DYNOLYZE
quality dynamometers

Dynolyze
hub dyno
software manual

Table of Contents

WARNINGS

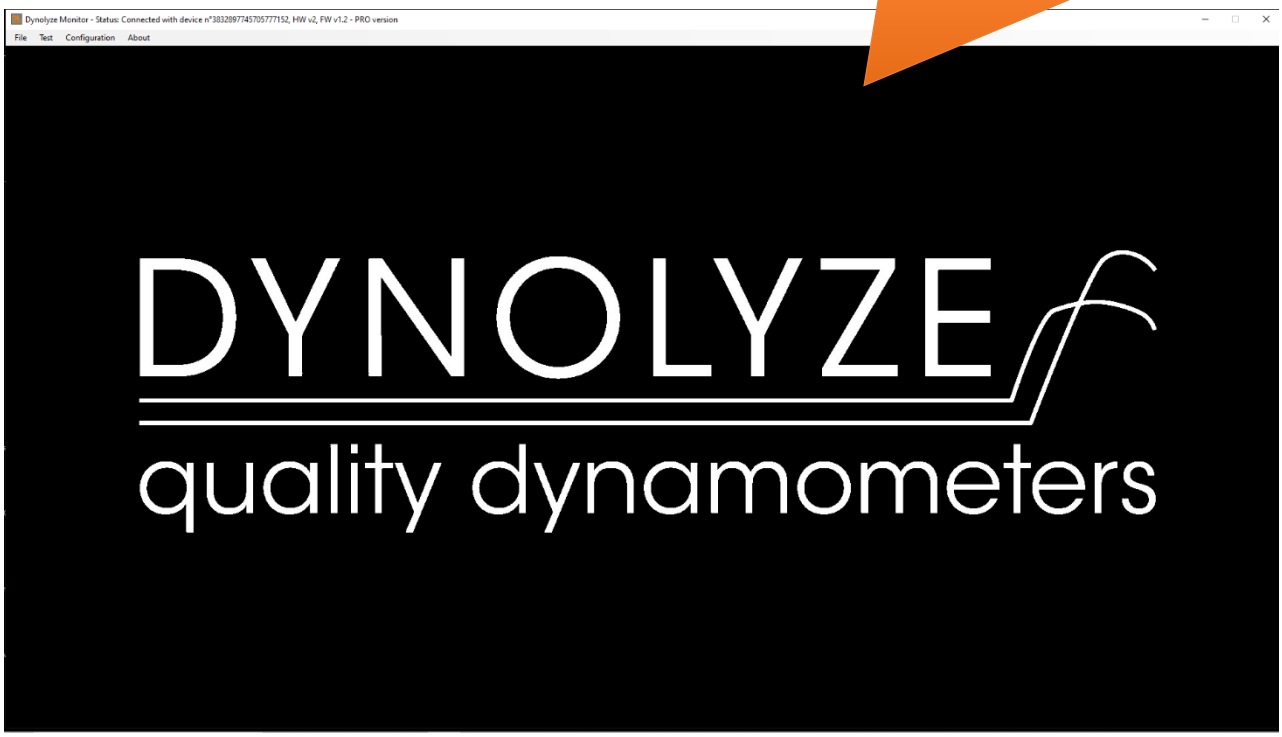
General Safety info

You must read and understand the general user and safety manual before using the machine.

This manual is only about the software features.

1. Home screen and About Menu

This is the home page that you will see when you start Dynolyze Monitor Software



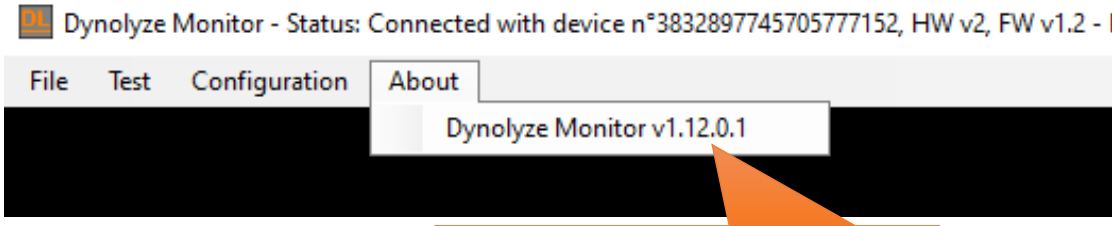
In the top bar you will see that software is connected to dyno control box. If there is a problem with the connection, you will see a flashing text “trying to connect”. If this happens make sure the dyno controller is connected and the power is on.

When connected, you will see your unique processor ID number (this is the number that you need to send us if you want to order a new license file)

This shows you the dyno controller hardware (HW) version that you have (HW v2 in this example)

This shows you the dyno controller firmware (FW) version that you have (FW v1.2 in this example)

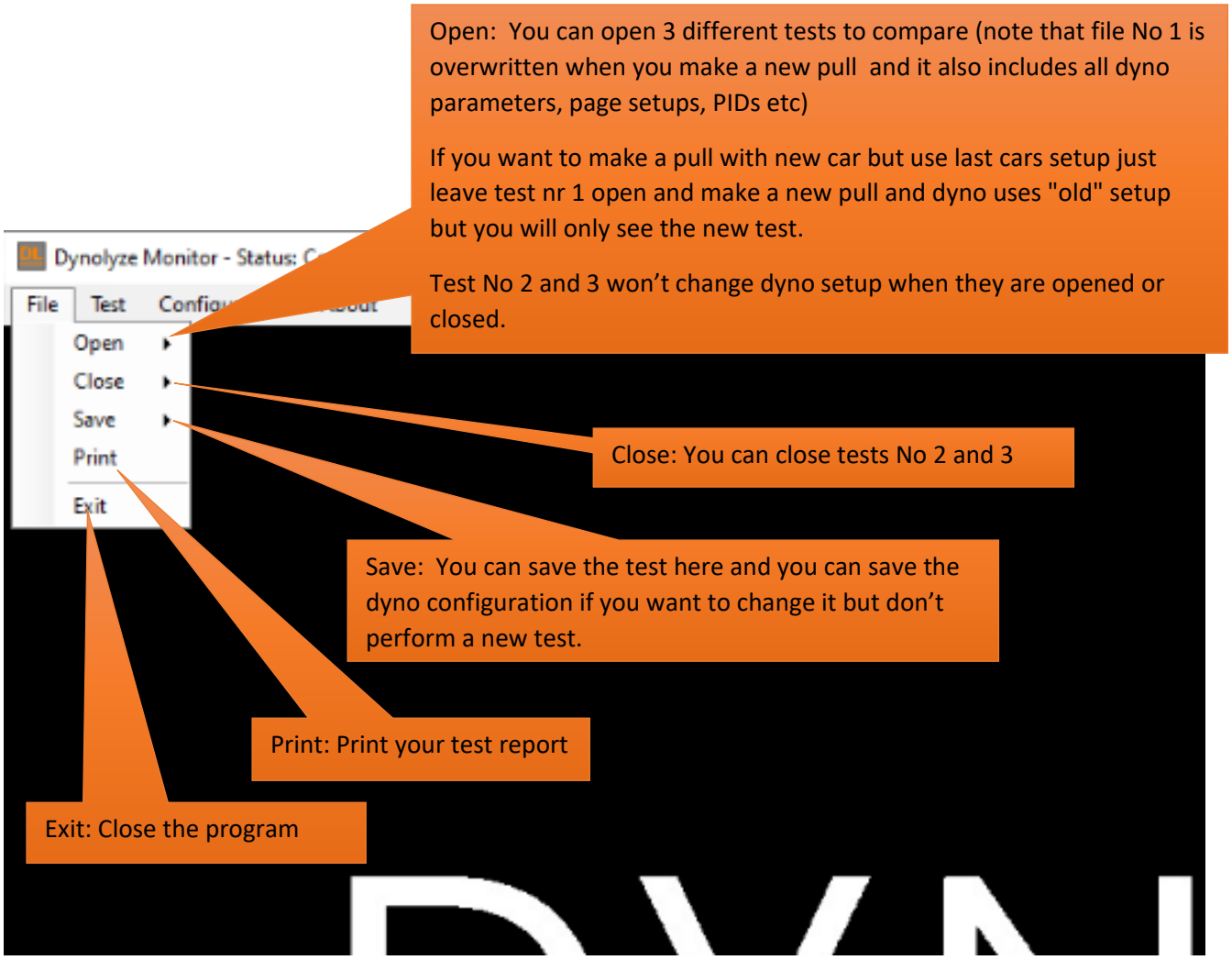
This shows you the dyno PC software type you have (STANDARD or PRO version)



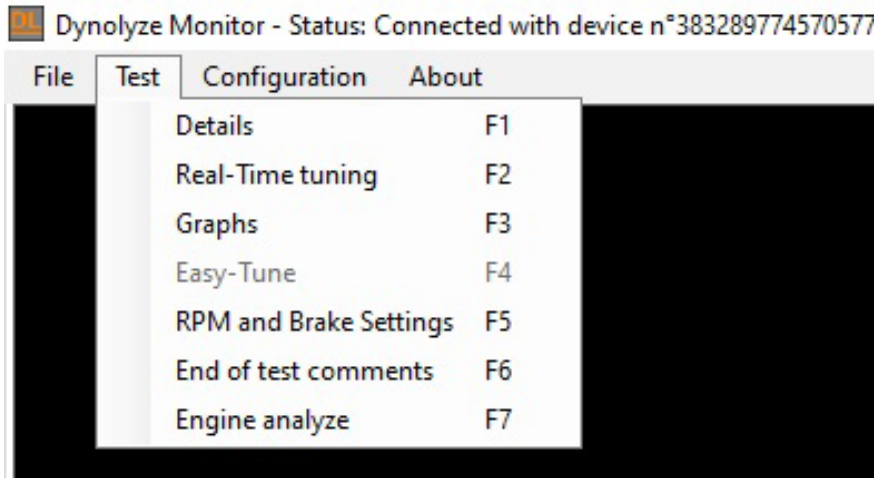
Shows you the exact software version.

IF YOU NEED TO CONTACT TECH SUPPORT PLEASE GIVE THOSE VALUES BECAUSE IN MANY CASES THOSE ARE THE ONES THAT WE ASK IN FIRST ANYWAY!

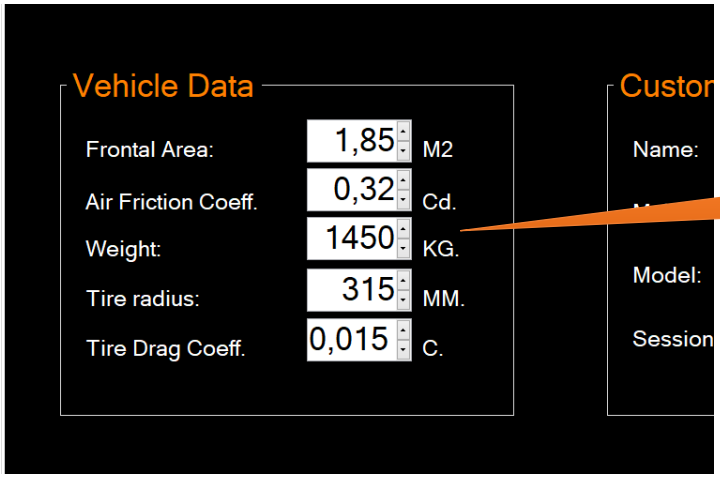
2. File menu

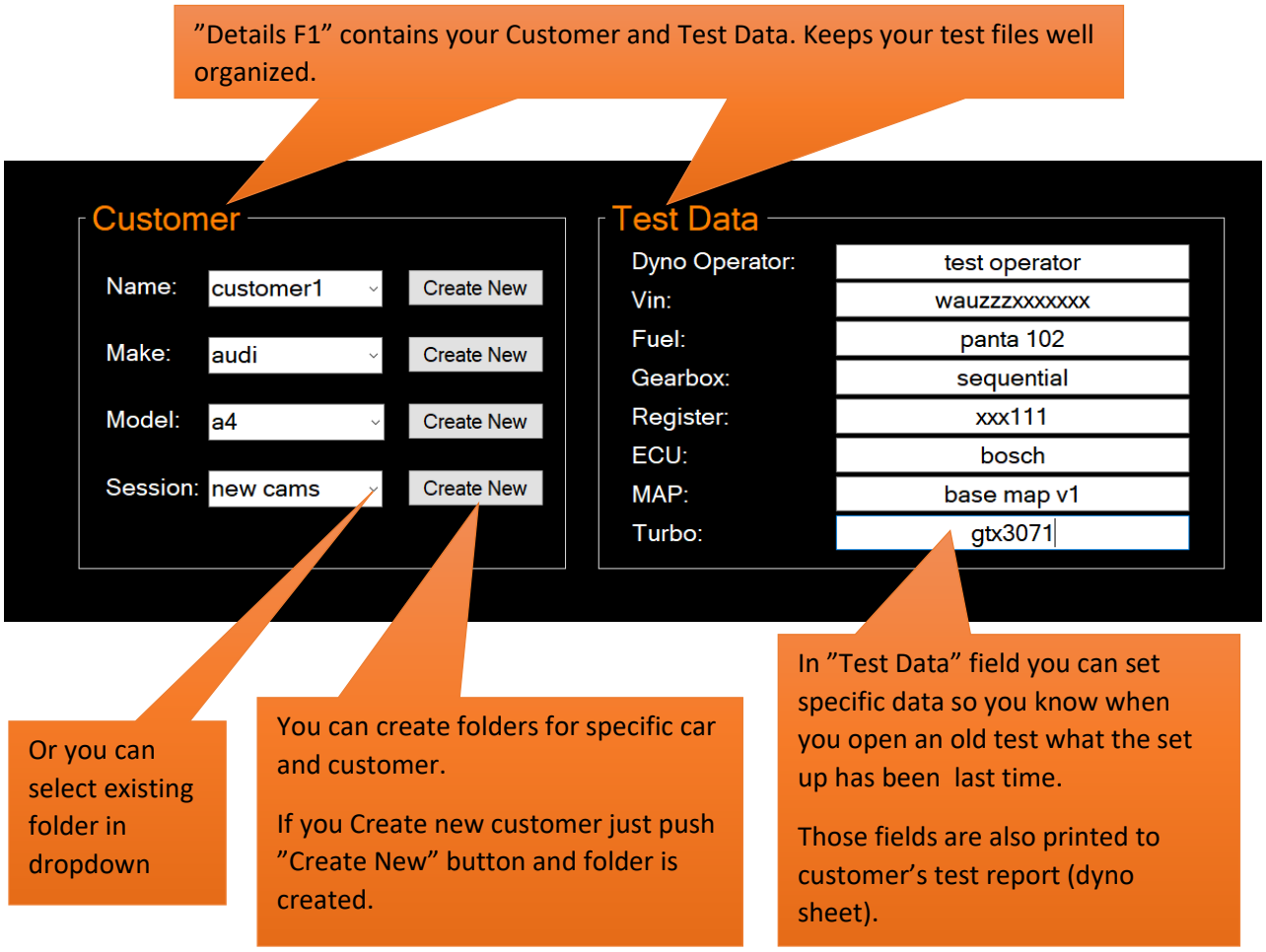


3. Test menu



3.1. Details F1





3.2 Real-Time tuning F2

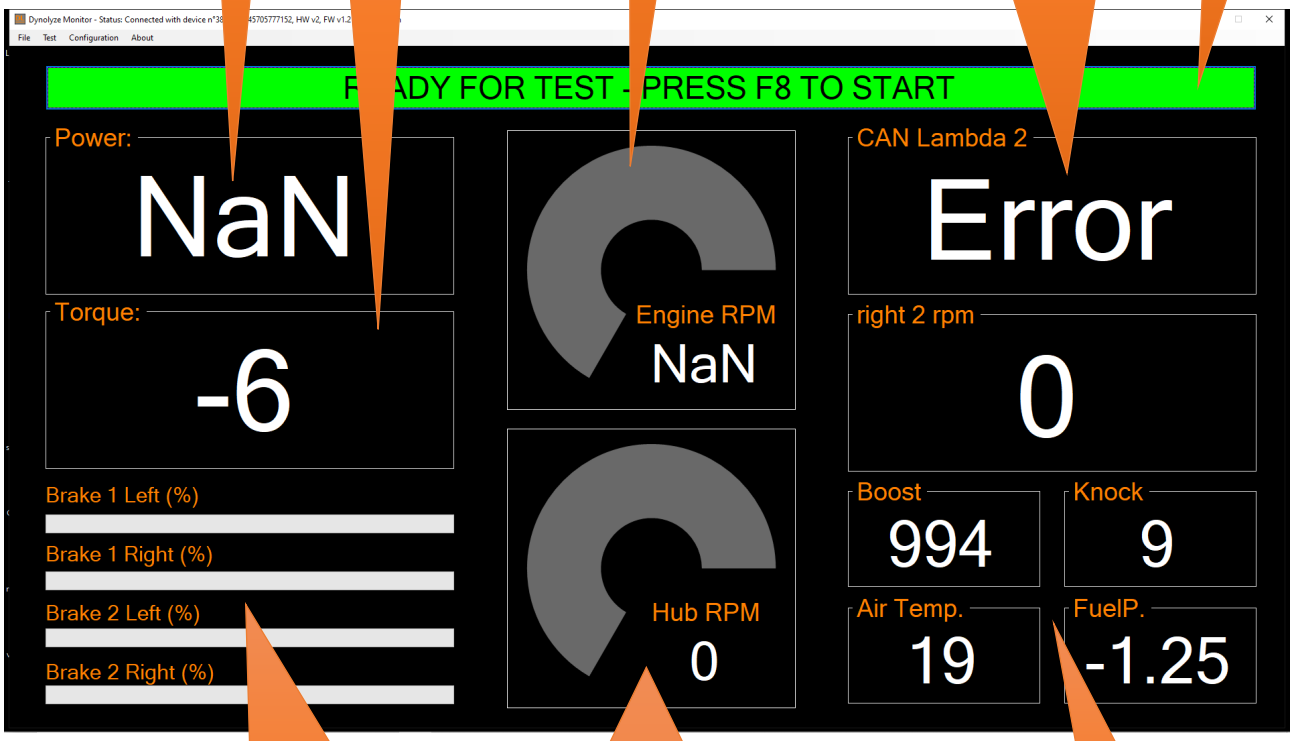
Real-time hub power

Real-time hub torque (divided by gear ratio)

Engine RPM gauge bar (can be configured in f5 brake setup menu)

This green bar shows you, that you can start recording by pressing the F8

2 big numeric boxed where you can select what ever available channel in dyno (afr, math channel etc...)



Brake 1 left/right duty (how much brake capasity is in use 0-100%)

Brake 2 left/right duty (how much brake capasity is in use 0-100%)

Hub RPM gauge bar:

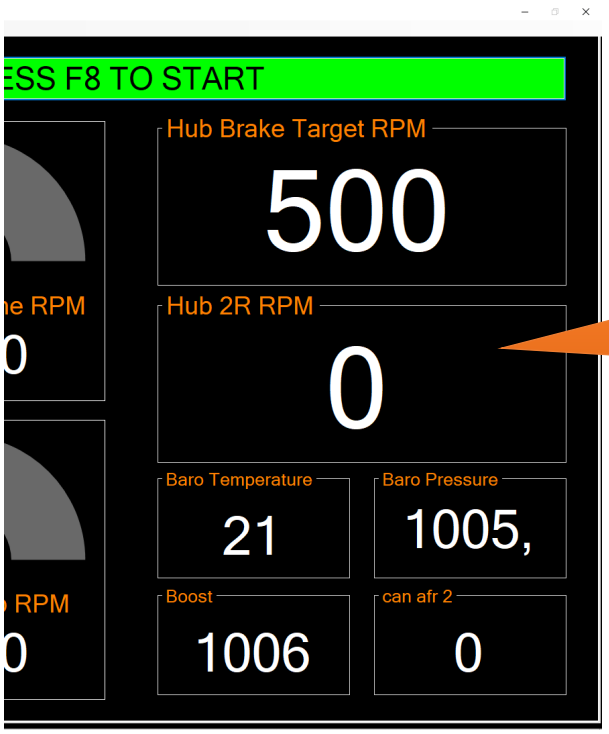
this contains 4 bars in one and works like this:

if hubs are spinning in +-5 rpm to each others you will see only one green bar, but if hub speeds are more than +-5 you will see also a red bar and you will know that there is speed difference between hubs.

DANGER YOU NEED TO STOP DRIVING BECAUSE YOU CAN DESTROY DRIVELINE PARTS!!!

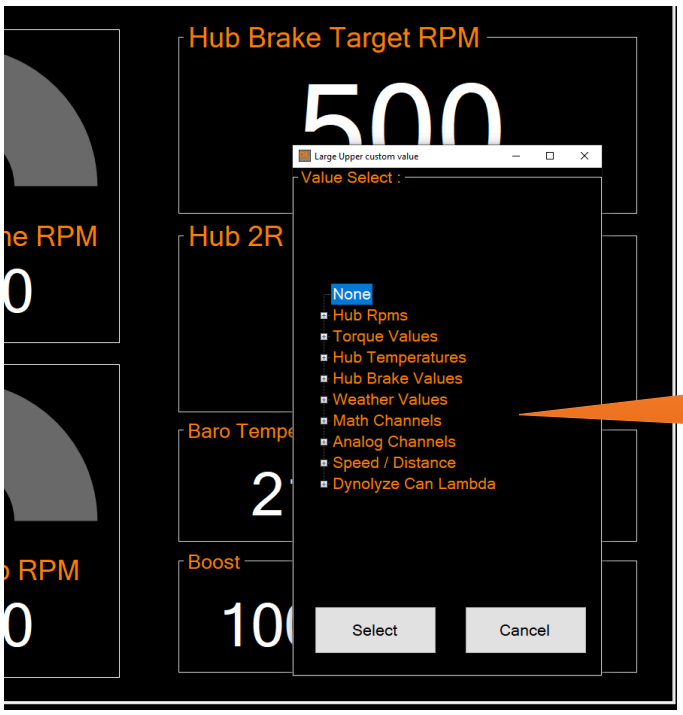
4 small numeric boxes (works like the big ones)

3.3. Real-Time tuning settings



You are able to select what six values you want to be shown here, by clicking right mouse click.

Channels may vary depending on software license version



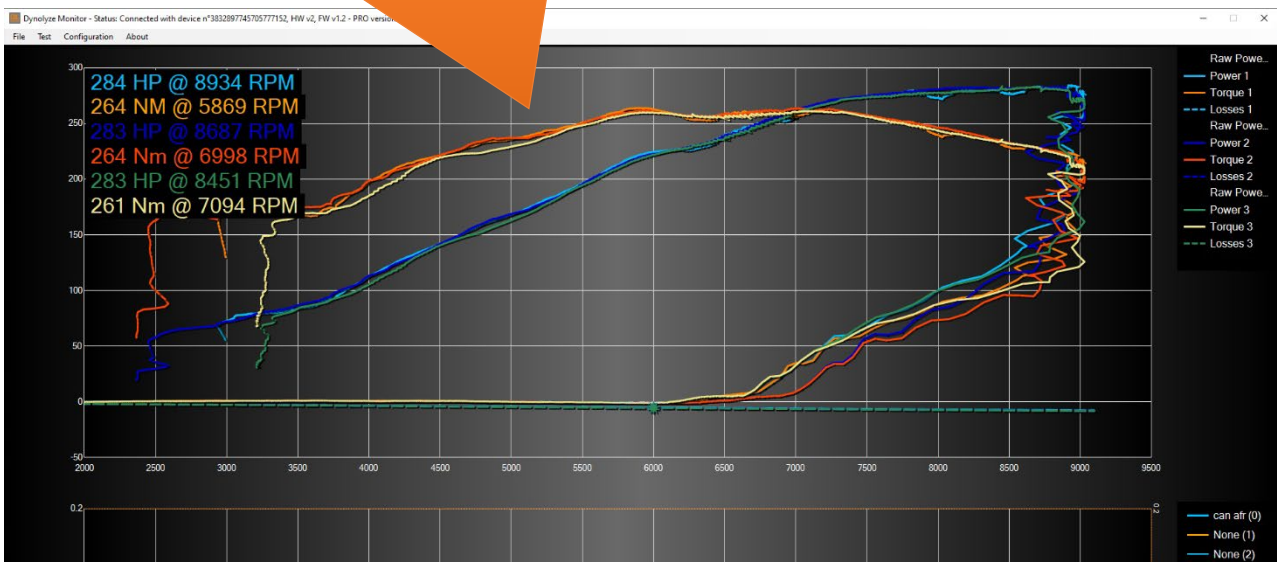
The right mouse click opens this Value Select pop-up menu, from this you can choose the values.

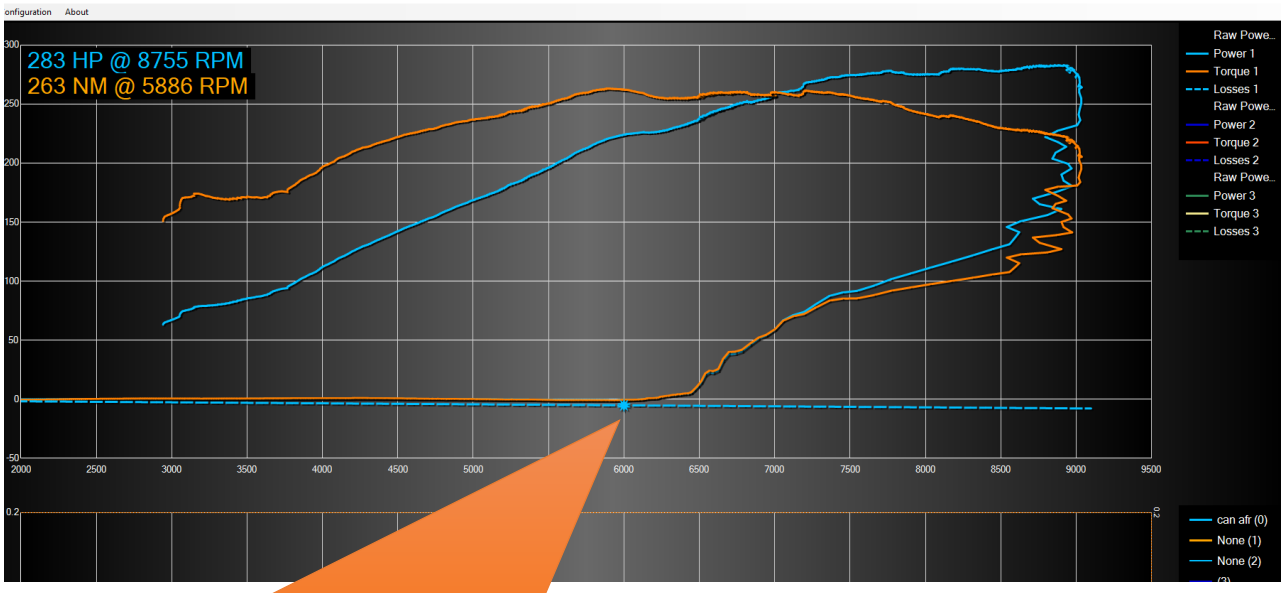
3.4. Graphs F3

You can overlay 3 tests for comparison.

With F9 you can open test No 1, F10 opens test No 2, F11 opens test No 3.

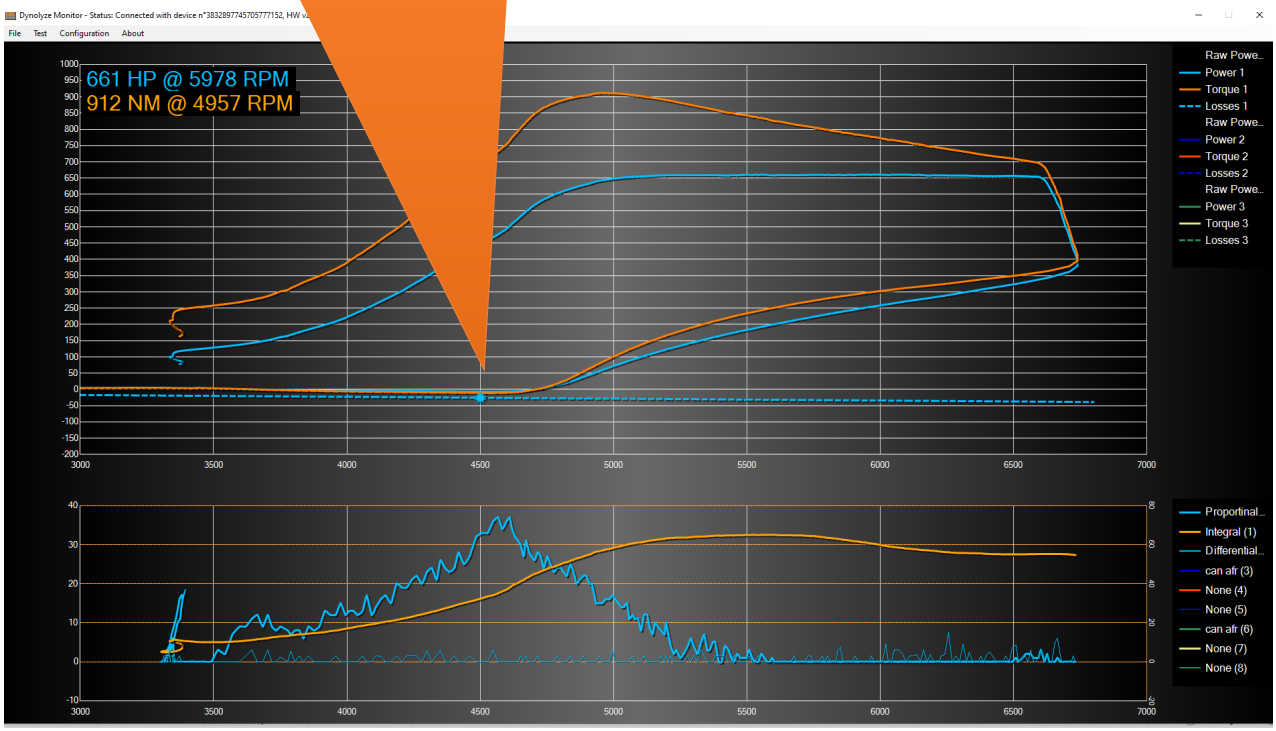
Ctrl + F10 closes test No 2, Ctrl + F11 closes test No 3.

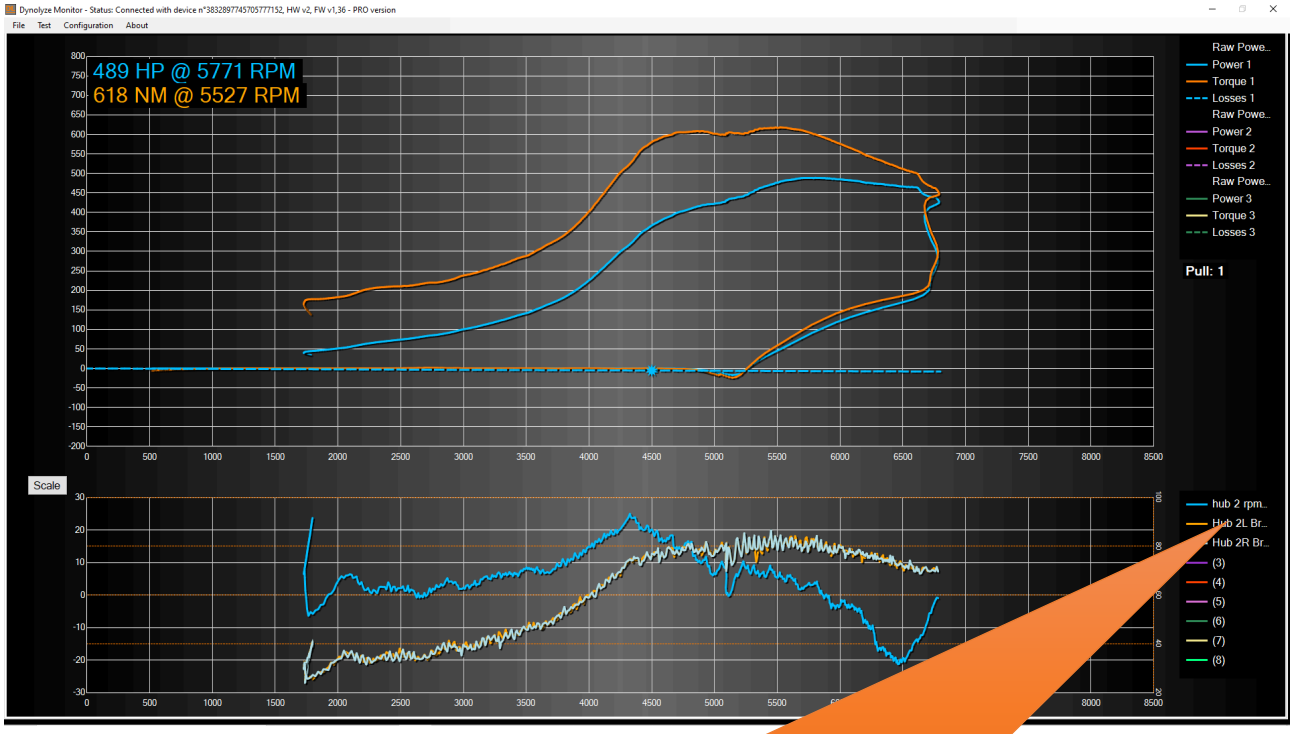




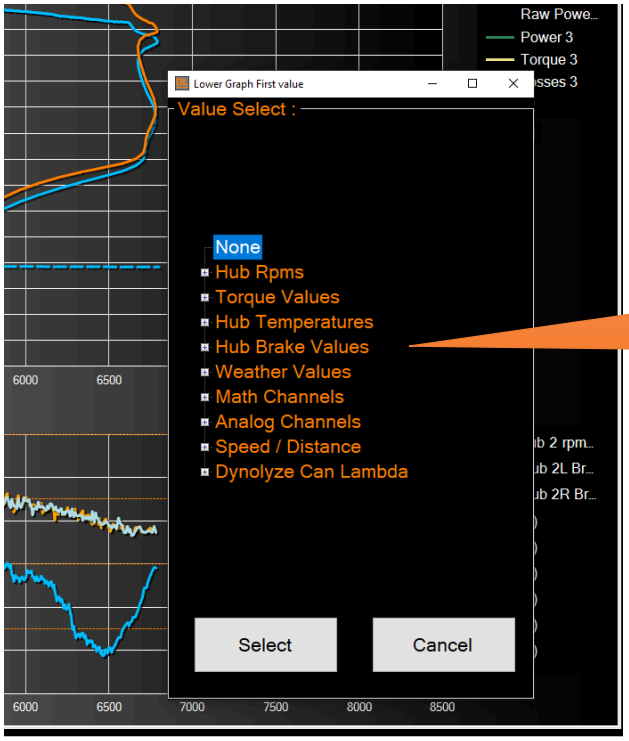
In this test you can see the coast down measurement being active under 6000 RPM (spot in losses curve marks that point). You can change the RPM spot in F5 menu. After 6000 RPM the losses are being calculated.

How to determine the right RPM for coast down losses measurement? Here you can see a clear example of the torque curve, you should set the measurement point at the point when you see the torque curve is stabilized. Your target is to get the torque curve close to 0.





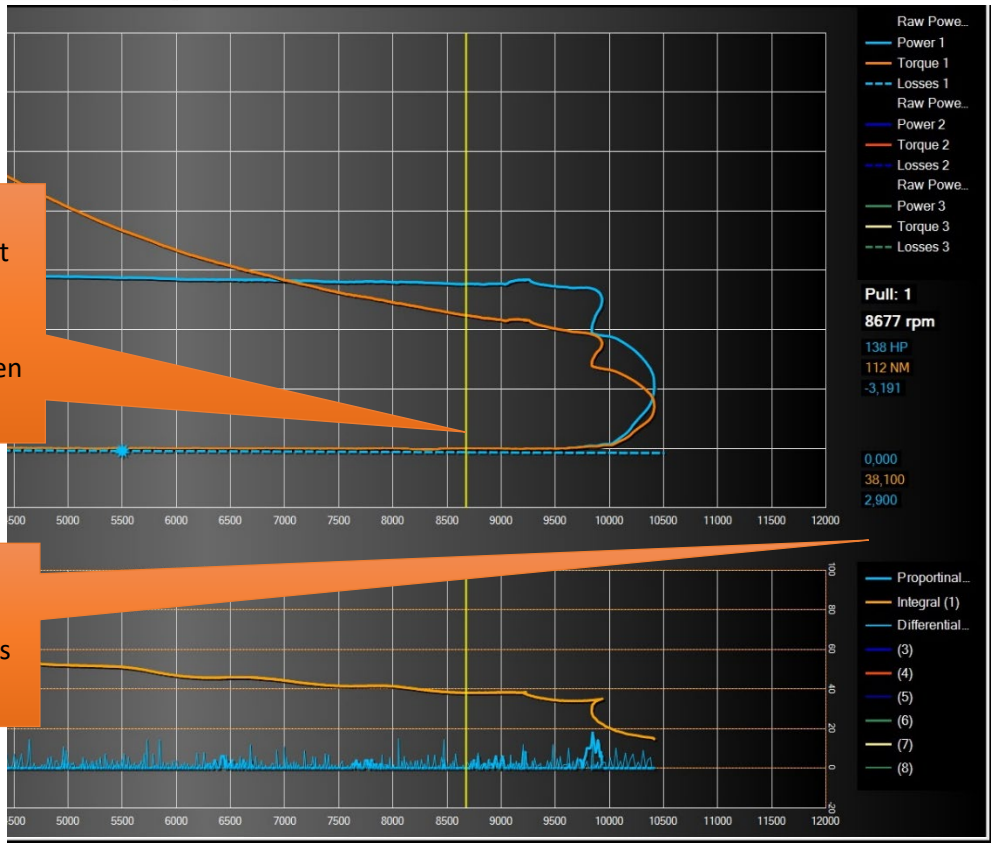
You can select additional data that you want to view. You can select all the available dyno channels by mouse right clicking when the cursor is on top of channel name.



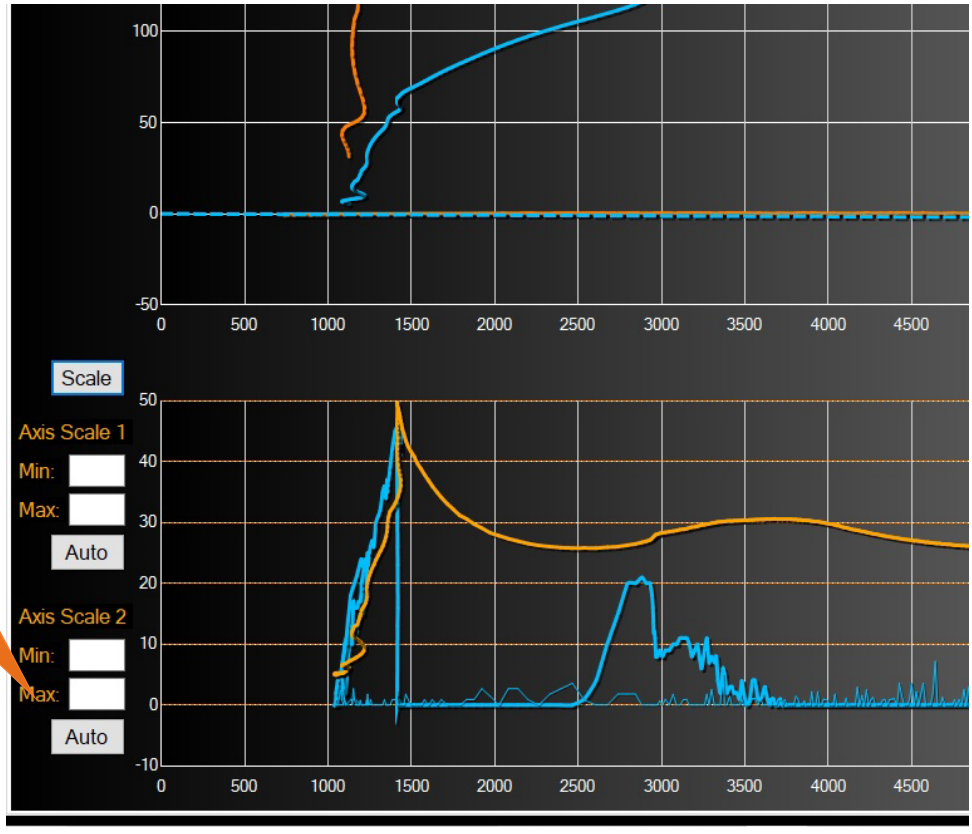
The right mouse click opens this Value Select pop-up menu, from this you can choose the values.

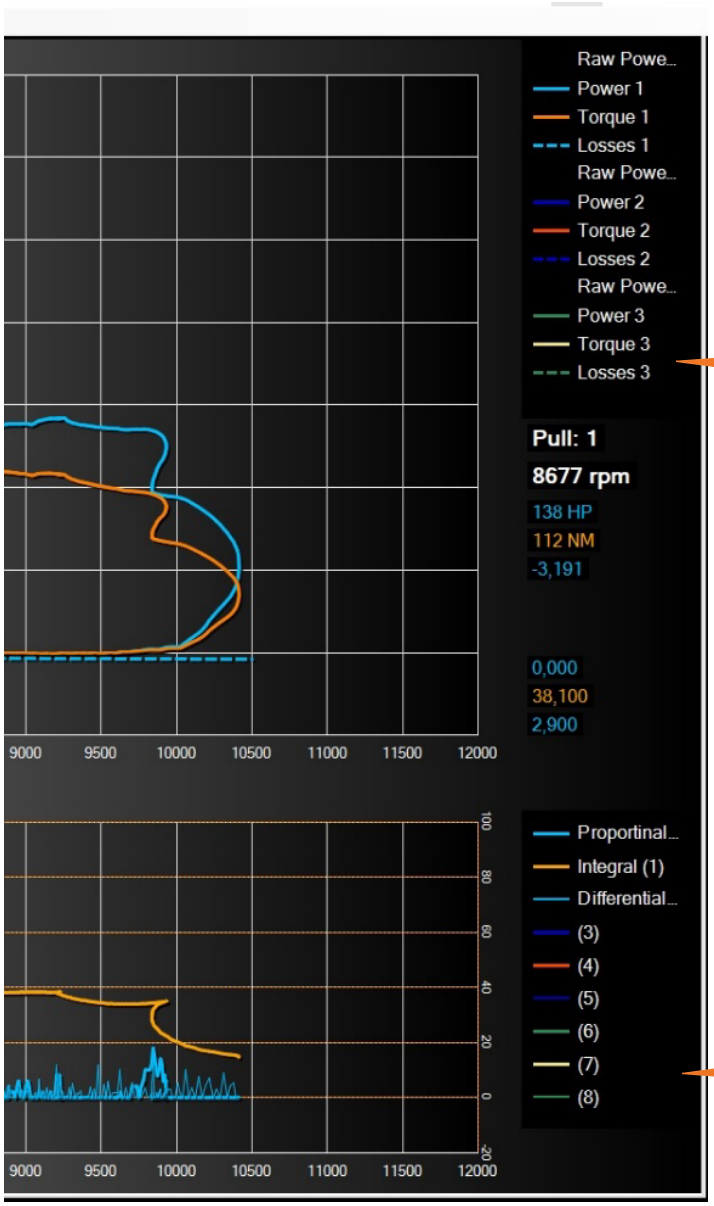
To activate the ruler press and hold left mouse button. To select from which test you want to see the values, click right mouse button and it will change between tests 1, 2 and 3.

With the ruler you can closely inspect the parameters at every RPM. You can see the parameters on the right side.



Scale function. Here you can manually set solid scaling (default is auto scaling).





By clicking the line here, you can hide/show the line from the graph.

If you want to print the sheet without this lower graph, click every line to hide them.

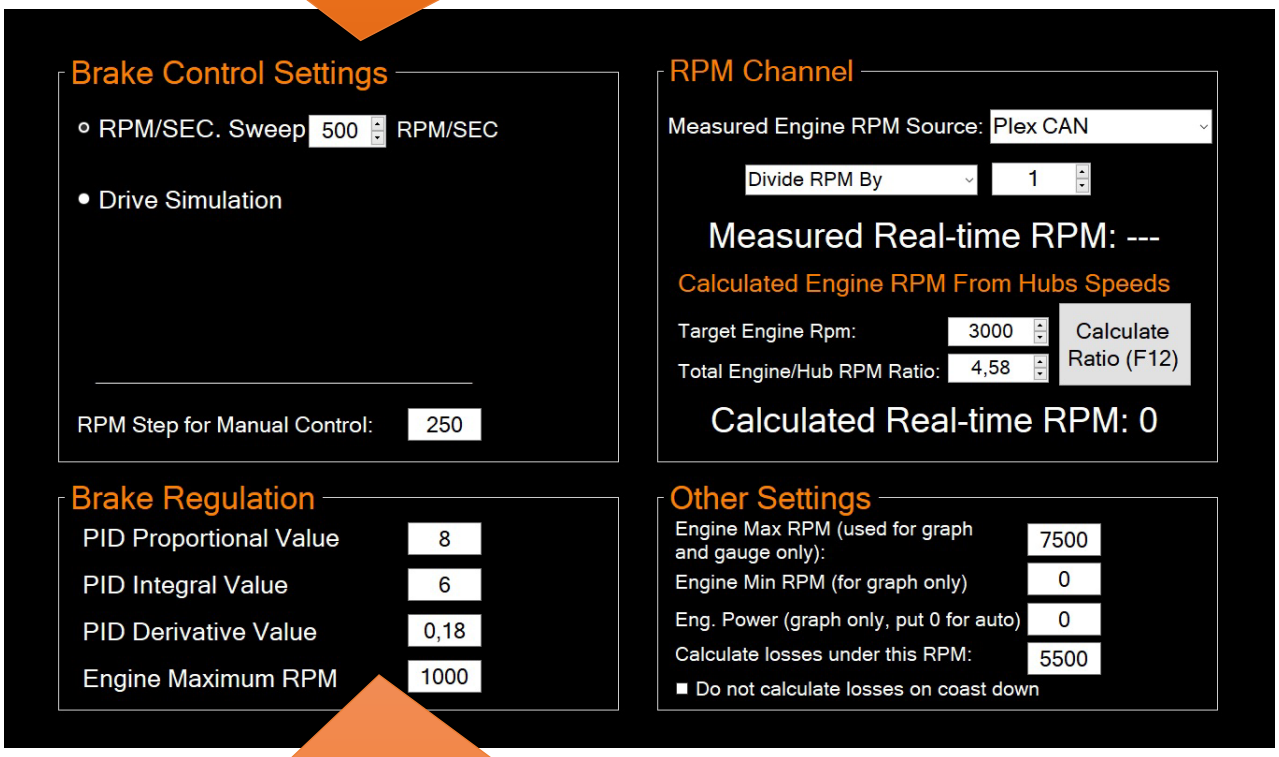
3.5. RPM and Brake settings F5

Brake Control Settings

RPM/sec. sweep rate: it is the rate that you want the dyno lets your engine accelerate when “Ramp” button in remote controller is on.

Drive Simulation: Simulates road acceleration (PRO version only)

RPM steps for manual control: you can set the step test RPM up/down button value. It is used to change target RPM when the brake mode is on but ramp mode is off in remote controller.



Brake Regulation

PID propotional value: it is brake PID proportional value and should only be changed if you know what you are doing.

PID integral value : its brake pid integral value and should only be changed if you know what you are doing.

PID derivate value : its brake pid derivate value and should only be changed if you know what you are doing.

Engine Maximum RPM: it is like an RPM limiter for cars that don’t have an RPM limiter in the engine or you don’t want to use normal engine max RPM.

RPM channel:

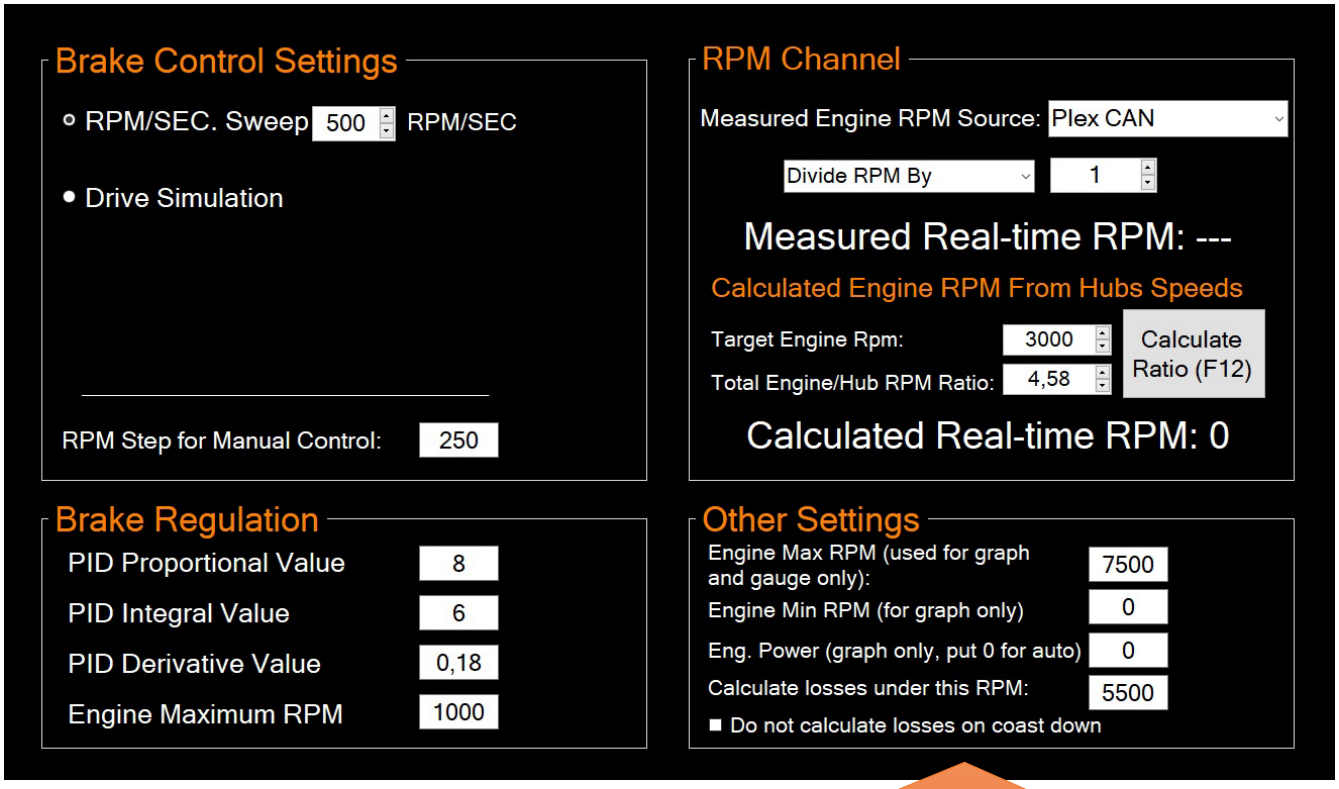
Real time RPM: Can be measured from CAN by Plex Knock Monitor V2. You can divide or multiply RPMreading if necessary. Select None if no external RPM Source is in use. (Plex CAN is PRO software only)

Calculated Engine RPM: here you set your hub RPM/engine RPM ratio.

You can set it manually if you know it (remember that it is overall ratio so gearbox + differential), but software will calculate it for you like this:

Drive steadily for example 3000 engine rpm (look car tacho) with gear what you want to use in test and press F12 or calculate ratio button.

You can change it after test is done but you will get different torque value. When you change it and you go to F6 end of test menu, you will see a reminder message (picture next page).



Other Settings:

Engine max RPM (used for graph and gauges only): effects on F3 graph scale and F2 bar gauges, can only be changed after test is done.

Engine min RPM (for graph only): effects on F3 graph RPM axis only, good for high revving race engines if measuring starts for example from 4500 RPM. Can be changed after test is done.

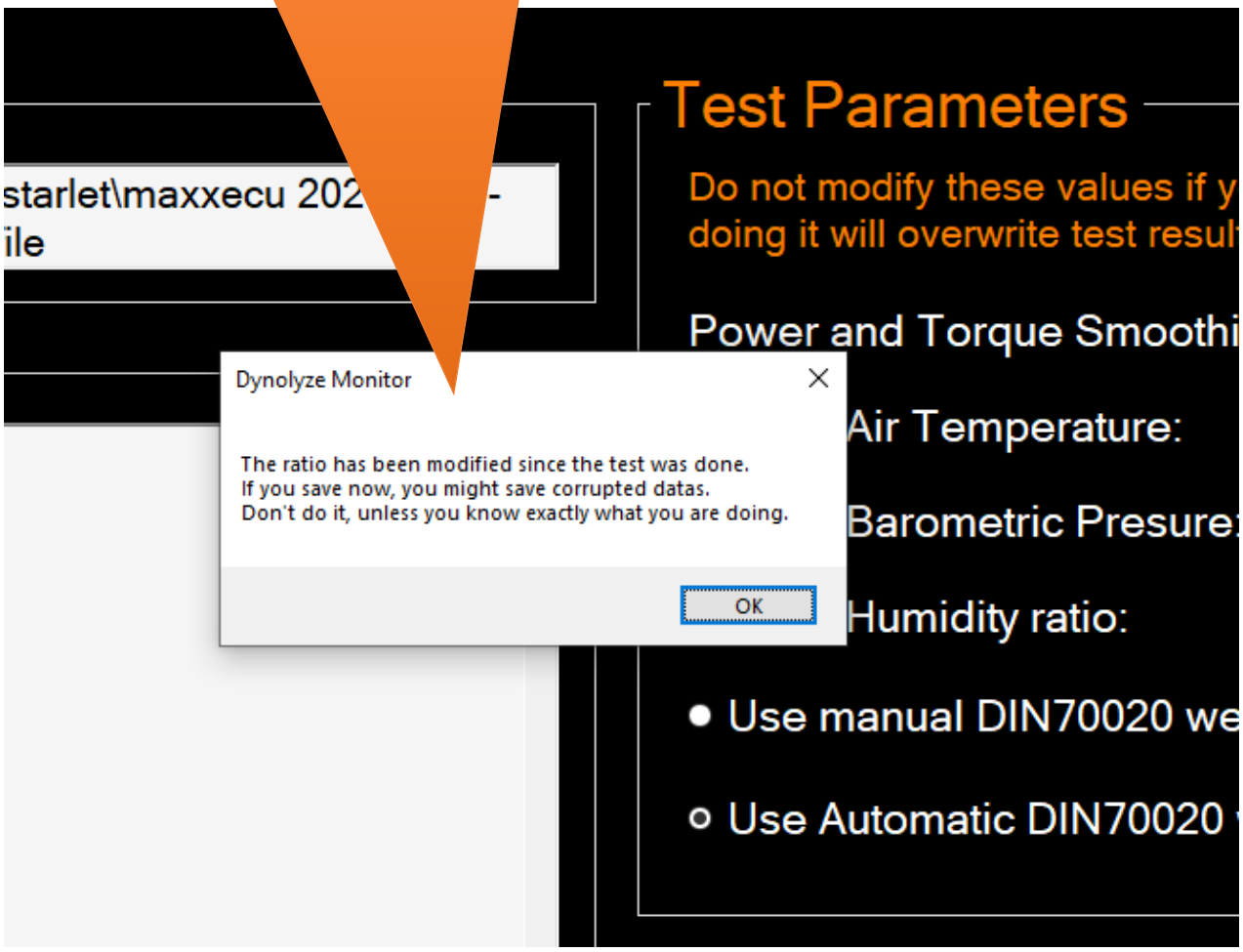
Eng. power (for graph only): effects on power / torque scale in F3, set 0 for auto scaling. Can be changed after test done.

Calculate losses under this RPM: set RPM spot (that you will see in F3 Graphs) where coast down measure starts. (see F3 Graphs instructions in this manual).

Do not calculate losses on coast down: don't use coast down measurement, so F3 shows you hub power instead of engine power. (see F3 Graphs instructions in this manual).

RPM source is calculation where you set your hub RPM/engine RPM ratio.

You can change it after test is done but you will get different torque value. When you change it and you go to F6 end of test menu, you will see this reminder message.

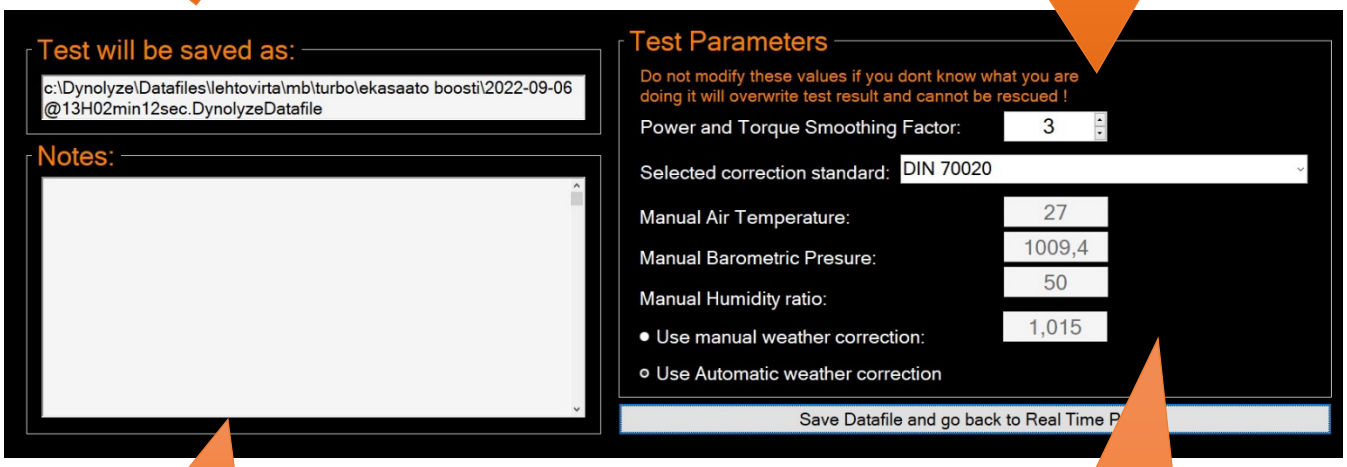


4. End of test comments F6

This menu opens automatically when the power measurement is done.

You will see the folder where your test is saved and the test name.

Power and torque smoothing factor: it will smooth F3 graph screen lines scale is 0-5 and default value is 3. You can change this value after test is done.



You can write notes and they are saved in test file so you can open test later and look notes.

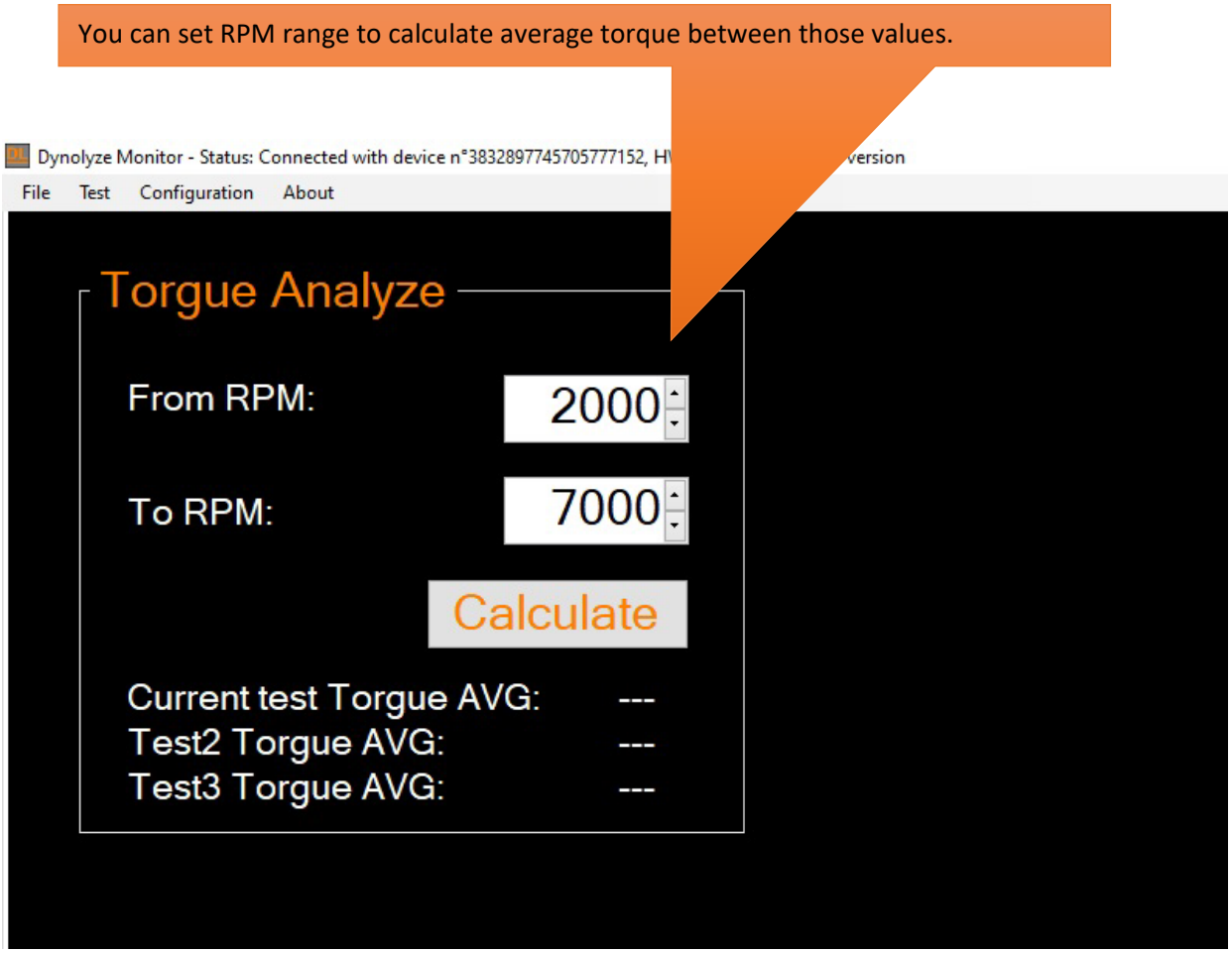
Select either DIN 70020 or 80/1269/EWG

Manual air temperature: here you can see the air temperature what the weather station has measured during the pull. You can change this value if you select use manual weather correction.

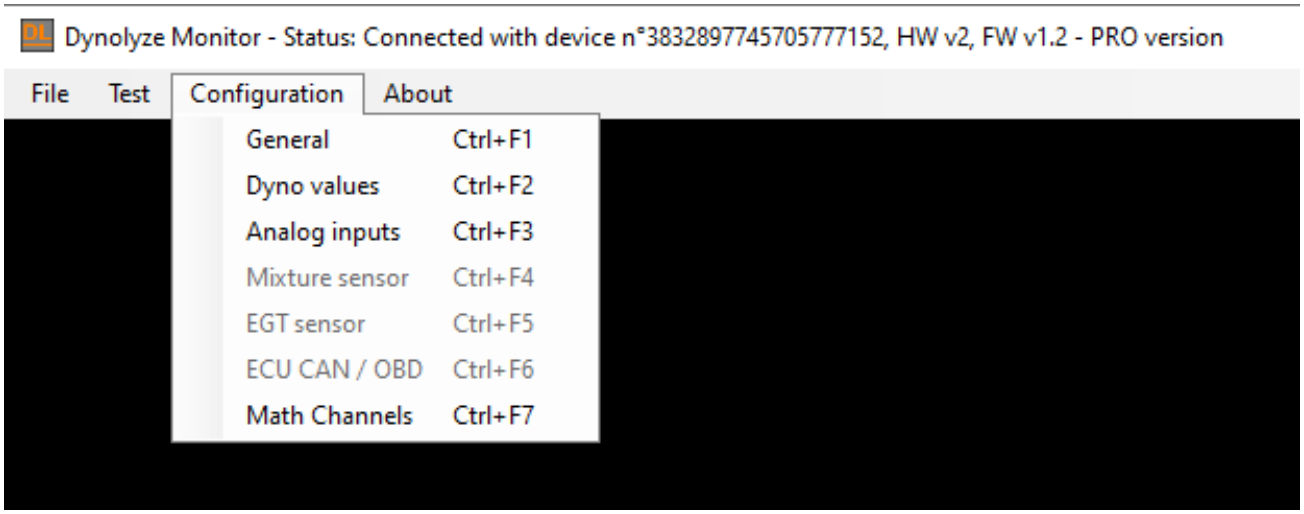
Manual barometric pressure: same as temperature but atmospheric pressure value.

Humidity is not active in v1 weather stations because it's not in use in most common correction factors.

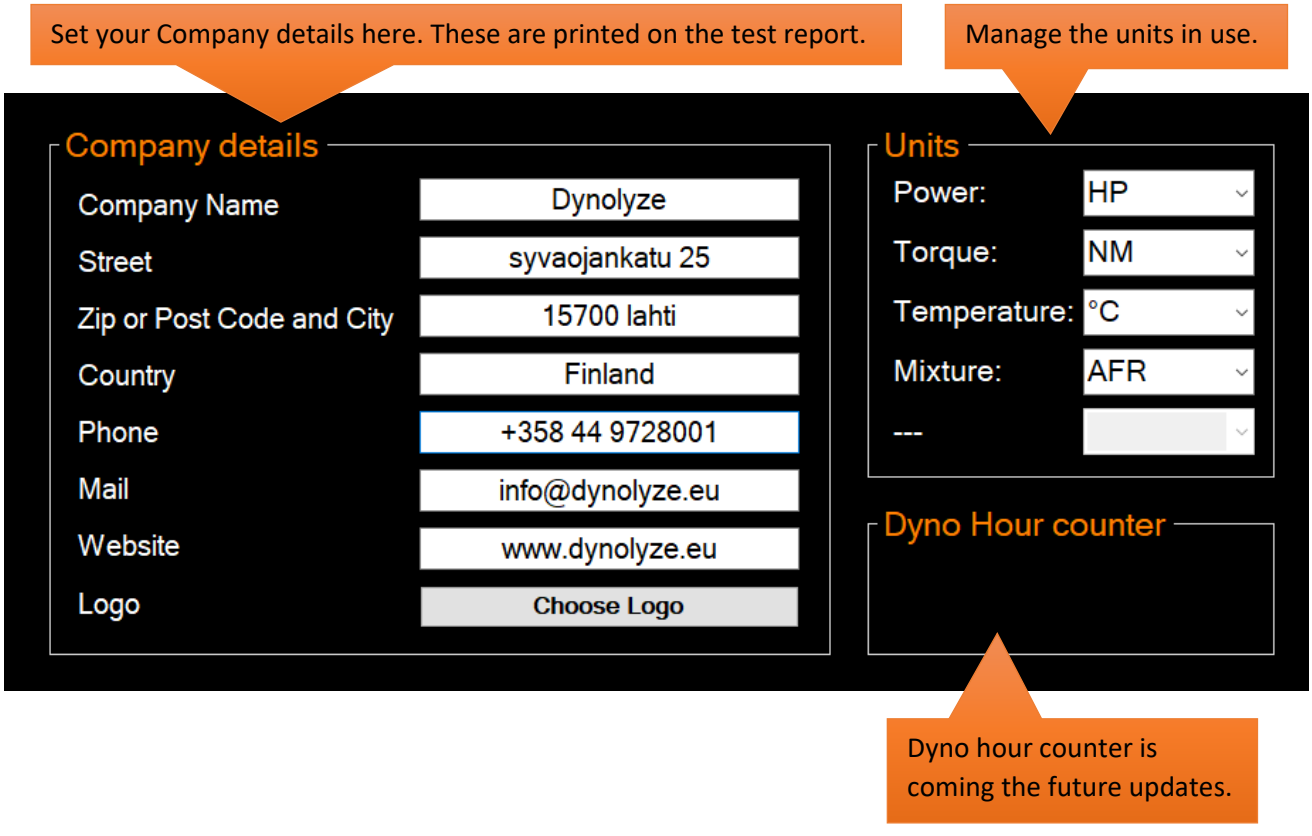
5. Engine analyze F7 (PRO software only)



6. Configuration menu



5.1. General Ctrl + F1



5.2. Dyno values Ctrl + F2

This page is for specific data for all the connected hubs.

Inertia value: it is inertia compensation value for brake. It is set in the factory please do not change unless tech support asks you to do so.

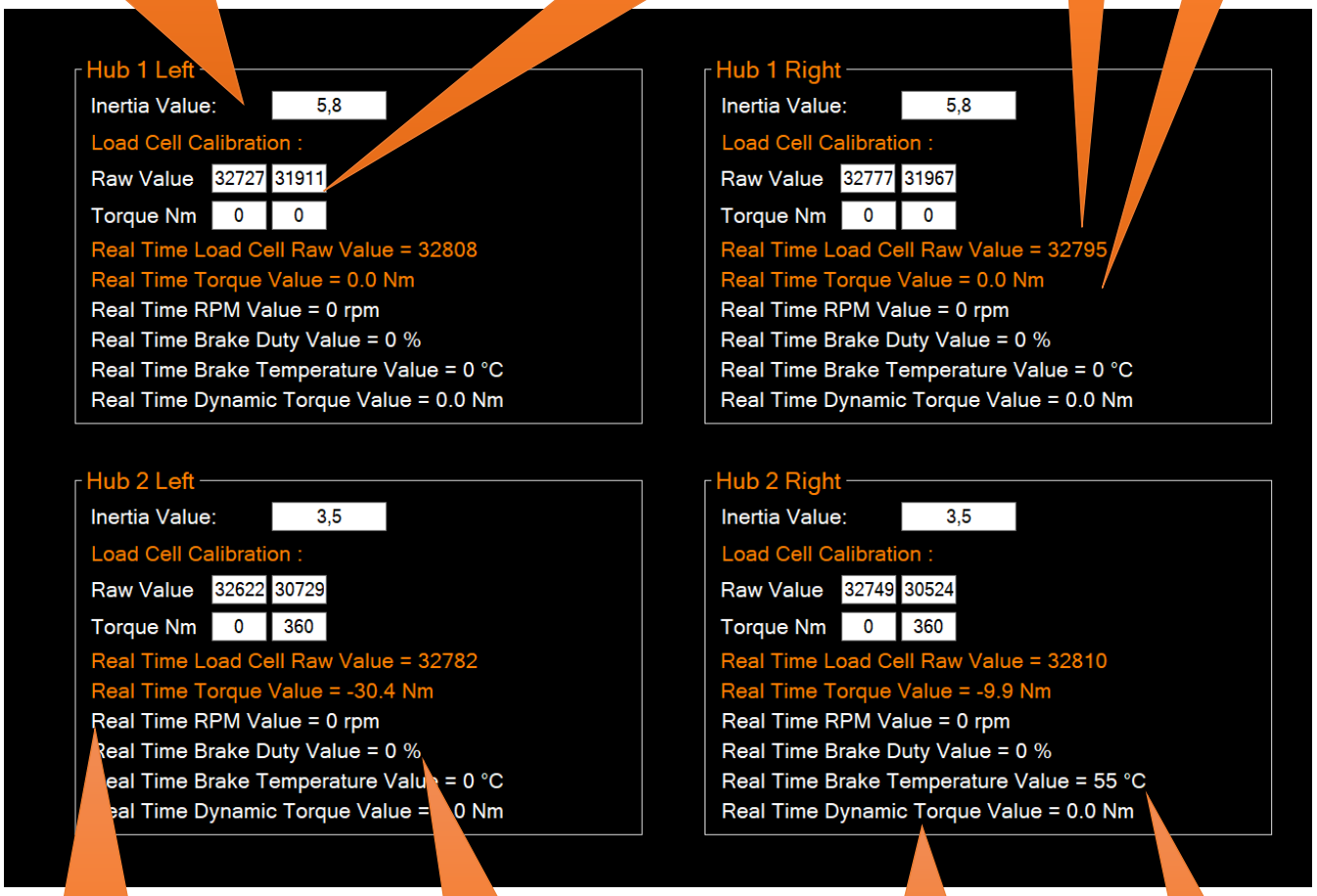
It will change dyno calibration so be careful!!!

Load cell calibration values: mainly for diagnostic purpose, they are set in factory please do not change unless tech support asks you to do so.

It will affect dyno calibration!!!

Real time load cell raw value: load cell output.

Real time torque value: load cell value converted to nm



Real time RPM value: it is actual hub RPM and can be handy if you want to look all hub speeds in RPM format at the same time.

Real time brake duty: same as brake duty in F2 real time screen but numeric between 0-100%

Real time dynamic torque value: is dynamic torque calculation end result.

Real time brake temperature: is brake temperature

5.3. Analog inputs Ctrl + F3

Here we have the setup for 4 analog channels what are standard features in basic dyno controller.

You'll find those input connectors in front plate of controller and they are marked as AN1,2,3,4

Pin 1 is +5v out to sensor

Pin 2 is 0-5v input signal from sensor

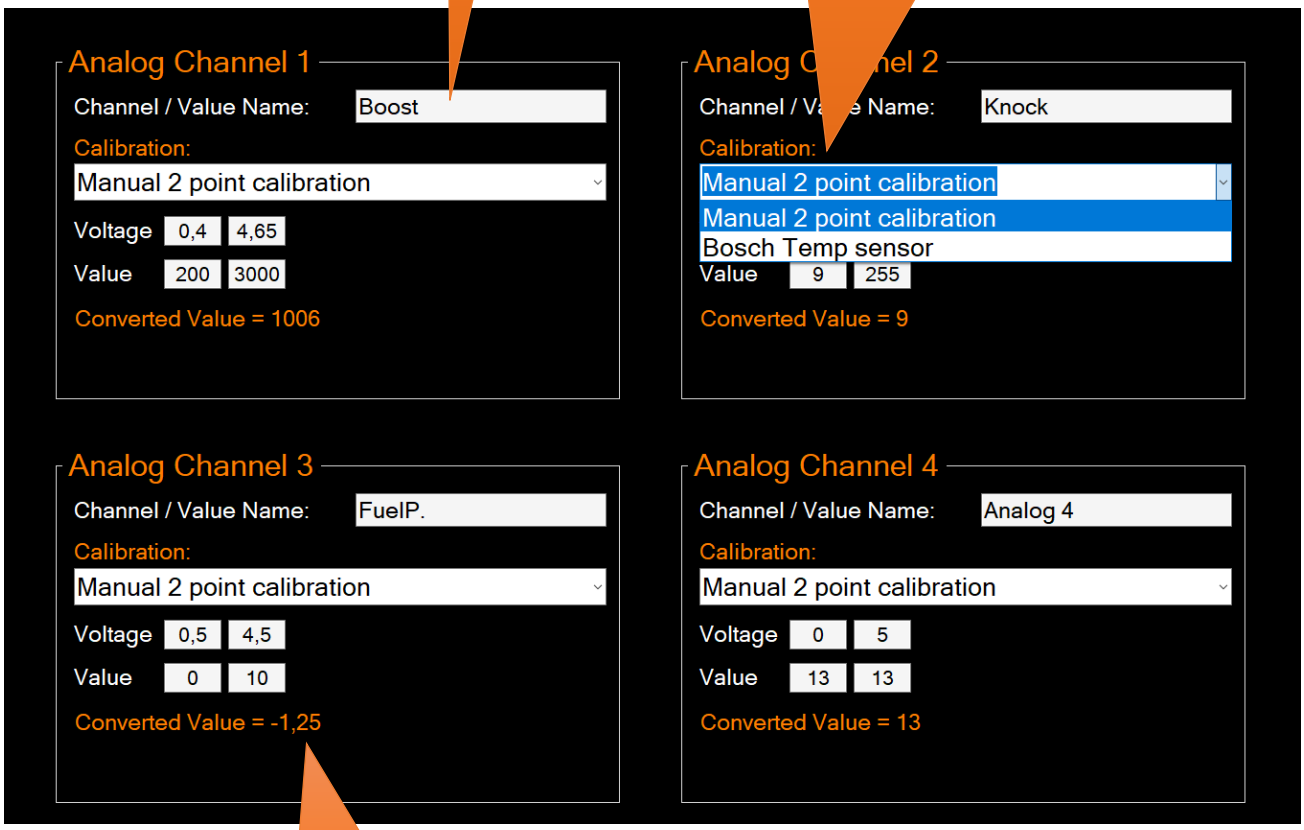
Pin3 is sensor ground

You can set name of channel to make it easier to identify the channel.

For sensor calibration you can choose to set 2 voltage points and corresponding sensor value for those points.

The software will automatically linearize spots in between.

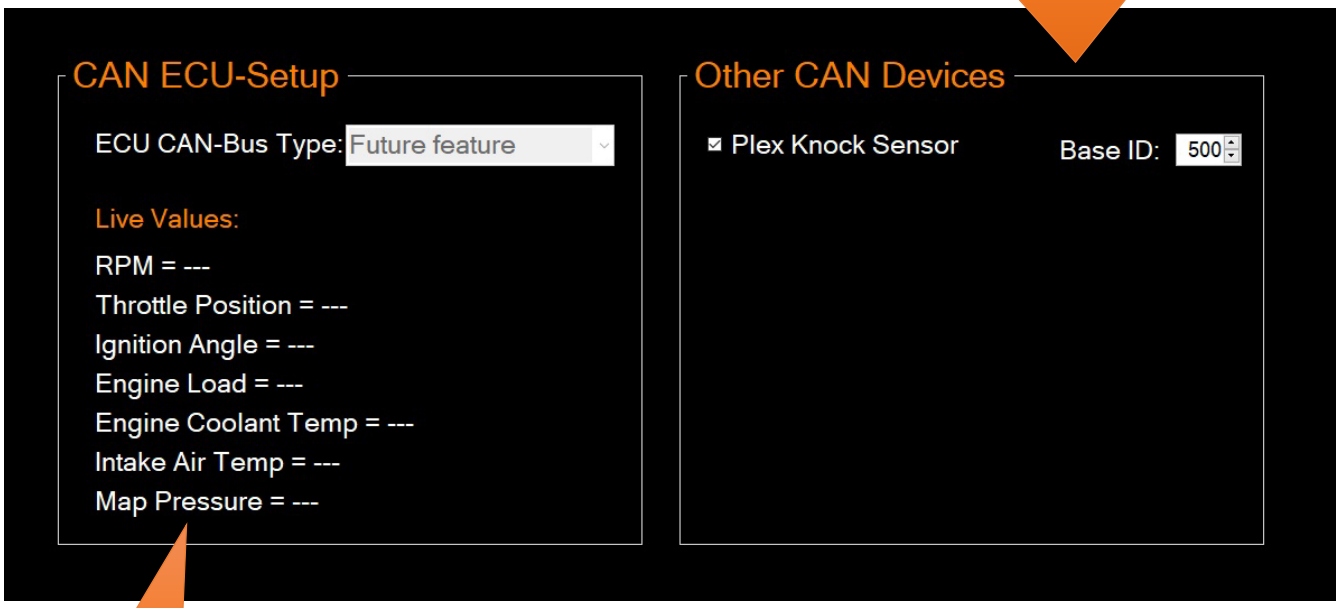
If you want to measure temperature, choose the Bosch Temp sensor from the drop-down menu. It is pre-calibrated. You also need an additional adapter cable for Temperature measuring.



Converted value shows sensor output converted value in real time.

5.4 CAN input Ctrl + F6 (PRO software only)

Select Plex Knock Sensor if in use. Set Plex CAN ID to 500. Also set your Plex CAN communication ID to 500

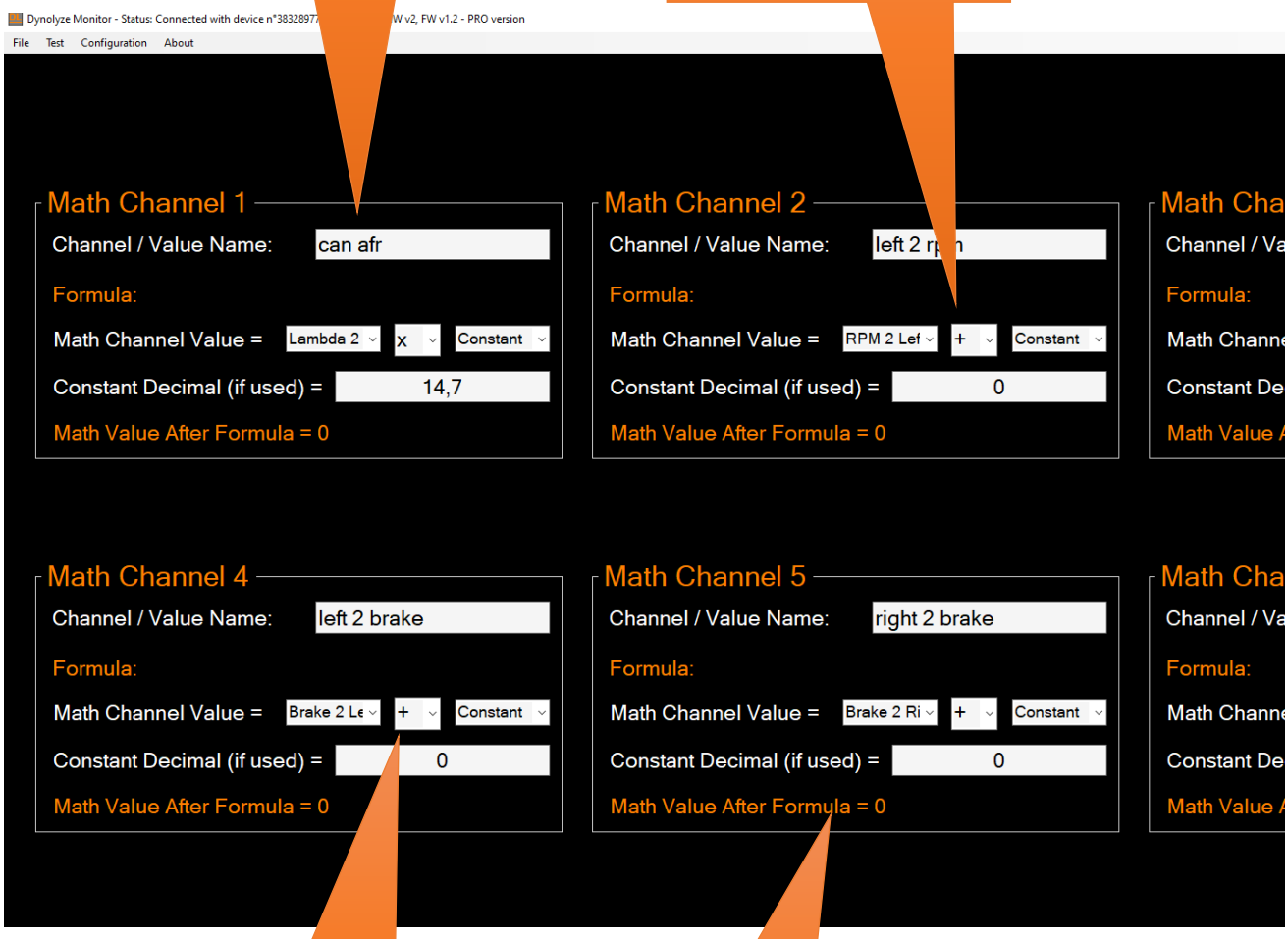


Coming in the future updates.

5.4. Math Channels Ctrl + F7

You can type any name you like for the Channel / Value name. The name is shown in all menus in the software for easy identification.

In math channels you can set software to calculate "internal channels" like pressure delta or so.



You can "chain" channels like Channel 1 output value is one value in Channel 2 and so on...

Math value after formula shows value in real time so you can make sure you set channel like you want.

6. Remote Control

When you switch on ”Brake” button, it will take your constant speed. Then you can fine tune constant speed with rotary switch or buttons.

When you switch on ”Ramp” (brake needs to be on) it will start your selected brake program (sweeping up , Drive Simulation etc..). You can set a desired ramp in the Brake Control settings under the menu: “RPM and Brake settings F5”

Fine tuning your constant speed by turning to – or +

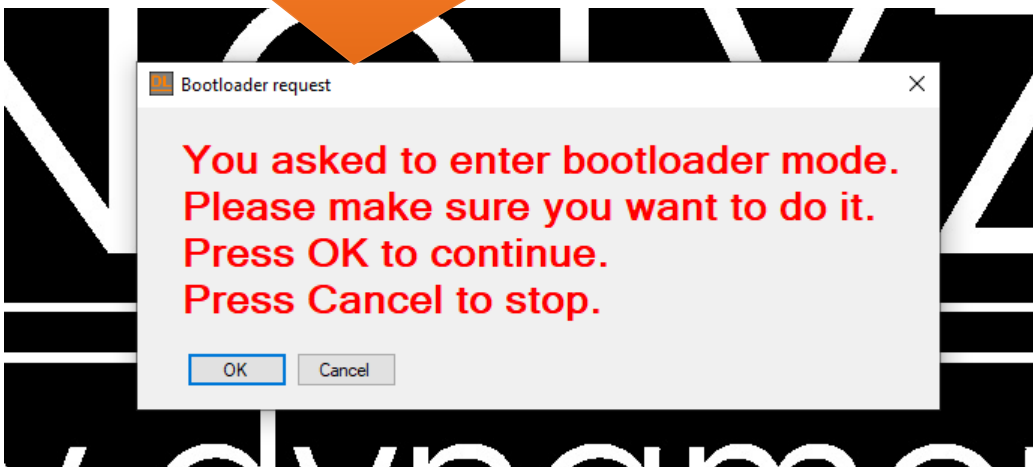
Step buttons for jumping up (and down). You can set a desired step in the Brake Control settings under the menu: “RPM and Brake settings F5”.

7. Firmware update

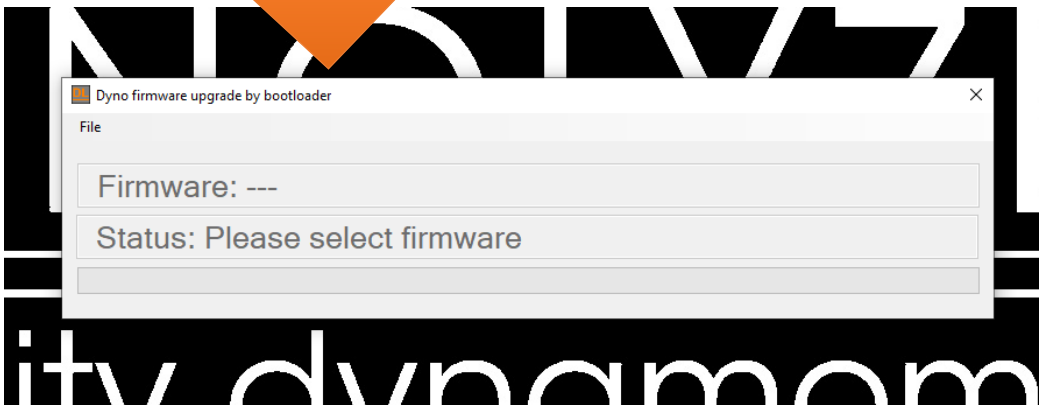
DO NOT USE IT UNLESS TECH SUPPORT HAS ASKED YOU TO DO IT BECAUSE YOU CAN DAMAGE THE DYNO CONTROLLER

You can access to dyno controller boot mode by pressing Ctrl + Shift + F1.

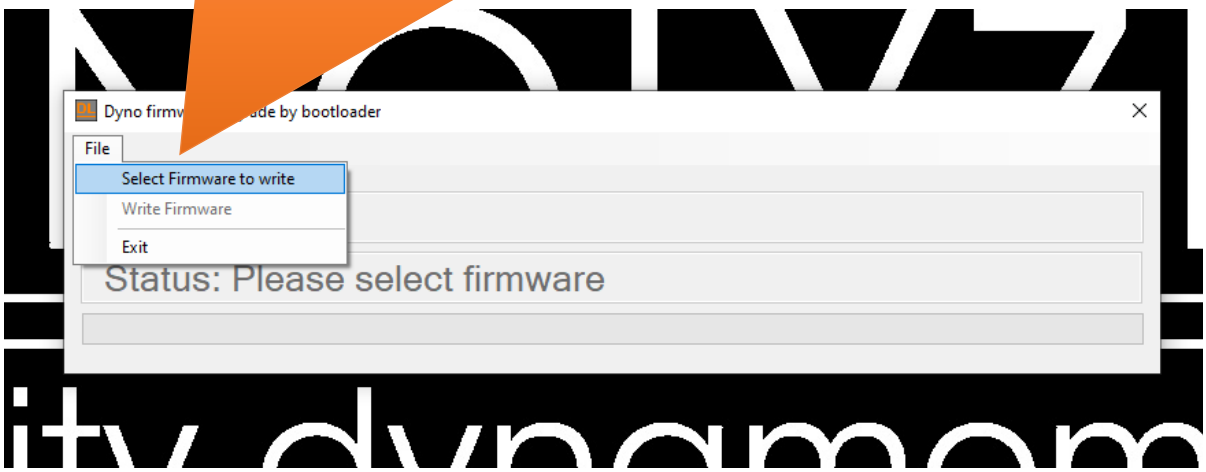
When entering the boot mode, you'll see this request and press OK if you are sure you want to continue.



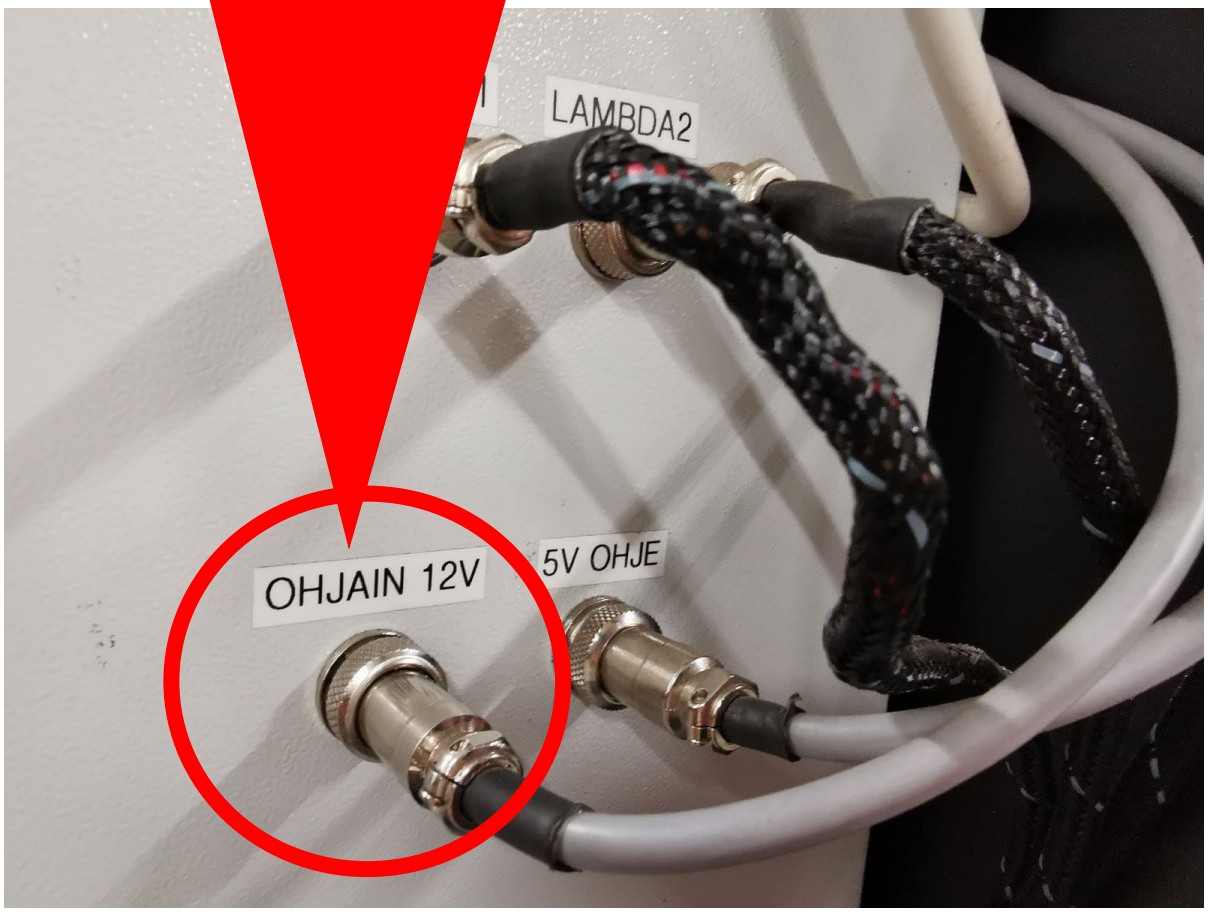
After pressing OK, you'll see this.



Select: File and “Select Firmware to write”. Search the file from your computer and then press “Write Firmware”.



If you see status message “boot accepted” and it doesn’t start writing, please disconnect for at least three seconds and reconnect controller 12V supply connector (some firmware updates require 12V power supply on/off). After reconnection you will see software starts to write new firmware.



It takes about 2 minutes to complete. DO NOT CUT POWER WHEN THE WRITING IS ACTIVE!! IT MAY DESTROY YOUR CONTROLLER.

IF YOU USE THIS FUNCTION WITHOUT PERMISSION FROM TECH SUPPORT AND GET YOUR DYNO CONTROLLER LOCKED, WE WILL CHARGE 100% PRICE OF A NEW CONTROLLER!

If you need more information or notice something abnormal mentioned or not-mentioned in this manual, please contact the manufacturer.

Contact information

Manufacturer: Dynolyze
Syväojankatu 25
15700 Lahti
info@dynolyze.eu
+358 44 9728 001
VAT nr: FI26596009

Attached manuals for supplement of this manual:

Dynolyze hub dynamometer general user and safety manual