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# ELECTRIC HEATERS – TC8

## Installation Instructions

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### ELECTRIC AIR HEATERS COMPLETE WITH CONTROLS

Unpack the heater taking care to ensure items and paperwork are removed from the centre of the heater duct. The terminal box may also contain wiring instructions. If you are only installing the heater in the air duct, leave these instructions for the electrician!

The heater can be installed the duct run, with either horizontal or vertical flow. With vertical ducts consideration must be given to items in the run above the heater which could be damaged by heat rising when the fan is switched off. All heaters should be kept away from plastic conduits or materials easily damaged by heat. Allow for casing temperature of 100°C (ideal minimum air velocity = 2m/s).

These heaters must not be installed outside unprotected or in areas that are washed down!

Do not use flexible connectors directly onto the heater. The best position for the terminal box is on the side of a horizontal duct. Ensure access to the terminal box is possible! Make sure lagging etc. does not cover the terminal box.

A DTFS2 combined temperature and airflow sensor is supplied as standard. This will be found attached to the heater on a coiled lead. This should be mounted in the duct 1 to 2m downstream from the heater where the sensor cannot be damaged by heat. A 25mm holesaw and 2 PK fixing screws will be required.

#### **IMPORTANT**

The DTFS2 has an Airflow direction label attached and will only operate if installed in the correct attitude.

#### **WIRING**

All wiring must be carried out by a qualified electrician in compliance with the latest regulations.

These units are internally pre-wired and require only a suitable supply feed connection to operate (see rating label).

If the option to feed the fans is not used and the supply fan is not local to the heater, it is possible to use only the sensed airflow to switch on the heater. The output air temperature will be as set on the face of the panel. If you need to switch the heater off from a remote time clock, remove the link provided and wire from the clock.

The controller has two 1ph fan outputs (4.5A max) which, if used, run the fan on for 2 minutes after the time clock switches off the heater. Other features are available, please refer to TC8 wiring instructions.

Note; take care when using remote fan speed controllers not to let the air velocity drop too low. Also try to avoid using the controller to switch the system off as this can lead to nuisance tripping of the high temperature cutout in the heater.

#### **SAFETY**

Every system should have an isolator switch which can be locked in the off position to prevent accidental reconnection during maintenance. When resetting the thermal cutout the heater may suddenly switch on and element terminals etc. will become live.

Ensure the heater is correctly earth bonded. Terminal covers must be secured after inspection and should be labelled **“DISCONNECT SUPPLY BEFORE REMOVING THIS COVER”**. It is the installer's responsibility to ensure the installation meets all current Health & Safety Regulations.

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# ELECTRIC HEATERS

## Maintenance Instructions

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1. Before carrying out any maintenance ensure the electricity supply has been isolated.
2. Check all electrical connections for tightness and broken terminations.
3. Check all wiring for deterioration or overheating.
4. Check unit for dirt or dust and wipe clean (except elements).
5. Check the element section for obstructions or debris.
6. Check all components for wear and physical damage.
7. Check all safety devices for proper operation.
8. Check temperature controls for proper operation as per the installation instructions.
9. Check all inlet filters and replace where necessary.
10. Ensure unit has been installed as per the installation instructions.

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# TC8

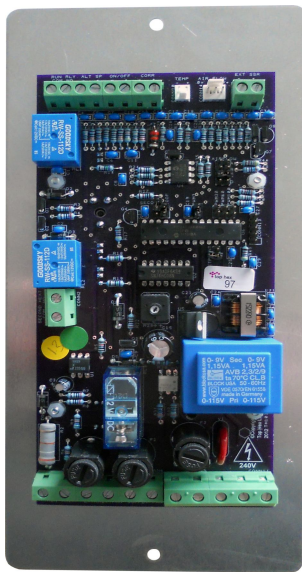
## Thyristor Temperature Controller



Specifically designed to mount onto a Neatafan electric air heater, either duct mounted or built into an Air Handling Unit.

The TC8 unit acts as a thyristor temperature control panel to control a 220/250V single phase 2 step heater up to 2 X 19A (9.0kW) with an additional relay and has 5A fused outputs for single phase supply and extract fans up to a maximum of 4.5A each.

Although the unit has been designed primarily for single phase heater loads up to 9.0kW, it has a SSR (Solid State Relay) output which can be used to control larger three phase (380/430V) heater loads up to 42.0kW.



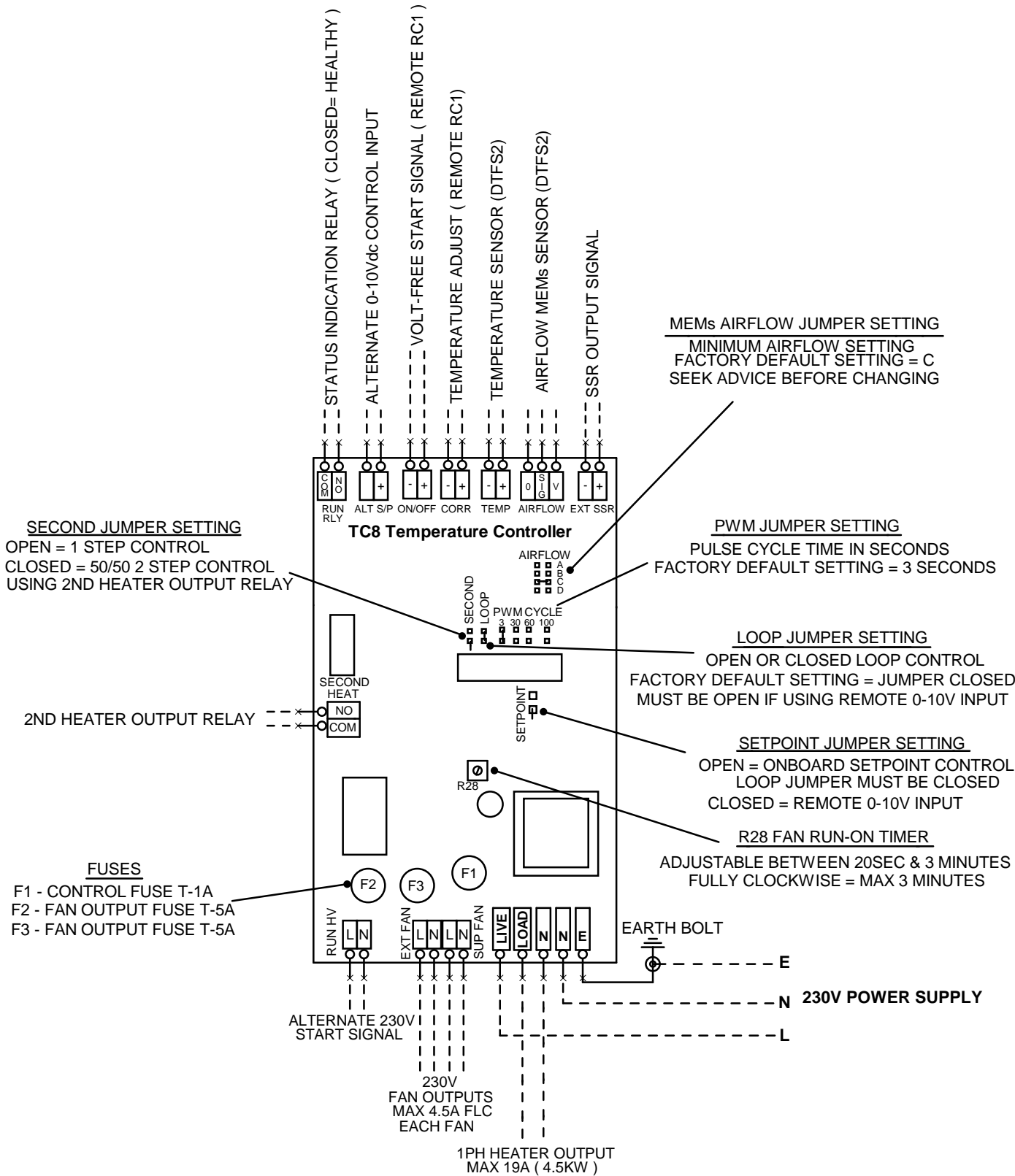
**REAR (PCB)**



**FRONT**

### SPECIFICATION

Supply voltage	220/250Vac 50/60Hz. +/-10%
Output current (maximum)	19A @ 40°C (Ambient)
Temperature sensor	5k ohms @ 25°C (Table 502 IT) combined with air velocity sensor
Temperature control range	0 to 40°C / (0-10V 0-100%)
Supply Fan outputs (5A fused)	4.5A max FLC.
Extract Fan outputs (5A fused)	4.5A max FLC.
Run on timer	adjustable from 1 to 2 minutes (factory set at 1.5 minutes)
Control fuse	20 x 5mm 250mA
LED Indicators	Power On – Yellow Supply Fan On – Green Extract Fan On – Green Heater On – Red (solid or flashing, indicating pulsed control) Airflow Fault – Red
Start Signal	Volt free pair or 230V pair (run HV)
Alternative	0-10V input setpoint via jumper setting, BMS signal output status
Dimensions	Front Panel 114mm x 197mm x 2mm thick aluminium Heat Sink 55mm x 100mm x 20mm thick aluminium PCB 85mm x 165mm
Weight	550 grams (approx.)

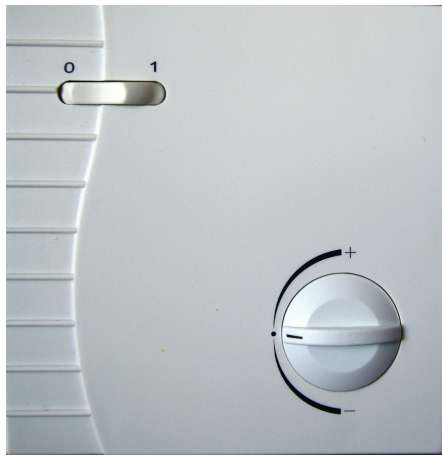


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TITLE: <b>TC8 CONNECTIONS &amp; SETTINGS</b>	DATE: 17/10/13
BY: <b>NFE</b>	PAGE: 1/1
REV:	

# RC1 (TC3 & TC8) Remote Control Unit

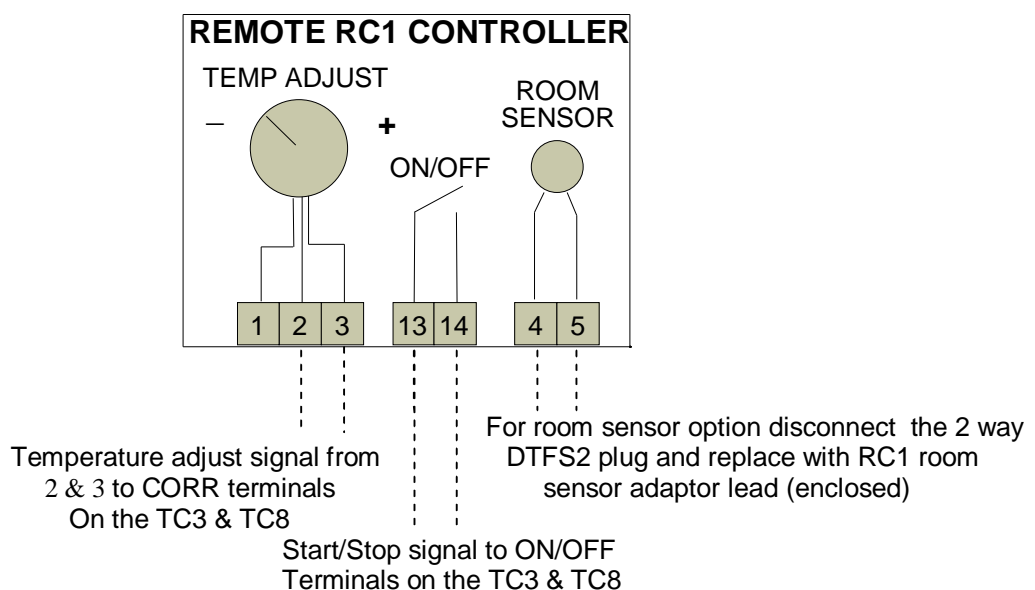


The RC1 is designed as a remote control unit to work in conjunction with Neatafan control systems and can be flush or surface mounted using the same fixing dimensions as a standard 2 gang electrical switch box.

An on-off switch is incorporated so that the user can turn off the system, allowing the timer to cool the elements. The temperature adjustment feature is designed to give an adjustment of – or + 4°C of the pre-set temperature on the main temperature controller, i.e. if the main controller is set to 20°C, the RC unit will adjust between a minimum of 16°C and a maximum of 24°C. With the control knob adjusted to the midpoint on the dial the preset temperature will be achieved.

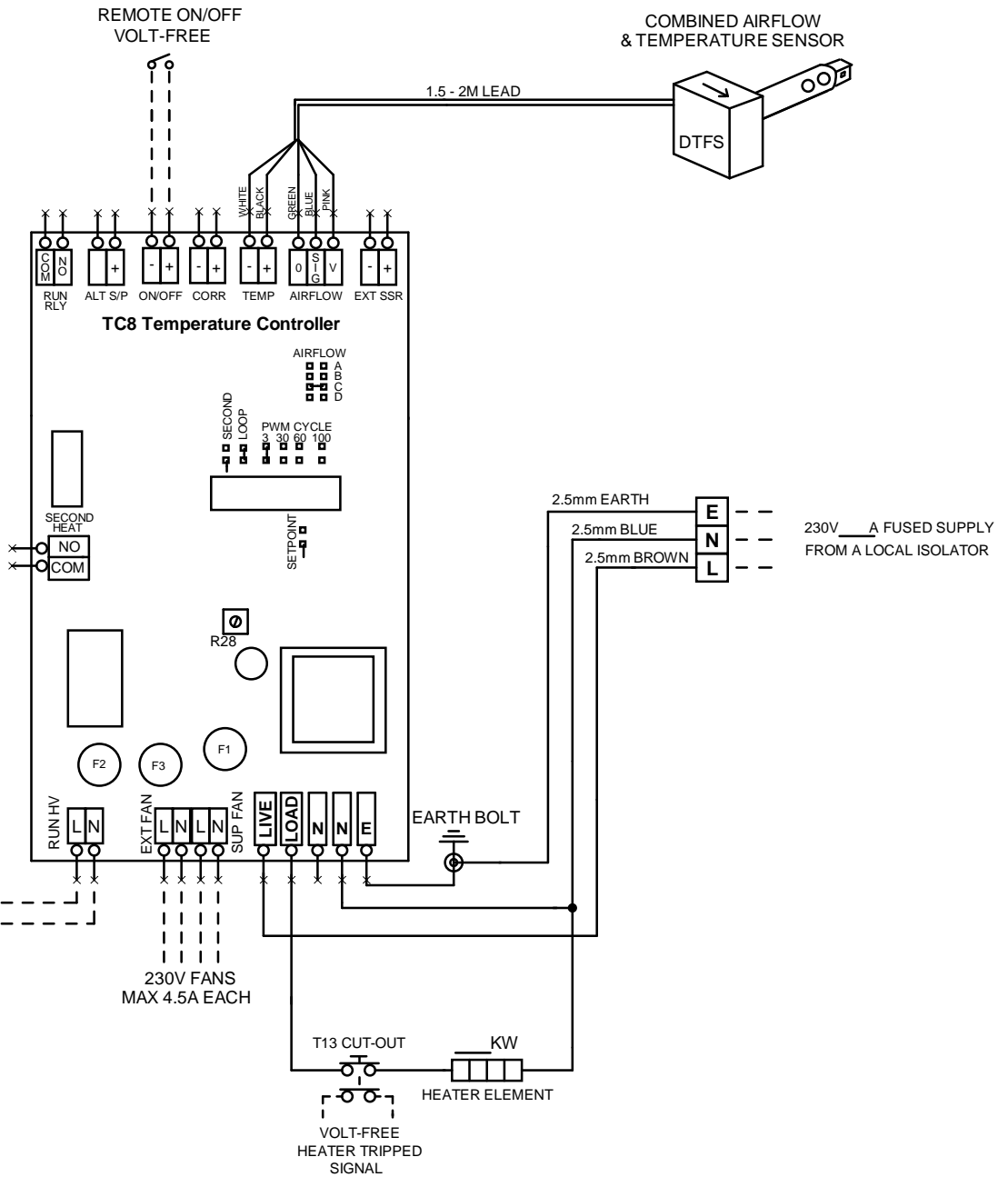
A duct temperature sensor is provided within the DTFS2 with Neatafan TC3 & TC8 control systems, however this can be replaced with the room temperature sensor provided in the RC1 using the RC1 room sensor adaptor lead (enclosed).

Wiring: Four cores of 0.75mm<sup>2</sup> cable are ideal and can be run for 20m without difficulty. Do not, however use fine “data type” cables.



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# TC8A

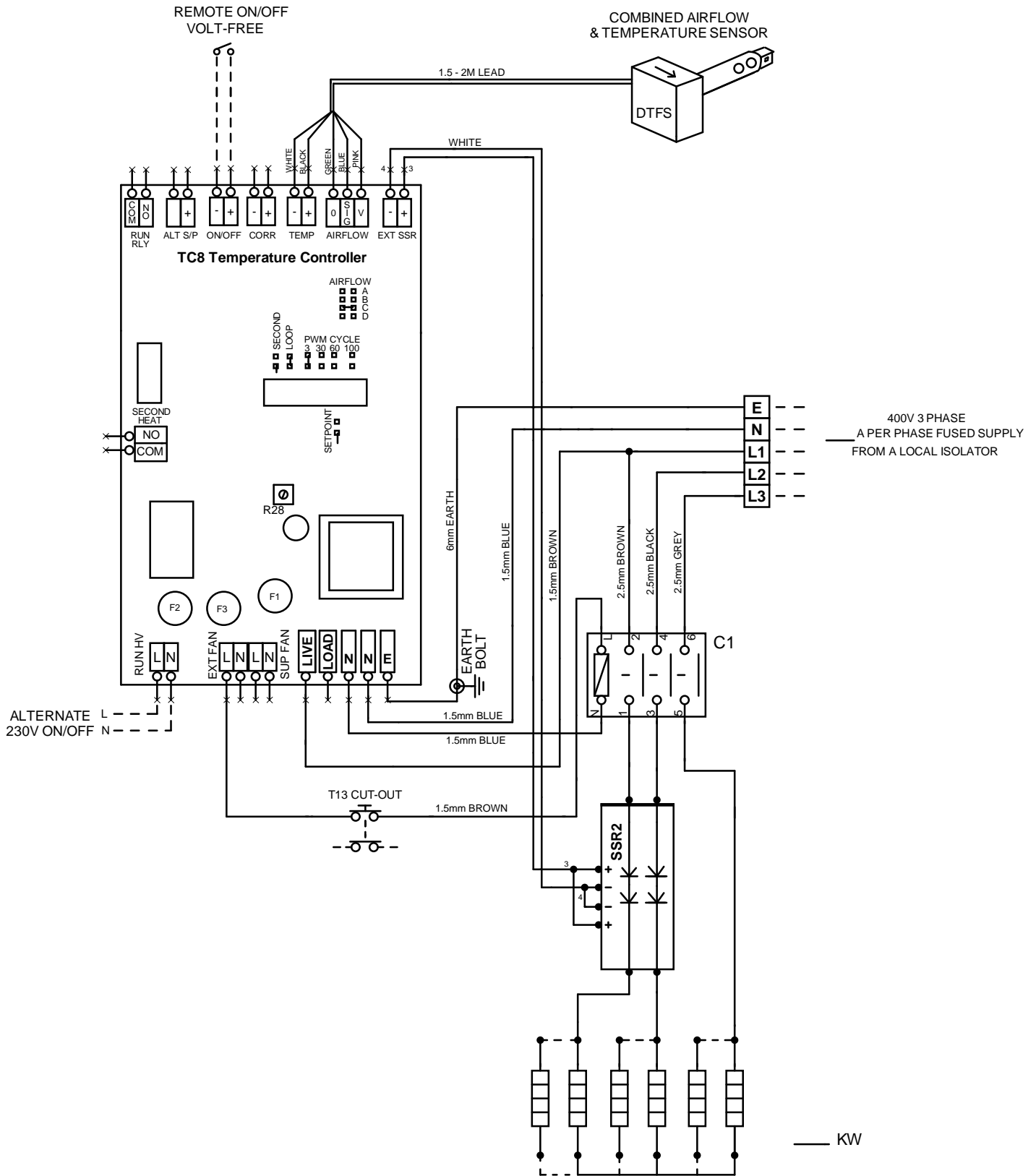


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TITLE:	<b>230V 1PH HEATER    MAXIMUM OF 4.5KW CW    TC8 THYRISTOR CONTROL</b>	DATE:	17/10/13
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# TC8C



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TITLE:	DATE:
<b>400V 3PH 1 STEP HEATER MAXIMUM OF 21KW C/W TC8 &amp; SSR CONTROL</b>	17/10/13
BY: NFE	PAGE:
REV:	1/1



