

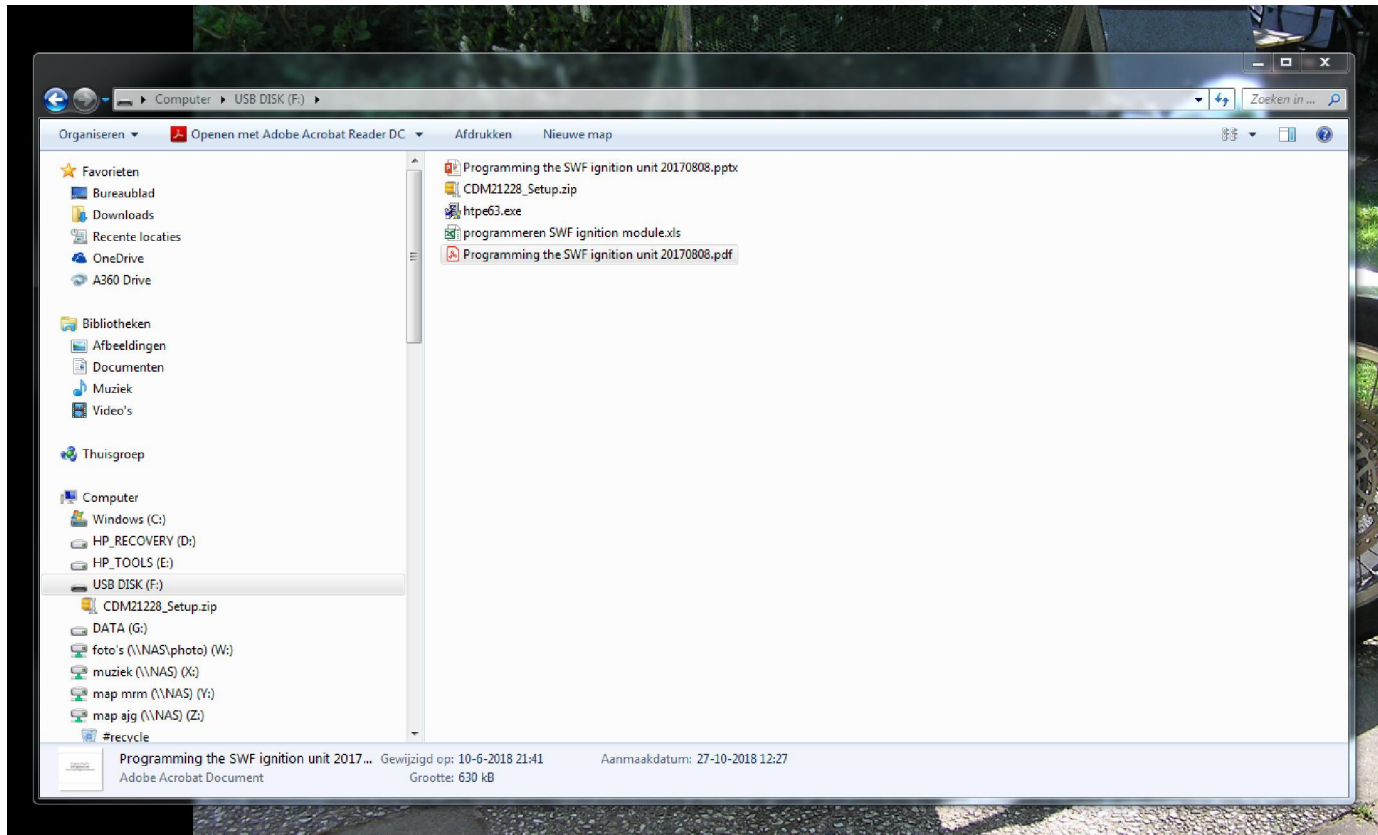
Programming the SWF ignition unit

A step by step explanantion of how to change the ignition-advance
curve

basics

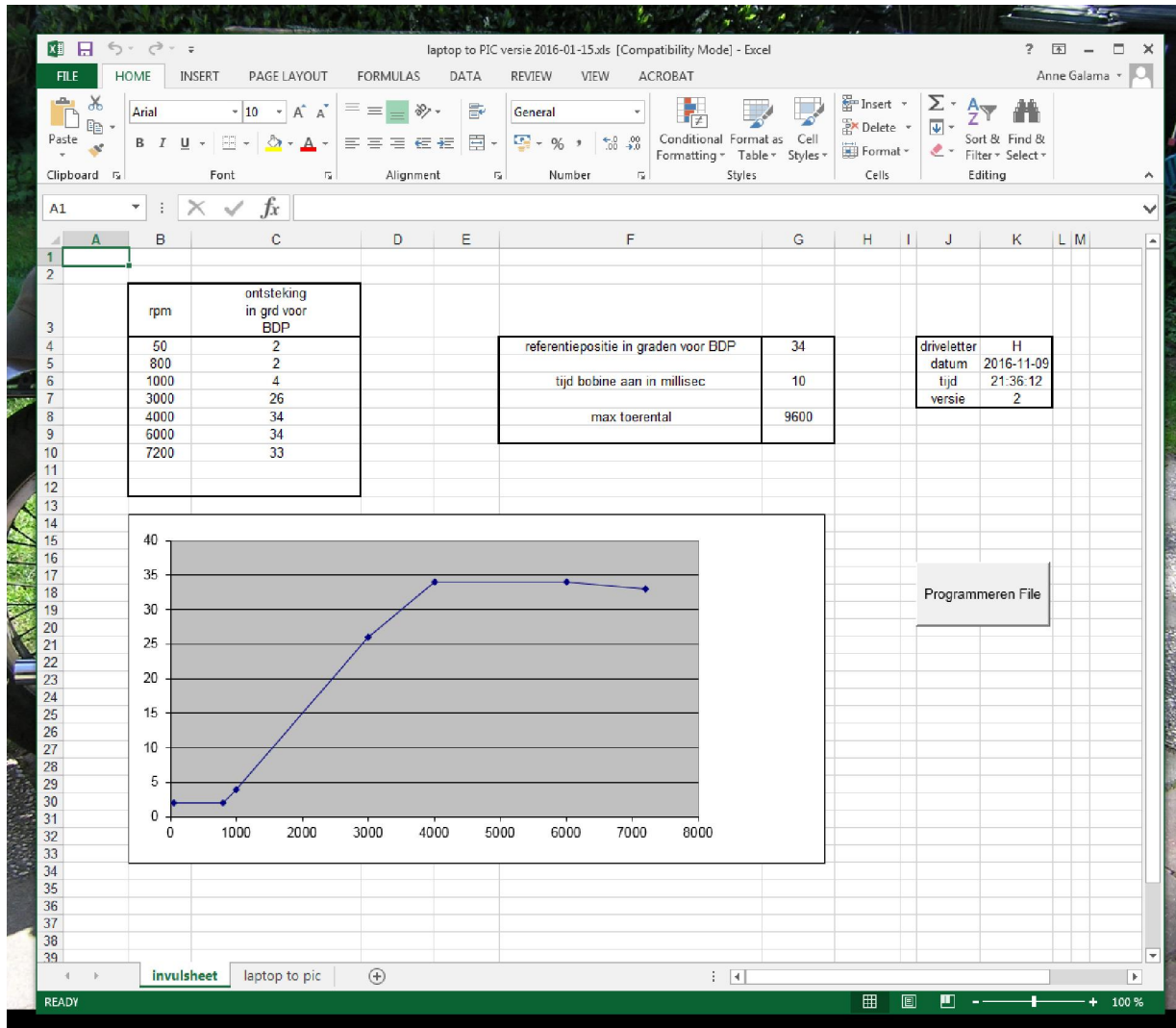
- The programming process for this ignition unit is a two-step procedure.
1. First the desired ignition-advance curve has to be made using the excell-macro-spreadsheet. With this spreadsheet two files will be derived.
 - Settings_date_version.txt
 - ToPic_date_version.txt
 2. The ToPic-file will be loaded into (written to) the ignition-unit using a freeware program hyperterminal.
 - ToPic_date_version.txt is loaded into the ignition unit
 - Setting_date_version.txt is for reference purpose only

Step 1.1; accessing the excel-file



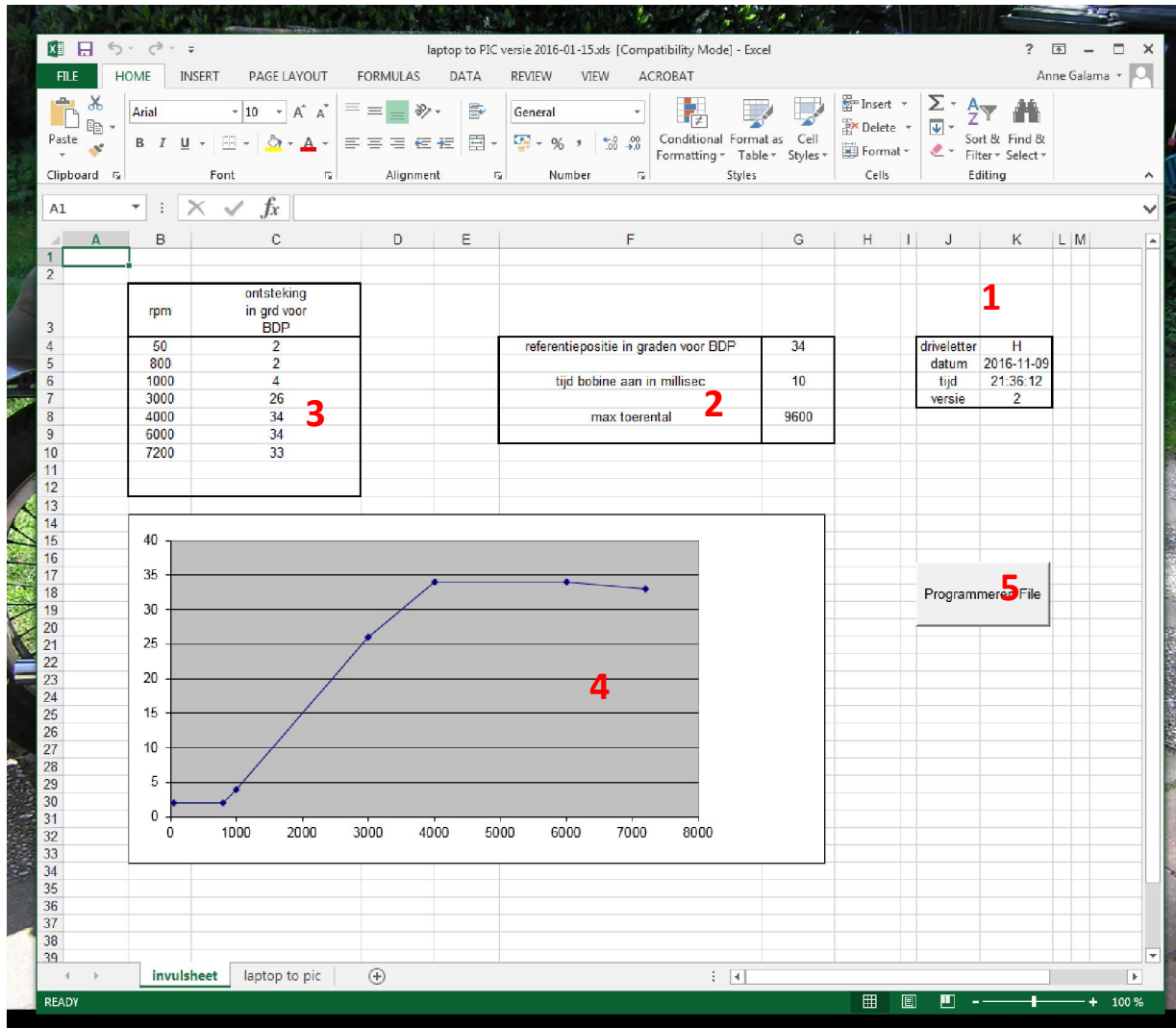
- Insert the USB-stick in a USB-port
- open the excel-file “programmeren SWF ignition module.xls”.
- Make sure you are allowed to execute the excel-macro’s.

Step 1.2; setting up the excel-file



- The excel-file has two sheets and some macro's.
- Sheet "invulsheet" is used to fill out all required data to make the two files
- the sheet "Laptop to Pic" is used to store intermediate results.
- **Warning**; changing anything on the sheets will result in a non-operative file. Resulting data-files, if any, are useless.
- It is advised to copy this excel-file to a save locating, just in case.
- A new excel-file can be obtained by sending a mail to "mail@swf-ignitionsystems.nl"

Step 1.2; setting up the excel-file



- 3 area's require input
- one graph presenting the ignition-advance curve
- one action-button
- "area 1", file storage location and file version number.
- "area 2"; ignition-data as coil-on-time, max rpm and max advance reference point.
- "area 3"; ignition-advance curve
- "area 4"; graph displaying your curve, no action required
- "area 5"; action button to program both files
- Although presented here in graph 4, negative curves don't work. Negative curve = reduced advance at higher revs.

Step 1.3; filling out required data

driveletter	G:\
datum	2017-08-08
time	22:11:33
versie	1

1. Fill out drive letter.
The drive named at this position is used to store the two files.
I normally use the SWF-stick to store all the files but it could be any location on your PC.
Copy adress as text and paste is the best way to ensure the correct path

Date and time are automatically updated and added to the filenames. No action required.

Version number; is used to your own preferences. As the versionnumber is also added to the filenames I use it just to keep track of different set-ups.

Step 1.4; filling out more data

For proper operation you have to set a crankshaft reference point
This reference point is used by the unit to time the ignition sequence.

The crankshaft timing procedure is described in the mechanical setup manual.

If the engine is timed at “34 degrees before TDC” then fill in 34. if the engine is timed at xx degrees then fill in “xx”.

Important; the unit can not be timed after TDC. So the number filled out should always be positive.

referentiepositie in graden voor BDP	34
tijd bobine aan in millisec	10
max toerental	9600

Step 1.4; filling out more data

referentiepositie in graden voor BDP	34
tijd bobine aan in millisec	10
max toerental	9600

This number is the “coil on period”. The coil-on-period is the period (milliseconds) in which the coil is switched on.

10~12 milliseconds is average. Too small and your plugs won't fire, too long will heat up your coils.

If in doubt consult your ignition coil data book

Step 1.4; filling out more data

referentiepositie in graden voor BDP	34
tijd bobine aan in millisec	10
max toerental	9600

This number is max rpm. When the revs are higher than max revs the coils are switched off. The result is no spark. When the revs drop the ignition will start automatically

Important; max revs should be lower than the highest entry in the ignition-advance table

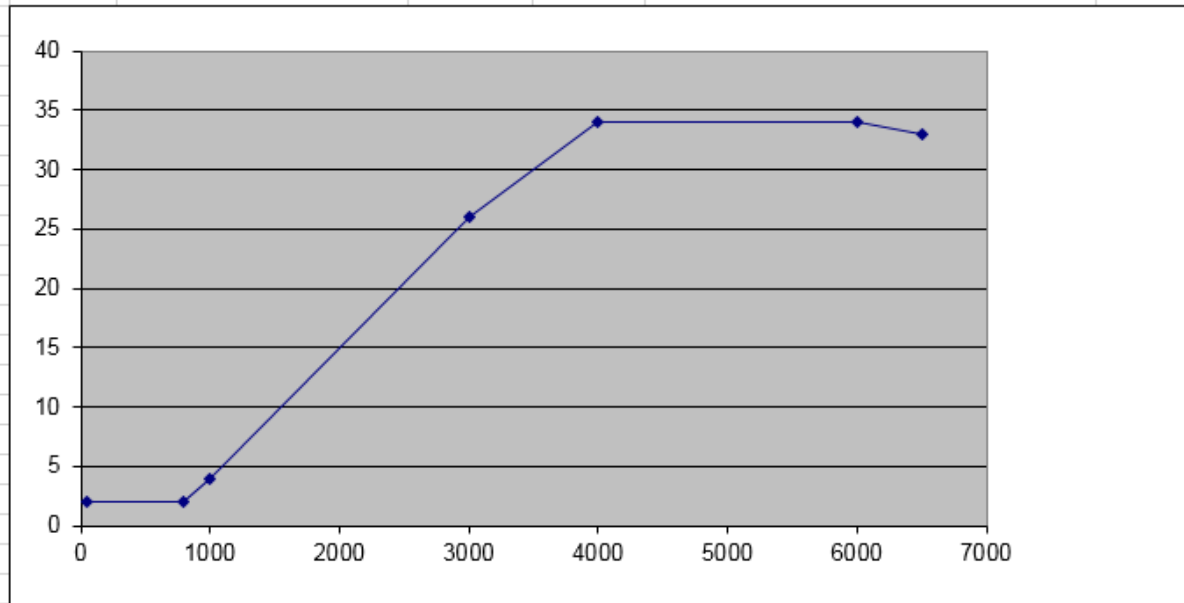
Step 1.5; setting up your ignition advance curve

rpm	ontsteking in grd voor BDP
50	2
800	2
1000	4
3000	26
4000	34
6000	34
7200	33

Setting up your ignition advance curve is rather straightforward.

1. fill in the rpm's
2. fill in the required degrees of ignition advance before TDC in the same row.
3. Important
 1. A minimum of 5 entries is necessary
 2. No more than 9 entries are calculated with
 3. The highest entry should be bigger than the "max rev" set earlier. So if max rev is set to 9000 rpm, the highest entry should be at least 9300 rpm.
 4. A low entry (ex 50 rpm) should be incorporated to improve starting.
 5. Entries should be at least 300 rpm different.

Step 1.6; setting up your ignition advance curve



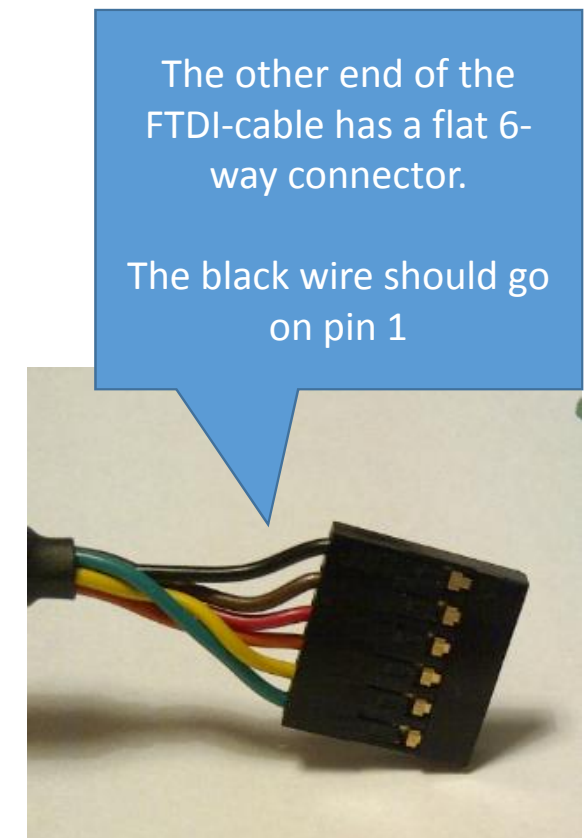
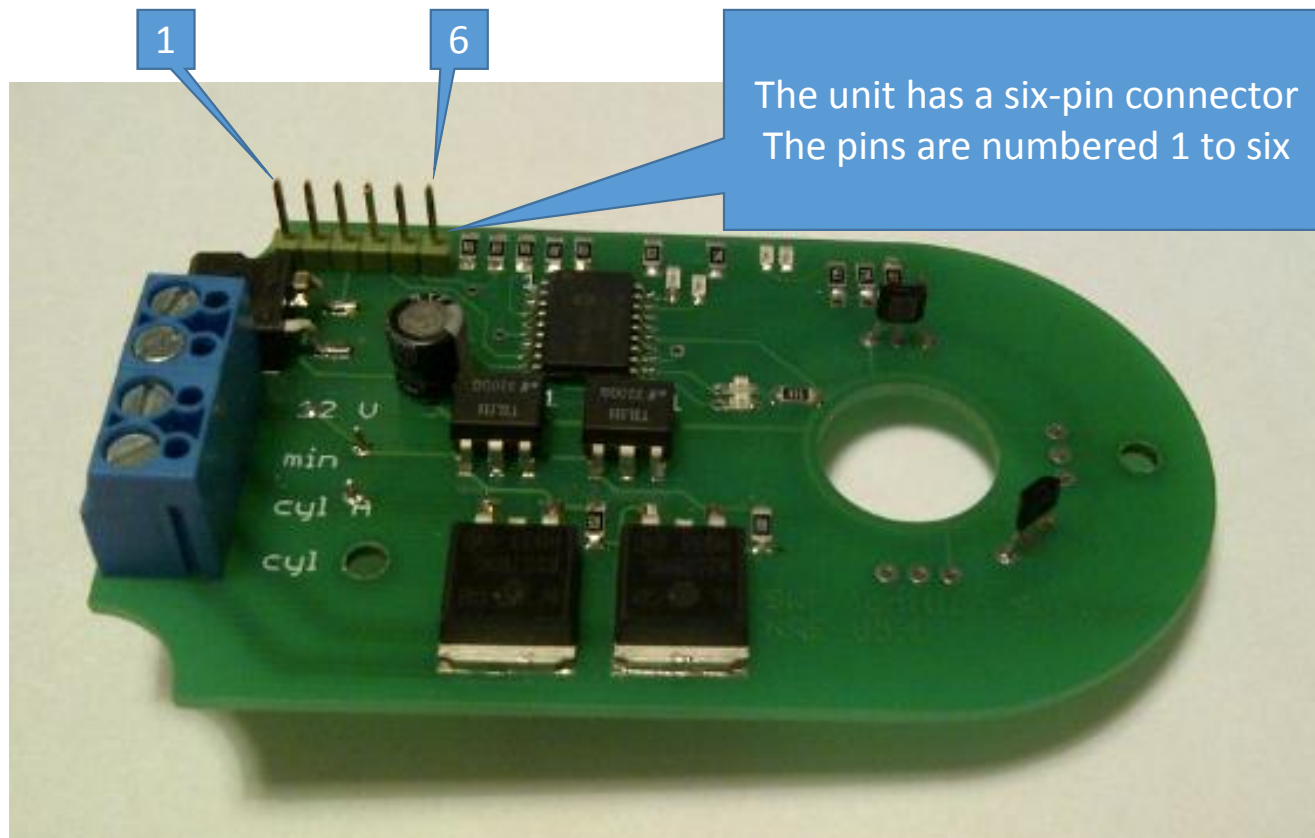
Programmeren File

1. You are all set now. The graph will follow your entries in the ignition advance curve automatically.
2. Hit the “programmeren file” button, the macro’s are executed and the two files are created at the designated location (see step 3 and picture step 1).

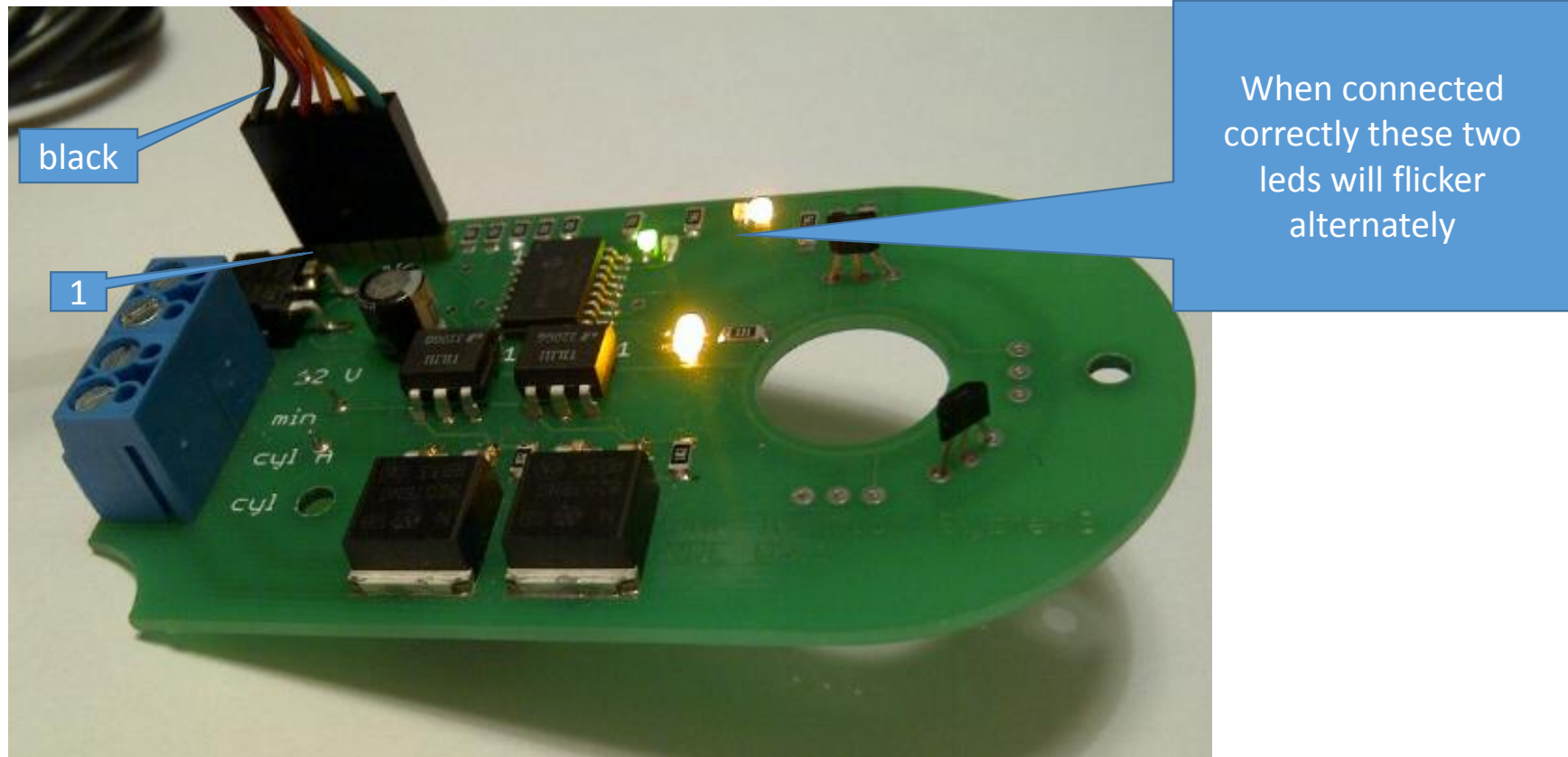
Step 2.1; loading the new ignition advance curve into the unit.

- The unit is supplied with a FTDI-usb tot RS232-cable.
- The cable is used to transfer the file to the ignition unit
- The usb-port must be able to power the unit, if it can charge your phone it's okay.
- When connecting:
 - Switch the ignition of your motorbike off.
 - Disconnect battery chargers etc. have your laptop on batterypower only.

Step 2.2; connecting the unit to a laptop with the FTDI-cable

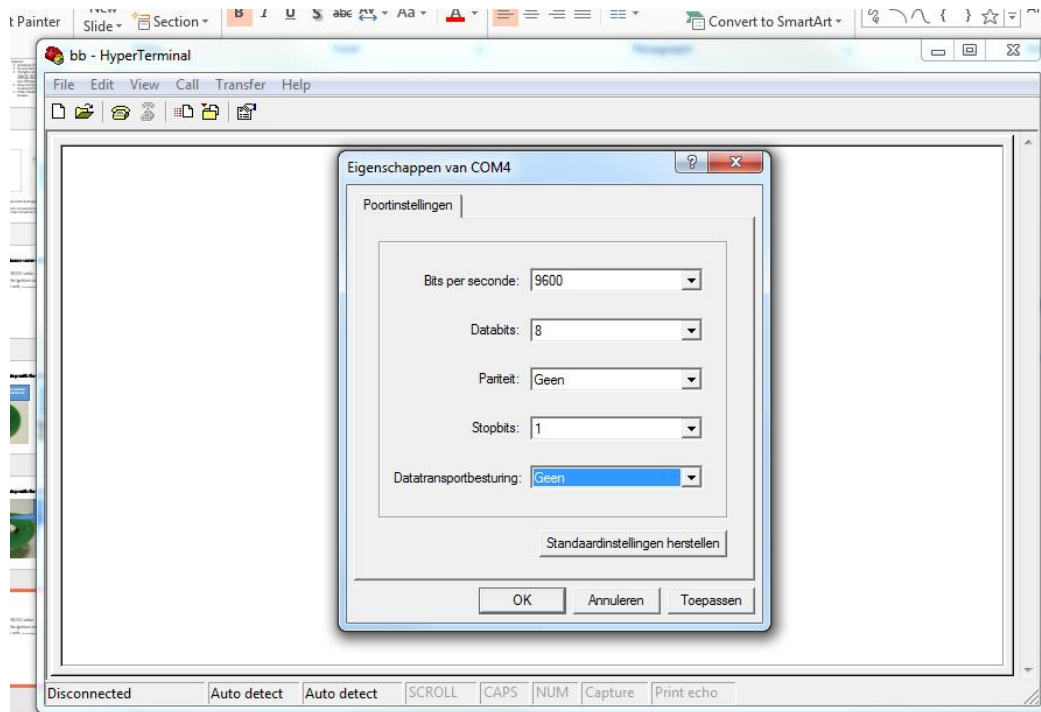


Step 2.2; connecting the unit to a laptop with the FTDI-cable



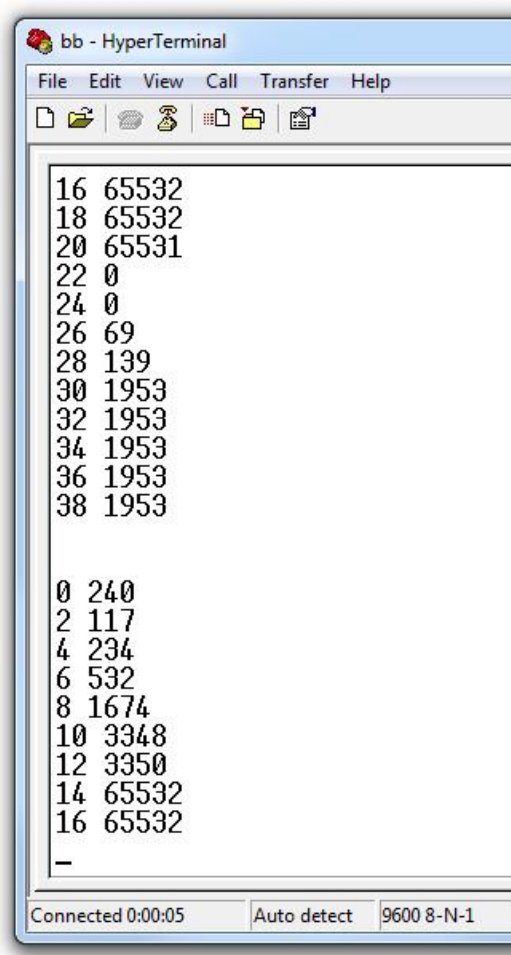
Step 2.3; Hyperterminal.

- Hyperterminal is used to transfer data to and from the unit



- Select the correct COM-port
- Set “bits per second” at 9600
- Set “databits” at 8
- Set “parity” at 1
- Set “stopbits” at 1
- Set “hardwaresupport” at none

Step 2.3; Hyperterminal.



The screenshot shows a HyperTerminal window titled "bb - HyperTerminal". The window has a menu bar with "File", "Edit", "View", "Call", "Transfer", and "Help". Below the menu bar is a toolbar with icons for file operations and communication. The main text area displays a list of numbers in two columns, with a hyphen at the end. The status bar at the bottom shows "Connected 0:00:05", "Auto detect", and "9600 8-N-1".

```
16 65532
18 65532
20 65531
22 0
24 0
26 69
28 139
30 1953
32 1953
34 1953
36 1953
38 1953

0 240
2 117
4 234
6 532
8 1674
10 3348
12 3350
14 65532
16 65532
-
```

When all is set correctly a steady stream of data should appear in the hyperterminal window.

These numbers represent the actual setup and ignition-advance curve of the unit.

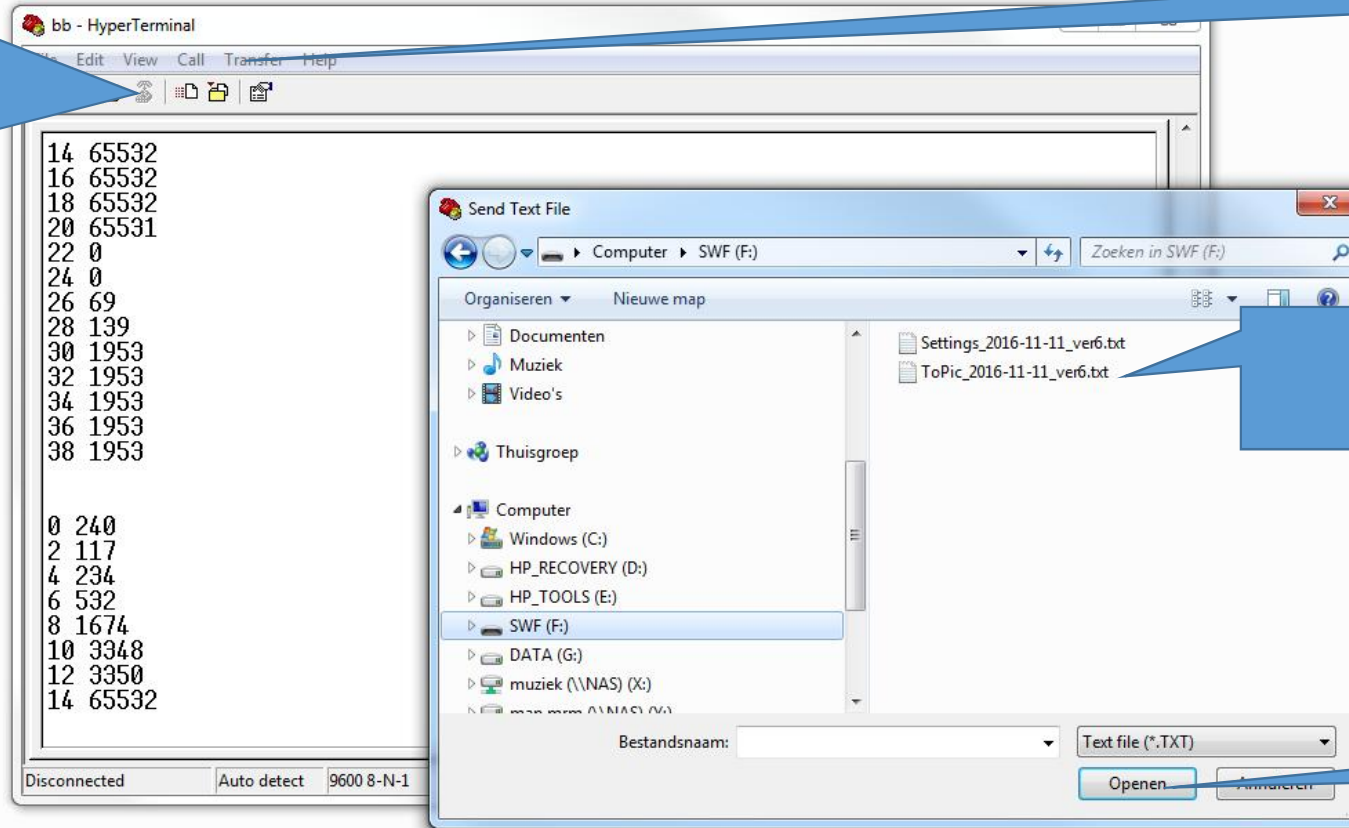
Step 2.4; transferring new data into the ignition unit

- Transferring new data to the ignition unit is as follows
 1. stop the unit from sending data to your computer by pressing “disconnect”.
 2. Select “transfer”.
 3. Select “send text file”.
 4. Select the correct ToPic.txt file
 5. Select “open”.

Data is now send to the unit. Directly after this transfer the unit will resend the received data.

Step 2.4; transferring new data into the ignition unit

1. Stop transmission of data by pressing "disconnect"

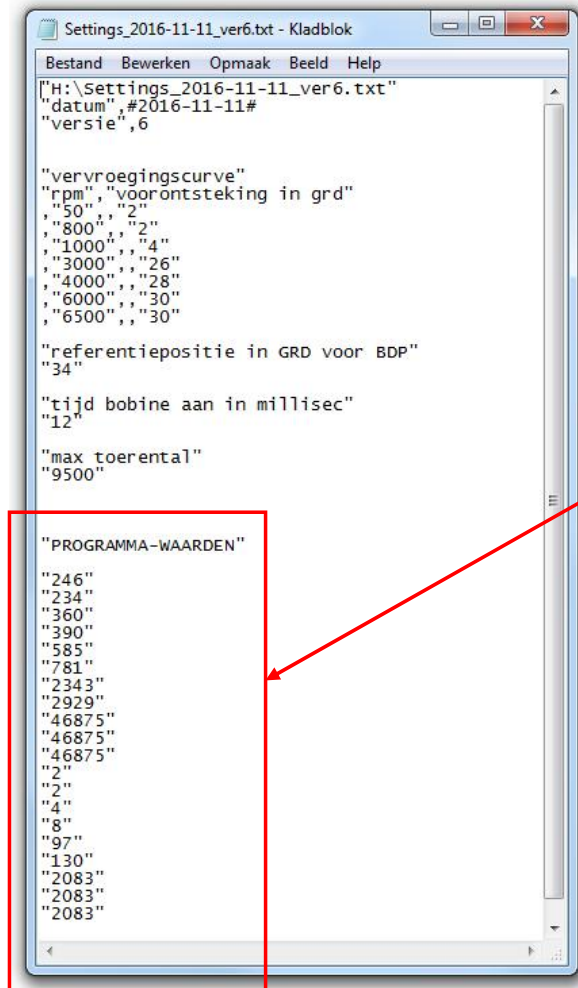


2. Select Transfer
3. Select "send text file"

4. Select required
ToPic_date_version.txt

5. Select
"open"

Step 2.5; compare data



```
Settings_2016-11-11_ver6.txt - Kladblok
Bestand  Bewerken  Opmaak  Beeld  Help
[H:\Settings_2016-11-11_ver6.txt]
"datum",#2016-11-11#
"versie",6

"vervroegingscurve"
"rpm","voorontsteking in grd"
,"50","2"
,"800","2"
,"1000","4"
,"3000","26"
,"4000","28"
,"6000","30"
,"6500","30"

"referentiepositie in GRD voor BDP"
"34"

"tijd bobine aan in millisec"
"12"

"max toerental"
"9500"

"PROGRAMMA-WAARDEN"
"246"
"234"
"360"
"390"
"585"
"781"
"2343"
"2929"
"46875"
"46875"
"46875"
"2"
"2"
"4"
"8"
"8"
"97"
"130"
"2083"
"2083"
"2083"
```

1. The resend data must be compared with the data in the file Setting_date_version.txt.
2. The resend values should be equal to this part of the file
3. If not the transmission has failed and should be repeated.
4. When all numbers are the same, the new ignition-advance curve has been successfully transferred into the unit
5. **Important, if necessary, set the timing of your engine again. If and when you've changed the max-advance-reference-point, see mechanical setup.**