

Intelligent Twizy Power Box Manual v1.60

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What is an intelligent PowerBox and how does it work:

An intelligent PowerBox is a tuning box for Renault Twizy that can increase torque up to 100Nm. This is an increase of 76% Nm (Torque). In addition to being a tuning box so it has a monitor that displays Engine rpm, engine temperature, and the amount of current that goes in and out in both Amp and Nm.

What can it do?

1. It tuning the car automatically after the temperature of the engine.
2. You can choose between light tuning, Medium Tuning or Max Power Tuning or set it back to the original setup.
3. You can choose between Auto Mode or Manual-Mode.
4. You can choose between 3 different driving profiles. (While driving)
5. Turn on or off Regeneration. (While driving)
6. You can set how much you want Regeneration in Regen Setup Menu ..
7. The screen displays RPM, engine temperature, Amp and how much Nm engine gives
8. The display shows whether you are in Manual-Mode or Auto Mode and that it shows the Operation profile you are in. The 3 profiles are ECO, Normal and Sport.

This is a smart tuning box that can tune your Twizy to the maximum safely.

In Auto Mode it adjusts the profile to Sport when engine temperature is between 0 to 89 degrees. if the engine reaches 90 degrees then it automatically goes to Normal and if the engine comes to 100 degrees then it falls down to ECO which is the same as the original Power map. The engine must be

reduced to below 80 degrees before it goes up again to Normal and it must come down to below 70 degrees before it goes back up to Sport.

Twizy engine will withstand up to 160 degrees so we stay well below the Max temperature.

In Manuel-Mode then you can choose whether you want it in ECO, Normal or Sport with pressing the button under the profile you want, but as a safety it will always adjust down the profile if the motor gets too hot in the same way as it does in Auto Mode. This is for you as a user will not be able to run your motor too hot.

Power box has three buttons and all 3 buttons have two functions. (Except if you have chosen Light Tuning, then button 3 only function as Menu button)

Short press (less than 1 second) and long press (over 1 second).

In Manual Mode the button functions as follows:

Short press button no 1 = Profile 1 (ECO). Long press selects Regenerating On/Off

Short press button no 2 = profile (Normal). Long press selects between Auto Mode or Manuel-Mode

Short press button no 3 = Profile (Sport). and by a long press on button 3 you'll find menu. (in Light Tuning then short press on button 3 is Menu)

In Auto Mode the button functions as follows:

Short press button no 1 = nothing. Long press selects Regenerating On/Off

Short press button no 2 = nothing. Long press selects between Auto Mode or Manuel-Mode

Short press button no 3 = nothing. and by a long press on button number 3 you'll find menu. (in Light Tuning then short press on button 3 is Menu)

Tuning The vehicle for the first time.

Turn first the ignition key to ON position and then Plug OBD2 connector in the diagnostics port that you find in the left glove compartment.

The tuning box will now automatically detect your Twizy and displays a tuning menu.

(Auto scan will not always detect this and will then start right up in the Home screen if so just hold the button 3 (100Nm) for over one second then you come to the Menu.)



1. Power Tuning
2. Original Tuning

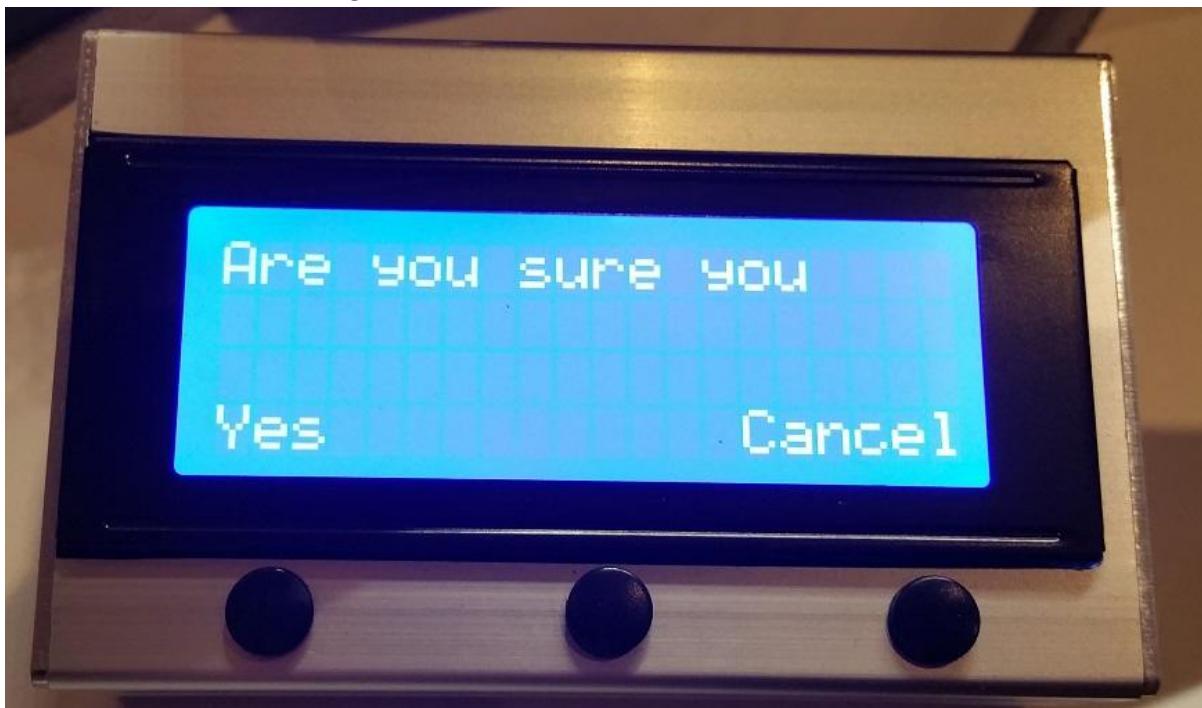
Press button 1 to select Power Tuning



Power Tuning Menu

1. Light Tuning
2. Medium Tuning
3. MaxPower Tuning

Now select the desired tuning level with button 1,2 or 3



and select Yes

The box will now first set the ECU in PreOperational mode (This will take about 10 seconds)



When the car is ready then it begins to tune the car automatically



Important When it is finished, turn OFF and ON the ignition key and you are now ready to drive.



It has automatic selection Manuel-Mode (Normal) profile. Hold the button 2 (Normal) if you want to put it over in Auto Mode.

If you have chosen MaxPower Tuning then home screen will look like this.



If you have chosen Light Tuning then home screen will look like this.



Regeneration menu

You can change the parameters for how much regeneration you want by Neutral braking and how much it will regenerate when breaking with the foot brake. Neutral braking means how much it slows the regenerate when you release the speed pedal.

Hold button 3 (Sport) for more than 1 second to go to the Main Menu.



1. Tuning Menu

2. Regen Menu

Choose 2 and you get into the Regeneration Menu.



1. Neutral Braking

2. FootBraking

Then select button 1 for Neutral Breaking



Here's Regeneration Value in Thousandth (not percentage) standard value is 181 per thousand, which is the same as 18.1%.

Press Up or Down to the desired Value and when finished press OK to save it and it go completely out of the menu.

It is the same procedure for the regeneration by FootBreaking

Hold button 3 (Sport) for more than one second enters the Main Menu.

1. Tuning Menu

2. Regen menu

Choose No. 2 and you get in to the Regen menu

1. Neutral Breaking.

2. FootBreaking

Then select button 2 Foot Breaking

Here you can see the Regen Value in thousandth (not percentage) standard value is 251 per thousand, which is the same as 25.1%.

Press Up or Down to the desired Value and when finished press OK to save it and its go completely out of the menu.

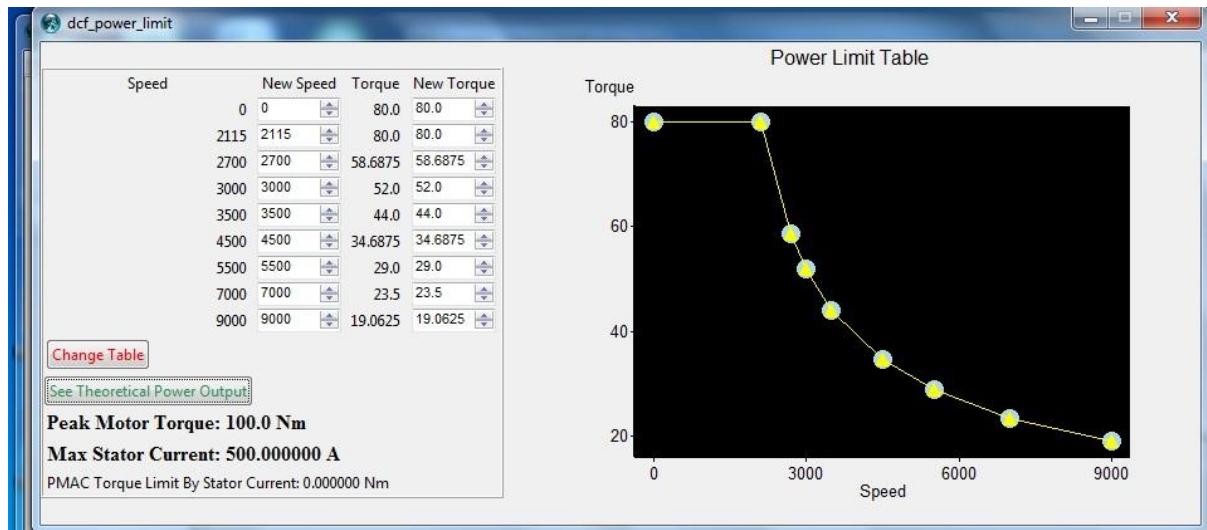
So what is the difference between the 3 tuning options Light Tuning, Medium Tuning and MaxPower Tuning?

The main difference between them is Torque (Nm) from 0-70 km/h. Over 70 km/h are all 3 quite similar. They all have a top speed of maximum 115 km/h. On a flat road a realistic top speed range between 95 to 105 km/h and here we are depending on weather and wind direction :-)

(top speed at ECO profile is only 84 km/h. all the other drive profiles has a maximum top speed of 115km/h)

Light Tuning Power Map:

Here are the maximum torque set to 80 Nm.

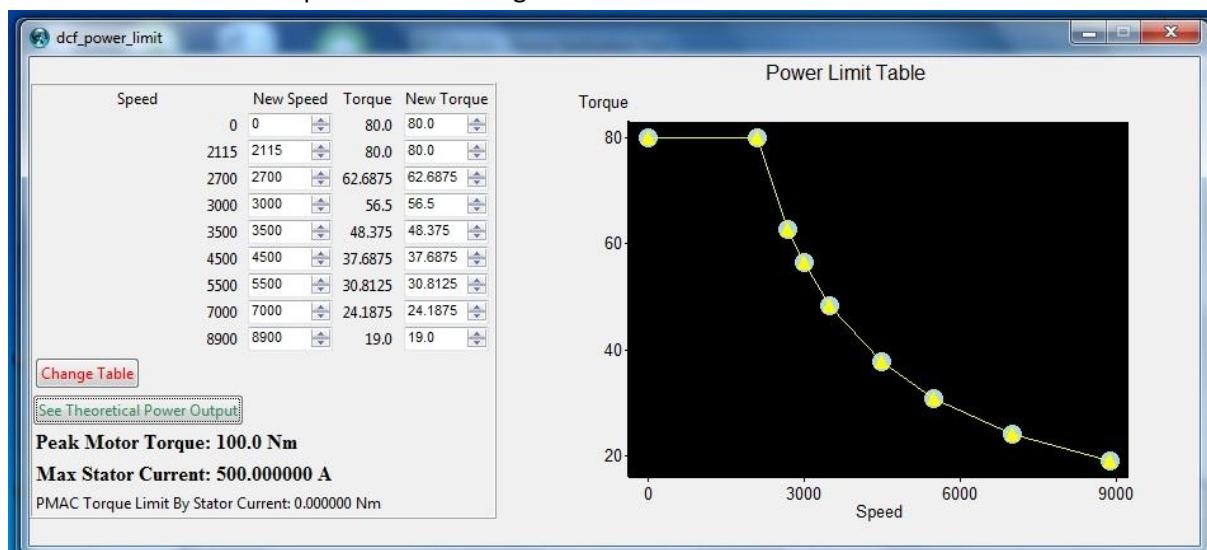


Medium Tuning Power Map:

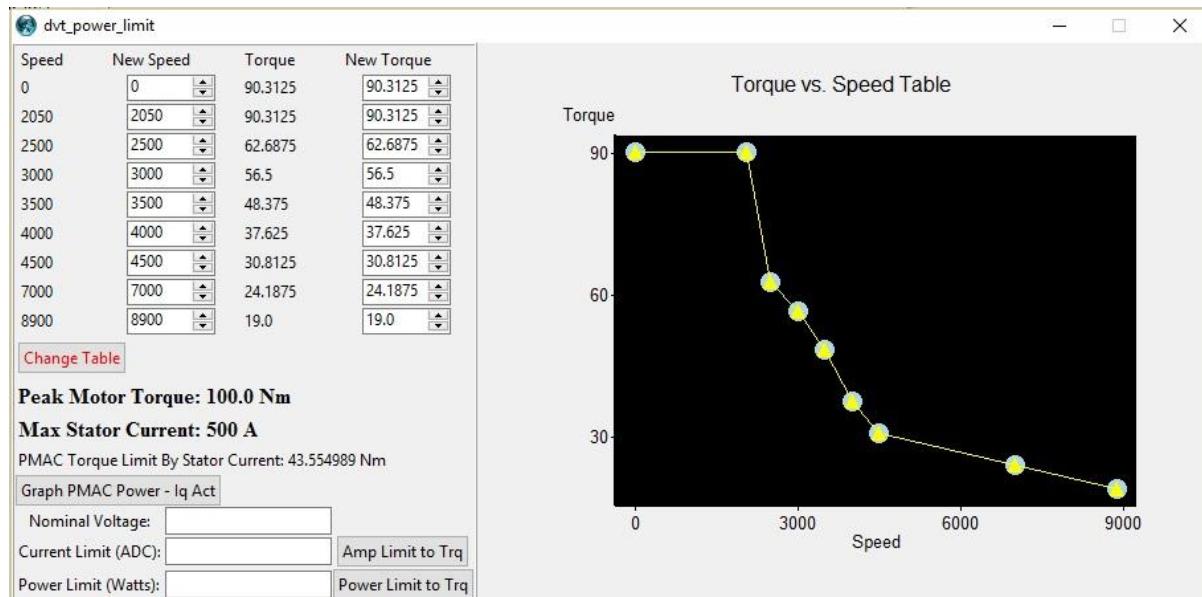
Here are the maximum torque set to 90Nm.

By this setup, you can sometimes get a STOP warning from BMS controller in the battery pack. This could happen when the engine starts to get a little warm (Not dangerous hot :-) when the engine passes about 70 degrees then you will with this tuning take out almost 500 Amp. When the battery gives out more than about 450 Amp so it sends out a STOP warning. This warning is just to ignore and is not dangerous.

Her er Normal Power Map i Medium Tuning



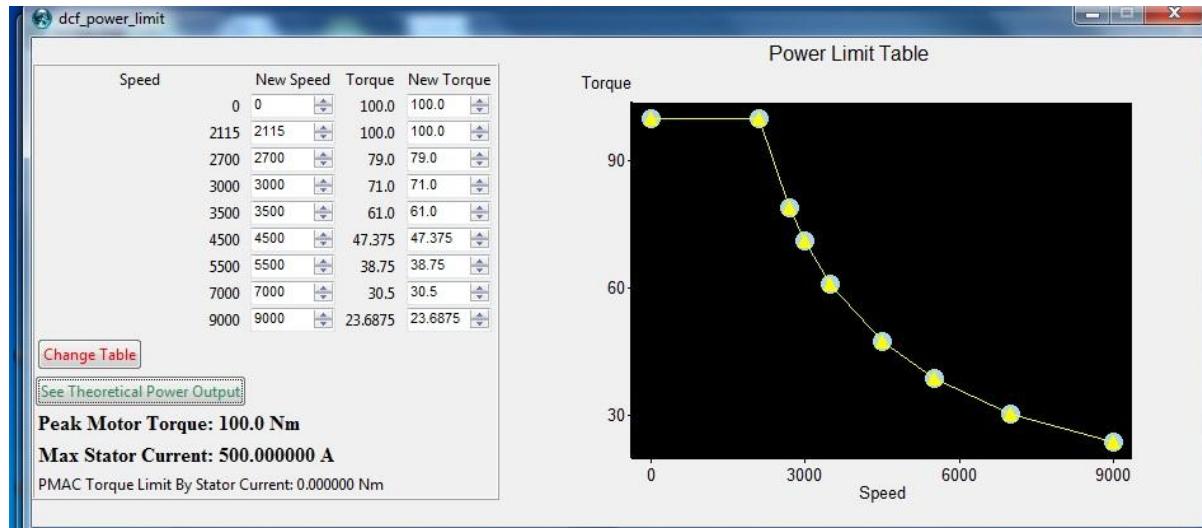
Here are Sport Power Map in Medium Tuning



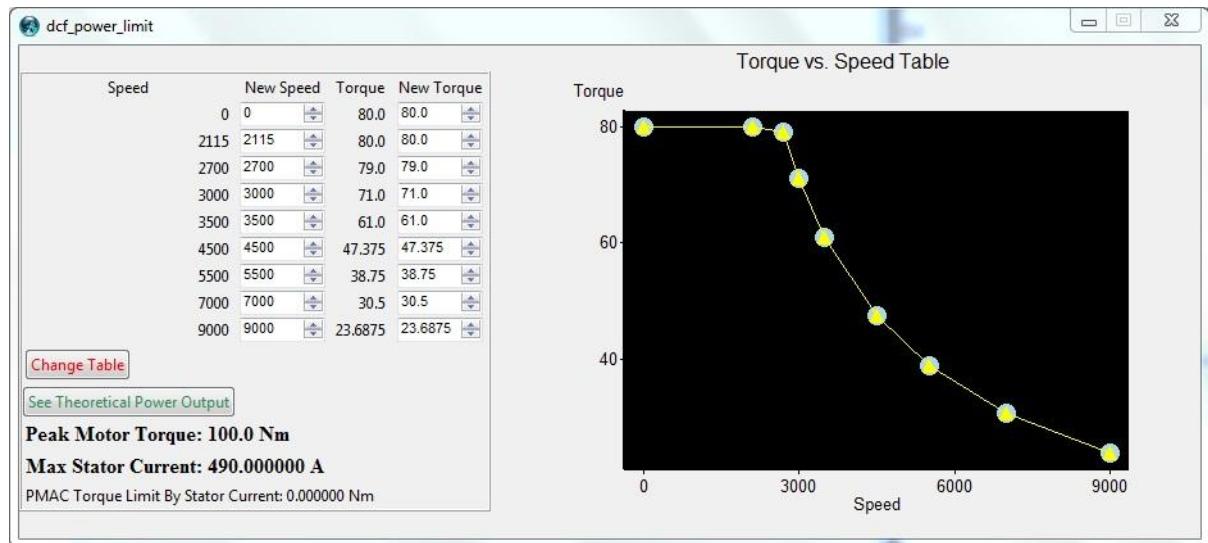
MaxPower Tuning Power Map:

Here we take out entire 100 Nm so here you will virtually always get a STOP warning when dragging to with full speed from low RPM. Here we take out all Power found in the car and the engine here go relatively quickly warm and it could easily reach 90 degrees. so stay tuned on temperature and drive it a little careful when it falls down to Normal profile. This Normal profile that is here in this tuning profile is a more powerful Normal profile that found in Medium and Light Tuning profile so here you will also easily be able to run the engine up to 100 degrees so that it will drop down to ECO profile.

Here is 100 Nm Power Map in Max Power Tuning



Here is 80 Nm Power Map in Max Power Tuning



I have personally driven my Twizy with 100.Nm tuning in about 2 years and my motor and battery pack have not taken any damage from this. I have now made my own battery pack to my Twizy so I terminated my lease with Renault and delivered back my battery to them. Renault in Norway sent so my battery down to Renault in France and they have taken a thorough test on it before they would give me the final settlement and they did find no fault with it. :-)

Firmware update

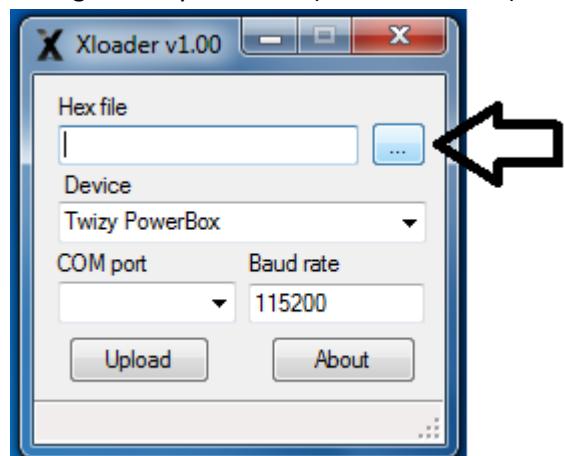
To update the Power box you need to install a driver that you can download [here](#)

You must also install XLoader Software that you can download [here](#)

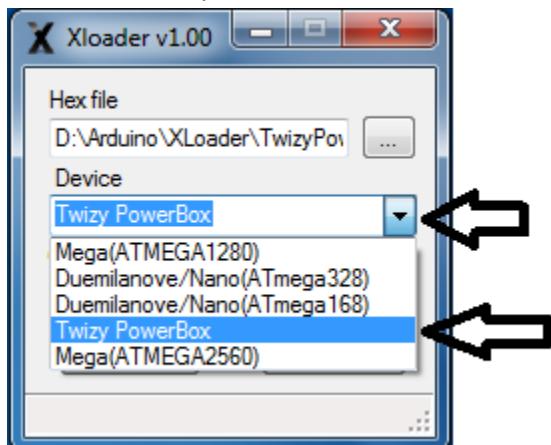
Before going any further it may be wise to take a restart of your computer.

Connect now your PowerBox to the computer with a Micro USB cable and your computer searches and installs it automatically, and assigns it a COM Port number. Once that is done you can start XLoader Software.

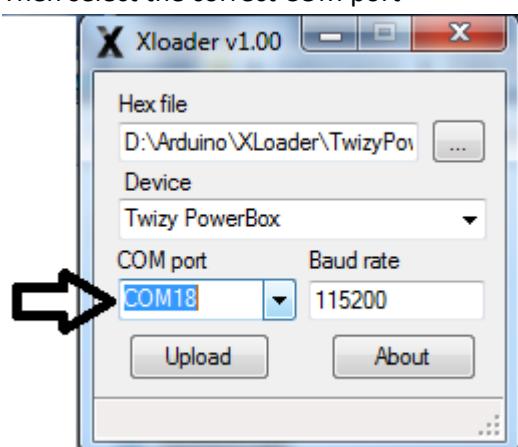
Now get TwizyPowerBox(version number) .Hex file



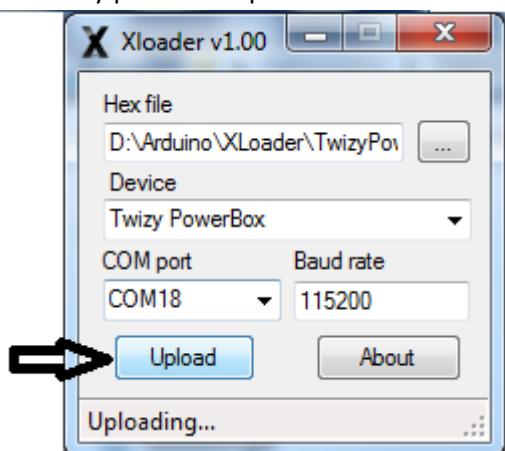
Now select Twizy PowerBox in the Device field



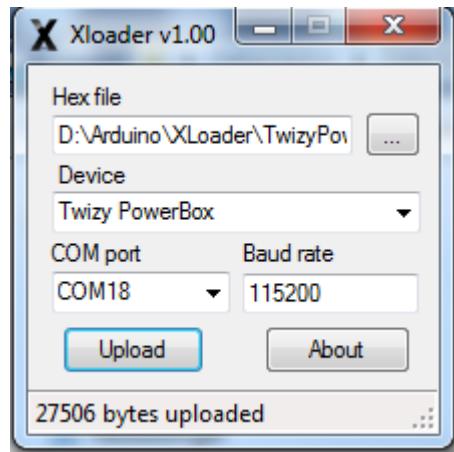
Then select the correct COM port



and finally press the Upload button



and after a few seconds your PowerBox is now updated with new firmware :-)



You can now disconnect it from the computer :-)