

DBW1.1 DBW2

ProjectECU

Description

This module provides the functionality you need to run almost any DBW (Drive by wire) electronic throttle body with ProjectECU ECUs (and other brand ECUs).

Its main function is to pass the movement of the pedal to the electronic accelerator and nothing else. Super fast response, and simple operation without complications.

Congratulations! This module is designed to be very easy to connect, very simple, very easy to use and calibrate!!!

Wires up in minutes, uses only a few signals, works with all types of throttles and pedals.

It is designed for the fastest pedal-to-body response for sporty use.

The throttle body should have a single motor (which will have a motor + and motor - terminal on its connector) and TPS (throttle position) tracks.

As stated above, there should probably be at least 4 terminals on a supported throttle body. They are Motor +, Motor -, DBWposition, 5v and signal ground.

The Pedal must be capable of sending a 5v proportional signal. That said, a compatible pedal must at least have 3 TPS signals, 5v and Ground signal. But must have 6 terminals or more. (be very careful on pedal pinout).



Diagram

DBW1.1							
Motor1-	5V	Pedal in		DBW1 in	TPS ecu	AC	
Motor1+	5V	TX	RX	GND	X		GND
	X	Pedal2	DBW1 B	DBW2 in	DBW2 B	extra	12V
				To USB			

DBW2							
Motor1-	5V	Pedal in	DBW2 in	DBW1 in	TPS ecu	AC	Motor2+
Motor1+	5V	TX	RX	GND	X		GND
Motor2-	X	Pedal2	DBW1 B	DBW2 in	DBW2 B	extra	12V
				To USB			

DBW1							
SW2	5V	Pedal in		DBW in	TPS ecu	AC	SW1
Motor +	5V	TX	RX	GND			GND
Motor -							12V
				To USB			



The connector has 24 wires, of which only a few have function, the other wires can be removed if desired.

Function of each cable is written below:

12V.- power supply for DBW module (and DBW TB motor) (normally to switch)

GND.- ground, the ground is common for Pedal DBW TB, and module

Motor+, Motor- .- Outputs are connected to the DBW motor. (when powering motor+ with 12v direct and motor- with GND the accelerator must move completely)

5V.- Reference output 5V to connect to Pedal, and to Electronic Throttle Body

Pedal in.- Pedal signal input (variable 0 to 5V)

DBW in.- DBW TB signal input (variable 0 to 5V)

TPS ecu.- Signal output to send to TPS ecu (you can also use direct signal from either Pedal or TB)

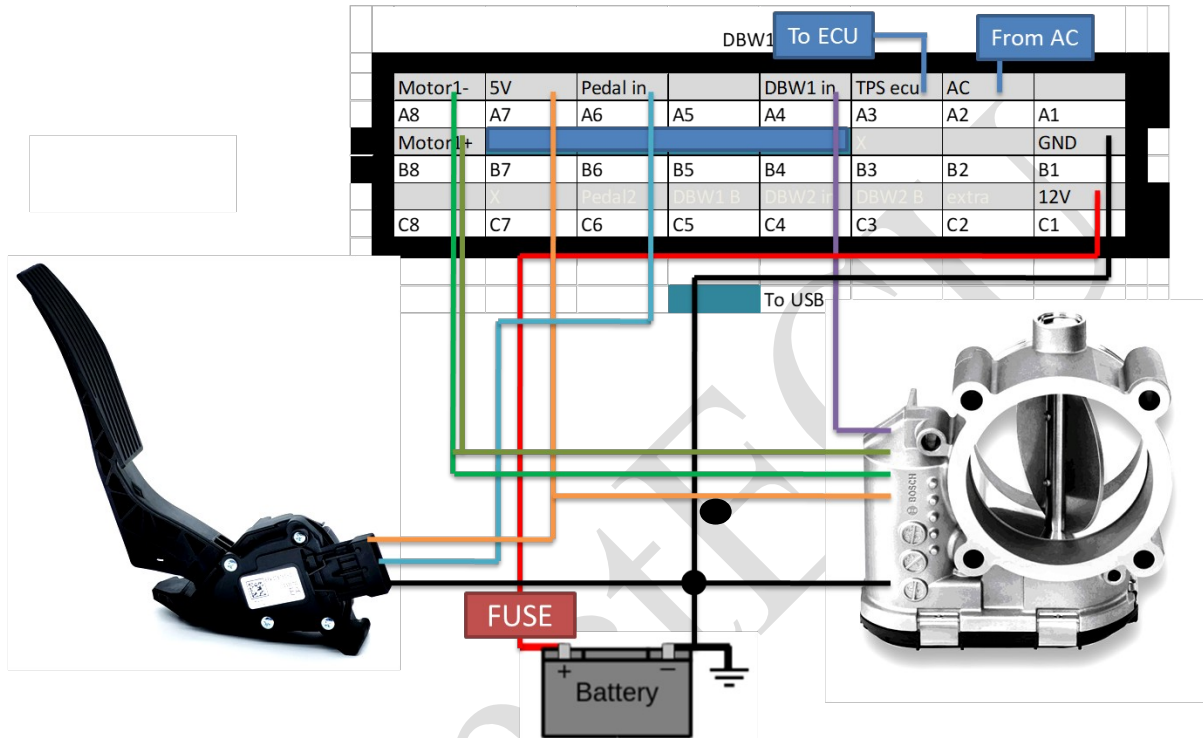
AC.- AC system activation input (used to compensate for AC input)(12v positive or 5V positive for activation, 0V for deactivation)

USB CABLE. - Used to connect to the Laptop and be able to configure and perform calibrations

Connections

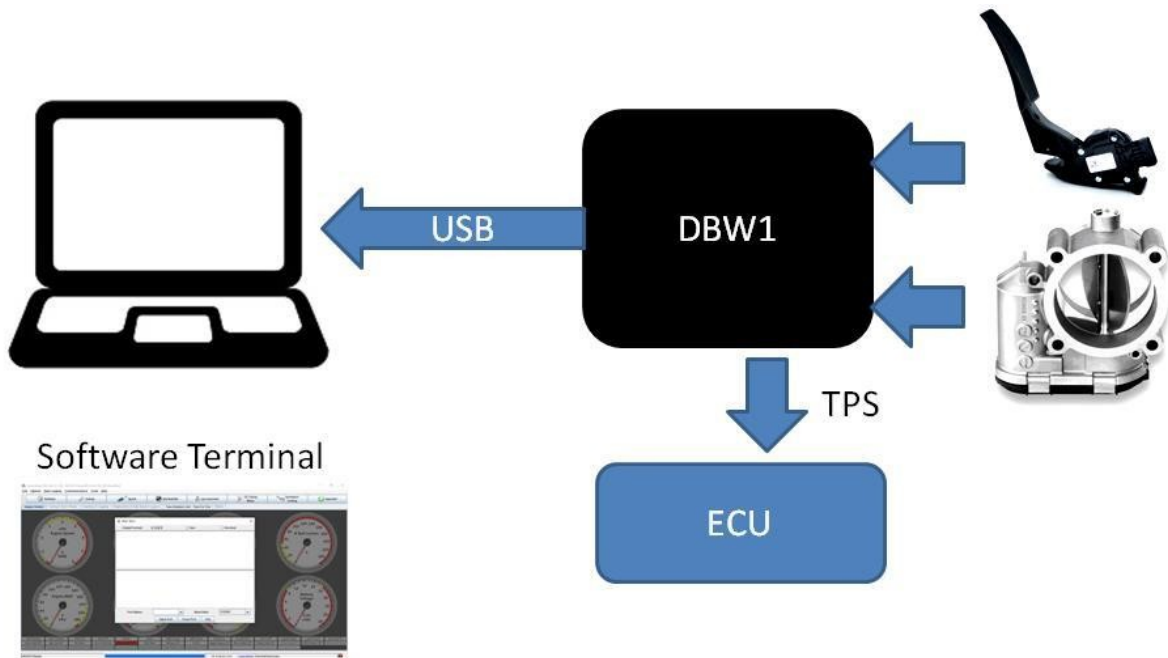
DBW1.1, DBW2
Fast Guide

Typical Connections

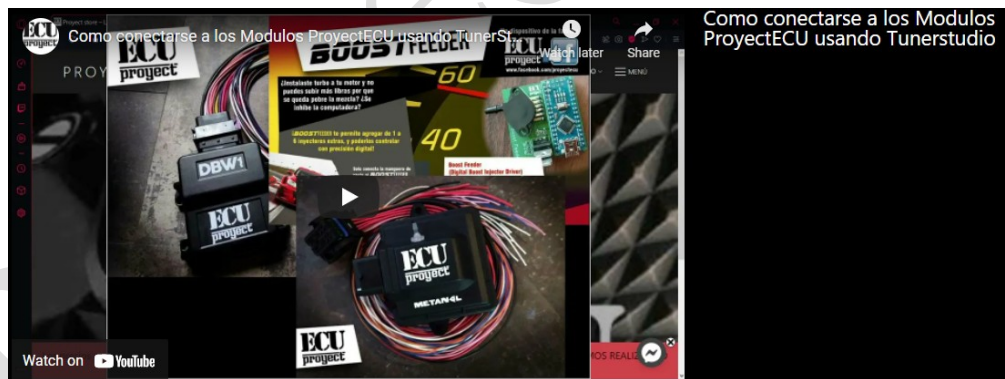


Proye

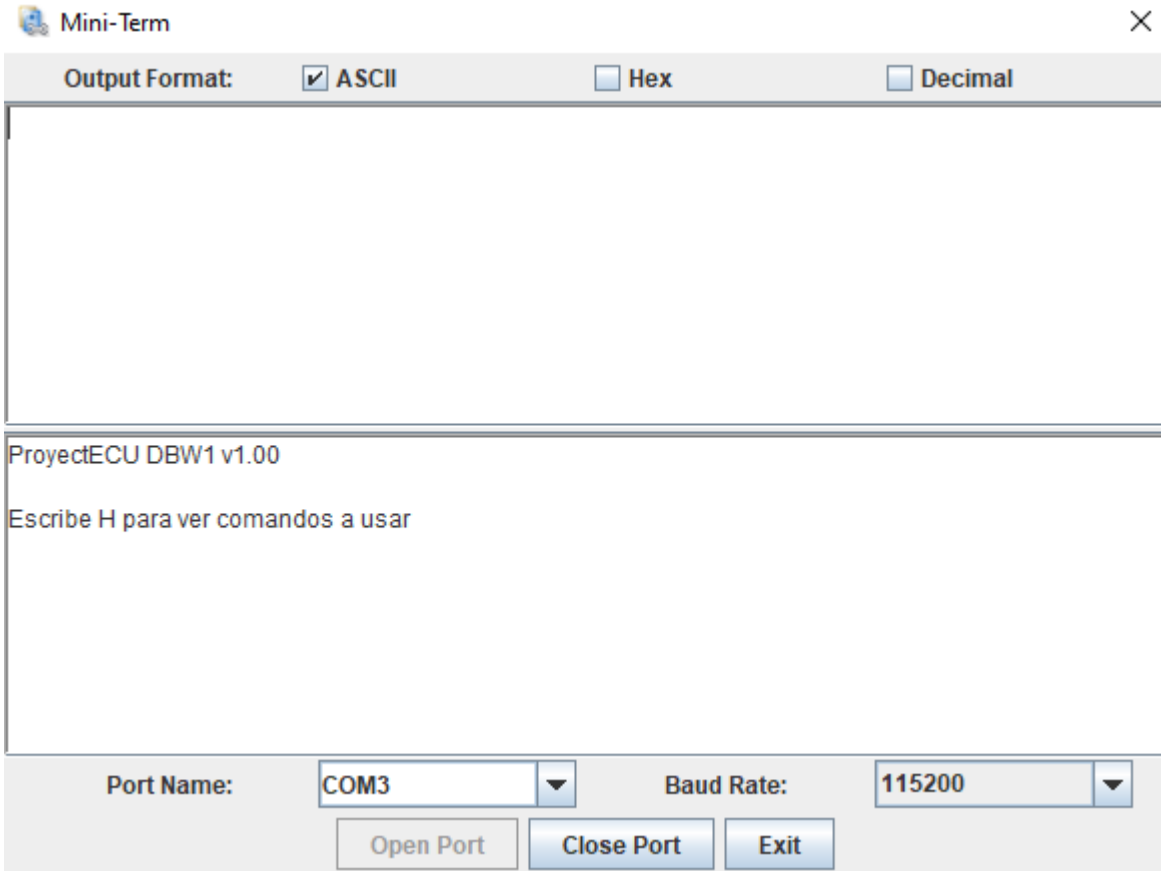
Programming / Calibration



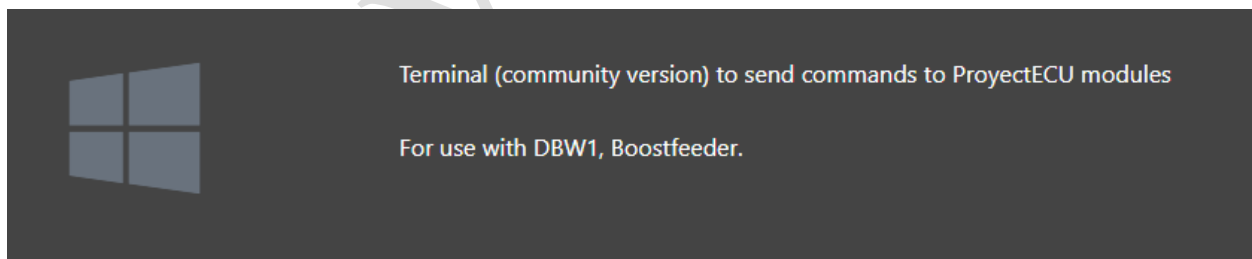
The module has a USB cable, we must connect it to the laptop and install the CH340 driver (download from Page ProjectECU.com/downloads), then a Terminal software must be used, the recommendation is to use TunerStudio with its MiniTerminal as indicates in the video tutorial (How to connect to the ProjectECU Modules using Tunerstudio). You can see the video at: ProjectECU.com/en/descargas



- 1.- We must select the COM port of the module (Windows assigns it automatically) we choose it from the PORT NAME menu, we choose BAUDRATE 115200.
- 2.- We click on OPEN PORT (if not connect to the first please disconnect module, close Tunerstudio and repeat the process), and in the window we should see a Welcome saying that we write H to see commands to use:



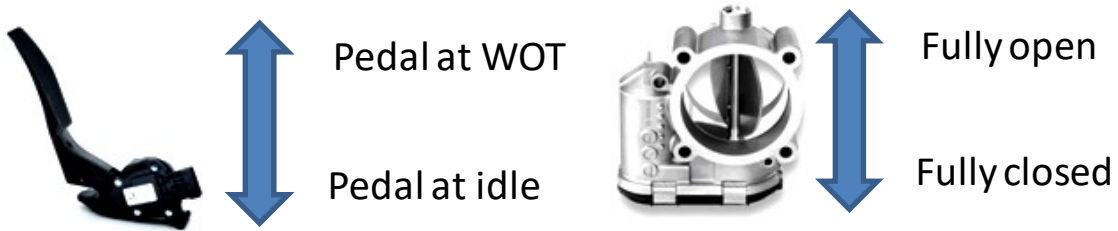
We can also use the ProyectECU Terminal app, in a very similar fashion:



Located at: <https://www.proyectecu.com/en/descargas-modulos/>

3.- We write in command H (uppercase) and hit Send. It will send us a menu of options which we will give a brief explanation:

Write V to see parameters.- We can see the current calibration values,



Idle Aperture (necessary opening to maintain idle),

AC Aperture (extra opening to maintain idle),

PIN Value AC (pin to detect AC system on/off, 0 is function off, 1 is function on).

Write C to calibrate Electronic throttle body.- The electronic body will close, and after a second it will open, and it will show the auto-calibration values. (If it wants to move in the opposite direction, please switch motor+ and motor- cables), values must be on the 0 to 200 range for “DBW closed”, and on the 800 to 1000 range for “DBW fully open”

Write A to calibrate Pedal at rest.- It takes the value of the pedal at rest, therefore we must release the pedal and then write command A, with this it will show the new calibration value (values must be on the 0 to 200 range)

Write B to calibrate Pedal fully pressed.- It takes the value of pedal fully depressed, therefore we must fully depress the pedal and then write command B , with this it will show the new calibration value (values must be on the 800 to 1000 range)

Write I to program minimum opening Idle.- This value indicates the minimum electronic body aperture to prevent the engine from stalling, 1000 means fully open, 0 is fully closed, so we should write values between 100 and 200 (10% to 20%)

ACSI to activate extra opening pin with AC.- Activate input pin for AC detection and add extra opening

Write ACNO to disable opening pin extra with AC.- Disables the input pin function for AC detection

Write AC to program extra opening with AC.- This value is very similar to Idle, 0 is without extra opening, 1000 is fully open, we must use values between 100 to 200 (10% to 20%)

Write S to save calibrations.- Save the parameters and calibrations on disk (it is not erased when removing the battery from the vehicle)

We can also Write SHOWME to log.- Start logging internal input and output values in Realtime (useful for initial setup)

Recommended procedure for installation and calibration:

- 1.- Gather pinout information about your DBW pedal and DBW throttle body (TB). This step is the most important step (most installation failures happen on this step).
- 2.- Connect USB to the laptop or PC and use a serial terminal to start sending commands (Tunerstudio or ProjectECU terminal or other terminal software should work, use 115200 baud, 8bit.). Visualize if the module is a DBW1, DBW1.1 or DBW2 unit.
- 3.- Connect 12v, GND, 5v reference to Pedal and TB, GND to Pedal and TB, and signals from Pedal and TB.
- 4.- Turn on the DBW module (ECU or car is not necessary for operation). If the connection was correct the operation should work now, you can see that the TB is moving following the Pedal movement.
- 5.- If not working, means the pinout was not correct on Pedal and/or TB, to troubleshoot we must monitor either Pedal values and/or TB values. For this, two methods are available:

A) Calibration procedures, Typing A, B and C will calibrate values and report current calibration value. With pedal not pressed type A, and you should get a value from 0 to 200. With Pedal fully pressed type B, and you should get a value from 800 to 1000. Type C to calibrate TB, TB first should try to get to fully closed position, then it should try to get to fully open position, and then report calibration values DBW closed and fully open, closed values should be from 0 to 200, and fully open values should be from 800 to 1000. Any deviation of this means the corresponding part was not wired properly.

B) Realtime logging, typing the command SHOWME will start to log data from the module, here you should take a look at the data: Pedal: XXXX must show values from 0 to 1000, 0 to 200 values must be for pedal not pressed, and values from 800 to 1000 with pedal fully pressed. DBW: XXXX must show values from 0 to 1000, 0 to 200 values must be for TB closed, and values from 800 to 1000 for TB opened. Any deviation of this values means the corresponding part was not wired properly.

For use only on the track, its use on the street is not allowed.

Its installation must be carried out by a SPECIALIZED WORKSHOP.

11/Mar/2024