

# **AMBIRAD**

ENERGY EFFICIENT HEATING SYSTEMS

**AMBISTAT 1**

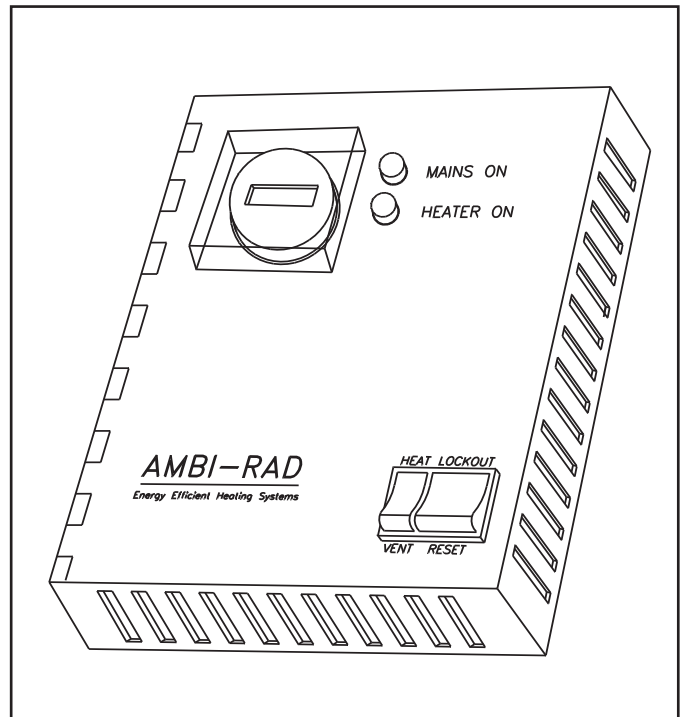
**WARM AIR  
CONTROL UNIT**

**Installation and  
servicing manual**



## Index

- 1 Introduction
- 2 Siting
- 3 Specification
- 4 Technical data
- 5 Installation
- 6 Description and method of operation
- 7 Setting of time switches
- 8 Commissioning and testing
- 9 Handing over to the user
- 10 Wiring diagrams



## 1 Introduction

The Ambi-stat control panel is designed for use with Ambi-Rad warm air heater units. 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 clock override function.

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

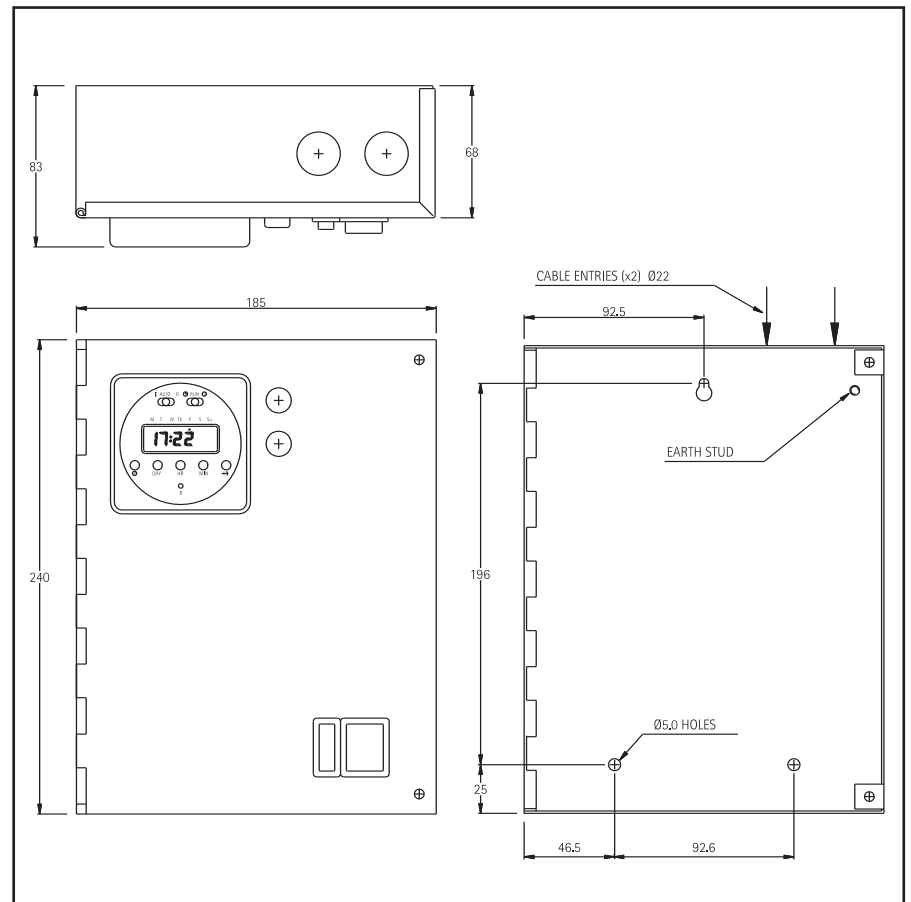
## 2 Siting

### 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, heaters 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.

## 4 Technical Data

Figure 1 Dimensions



## 3 Specifications

### General

Electrical supply requirement	230V 50Hz, Fuse 3A
Heat/Vent switch loading	230V ac 10A (Resistive) 3A (Inductive)
Ambient temperature range	-5 to 55°C
Operating temperature range	0 - 30°C
Thermostat loading	230V ac 10A (Resistive) 2.5A (Inductive)
Power indicator	Red LED
Run indicator	Amber LED

### Time switch

Display	7mm LCD
Programme instructions	16 (8 ON / 8 OFF)
Shortest switching time	1 minute
Battery back up	Up to 5 years
Override	Constant ON, Constant OFF, Soft override

## 5 Installation

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

### Mounting

- Remove the two cover securing screws on the front of the unit and swing open the door away from the base.
- Offer the unit up to the intended mounting position and mark the location of the top key hole slot.
- 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 metal work, use a 5.5mm drill.
- Mount the base panel using No.8 1<sup>3</sup>/<sub>4</sub>" round-headed screws. On metalwork,

use M5 machine nuts and bolts or similar.

- e. Reposition unit and repeat for remaining two holes.

### Electrical connections

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

Heat/Vent circuits are volt free. The connections are indicated in section 10 and identify for heater operation, a pair of wires must be run between terminals 1 and 2 in the controller and the appropriate terminals in the heater. (See fig.4). The use of the Summer Vent operation is optional and requires a single wire from terminal 3 in the controller to the appropriate terminal in the heater.

The use of the **Remote Lockout Reset** (where applicable) is optional and requires a wire from terminal 4 in the panel to the appropriate terminal in the heater. This is a return neutral. **Lockout Indication** requires a wire from terminal 28 in the panel to the appropriate terminal in the heater.

*Note* Lockout Reset/Indication facility exists for certain models of heaters. Please consult Ambi-Rad if in doubt.

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 1.5mm<sup>2</sup> cable.

Should more than one appliance be controlled from one control panel, an Ambi-Rad AS2 (2 heaters) or AS4 (max. 4 heaters) **MUST BE USED**.

*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. Voltmeter set to OHMS range.

## 6 Description of method operation

### Heat OFF/VENT

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

### 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

## 7 Setting of digital switch


### General

The timer enables 8 ON and 8 OFF switch selections to 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.

### Access to the programme dial for time setting


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

### Setting day of week and time of day



To prepare the module for programming clear the memory by pressing the button marked 'R'. Slide the 'Run' button to the left marked . 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' and 'MIN' buttons. Slide the 'RUN' button back to the center position.

## Planning a programme

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

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

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

Continue until programmes are complete. Slide the 'RUN' button back to centre position. (There is no need to go through all non used programmes).

The clock setting and programme settings are now complete.

### Manual override

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


#### Constant ON

Slide the 'AUTO' button to the left indicated 'I'. The air heaters(s) will operate in a constant on state but dependent on stat temperature.

#### Constant OFF

Slide the 'AUTO' button to the right indicated 'O'. The air heaters will not operate unless in a frost condition.

#### 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 All external electrical connections have been made and that a mains electrical supply is provided to the unit.*

### Functional tests

After setting the clock carry out the following checks:

- Ensure Heat/Vent switch is set to 'HEAT'.
- Set clock programme constant override to position 'I'.
- Turn day thermostat control clockwise until 'Heater ON' indicator lights. This will occur once thermostat setting exceeds the ambient space temperature.
- Slide clock programming constant override to position 'O'. Heater 'ON' indicator extinguishers. Turn 'FROST' thermostat anti-clockwise until 'Heater ON' indicator extinguishers.
- Slide clock programme override to 'AUTO'. Press soft override button marked  $\text{X}$ . This will be displayed in LED. 'Heater ON' indicator lights. Turn the day thermostat to a low setting. 'Heater ON' indicator extinguishers. Press soft override button  $\text{X}$ . LED disappears.
- 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.
- Adjust thermostats (and switch settings on clock) to clients requirements. Ensure that any clock override(s) are re-set to appropriate position to suit programme.

## 9 Handling over to the user

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

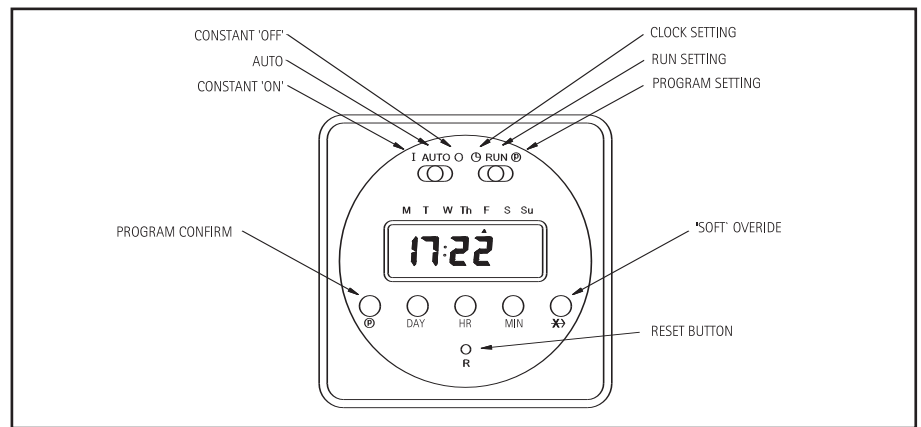
### Normal automatic operation

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').

### Frost protection operation

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

Figure 2 Time switch



## 10 Wiring diagrams

Figure 3 Wiring diagram

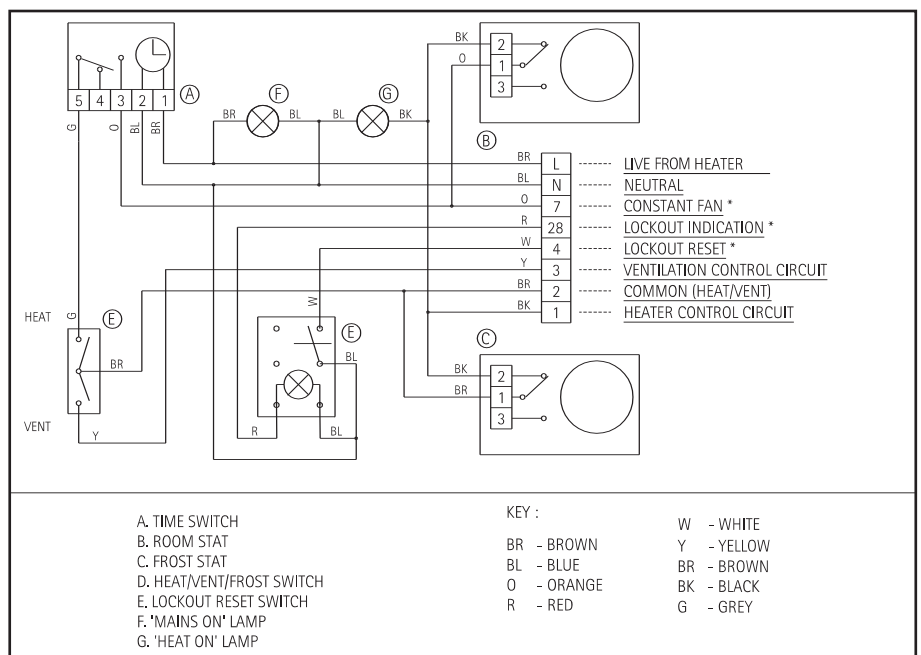
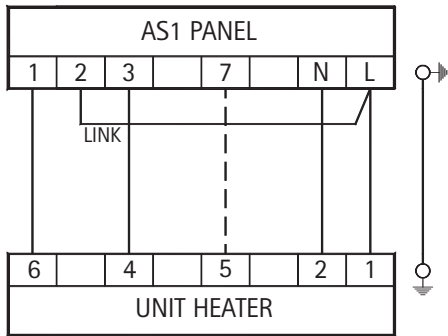


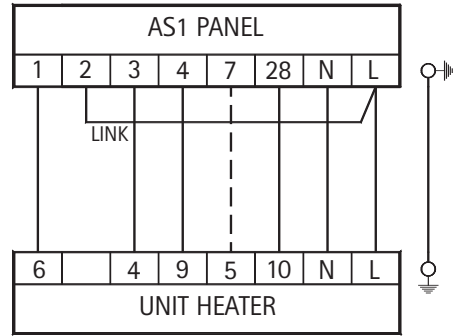
Figure 4 Typical connection

'UCA', 'UCB' & 'UCE' Unit Heaters  
(with Permanent Pilot)



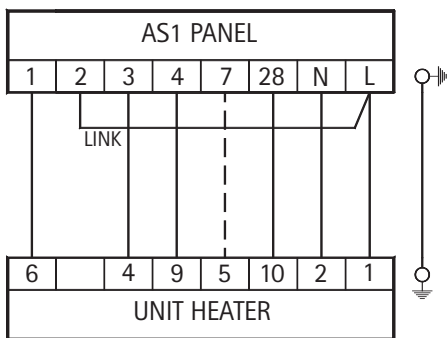
Remove jumper wire J2 (t5 - t6)  
from heater

'UCA' 'UCB' & 'UCE' Unit Heater  
(with auto spark ignition)



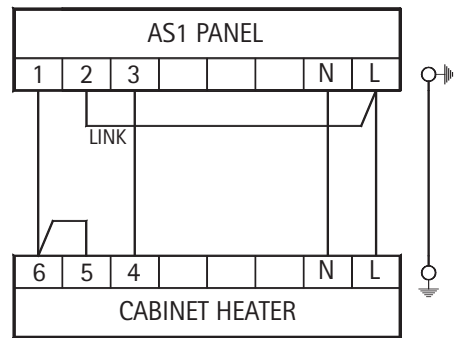
Remove jumper wire J2 (t5 - t6)  
from heater

'UPA' & 'TCORE' 'UDSA' Unit Heaters

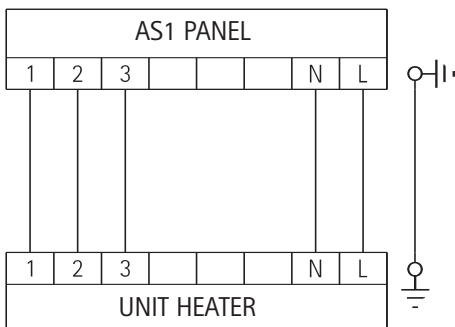


Remove jumper wire J2 (t5 - t6)  
from heater

Centurion 'VCH(e)' & 'HCH(e)' Cabinet



Centurion 'UF' Unit Heater  
EnviroAir 'TA', 'TB' & 'TE' Heaters  
(with permanent pilot)



Centurion 'UFE' Unit Heater

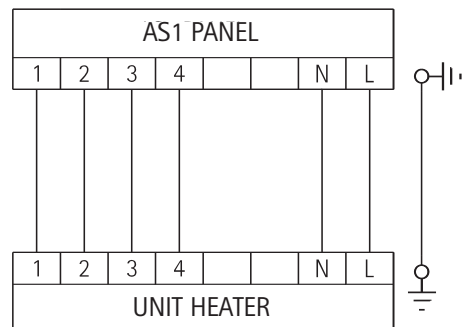
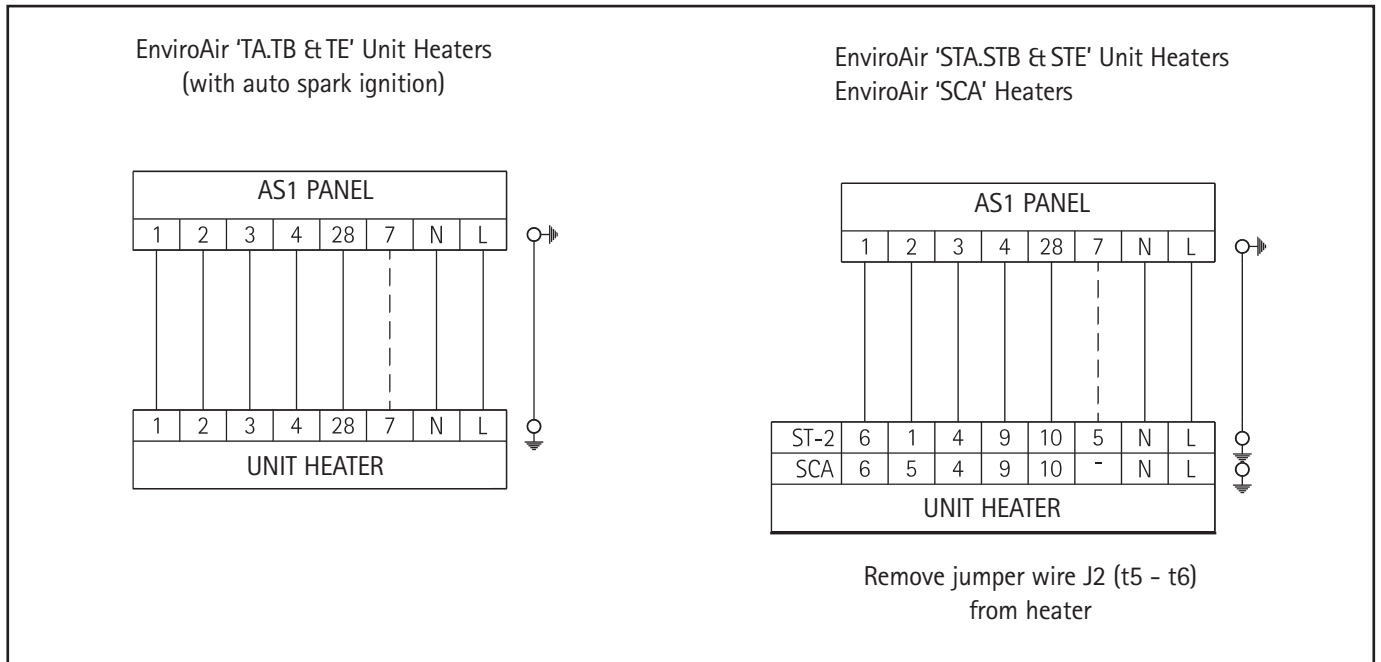


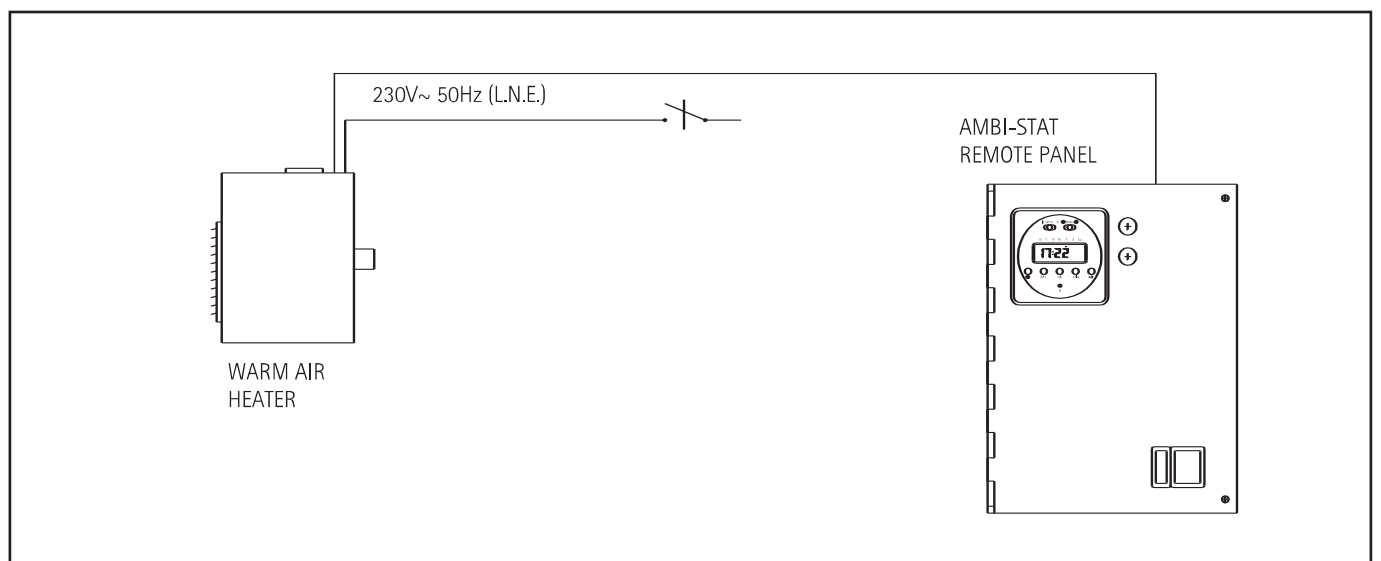
Figure 4 Typical connection – Continued



Notes

----- Only applicable with Constant Running Fan Option (C.R.F.R)  
For further details, please refer to User Installation Manuals supplied with the heater.

Figure 5 Schematic diagrams





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