GuardMagic DAFS Programming Tool

2012

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GuardMagic
www.guardmagic.com

1. INTRODUCTION

"**GuardMagic DAFS programming tool"** is the special technological complete set intended for programming and change the setting of **GuardMagic DLLS** and **GuardMagic DLLE** fuel level sensors by Personal Computer. **"GuardMagic DAFS programming tool"** utility allows calibrate vehicle main fuel tanks and cargo tanks. Fuel tank calibration procedure is carried by Notebook (Personal Computer) in vehicle.

2. PACKAGES

Complete set consist of:

- Program "**GM DAFS PT**" – 1CD;
- GuardMagic SCA (DLLS Sensor Calibration Adapter);
- USB cable;
- 485 interface cable;
- 220/12V AC/DC power adapter with cable (for connection to GuardMagic FSM);
- User manual.

3. 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;
- USB port;
- Video adapter and color monitor with the resolution not less than 800 x 600;
- CD or DVD ROM.

4. FUEL LEVEL SENSOR CONNECTION

Before starting programming or calibration procedure of fuel level sensor it is necessary to connect it to the personal computer using GuardMagic SCA adapter, and check the connection status.

4.1. SCA Adapter connection to the DAFS.

GuardMagic SCA
(USB-485 adapter)

Conductor Compact Connector
(like WAGO 222 series or the similar)

"485+" wire (Yellow)

"485-" wire (Green)

"+12V" wire (Red)

"GND" wire (Black)

GuardMagic SCA

USB to personal computer

AC/DC power adapter

AC

12V DC

INPUTS   OUTPUTS

DAFS

4.2. SCA LED status.

GREEN
(Power)

RED
(USB Connection)
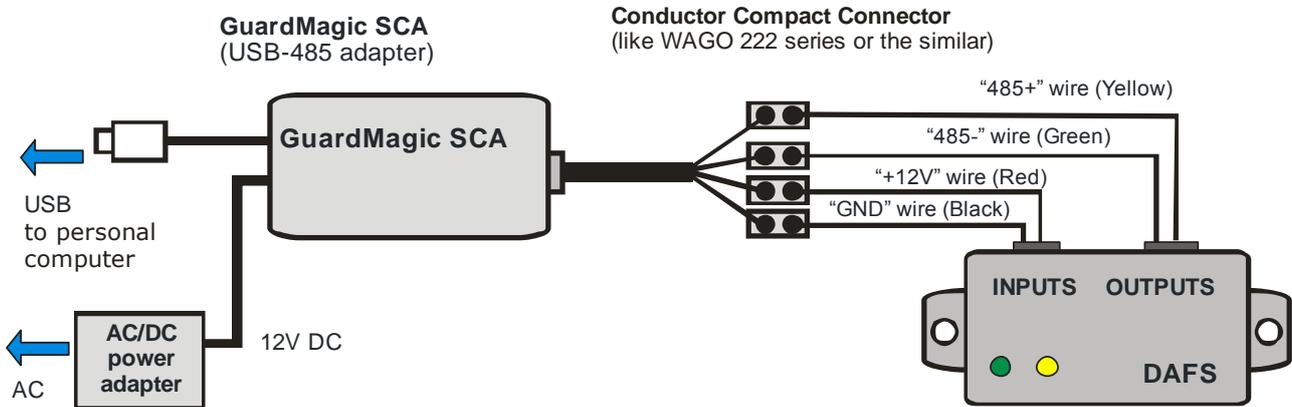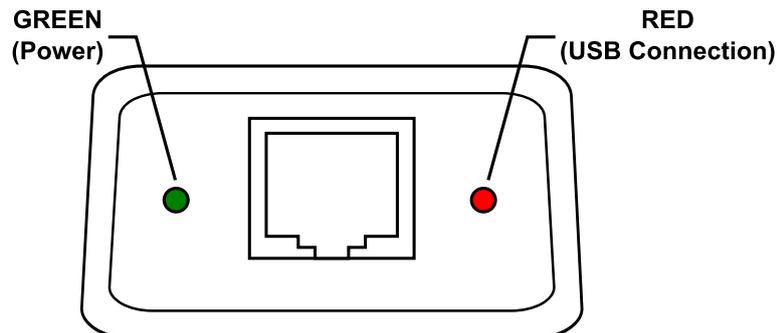
1. Green led   - connection with AC/DC power adapter
2. Red led   - connection with personal computer (USB connection)

5. DAFS Programming Tool 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

DAFS DATA

Firmware Version: **4**

Factory Number: **00000002**
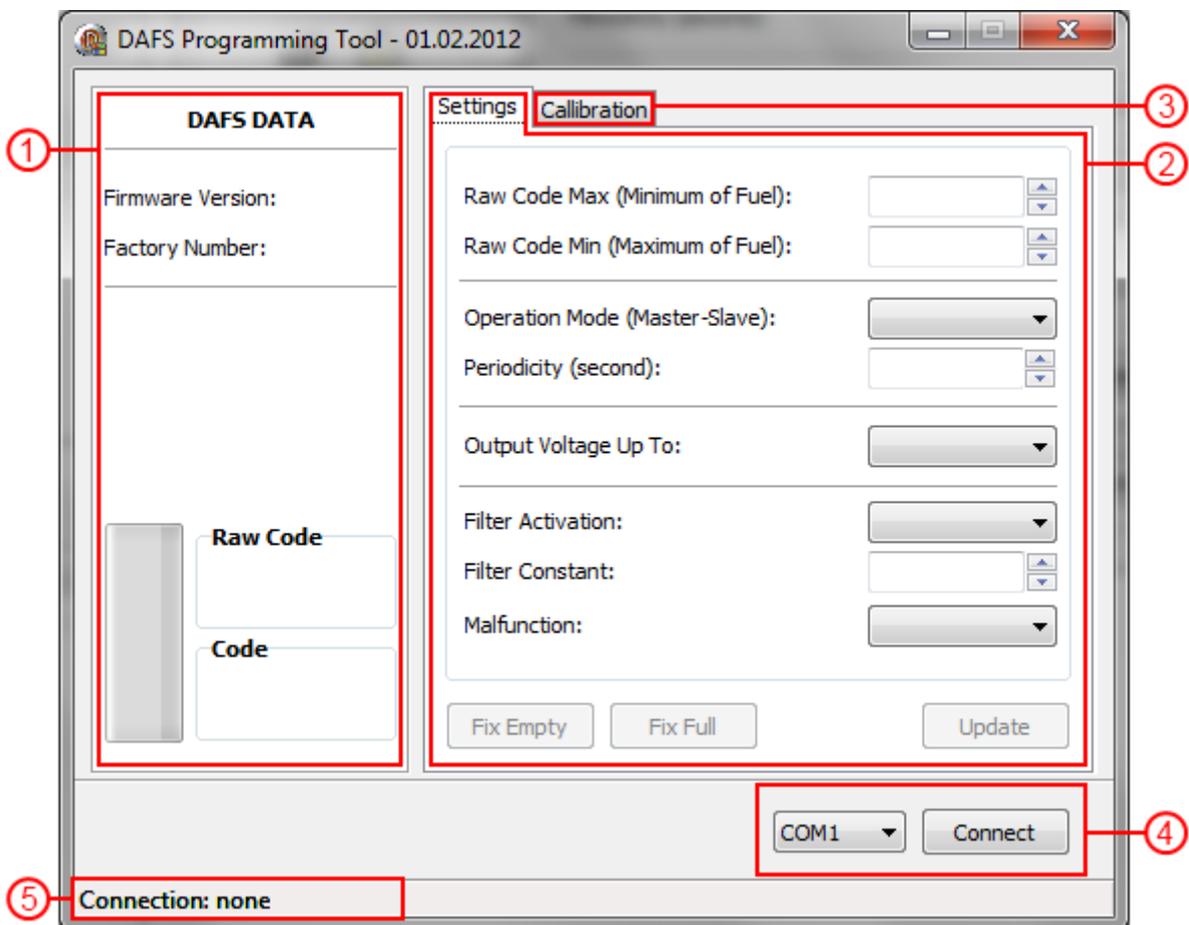
Raw Code
13840
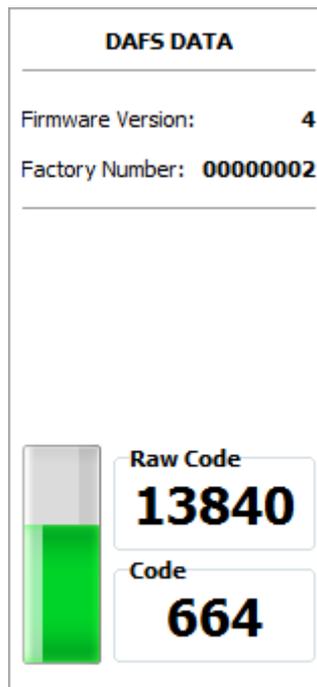
Code
664

Show DAFS data:

Item	Function Description
Firmware Version	DAFS firmware version
Factory Number	DAFS 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.

5.3. Tab "Settings"

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

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)
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 "Calibration"

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 settings and "Connect" button

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. PROGRAMMING PROCEDURE

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".

6.1. Primary fuel sensor calibration

Attention!!! Sensor adjustment should be provided with the same fuel type equal to the vehicle´s or machine operation fuel.
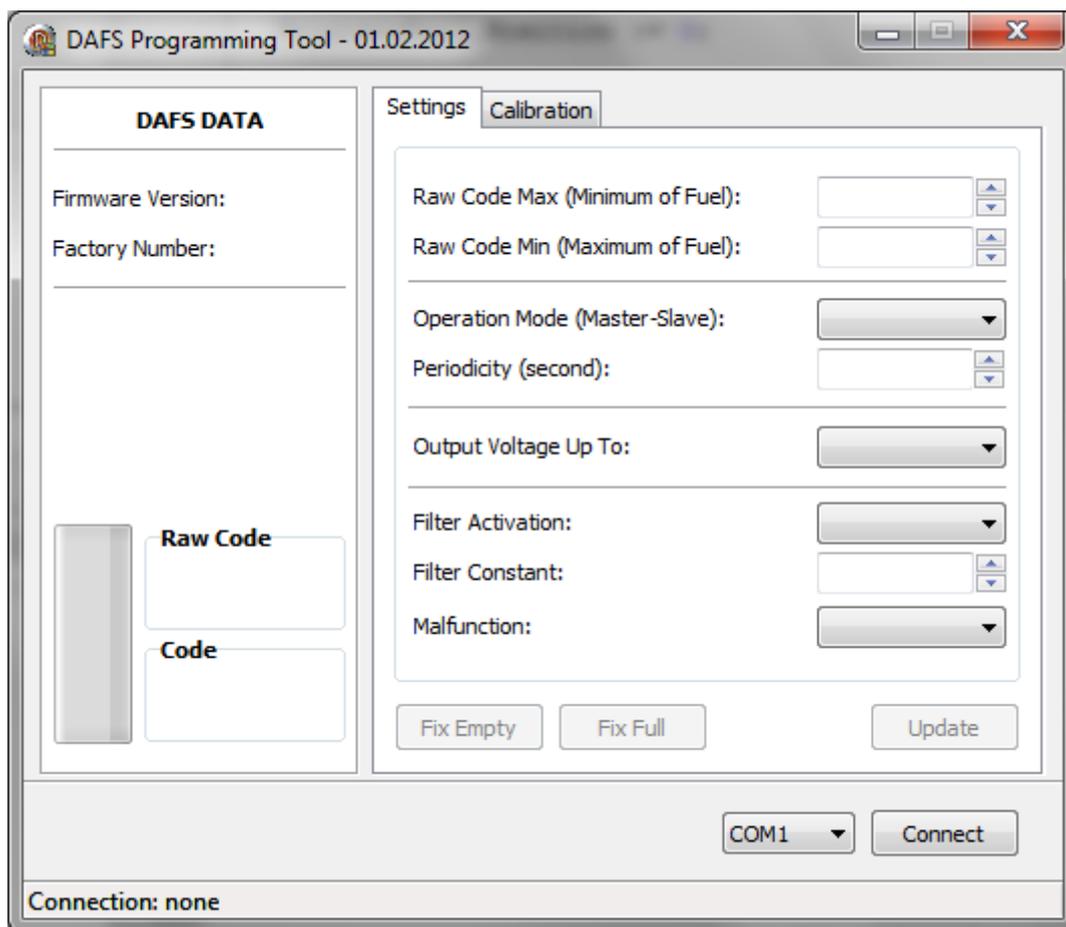
Primary fuel sensor calibration steps
1. Connect DAFS output (485 wires) to USB-485 adapter (GuardMagic SCA);
2. Connect GuardMagic SCA to the PC and power adapter;
3. Run GuardMagic DAFS programming software;
4. Select necessary "RS 232 Port" and press the button "Connect"
5. Drain fuel from fuel tank. Fix minimal fuel level ("Fix Empty" button);
6. Fueling full tank. Fix maximum fuel level ("Fix Full" button).

6.2. Working mode and address setting

Working mode of Fuel Sensor and Sensor Address setting are carried out also by "**DAFS Programming Tool**" software.

When program is running select necessary "Operation Mode" and press the button "Update".

7. FUEL TANK CALIBRATION

For fuel tank calibration it is necessary to select "Calibration" tab. See screenshot below.

Fuel Tank calibration procedure showing below is only for independently calibration without units GuardMagic VB, GuardMagic FSM, GuardMagic MTF3.

Fuel Tank Calibration procedure with units GuardMagic VB, GuardMagic FSM, GuardMagic MTF3 in detailed describe in this product installation manuals
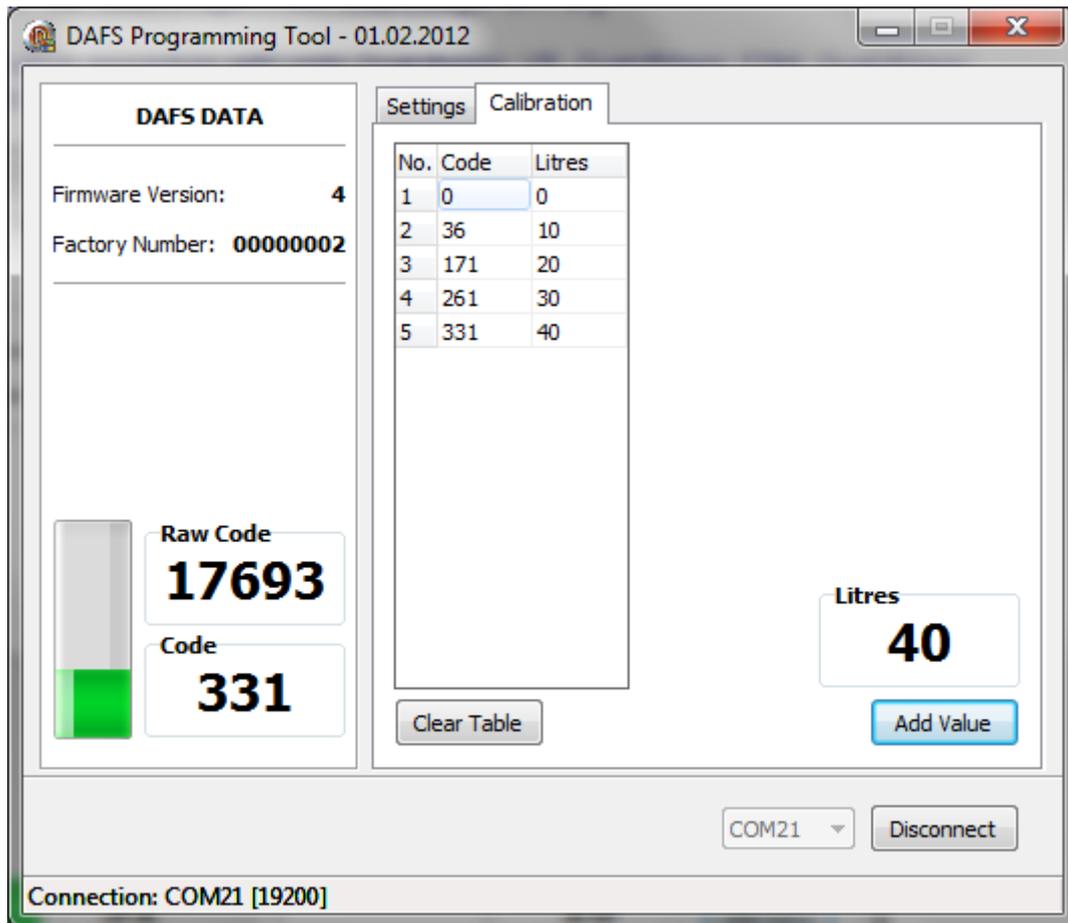
7.1. PRINCIPAL PROVISIONS

Fuel tank calibration is consecutive fixing values of a level of fuel, which is filled in vehicle tank or tank trailer (regular or cargo), with the subsequent entering these data in the working program.

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 %. Code of filled fuel will be shown in calibration 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.

7.2. ACTION ORDER OF CALLIBRATION PROCEDURE

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 work program.