User Manual

LCU1S Open

Release 1.00

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1 – Introduction

LCU1S Open is the new smaller, lighter and faster AiM Lambda Controller open expansion that can be connected to non AiM CAN network. It is of course supported by AiM devices to. **Please note**: the only AiM systems that does not support LCU1S Open are MXL, MXL2 and MyChron.

LCU1S Open allows you to perfectly tune the carburation of the engine as well as to improve the engine performances.

LCU1S uses a Bosch LSU4.9 probe that saves the original calibration for the duration of the sensor life and lasts for more that 100.000 km on a stock car.

2 – Available kits, optionals and spare parts

Available LCU1S Open kits are:

LCU1S Open complete kit; part number: **X08LCU1SAC090**
- LCU1S Open
- Bosch LSU 4.9 Lambda probe
- Thread iron ring for installation

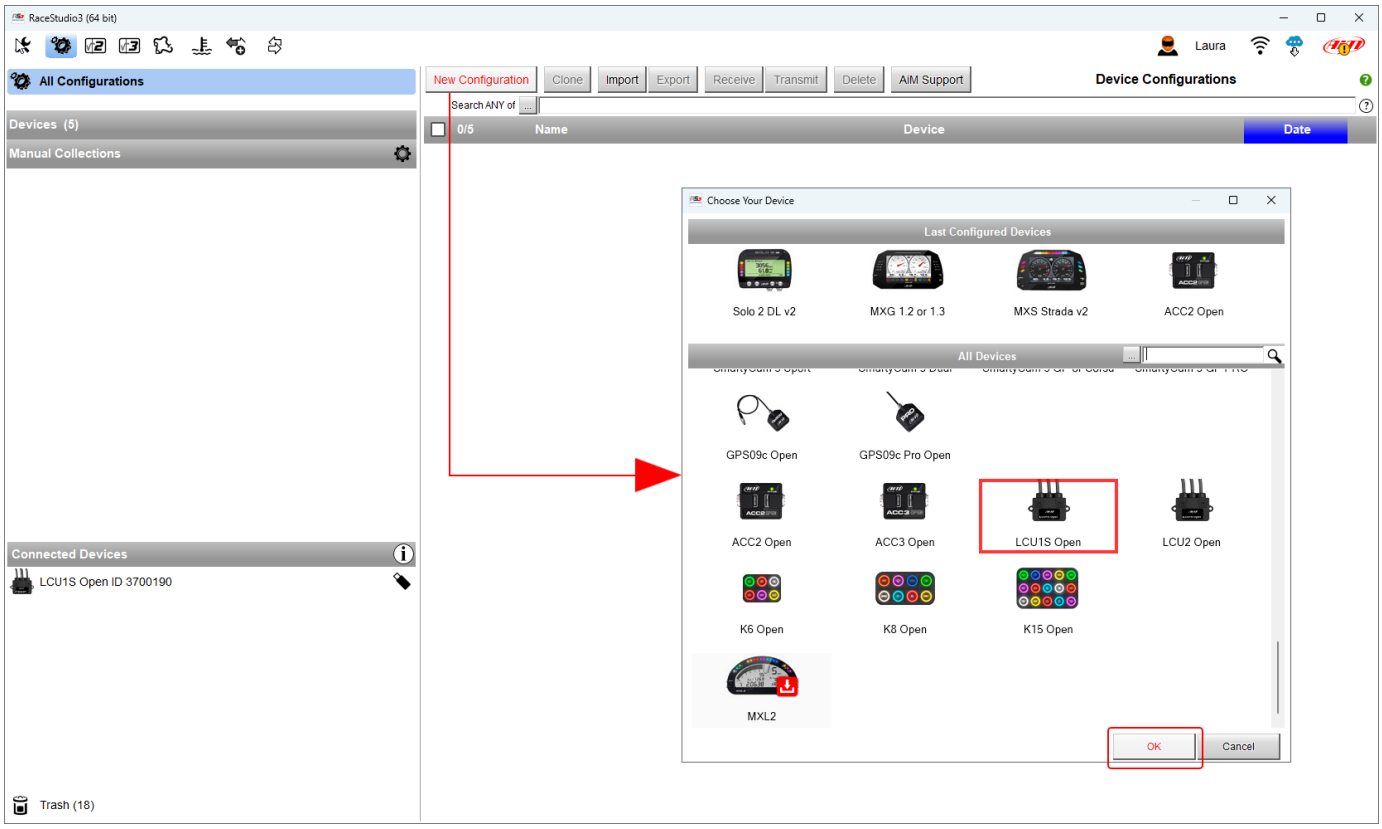
LCU1S Open kit without Lambda probe; part number: **X08LCU1SAC0**
- LCU1S Open

Optional and spare parts:
- Bosch LSU 4.9 Lambda probe **X05LSU490**
- Thread iron ring for installation **LBS552680**
- 50cm AiM CAN cable **V02552690**
- 100cm AiM CAN cable **V02552700**
- 200cm AiM CAN cable **V02552720**
- 400cm AiM CAN cable **V02551070**

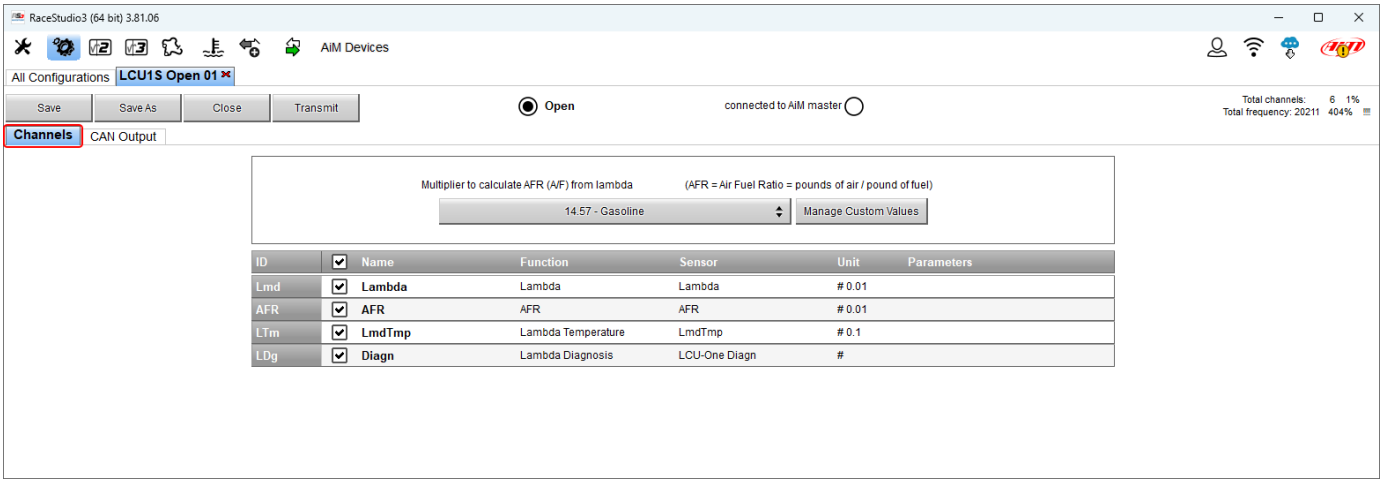
3 – Configuring LCU1S Open channels

LCU1S Open can only be configured using AiM RaceStudio 3 software you can freely download from AiM website at www.aim-sportline.com download software/firmware area.
With LCU1S Open powered and connected to the PC, run the software and select the configuration to set or create a new one as shown here below. To create a new configuration:

- Press “New Configuration”
- Scroll the menu in the panel that is prompted and select LCU1S Open
- Press “OK”

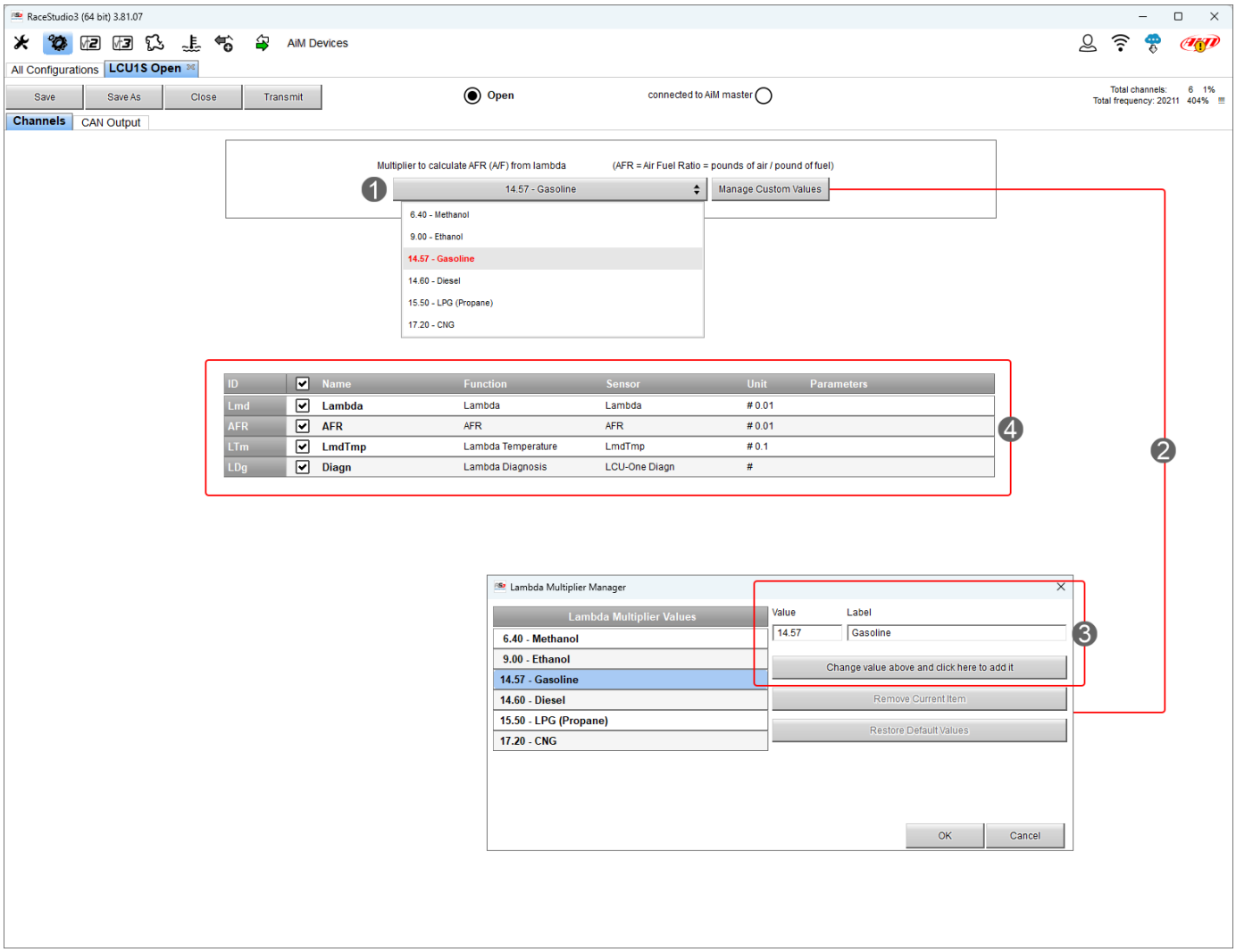


The software enters “Channels” tab.



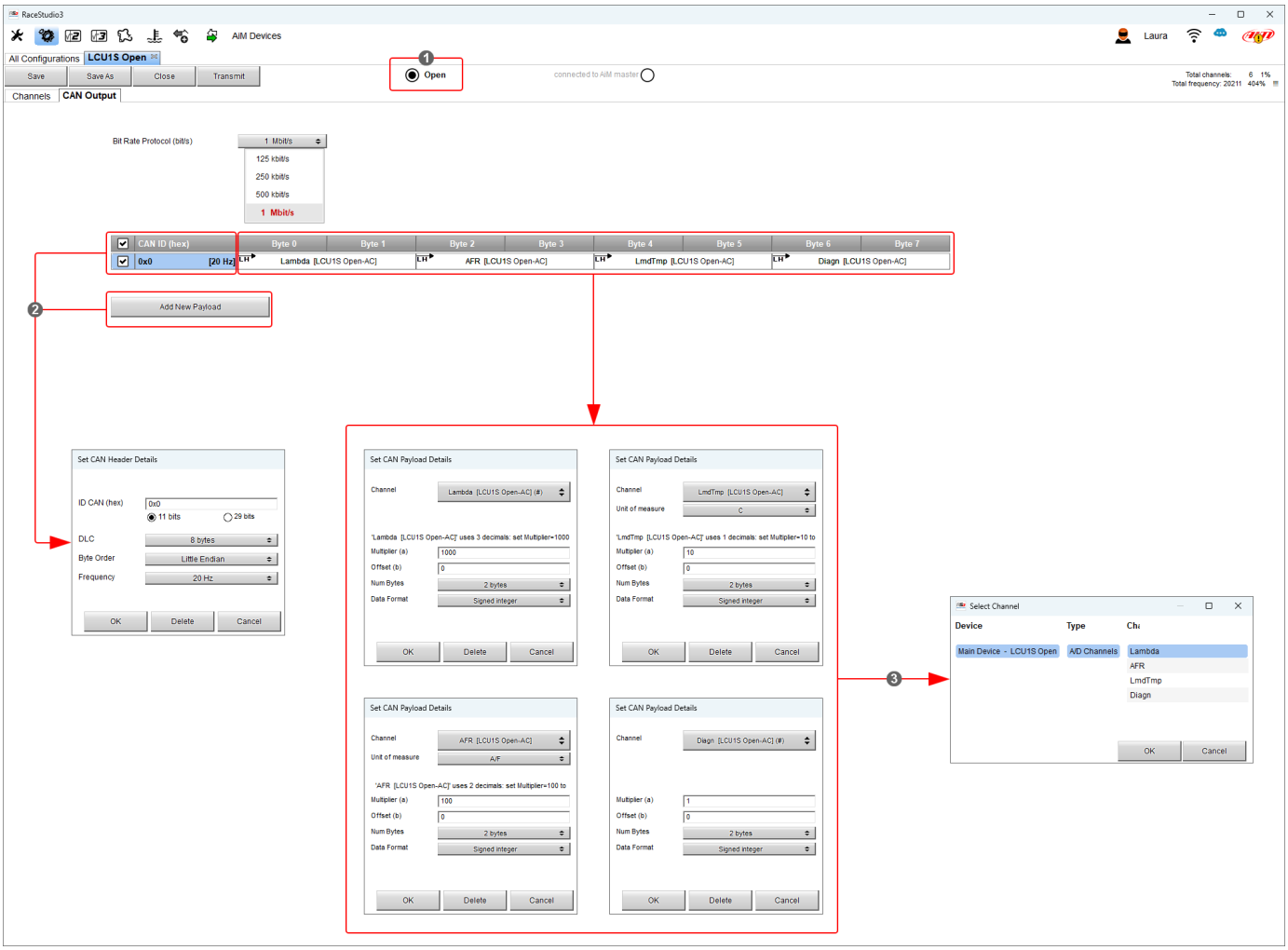
Once LCU1S Open added, the software enters the related tab (0LC1S Open). Here it is possible to set it. Specifically:

- According to the fuel used it is possible to select the related multiplier to calculate AFR from lambda (**1**)
- It is possible to manage Lambda multiplier through the related button (**2**) as well as to add a custom value (**3**)
- It is possible to set channel table (**4**) clicking on each channel and setting sampling frequency, Unit of measure and display precision.



4 – Configuring LCU1S Open CAN Output

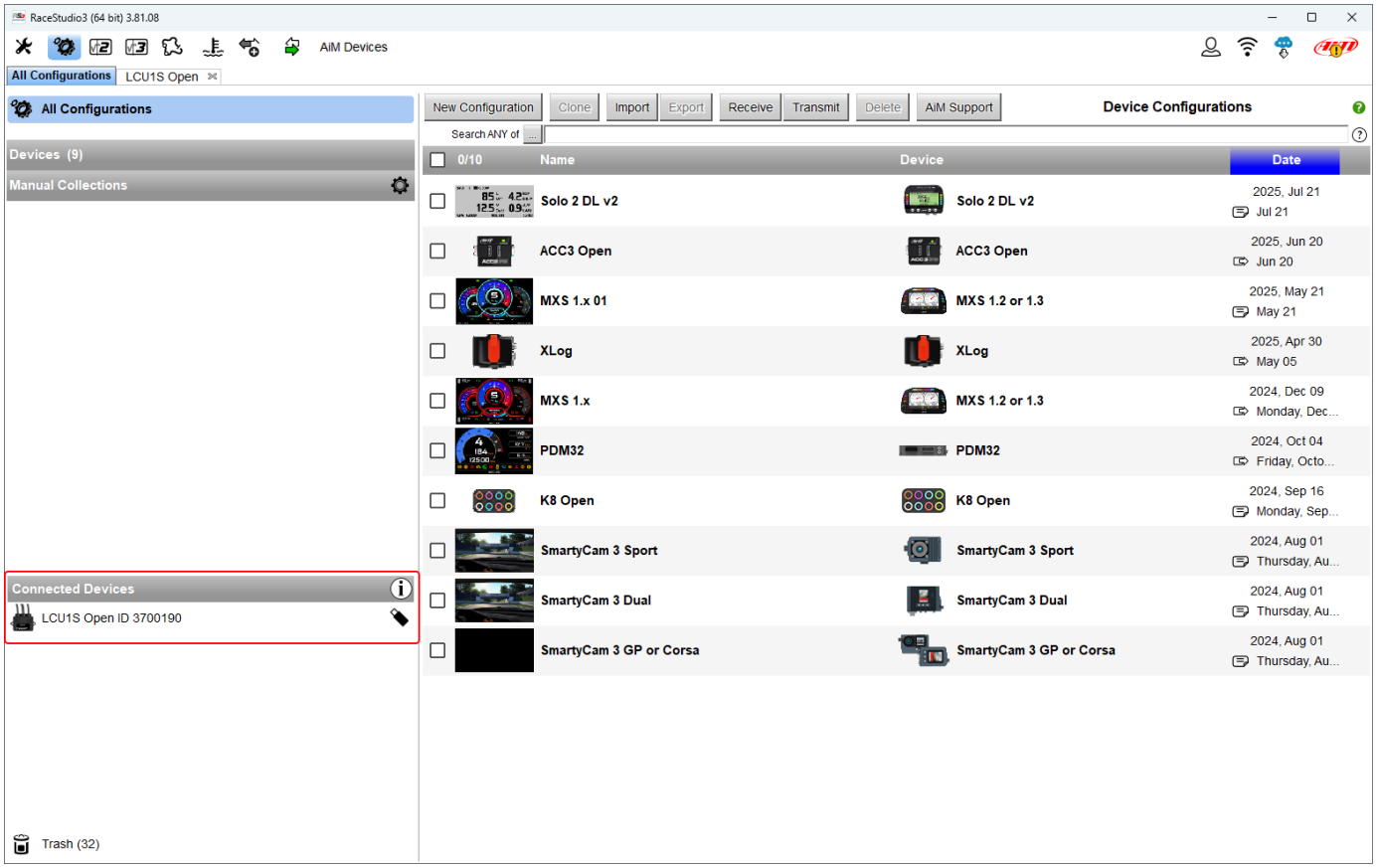
To configure CAN Output enter the related tab and ensure that the tab is set on “Open” (**1**).
The software offers a default example of configuration you can set according to the CAN network you are going to connect your LCU1S Open to.
Once CAN Header details set (**2**) configure all bytes (**3**) according to the frame of the vehicle protocol.
In case more devices of the network can receive the information supplied by LCU1S Open you can add and configure more payloads pressing the related button so to satisfy the network parameters.



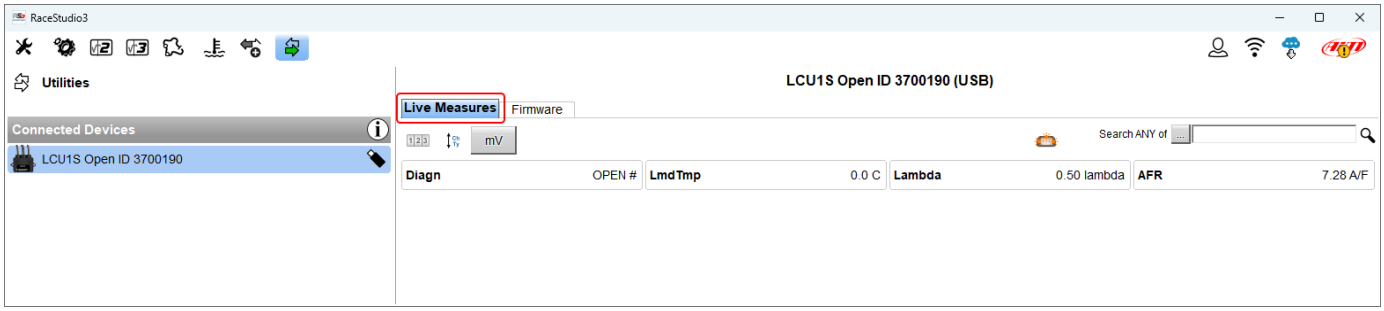
5 – Online view and firmware update

Once LCU1S Open connected and identified it is suggested to complete, save and transmit the configuration. Now it is possible to enter online view and check LCU1S Open values. To do so:

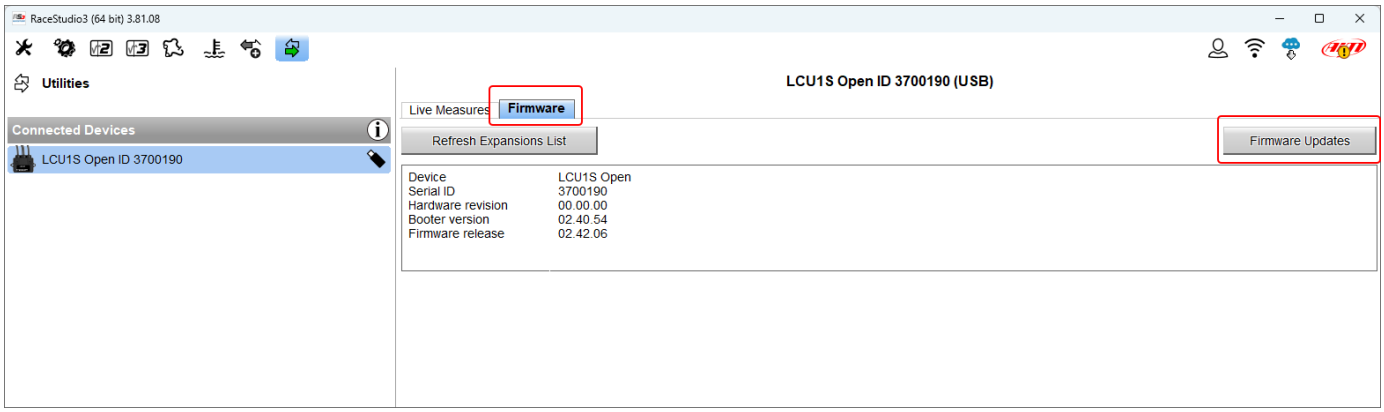
- enter “Configurations” view
- Press LCU1S Open connected.(3700190 in the example below)



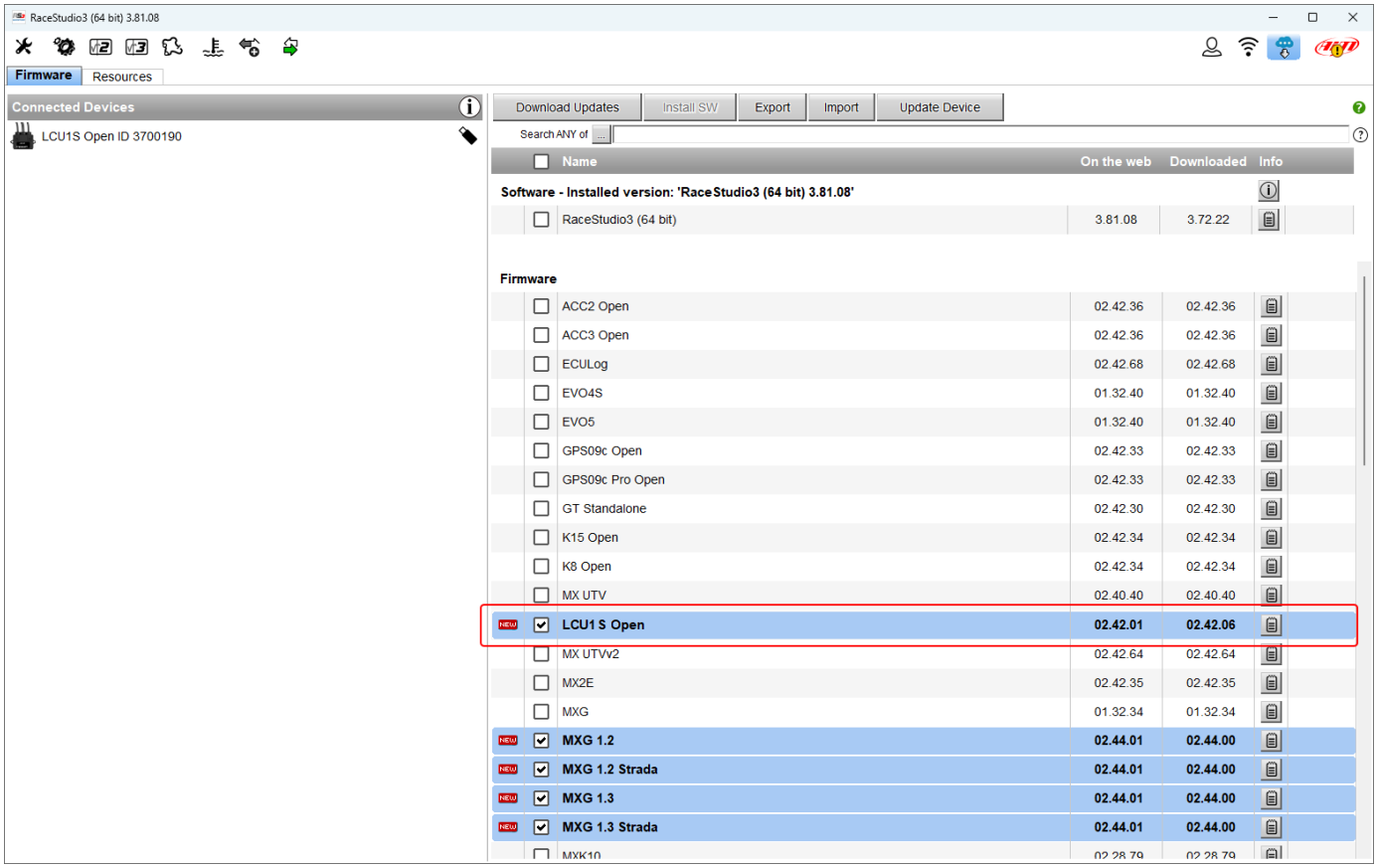
The software enters “Live measures” view and shows the expansion live measures.



From this page it is also possible to update LCU1S Open firmware activating the related tab. To update LCU1S Open firmware press the related button.



The software enters Firmware update view.
To update LCU1S Open firmware scroll the list of available updates select, download and install LCU1S Open firmware as for any AiM device.

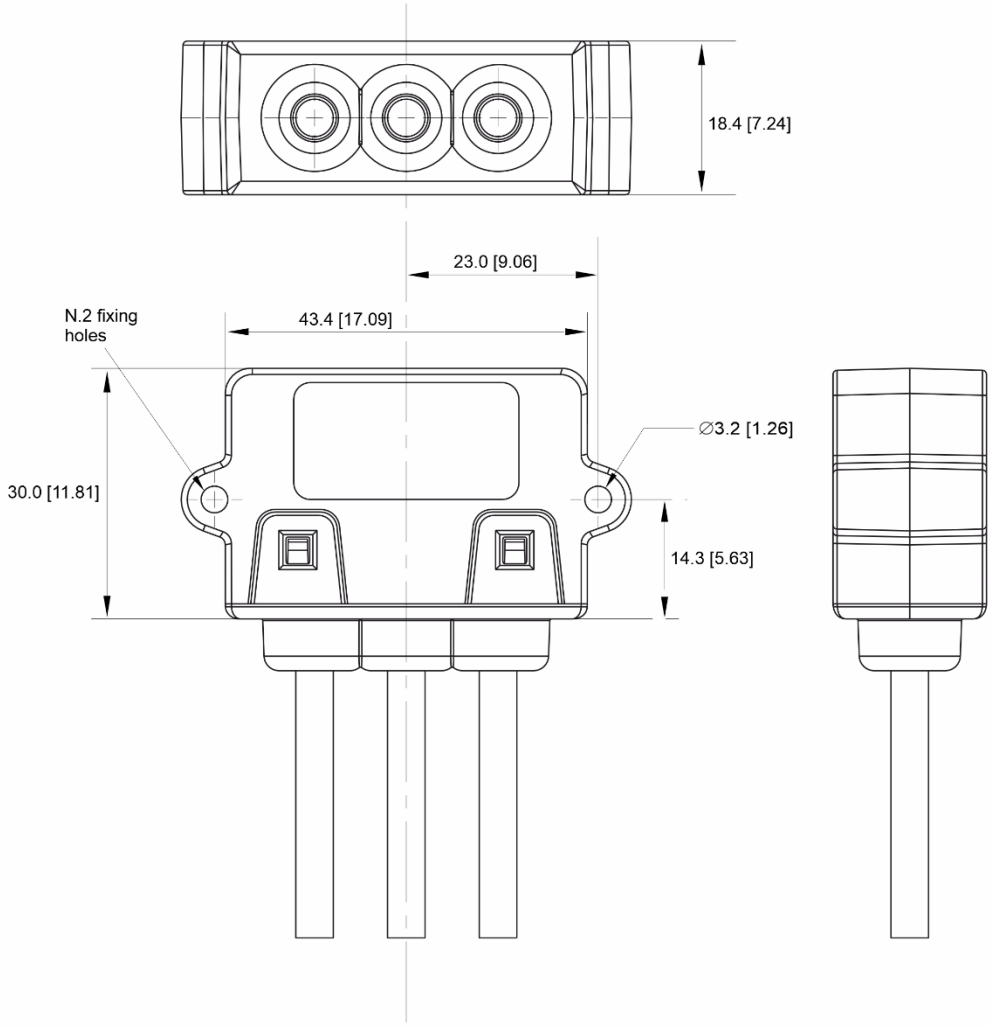


6 – Technical specifications and drawings

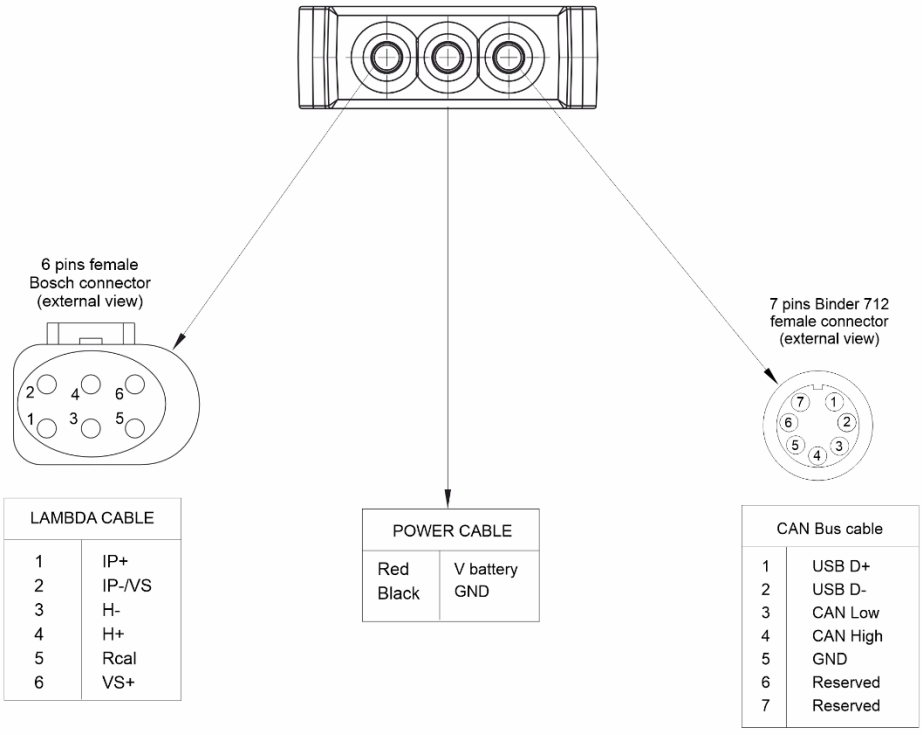
LCU1S Open technical specifications are:

- Sensor compatibility: Bosch LSU4.9
- Power supply voltage: 9-15V
- Power supply current: 50mA ÷ sensor heater typical current 750 mA up to 2A on cold sensor
- Reaction time: Less than 10msec
- Material: Latigloss 57
- Dimensions: 43.4x30x18.4 mm
- Weight: 70g
- Waterproof: IP67

LCU1S Open Dimensions in mm [inches]



LCU1S Open Pinout



LAMBDA CABLE	
1	IP+
2	IP-/VS
3	H-
4	H+
5	Rcal
6	VS+

POWER CABLE	
Red	V battery
Black	GND

CAN Bus cable	
1	USB D+
2	USB D-
3	CAN Low
4	CAN High
5	GND
6	Reserved
7	Reserved

LCU1S Open cables