

Tsla PRO

FOR TESLA CAR MODEL S & X & 3

User Manual

Updated: 2020.04.16

Tsla PRO – Diagnostic and Programming Tool for TESLA S, X, 3



Table of Contents

A disclaimer of liability.....	4
Introduction.....	5
Understanding TESLA network.....	6
<i>Tsla</i> PRO Diagnostic interfaces.....	7
Wiring Diagrams - x437 and x437A.....	8
Tesla Connector x437, x437A Pinouts.....	12
<i>Tsla</i> Software Installation & Activation.....	13
System requirements.....	13
Software download.....	13
Installation of the license activation file.....	14
Airbag ECU Crash Data Resetting.....	22
How it looks Tesla SRS airbag control module and where is located ?.....	23
SRS - TESLA MODEL S.....	25
SRS - TESLA MODEL X, 3.....	29
Adding and learning keys (key-fob).....	34

A disclaimer of liability

Tsla PRO is the first independent device on the market supporting diagnostics in TESLA model S, X and 3 so far.

You must be aware that the use of some Tsla PRO functions in some countries may be prohibited and against the law.

First of all, what you need to know about the Tsla PRO before work.

Tsla PRO:

- The tool is intended only for qualified personnel!
- You must be aware of the risk of loss if something went wrong (learn keys or make adaptations of BMS controller or something else)
- You must have electronic skills which allow you to make adapters yourself and the connection between Tsla PRO and the vehicle's CAN interface.
- Tsla PRO uses the CAN network to communicate with the ECU. Therefore, you will not have access to firmware, navigation update, configuration because it cannot be done via CAN. All mentioned things do by LAN on IC,CID not via CAN network.

The author not liable for damage caused or any loss by incorrect use of the Tsla device.

In addition, he is not liable, if the device's functions are used unlawfully in a country where it is forbidden.

Also the company selling it is not liable for any losses or damage to the goods in question.

Introduction

Tsla PRO is a young software with small box interface but is constantly being developed.

Can help you solve a few problems with the TESLA car.

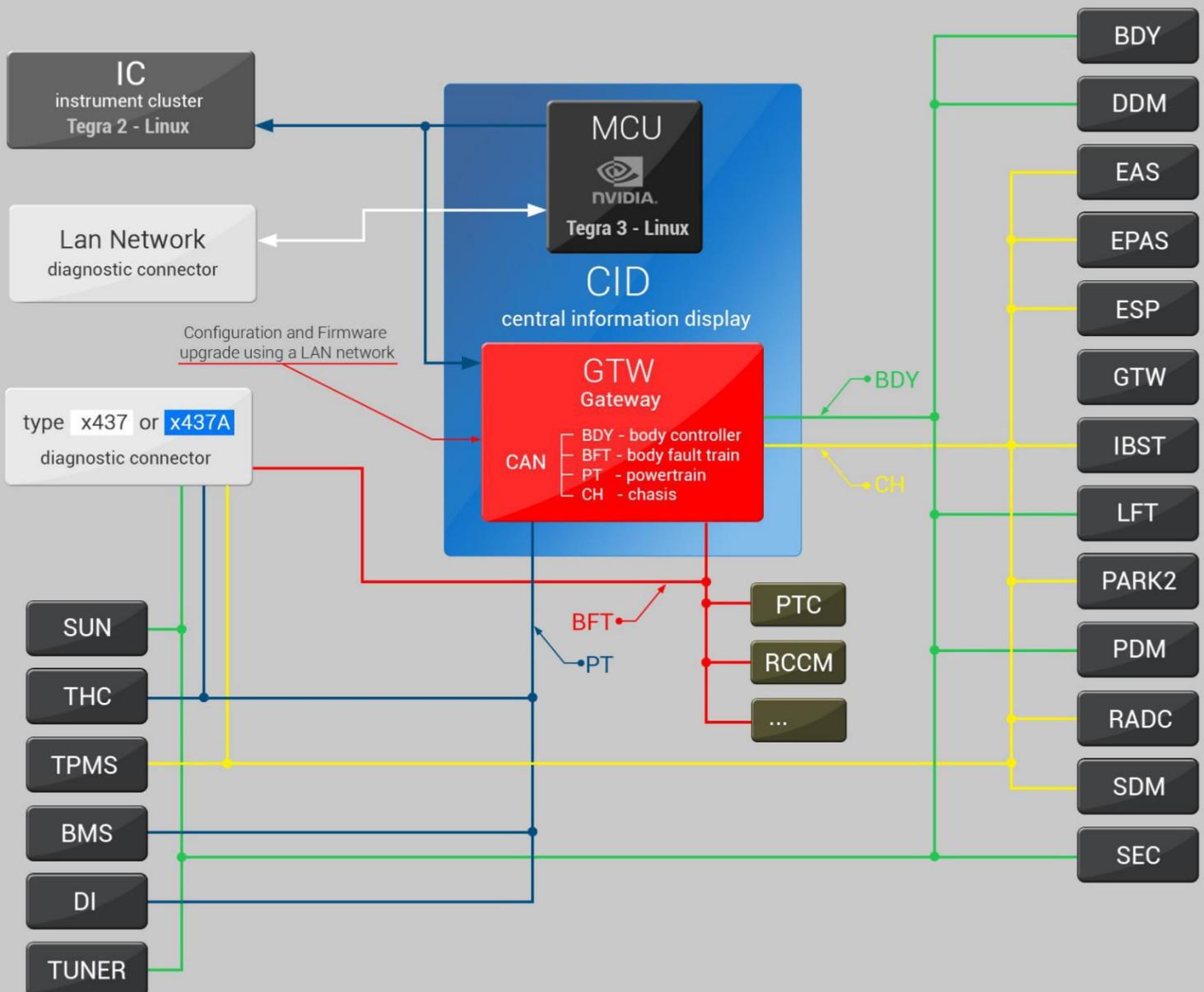
As so far, Tsla PRO can work with ECU TESLA Model S with some function for TESLA Model X and 3

ALERTS	Alerts on CAN bus (read and decode alerts codes updated BMS 2018.09.14)
BDY	Body controller on CAN bus
SDM	Supplemental Deployment Module S, X, 3 model (read and decode fault codes, erase stored fault codes and CRASH by Boot mode in S, and diagnostic port in X and 3
SEC	Security controller updated information details 2018.09.14 (Add Keyfob Key)
CP	Charging port
PARK2	Parktronic sensors (read and decode fault codes, erase stored fault codes, Updated fault codes 2018.07.08)
THC	Thermal controller (Add some features 2018.07.08, Open, close valves for fill or drain cooling fluid , Air purge function)
EAS-TAS	Tesla Air suspension System (read and decode fault codes, erase stored fault codes, exit servicemode)
BMS	Battery control Module (reset alert warnings w163,w026,w152,w153,w023)
TPMS	Tyre Pressure Monitor System (read and decode fault codes, erase stored fault codes)
ESP	Electronic stability system (read and decode fault codes, erase stored fault codes, Updated fault codes

Understanding TESLA network

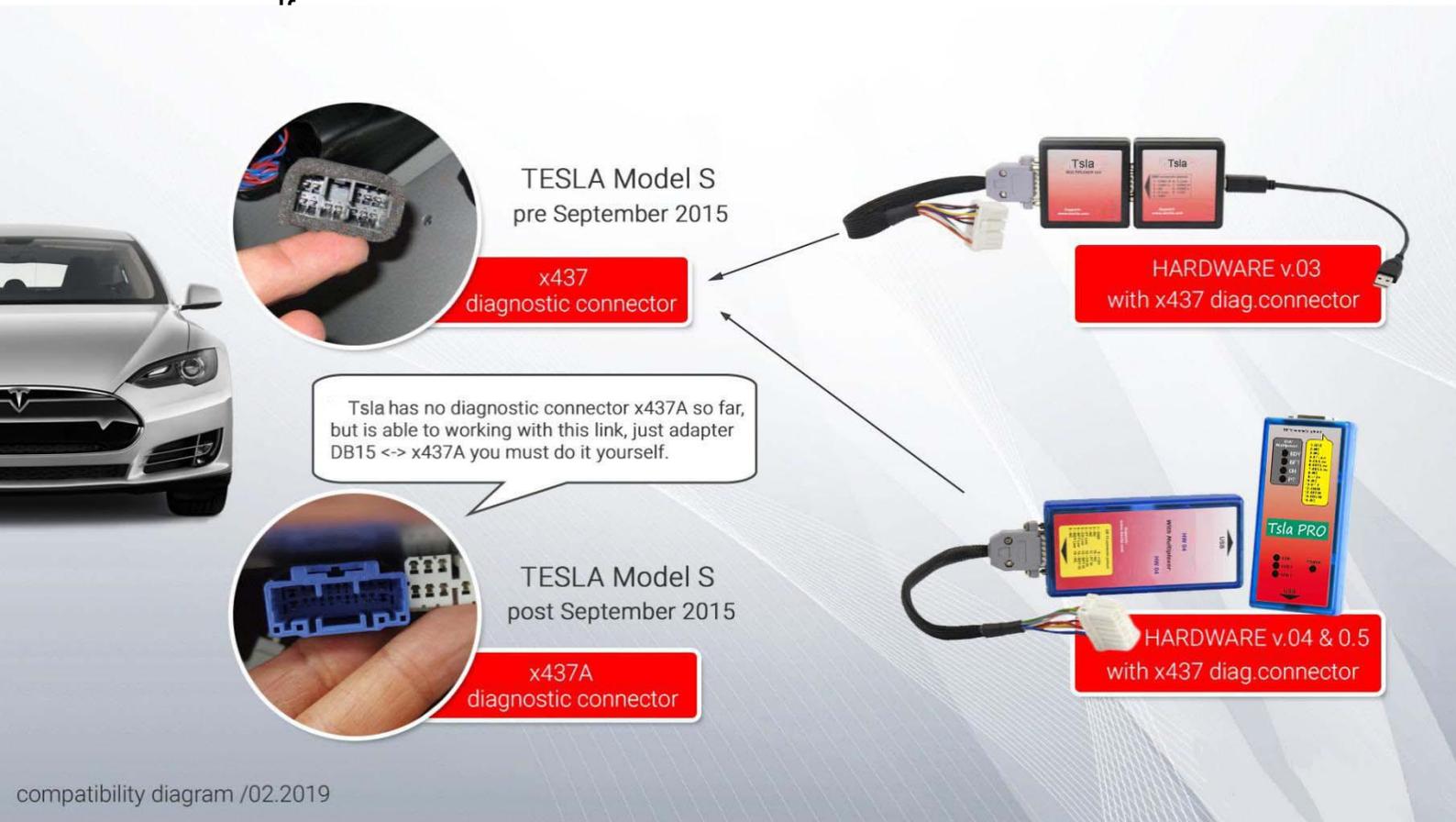
The following diagram of the TESLA “S” network will explain to you what you can use Tsla PRO for.

A block diagram, explaining the principle of **Tesla Model S** network



Tsla PRO Diagnostic interfaces

Tsla PRO has no diagnostic connector x437A so far, but is able to working with this link, just adapter DB15 <-> x437A you must do it yourself.



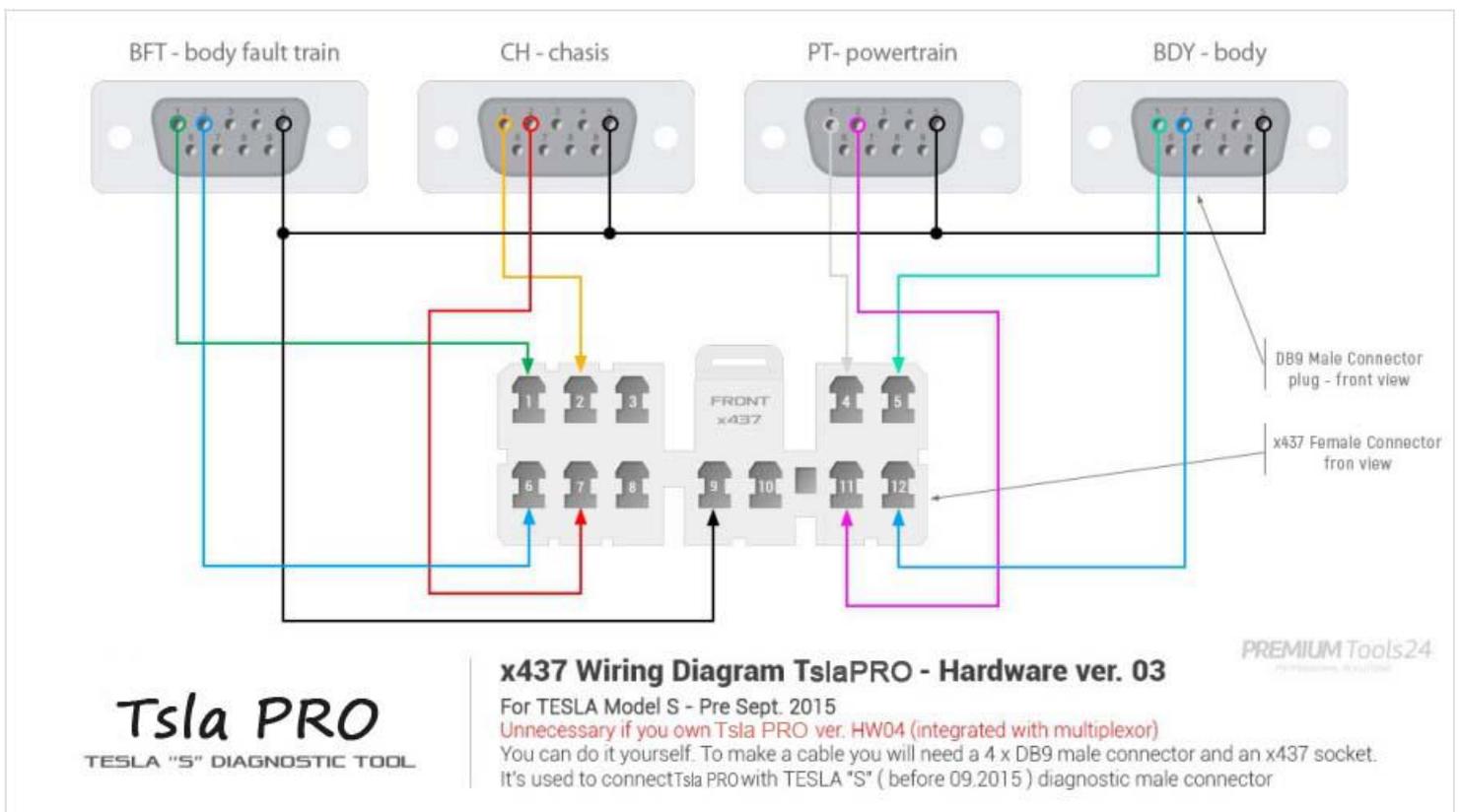
The white or grey connector x437 is used in *TESLA Model S* pre September 2015

The blue connector x437A is used in *TESLA Model S, X, 3* post September 2015

Wiring Diagrams - x437 and x437A

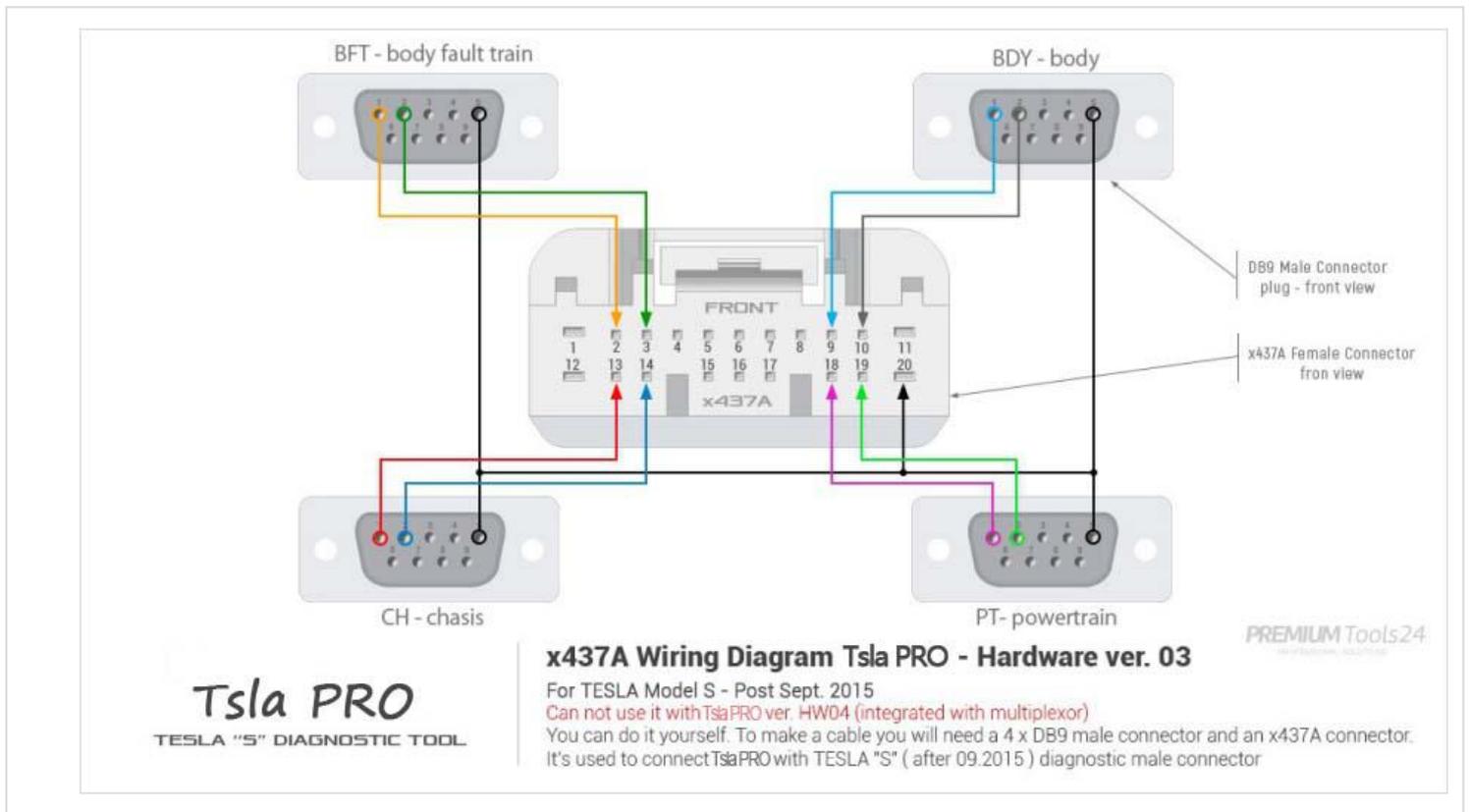
Tsla PRO Hardware 03 has two separate units: a diagnostic Tsla PRO unit and a multiplexor. However, Tsla PRO Hardware 04 has two the same units enclosed in one long housing.

Wiring diagram to use Tsla PROv.03 without Multiplexor with x437 connector



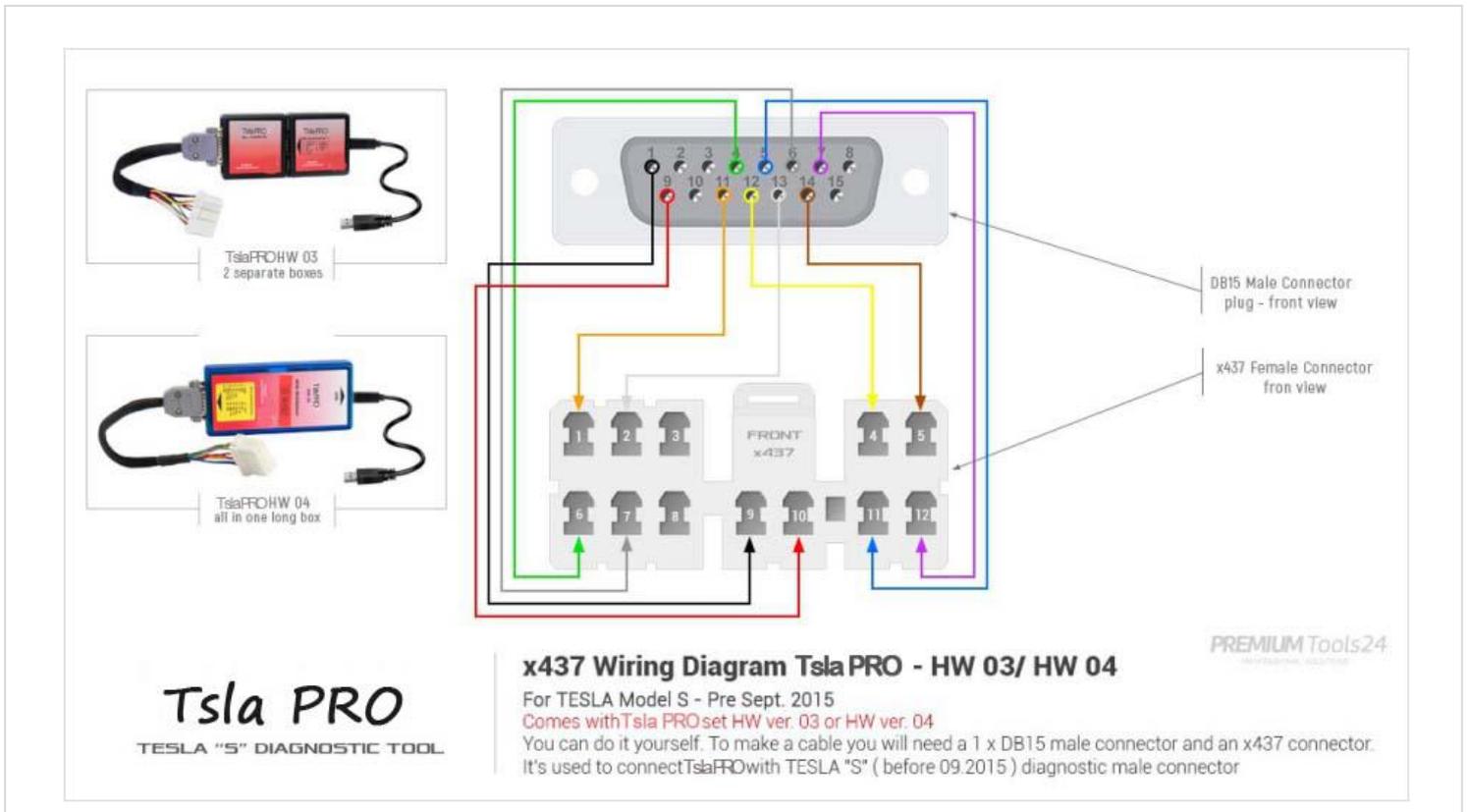
applicable for use between Tsla PRO diagnostic unit and x437 female connector without use a multiplexor.

Wiring diagram to use Tsla PRO v.03 without Multiplexor with x437A connector



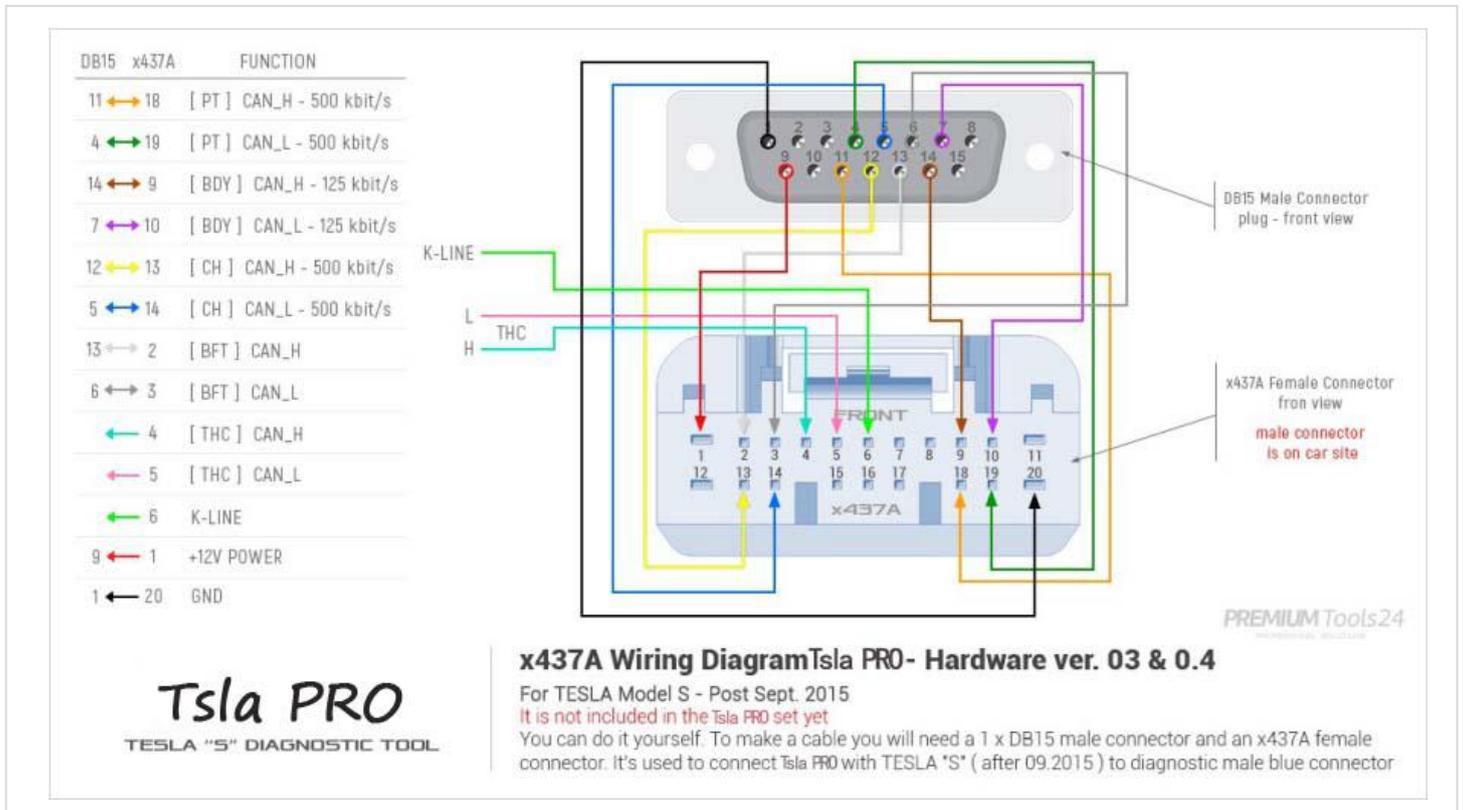
applicable if for some reason you do not want or you cannot use the multiplexor

Wiring diagram to use Tsla PRO v.03 and v.04 and newer with Multiplexor with x437 connector



applicable directly after purchase because exactly this interface you will get with Tsla PRO Tool set.

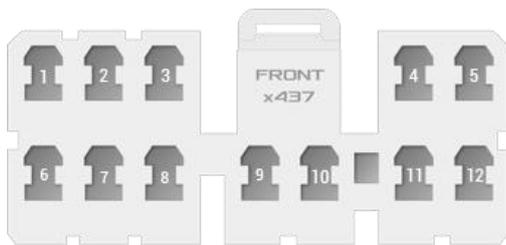
Wiring diagram to use Tsla PRO v.03 and v.04 and newer with Multiplexor with x437A connector



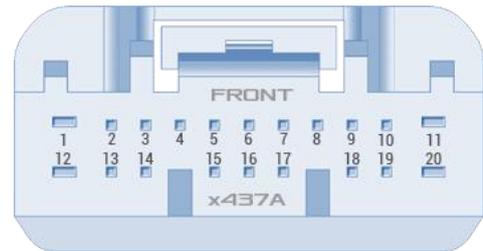
it applies if you going to use Tsla PRO tool with Multiplexor with *TESLA Model S post September 2015* and *TESLA X,3* with blue connector

Tesla Connector x437, x437A Pinouts

Tesla Diagnostic Port Connector pinout



Pre 2015 Tesla Model S
Connector x437 white



Post 2015 Tesla Model S
Connector x437A blue

1 = CAN 3 HI - Powertrain Bus	1 = 12V/5A (F219)
2 = CAN 4 HI - Body Faults Bus	2 = CAN4+ Body Fault
3 = K Bus ISO9141 single wire LIN	3 = CAN4- Body Fault
4 = CAN 6 HI Chassis Bus	7 = K/Serial
5 = CAN 2 HI Body Bus	9 = CAN2 Body +
6 = CAN 3 LO Powertrain Bus	10 = CAN2 Body-
7 = CAN 4 LO Body Faults Bus	13 = CAN6+ Chassis
8 = Not used	14 = CAN6 Chassis-
9 = Reference Ground	18 = CAN3 Powertrain+
10 = 12V	19 = CAN3 Powertrain-
11 = CAN 6 LO Chassis Bus	20 = GND
12 = CAN 2 LO Body Bus	

Tsla PRO Software Installation & Activation

System requirements

- Operating system: Microsoft Windows 7/8/8.1/10 (32/64 bit)
- 1 free USB port. 2 or 3.0

Software download

Software is available to download for free from:

Manufacturer website:

Distributor's store:

Download and install:

1. *Main software*

Tsla PRO (date xx.xx.2019) or newer (RAR archive)

2. *Drivers USB Serial Port for Tsla PRO Interface:*

Drivers for Tsla PRO Interface /CDM20824/ (RAR archive)

in some circumstances you may also need to download and install latest *drivers CDM20824 USB D2XX drivers for FT232RL* , can be downloaded from

The software is working without installation.

So you can just simply create folder and extract software wherever you want and lunch by clicking on executable file “*Tsla PRO_pro.exe*”

Installation of the license activation file

Before you start working with the mentioned software, you have to activate software using license Tsla PRO *.bin* file that you will receive on your an email address after shopping.

EXAMPLE:

You will received activation file: Tsla PRO *000000000xxx.rar*

To extract a RAR file, you will need:

WinRAR archiver software: <https://www.rarlab.com/download.htm>

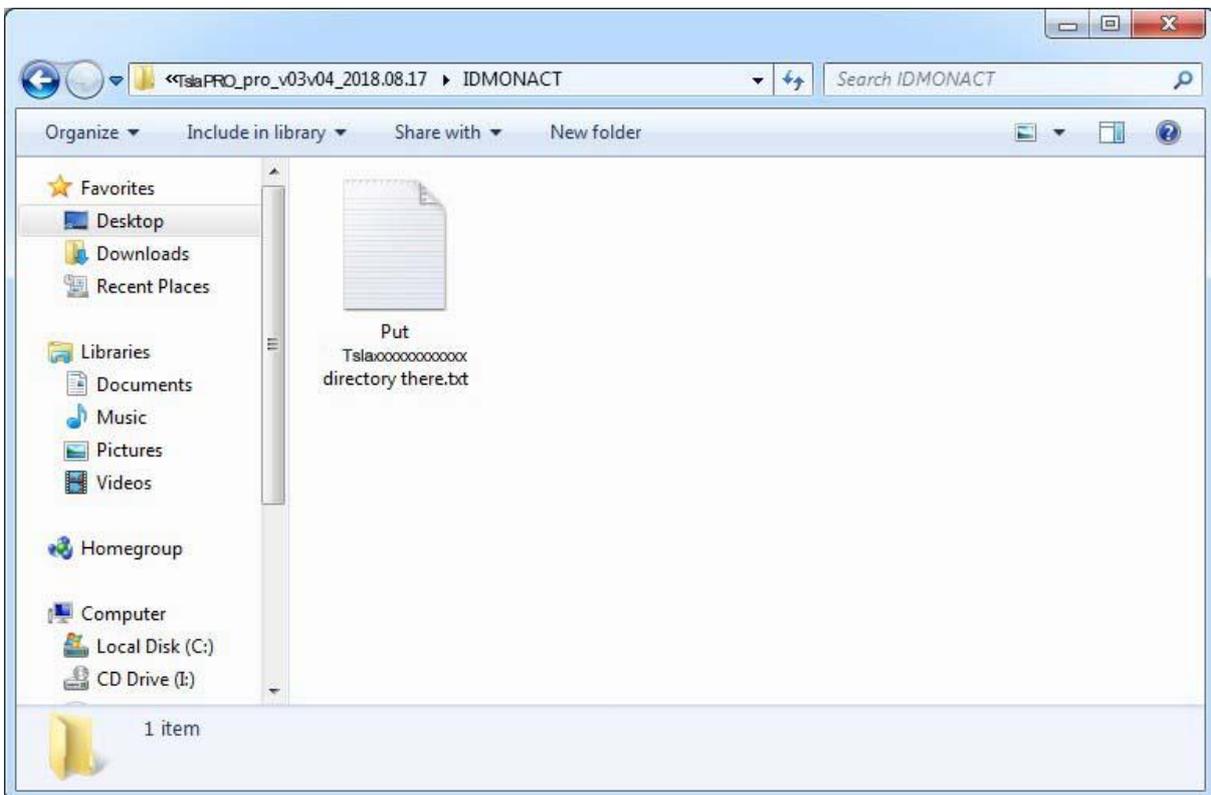
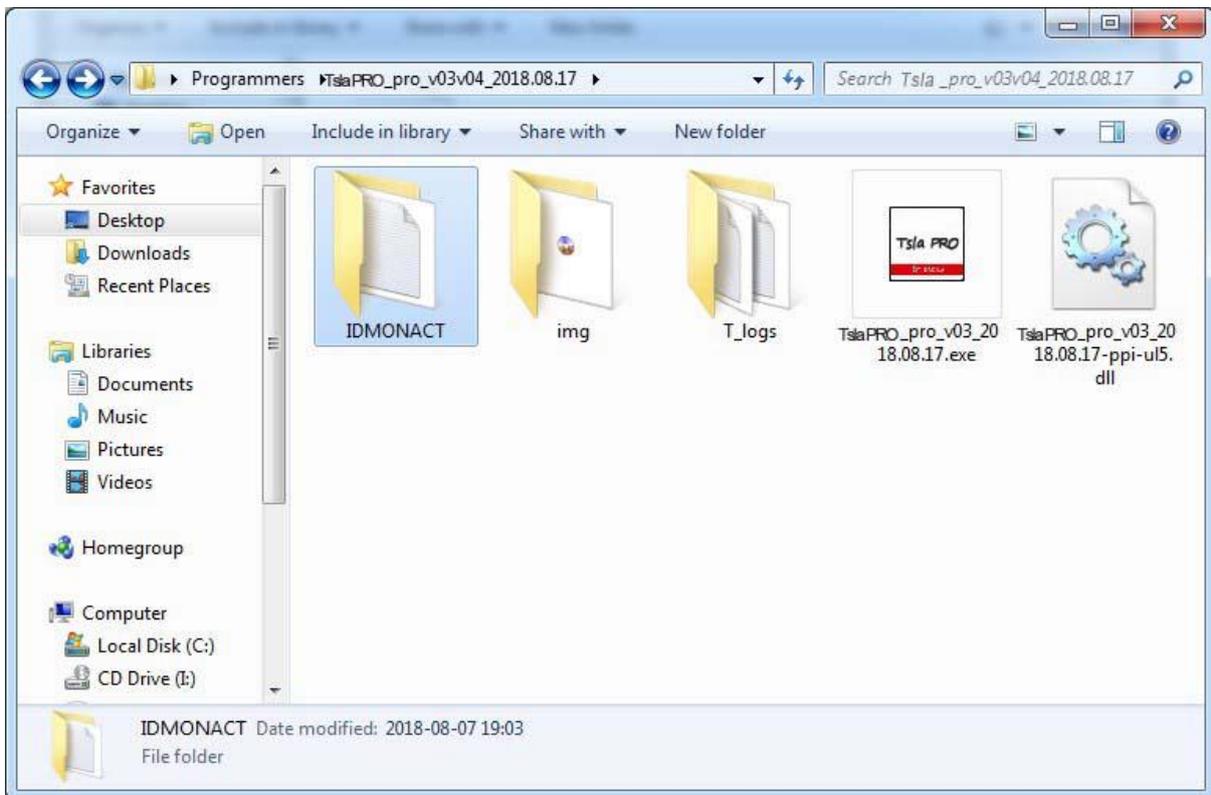
or free and open source 7-Zip <https://www.7-zip.org/>

then after extracting files you need to move/copy Tsla PRO *.bin* file to the directory where is IDMONACT folder

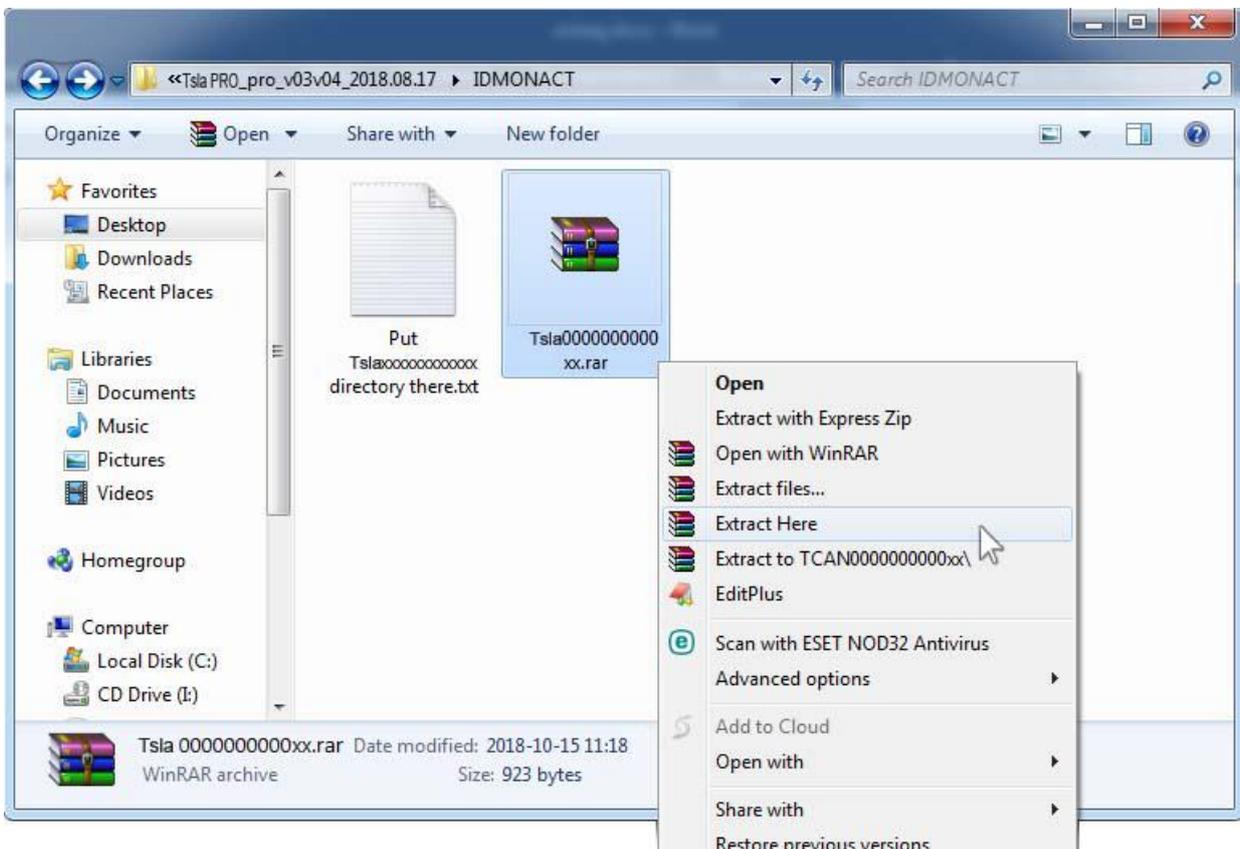
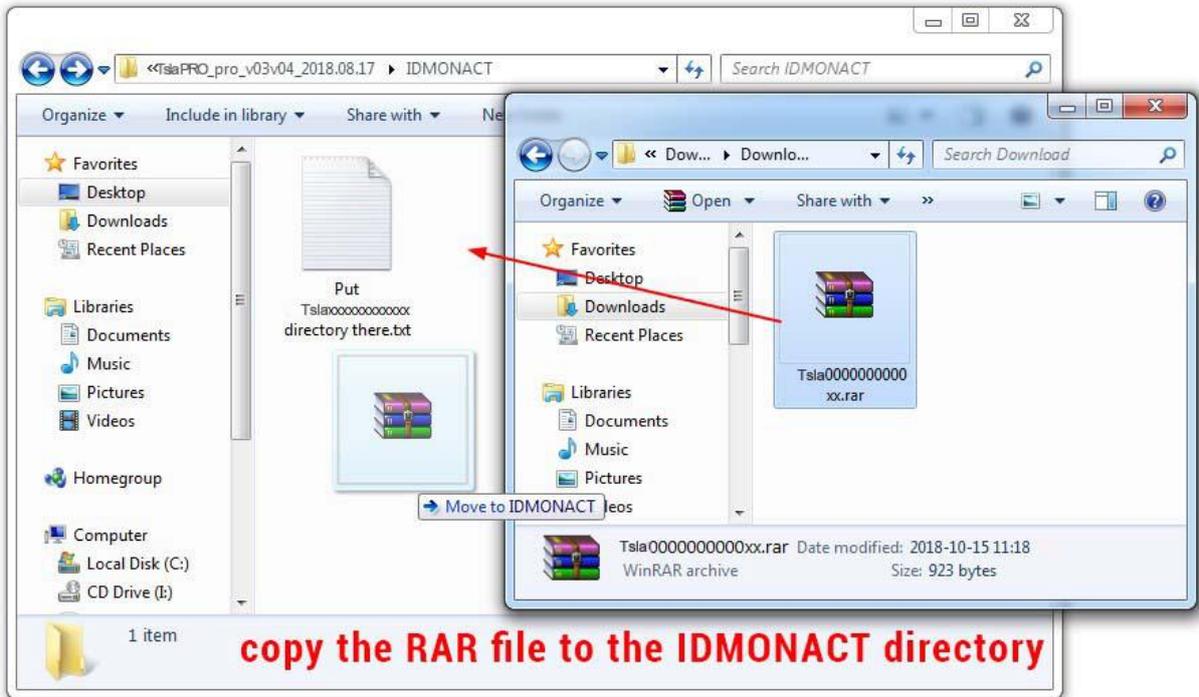
the right path should look as shown in the following:

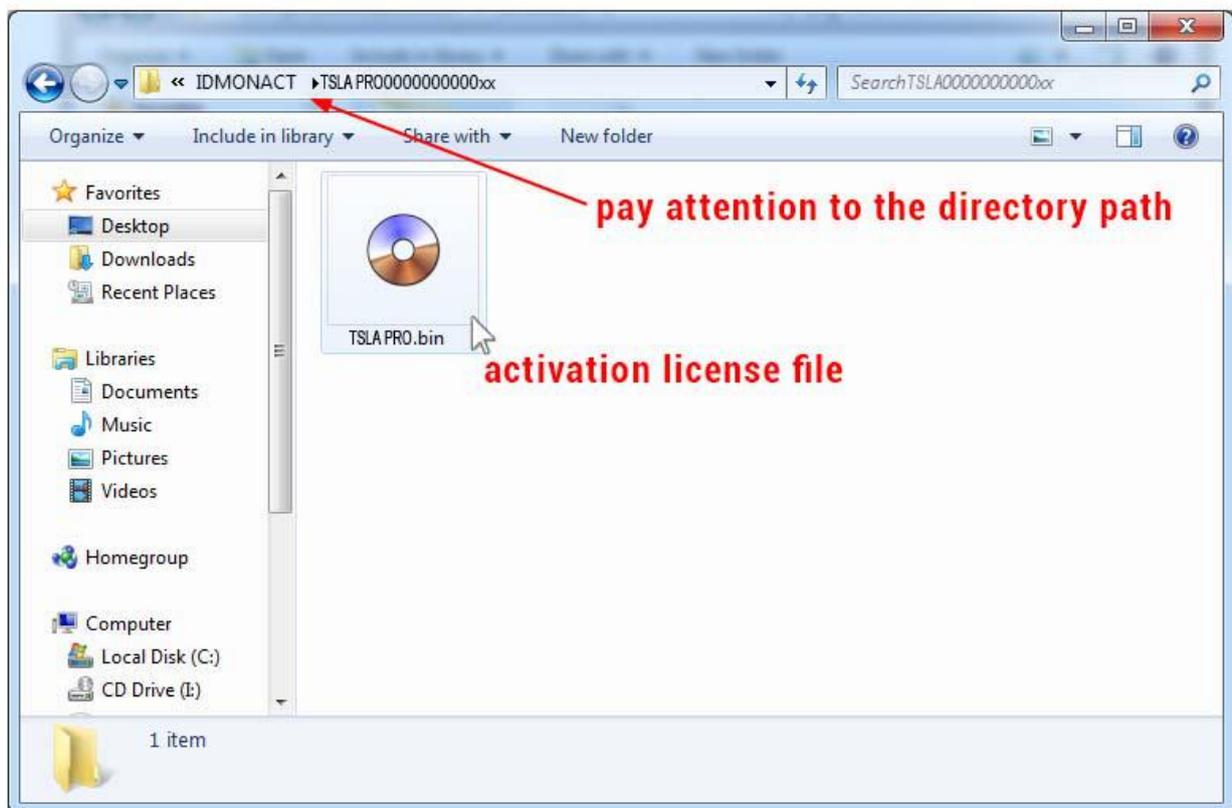
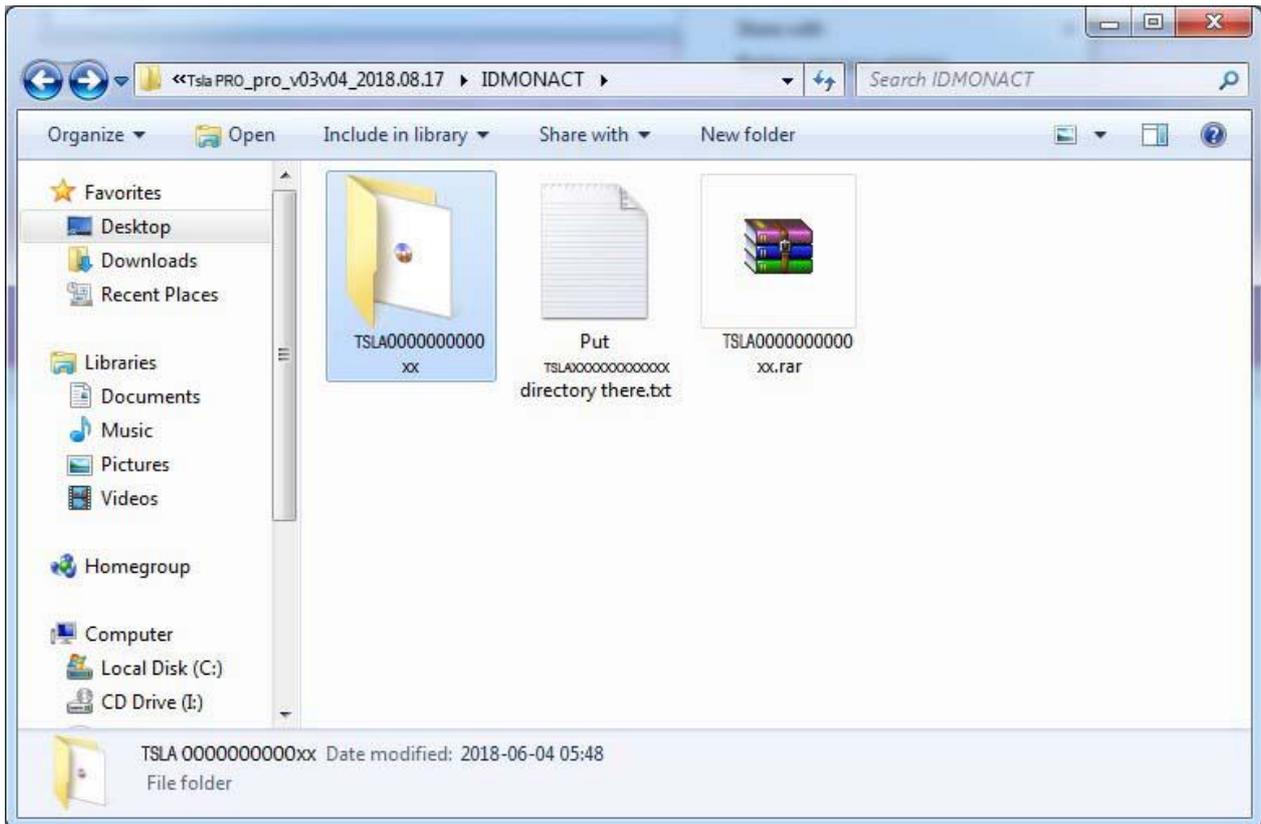
```
C:\Tsla PRO\IDMONACT \ Tsla PRO000000000xx\Tsla PRO.bin
```

visualization for better understanding, step by step

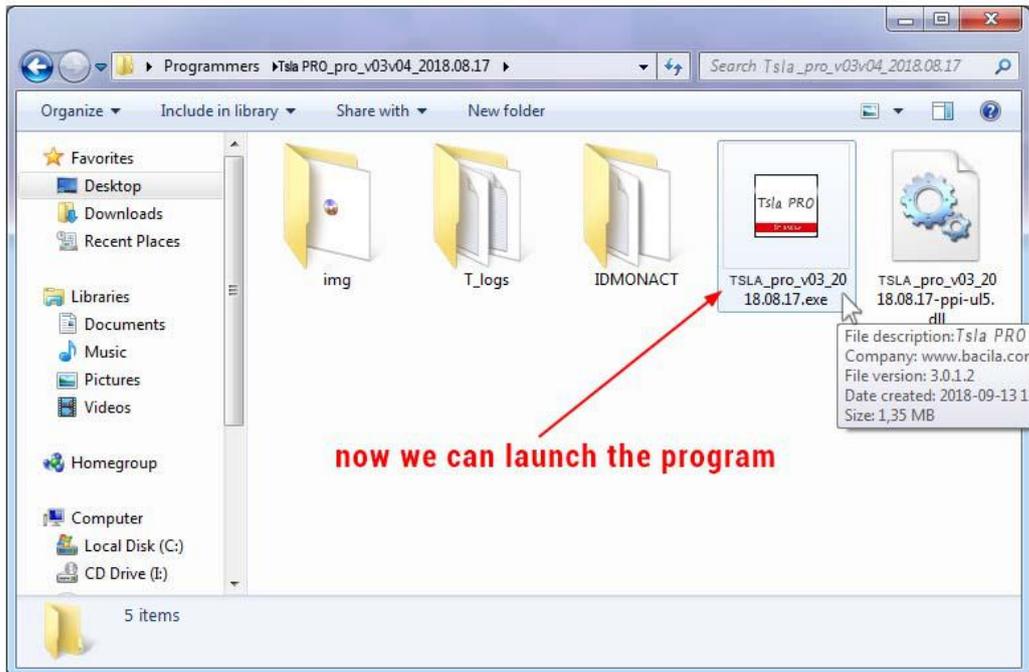


just drag and drop RAR archive file to IDMONACT folder





now you can connect the PRO to your PC/laptop and run executable file



The First Test

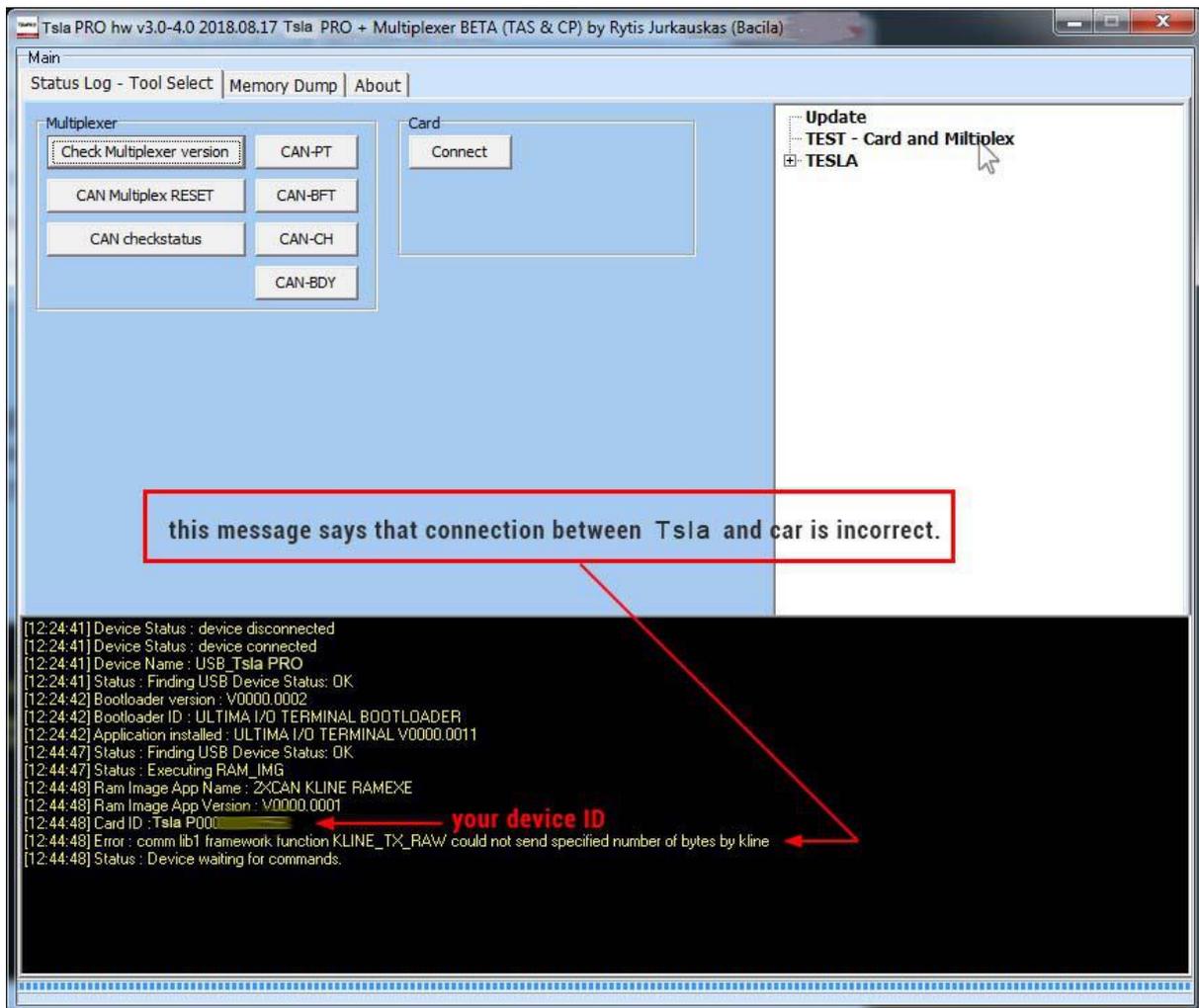
Please attached Tsla PRO to TESLA car now

Token are still not active!!!

Thank You for Using Tsla PRO

```
[9:51:31 PM] Device Status : device disconnected
[9:51:31 PM] Device Status : device connected
[9:51:31 PM] Device Name : USB_Tsla PRO
[9:51:31 PM] Status : Finding USB Device Status: OK
[9:51:31 PM] Bootloader version : V0000.0002
[9:51:31 PM] Bootloader ID : ULTIMA I/O TERMINAL BOOTLOADER
[9:51:31 PM] Application installed : ULTIMA I/O TERMINAL V0000.0011
```

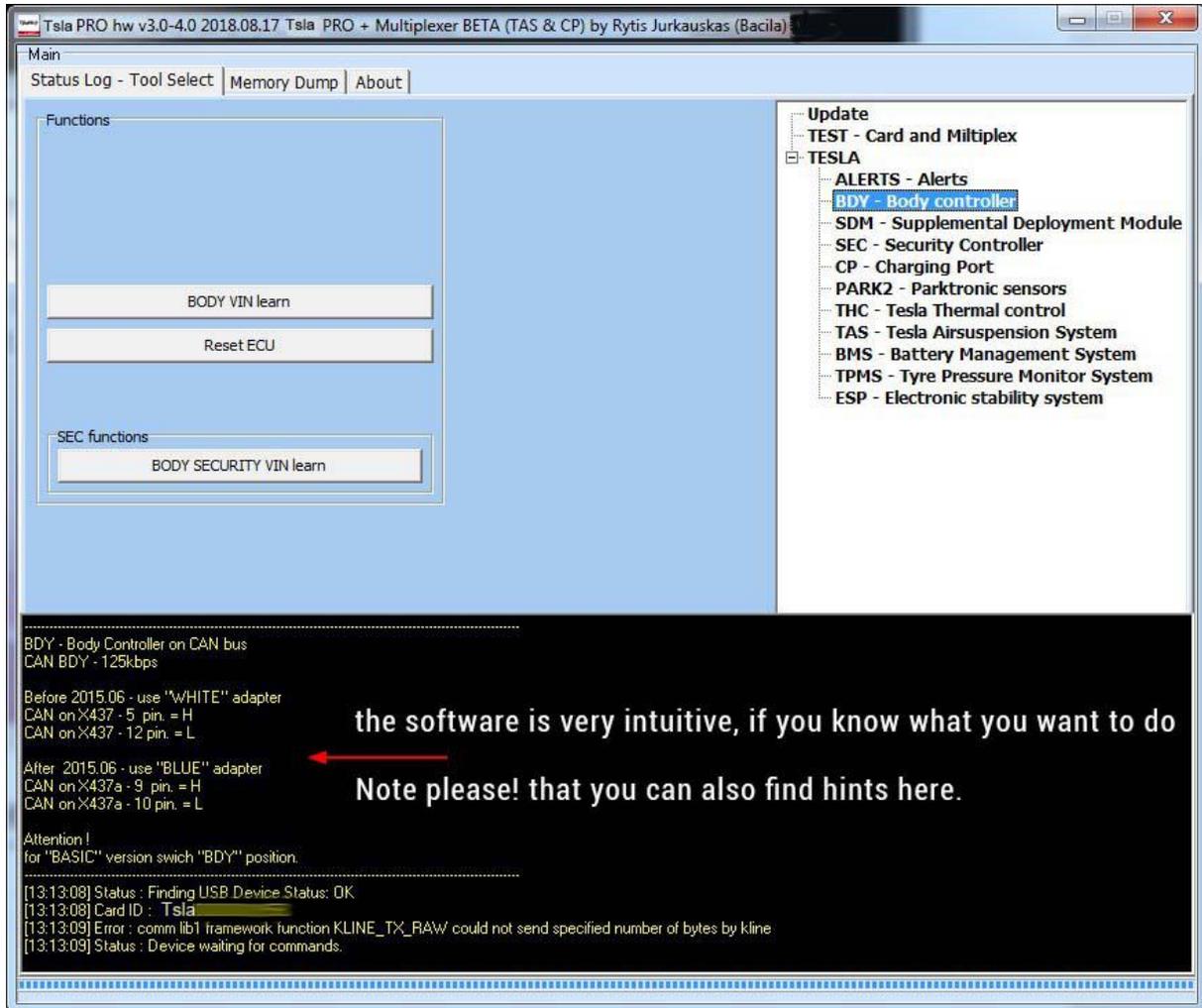
the connection is correct !



The Error shown above says that the connection between the Tsla PRO diagnostic tool and the car is incorrect.

Check if the plug is loose and is properly plugged into the diagnostic socket.

the software is very intuitive



the software is very intuitive, if you know what you want to do
Note please! that you can also find hints here.

the software is going to be constantly developed, so in the future version you supposed to get more useful information and changes build in

Airbag ECU Crash Data Resetting

Once an air bag has been deployed, whether via a malfunction of a vehicle's sensors or in a collision, most manufacturers recommend that they be replaced. Replacing air bags ensures that a driver's vehicle remains road-legal and safe for the driver and passengers alike.

However, replacing an air bag alone often isn't enough, when deployed, an air bag trips sensors and springs, and these must usually be replaced alongside the bag. These ancillary parts can greatly raise the cost of an air bag replacement.

But sometimes isn't enough, it's not everything, when you replace all the above mentioned parts, it turns out that you need to erase the information about accident from the computer's memory. Now comes Tsla PRO Tool to help us, because we are talking about the TESLA model S here.

In some countries, erasing data airbag crash without changing air bag assembly is not legal.

So, we highly recommend to replacing car's entire air bag assembly.

So before using the method given below, you must ensure that it is legal in your country.

Remember that you do everything at your own risk !

How it looks Tesla SRS airbag control module and where is located ?



Pictures are illustrative and may change over the years

The airbag module is located in the front of the tunnel, under the dashboard, right on the side of the pedals as you see on the picture below.

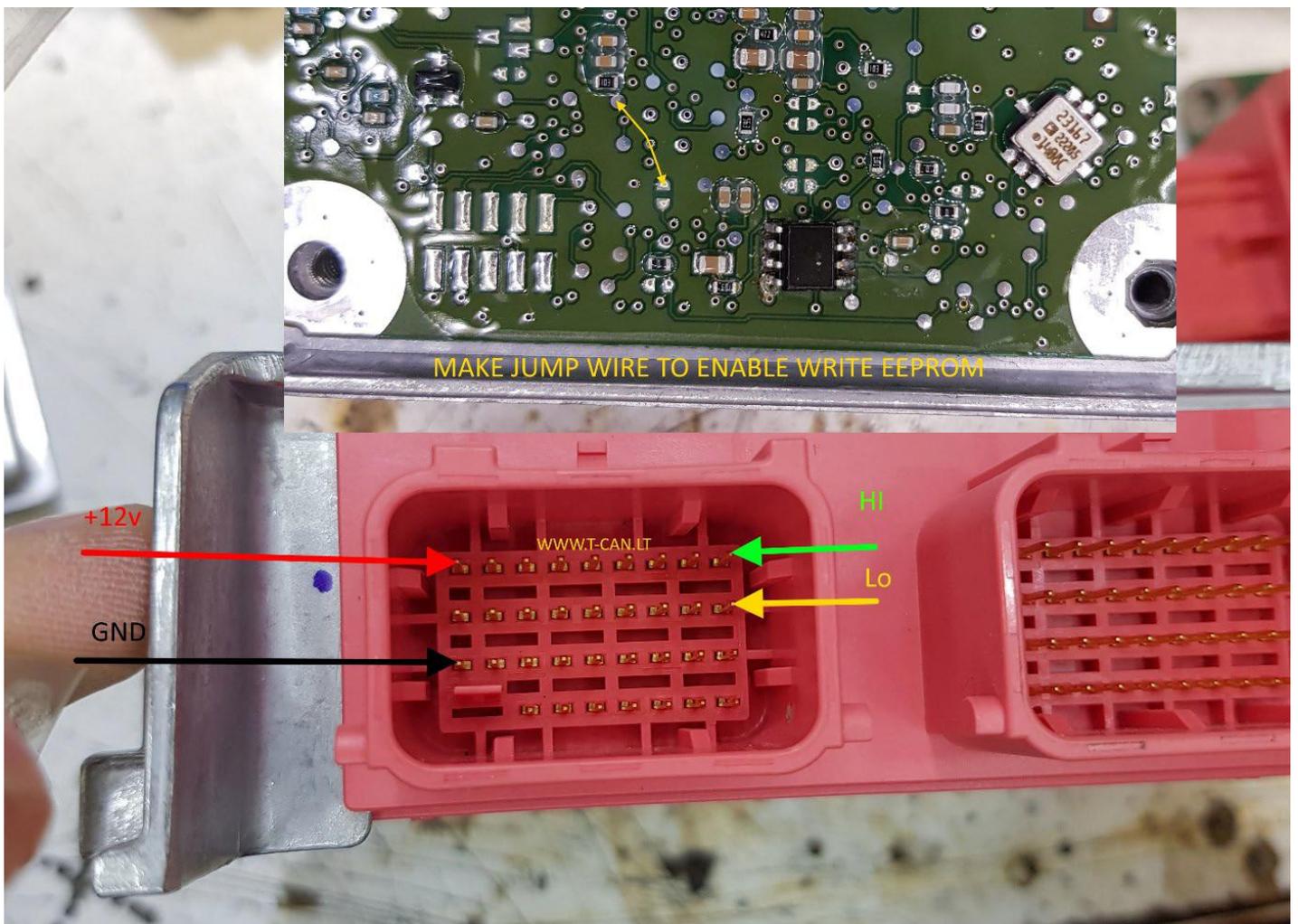


There is no matter what version you own
of Tsla PRO interface (HW03, HW04, HW05 or or newer)
you will be able to Reset Airbag Crash Data

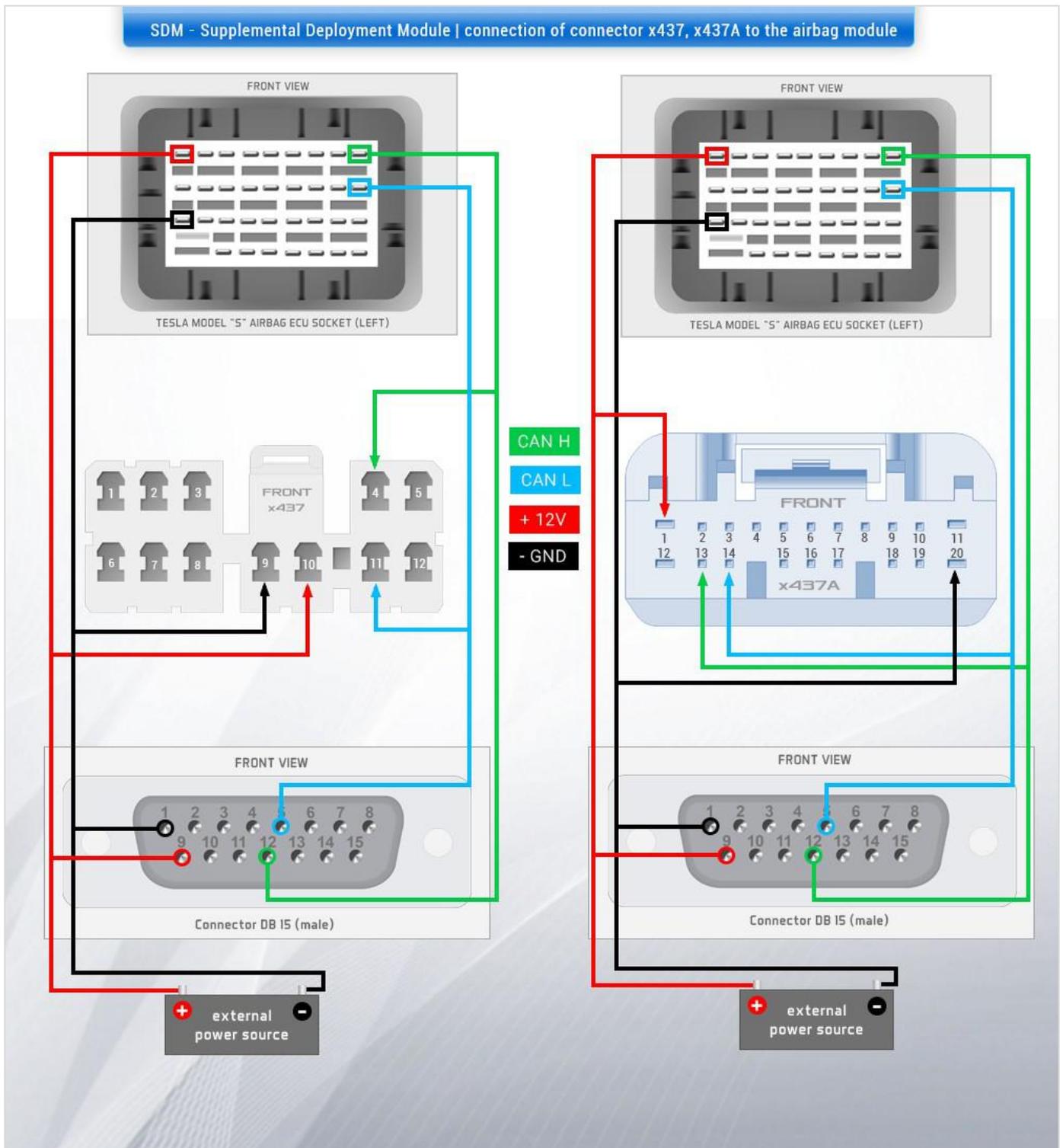
TESLA S with connector x437 and x437A – on the bench
TESLA X,3 with connector x437A – by diagnostic port or on the bench

SRS - TESLA MODELS S

- 1) Remove Air Bag Control Module from the car and open it.
- 2) Connect Tsla PRO to the module according the photo as shown in the following and don't forget about to soldering jumper wire to enable write EEPROM. (wiring diagram can be find on next page)



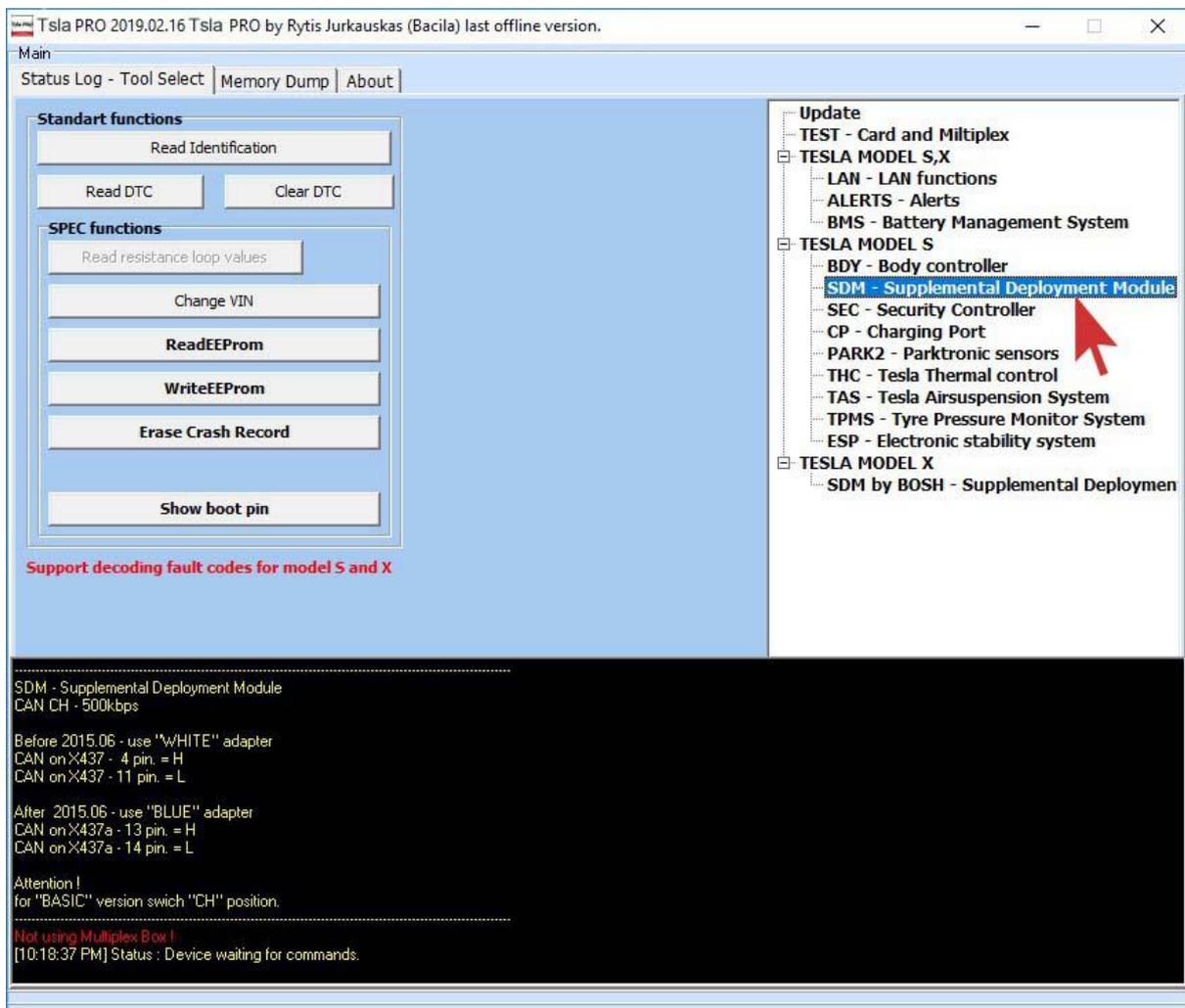
How to connect Tsla PRO with Airbag Module on the bench using x437 and x437A connector ?



for all Tesla cars S, X

if the connection between the car and Tsla PRO is established, we can go to the software

As you can see, some of the useful information can be found in the program's dialog box **but regarding making connection between Tsla PRO and AirBag Module, means connection with omitting Multiplexer !!! .. doesn't apply hw 04 and above**



Now you are able to: Read and Clear Diagnostic Trouble Codes (DTC) faults, Clear Crash log and Restart ECU.

Just example: Tsla PRO while reading the EEPROM memory

The screenshot shows the Tsla PRO software interface. The main window displays a memory dump of EEPROM data. The data is organized into columns representing memory addresses (00 to 0F) and their corresponding hexadecimal values. The right side of the dump shows the ASCII representation of the data, which includes vehicle identification information such as VIN (261RFV01...), model (U. U. ... 0...), and other identifiers (1032224-00-A, 5Y1S...).

Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	0123456789ABCDEF
0x000	0C	00	00	00	00	00	80	28	44	54	97	20	20	00	00	00	..... ( DT.
0x010	00	00	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.....
0x020	FF	FF	FF	FF	AA	72	4C	54	97	58	41	4B	31	34	31	31	..... rLT.XAK1411
0x030	32	36	31	52	46	56	30	31	FF	FF	FF	FF	FF	FF	FF	FF	261RFV01.....
0x040	55	AA	55	FF	FF	FF	CF	00	30	03	01	80	EE	AA	89	36	U. U. 0..... 6
0x050	00	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.....
0x060	21	84	10	02	08	21	80	10	00	00	49	08	00	84	10	02	!.....!.....I.....
0x070	08	21	08	09	00	00	42	C0	09	10	00	00	00	00	00	00	!. B.....
0x080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
0x090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
0x0A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
0x0B0	00	00	00	00	00	00	00	00	00	00	49	0A	61	05	4C	E1	..... I. a. L.
0x0C0	5B	05	77	C2	A4	04	F9	46	CC	04	59	09	C9	04	F5	1C	[. w. F. . Y.
0x0D0	C9	04	74	42	01	04	74	42	AF	00	21	84	10	02	08	21	.. tB.. tB.. !. !
0x0E0	80	10	00	00	49	08	00	84	10	02	08	21	08	08	00	A0	.... I..... !.....
0x0F0	43	E0	EB	19	00	00	00	00	80	00	00	00	00	00	00	00	C.....
0x100	00	16	7D	11	01	00	37	16	CC	00	AD	0B	FF	FF	FF	FF	.. }... 7.....
0x110	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.....
0x120	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.....
0x130	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.....														
0x140	31	30	33	32	32	32	34	2D	30	30	2D	41	00	00	00	00	1032224-00-A....
0x150	25	50	44	53	41	31	48	32	34	45	46	50	36	35	35	36	5Y1S...1H24FED6556

The status log at the bottom of the window shows the following sequence of events:

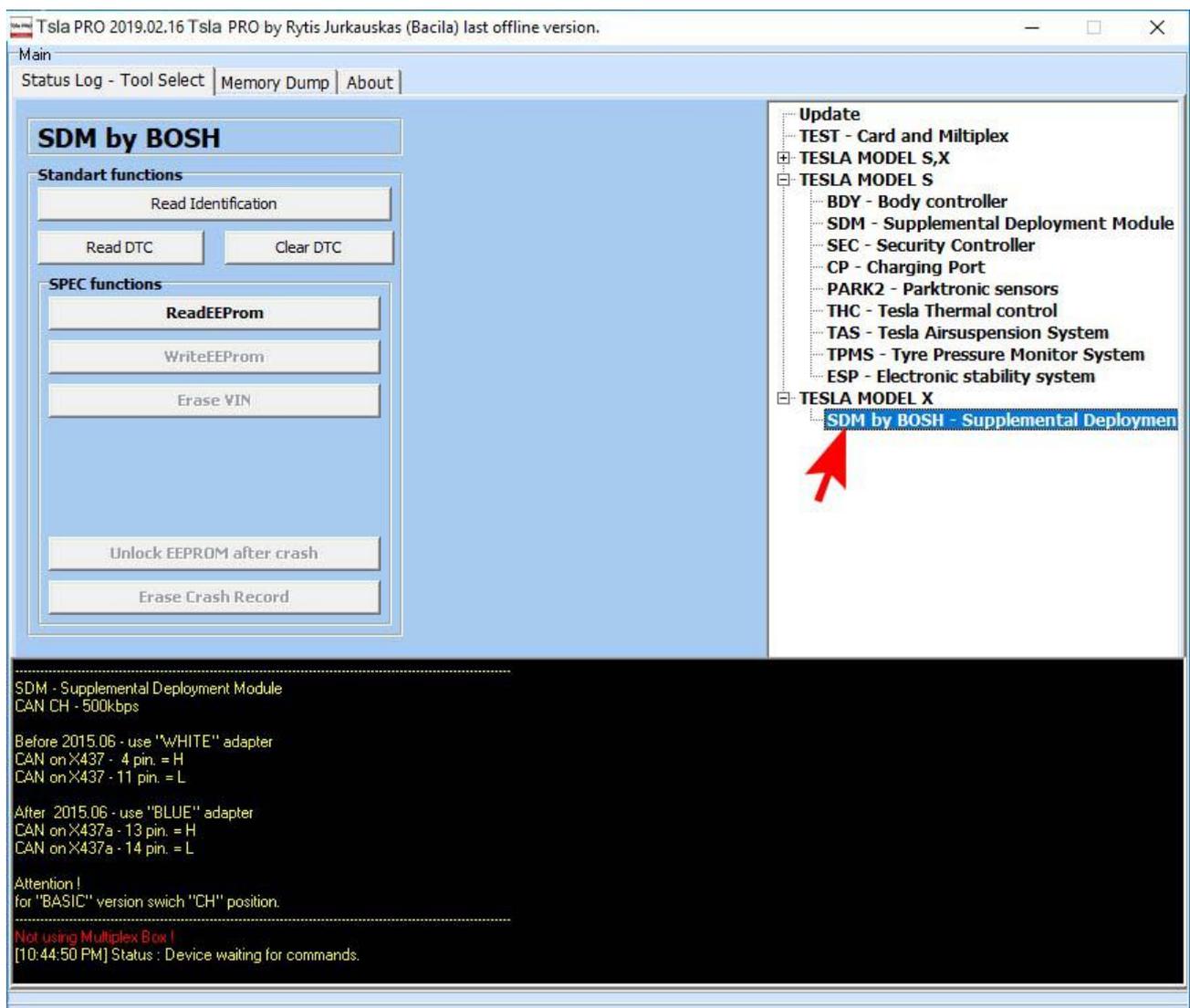
- [11:09:50 PM] Status : Waiting For Commands
- [11:09:50 PM] Status : Device waiting for commands.
- [11:10:03 PM] Status : Finding USB Device Status: OK
- [11:10:03 PM] ID : Tsla 0...
- [11:10:03 PM] Status : Connecting by CAN...CONNECTED
- [11:10:03 PM] Status : Reading VIN...DONE
- [11:10:58 PM] Status : Connecting by CAN...CONNECTED
- [11:10:58 PM] Status : Gaining security access...DONE
- [11:10:58 PM] Status : Writing VIN...DONE
- [11:10:58 PM] Status : Waiting For Commands
- [11:10:58 PM] Status : Device waiting for commands.
- [11:11:02 PM] Status : Finding USB Device Status: OK
- [11:11:03 PM] ID : Tsla 0...
- [11:11:03 PM] Status : Connecting by CAN...CONNECTED
- [11:11:03 PM] Status : Gaining security access...DONE
- [11:11:15 PM] Status : Reading EEPROM...DONE
- [11:11:15 PM] Status : Waiting For Commands
- [11:11:15 PM] Status : Device waiting for commands.

SRS - TESLA MODEL X

- 1) You do not have to remove Air Bag Control Module from the car and open that.
- 2) Just simply Connect Tsla PRO to the module and click *Read EEPROM & Erase Crash Record*.



In some circumstances, you may receive a message the Airbag Module is LOCKED, then please press *Unlock EEPROM after crash*

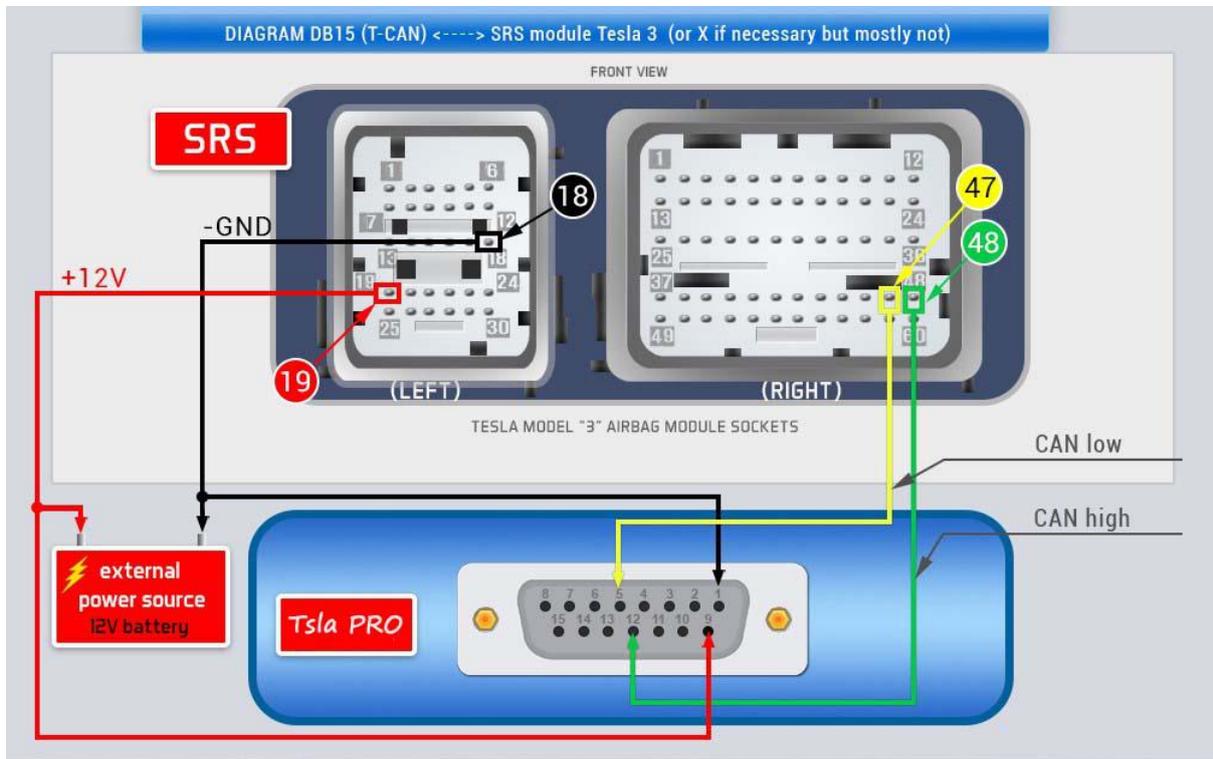
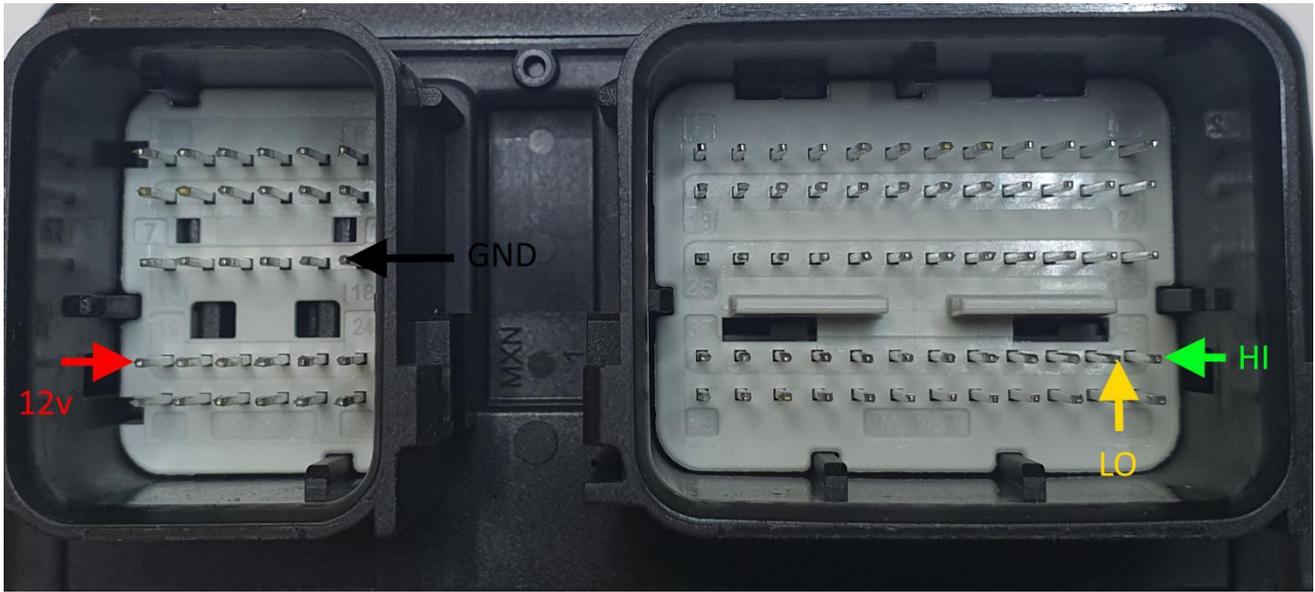


How to connect Tsla PRO with TESLA Model 3 Bosch Airbag Module on the bench using wiring connector done by self.



the airbag module may vary in model 3 or X

In some circumstances you have to take out SRS module and finished work on the bench. The following pinout will be very helpful.



How to use the Tsla PRO with TESLA Model 3, X when you Erasing Crash from Bosch Airbag Module.

Similar as with all cars once an air bag has been deployed, whether via a malfunction of a vehicle's sensors or in a collision, most manufacturers recommend that they be replaced. Replacing air bags ensures that a driver's vehicle remains road-legal and safe for the driver and passengers alike.

However, replacing an air bag alone often is not enough, when deployed, an air bag trips sensors and springs, and these must usually be replaced alongside the bag. These ancillary parts can greatly raise the cost of an air bag replacement.

But sometimes it is not enough, when you replace all the above mentioned parts, it turns out that you need to erase the information about accident from the car computer's memory. Now comes Tsla PRO Tool to help us.

NOTICE !

In some countries, erasing data airbag crash without changing air bag assembly is not legal.

So, we highly recommend to replacing car's entire air bag assembly.

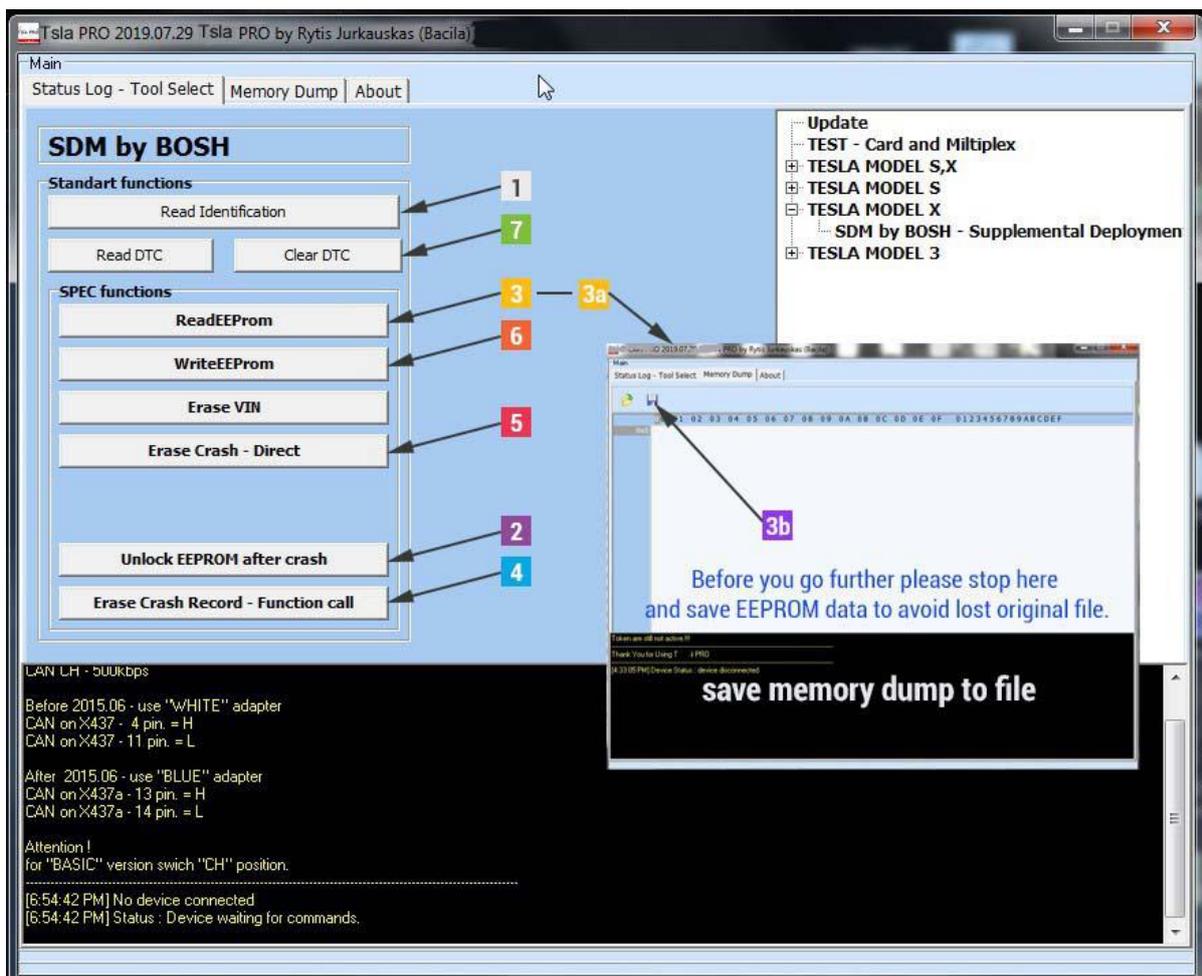
So before using the method given below, you must ensure that it is legal in your country.

Remember that you do everything at your own risk !

Make sure you have the latest version of the software.

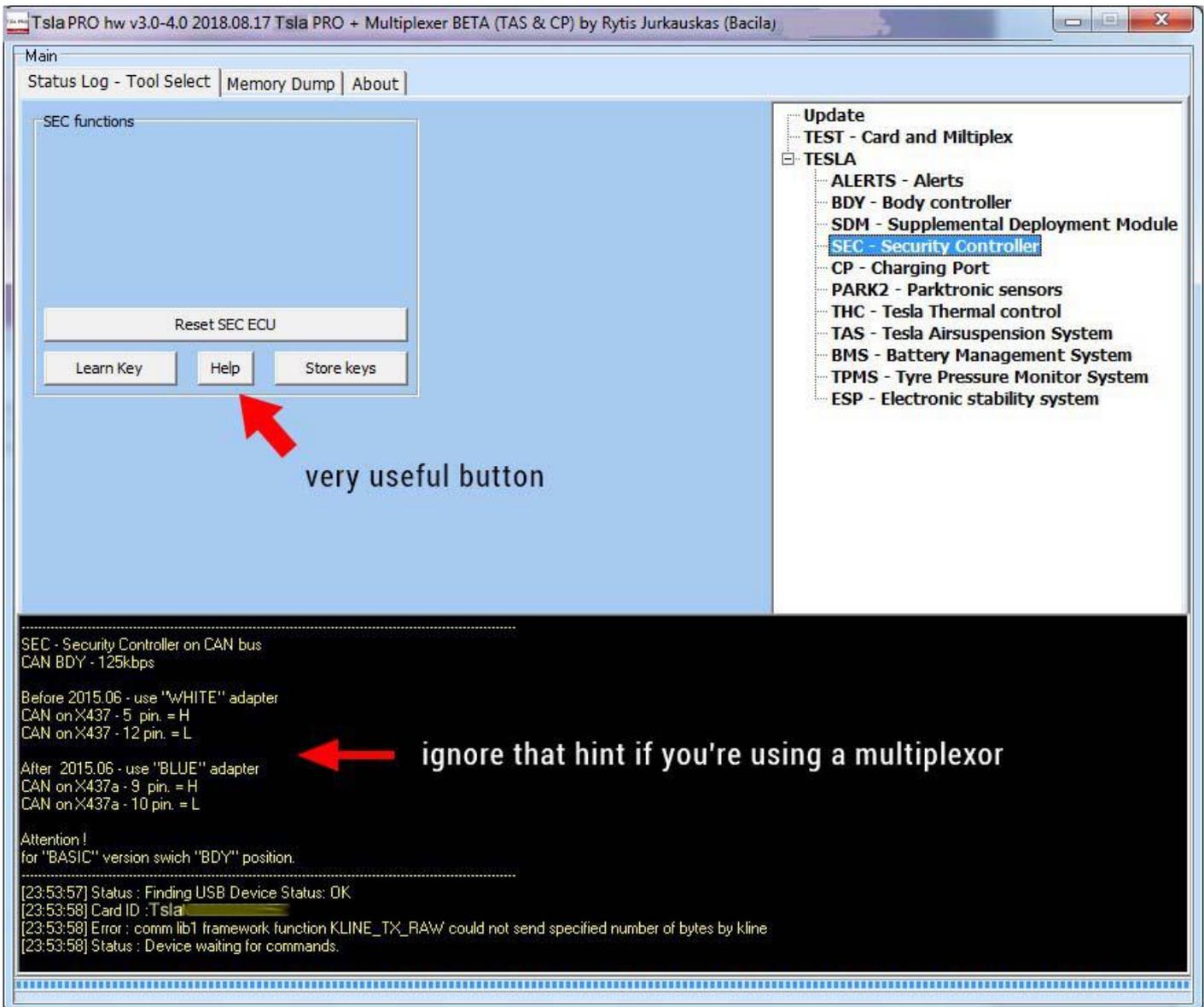
Go to TESLA MODULE 3 or X - SDM by BOSCH function and click following:

1. Read Identification
2. Unlock EEPROM after crash
3. Read EEPROM
 - 3a) click the top tab “ Memory Dump”
 - 3b) when you see HEX Editor please click the symbol  to save the original contents of EEPROM memory to a *.BIN file just in case.
4. Now you can Erase Crash Record from the airbag module.
5. Erase Crash – Direct
6. Write changes
7. At the end please Clear DTC

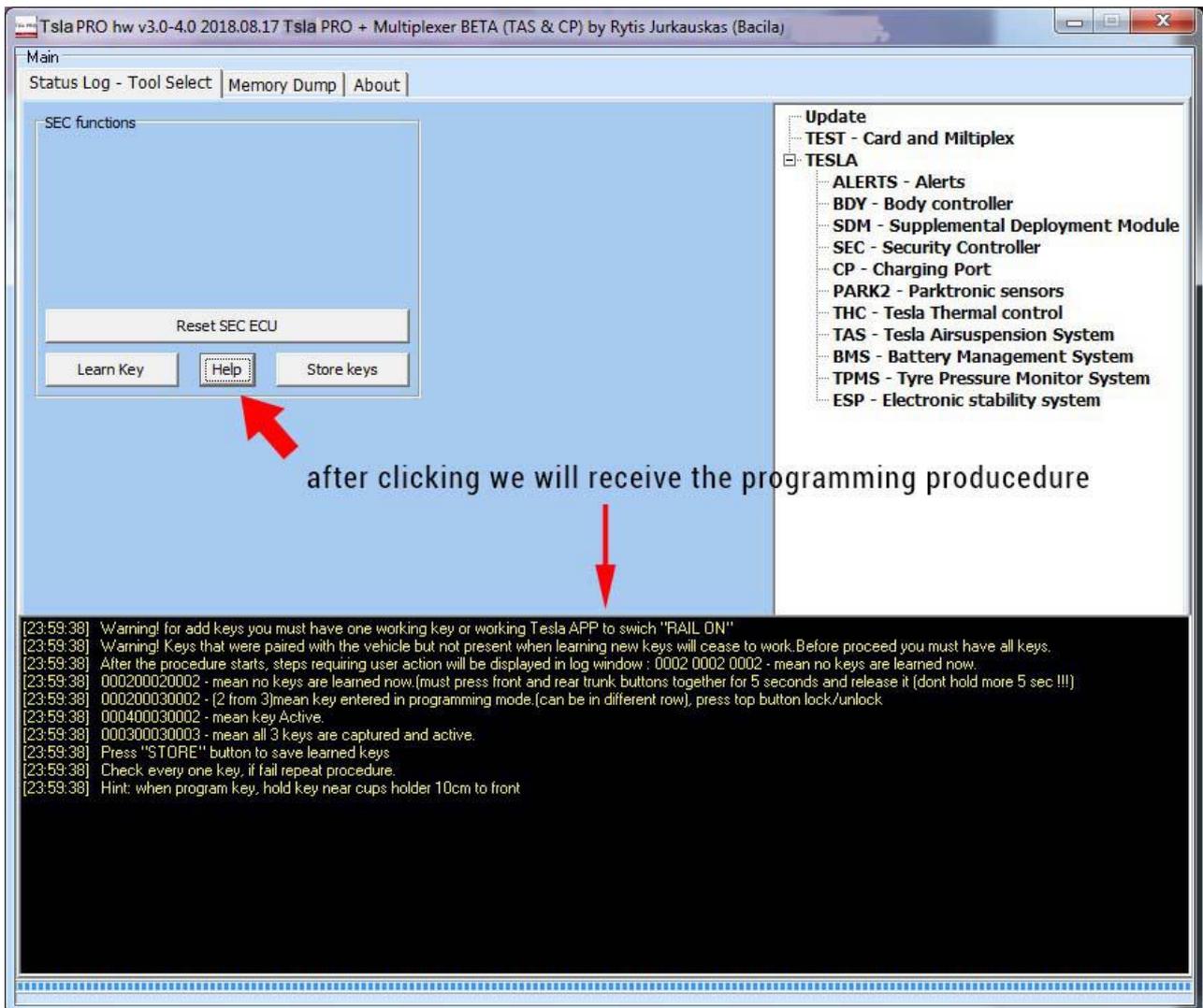


Adding and learning keys (key-fob)

To add or learning keys, follow the instructions in the program dialog box.



Click on the HELP button to get the programming procedure



[23:59:38] Warning! for add keys you must have one working key or working Tesla APP to switch "RAIL ON"

[23:59:38] Warning! Keys that were paired with the vehicle but not present when learning new keys will cease to work.Before proceed you must have all keys.

[23:59:38] After the procedure starts, steps requiring user action will be displayed in log window : 0002 0002 0002 - mean no keys are learned now.

[23:59:38] 000200020002 - mean no keys are learned now.(must press front and rear trunk buttons together for 5 seconds and release it (dont hold more 5 sec !!!)

[23:59:38] 000200030002 - (2 from 3)mean key entered in programming mode.(can be in different row), press top button lock/unlock

[23:59:38] 000400030002 - mean key Active.

[23:59:38] 000300030003 - mean all 3 keys are captured and active.

[23:59:38] Press "STORE" button to save learned keys

[23:59:38] Check every one key, if fail repeat procedure.

[23:59:38] Hint: when program key, hold key near cups holder 10cm to front

The PFD manual going to be modified and updated
in accordance with Tsla PRO development



Please feel free to contact us for any clarification

Tsla PRO

