Fault Finding

CME1Q+, CME2Q+ & CME2.1Q+ Units With Volt Free Switching

This document covers part numbers
TP300A, TP302A, TP301A, TP303A, TP300HA, TP302HA, TP301HA, TP303HA, TP312A, TP312HA, TP313A & TP313HA

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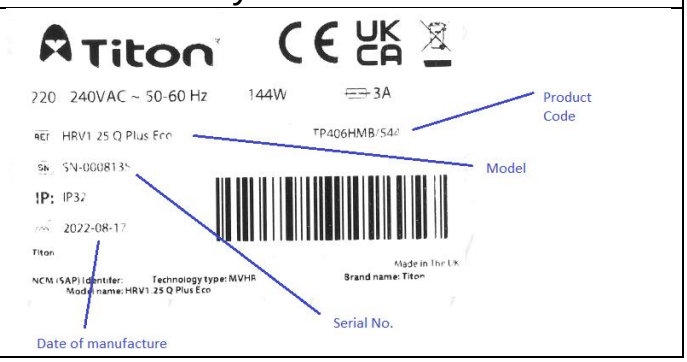
Contents

Unit Identification

Old style Serial No. Label	New style Serial No. Label
	

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All maintenance/fault finding/repairs must be completed by a competent person.
Safe isolation procedures must be followed when working on these units.

Product Features

Model	CME1Q+, CME2Q+ & CME2.1Q+			
Part Number	TP300A, TP302A or TP312A	TP301A, TP303A or TP313A	TP300HA, TP302HA or TP312HA	TP301HA, TP303HA or TP313HA
Complete Unit	●		●	
2nd Fix Cover / Scroll / Inlet Ring Assembly		●		●
Setback Speed (Set Automatically)	●	●		
Setback Speed			●	●
Continuous Speed	●			
Boost Speed	●			
Boost Overrun Timer	●			
Integrated Humidity Sensor			●	●

Auto Setback Speed

Setback Speed is a reduced ventilation rate. Auto Setback Speed is automatically set at the mid point between minimum possible Continuous Speed and the selected Continuous Speed. The Auto Setback Speed can be enabled by connection of a volt-free one-way switch, or combined with the Boost Speed with the 3 position switch TP 508.

Setback Speed

Setback Speed is a reduced ventilation rate. Setback Speed is configured using a step-less independent fan control potentiometer. The Setback Speed can be enabled by connection of a volt-free one-way switch, or combined with the Boost Speed with the 3 position switch TP 508.

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Continuous Speed

Continuous Speed is the normal running speed of the unit. Continuous Speed is configured using a step-less independent fan control potentiometer.

Boost Speed with Overrun Timer

Boost Speed is an increased speed providing higher extract air flow. Boost Speed is configured using a step-less independent fan control potentiometer. The Boost Speed can be triggered by any device which provides a volt-free one-way switch, such as a PIR, thermostat, humidistat or a standard one-way switch

Boost Overrun Timer

Boost Overrun Timer maintains the Boost Speed for a specific time variable between 0 and 30 minutes. The Boost Overrun Timer time is configured using step-less independent potentiometer.

Integrated Humidity Sensor

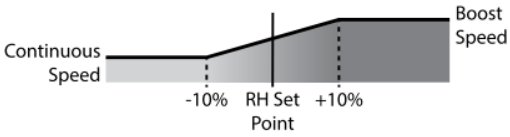
There are two variations, the function slightly varies depending upon the software on the control PCB.

If the firmware on the PCB is FW0020-0100, then

This continuously monitors the relative humidity (RH) of the extracted air and triggers Boost Speed when the relative humidity rises over the set threshold. The Humidity Sensor's trigger point is variable from 55%RH to 85%RH and is configured using step-less independent potentiometer.

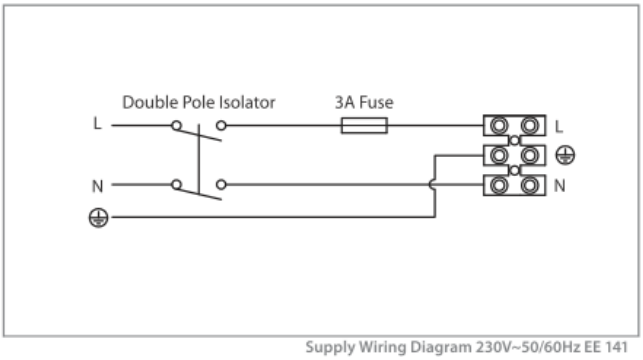
If the firmware on the PCB is FW0020-0200, then

This continuously monitors the relative humidity (RH) of the extracted air. The fan speed increases proportionally between Continuous & Boost Speed depending on the measured %RH.

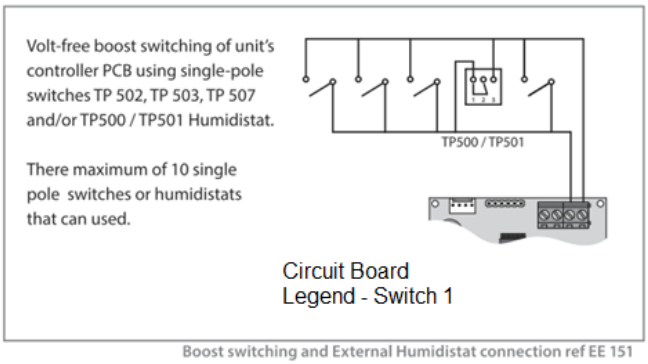


The Humidity Sensor's set point is variable from 55%RH to 85%RH and is configured using a potentiometer.

Wiring Diagrams



Supply Wiring Diagram 230V~50/60Hz EE 141



Boost switching and External Humidistat connection ref EE 151

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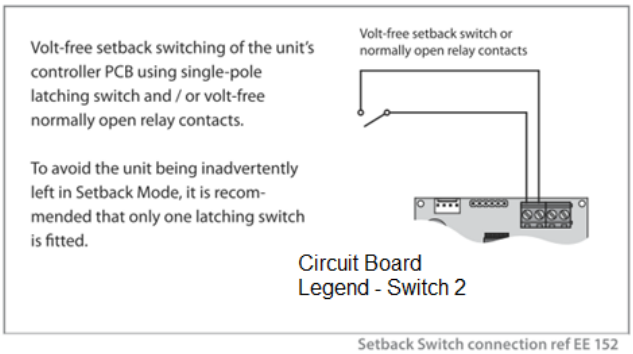
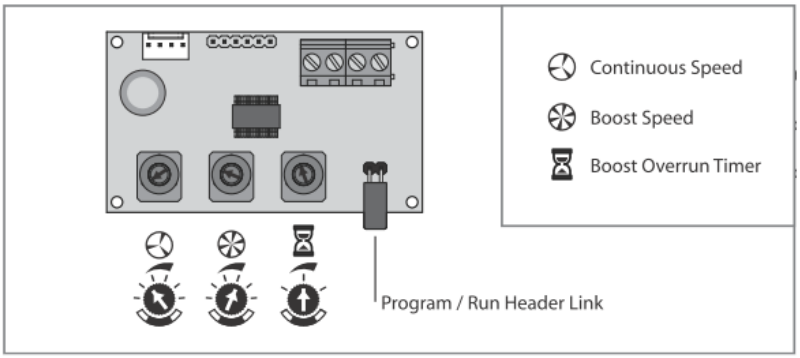
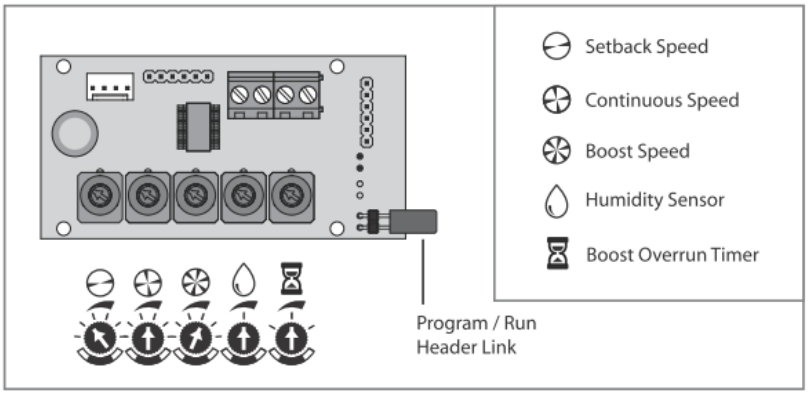


Setback Switch connection ref EE 152

PCB Configuration/Setting



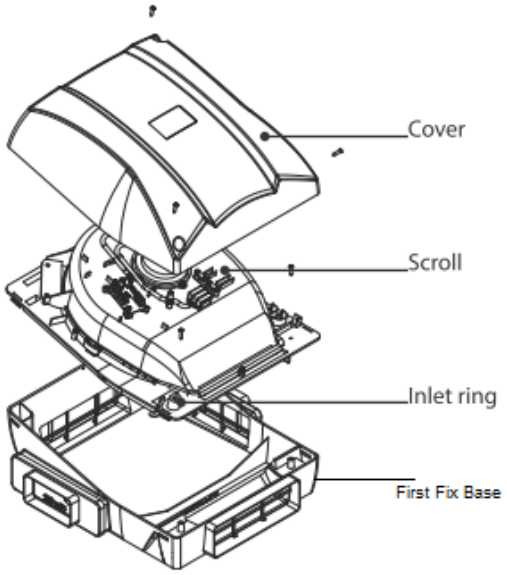
TP300A, TP302A, TP301A, TP303A, TP312A & TP313A



TP300HA, TP302HA, TP301HA, TP303HA, TP312HA & TP313HA

Unit Dismantling

All maintenance/fault finding/repairs must be completed by a competent person.



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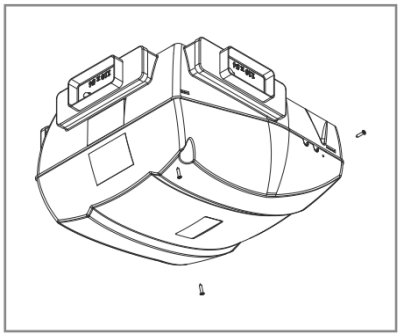
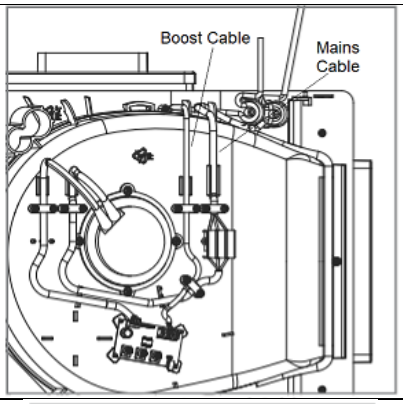
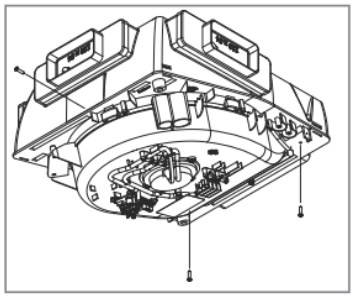
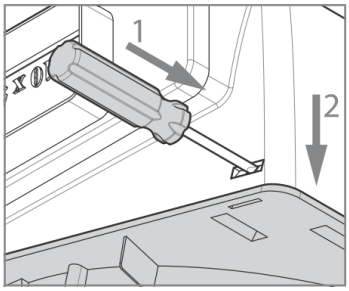
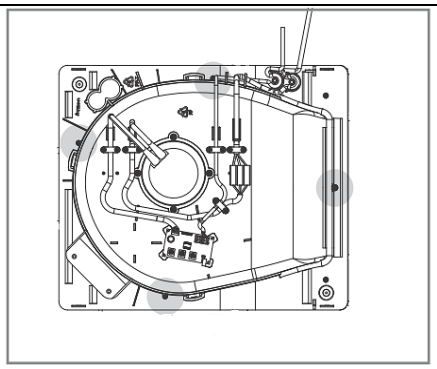
	Cover removal Remove the screw adjacent to the cable entry point, undo the remaining two screws, do not remove the cover screws just undo sufficiently to release the cover. Caution This will then expose the control PCB and mains terminal.
	Inlet removal. Remove the mains cable and the boost cable(s). Safety lockout procedure must be followed prior to disconnecting the mains from the unit.
	Remove three additional fixing screwS
	Unclip the inlet ring from the first fix base. One clip in each corner.
	Scroll removal. Undo the four screws, as shown.

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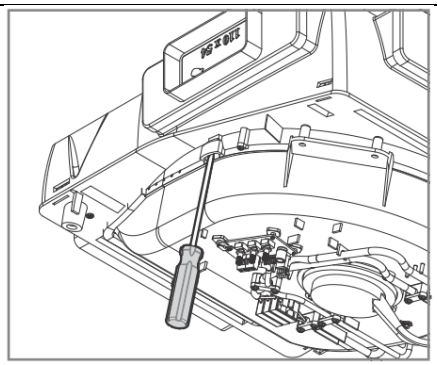
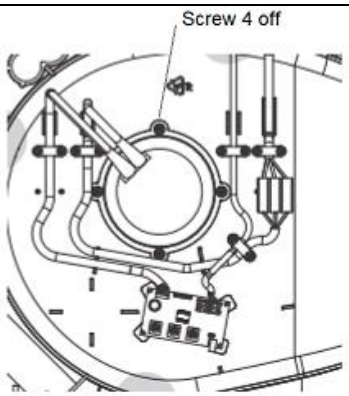
	Unclip the scroll in three places.
	Fan removal Disconnect the fan cables from the PCB and the mains terminal, release the cable clamps. Then remove the 4 retaining screws.
	PCB removal Disconnect the motor cable (white Molex connector) and the boost cables. PCB mounted on nylon feet (Version shown) - Using a flat screw driver prize the PCB off the four nylon feet. PCB screwed in place – remove retaining screws. N.B. if the unit has a humidity sensor this protrudes under the PCB, take care when removing.

Fault Finding

Unit Not Running

1. How are you determining the fan is not running? The fan may be running but is so quiet it is not audible.
   - Check flow rates at ceiling terminals
   - Increase fan speed, to see if it then becomes audible.
2. Check 230v is present at terminal block, Fig 1.
3. Check the fan Molex connector is firmly located onto the PCB, Fig 1.
4. Check fan runs (connect a 10KΩ potentiometer as fig 2), turning the potentiometer will adjusts the fan speed from max to min or vice versa.
5. Check resistance across the switch input terminals on PCB (this checks if the circuit has been damaged and caused a knock on affect to damage the PCB operation). Fig 3
6. Is the fan stopped by an obstruction?

Unit Will Not Boost

1. Is the unit in program position, the unit will not respond to a boost input or humidity when in the programing position? The unit needs to be in the run position Fig 4
2. If using momentary switches, is the over run timer set to zero?
3. Is it actually boosting but the boost speed is just higher or the same as continuous, therefore no audible difference.
   - Check flow rates at continuous and boost to see if there is a difference.
   - Change units speed to determine if difference is then audible.

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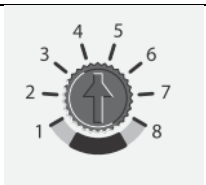


Unit speeds can be determined by looking at the top of the relevant potentiometer and seeing where the arrows point. If the arrows on the continuous and boost pots are in the same or similar positions the flow rates and noise will be similar.
Turning Anticlockwise – decreases speed
Turning Clockwise – increases speed

4. Is the unit already running at full speed.
5. Is a boost switch fitted?
6. Is the boost switch providing a connection across the boost terminals?
    - Disconnect the boost wires and check for continuity, with a continuity tester or multimeter.
    - Function can be tested by bridging the terminals, using a link wire, Fig 5.
7. Check resistance across boost terminals on PCB (this checks if the switch input circuit has been damaged and caused a knock on affect to damage the PCB operation), fig 3.

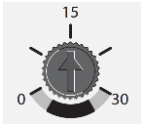
Unit Slows Down When Boosted

1. Boost speed has been set lower than continuous, check commissioning speed set up.
2. Boost cables have been connected to set back terminals. See wiring diagrams

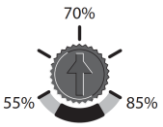
Unit Will Not Drop Out Of Boost

Before commencing any checks complete the following:-

A. Make a note of where the overrun timer is set, then set to minimum
B. Make a note of where the humidity is set, then set to maximum
C. Switch the unit off for 20 seconds, then back on.



0 to 30 mins



55% to 85% Hum.

Has this resolved the problem? If not:-

1. Is the unit in program position, if the boost speed was the last speed set it will stay at that speed, fig 4.
2. Are all boost switches off
3. Is it actually dropping out of continuous but the boost speed is just higher or the same as continuous, therefore no audible difference.
    - Check flow rates at continuous and boost to see if there is a difference.
    - Change units speed to determine if difference is then audible.
4. Is the boost switch cabling providing a permanent connection across the boost terminals?
    - Disconnect the boost wires and switch the unit off for 20 seconds then restart.
5. Has 230v has been inadvertently applied to the boost terminals – control circuitry has been damaged. Check as Fig 3

N.B. If the mains cable and boost cables are run in close proximity it is possible the 230v can induce a voltage into the boost cables and result in the unit not dropping out of boost. Five core cable – live, neutral, earth and two for boost must not be used. Min 50mm segregation required.

The unit is running at a speed that is not Continuous, Boost Or SetBack

1. Is the firmware on the PCB is FW0020-0200, if yes it is probable that the speed is ramping up/down due to humidity.

Excessive Unit/System Noise

1. Is the unit providing the correct airflow, as calculated in Approved Document Part F? If set to high it may be possible to slow down the fan, thus reducing noise.
2. Is the unit capable of achieving the required levels at an acceptable speed. The higher the speed the greater the noise!
3. Is the unit permanently in boost?
4. Has the system been installed to the design?
5. Has the system been designed to minimise noise?
6. Is the ducting system fitted to minimise system resistance, including suitable external terminal, duct sizes and duct type?
7. Is the ducting system sealed to minimise air leakage?
8. Is the unit correctly fitted to stop leakage? Have all fixing screws been fitted?
9. Is the Inlet Ring tight against the First Fix Base. If there is a gap it is likely that the two parts are not clipping together correctly. Check the parts clip together correctly without the additional fixing screw. If they do not clip together correctly it is possible the First Fix Base is twisted as it is not on a flat substrate.

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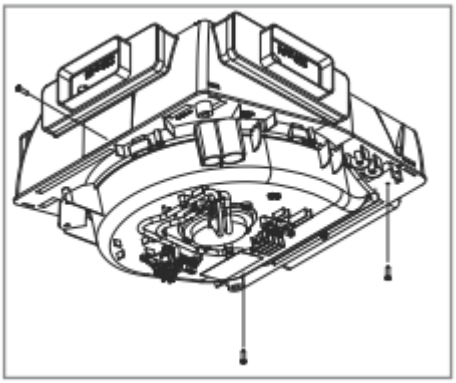
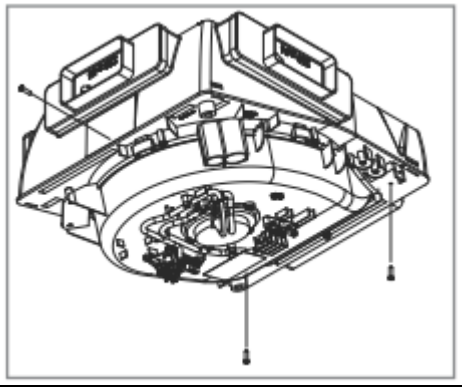


10. Is there excessive noise from the fan/motor? E.g. bearing noise

Insufficient Airflow

1. Is the unit set to the correct flow rates i.e. commissioned?
2. Has the unit sufficient capacity for the dwelling requirements?
3. Has the system been installed to the design?
4. Is the design balanced?
5. Is there excessive resistance in the system?
6. Are the ceiling terminals closed?
7. Have the correct duct sizes been used?
8. Is the ducting system blocked/damaged?
9. Is there air leakage in the ducting system, is it sealed?
10. Is there air leakage from the unit?
11. Is there sufficient clearance under internal doors?
12. Is the unit correctly fitted to stop leakage? Have all fixing screws been fitted?
13. Is the Inlet Ring tight against the First Fix Base. If there is a gap it is likely that the two parts are not clipping together correctly. Check the parts clip together correctly without the additional fixing screw. If they do not clip together correctly it is possible the First Fix Base is twisted as it is not on a flat substrate.



Condensation/Mould Within House

1. Is the unit being switched off, it must run 24/7
2. Where fitted, are trickle vents being left open?
3. Is the Boost function available and being used? N.B. not required in all properties depending upon calculations.
4. Are flow rates being achieved?
    - Unit not commissioned, N.B. standard rates may not be sufficient, dependent upon lifestyles.
    - System is unable to provide sufficient air flow (refer to fault – insufficient air flow).

Condensation/Moisture Forming In Or On Ducting

- Is duct insulated as required, DVCG statement:-

  Ducting should be insulated where it passes through unheated areas and voids (e.g. loft spaces) with the equivalent of at least 25 mm of a material having a thermal conductivity of ≤0.04 W/(m.K) to reduce the possibility of condensation forming. Where a duct extends above roof level the section above the roof should be insulated or a condensate trap should be fitted just below roof level.
- Does duct slope away from the unit, DVCG statement:-

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Horizontal ducting, including ducting in walls, should be arranged to slope slightly downwards away from the fan to prevent backflow of any moisture into the product.

Unit Not Storing The Commissioning Settings

1. Has the power to the unit been switched off before the link has been moved from the Program to the Run mode.

Unit Will Not Stay In Place Without The Additional Fixing Screws

1. Check the parts clip together correctly without the additional fixing screw. If they do not clip together correctly it is possible the First Fix Base is twisted as it is not on a flat substrate. Undo the fixing screws and re check the fitting.

Both Continuous and Boost Speeds Have Changed

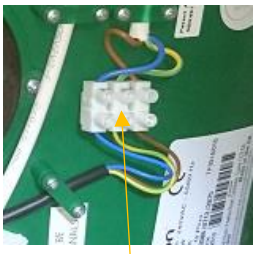
HA Model

- The unit has re-set itself to factory setting, continuous is at %50 and boost is at 100%. This has probably occurred after a power surge or a power outage. Try Re-commissioning.

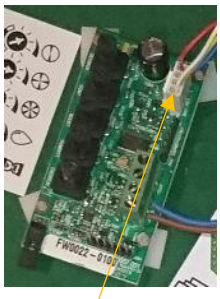
A Models

- The unit has re-set itself to factory setting, continuous is at %14 and boost is at 100%. This has probably occurred after a power surge or a power outage. Try Re-commissioning.

Fig 1 Fan Mains & Low Voltage Molex Connector

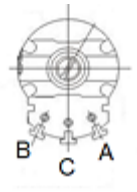


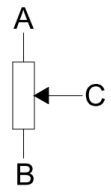
Mains terminal



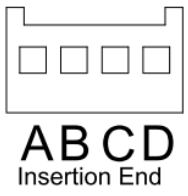
Fan Molex connector

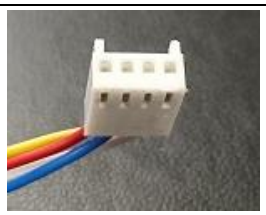
Fig 2 Molex Connector



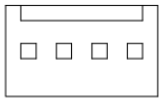


Potentiometer Connections





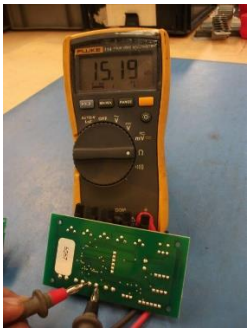
Fan Connector
A - 10V, B - 0V, C - PWM & D - Tacho



PCB Connector

If this is not possible, try bridging the A and C terminals on the fan connector, the fan should then run at full speed.

Fig 3 Testing PCB Inputs



Measure resistance across the terminals, this is easier across the soldered joints rather than the terminals block.

If reading is open circuit, it is probable that 230v has been applied.

If reading is approx. 15kΩ, then the circuit is ok.

This only checks the switch input circuits and does not prove overall functioning i.e. PCB may still be faulty if reading is approx. 15kΩ

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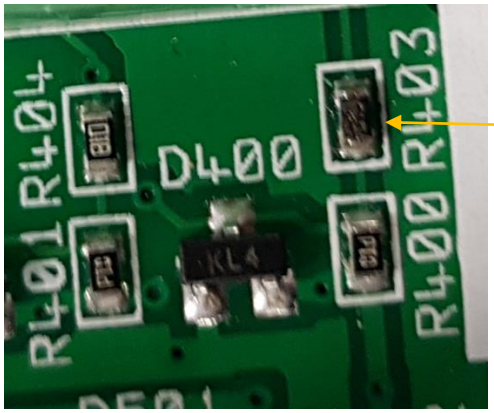
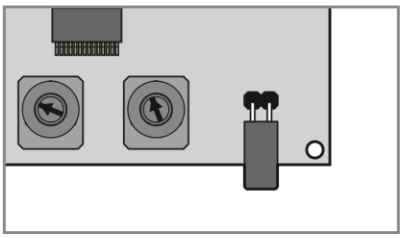
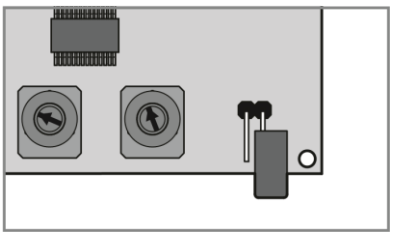


Fig 4 Programming Link



Header Link in the *Program* position



Header Link in the *Run* poistion

Fig 5 Boost Link

Boost Link

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