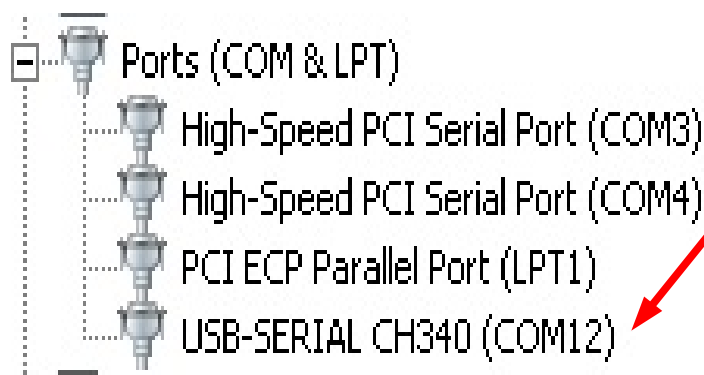# FREQUENCY GENERATOR MANUAL

This generator needed when using Bosch ecus in Special mode wired on bench. Some ECUs wired on bench need immo signal in order to do them. This generator puts ECU in state which do not need immo signal. This mode works without opening ECU. In this manual you will have all info how to construct generator using **Arduino Nano V3 BOARD.**

Step1 : Download Arduino IDE from arduino website Download section and install it.
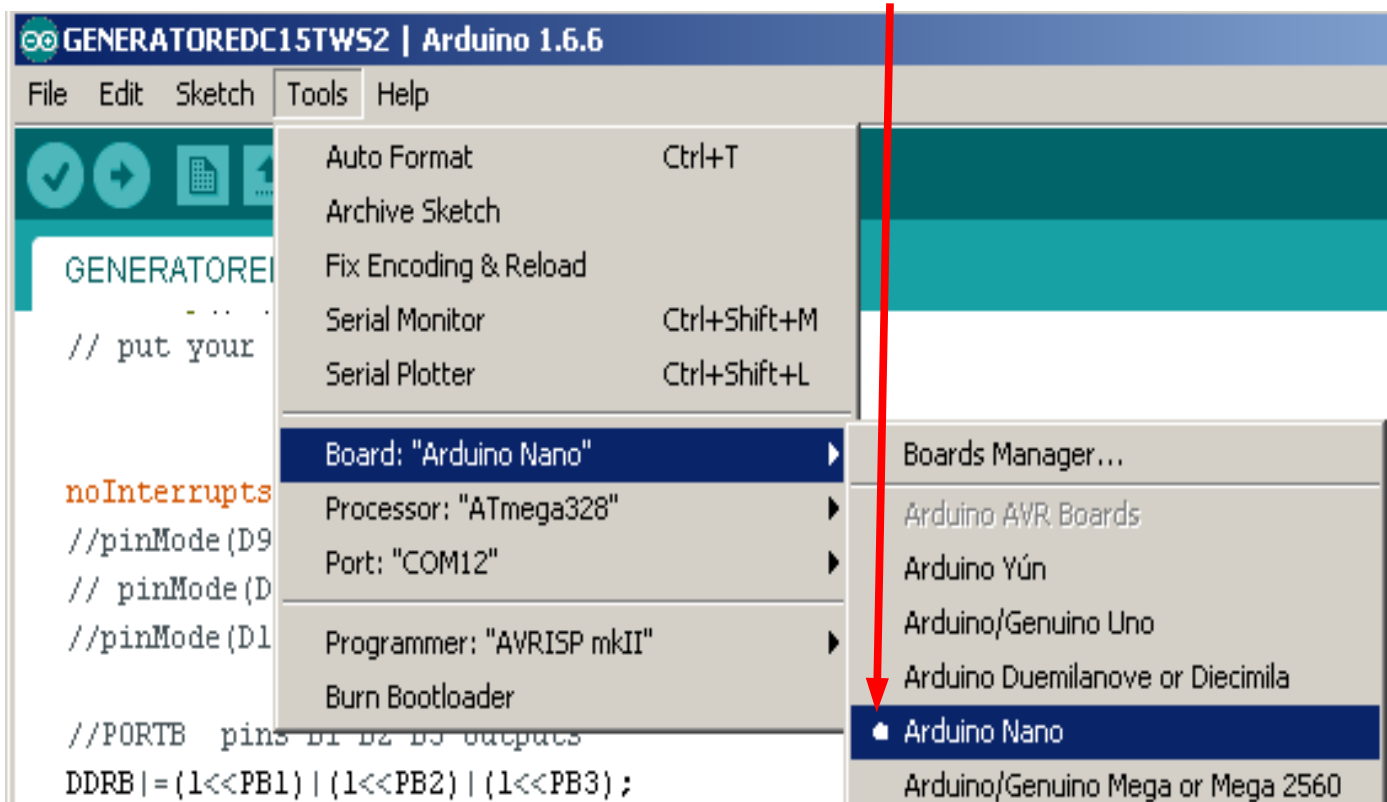Step2 : Download CH341SER driver. Can be downloaded from ioterminal.com
downloads section. Install it.
Step3 : Connect extra components to arduino like showed here → ARDUINO BOARD
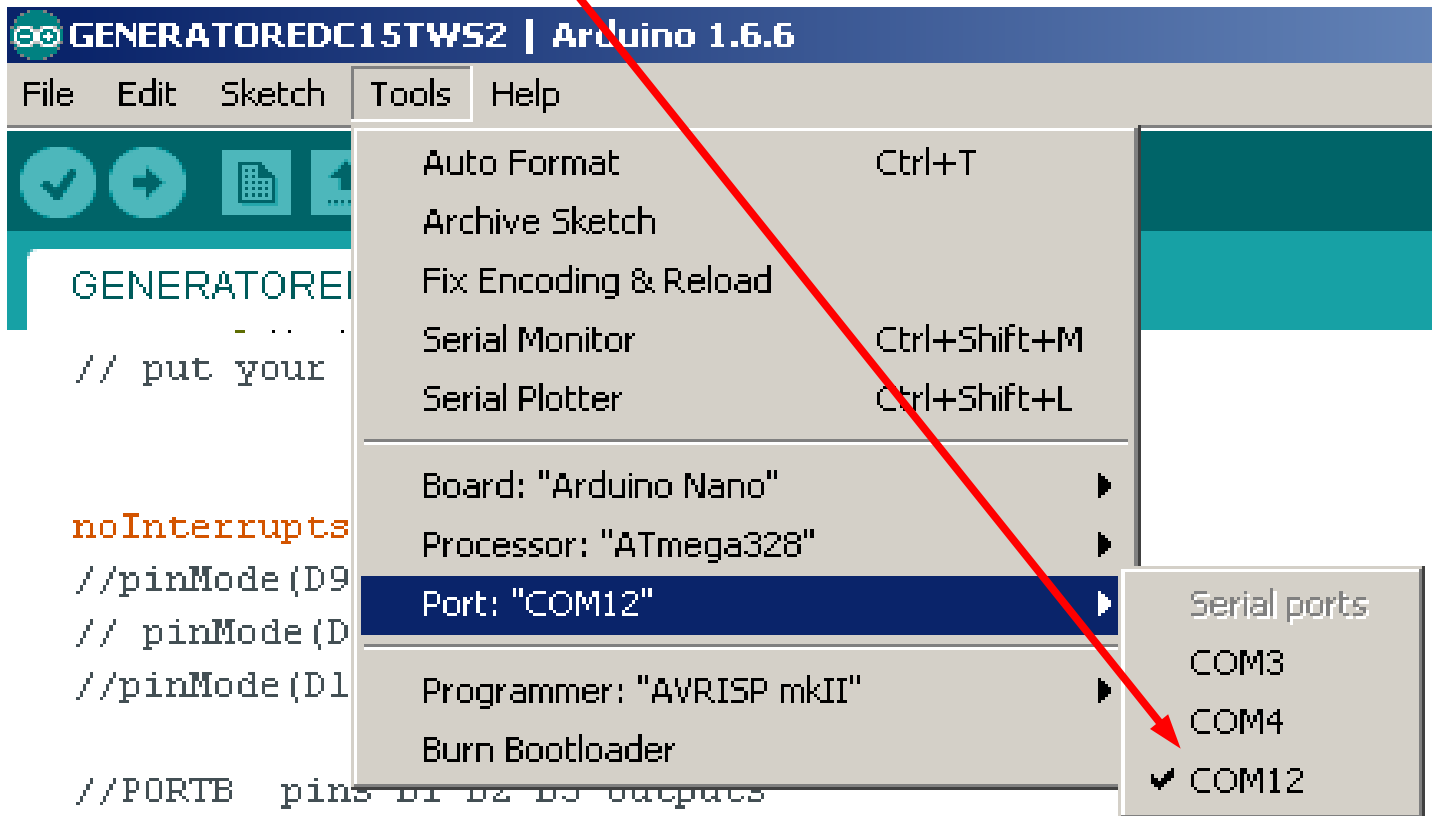Step4 : Connect arduino to USB. If driver was installed correctly you will see in windows device manager your device as COM PORT. In example u see it like COM12
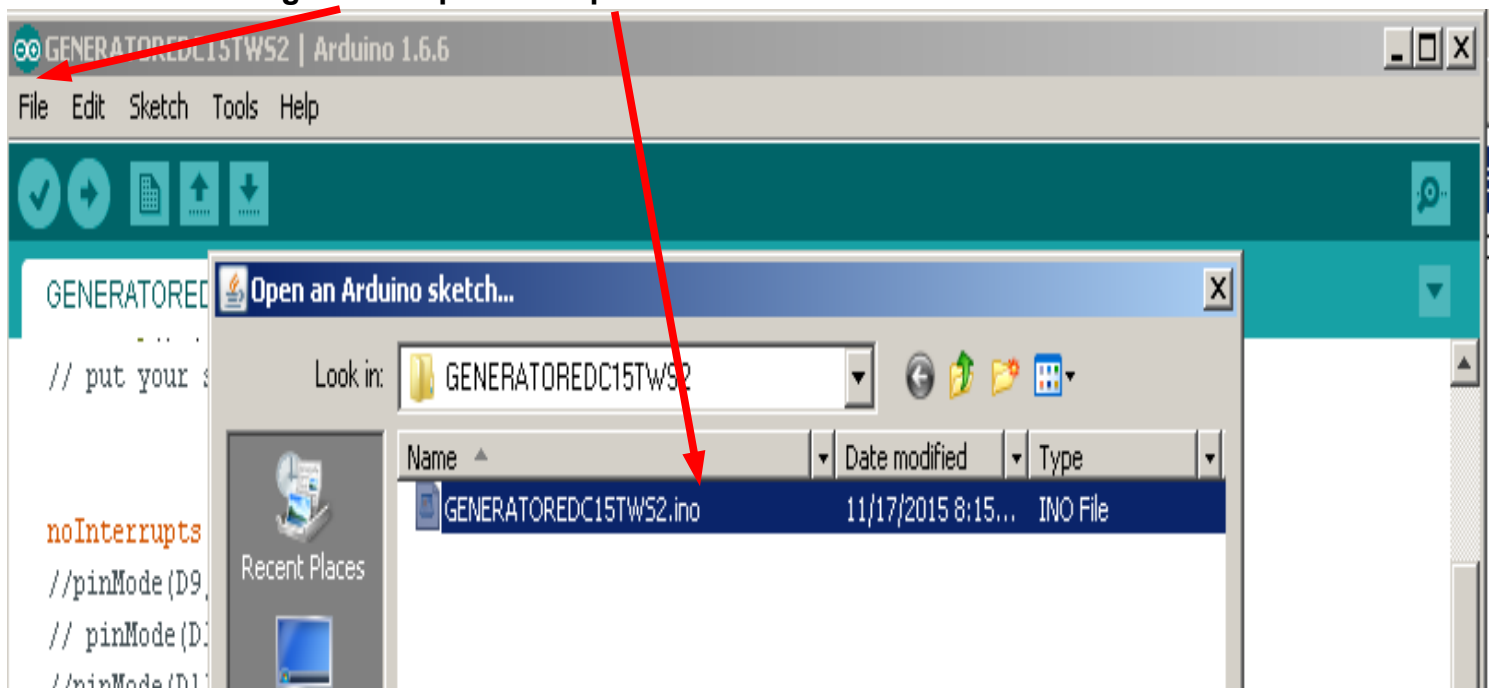
Ports (COM & LPT)
  High-Speed PCI Serial Port (COM3)
  High-Speed PCI Serial Port (COM4)
  PCI ECP Parallel Port (LPT1)
  USB-SERIAL CH340 (COM12)

Step5 : Launch Arduino IDE and select board "Arduino Nano".

GENERATOREDC15TWS2 | Arduino 1.6.6

File   Edit   Sketch   Tools   Help

Auto Format   Ctrl+T
Archive Sketch
GENERATOREI   Fix Encoding & Reload
// put your   Serial Monitor   Ctrl+Shift+M
              Serial Plotter   Ctrl+Shift+L

              Board: "Arduino Nano"   ▶   Boards Manager...
noInterrupts Processor: "ATmega328"   ▶   Arduino AVR Boards
//pinMode(D9 Port: "COM12"   ▶   Arduino Yún
// pinMode(D   Arduino/Genuino Uno
//pinMode(D1 Programmer: "AVRISP mkII"   ▶   Arduino Duemilanove or Diecimila
              Burn Bootloader   ● Arduino Nano
//PORTB pins   Arduino/Genuino Mega or Mega 2560
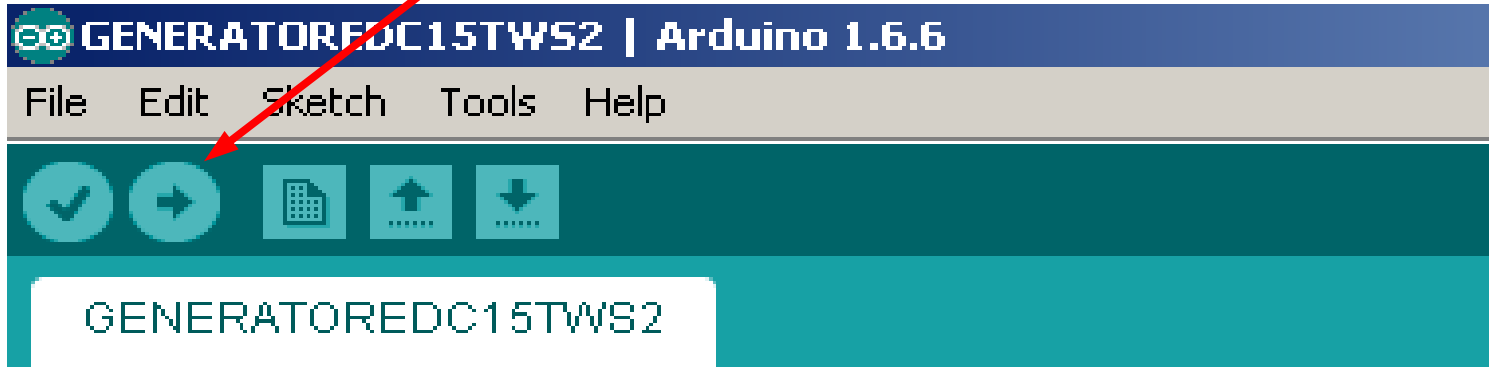DDRB|=(1<<PB1)|(1<<PB2)|(1<<PB3);

Step6 : Select correct COM PORT. Read Step4 if you forgot how to identify COM PORT.

Step7 : Download Arduino Sketch (project for generator). You can download it from Www.ioterminal.com downloads section under name" GENERATOREDC15". Locate Sketch using File--> Open and open it.

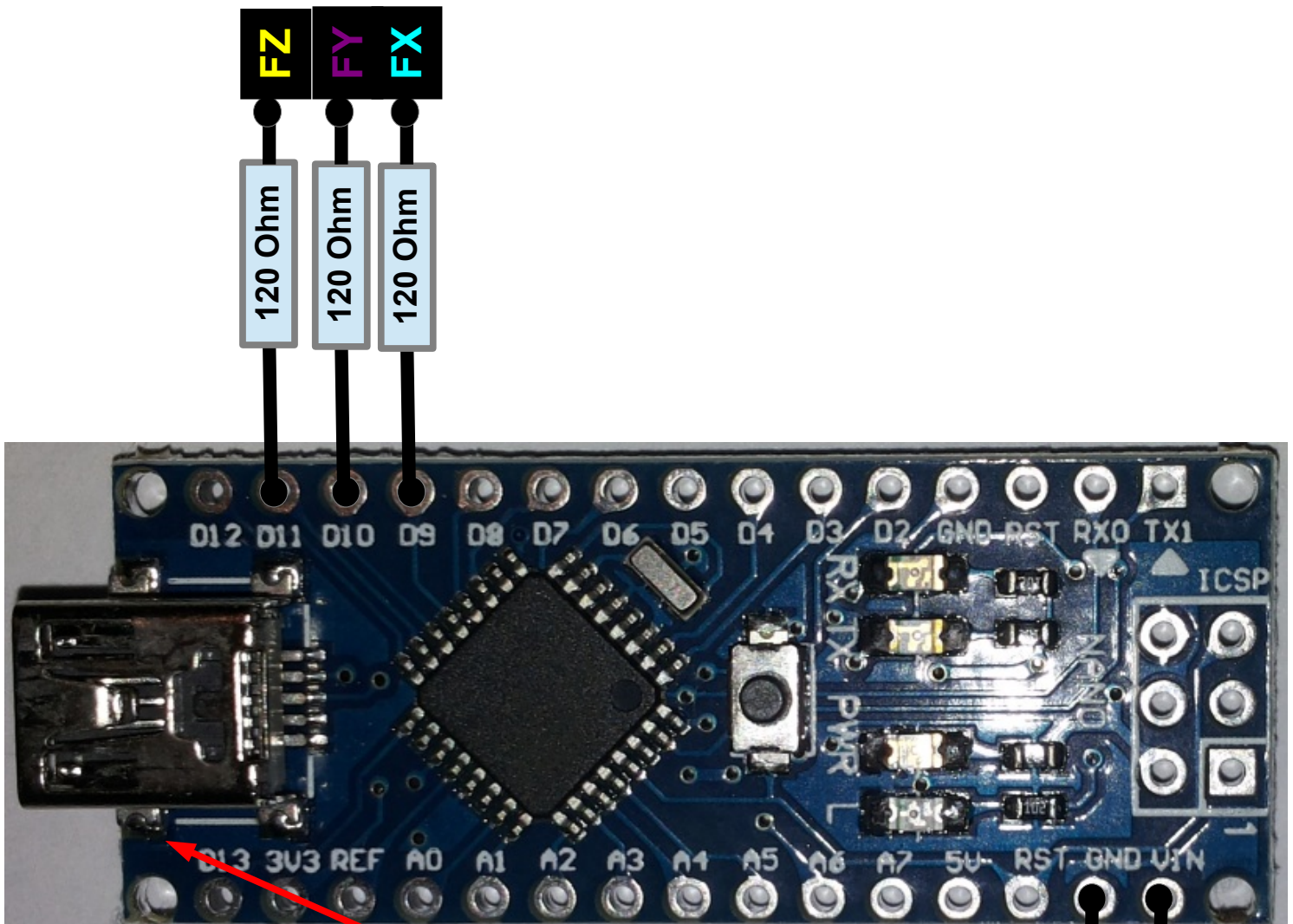**Step8 : Push Upload button. If you have done everyhing correctly Arduino IDE should not give any errors.**

```
GENERATOREDC15TWS2 | Arduino 1.6.6

File   Edit   Sketch   Tools   Help

GENERATOREDC15TWS2

// put your setup code here, to run once:


noInterrupts();
//pinMode(D9, OUTPUT);
// pinMode(D10, OUTPUT);
//pinMode(D11, OUTPUT);
```

Step9 : All done ready connect to ECU :)

GENERATOR HARDWARE V1
USING Arduino Nano v3

FZ FY FX

120 Ohm 120 Ohm 120 Ohm

D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 GND RST RX0 TX1

ICSP

D13 3V3 REF A0 A1 A2 A3 A4 A5 A6 A7 5V RST GND VIN

You can power it using USB or External voltage

diode

GND +12V