



# TE Monitor

## Instructions Manual

### PREFACE

Thanking you for preference, **TECNOELETTRA SRL** hopes that the use of this equipment could be a reason of satisfaction. This manual is designed to put you in a position to intervene on the equipment and different performs of installation and connection. In order to ensure efficient operation and durability, it is recommended the strict observance of the rules laid down here. Thanks in advance for the suggestions that we will be given to possible further improvements of the equipment. For any question always consult the **TECNOELETTRA** Technical Department.

### TECNOELETTRA S.r.l.

#### Note:

The manufacturer reserves the right to modify equipment for any manufacturing or commercial need, without the obligation to promptly update this installation and using manual.

This manual cannot be modified without authorization by TECNOELETTRA.

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# REMOTE CONTROL SOFTWARE – TE MONITOR

## 1 TE809 Utilities installation

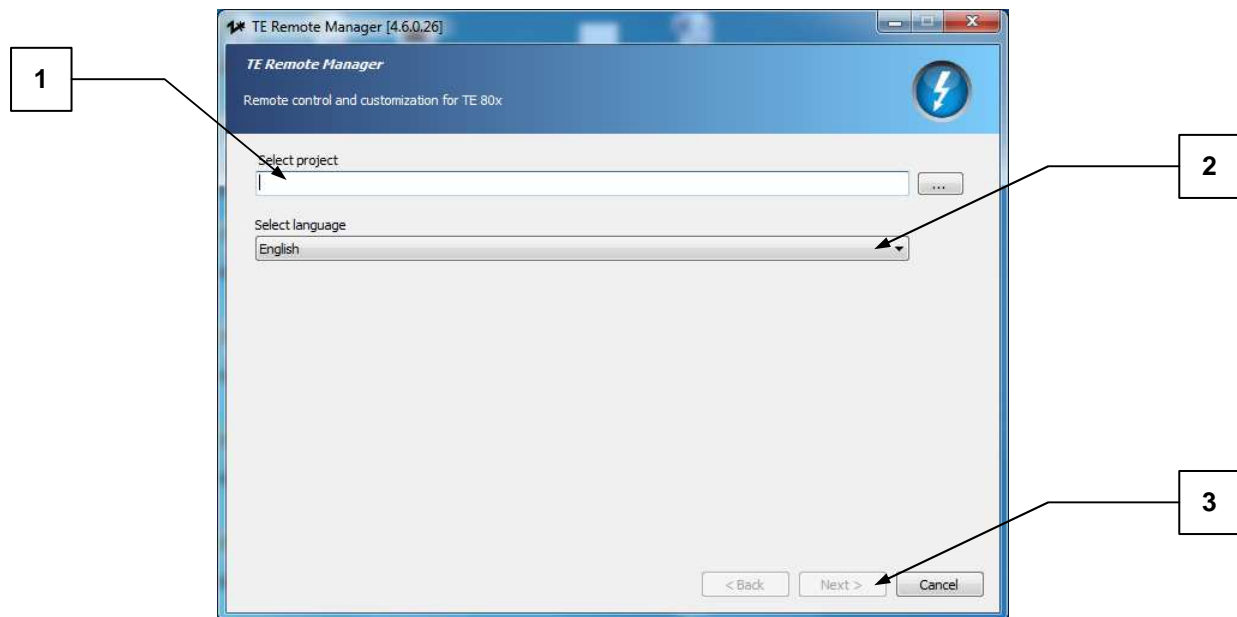
To install the TE809 remote control software ("TE809 Monitor"), you must install the "TE809 Utilities" pack. Start the setup.exe file that you find in the CDRom, in the folder TE.FW.Utilities.

When installed, you can find all the programs pressing Start -> All programs -> Tecnoelettra -> TE Utilities software from your softwares list.

## 2 TE Monitor

Once you launch TE Monitor, follow the instructions by "TE809 Manager" tool that permits to access to the "TE809 monitor".

1. The software asks you the type of project installed on the TE809; find that file. You can find the version installed by factory on your TE809 in the CDRom, in the folder "Project file".
2. Select the language of the TE Monitor
3. When selected, press "next" to go ahead.



### 2- 1 Connection options

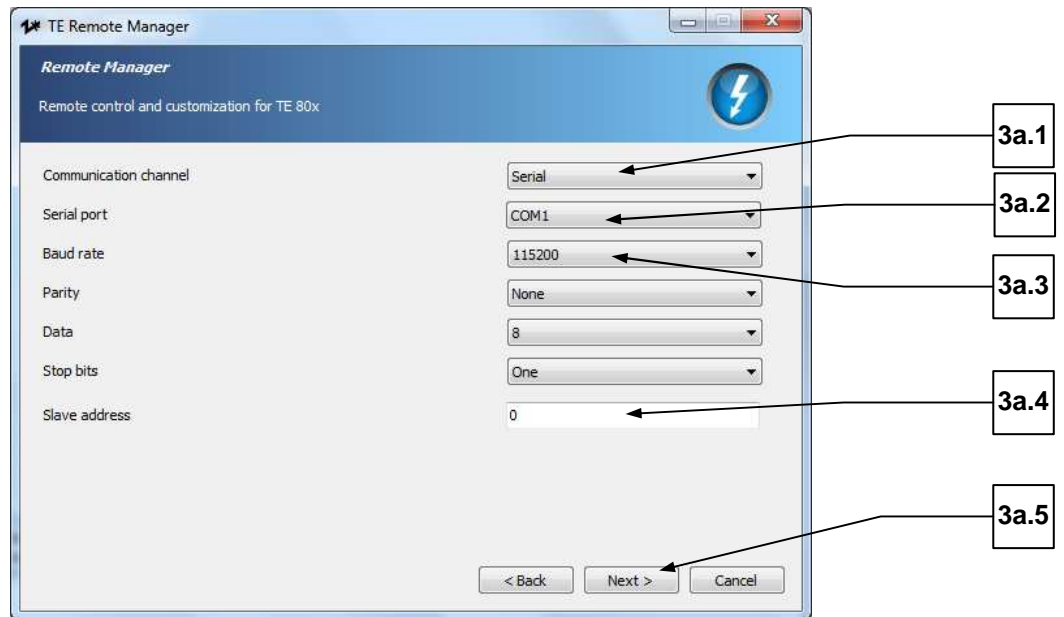
Then you will see a window for the choice of the type of connection between the PC and the TE809.

If you only want to prepare a setting file, you can select the "Offline" option. If you want to connect to the board and directly set the parameters or visualize the measures, choose a connection option (Serial, GSM, TCP/IP).

Note that the option USB cannot be chosen for the TE809.

### 2- 1.1 Procedure for standard TE809 via serial cable connected to a PC

You must use cable code 95-050.



3a.1. Select "Serial" as type of connection;

3a.2. Select the COM port number;

3a.3. Select the speed

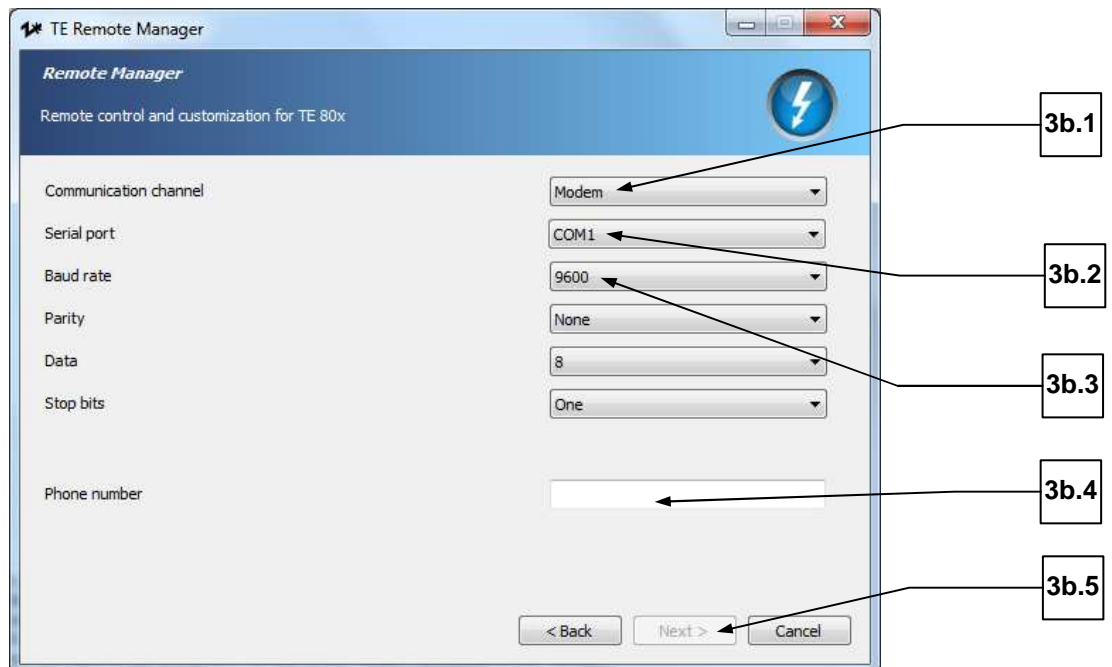
for RS232 connection, this parameter must be the same of Connectivity setup - par. E of the TE809. Par. D must be Modbus Slave for RS485 connection, this parameter must be the same of Connectivity setup - par. C of the TE809. Par. B must be Modbus Slave

3a.4. Only for RS485 connection: slave address that must be identical to parameter A of Connectivity setup of the TE809.

3a.5. Confirm "Next" to move forward;

### 2- 1.2 Procedure for communication via Modem

For this type of connection, it's necessary to connect a GSM modem to the TE809, and one to the OC.



3b.1. Select Modem as type of connection;

3b.2. Select the COM port number connected to the modem;

3b.3. Select the speed (the same of baud rate in "Connectivity Setup, parameter E of the TE809); in Connectivity setup also set the parameter D to GSM modem. The recommended speed is 9600 kbps;

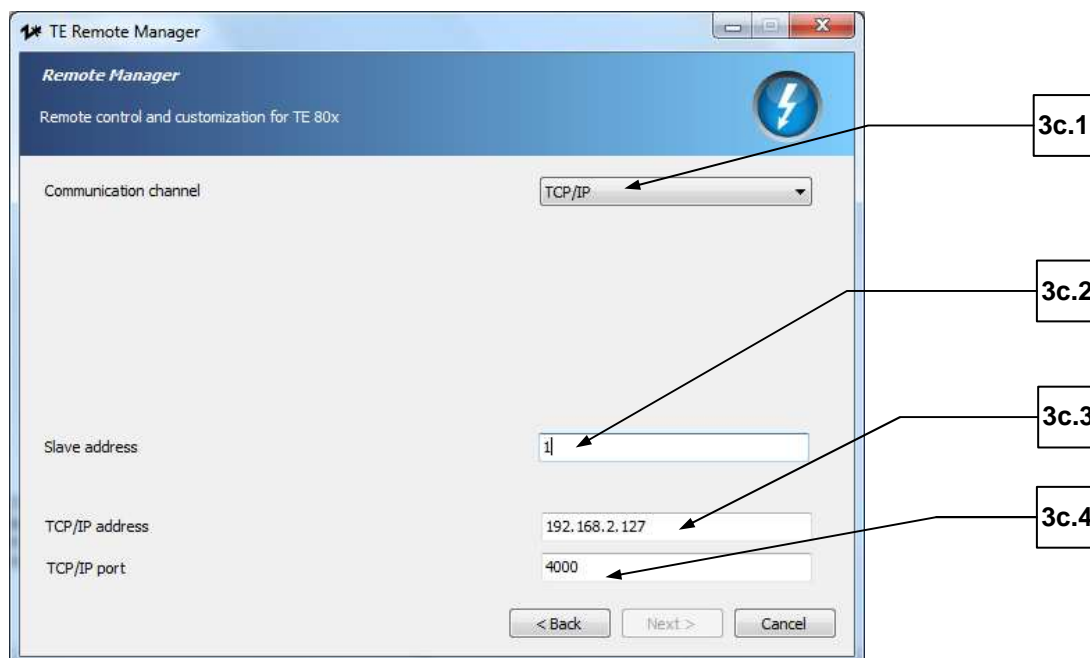
3b.4. Digit the number you want to call (the phone number of the modem connected to the TE809);

3b.5. Confirm with "Next"

Note: Modem Setup - if the modem connected to the PC does not allow communication, restore the default settings with AT Commands, using for example a common program like HyperTerminal:

```
ATE1
AT&F
AT+CPMS=SM,SM,SM
AT+CPMS=MT,MT,MT
AT+CPMS=SM,SM,SM
ATE0
AT&W
```

### 2- 1.3 Procedure for TE809 connection via TCP/IP converter (communication networks LAN / Ethernet)



- 3c.1. Select TCP/IP
- 3c.2. TE809 identification number (usually "1");
- 3c.3. IP address assigned to the network cable connected to the converter;
- 3c.4. Enter serial port number of the serial port on converter (always "4000");

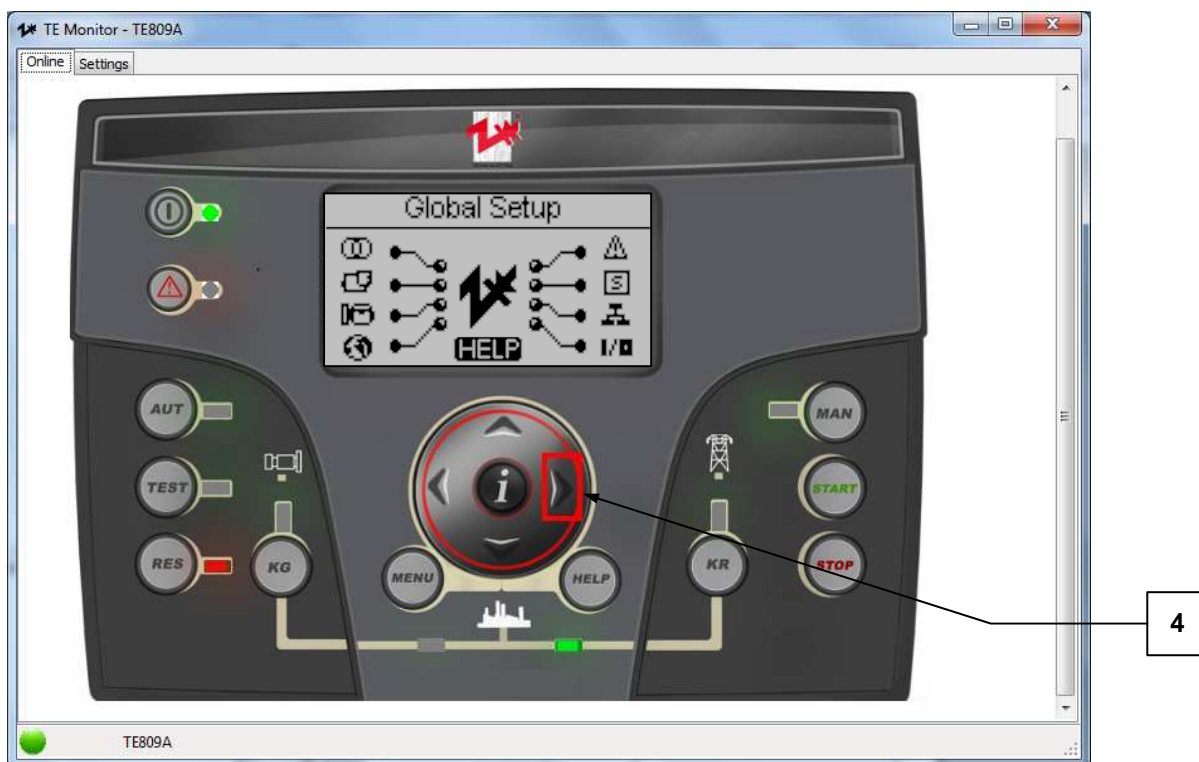
### 2- 2 On-line management

When you are Online, you can use the Remote Control Software with the same procedure normally used when you are in front of the controller TE809; you should use the mouse to act on the buttons. A red box will help you to locate the button you are selecting. The online management is selectable in the upper part of the window.

NOTE: The online option is not available if you select the Offline connection mode.

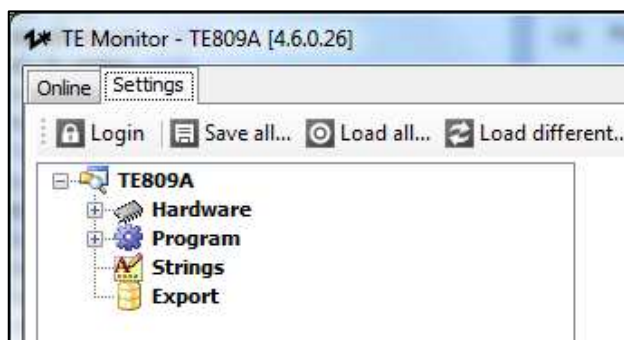


4. When you have your mouse cursor on buttons active, these are highlighted by a red square. Click the left mouse button to activate it.



## 2-3 Settings and measures

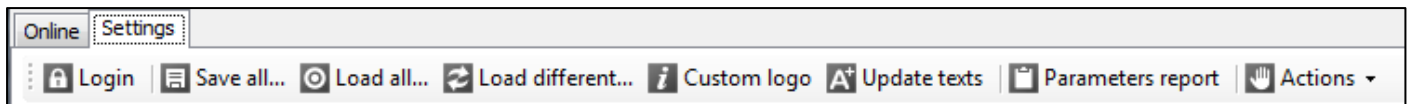
When you change the mode to "Settings", you can check all the measurements, all the states of input / output settings and the list log. This option is available also if you selected the Offline mode.



This window shows the name of the connected device (in this case TE809A), with 4 different sections:

- Hardware: this section shows the status of the inputs and outputs. There is also the possibility to create the "custom" curve for the three different analog sensors;
- Program: this section contains all the parameters of the controller divided in menus like they appear in the programming menus of the TE809. Also, here you can find the data-logger section and the events log;
- Strings: this section contains the alarms strings that can be changed and translated in the different languages. It's useful for the user alarms, that can be named with the proper name or definition;
- Export: section to export the values of the most important measures in an excel table;

## 2- 3.1 General commands



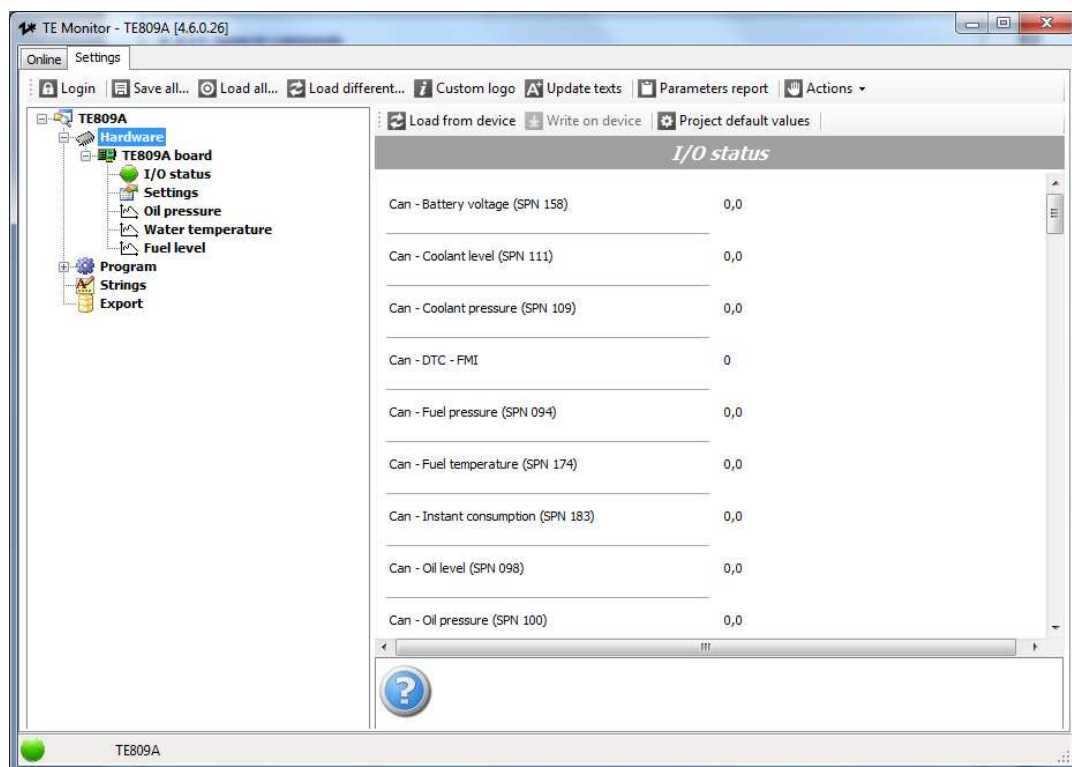
- Login: command used for the login. It's active only if the project is protected with a password. By default, the standard projects TE809A, TE809G and TE809Ats are not protected
- Save all...: command to save all the parameters, alarms and curves actually set in the controller in a .ters file.
- Load all...: command to load in the controller all the parameters of a .ters file
- Load different...: special command to load in the controller only some parameters of a .ters file. The parameters that will be inserted in the controller are only the parameters of the .ters file that are different from the default values present in the project used to connect to the controller, i.e the same project used at paragraph 4-2, point 1.
- Custom logo: command to insert a customized logo in the controller. It will be visible at the turn on of the controller. Choose the desired logo (it must be 128x64 pixel, .bmp format, monochromatic)
- Update texts: command to modify the languages in the second, third and fourth position of the controller. The first language, english, cannot be modified. You can open a dedicated file. Please ask to Tecnoelettra the file for the modification of the language.
- Parameters report: command to create a printable list of the parameters
- Actions:
  - a) Synchronize date: command to store the date and time of the PC inside the controller
  - b) Alarms reset: command to reset the actual active alarms on the controller

## 2- 3.2 Hardware section

The hardware section is composed by:

- I/O status: section to visualize the measures, and the status (green light when active, red light when not active) of the inputs, outputs and led indications.
- Settings: contains the time during which the measures must remain fixed to be revealed in the statistics pages
- Instruments curve: dedicated sections to set the customized curves

### 2- 3.2.1 I/O status

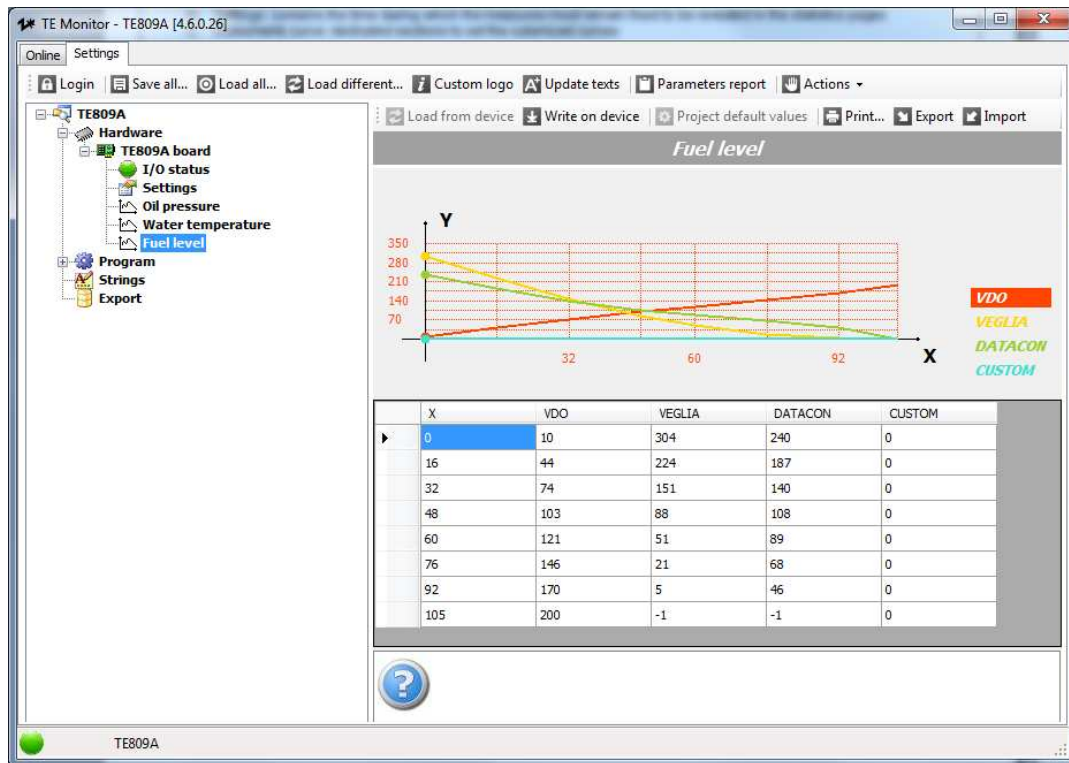


In this section you will see all the analog measures, the status of the digital inputs and outputs, the measures via Canbus and the status of the led indications.

The data are not requested to the controller in real time. To see all the actual measures and status press "Load from Device".



## 2- 3.2.2 Curves customization



In the sections:

- Oil pressure
- Water temperature
- Fuel level

It's possible to set the desired curves of the instruments.

The X values are preset and represent the value that you will see on display (oil pressure, water temperature or fuel level).

The VDO, VEGLIA and DATCON values cannot be changed and represent the resistance (ohm) values correspondent to the X point on the left.

The CUSTOM values can be modified to create the desired curve.

After the modification, it's possible to:

- Save the curve on the controller: press "Write on device" → the custom curve of the instrument will be set in the controller. For example, if you modified the fuel level curve, pressing "write on device", the new curve will be stored as a custom curve for the fuel level. To activate it, go to "Fuel setup" in the TE809 controller, and modify the parameter A (Analog tool type) to "Custom". For the oil pressure, go to "Oil setup" in the TE809 controller, and modify the parameter A (Analog tool type) to "Custom". For the temperature, go to "Temperature setup" in the TE809 controller, and modify the parameter A (Analog tool type) to "Custom".
- Print the curve: press "Print"
- Export the curves in a .ai file: press "Export"
- Import the curves from a .ai file: press "Import"

Export function is very useful to save different files with all the possible curves.

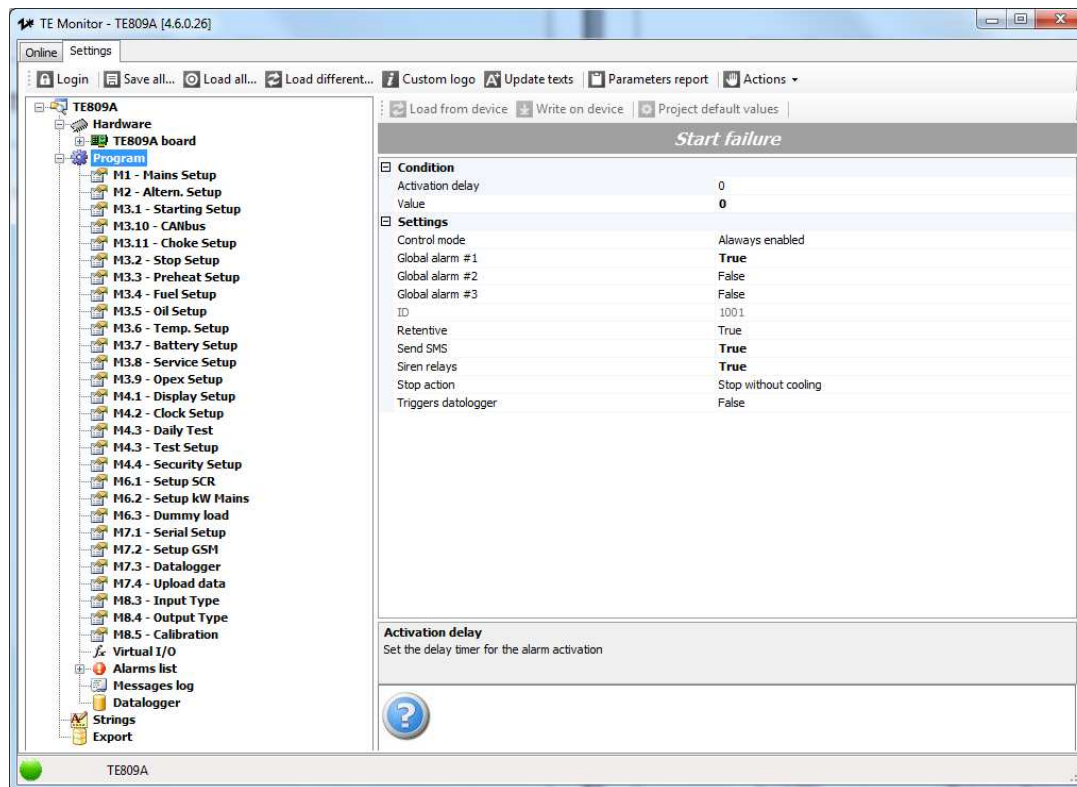
Import function can be used to load one of the desired curves, depending on the sensor used on the machine.



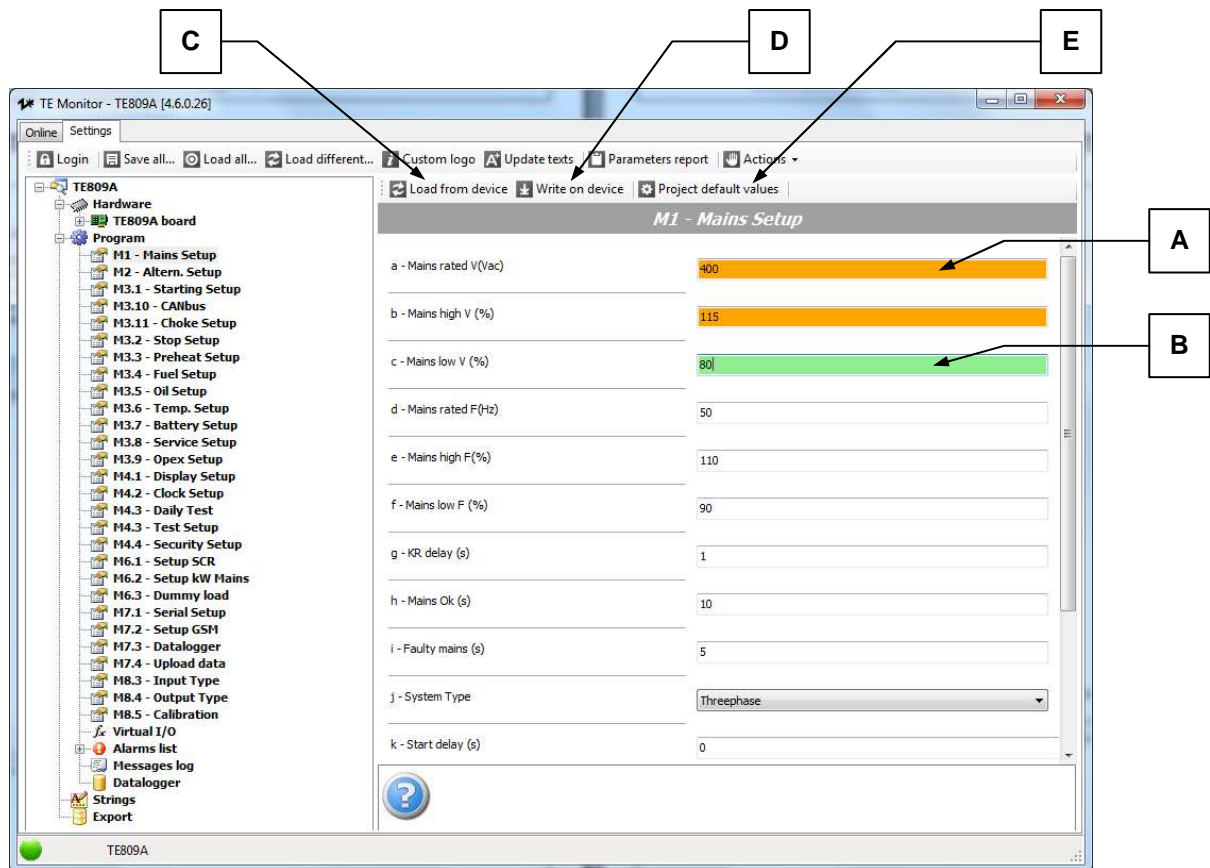
### 2- 3.3 Program section

The program sections contains all the programming menus, with order and numeration as in the TE809 controller. The available sections are:

- Programming menus (from M1 to M8.5)
- Fx Virtual I/O: it permits to modify the functions associated to the programmable inputs and outputs
- Alarms list: it permits to modify the parameters of all the alarms
- Messages log: section to visualize the events log of the controller
- Datalogger: section to save the desired measures in a dedicated memory



### 2- 3.3.1 Programmation menus



All the menus from M1 to M8.5, except for the alarms and the I/O programming, can be found in this section.

When you open one of the menus you will see all the values actually stored in the TE809.

It's possible to load the default values of the controller, pressing "Project default values" (E). In this case all the parameters that differ from the default are highlighted in orange, and you will see the default value (A).

To change a parameter, click on the value that you want to modify and change it as you prefer. To confirm it, press "Enter" on your keyboard. The parameter will be immediately highlighted in green (B).

To complete the downloading of the modified parameters, press "Write on device" (D).

**NOTE:** only the parameters highlighted in green will be downloaded in the controller. So, if you loaded the project default values with the button "Project default values", to download them in the controller, press "Enter" on all of them, so that they will be highlighted in green, before pressing "Write on device".

The parameters are not read from the controller in real time, so it's possible to load them in any moment pressing "Load from device" (C).

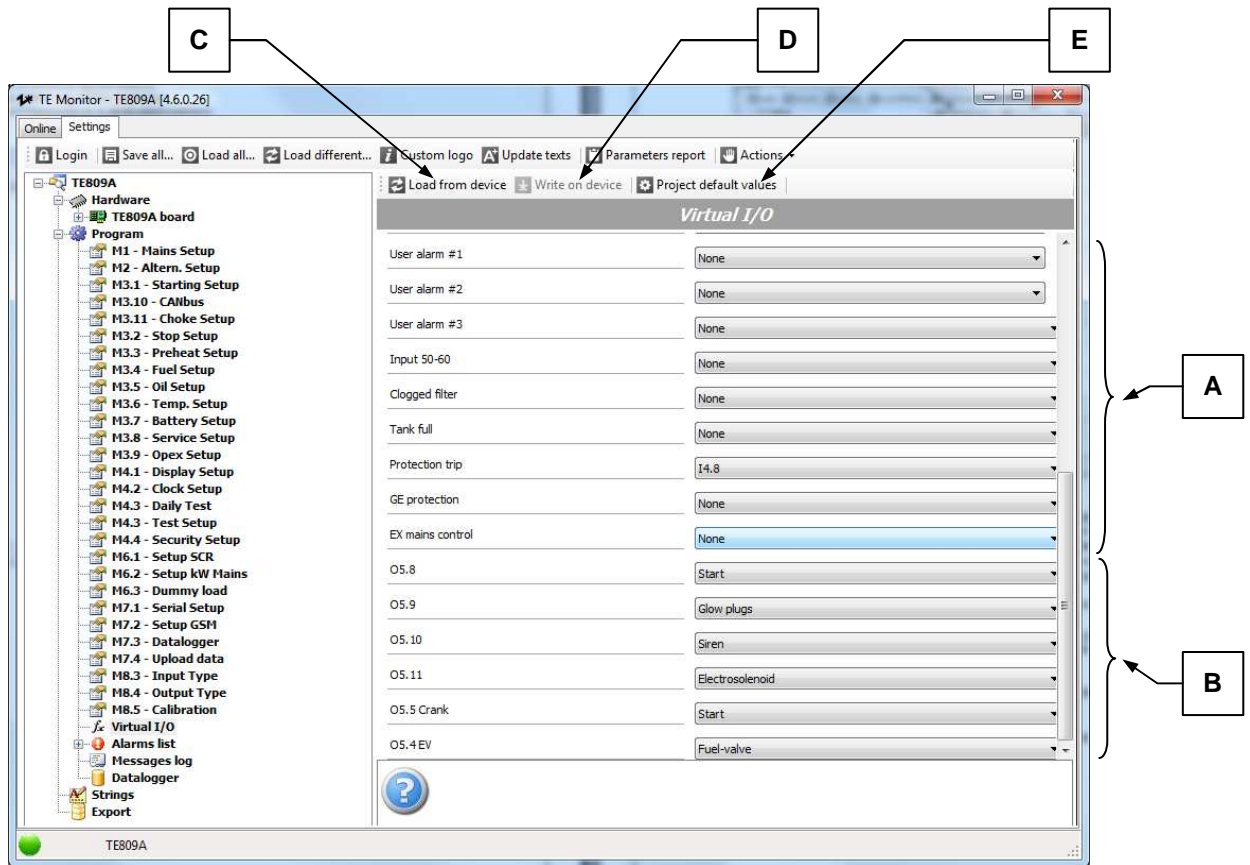
**NOTE:** If you change the selected menu, all the modifications (green and orange parameters) will not be saved.

### 2- 3.3.2 Fx Virtual I/O

This section allows the programming of all the programmable inputs and outputs. When you open this menu you will see all the values actually stored in the TE809.

It's divided in 2 parts:

- Input programming (A): all the possible functions that can be associated to the digital inputs of the controller are listed. For each of them it's possible to select the input dedicated to that function.
- Output programming (B): all the programmable outputs of the controller are listed. For each of them it's possible to select the function for that output.



It's possible to load the default values of the controller, pressing "Project default values" (E).

The data are not requested to the controller in real time. To see all the actual values press "Load from Device" (C).

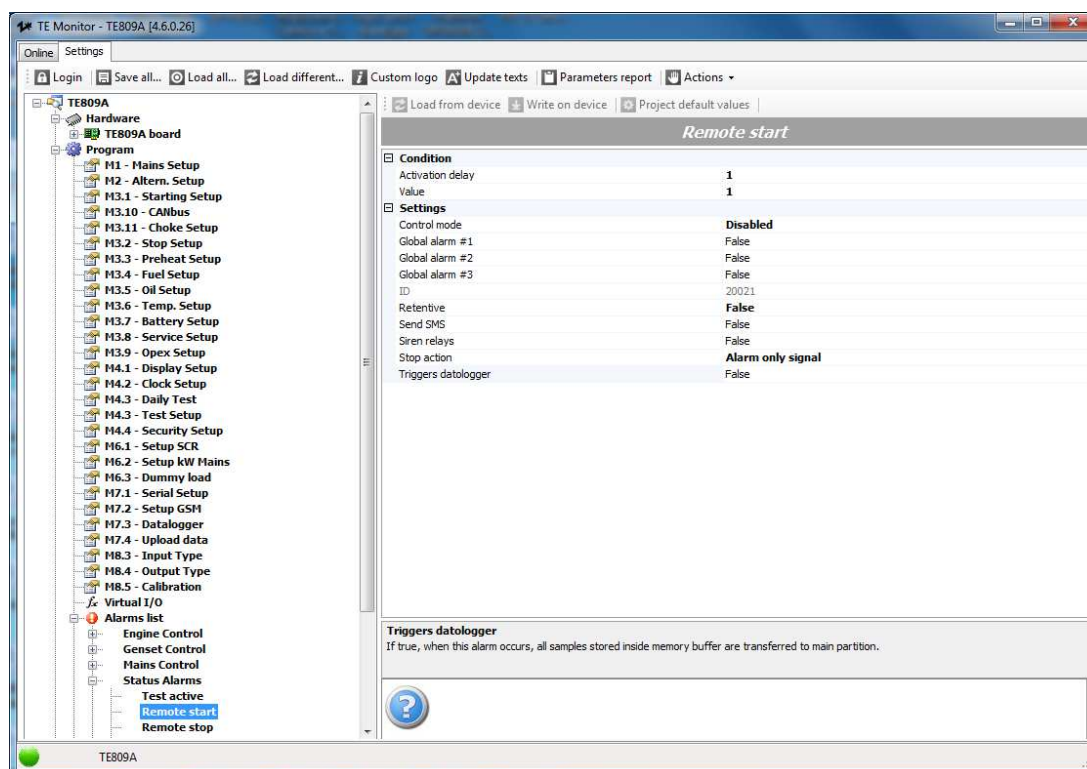
To complete the downloading of the modified parameters, press "Write on device" (D).

**NOTE:** The parameters loaded with "Project default values" are not automatically stored in the controller. You need to press "Write on device" to write them in the TE809.

### 2- 3.3.3 Alarms list

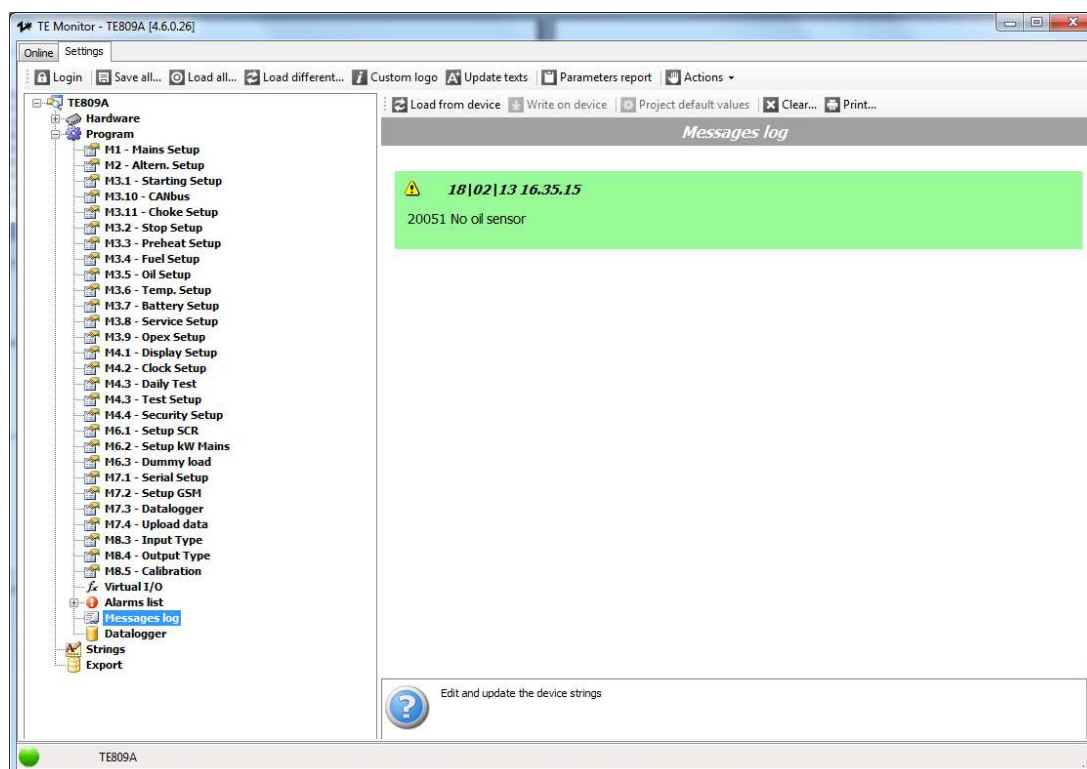
This section permits the modification of all the parameters of the alarms.

A part from all the parameters that you can set also directly from the controller, there is a parameter settable only by TE Monitor: Triggers datalogger: if True, the alarm forces the acquisition of a sample, if the datalogger function is activated.



To complete the downloading of the modified parameters, press "Write on device" (A).

### 2- 3.3.4 Messages log

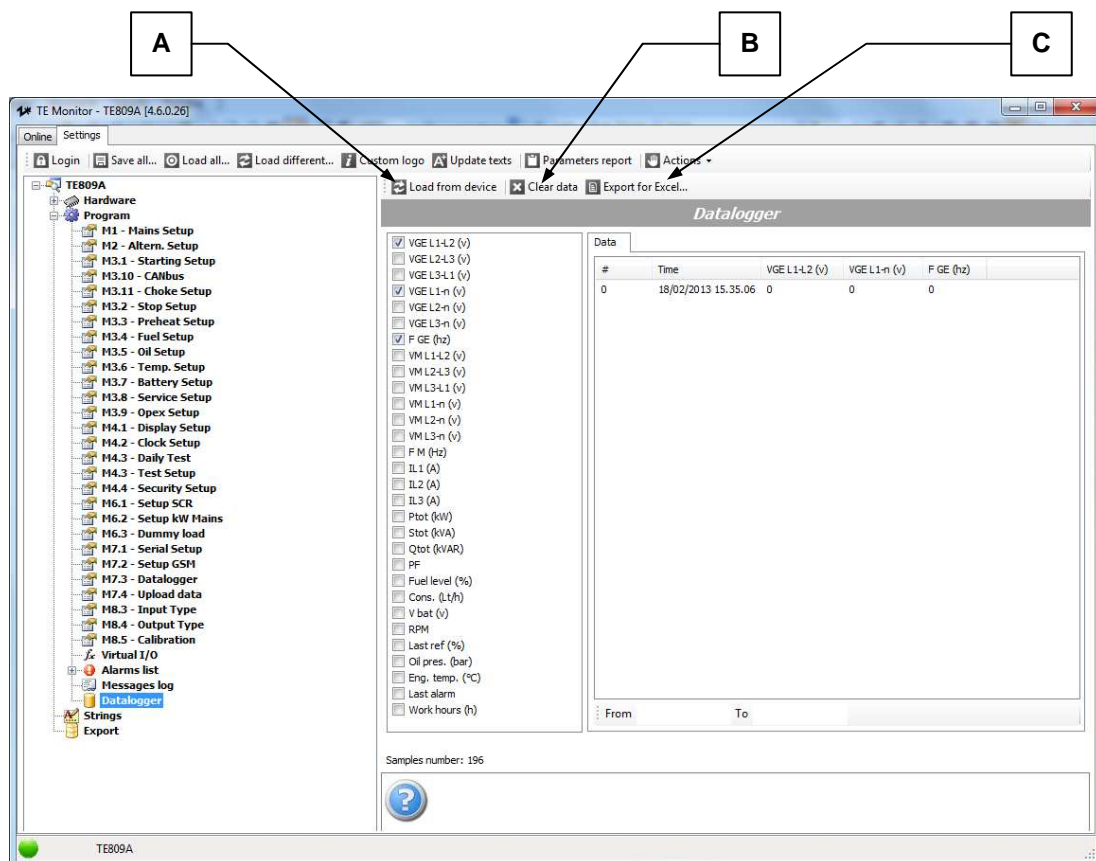
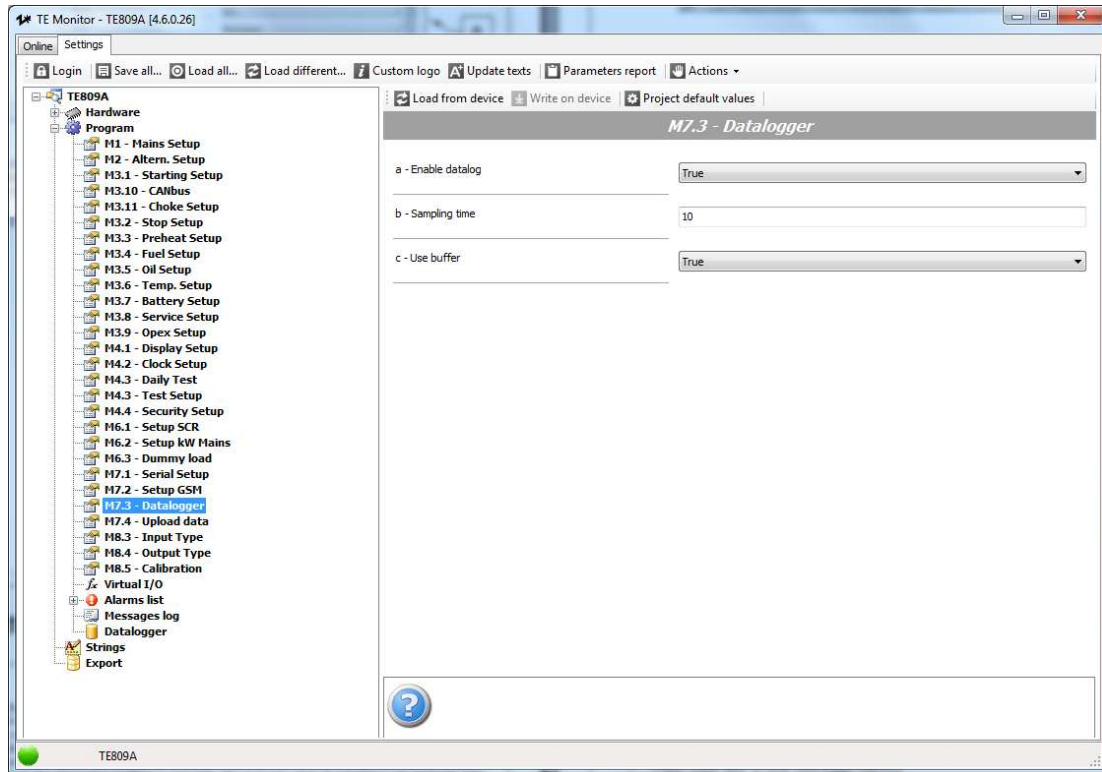


If you select "Messages log" you have access to events list stored on the board. All events are stored with date and time, with the message of explanation and a symbol that identifies if the message is a warning or an information;  
The events log can be reset by TE Monitor with the button Clear. It's also possible to print the events list with the Print button.

### 2- 3.3.5 Data-logger function

You can set the dedicated part of the memory for the data-logger function. The parameters, inside PROGRAM → M7.3 – Datalogger (dedicated menu not visible in the TE809 controller), are:

- Sampling time (5-65535s): you can program the number of seconds to detect datalogger values.
- Use buffer: if programmed at False, the memory will be filled FLAT MODE: each sampling timer cycle will trigger a data acquisition from datalogger; if programmed at True the memory will be filled BUFFER MODE: samples are stored inside buffered 20% of total capacity; when this temporary partition is complete, the average value of samples is saved inside 95% partition and the buffer is cleared to restart the sampling procedure. When a special alarm events happens, the whole buffer is stored inside 95% partition to have a more detailed understanding of the problem.
- Enable sampling: if True, the datalogger function is enabled and ready.



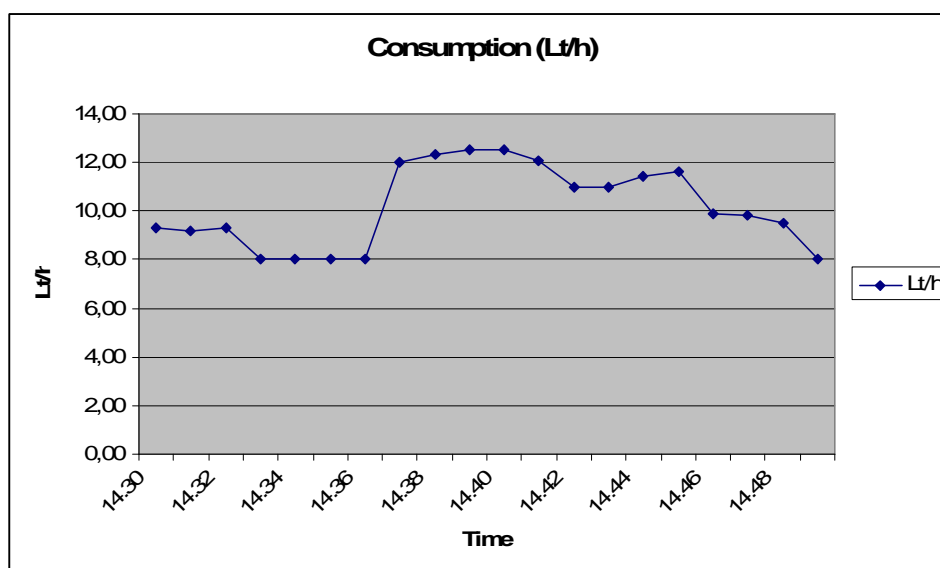
The data-logger section can be found inside the “Program” section. You can choose which of the available measures must be saved in the data-logger memory. Then, you can make the following actions:

- Press “Load from device” (A) to send data request to connected TE809, if data-logger function is enabled, data samples will be received and shown within few seconds;
- Press “Export for Excel” (C) to export all the data samples into an Excel compatible file. This way you can create trend graphics and stats;
- Press “Clear data” (B) to clear the data-logger memory.

The available variables saved inside datalogger memory are:

POS.	NAME	DESCRIPTION
1	VGE L1-L2 (v)	Generator phase 1 voltage
2	VGE L2-L3 (v)	Generator phase 2 voltage
3	VGE L3-L1 (v)	Generator phase 3 voltage
4	VGE L1-n (v)	Generator line 1 voltage
5	VGE L2-n (v)	Generator line 2 voltage
6	VGE L3-n (v)	Generator line 3 voltage
7	F Ge (Hz)	Generator frequency
8	VM L1-L2 (v)	Mains phase 1 voltage
9	VM L2-L3 (v)	Mains phase 2 voltage
10	VM L3-L1 (v)	Mains phase 3 voltage
11	VM L1-n (v)	Mains line 1 voltage
12	VM L2-n (v)	Mains line 2 voltage
13	VM L3-n (v)	Mains line 3 voltage
14	F M (Hz)	Mains frequency
15	IL1 (A)	Phase 1 current
16	IL2 (A)	Phase 2 current
17	IL3 (A)	Phase 3 current
18	PTot (kW)	Total active power
19	STot (kVA)	Total apparent power
20	QTot (kVAR)	Total reactive power
21	PF	Total power factor
22	Fuel level (%)	Fuel level percentage
23	Consumption (Lt/h)	Fuel consumption (last minute average)
24	V Bat. (v)	Battery DC voltage
25	RPM	Engine speed
26	Last ref. (%)	Last fuel refilling percentage
27	Oil pressure (bar)	Engine oil pressure
28	Engine temp. (°C)	Engine water temperature
29	Last alarm	Last alarm ID
30	Work hours (h)	Engine total work hours

Example of an excel graph created with the exported data:





## 2- 3.4 Strings

Selecting the “Strings” section, it’s possible to change the name and description of the user alarms, and the first characters of all the eventual alarms sent via SMS. After the modification of a string, press Enter then “Write on device”.

SET\_USER\_ALARMx\_DESC is the description of the user alarm x when it appears on display

SET\_USER\_ALARMx\_NAME is the name of the user alarm x when it appears on display

SMS\_SITE\_ID can be for example the name of the place in which there is the generator.

SMS\_GE\_NAME can be an identification symbol for the generator.

For example, SMS\_SITE\_ID = London, SMS\_GE\_NAME= G16, if appears the low coolant level alarm, the SMS message will be: London G16 20006 Low coolant level

SMS\_SERVICE\_NUMBER is the GSM service number for the telecom company (is already stored inside SIM card)

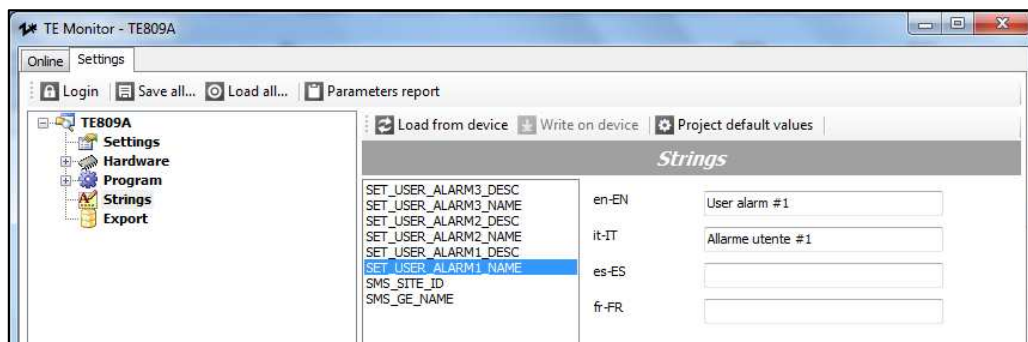
SMS\_PHONE\_NUMBER\_1 allows to see or modify a stored GSM number for alarm and info SMS

SMS\_PHONE\_NUMBER\_2 allows to see or modify a stored GSM number for alarm and info SMS

SMS\_PHONE\_NUMBER\_3 allows to see or modify a stored GSM number for alarm and info SMS

SMS\_PHONE\_NUMBER\_4 allows to see or modify a stored GSM number for alarm and info SMS

SMS\_PHONE\_NUMBER\_5 allows to see or modify a stored GSM number for alarm and info SMS



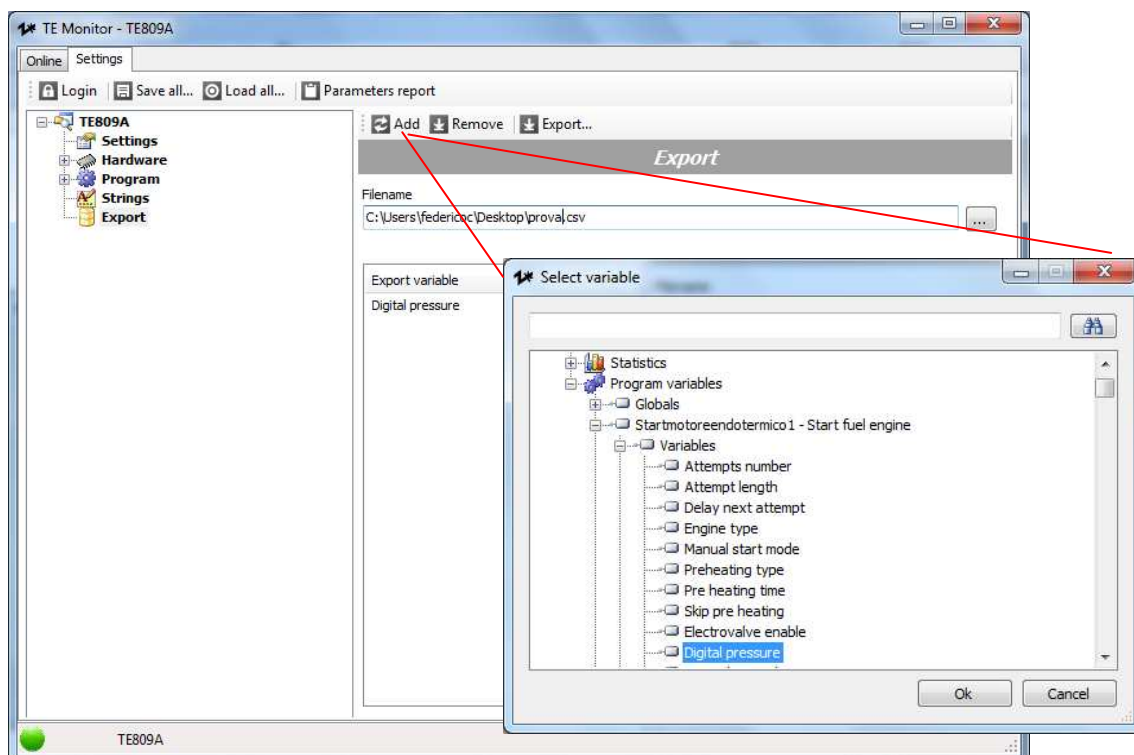
## 2- 3.5 Export

Selecting the “Export” section, it’s possible to save the state of any parameter or measure in an excel file.

Press the “...” button to create a .csv file that will contain the data.

Press “Add” to open a window for the choice of the parameter / measure that you want to monitor. You can repeat the operation to add any number of parameters / measures. The chosen variables are shown in the “export variables” field.

When you press “export”, TE Monitor saves the state of the variables in the .csv file, showing the date and time in the first column, and the value of the variables in the chosen order in the next columns. Every time you press “export”, TE Monitor adds a row in the .csv file.





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