ELECTRONIC & TECHNICAL SERVICES LTD.

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GENERAL DESCRIPTION AND TECHNICAL OPERATION OF THE HEAT AND SIX FAN VENTILATION CONTROL UNIT

Design Concepts:
To produce a control to provide a heating regime in winter and a cooling regime in summer. The design concept is for simplicity of control by one dial adjustment covering the range from 0 to 30 degrees C.

General Description
In summer the control is set to fan mode and when the temperature in the house exceeds set temperature the fans operate to provide cooling air. When the house temperature falls below set point the fans turn off.
In winter the control is set to heat mode and when the temperature in the house falls below set temperature the heaters operate to provide heated air. When the house temperature exceeds the set point the heaters turns off.

The control section of the unit consists of an adjustable 0 – 30 degrees C temperature setting, a heat control LED indicator, **ON** when house temperature exceeds set point (fan mode) or **ON** when house temperature falls below set point (heat mode). A sensor alarm LED which illuminates and an internal sounder is activated if the temperature sensor is physically damaged.

The sensor alarm actively monitors the sensor condition and if the temperature goes out of control range visual and audible alarms are activated.

Operation:

FAN CONTROL

For cooling. Disconnect mains supply and remove the four screws holding the front cover. With the front removed, insert headers HDR4 and HDR5 into the cooling position, as labelled on the pcb. If used disconnect or isolate any connections to the heater. Replace front cover. Adjust the set point control on the front panel to the desired temperature. When the house temperature exceeds the set point the fans will operate and the fan Led will illuminate.

HEAT CONTROL

For heating. Disconnect mains supply and remove the four screws holding the front cover. With the front removed, insert headers HDR6 and HDR7 into the heating position, as labelled on the pcb. If used disconnect or isolate any connections to the fans. Replace front cover. Adjust the set point control on the front panel to the desired temperature. When the house temperature falls below the set point the heaters will operate and the fan Led will illuminate.

Technical Specifications:

1. The Microchip MCP9700 linear active temperature sensor is accurate to +/-1 degree C and requires no signal conditioning. If the sensor needs to be replaced due to external damage, it is simply a matter of disconnecting the old sensor and reconnecting with a new sensor, no calibrating against known standards, no range adjustments, no hassle.
2. Switching differential is +/- 1 degree C.
3. Integral 3-way mains terminal block connected to a 240V ac 50/60 Hz supply
4. 240v AC 50/60 Hz to heaters or fans. **NOT INTERNALLY FUSED. The user must ensure that all safety conditions are met**
5. Control circuit protected by internally mounted 1 amp quick blow 20mm glass fuse.
6. Set temperature adjustable from 0 to 30 degrees C.
7. Can be set to control heat OR ventilation (fans)
8. Output load 1Kw inductive, (fan motors)
9. Output load 3Kw resistive (heaters)
10. Sensor alarm should temperature exceed set limits
11. Outlets to control up to six fans and one heater
12. Dimensions L 150mm W 110mm D 80mm plastic enclosure

REFER FIG.1
ELECTRICAL CONNECTIONS FOR Fan/Heater CONTROL

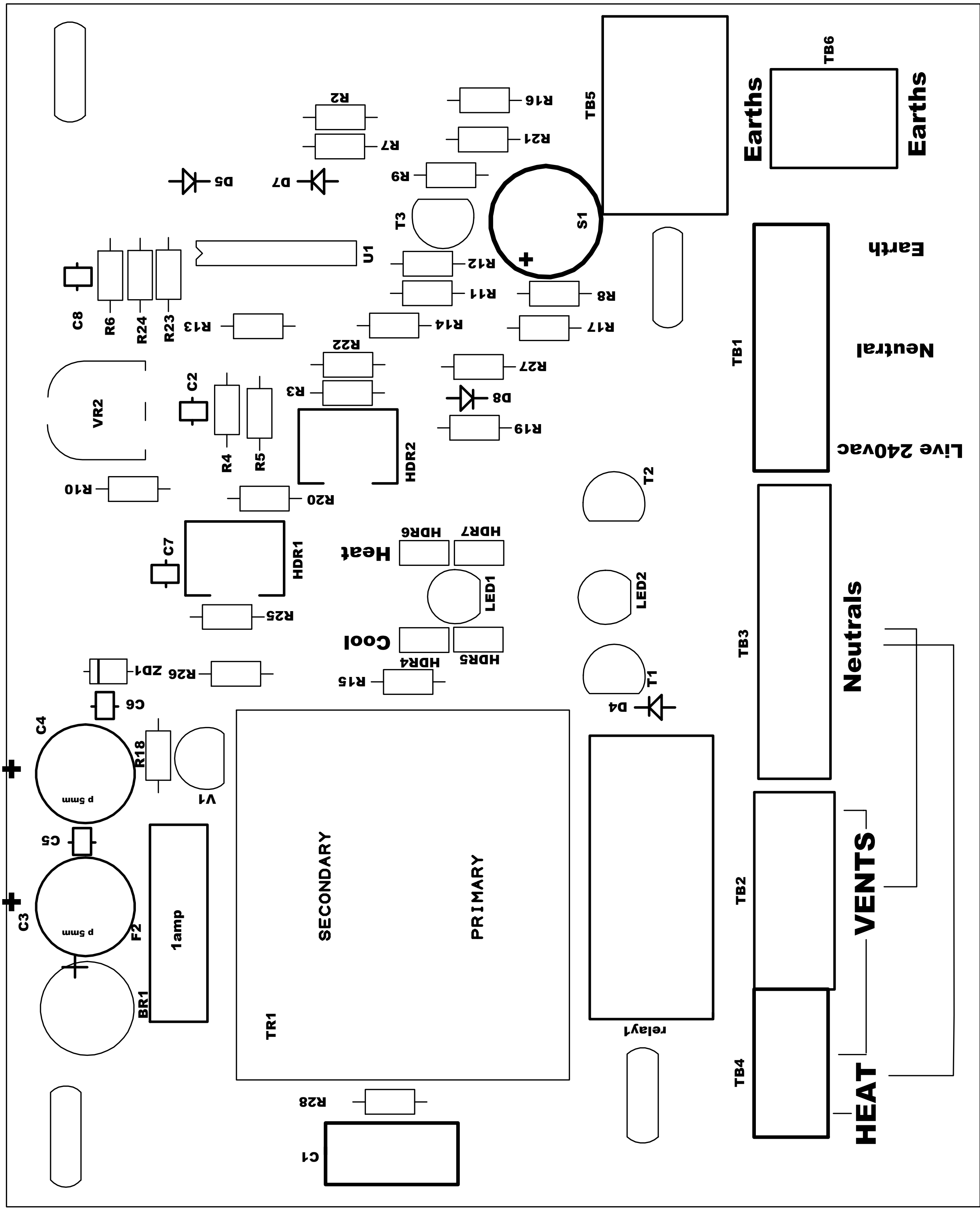
WE STRONGLY ADVISE THE USE OF AN E.L.C.B. ON THE MAINS SUPPLY TO THIS UNIT

Unscrew the four plastic corner screws and with great care remove the 3 way Molex connector to the temperature sensor, do not put any undue strain on cable.
Mount base of box utilizing the mounting points in the unit base

A fused mains supply of 240v capable of supplying the load, up to 3Kw (15 amps) for heater and 6 amps for 1Kw for fans needs to be connected to TB1 3 way terminal block.
labelled:
Live 240Vac
Neutral
Earth

Connect fans to the terminal blocks TB2 and TB4 labelled VENTS neutral returns connected to TB3 labelled neutrals.
Connect Heater to the terminal block TB4 and neutral return connected to TB3 labelled neutrals.
All earths to be connected into terminal blocks TB5 and TB6 labelled Earths.
DO **NOT** OVERTIGHTEN the terminal screws as this will damage the copper track on the PCB.

Upon completion of wiring, reconnect the 3 way Molex connector, it is biased and can only connect one way, **DO NOT FORCE**, look at the key which is a raised bump and connect to the header with the corresponding cut out.


TB5
TB6
Earths
Earths
R2
R7
R16
R21
R9
D5
D7
T3
S1
U1
C8
R6
R24
R23
R12
R11
R8
R13
R14
R17
Earth
TB1
Neutral
R22
R3
R27
C2
VR2
R4
R5
D8
R19
HDR2
Live 240vac
R10
R20
T2
HDR6
HDR7
Heat
C7
HDR1
LED1
LED2
R25
Cool
HDR4
HDR5
TB3
Neutrals
R26
ZD1
R15
T1
D4
C6
C4
R18
V1
p 5mm
C5
SECONDARY
PRIMARY
VENTS
TB2
C3
F2
1amp
BR1
TR1
relay1
TB4
HEAT
R28
C1

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EU DECLARATION OF CONFORMITY

This declaration is issued under the sole responsibility of the manufacturer:

Electronic & Technical Services Ltd

The object of the declaration is in conformity with the relevant Union harmonisation Legislation.

Full postal address including country of origin: 40 Acreville Rd,
Bebington, Wirral,
CH63 2HY U.K.

Description of product: Multifan and Heater Controller

Conforms to the following product specifications:

Low Voltage Directive 2014/35/EU

Standard EN61558-1:2005 – A1:2009+AC:2006 - 08

Safety EN 62368-1:2014+AC:2015
IEC 60950-1:2005+A2:2013

EMC and harmonised European and national standards

Directive	**2014/30/EU**
Emissions	EN55032-2012AC:2013
Immunity	EN55024-2010

RoHS

This designated product is in conformity with the European Directive: 2011/65/EU
And does not contain substances which are listed as hazardous in EEE RoHS 2

Place of Issue: Bebington
Date: 23. 04. 2019
Name of authorised representative: John W Walker
Position of authorised representative: Managing Director

Declaration:

I declare that as the authorised representative, the above information in relation to the supply/manufacture of this product is in conformity with the stated standards and other related documents following the provisions of EEC Directives.

Signature of authorised representative:……