



# **GuardMagic DAFS2 Programming Tool (GM2.035-02)**

## **User Manual**

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## 1. INTRODUCTION

"GuardMagic DAFS2 programming tool" is the special technological complete set intended for customer programming and change the setting of **GuardMagic DAFS2** fuel level sensors adapter by Personal Computer.

In additional "GuardMagic DAFS2 programming tool" utility allows to carry out fuel tank calibration procedure.

Fuel tank calibration procedure is carried by Personal Computer (Notebook).



## 2. PACKAGES

### 2.1. STANDARD PACKAGE

- AC/DC (220V/12V) power adapter with cable - 1 pc.
- Cable GM4.024 - 1 pc
- Cable GM4.025 - 1 pc
- "GuardMagic DAFS2 programming tool" User Guide -1 book
- CD disk with manuals and software\* -1 CD

### 2.2. PACKAGE

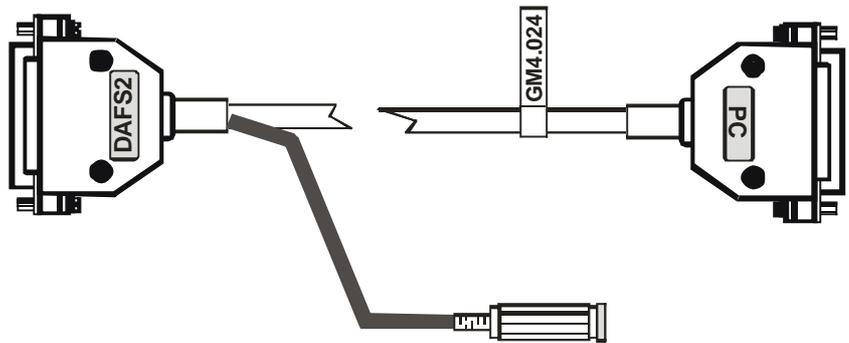
The complete set is packed into a box of corrugated cardboard

### 3. OVERVIEW OF MAIN COMPONENTS

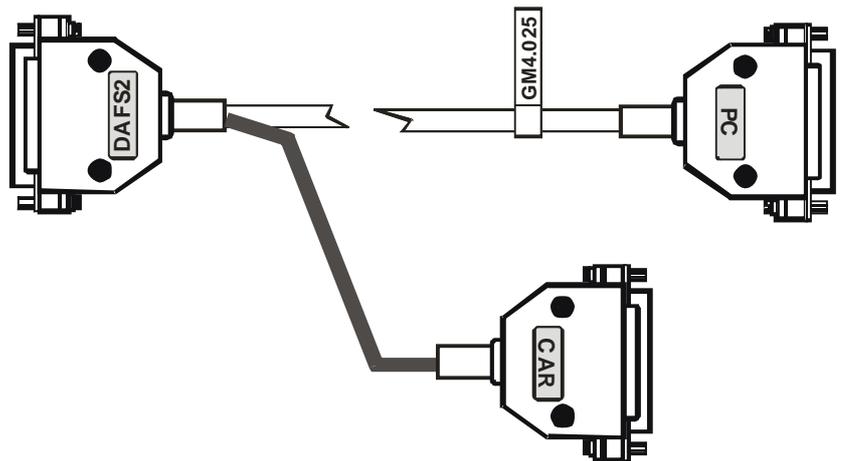
**AC/DC (220V/12V) power adapter with cable**



**Cable GM4.024**  
for connection to: GuardMagic DAFS2 to PC; for DAFS2 programming



**Cable GM4.025**  
for connection to: GuardMagic DAFS2 to PC and cable GM4.022 (from DAFS2 set)



**CD disk**  
with manuals and software

CD disk contents:

- GuardMagic DAFS2 “User Guide” ;
- GuardMagic DAFS2 “User Manual”;
- GuardMagic DAFS programming software

### 4. SYSTEM REQUIREMENTS

System requirements to the PC:

- MS Windows XP, MS Windows Vista, MS Windows 7;
- Intel Pentium IV 600 or above (or AMD analogue);
- Main memory 256MB or above;
- 10 free space on a hard disk;
- Mouse and keyboard;
- RS-232 port (or USB port and standard USB-Com adapter);
- Video adapter and color monitor with the resolution not less than 800 x 600;
- CD or DVD ROM.

## 5. DAFS PROGRAMMING SOFTWARE OVERVIEW

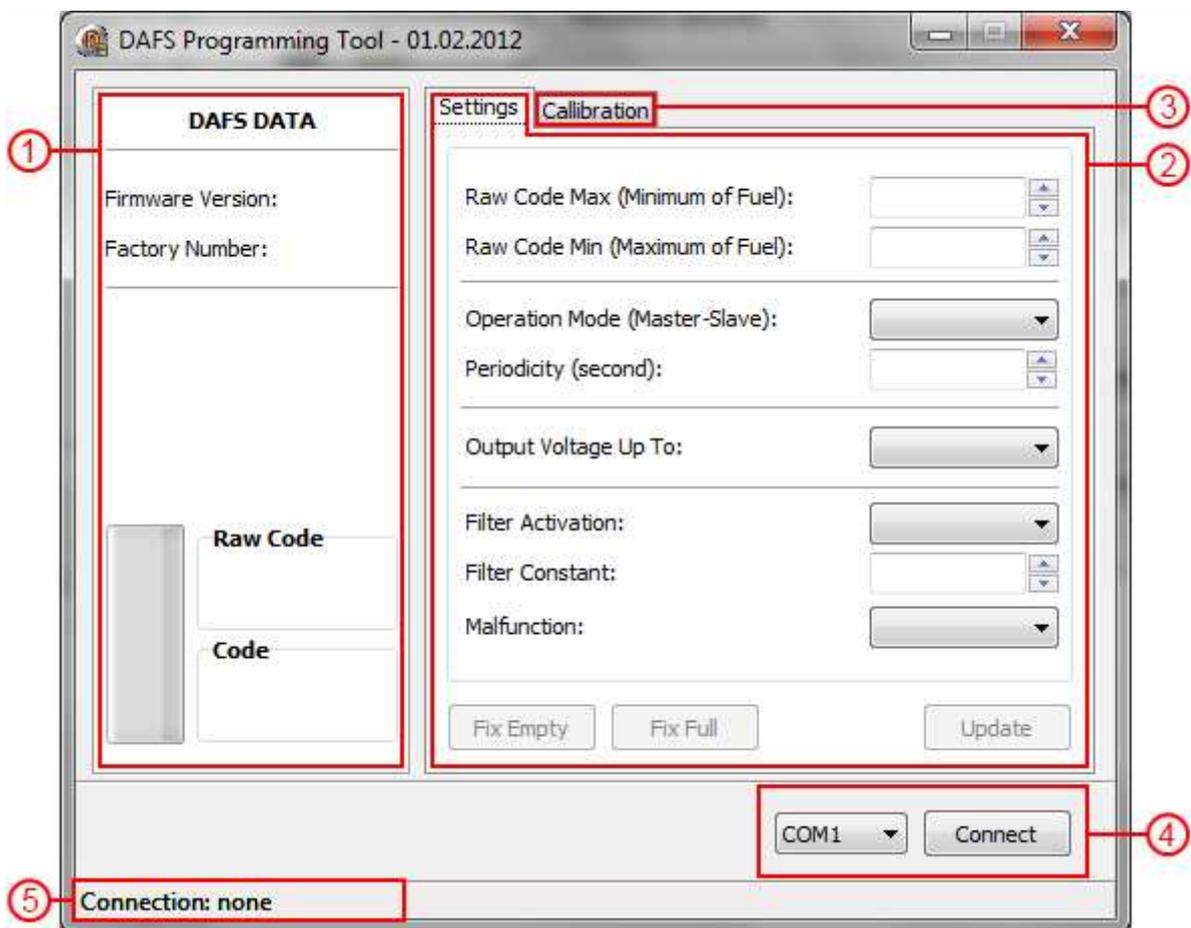
Copy program "GM DAFS PT" (DAFSProgr.exe) from CD to hard disk of yours PC.

Start the program "GM DAFS PT" (DAFSProgr.exe). After start the program on the screen will open the basic form, shown on figure.

### 5.1. SOFTWARE OVERVIEW

The "GM DAFS PT" form consist of:

1. "DAFS data" part;
2. "Settings" tab;
3. "Calibration" tab;
4. Connection settings and "Connect" button;
5. Status bar.



## 5.2. DAFS DATA

Show DAFS data:

Item	Function Description
Firmware Version	DAFS firmware version
Factory Number	DAFS factory number (if DAFS use factory number)
Raw Code	Current raw code
Code	Current fuel level code
Fuel Meter	Shows current fuel level in the fuel tank

"Raw Code" and "Code" value will change on fuel level change.

**DAFS DATA**

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Firmware Version: **4**

Factory Number: **00000002**

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Raw Code  
**13840**

Code  
**664**

## 5.3. TAB "SETTING"

The tab "Settings" is intended for the programming of DAFS parameters.

Settings

Raw Code Max (Minimum of Fuel):

Raw Code Min (Maximum of Fuel):

---

Operation Mode (Master-Slave): Slave (default)

Periodicity (second):

---

Output Voltage Up To: 9 V

---

Filter Activation: On (default)

Filter Constant:

Malfunction: Off (default)

Fix Empty
Fix Full
Update

Item	Function Description
"Raw Code Max"	Frequency of minimal fuel level in the tank
"Raw Code Min"	Frequency of maximal fuel level in the tank
"Operation Mode"	DAFS operational mode (Slave - network mode, Master - stand alone mode)
"Periodicity"	Periodicity of data sending in "Stand Alone" mode (available values - 0..255)
"Output Voltage Up To"	Maximum voltage at the analog output circuit (9 V; 4,5 V; 2,2 V)

Item	Function Description
Filter Activation	Activation of internal fuel filter
Filter Constant	Constant of filtration
Malfunction	Malfunction bit sending activation Some main modules can not support this functionality

#### 5.4. TAB “CALLIBRATION”

Calibration

No.	Code	Litres
1	664	10

**Litres**  
**10**

Add Value

Clear Table

Item	Function Description
Calibration Table	Table with calibration values
"Clear Table"	Clear Calibration Table
"Liters"	Fuel level value in liters
"Add Value"	Add current fuel level code and corresponding to it fuel level value

#### 5.5. CONNECTION SETTING AND “CONNECT” BUTTON

COM21
▼

Connect

Item	Function Description
RS232 port number	Number of RS232 port to which fuel level sensor is connected
"Connect"/"Disconnect"	Connect or disconnect to the fuel level sensor.

## 5.6. STATUS BAR

Connection: COM16 [19200]

Status bar is intended to show connection status. After connecting to the fuel sensor information about COM port number and connection speed is shown in the status bar.

## 6. ORDER OF DAFS2 PROGRAMMING

Order of DAFS2 adapter programming and fuel tank calibration is shown below:

- 1) **Make DAFS2 primary setting (paragraph 7);**
- 2) **Make “Full-Empty” setting (paragraph 8);**
- 3) **Make fuel tank calibration procedure (paragraph 9).**

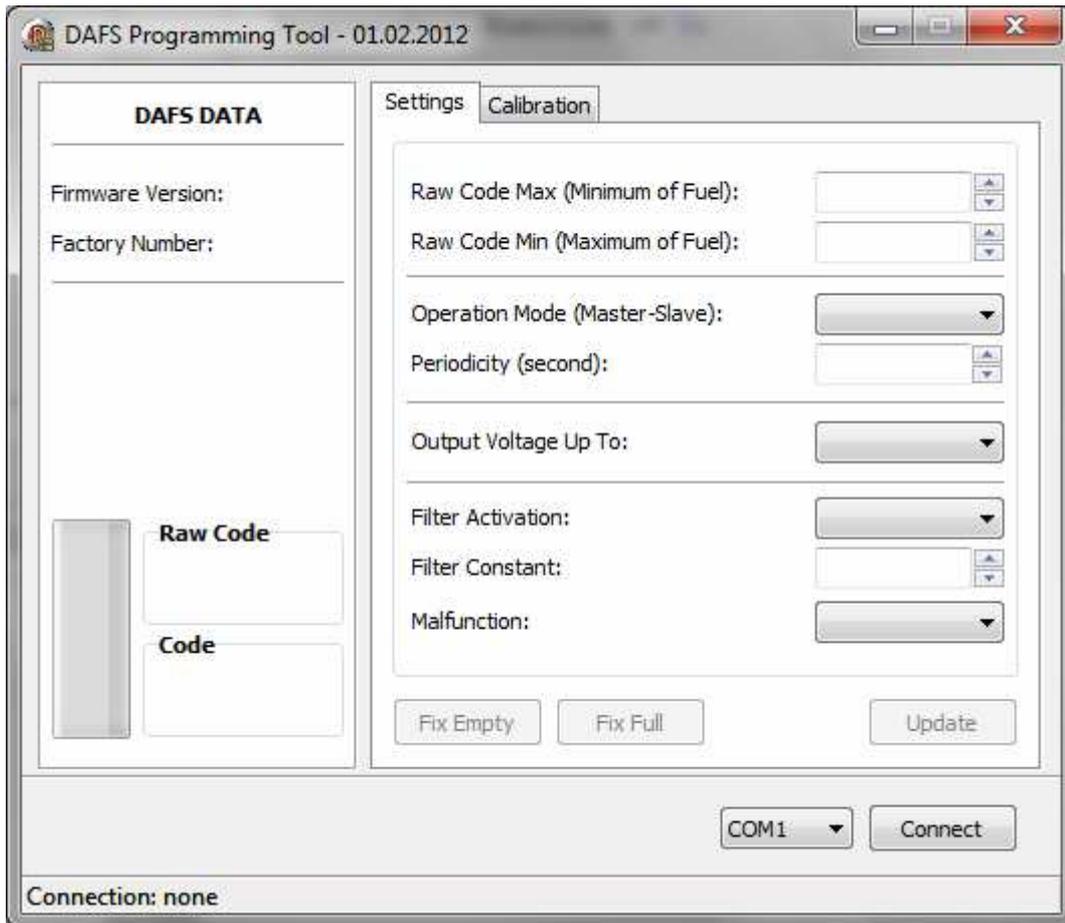
## 7. DAFS2 PRIMERY SETTING

DAFS programming procedure is consistently completing the required fields on the persistence and saving entered data.

For the data saving it is necessary to push button "Update".

	Action (Field)	Note
<b>1</b>	<b>Create working place for DAFS2 adapter programming</b>	See picture in paragraph 10.1
1.1	Connect service cable GM4.024 to: <ul style="list-style-type: none"> <li>• Notebook (PC) *;</li> <li>• DAFS2 adapter;</li> <li>• AC/DC adapter</li> </ul>	Note: * - If your Notebook (PC) has not RS-232 communication port,- use standard USB/Com adapter. USB/Com adapter have to be connect to connector marked "PC" in cable GM4.024
1.2	Connect AC/DC adapter to AC power source	In GuardMagic DAFS2 have to light Power (GREEN) LED.
1.3	Run GuardMagic DAFS programming software	See picture bellow*
<b>2</b>	<b>Tune PC connection to DAFS2 adapter (PC connection field)</b>	
2.1	Select necessary communication port in PC	
2.2	Make connection with DAFS2 adapter	Push "connect" button
<b>3</b>	<b>Make main DAFS2 setting and operation parameters(Setting Field)</b>	
3.1	Select DAFS2 operation mode (Master or Slave)	Depend of operation mode of main telematic module (if in system you use RS-232 interface). If telematic module is a "Master" – set DAFS2 in slave mode. If telematic module is a "Slave" – set DAFS2 in Master mode.
3.2	If DAFS2 is in "Master Mode", set DAFS2 periodicity of data sending in sec (Periodicity)	Only for DAFS2 in "Master Mode".
3.3	Select Output Voltage (if you use analog output)	Set: 8,5 or 4,25, or 2,2 output voltage
3.4	Select Filter activation "ON" for operation in system.	Filter ON by default. Filter activation in disable (OFF), only for fuel tank calibration procedure
3.5	Set Filter constant	As usual can be about from 40 and up to 150. For starting set: 90 Most optimal filter constant for your system can be select only by experiments.
3.6	Malfunction	Not use
<b>4</b>	<b>Press "Update" button.</b>	Adapter configuration parameters will be store in adapter memory

\* - View of window



## 8. DAFS2 "FULL-EMPTY" SETTING

*"EMPTY-FULL" setting procedure is carried out only:*

- *After DAFS2 was programmed*
- *DAFS2 was installed in car (GM4.022 cable wiring to vehicle electrical circuits).*

	Action (Field)	Note
1	Disconnect from DAFS2 adapter cable GM4.022	
2	Connect service cable GM4.025 to: <ul style="list-style-type: none"> <li>• Notebook (PC) *;</li> <li>• DAFS2 adapter;</li> <li>• Cable GM4.022</li> </ul>	See paragraph 10.2 Note: * - If your Notebook (PC) has not RS-232 communication port,- use standard USB/Com adapter. Adapter have to be connect to connector marked "PC" in cable GM4.025
3	Run GuardMagic DAFS2 programming software in Notebook	
4	Drain fuel from fuel tank	In vehicle tank must be minimal fuel volume.
5	Wait about 0.5 .. 1 minutes	DAFS2 programming software in "sensor field" will show some code.
6	Press "Fix Empty" button	Setting "Empty" tank (Fixed minimal fuel level)
7		If need, by manual correct the "minimal fuel code"
6	Fueling full tank. Wait about 0.5 .. 1 minutes	DAFS2 programming software in "sensor field" will show some codes.
8	Press "Fix Full" button	Setting "Full" tank (Fixed maximum fuel level)
9	Disconnect service cable GM4.025 and connect to DAFS2 adapter cable GM4.022	

## 9. FUEL TANK CALIBRATION

### 9.1. MAIN NOTES

- If GuardMagic DAFS2 adapter is connected to vehicle telematic module by **"analog connection"** fuel tank calibration procedure is carried out accordingly with instruction for vehicle telematic module (see manuals for your vehicle telematic module).
- Independent (using only DAFS2 adapter) fuel tank calibration procedure can be done only if DAFS adapter is connect to telematic module by RS-232 communication interface.
- During the fuel tank calibration procedure vehicle ignition switch have to be in **"RUN"** position (yellow and green LED in DAFS2 adapter have to light).

#### Main recommendation:

*if DAFS2 adapter will be connect to vehicle telematic module by RS-232 interface, for more easy and comfortable works also recommend to make fuel tank calibration procedure together with main telematic module accordingly with instruction for telematic module (see manuals for your vehicle telematic module).*

## 9.2. PRINCIPAL PROVISIONS

Fuel tank calibration is consecutive fixing values of a level of fuel, which is filled in a fuel tank, with the subsequent entering these data in the working program (Monitoring software).

At calibration procedure fuel is filled in with portions approximately on 1/10 - 1/20 volumes of a fuel tank.

As a rule, carrying out of calibration need to be spent on 5 ... to 15 control points.

As a measure of filled fuel is used the indicator of a filling station.

Filling stations, as a rule, provide accuracy not worse 0,3 %.

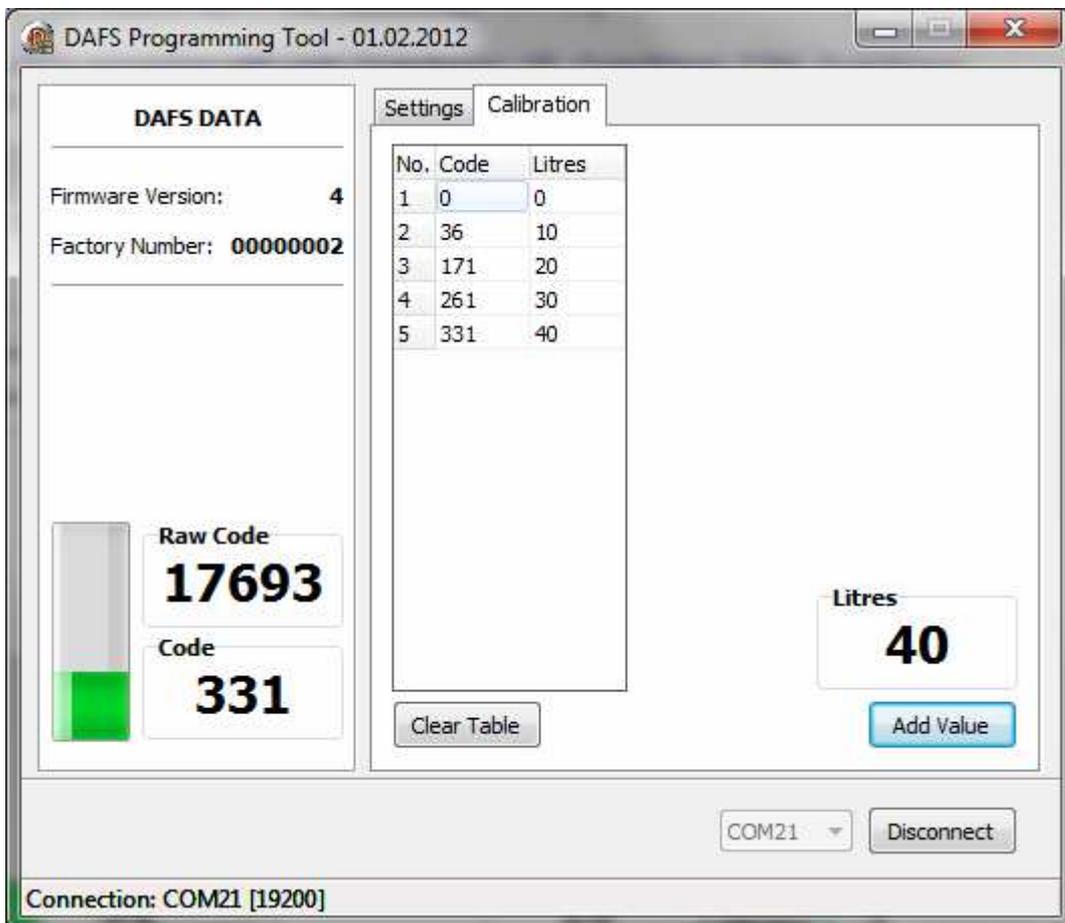
## 9.3. BEFORE INDEPENDED FUEL TANK CALIBRATION

Before in depended fuel tank calibration:

- Disconnect from DAFS2 adapter cable GM4.022;
- Connect service cable GM4.025 to DAFS2 adapter, cable GM4.022 and to notebook (see picture in paragraph 10.2)

## 9.4. INDEPENDED FUEL TANK CALIBRATION

Start "DAFS2 programming" software and select operation window in calibration bookmark:



Carrying out the operation of the calibration procedure is carried out in following order:

1. In a fuel tank of vehicle leave the minimal possible fuel level. This fuel level will be considered as MINIMAL level (like 1 liter); no more than 1%... 2 % of a tank volume;
2. Fix minimal value of the fuel by pressing "Add Value" button in program ("minimal fuel level" will be fix);
3. Insert a pistol of a fuel hose into a tank;
4. Add some control fuel to the fuel tank;
5. Wait till the value of the fuel level indicator in program will stop changes (field code). About 40 – 60 sec;
6. Enter the fuel level value in liters (field "Liters"). Press "Add Value" button;
7. Execute the indications of the previous paragraph till filling the fuel tank full with fuel.
8. Write down the table "fuel code" and "fuel volume" in the paper table

In the future the values obtained for the calibration data table must be entered in the operation program.

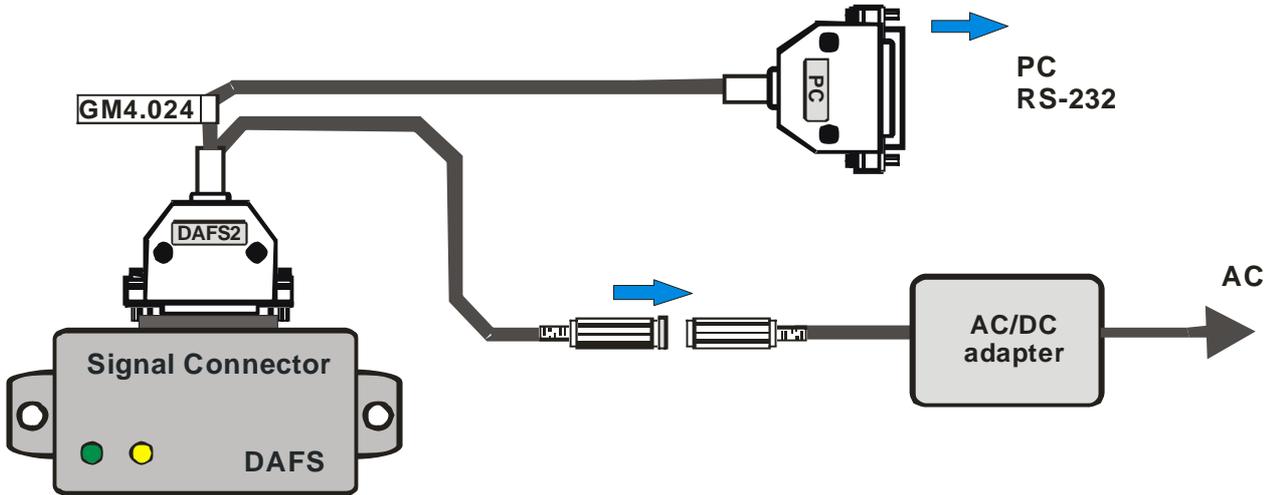
***After you finished fuel tank calibration procedure:***

- Disconnect service cable GM4.025 and connect to DAFS2 adapter cable GM4.022

## 10. APPENDIX 1. GuardMagic DAFS2 CONNECTION DIAGRAM

### 10.1. CONNECTION IN "OFFICE" FOR DAFS2 SETTING

This way of connection Intended for module primery setting "in office".



### 10.2. CONNECTION IN CAR FOR FULL/EMPTY SETTING AND CALIBRATION

This way of connection allow make module primery setting "in car" (after the module was installed), make "full/empty" setting and make fuel tank calibration.

