Manual
Capristo Lambda Simulator
Control Suite

(basic version)

V1.0

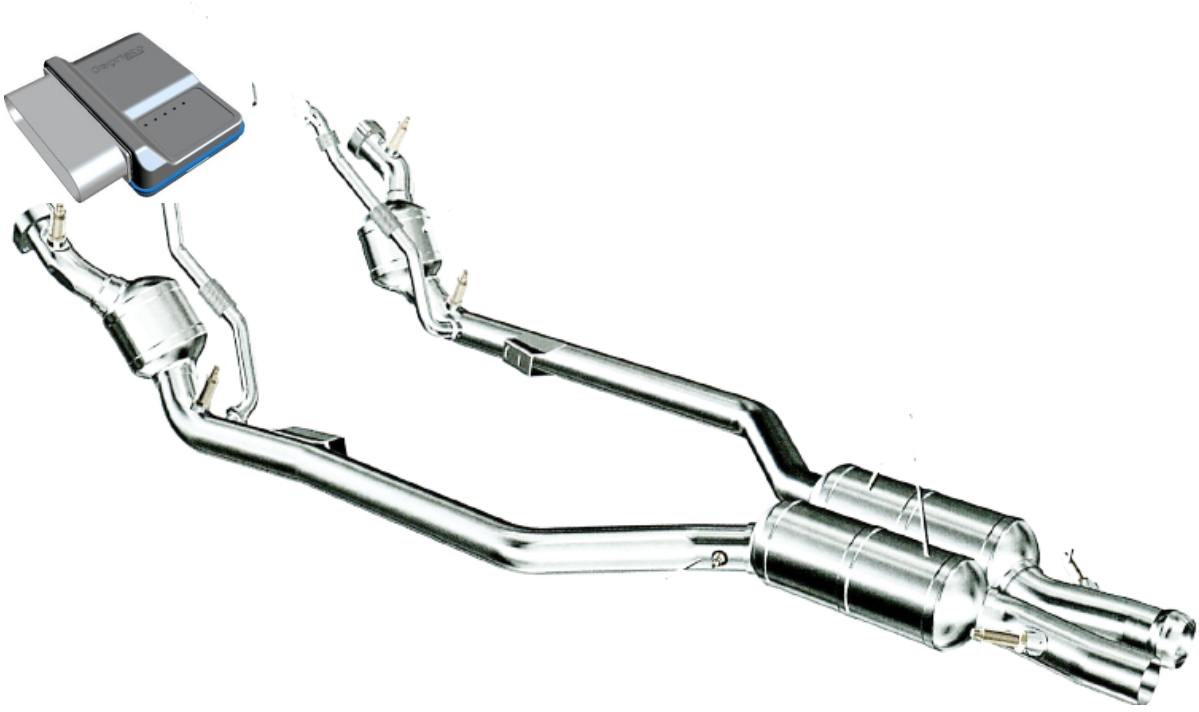
Overview

When you fit a sports exhaust system of Capristo Exhaust Systems GmbH, you will also be fitting a sports catalysator with high flow throughput. A narrow band oxygen sensor (Lambda sensor) is fitted after the catalysator to check the state of the catalysator. Due to the high throughput of exhaust gasses it is possible that the oxygen sensor after the cat. reacts too fast or too much. The ECU of the car is constant monitoring the value of this lambda sensor to determine if the catalysator is still doing its job. If something is not correct, the Check Engine Light will light up in the dashboard.

The **C**apristo **L**ambda **S**imulator is an intelligent microprocessor based device that receives up to four original narrow band oxygen sensor signals, analysis the signal and sends up to four independed dynamically changing and manipulated signal to the ECU. With a correct setup of the device the Check Engine Light will not light up anymore. The behavior of the narrowband oxygen sensor is now simulated the same as in the original exhaust pipe situation!

The CLS is a Bluetooth® enabled device, allowing us to make a Bluetooth® connection with the CLS device. With the CLS control Studio software we can monitor the narrow band oxygen sensor signals and make some adjustments to the simulator.

CLS Connection diagram:



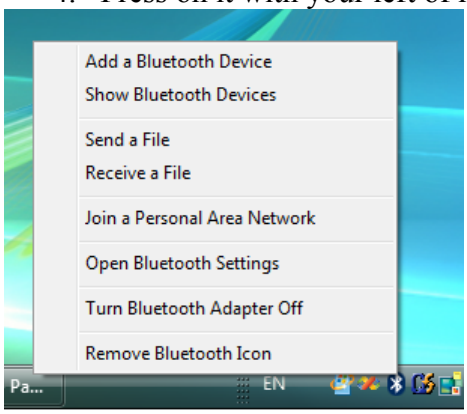
Adding a Bluetooth Device / connection

Please follow these steps to add the CLS1 device as an bluetooth device.

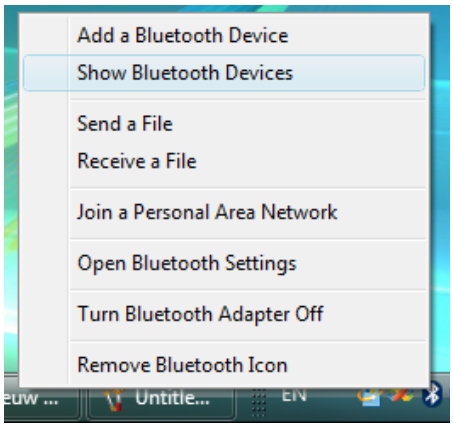
1. Fit the CLS set (device and cables) in the car with care.
2. Switch the car ON so the device will be power up. A red light is ON and the blue light for Bluetooth will slowly blinking. Bluetooth is waiting for a computer or smartphone to connect.
   The bluetooth can now be discovered.

picture of CLS labels

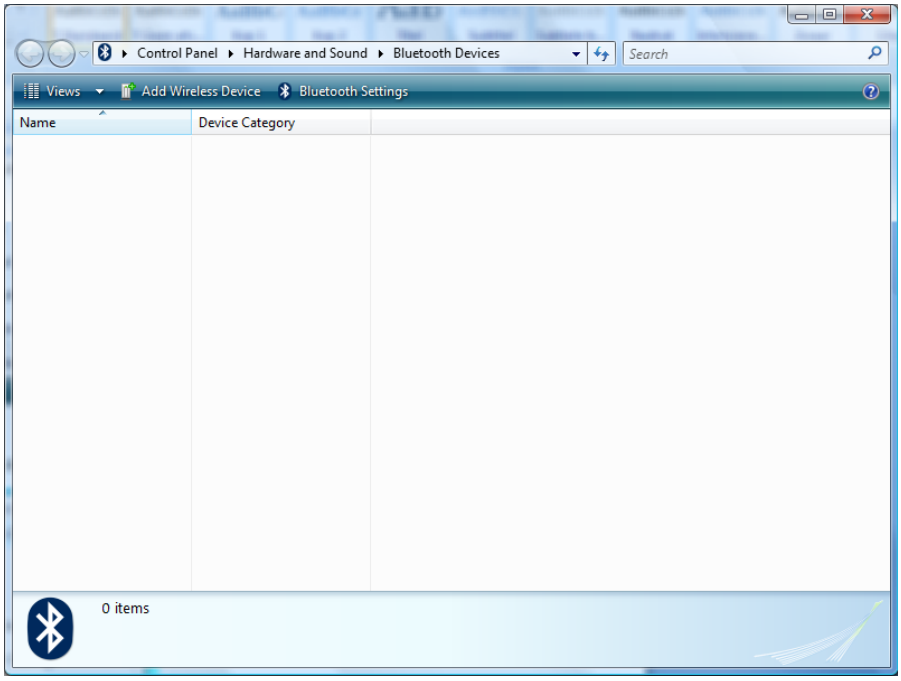
3. On your computer look at the rightcorner of your desktop. Locate the bluetooth icon 
4. Press on it with your left of right mouse button and the next menu will popup.



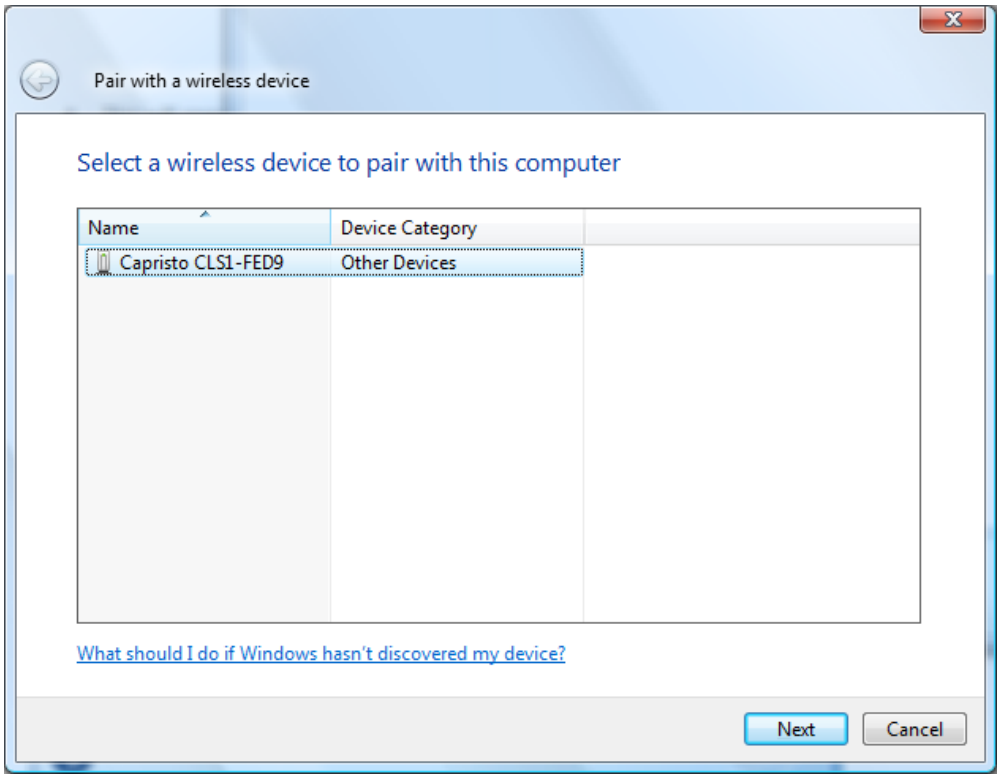
5. Select “Show Bluetooth Devices”



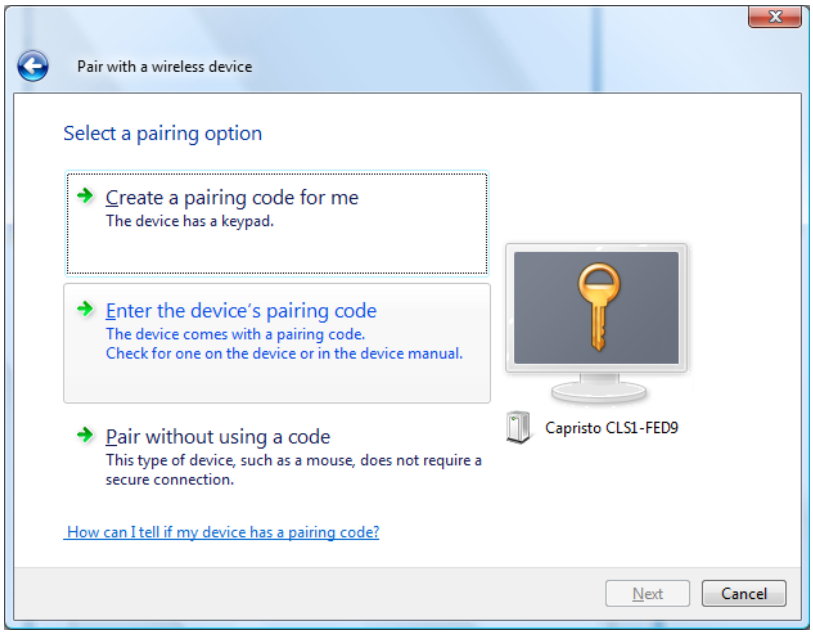
6. This will open a panel with all your Bluetooth connections
7. Click on Add Wireless Device



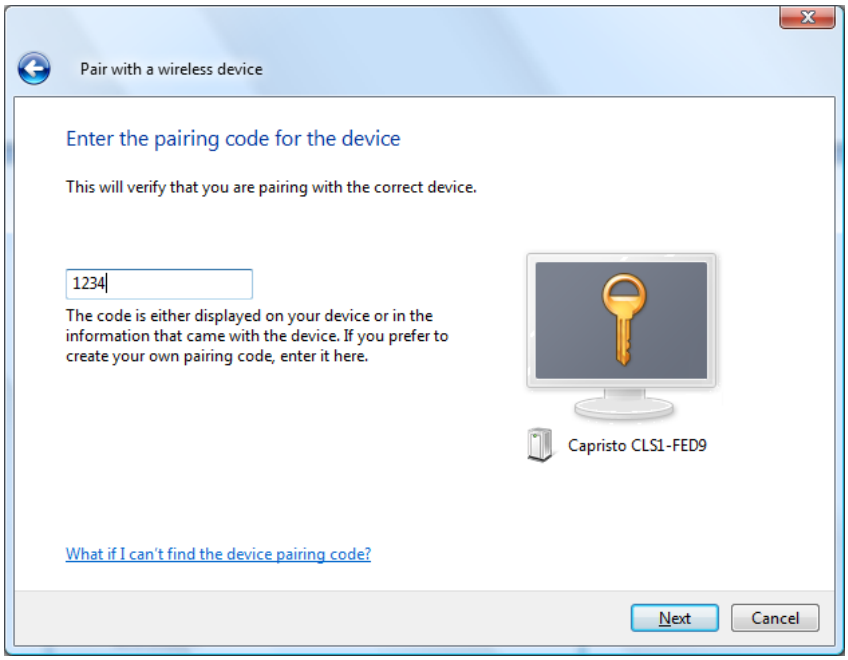
8. This will show you all available Bluetooth devices. Select Capristo CLS1-XXXX and click on next

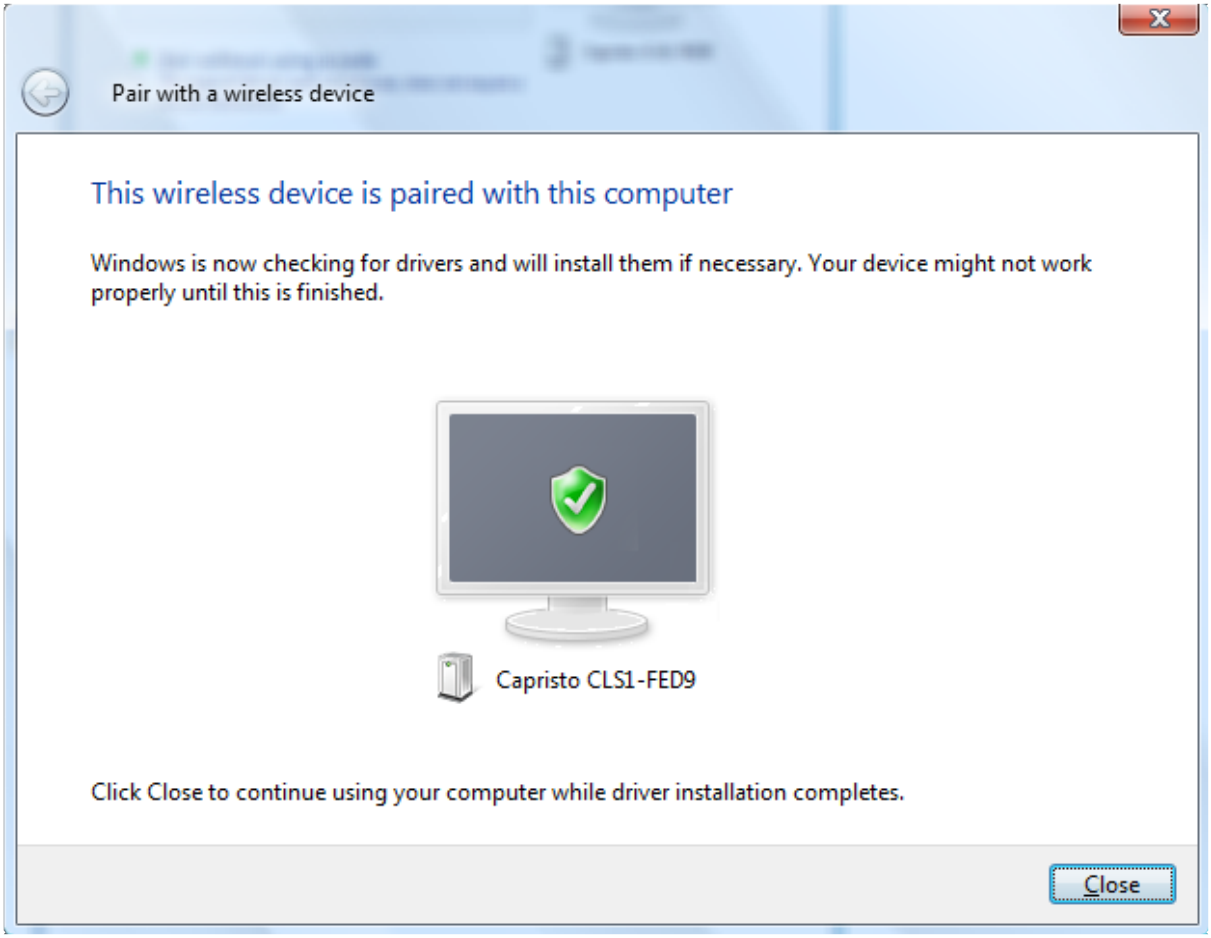


9. Select “Enter the device’s pairing code”



10. Enter code: 1234, click on next

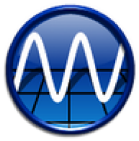




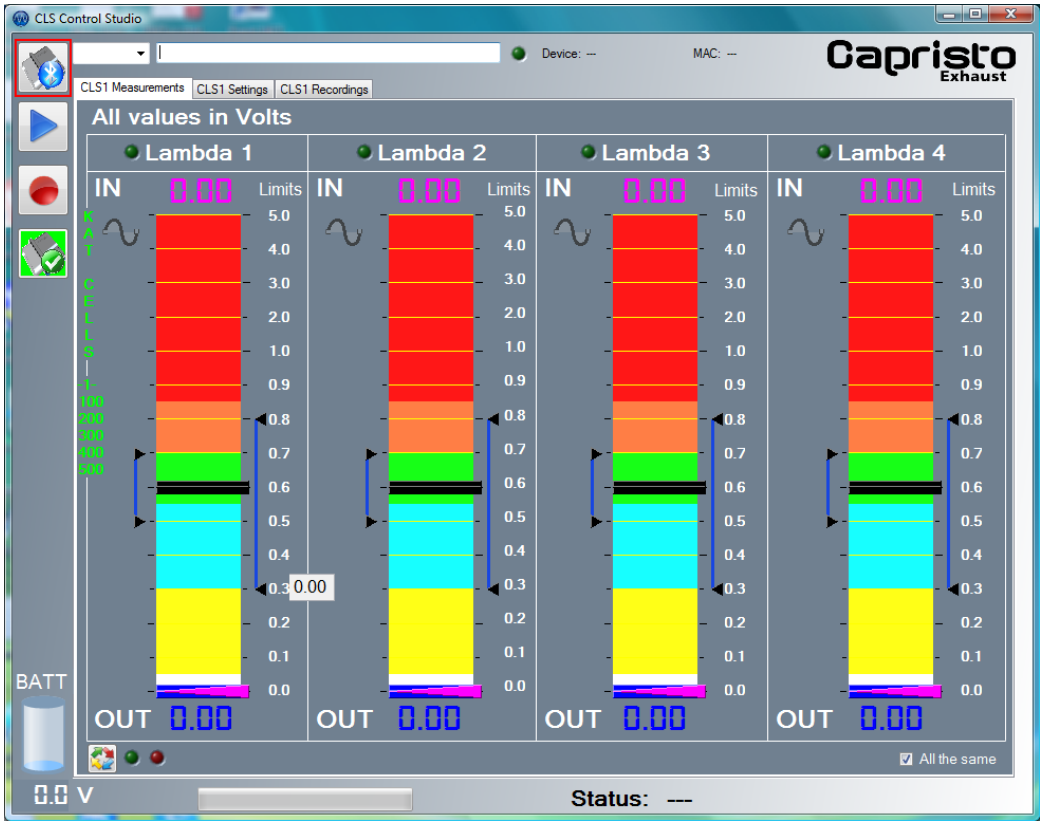
11. When succesfull connected, you will see the following panel.
12. Click on CLOSE

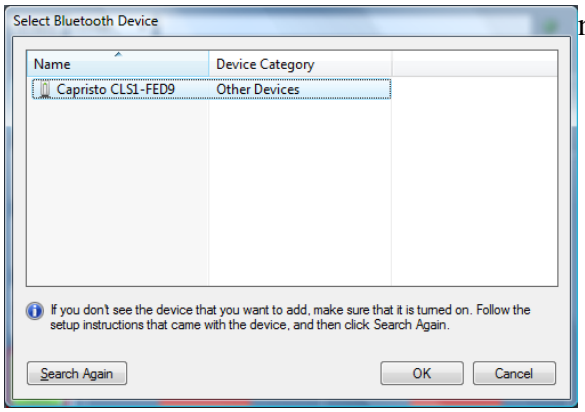
Connect to CLS1 module

1. Locate icon for CLS on your desktop and start the program



2. Click on this  to find the CLS device

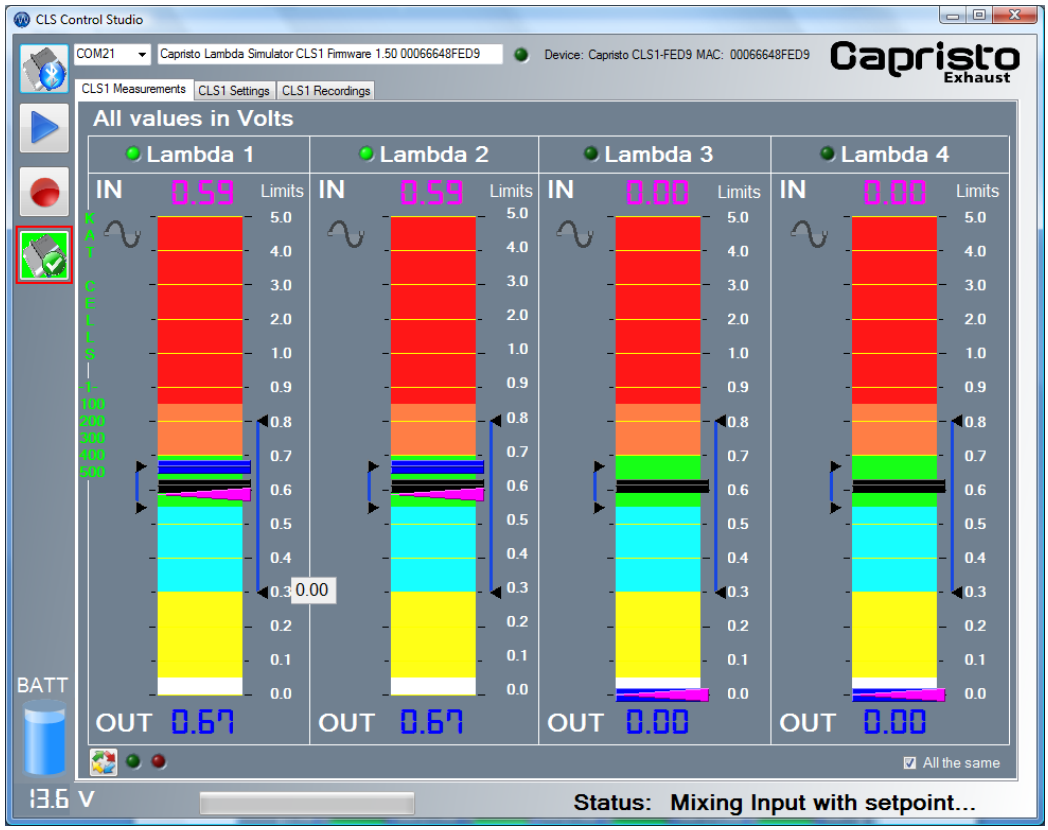




nd press OK.

4. CLS control studio searches the correct connection and opens the connection with the device. Please wait for this procedure to connect.

Once successfully connected, you will see all values are displayed.



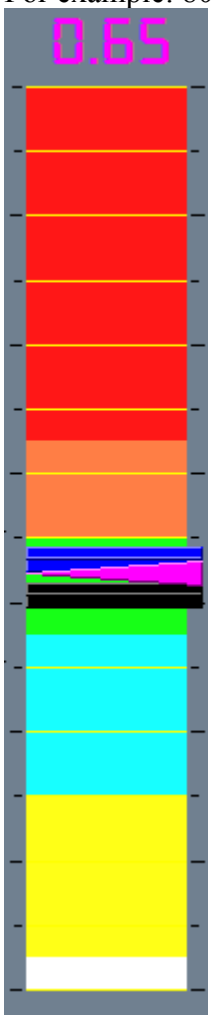
Settings for CLS

Basically 2 settings are important to make.

1. What level (voltage) is the lambda signal with original exhaust fitted when car is driving a constant speed of 80 km/h
2. What level (voltage) is the lambda signal with original exhaust fitted when throttle is 100% open.

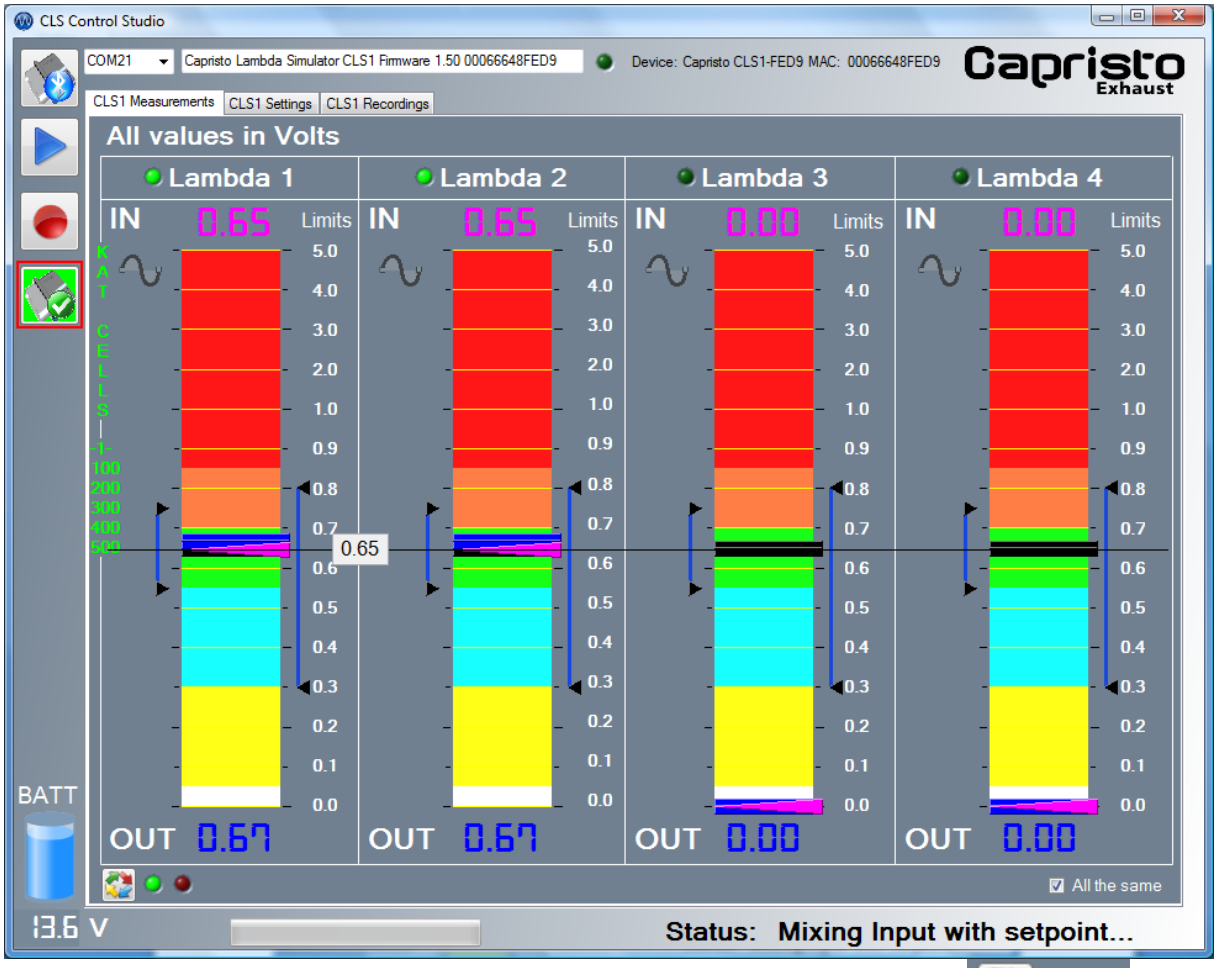
How to determine the level at 80 km/h constant speed?
Simpel, just take your laptop with you in the car which is connected to the CLS device. Drive the car at constant speed of 80 km/h and watch the voltage of the purple indicator. (top voltage is input voltage)

For example: 80 km/h --> 0.65 V



In CLS control studio, grab the black indicator and drag it to the value of 0.65.

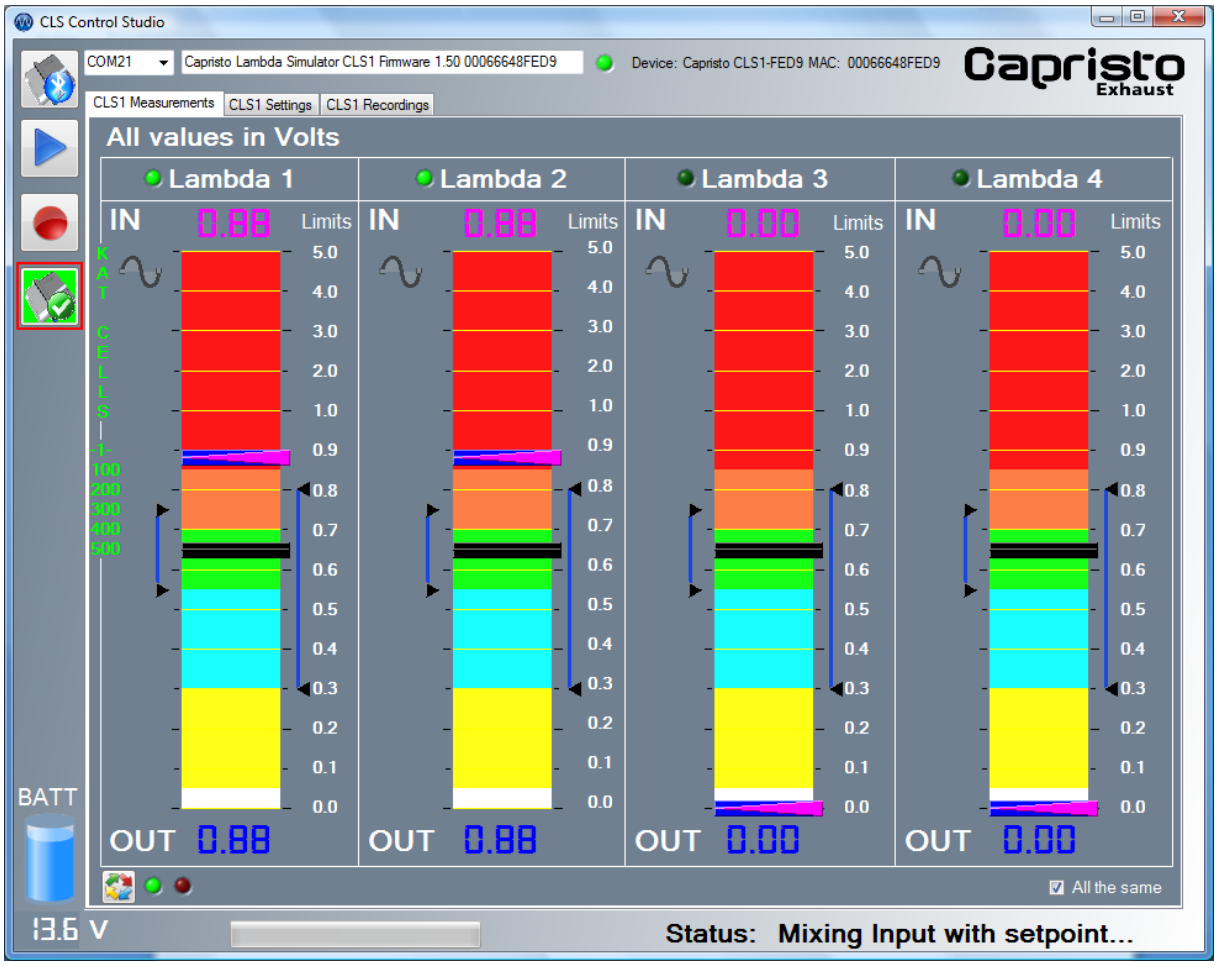
Send the new settings to the CLS device by clicking this button  (location:left lower corner)



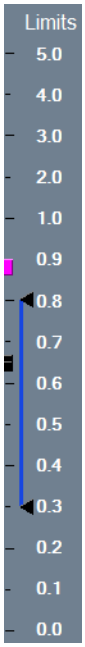
When successfully received the green light next to the button will light up. 
If not, the red light will be on and you have to try it again.

How to determine value at 100% Throttle?
Drive on a highway at constant speed, e.g. 100 km/h. Now enable 100% just for a couple of second and watch the purple value.

For Example: 100% Throttle --> 0.88V



To set the correct setting for Full Throttle, set the max limit value a bit lower than 0.88V in the example. This is done by the slider on the right side



Send the new settings to the CLS device by clicking this button  (location:left lower corner)

When successfully received the green light next to the button will light up. 
If not, the red light will be on and you have to try it again.

The device is ready to simulate the original values.