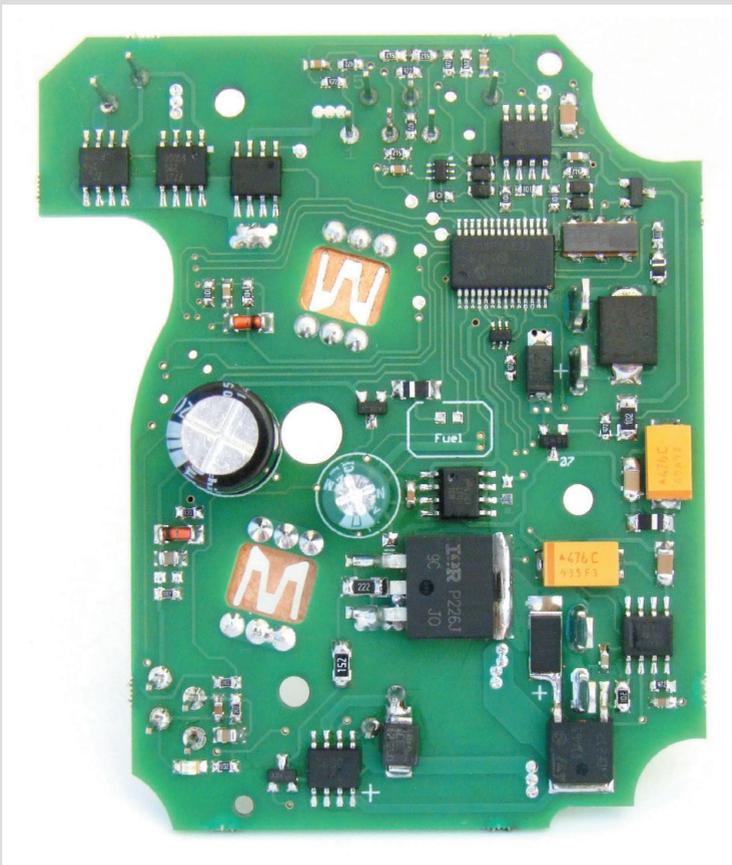# Installations Manual

Universal controller for
Thermo Top Vevo Benzin (Petrol) or Diesel Heater V1.0
with W-bus diagnostic line

This "Thermo Top Vevo" controller board looks quite similar like the "Thermo Top V - Venturi" controller board. The heater casing itself are the same, only the external labels are different. Please check your heater type to see if it is compatible with this controller!

Please do not install this controller board into a "Thermo Top V - Venturi" heater! It's not compatible with that heater, and it will not work with!
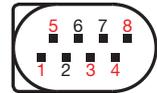
Differences

These Thermo Top VEvo heaters are made with two different connectors, the pinouts are shown in the right.
The pinout/wiring order explanation is on page 5.
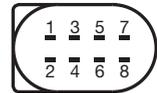
V & VEvo

Recommendations

If the controller board have to be removed and reinstalled for some reason (maintenance, etc.), the connectors of the blower fan must be bent back to base position for better contact.

Final check

Please check the back of the PCB that you have selected the appropriate fuel type (open PADs ---> diesel, closed PADs ---> benzin (petrol, gasoline).

First start without diagnostic software connection

Purge the air of the fuel system directly at the junction of the heater into a small jar (to purge into the heater is not recommended)! Without this procedure you have to restart the heater about 3-4 times for automatic air vent.

Connect all components and the +12V power to the controller. Connect +12V power to PIN1. After a short ventilation the heater going to start glowing, etc.

The power cable diameter must be at least:
- if cable length is less, than 2 meters: **2,5 mm²**
- if cable length is between 2-5 meters: **4 mm²**

Main fuse is: **25A**

The controller unit allows three restarts if the combustion could not be stabilized in the start phase.

There is no need to set or calibrate the controller*. If all of the components of the heater device working properly, and the fuel line is free of air bubbles, the controller have to work with no problem.

*except the COval adjust

To unlock the locked heater unit:

Disconnect +12V power (you have to disconnect the 6-pin connector too), wait about 10 seconds, reconnect +12V power (and the 6-pin connector too). The unit is unlocked now, the error code is stored in the EEPROM.

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The heater unit **will not start** if the battery voltage is under +**10.0 V**, and will shut down itself if the battery voltage drops **under +10.0 V** for at least 10 seconds during operation.
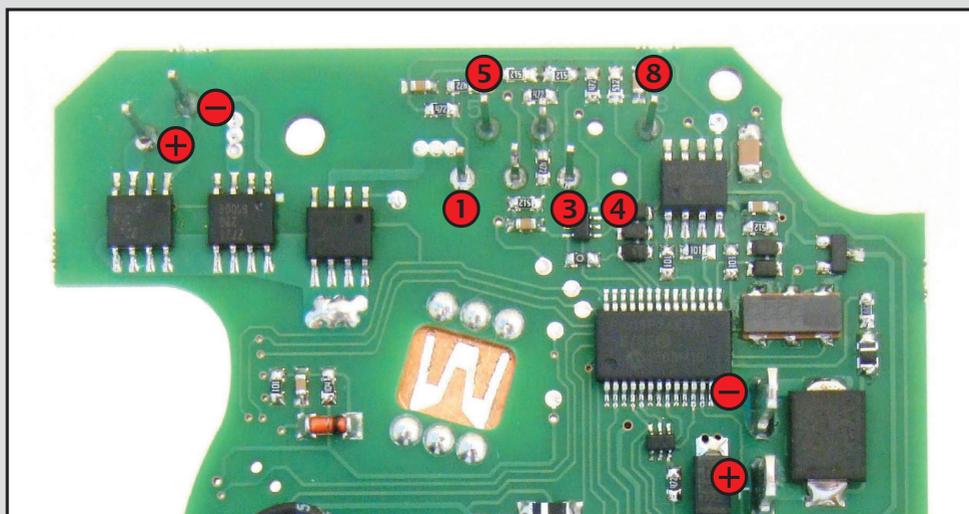
Do not **test the heater** with any power supply capable **LESS** than **40 Amps**! (do not use a regular car battery charger, for example)

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If the heater could not start as usual because of a problem (like air bubbles in the fuel line for example), it tries to start itself once again. If the problem still consist for the second try, the device locks itself. This status can be unlocked if you disconnect the start voltage from PIN1. Fail-counter would reset, if the unit could start for the second try correctly.

NOTICE: starting the heater is not recommended if the car's fuel level is on "spare" state (if the heater use the car's fuel system). In most of these cases (if the heater was installed correctly) the heater's fuel line could not reach the fuel. Please use original Webasto or Eberspacher (or matching sized POLYAMIDE fuel line – outer diameter 4-4.5 mm, inner diameter 1.5-2.5 mm) fuel line to install the heater.
Please avoid using larger inner diameter fuel line than 2.5 mm, or you could encounter venting problems.

1. start (+12v)
2. Diag (diagnostic)
3. nc
4. nc
5. Fuel pump (You have to connect this line directly to the fuel pump! DO NOT use relay!
6. nc
7. nc
8. VFR (vehicle fan relay) You have to use a relay, or a IPCU-PWM module according to your car.

If you use any Webasto device / timer to start (1533 "oval" clock, ThermoCall, etc.), then the ANALOGUE output of these devices must be connected to **pin 1** (**start**) of the controller!
The **Wbus pin** on this controller is for diagnostic use only!

Installing and using the diagnostic software:

This controller can communicating through any cheap OBD diagnostic cable, on the K-line pin(PIN7), with the Webasto Thermo test software. Tested version: 2.13; 2.14; 2.16

If there were no other OBD interface was installed on the computer you use, there might need to install a driver for the USB connection (FTDI232RL, download link: http://www.ftdichip.com/Drivers/D2XX.htm).

After you started the ThermoTest software, you have to select:

1. (!) W-bus diagnostic, then

2. select right Com port. -it is recommended to roll down the menu before connecting the USB interface to see the port the unit connects to.

Connect the interface to the heater's DIAG output connector (PIN2).

Push diagnostic button. If everything is OK, the current values displayed immediately. If not, checking the right COM port, or remove the power from the heater for at least 10 seconds, reconnect the power, and push diagnostic in the diag program immediately.

Most common problems:

Symptom: At the start-up more than two seconds "LOBATT" message --> *Too thin power cord (at least 2.0 mm^2 recommended)*

Symptom: At the start-up more than two seconds "LOBATT" message --> *Low performance power supply (you use a small power adapter as power supply) or wrong battery.*

Symptom: The heater give crackling sound at the start (petrol, gasoline), and the burning stops near the total power approaching --> *Aged, faulty fuel pump (could not deliver sufficient amount of fuel)*

Symptom: The heater does not start, just ventilate itself (about 2 minutes, then it goes to lock mode) --> *Completely wrong glowstick (it's electrical resistance at room temperature must be higher than 0.33 Ohm).*

Symptom: Controller draw to high current in standby/sleep mode or RANDOM ERRORS --> *Coolant/water spilled to the controller (it would fatally damage the PCB).*

Symptom: Continuous smoke --> *Combustion fan failure (there is no adequate speed of the fan) or sooty burner or faulty evaporizer in the burner.*