ELECTRONIC & TECHNICAL SERVICES LTD.

40 ACREVILLE ROAD, BEBINGTON,
WIRRAL. CH63 2HY
TEL/FAX: 0151 645 8491
www.ets-controls.co.uk
email john@ets-controls.co.uk

GENERAL DESCRIPTION AND TECHNICAL OPERATION OF THE MOTORISED HOT WATER VALVE CONTROLLER

Design Concepts:

To produce a control to provide a heating regime. The design concept is for simplicity of control by three dials adjustment for setting the temperature, valve and dwell run time.
House temperature can be set from 0 to 30 degrees C.
Valve run time can be set from 3 seconds to 60 seconds.
Valve dwell time can be set from 1 minute to 10 minutes.
Temperature deadband +/- 1 Deg. C

General Description

If the set valve temperature potentiometer is set above the house temperature by more than 1 Deg C the valve motor will open for the time that is set on the seconds valve run potentiometer settable from 3 to 60 seconds. When this potentiometer is set at zero, the default run time is 3 seconds. When the seconds valve run times out the valve dwell is activated and the dwell time is set by the minutes dwell potentiometer, settable from 60 seconds to 10 minutes. When this potentiometer is set to zero, the default run time is 60 seconds.
When the dwell timer times out, the software samples the house temperature and if still below the house temperature, the above control process is repeated.
If the set valve temperature potentiometer is set below the house temperature by more than 1 Deg C, the valve motor will close and the above control process applies.
If the set valve temperature is within 0.9 Deg C of the house temperature, the software enters into the deadband region. No corrective vent action takes place until the house temperature changes by more than 1 Deg C

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

A three position rotary switch provides for manual operation,
OPEN – AUTO – CLOSE.

BLUE LED - DWELL.
ORANGE LED - DEAD BAND.
GREEN LED - VALVE OPEN.
YELLOW LED - VALVE CLOSE.
RED LED - SENSOR ALARM.

Operation:

Set the 3 position rotary switch to AUTO.
Set the desired valve set temperature.
Set the desired valve run time.
Set the desired dwell time.

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. Deadband 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 the valve motors **NOT INTERNALLY FUSED. The user must ensure that all safety conditions are met.**
5. No incorporated motor limits, these must be an integral part of the motor unit
6. Control circuit protected by internally mounted 1 amp quick blow 20mm glass fuse.
7. Set valve temperature adjustable from 0 to 30 degrees C.
8. Output load 1Kw inductive, (fan motors)
9. Sensor alarm should temperature exceed set limits
10. Outlets to control up to two vent motors
11. 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

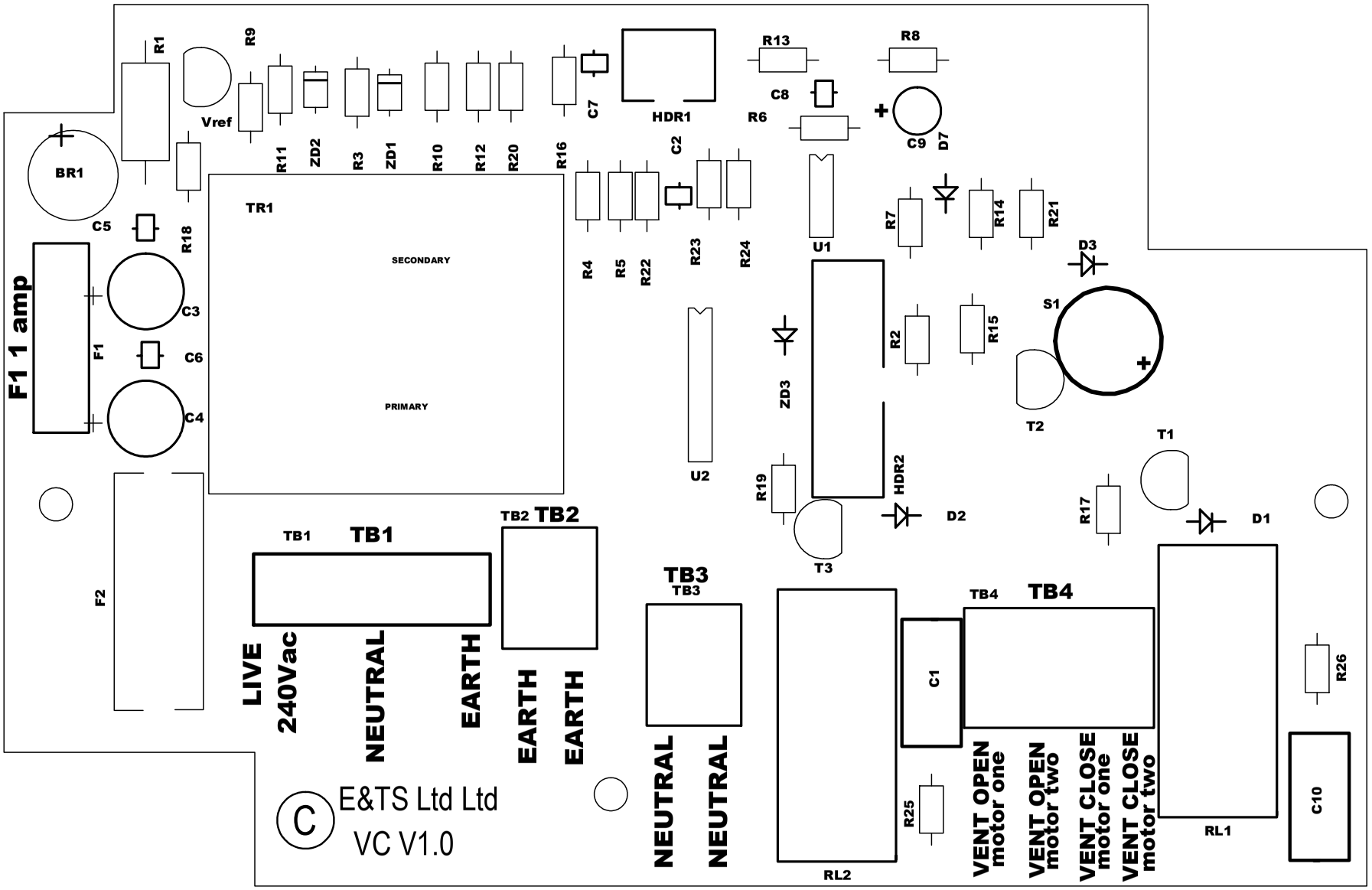
A fused mains supply of 240v capable of supplying the load, up to 1Kw for vent motors needs to be connected to TB1 3 way terminal block.
labelled:
Live 240Vac
Neutral
Earth

Connect valve motors to the terminal blocks TB3 and TB4. Valve motor one and two connected to the open terminal on TB4, valve motor one and two connected to the close terminal on TB4. Valve motor neutrals are connected to TB3.
Motor earths connected to TB2.
All earths to be connected into terminal blocks TB1 and TB2 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.

ELECTRICAL CONNECTIONS FOR THE NP vent control

Last edit 14. 11. 20.



MAINS CONNECTIONS

BROWN LIVE 240Vac

BLUE NEUTRAL

GREEN EARTH

ENSURE ALL CONNECTIONS ARE FIRM BUT AVOID OVERTIGHTENING

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DECLARATION OF CONFORMITY

Name of manufacturer or supplier: E&TS Ltd

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

Description of product: Glass house motorised valve heating Controller

Conforms to the following product specifications:

Low Voltage Directive 2006/95/EC

Standard EN61558-1:200 – A1:2009+AC:2006 - 08

Safety EN 60950-1:2006+AC:2011+A11:2009+A1:2010+A12:2011+A2:2013
IEC 60950-1:2005+A1:2009+A1:2012+A2:2012

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: 31. 01. 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:…….