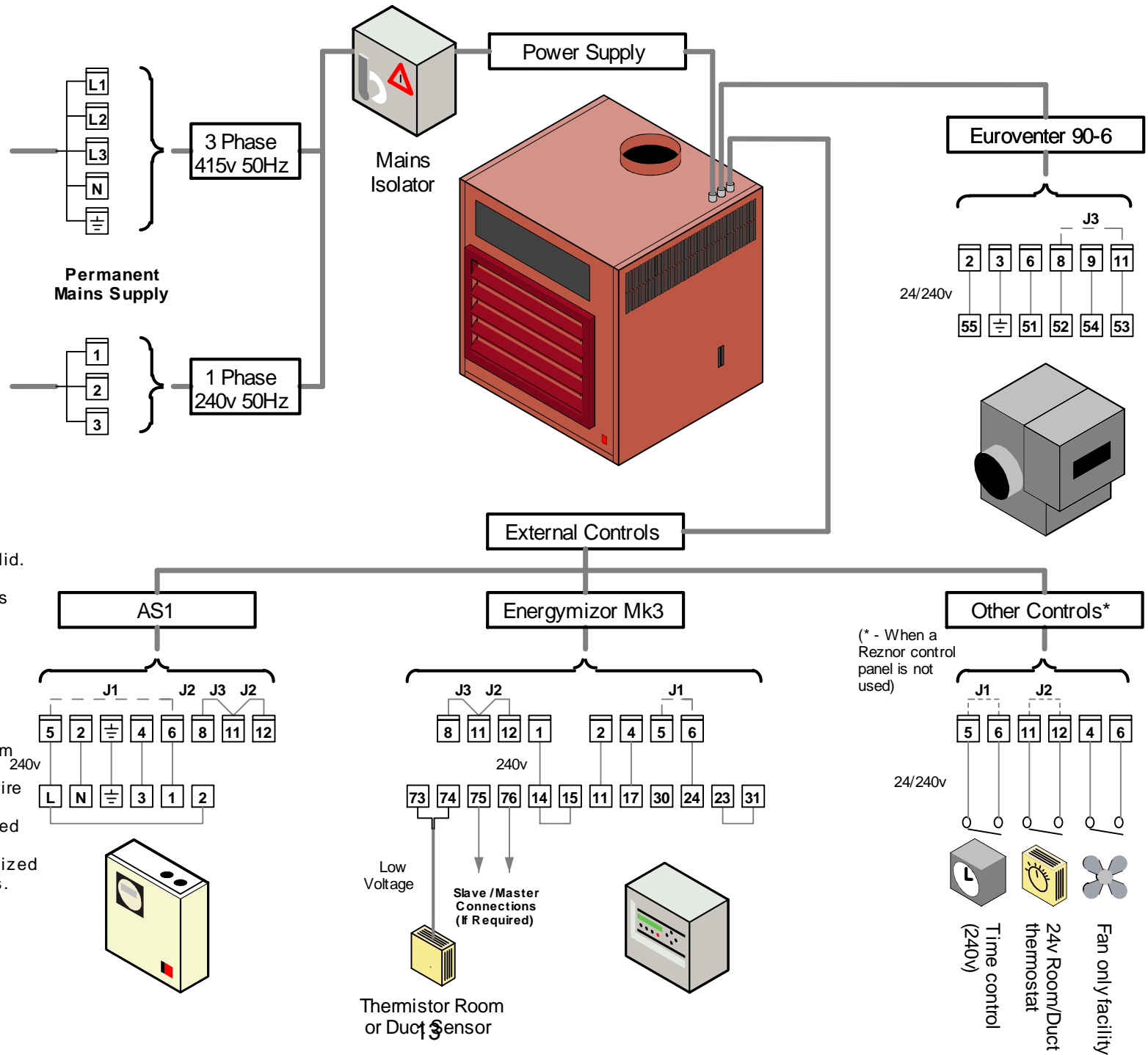
-  Heater terminals
-  Controls terminals

Notes:

1. Remove link wires shown dotted.
2. Retain/insert link wires shown solid.
3. Terminals shown may not be in numerical order. Unused terminals may not be shown at all.
4. 1 Phase supply cable 2.5mm minimum.
5. 3 Phase supply cable dependant upon motor rating.
6. Controls cables 0.75mm for up to 200 metre run.
7. Energymizor Sensor cable 0.25mm (screened)
8. Master/slave cable 0.1mm, bell wire type (no screen necessary)
9. Electrical isolator must be installed within 1 metre of the appliance
10. Fuse rating must be sufficiently sized to handle heater & motor loadings.
11. If in doubt contact the Technical Department on T: 01303 259141

* Remove only when installing a Euroventer

Drawing No:
EMA05-1



Thermistor Room
 or Duct sensor

Slave / Master
 Connections
 (If Required)

(* - When a
 Reznor control
 panel is not
 used)

Reznor UK

Tel: 01303 259141


Fax: 01303 850002


e-mail: sales@reznor.co.uk

Date: 3.7.02

Heater Specification: C4000 & RHC4000/8000 Single Stage

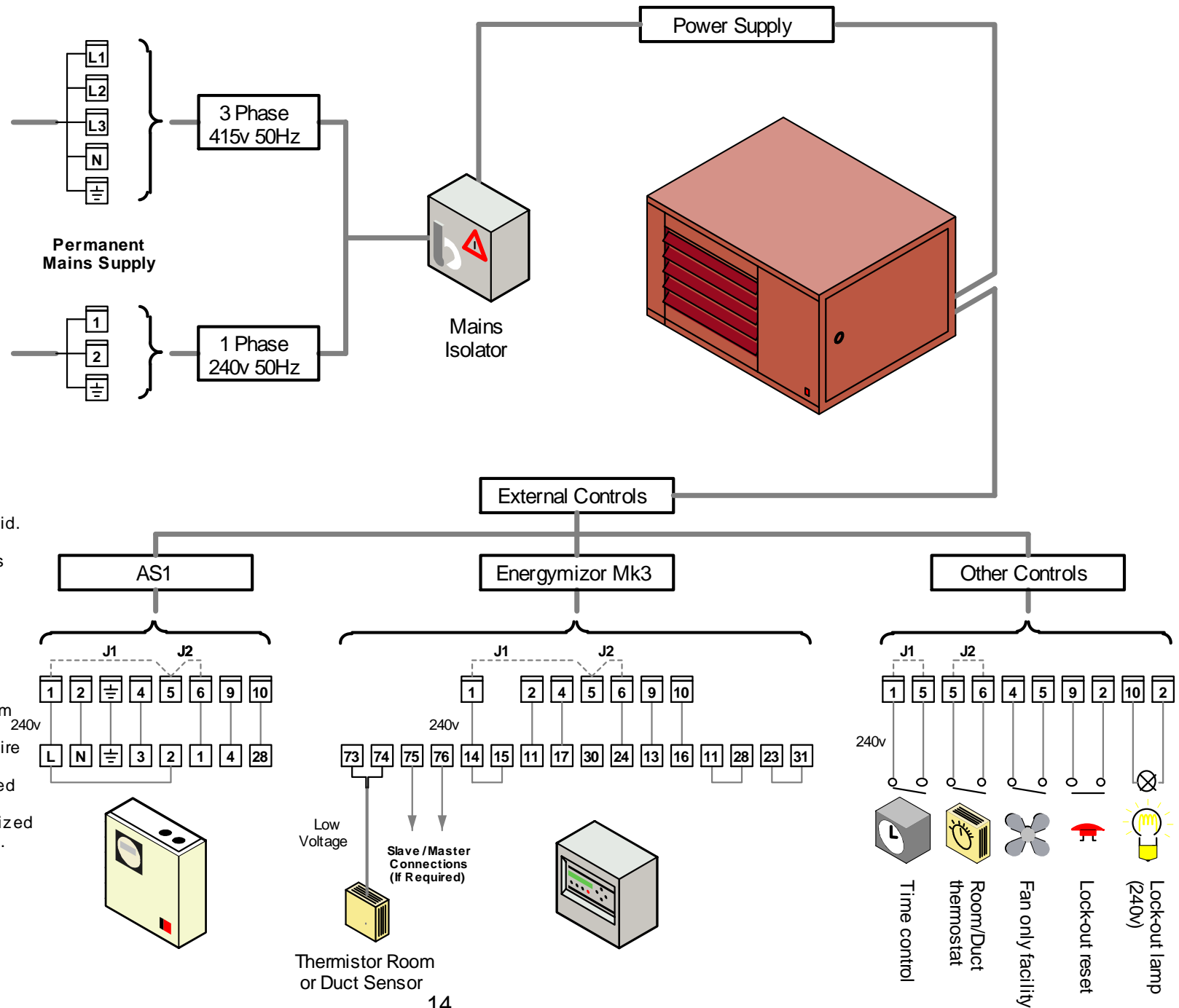
Legend:

 Heater terminals

 Controls terminals

Notes:

1. Remove link wires shown dotted.
2. Retain/insert link wires shown solid.
3. Terminals shown may not be in numerical order. Unused terminals may not be shown at all.
4. 1 Phase supply cable 2.5mm minimum.
5. 3 Phase supply cable dependant upon motor rating.
6. Controls cables 0.75mm for up to 200 metre run.
7. Energymizor Sensor cable 0.25mm (screened)
8. Master/slave cable 0.1mm, bell wire type (no screen necessary)
9. Electrical isolator must be installed within 1 metre of the appliance
10. Fuse rating must be sufficiently sized to handle heater & motor loadings.
11. If in doubt contact the Technical Department on T: 01303 259141



Drawing No:
Z16C300A-UK

Reznor UK

Tel: 01303 259141


Fax: 01303 850002


e-mail: sales@reznor.co.uk

Date: 22.10.03

Heater Wiring For: UDSA (V3) & UPA Series On/Off Burner Control

Legend:

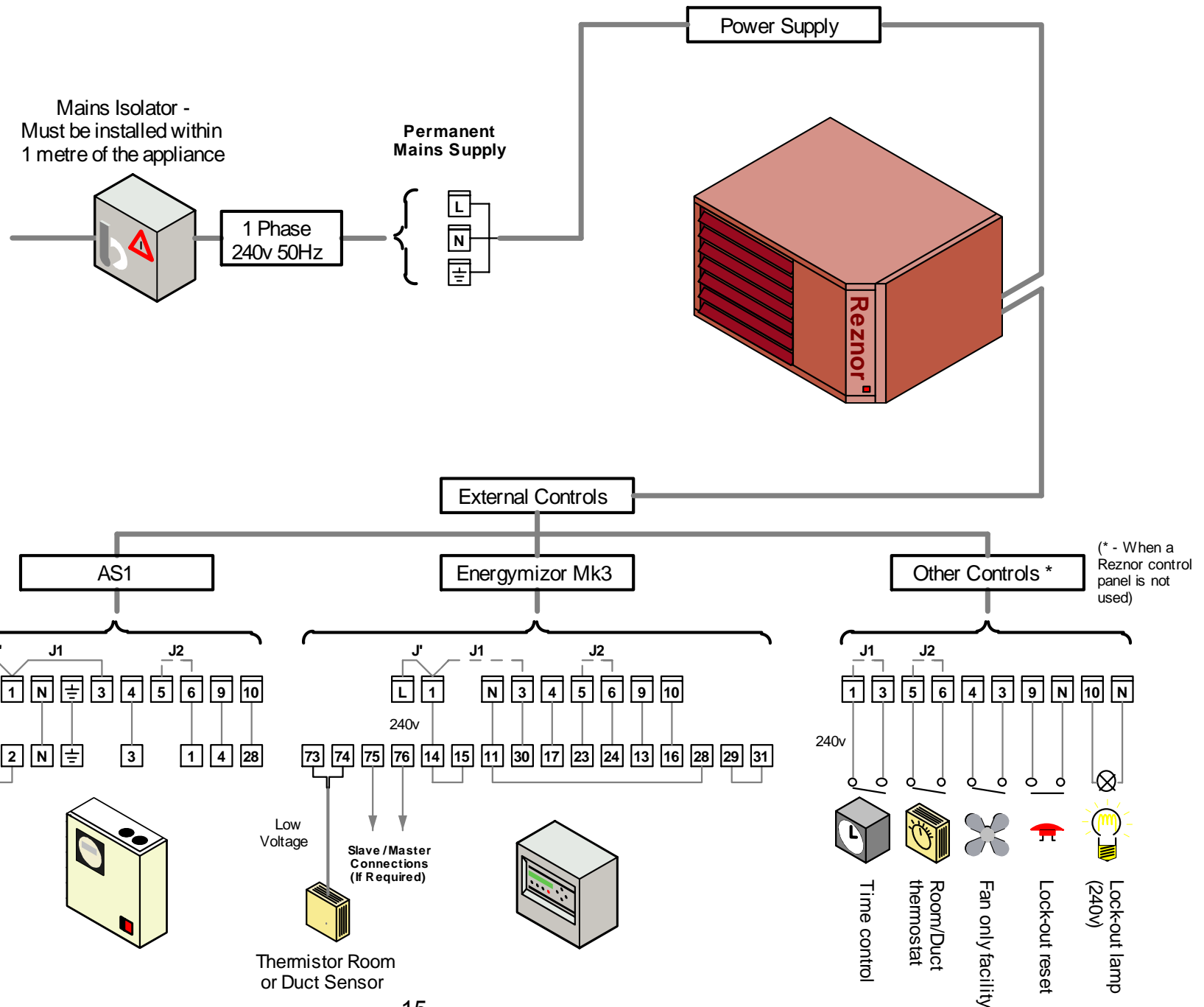
 Heater terminals

 Controls terminals

Notes:

1. Remove link wires shown dotted.
2. Retain/insert link wires shown solid.
3. Terminals shown may not be in numerical order. Unused terminals may not be shown at all.
4. 1 Phase supply cable 2.5mm minimum.
5. Controls cables 0.75mm for up to 200 metre run.
6. Energymizer or Sensor cable 0.25mm (screened)
7. Master/slave cable 0.1mm, bell wire type (no screen necessary)
8. Fuse rating must be sufficiently sized to handle heater & motor loadings.
9. If in doubt contact the Technical Department on T: 01303 259141

Drawing No:
Z16V300B-UK





Reznor UK

Tel: 01303 259141
 Fax: 01303 850002
 e-mail: sales@reznor.co.uk

Date: 21.5.02

Heater Specification:
T2000
HSI
Single Stage

Legend:

-  Heater terminals
-  Controls terminals

Notes:

1. Remove link wires shown dotted.
2. Retain/insert link wires shown solid.
3. Terminals shown may not be in numerical order. Unused terminals may not be shown at all.
4. 1 Phase supply cable 2.5mm minimum.
5. 3 Phase supply cable dependant upon motor rating.
6. Controls cables 0.75mm for up to 200 metre run.
7. Energymizor Sensor cable 0.25mm² 240v (screened)
8. Master/slave cable 0.1mm, bell wire type (no screen necessary)
9. Electrical isolator must be installed within 1 metre of the appliance
10. Fuse rating must be sufficiently sized to handle heater & motor loadings.
11. If in doubt contact the Technical Department on T: 01303 259141

Drawing No:
Z16T300A-UK

