

# INSTALLATION DETAILS (A)

## TRACE HEATING MONITORING UNIT TYPE THMU3C

### IMPORTANT INSTALLATION NOTES

- \* Ensure the electrical supply can carry sufficient current to power the heating system and that the controller can be disconnected from the mains supply
- \* The heating system is protected via a suitable Breaker protected circuit either locally or at the distribution board
- \* Install the heating cable in accordance with the manufacture's installation guidelines
- \* Ensure the Temperature Sensor supplied is located in a position suitable to monitor the ambient conditions
- \* Test the heating cables before connecting to the controller - Primary & secondary cables should be the same type/length
- \* The enclosure is suitable for use in environmental conditions up to IP55

### MOUNTING INSTRUCTIONS

- \* The controller is wall mounted (pipe fixing bracket available). Remove the four outer corner fixings and remove lid
- \* Remove the Din rail Gear Tray via the two fixing screws and remove assembly.
- \* Fix Back box in a suitable location using the three fixing holes
- \* Install cables using the cable entries and suitable cable glands and replace gear tray assembly.
- \* Connect mains AC supply together with the heating cables.

### INITIAL SEUP

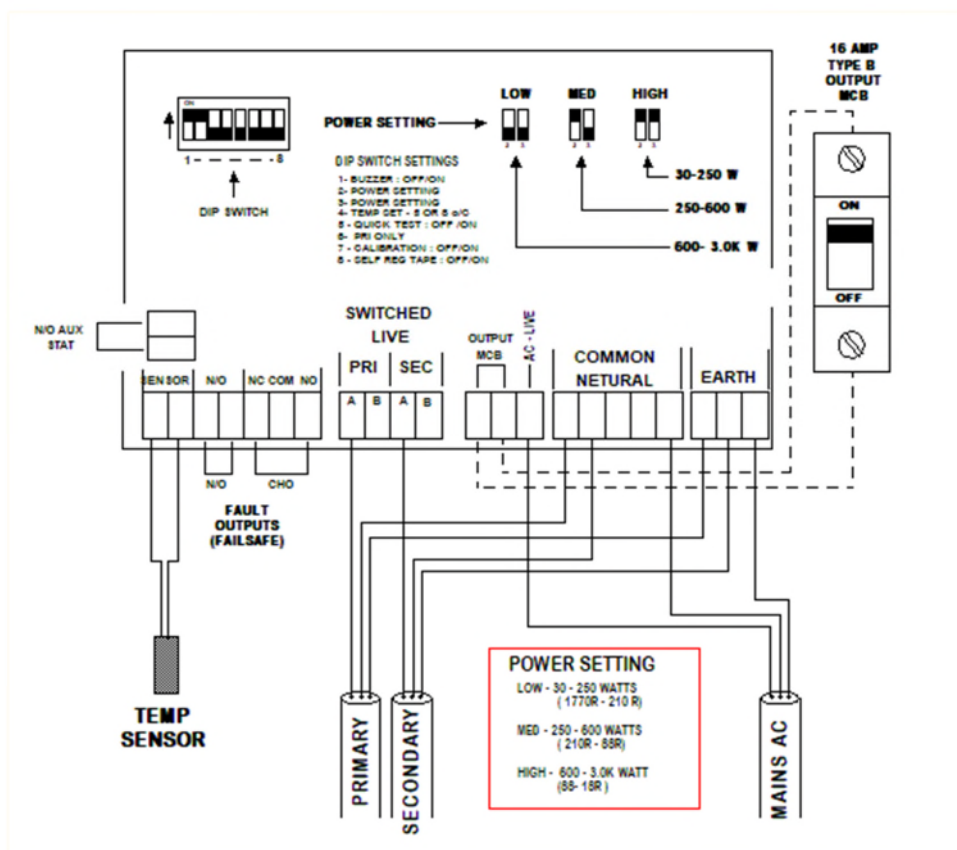
**\*\*\*\* NOTE—ON INITIAL POWER UP THE UNIT WILL PERFORM ITS HEATING TAPE SETUP \*\*\*\***

- \* Select the required DIP switch settings before powering up the controller as below:

- 1) Power Setting - DIP switches 2 & 3 (factory set for MED)
- 2) Temp setting - DIP switch 4 (factory set at 5 %/c)
- 3) Primary Only - DIP switch 6 (factory set for both Primary & Secondary outputs)
- 4) Self-Regulating Tape—DIP switch 8 (factory set for Constant wattage)

- \* Ensure DIP switch 7 - CAL is in the OFF position. Power up the Controller

Note - Fault relay connections are shown in the NORMAL CONDITION (Internal Green LED illuminated)\*



When the controller is powered up - Both the Primary & Secondary fault LED's together with the Auto LED will be Illuminated (Primary only Fault LED if DIP switch 6 selected ON). The Primary ON LED will light. After 10 seconds the Primary Fault LED will extinguish followed by the Primary ON LED. This will be repeated for the Secondary circuit. After the heating Tape's power have been measured the System ON LED will illuminate and after 5 seconds the LED will Fast flash. The controller will now be in its normal mode.

## CONTROLLER TESTS

*The factory fitted Sensor resistor should not be removed before the tests are completed below.*

**\*Primary/Secondary Outputs:** Press the “Man Test“ Switch - The primary heating On LED will illuminate for 10 seconds followed by the secondary heating ON LED. Turn the MCB to the “OFF“ position. Press the “Manual Test “ switch again - The primary heating ON LED will illuminate followed by the Primary Fault LED and the internal buzzer will sound. When the primary Fault LED illuminates the Primary ON LED will extinguish and the secondary ON LED will illuminate followed by the secondary Fault LED. The Secondary heating ON LED will extinguish but the primary/secondary Fault LED together with the internal buzzer will remain on until the controller is reset.

After resetting return the MCB to the “ON” position.

**\*Sensor Circuit:** Short the “sensor resistor” - The sensor fault LED will flash and the internal buzzer will sound. The primary heating On LED will also illuminate (failsafe mode). Remove the “sensor resistor “- The sensor fault LED will illuminate (constant) and the internal buzzer will sound. The primary heating ON LED will also illuminate (failsafe). With the Sensor resistor removed connect the Temperature sensor cable. The LED bar display will now show the Sensor Temperature.

## FASCIA INDICATIONS

- \* Sensor Fault: Yellow LED flashes with S/C sensor fault and continuously ON with O/C sensor fault
- \* Sensor Temperature: The sensor temperature is indicated by the LED bar display. With 2 LED’s illuminated the sensor temperature indicates a mid-value. On either an O/C or S/C sensor fault all sensor temperature indications will be extinguish
- \* Auto Test: The unit will perform a test on both heating circuits every 2 hours. When in this mode the Auto LED will be Illuminated. The System ON LED will also change from flashing to constant ON.
- \* Heating Circuits: Primary Heating ON Red LED, Primary circuit Fault Yellow LED (latching requires Reset)  
Secondary Heating ON Red LED, Secondary circuit Fault Yellow LED (latching requires Reset)
- \* System ON: Green system On LED - flashes in normal operating mode, Constant ON in Reset & Auto/Manual Test Modes

## SWITCH FUNCTIONS

- \* Reset: Resets controller after Heating circuit fault or DIP switch function change
- \* Manual Test: Allows for manual testing. Test’s both primary and secondary ( unless Primary only) circuits in sequence

## DIP SWITCH FUNCTIONS (INTERNAL)

- 1 - Buzzer : Buzzer can be isolated by moving the switch to the Off position
- 2/3 - Power range : LOW - 30 to 250 Watts, MED - 250 to 500 Watts, HI - 500 to 3.0K Watts  
Low setting - DIP positions 2 & 3 both OFF  
Med setting - DIP position 2 ON, DIP position 3 OFF  
HI Setting - DIP positions 2 & 3 both ON
- 4 - Temp Set : The controller can be set to turn the heating ON at below 5 or 8 °/C .  
For 5 °/C DIP switch OFF, For 8 °/C DIP switch ON (factory pre-set for 5)
- 5 - Quick Test : DIP switch in the ON position the controller will perform a “Auto Test “ every 20 seconds (NOTE: position is used for system commissioning only) DIP OFF - Auto test every 2 hours
- 6 - Primary Only : DIP position OFF - both primary & secondary Tapes are monitored/ switched  
DIP position ON - Only primary tape monitored/ switched
- 7 - Cal mode : DIP position OFF - Normal mode on initial power up  
DIP position ON – Clear’s Stored tape power settings (See RE - CAL)
- 8 - Self Regulating Tape : DIP switch in Off position - Constant Wattage Tape (Factory pre-set )

## OPERATION

- \* In normal operation with the sensor above 5 °/C (or 8 depending upon DIP 4 setting) the system On LED with flash
- \* Every 2 hours the controller will perform an “Auto Test “on both primary and secondary heating circuits (DIP 6 - OFF)
- \* If a fault occurs in either heating circuit during “Auto Test” the appropriate Fault LED will illuminate, buzzer will sound and the Fault relay will de-energize. When the fault has be rectified the controller can be Reset to Normal mode
- \* When the sensor temperature drops below the set point the Primary circuit will turn On, the Primary ON LED illuminate’s  
On a primary heat fault the controller will automatically switch to the Secondary circuit - Secondary ON LED illuminate’s  
The Primary Fault LED will illuminate and the internal buzzer will sound and fault relay will de- energize.
- \* When in heat mode the unit will perform a “Tape Test” about ever 15mims. In test mode the Auto LED will illuminate  
During this test and extinguish when completed.
- \* On any Sensor circuit fault the Primary heating circuit will be turned ON (failsafe operation). If a fault occurs in the Primary circuit the unit will switch to the Secondary output.
- \* Fault relay: Under normal conditions the fault relay will be energized and the Green LED located near the relay illuminated. On any fault or loss of AC power the relay will de-energize giving failsafe operation

## RE - CALIBRATION

If the controller needs to be recalibrated the “Stored Settings “ must be cleared as detailed below :

- \* Move DIP 7 (Cal) to ON position and press the RESET switch. Both Primary & Secondary Fault LED’s will illuminate  
Then go out followed by the “Auto LED” flashing
- \* Move DIP 7 (Cal) to OFF - Auto LED will go out - Press Reset - The controller will then perform its “ Initial Setup “



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