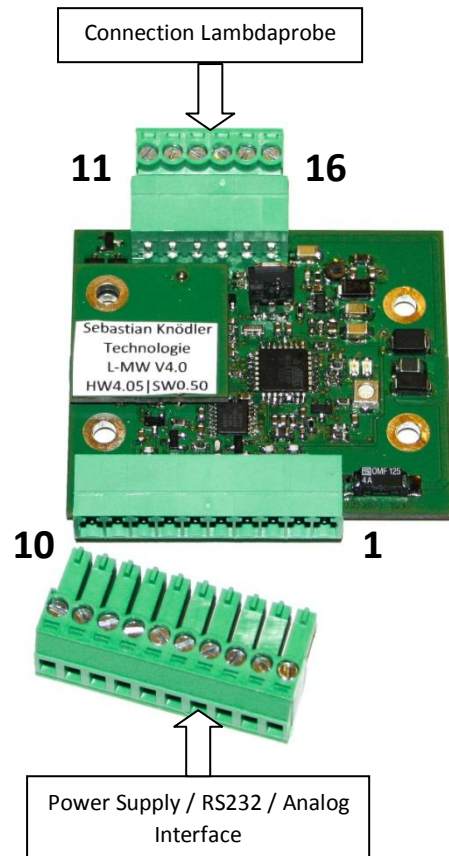


## Change Lambdaprobe Type L-MW V4.0 12V

for LSU4.2 and LSU4.9



### Pin out:

#### Power Supply and Communication

- 1 Power +12V DC
- 2 Power Ground
- 3 RS232 (TxD)
- 4 RS232 (RxD)
- 5 Start-In
- 6 Error-Out
- 7 Ground

#### Analog Interface

- 8 Analog-Out (0-5V)
- 9 Narrow-Band emulation
- 10 Ground

#### Lambdaprobe

Pin L-MW V4.0	LSU4.2	LSU4.9
11	VM (Pin 5, yellow)	VM (Pin 2, yellow)
12	UN (Pin 1, black)	UN (Pin 6, black)
13	RT (Pin 2, green)	RT (Pin 5, green)
14	IP (Pin 6, red)	IP (Pin 1, red)
15	H- (Pin 3, grey)	H- (Pin 3, grey)
16	H+ (Pin 4, white)	H+ (Pin 4, white)

### Please note:

This is only a short manual!  
The full manual you can find at:  
[www.breitband-lambda.de](http://www.breitband-lambda.de)

## General / Needed Tools

The Lambda-Controller Type L-MW V4.0 supports two different Lambdaprobes: Bosch LSU4.2 and LSU4.9

If there is no notice on the package the Probe Type LSU4.2 is configured as standard.

To switch from a LSU4.2 to LSU4.9 there have to be swapped two soldered jumpers at the back of the Lambda-Controller.

To do this work basic soldering knowledge is mandatorily needed.

Following tools are needed as well:

- Soldering Iron with fine tip, temperature controlled to max. 350-380°C
- Fine desoldering wick
- Solder for electronic purpose, diameter 0.5-1.0mm
- Fireproof underlay
- Fine caliper
- Multimeter

After successful swapping the Software has to be configured to the new Probe Type.

If the Software is not configured there are measured wrong values and the Probe can be destroyed.

Following tools are needed:

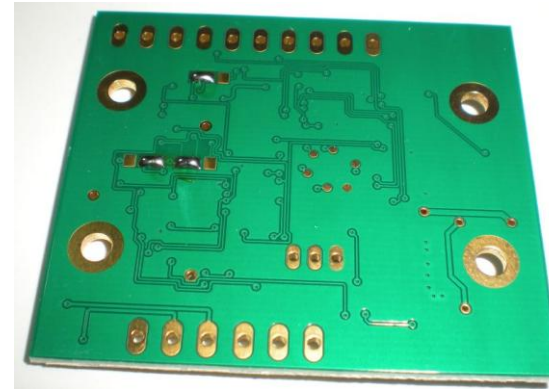
- Basic Computer knowledge
- Connection between Lambda-Controller and Computer via serial port or via RS232-USB converter
- Terminal program (e.g. <http://www.der-hammer.info/terminal/>)

If the changes are done inappropriate the Lambda-Controller can be destroyed and the warranty can be lost!

If you are unsure if you can do this work appropriately please contact the support!

## Swapping solder jumpers

Two jumpers have to be swapped:



If the jumpers are facing each other Probe Type Bosch LSU4.2 is chosen:



If the jumpers are opposed each other Probe Type Bosch LSU4.9 is chosen:



Step 1:

Prepare all needed tools on a clean and fireproof underlay.  
Heat up the soldering iron to operation temperature.

Step 2:

Remove the soldered jumpers with the soldering iron and desoldering wick.  
Make sure that there is no electrical connection between the pads anymore.

Make sure that the soldering iron has contact with the soldering pads not longer than 3 seconds. At too long heat influence the pads can peel off the PCB which causes irreparable damages.

Make sure that the PCB is not exposed to high forces.

Step 3:

To set the soldered jumpers place the solder tip of the soldering iron between the both pads which are meant to be connected and add some solder.

As soon as the connection has formed remove the soldering iron carefully from the PCB. If the connection has detached add some more solder to the pads.

Make sure that the soldering iron has contact with the soldering pads not longer than 3 seconds. At too long heat influence the pads can peel off the PCB which causes irreparable damages.

Check if the electrical connection is established. Further check if there are some short circuits to the neighbored pads and remove them if possible.

**Configure the Software**

For configuring the software there are only some few, easy steps necessary. Please check if you need an adapter cable to connect your Lambda-Controller to the computer.

The procedure is explained with the terminal program "HTerm 0.81" from <http://www.der-hammer.info/terminal/> because this program does not need an installation.

The configuration can be done with any other program too.

Step 1:

Disconnect all cables and connections of the Lambda-Controller except the power supply and the serial connection.

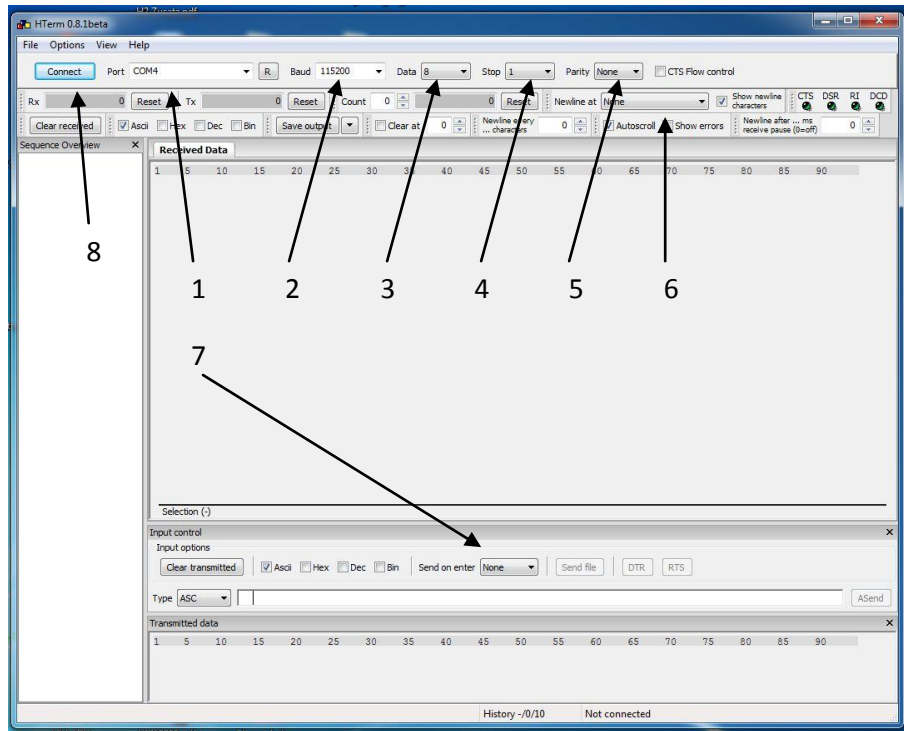
Make sure the supply voltage is between 11 and 15 volts.

The red and the green LED should turned on.

Step 2:

Establish the connection between Lambda-Controller and your computer.  
Please remember which COM-Port is assigned to the Controller.

Start the terminal program:



1. Chose the COM-Port which has been assigned to the Lambda-Controller. To refresh the drop-down menu press the “R” Button on the right side of the menu.
2. Chose baud rate “115200”.
3. Chose “8” for Data.
4. Chose “N” for Stop.

5. Chose “None” for Parity.
6. Chose at “Newline at” the option “CR+LF”.
7. Chose at “Send on enter” the option “CR”.

All other settings should be correct as standard.

Step 3:

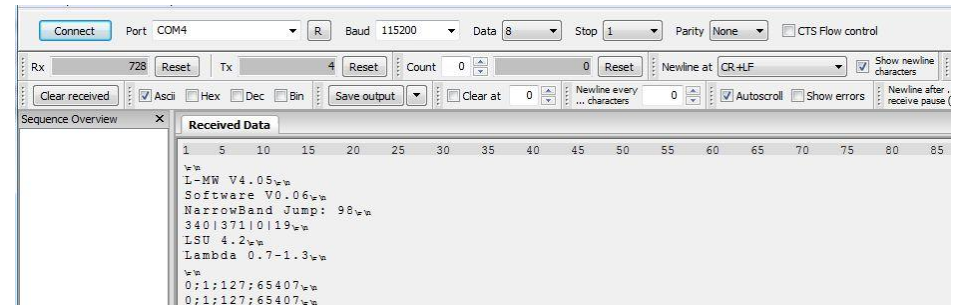
Press the “Connect” button at the left top (8).

If all settings are correct and the connection is established in the field “Received Data” following characters should appear:

```
0;1;127;65407
```

Now disconnect the Controller shortly from power supply. The serial connection should not be lost.

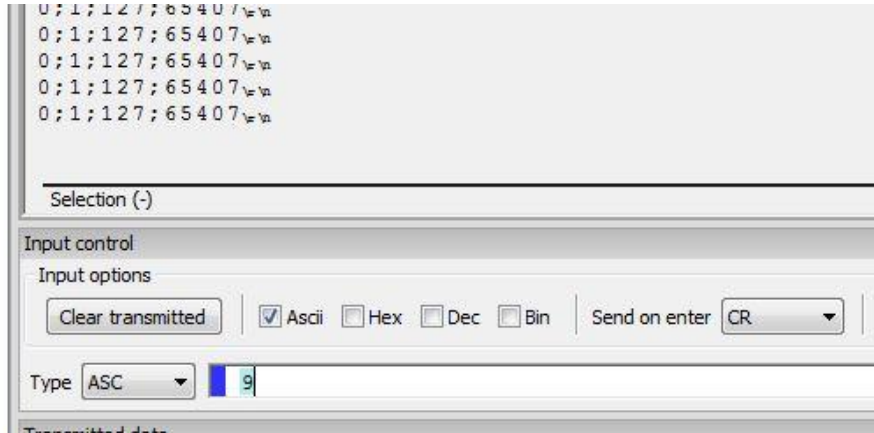
After reconnecting the power supply following text should appear:



In the line next to last the current Probe Type is displayed. In this example “LSU4.2”.

#### Step 4:

To switch the Probe Type from LSU4.2 to LSU4.9 enter in the field "Input control" the number "9" without any other characters and press Enter.



To check if the change has been done correctly enter a Uppercase "I" (i) and press Enter. Now the new setting should be displayed.

#### **Further Commands**

There can be sent following commands as well:

- S Slowmode - Refreshing values sent by RS232 all 500ms
- F Fastmode - Refreshing values sent by RS232 all 100ms
- T Textmode - Send values as clear text
- E Excelmode - Send values in CSV format
- H Heater on - Heat up Lambdaprobe
- D Heater off - End measuring
- I Info - Display current settings

- U No turn-on delay
- V 15 seconds turn-on delay
- W 30 seconds turn-on delay
- X 60 seconds turn-on delay
- 2 LSU4.2 - Used Lambdaprobe is LSU4.2
- 9 LSU4.9 - Used Lambdaprobe is LSU4.9
- 3 Curve 3 - Set measuring range  $\lambda=0.7...1.3$
- 4 Curve 4 - Set measuring range  $\lambda=1.0...10.0$
- 5 Curve 5 - Set measuring range AFR 10...20
- 6 Curve 6 - Set measuring range O<sub>2</sub> 0...21%

#### Standard settings:

- Lambdaprobe: LSU4.2
- Measuring range: 3 -  $\lambda=0.7...1.3$
- Turn-on delay: 15 seconds
- Refreshing: Slowmode (500ms)
- Sending format: Excelmode (.csv)

#### **Support**

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