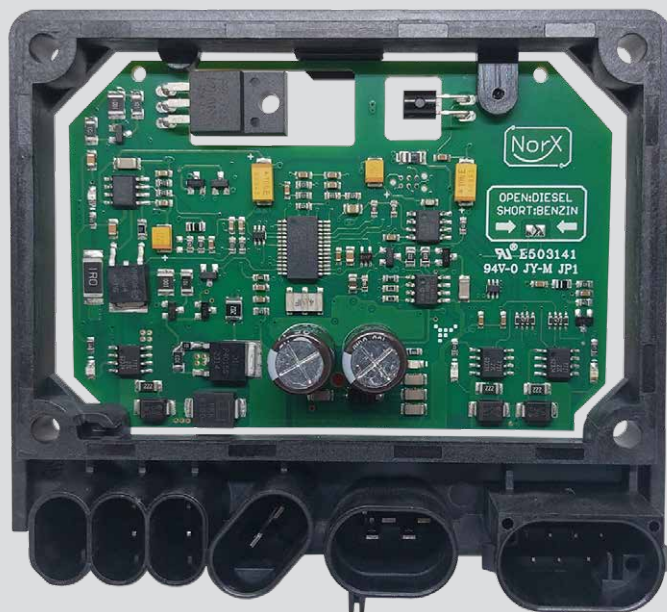


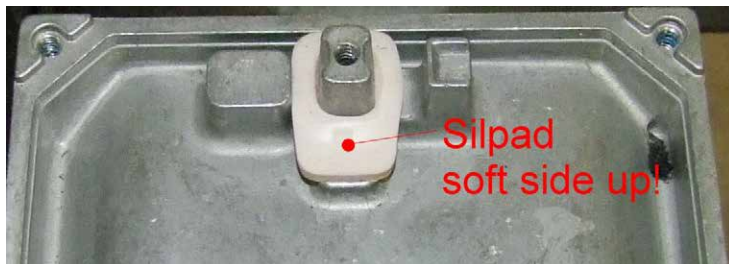
# Installations Manual

Universal controller for  
Thermo Top Z/C/E Benzin (Petrol) or Diesel Heater V5.0  
with W-bus diagnostic line



## Final checking

Please check all components at the fixation point before connect the unit to +12V power. Please check the correct polarity and the presence of silca thermo transfer rubber under the PCB.



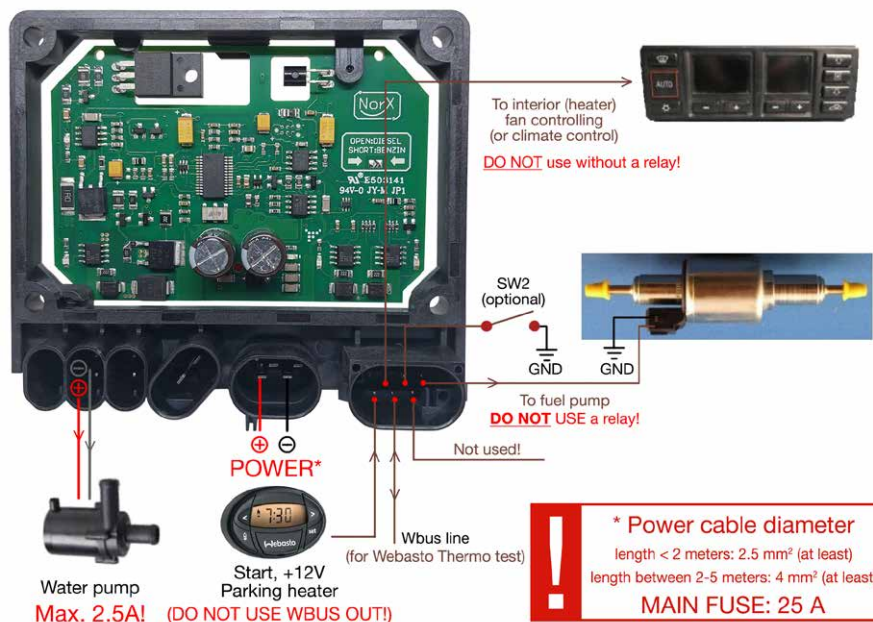
Without this rubber the heater's operation is highly not recommended, it is a serious risk of fire.

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 (do not purge into the heater)! 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 heater unit **will not start** if the battery voltage is under **+10.6 V**, and will shut off 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)



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 POLY-AMIDE 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.

#### To unlock the locked heater unit:

Disconnect +12 V 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, the error code is stored in the EEPROM.

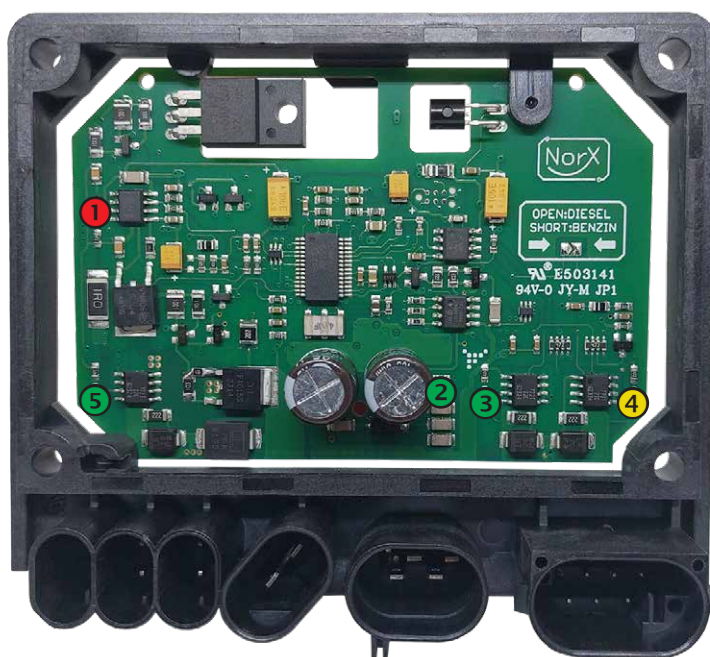


The controller unit allows three restarts if the combustion could not be stabilized in the start phase.



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.

### LED indicators functions



1. **RED:** glowing control
2. **GREEN:** flashing = standby
3. **GREEN:** interior fan
4. **YELLOW:** fuel pump
5. **GREEN:** circulation pump

### Pinout of the 6-pin connector:

1. start (+12v)
2. Wbus (Thermo Test software, !select WBUS! not aftermarket!)
3. not used
4. vehicle interior fan +12V or climate control / maximum 1,5 A – **!!!use of a relay is mandatory!!!**
5. start (GND)
6. fuel pump +12V (**do not** use a relay!)

### Installing and using the diagnostic software:

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

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

After launching the TTop software, you have to select:

1. (!) W-bus diagnostic, then
2. select the correct Com port! It's 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, check the COM port you choose is correct, or disconnect the power from the heater for at least 10 seconds, reconnect the power, and push diagnostic in the diag program immediately.

## Placing / proofing the heater and controller:

If the heater cannot be installed in a water-protected position, it is recommended to seal the ECU's plastic frame and cover as well. Use only automotive, heat-resistant sealing materials! The best solution is LOCTITE 5910. Do not use acetate silicone!



## Most common problems:

**Symptom:** At the start-up more than two seconds "LOBATT" message --> *Too thin power cord (at least 2.0 mm<sup>2</sup> 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 below than 0.38 Ohm).*

**Symptom:** Controller draw to high current in standby/sleep mode or RANDOM ERRORS --> *Coolant 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.*

**Symptom:** The heater starts, combustion seems ok, but the flame goes out within 1 to 3 minutes --> *Typically a fuel pump fault. You probably use a cheap china made pump (mostly) or an Eberspacher pump. Use an original pump, and everything will be fine.*