MULTI-LINE 2
APPLICATION NOTES



Getting started - USW 1.x

- Software download from internet
- Software installation
- Device setup
- Data backup

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SW version:

1. Delimitation

1.1 Scope of Application notes, Getting started - USW 1.x

This document covers the following products:

- AGC from SW version 1.00.0
- BGC from SW version 1.00.0
- EC-1 from SW version 1.00.0
- GC-1 from SW version 1.00.0
- GPC from SW version 1.70.0
- GPU from SW version 1.70.0
- MDR-2 from SW version 1.00.0
- PPM from SW version 1.00.0
- PPU from SW version 1.70.0

Utility Software USW version 1.00.0 and later.

2. General information

2.1 Warnings, legal information and safety

2.1.1 Warnings and notes

Throughout this document, a number of warnings and notes with helpful user information will be presented. To ensure that these are noticed, they will be highlighted as follows in order to separate them from the general text.

Warnings

Warnings indicate a potentially dangerous situation, which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.

Notes

Notes provide general information, which will be helpful for the reader to bear in mind.

2.1.2 Legal information and disclaimer

DEIF takes no responsibility for installation or operation of the generator set. If there is any doubt about how to install or operate the engine/generator controlled by the Multi-line 2 unit, the company responsible for the installation or the operation of the set must be contacted.

The Multi-line 2 unit is not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.

2.1.3 Safety issues

Installing and operating the Multi-line 2 unit may imply work with dangerous currents and voltages. Therefore, the installation should only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.

Be aware of the hazardous live currents and voltages. Do not touch any AC measurement inputs as this could lead to injury or death.

2.1.4 Electrostatic discharge awareness

Sufficient care must be taken to protect the terminal against static discharges during the installation. Once the unit is installed and connected, these precautions are no longer necessary.

2.1.5 Factory settings

The Multi-line 2 unit is delivered from factory with certain factory settings. These are based on average values and are not necessarily the correct settings for matching the engine/generator set in question. Precautions must be taken to check the settings before running the engine/generator set.

2.2 About the Application Notes

2.2.1 General purpose

These Installation Instructions mainly include general product and hardware information, mounting instructions, terminal strip descriptions, I/O lists and wiring descriptions.

The general purpose of this document is to give the user important information to be used in the installation of the unit.

Please make sure to read this document before starting to work with the Multi-line 2 unit and the gen-set to be controlled. Failure to do this could result in human injury or damage to the equipment.

2.2.2 Intended users

These Installation Instructions are mainly intended for the person responsible for the design and installation. In most cases, this would be a panel builder designer. Naturally, other users might also find useful information in the document.

2.2.3 Contents and overall structure

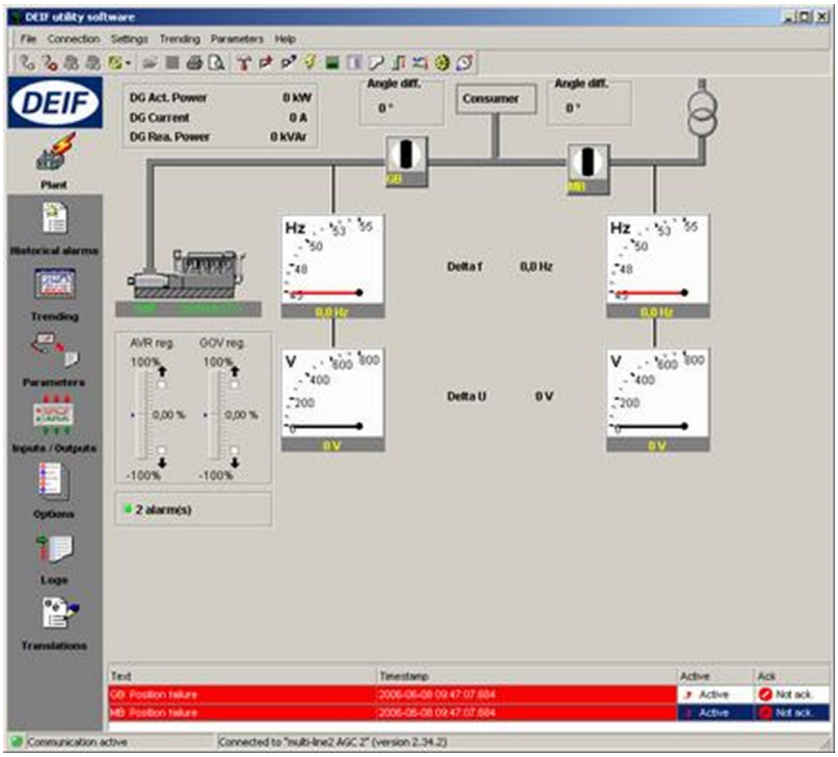
This document is divided into chapters, and in order to make the structure simple and easy to use, each chapter will begin from the top of a new page.

3. PC utility software

3.1 General information

The PC utility software (hereafter called USW) is a software programme that can be used for configuration of the Multi-line 2 products. There are two versions, 1.x and 3.x. This document will only be dealing with USW 1.x.

The utility software is the software that is installed on the PC, notebook or desktop computer.



3.2 Supported Windows systems

The following Windows versions are supported on both 32 and 64 bit platforms:

- Windows 8
- Windows 7
- Windows Vista
- Windows XP

3.3 Multi-line 2 products

The following DEIF-branded Multi-line 2 products can be programmed from the USW 1.x:

- AGC from SW version 1.00.0

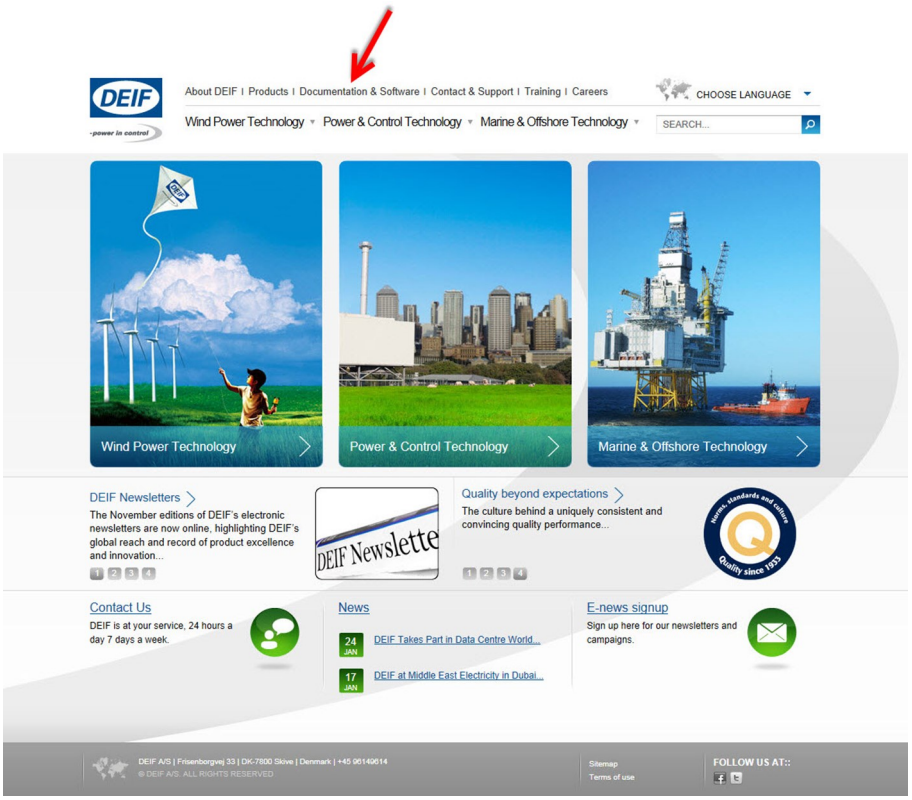
- BGC from SW version 1.00.0
- EC-1 from SW version 1.00.0
- GC-1 from SW version 1.00.0
- GPC from SW version 1.70.0
- GPU from SW version 1.70.0
- MDR-2 from SW version 1.00.0
- PPM from SW version 1.00.0
- PPU from SW version 1.70.0

3.4 Obtain USW from DEIF

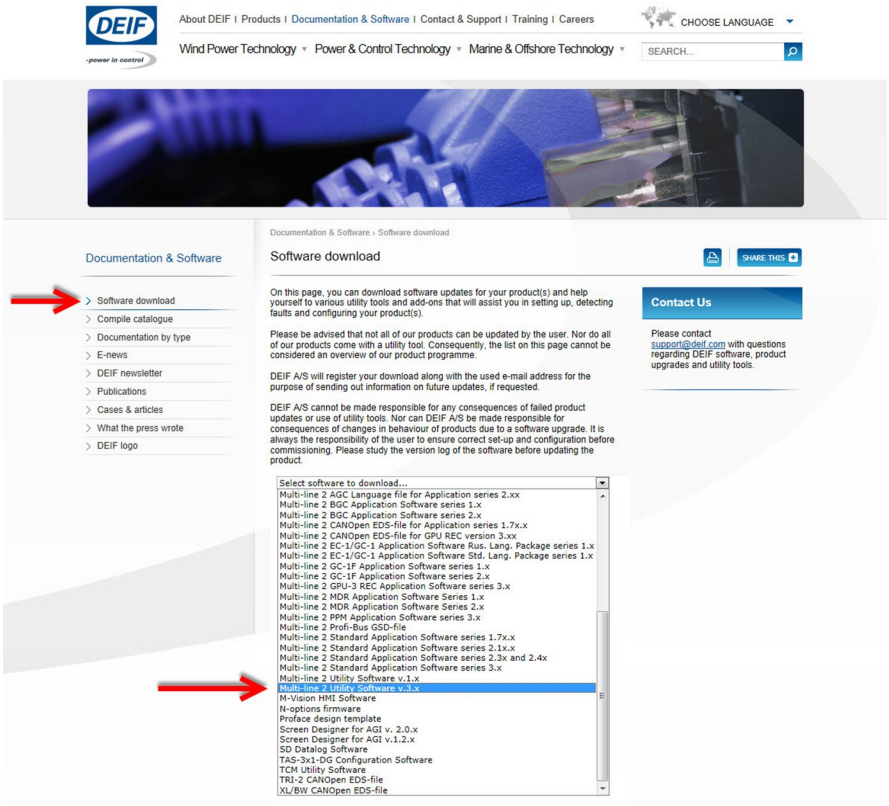
3.4.1 USW

The USW is normally obtained from DEIF via the internet. Visit www.deif.com.

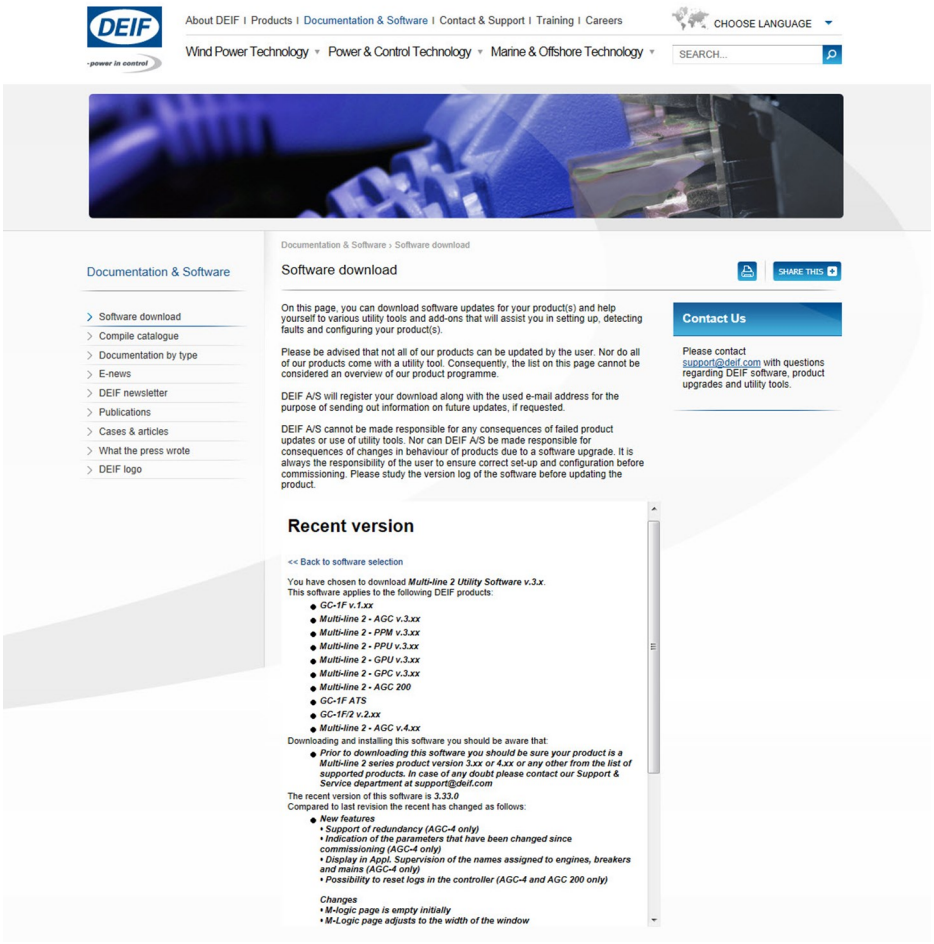
Select "Documentation & Software" from the menu on the top bar:



Select "Software download" and then select the desired software from the drop-down menu:



The example above shows utility software version 3.x.



Information about changes in the recent software compared with the previous version.

To receive the selected software, enter your e-mail address in the e-mail field and submit the request. Shortly afterwards, you will receive an e-mail containing a link to the file. Please follow the instructions in this e-mail carefully.
When the USW has been saved to your PC, the software can be installed by executing the file you just downloaded. Follow the instructions on the screen.

The installation process is not described further in this manual.

4. Multi-line 2 application software

4.1 General information

The application software (hereafter called ASW) is the software that is written in the ML-2 device.

When you receive the unit from the factory (DEIF A/S), software has already been downloaded, so it is ready to be parameterised with all necessary setpoints and adjustments.

4.2 Reason for upgrade

4.2.1 Main reasons

There are various reasons for upgrading the ML-2 device. The main reasons are:

1. To get new functions available in the latest SW version.
2. The software has an error (bug) that needs to be fixed for cosmetic or functional reasons.
3. To prepare several ML-2 units with the same software, so they are identical prior to forwarding.

Information about functions and bugs can be found on www.deif.com.

In most cases, it is not necessary to upgrade the units.

4.3 Precautions

4.3.1 Warning

Please read this section carefully before attempting to upgrade your units.

4.3.2 Genset condition

All software downloading to the ML-2 device must be carried out while the genset is at standstill.

4.3.3 Protection

All protections are deactivated during download.

4.3.4 Relay status

All relays are de-energised during download. Please check your diagrams carefully to understand the effect of this.

Status relay
Please check relay on terminals 3 and 4 (AGC, GPC, GPU, MDR-2, PPM and PPU only).

Other relays
BGC – please check relay for MB and GB contactor, terminals 3 and 4 plus 29 and 42.
EC/GC-1 – please check relay for MB and GB contactor and the status relay, terminal 10/11.
EC/GC-1M - please check relay for GB contactor and the status relay, terminal 10/11.

4.4 Application software

4.4.1 How to obtain ASW from DEIF

Please follow the description in the section "Obtain USW from DEIF".

5. Before writing new ASW

5.1 General information

During an installation of new ASW, the configuration of the unit will be lost. So if the configuration is to be reused, a manual procedure is to be followed. The following steps describe how to prepare upgrading of ASW from version 1.x. The procedure is to save the configuration to file before the installation of new ASW. After installation, the configuration can then be written back to the unit, and in that way the unit will have the same configuration as before the installation.

5.2 Application software, version 1.x

5.2.1 ASW 1.x

For units using the ASW version 1.x, the USW-1 must be used to save the different configurations. As it appears from the table below, the units have different sets of configurations. In the ASW version 1.x units, each configuration has to be saved individually in a separate file.

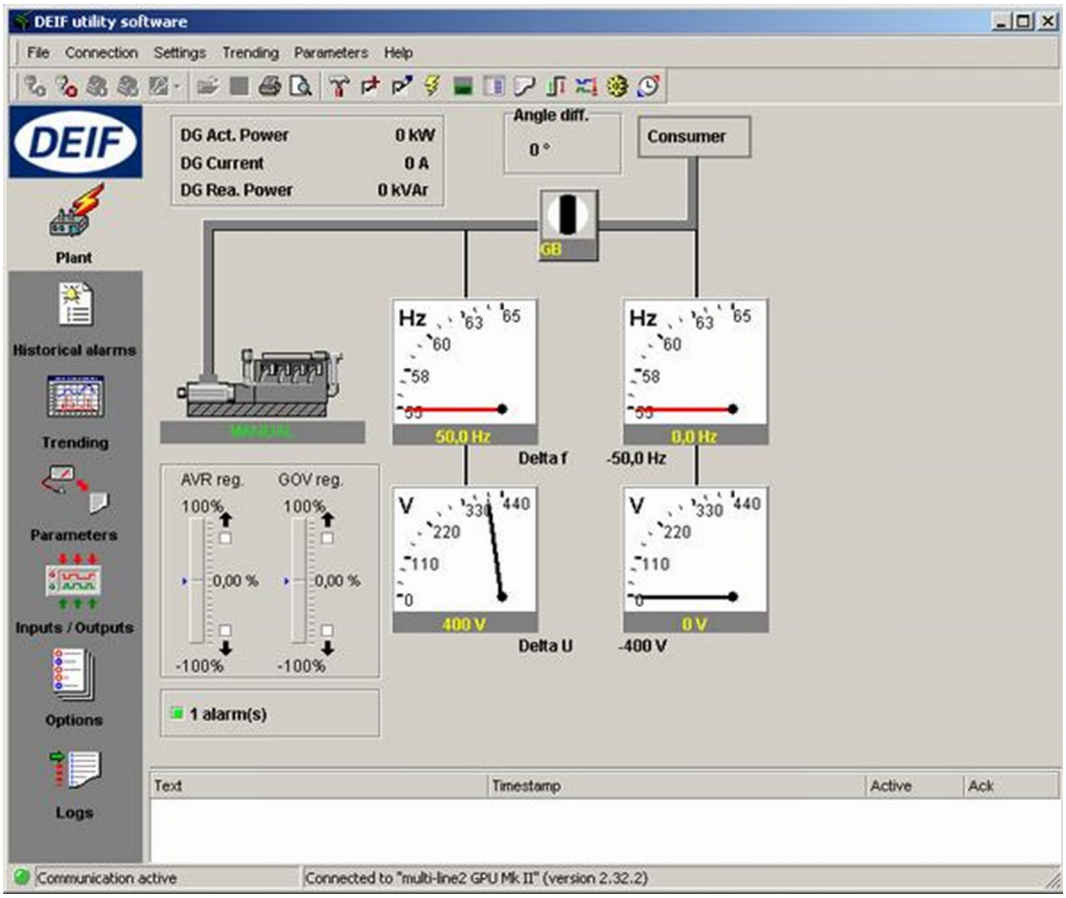
The available configurations of each unit:

	AGC	BGC	EC-1	GC-1	GPC	GPU	MDR-2	PPM	PPU
Parameter file	X	X	X	X	X	X	X	X	X
Input file	X	X	X	X	X	X	-	X	X
Output file	-	-	X	X	-	-	-	-	-
Inhibit file	-	-	-	-	X	X	-	X	X
Language file	X	X	X	X	-	-	-	-	-
M-Logic file	-	X	-	-	-	X	-	-	-
View file	X	X	-	-	X	X	X	X	X

5.3 Backup ASW 1.x

5.3.1 How to prepare backup for ASW version 1.x

All the backup work from the USW requires that the Multi-line 2 unit is connected to the PC. Open the USW and connect to your device with the green “connect” button in the menu “Connection”.



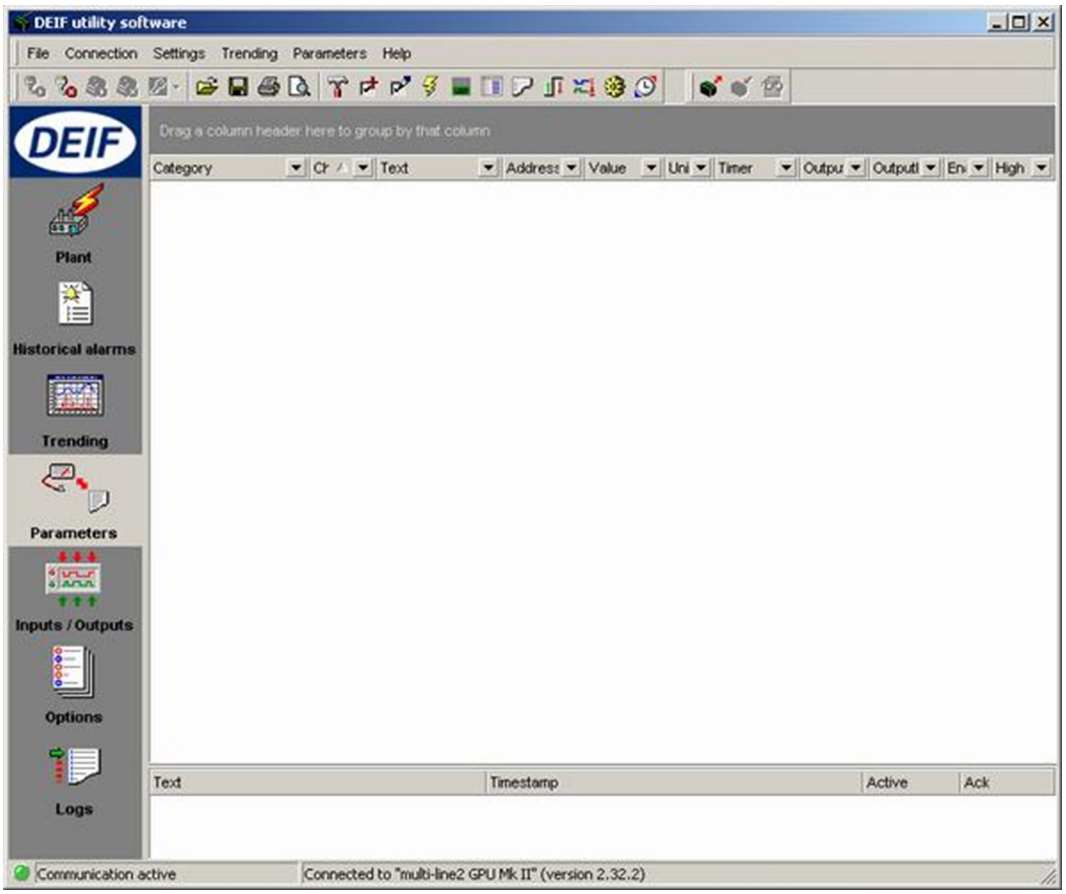
Now, the various files can be saved.

If you fail to save the parameters prior to SW download, they will be lost. They cannot be re-stored when the software has been downloaded.

5.4 Parameter file

5.4.1 How to save the parameter file

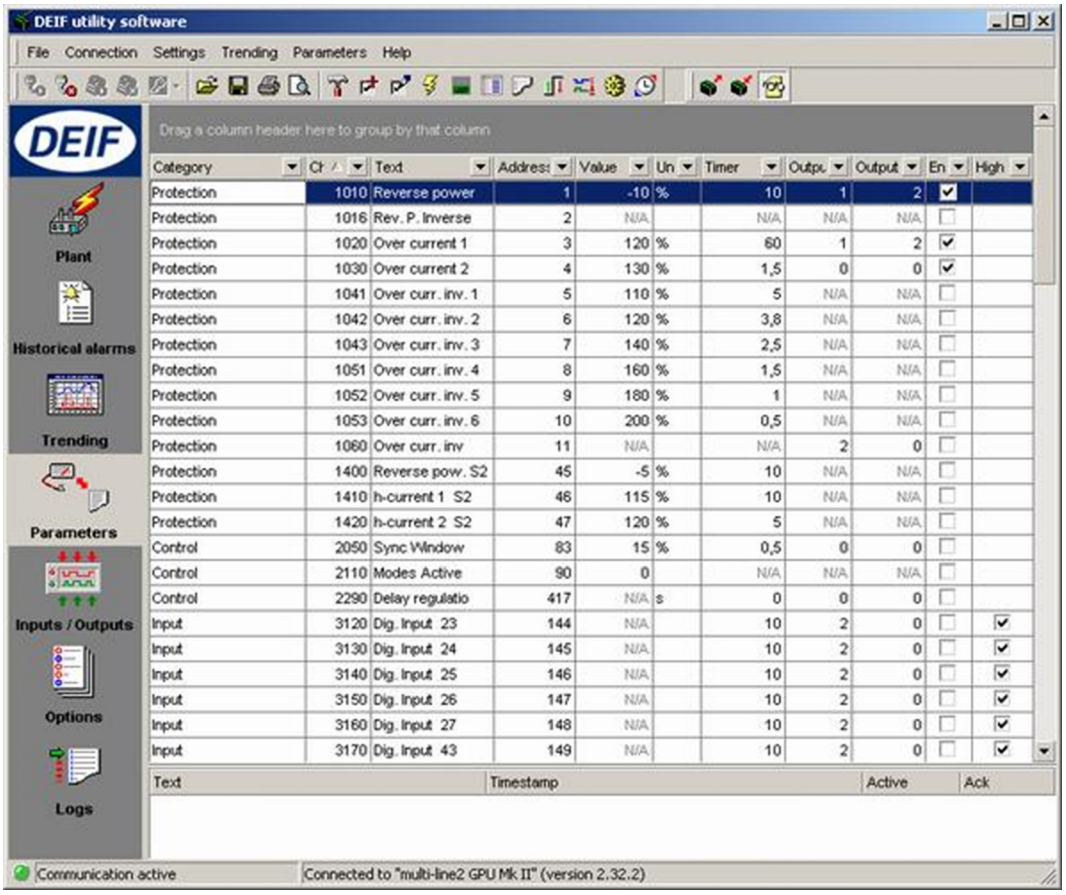
Open the USW and connect to your device. Select "Parameters" in the toolbar on the left.



Click the "upload" icon (marked with a red arrow) in the horizontal toolbar.

Now, the parameters are being uploaded from the device.

When the upload has been completed, the screen will show the parameters that have just been retrieved from the device.



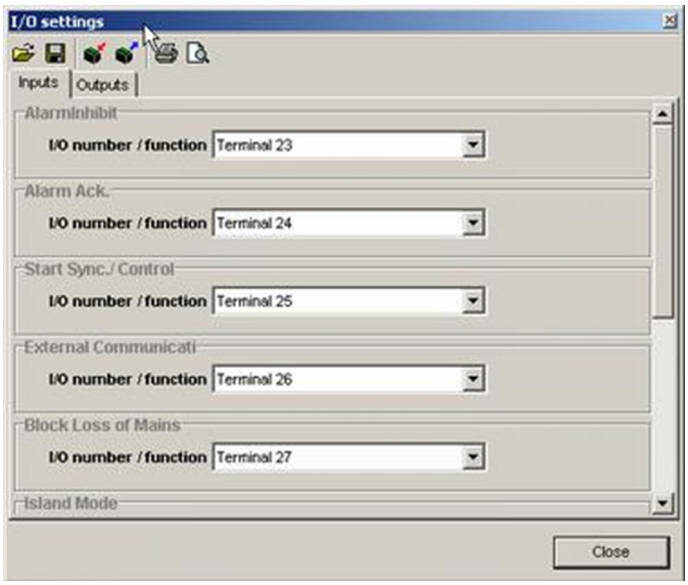
Click the "save" icon in the horizontal toolbar to save the file.

5.5 Input file

5.5.1 Input file

Open the USW and connect to your device. Open the menu "Settings" and select "Inputs/Outputs".

The following dialogue box pops up:



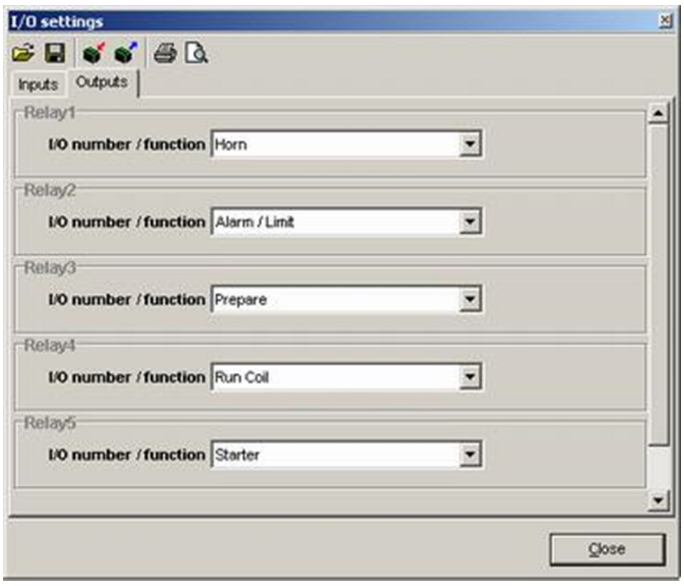
Click the "save" icon in the horizontal toolbar to save the file.

5.6 Output file

5.6.1 How to save the output file

Open the USW and connect to your device. Open the menu "Settings" and select "Inputs/Outputs".

The dialogue box shown below pops up. Select "Outputs" by means of Ctrl + Tab.



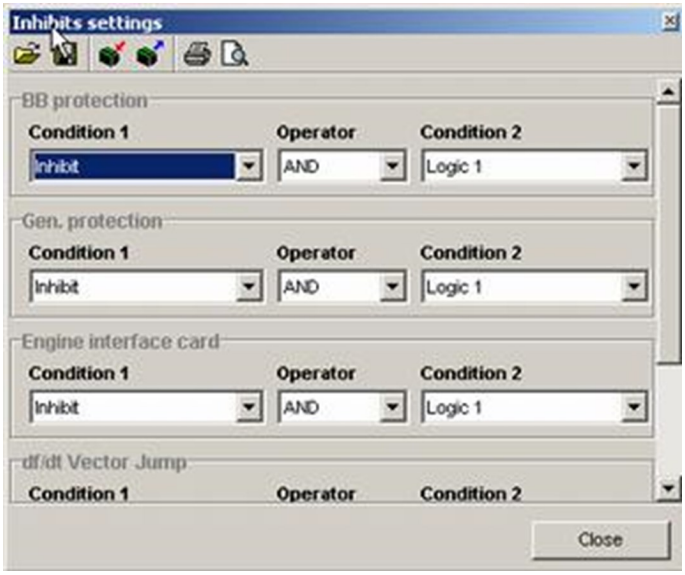
Click the "save" icon in the horizontal toolbar to save the file.

5.7 Inhibit file

5.7.1 How to save the inhibit file

Open the USW and connect to your device. Open the menu "Settings" and select "Inhibits".

The following dialogue box pops up:



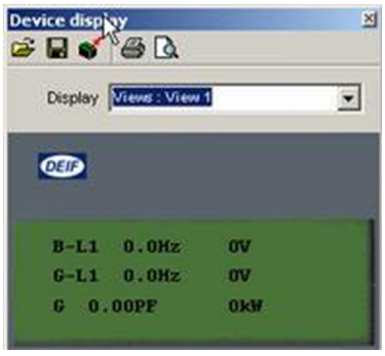
Click the "save" icon in the horizontal toolbar to save the inhibit settings.

5.8 View file

5.8.1 How to save the view file

Open the USW and connect to your device. Open the menu "Settings" and select "Views".

The following dialogue box pops up:

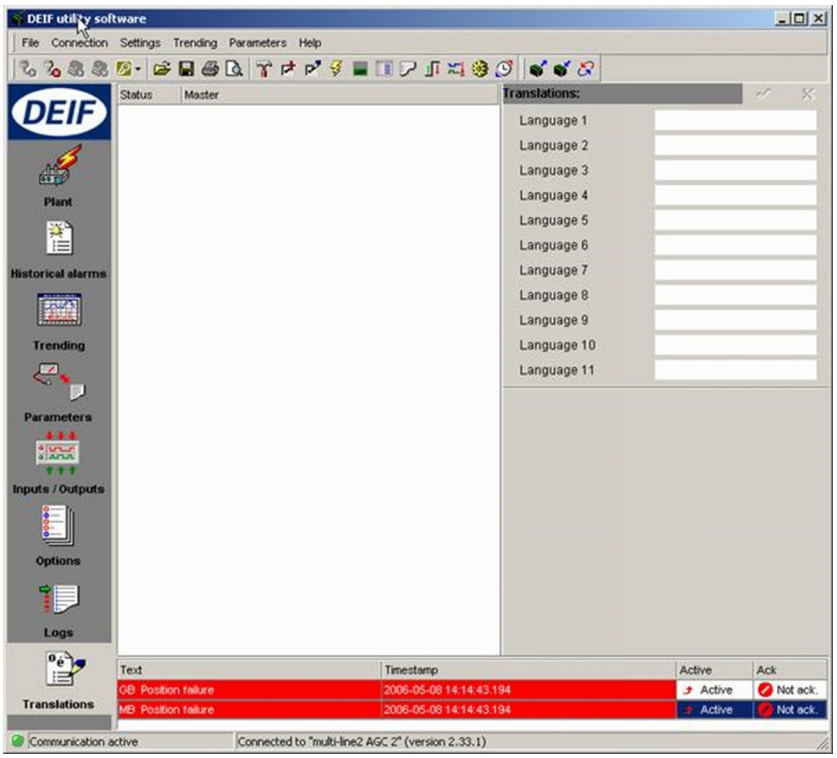


Click the "save" icon in the horizontal toolbar to save the file.

5.9 Translations file

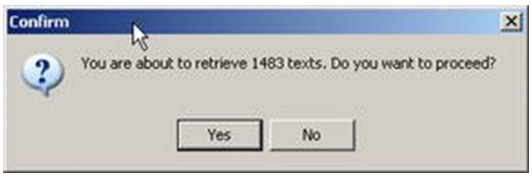
5.9.1 How to save the translations file

Open the USW and connect to your device. Select the "Translations" menu in the toolbar on the left.



The screen is empty because the languages are not uploaded from the device. Upload the languages by clicking the "upload" icon in the horizontal toolbar.

You will be prompted several times during the upload.



Click "Yes" to start uploading the languages available in the device.

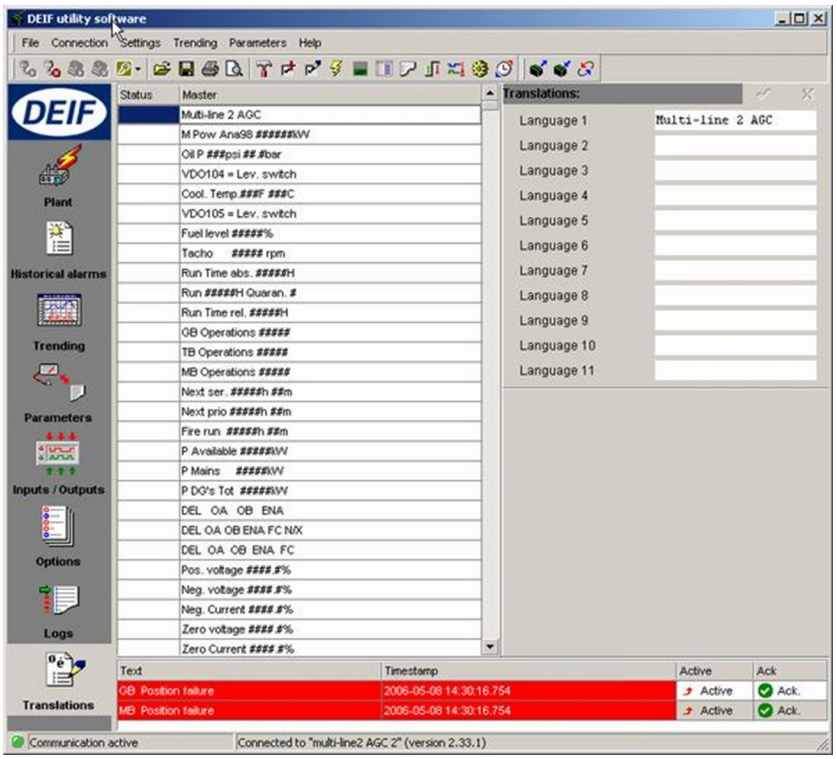
Click "Cancel" if you regret the data transfer.

Click "Yes" if languages are already programmed in the device.
Click "No" if only the master language is programmed in the device.

Click "Cancel" to regret the data transfer.

Click "OK".

The USW now looks like this:

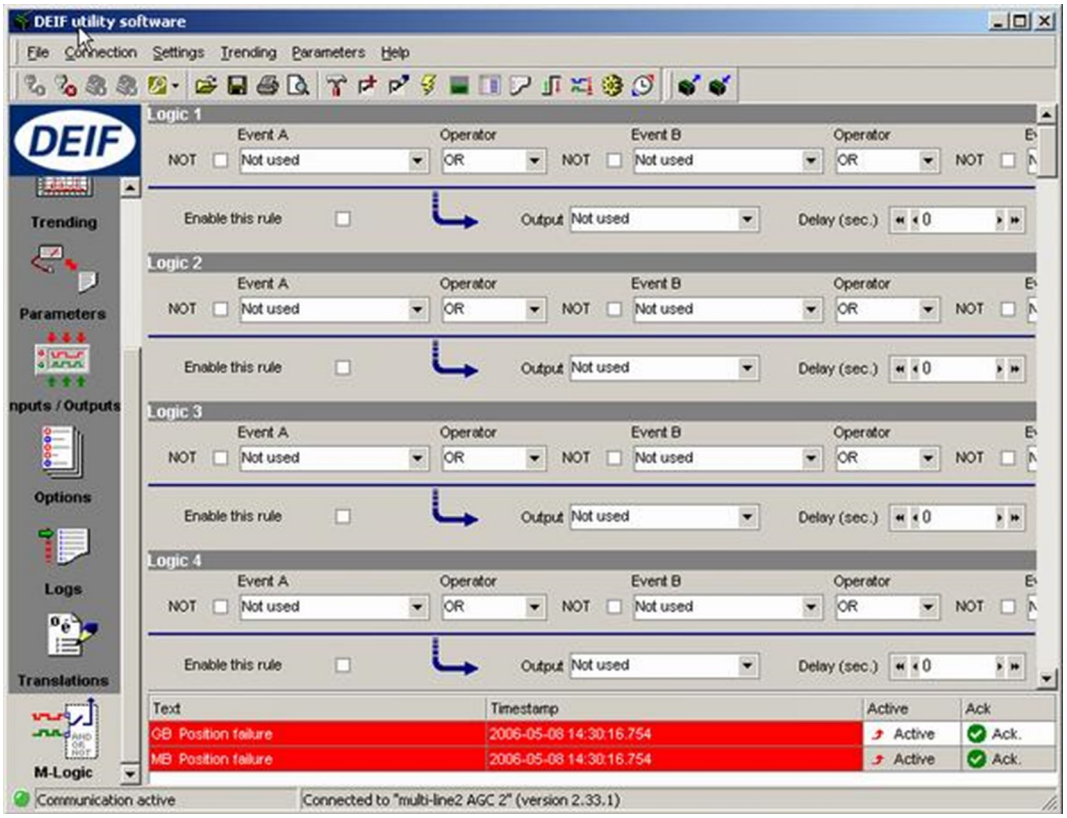


Click the "save" icon in the horizontal toolbar to save the language file.

5.10 M-Logic file

5.10.1 How to save the M-Logic file

Open the USW and connect to your device. Select the menu "M-Logic" in the toolbar on the left. (Press Alt + F1 if it is not visible).



Click the "save" icon in the horizontal toolbar to save the file.

6. Upgrading ASW

6.1 General information

Before attempting to download application software to the device, please read the chapter "Before writing new ASW" for instructions about how to save the present configuration.

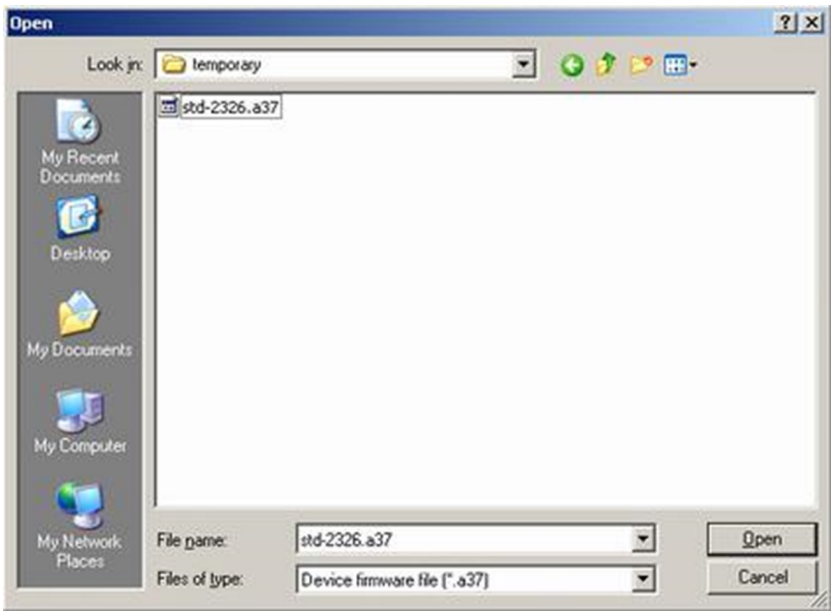
If you fail to save the parameters prior to SW download, they will be lost. They cannot be re-stored when the software has been downloaded.

6.2 ASW version 1.x

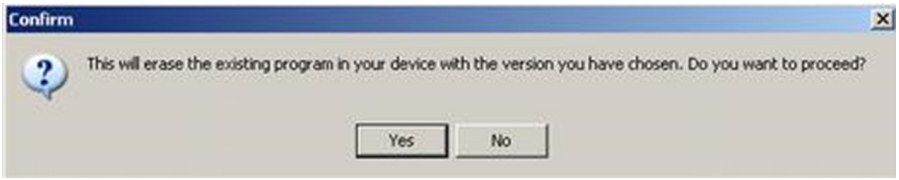
6.2.1 Download of new ASW to unit

Start the download by clicking the "flash" icon in the horizontal toolbar to programme the new firmware.

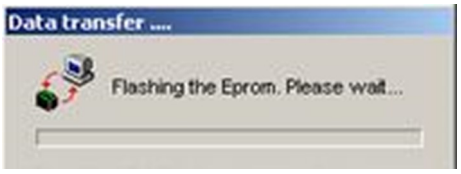
Select the software you have downloaded to your PC and open it.



Confirm (or deny) that you really want to replace the device with new application software.



The screen informs you about the download.

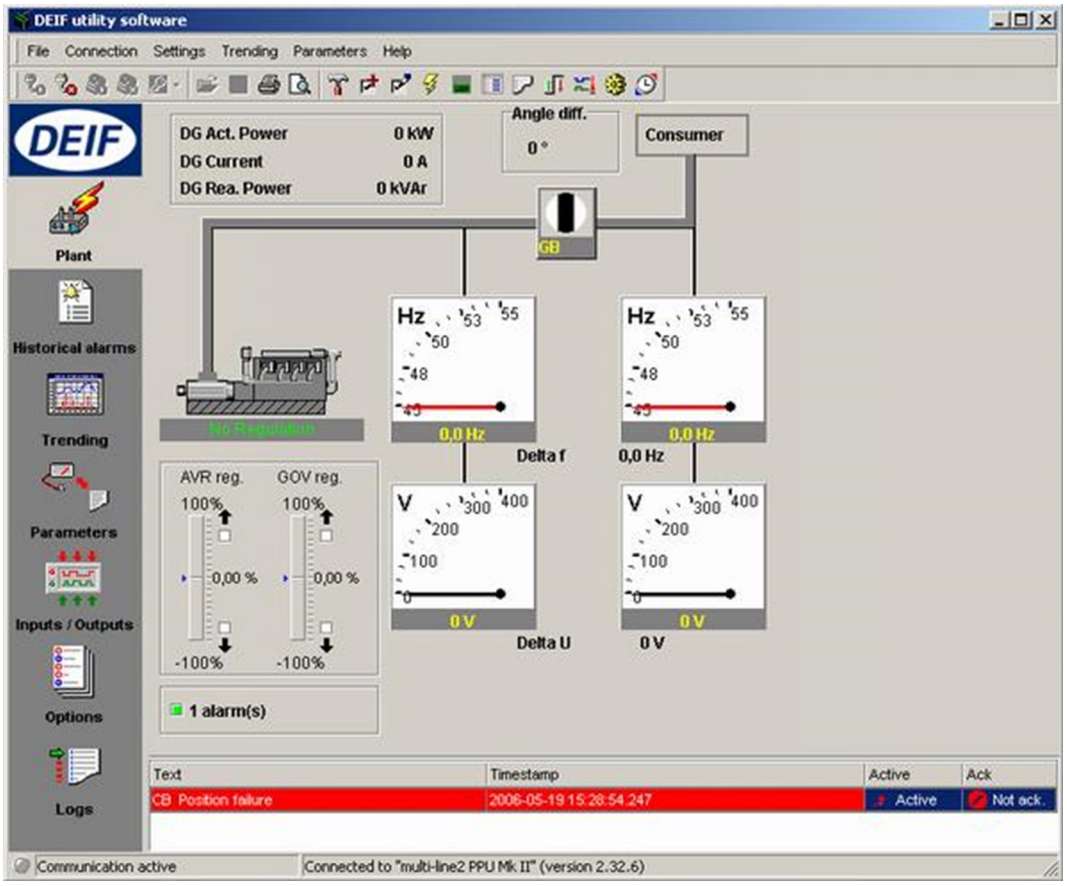


The display shows a display message.

When the download is complete, the unit needs to be fully programmed.

If you fail to programme the device after the download, it will not be ready for operation.

After the download, you can confirm the Multi-line 2 type and software version in the status line.



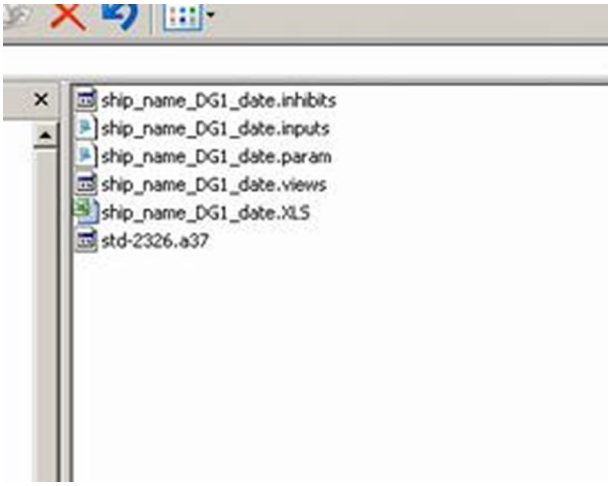
6.3 Download of saved parameters to the unit

6.3.1 How to download saved parameters to the unit

The Multi-line 2 unit can be programmed using the display (partial programming only) or the PC utility software. Programming of the unit is mainly required in the following cases:

1. Setup of new unit
2. Setup after software upgrade
3. Change of setup in existing unit

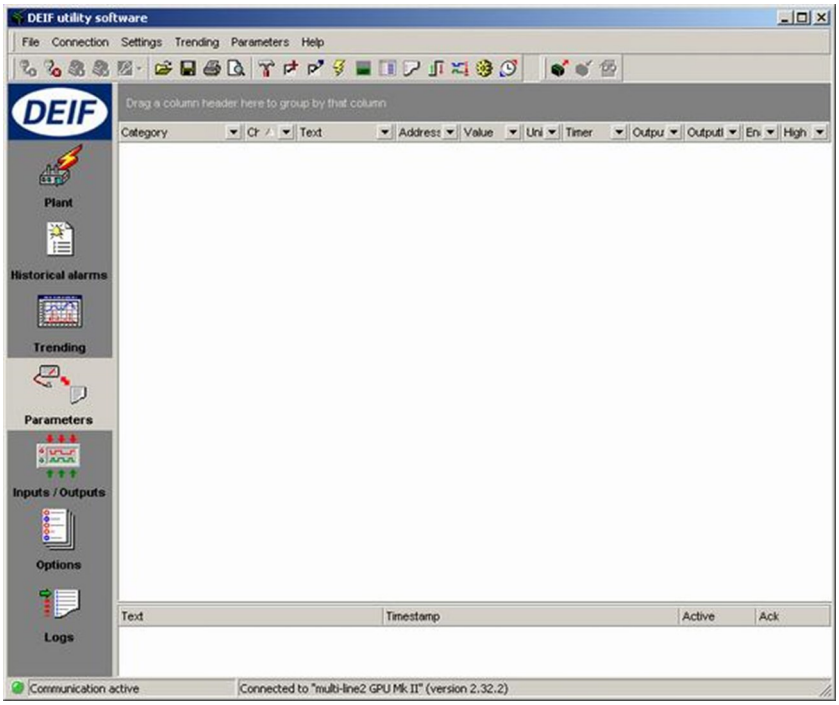
This describes the setup after software upgrade. Therefore, please keep in mind that the files mentioned in the chapter "Before writing new ASW" must be used (see the example below).



6.4 Parameter file

6.4.1 How to handle the parameter file

Open the USW and connect to your device. Select "Parameters" in the toolbar on the left.



Select the "open" icon in the horizontal toolbar. (It is identical with the traditional Microsoft design "open" icon).

Now, the parameter file can be opened.

Now, you can download the parameters by clicking the "download" icon.

Enter the password.

Confirm (or deny) that you want to download the parameters to the device.

The parameters are sent. Please wait.

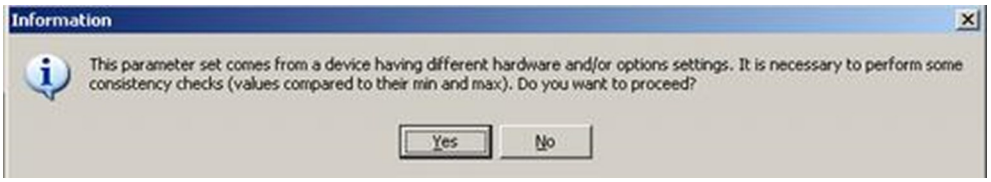
6.4.2 Consistency check

When attempting to download a parameter file from another software version than the current version of the unit, a consistency check will be started. Due to the vast amount of parameters, this will take about 5-10 minutes, depending on the ML-2 type.

The purpose of the consistency check is to compare the parameters from the file you want to download and the possible settings of the Multi-line connected to the PC.

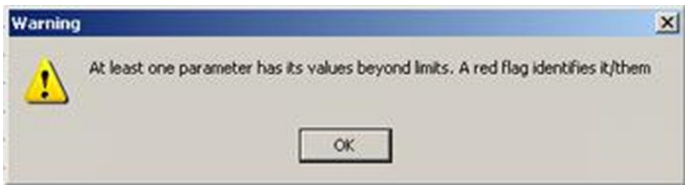
The USW will notify you of the consistency check, if the options, the hardware or the software version differ from those of the device.

Accept or decline the consistency check.



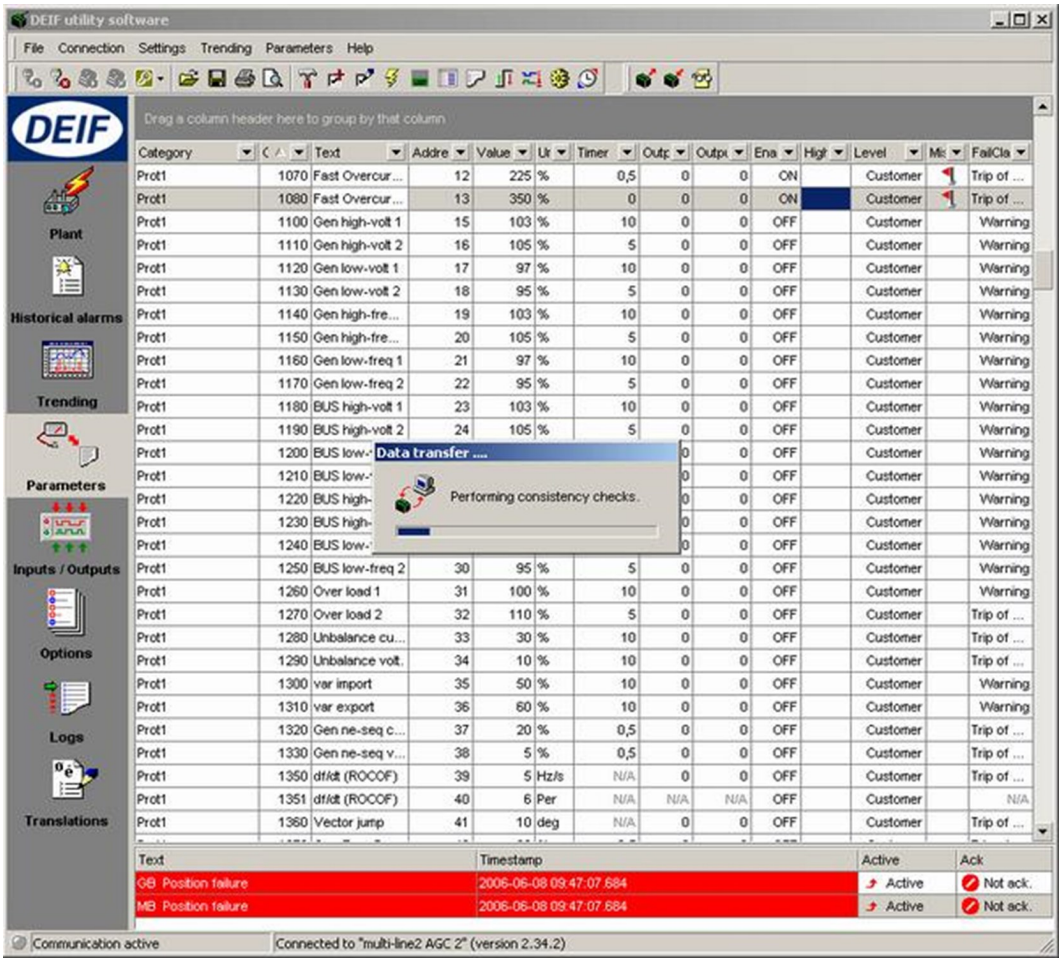
Wait while the consistency check is being performed.

If there is a deviation between the possible settings in the parameter file and those of the device, these specific parameters will be marked with a red flag. This is indicated with a dialogue box.



If there is a mismatch, i.e. at least one parameter has been marked with a red flag, the settings of this parameter must be reviewed. If you fail to do this, the device will not work as expected!

The screen will jump directly to the first parameter that must be adjusted, but please review the entire parameter file for mismatches.

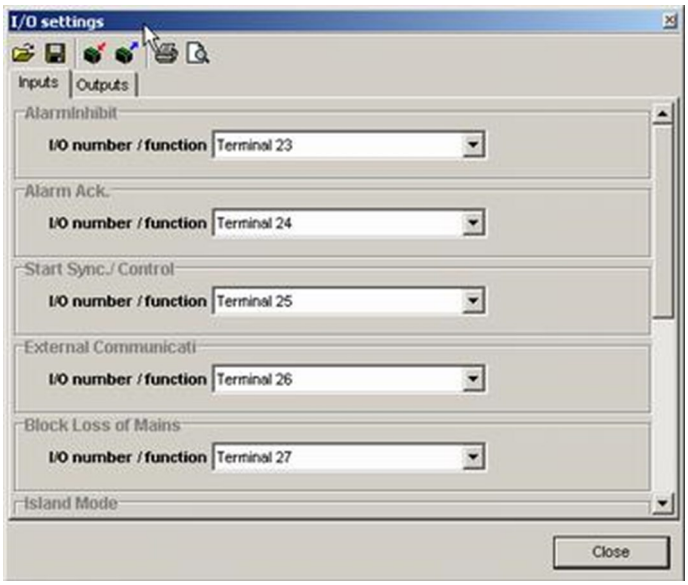


6.5 Input file

6.5.1 Input file

Open the USW and connect to your device. Open the menu "Settings" and select "Inputs/Outputs".

The input/output dialogue box pops up:



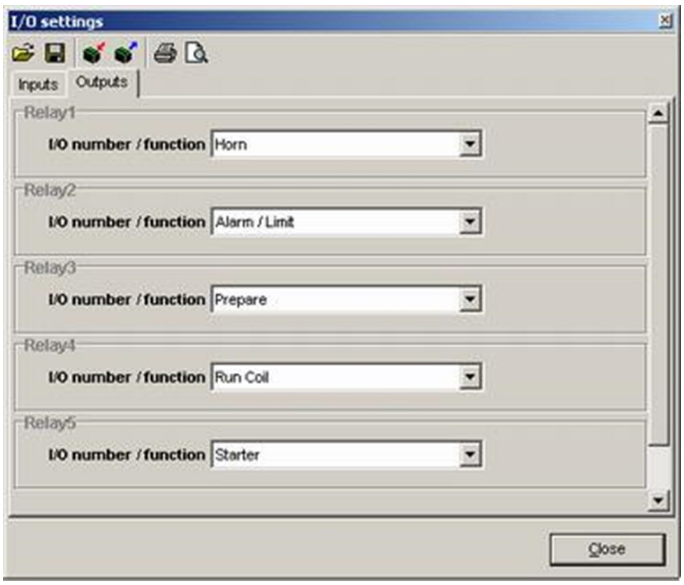
Click the red "download" icon to download the file.

6.6 Output file

6.6.1 Output file

Open the USW and connect to your device. Open the menu "Settings" and select "Inputs/Outputs".

The input/output dialogue box pops up. Select "Outputs" by means of Ctrl + Tab.



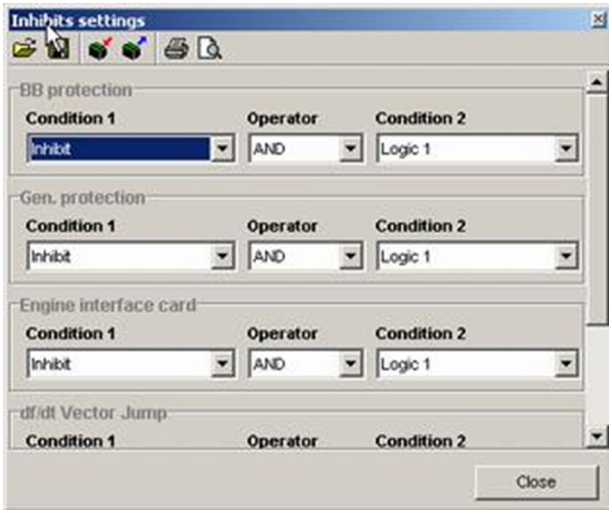
Click the red "download" icon to download the file.

6.7 Inhibit file

6.7.1 Inhibit file

Open the USW and connect to your device. Open the menu "Settings" and select "Inhibits".

The inhibit dialogue box pops up.



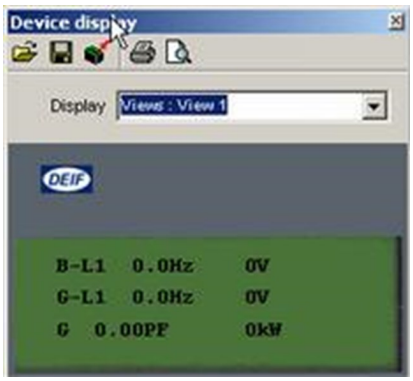
Click the red "download" icon to download the file.

6.8 View file

6.8.1 View file

Open the USW and connect to your device. Open the menu "Settings" and select "Views".

The view dialogue box pops up:

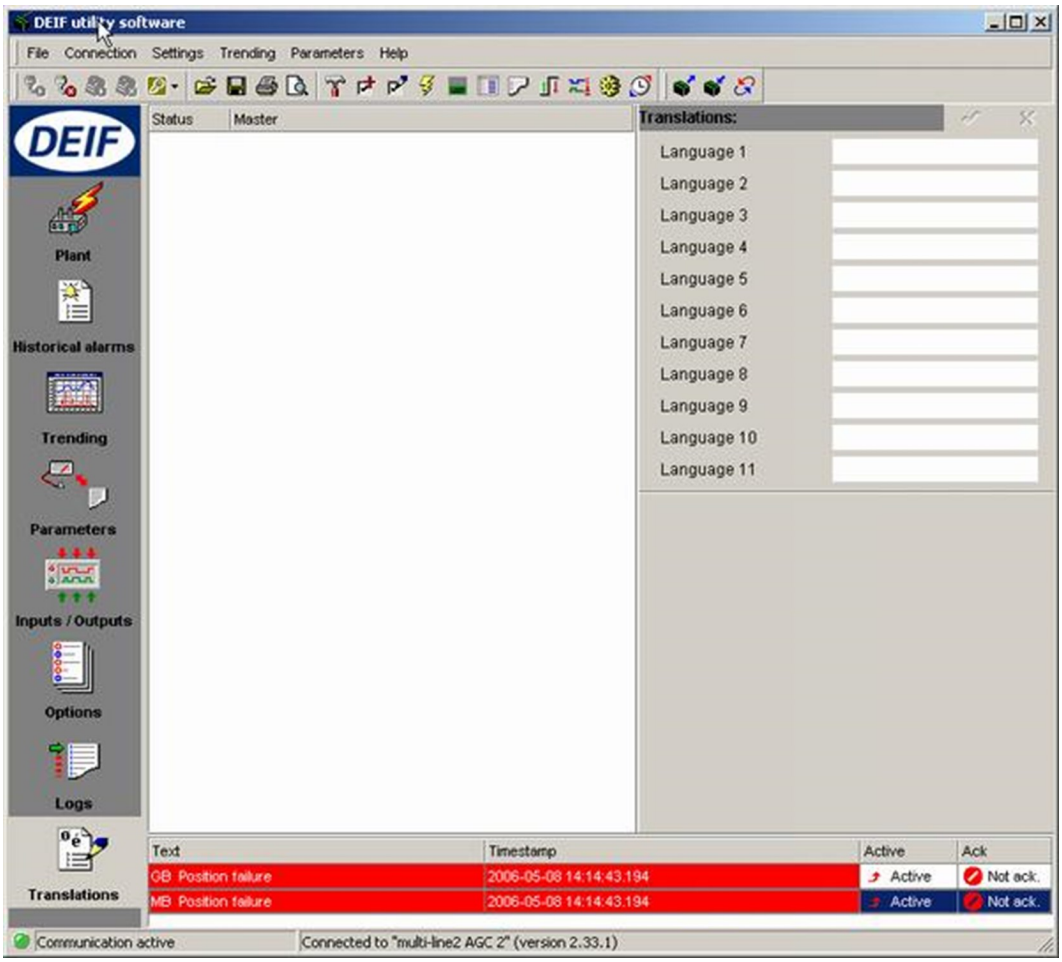


Click the red "download" icon to download the file.

6.9 Translations file

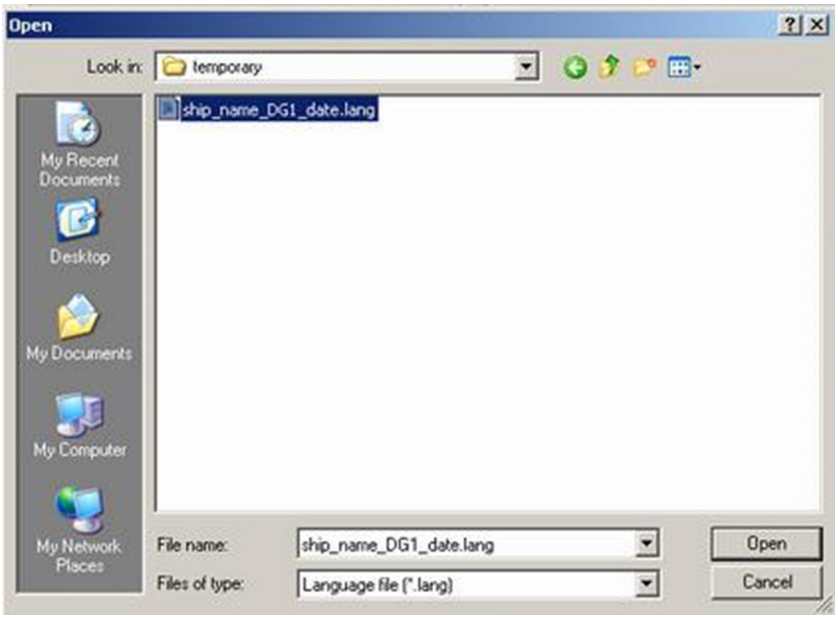
6.9.1 Translations file

Open the USW and connect to your device. Select the menu "Translations" in the toolbar on the left.



The screen is empty because the language file has not been opened yet. Open the language file by clicking the "open" icon in the horizontal toolbar. (It is identical with the traditional Microsoft design "open" icon).

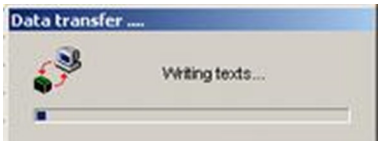
Now, the language file can be opened.



Please synchronise the file with the device.

Select the language you want to download (if selection is possible) and click OK.

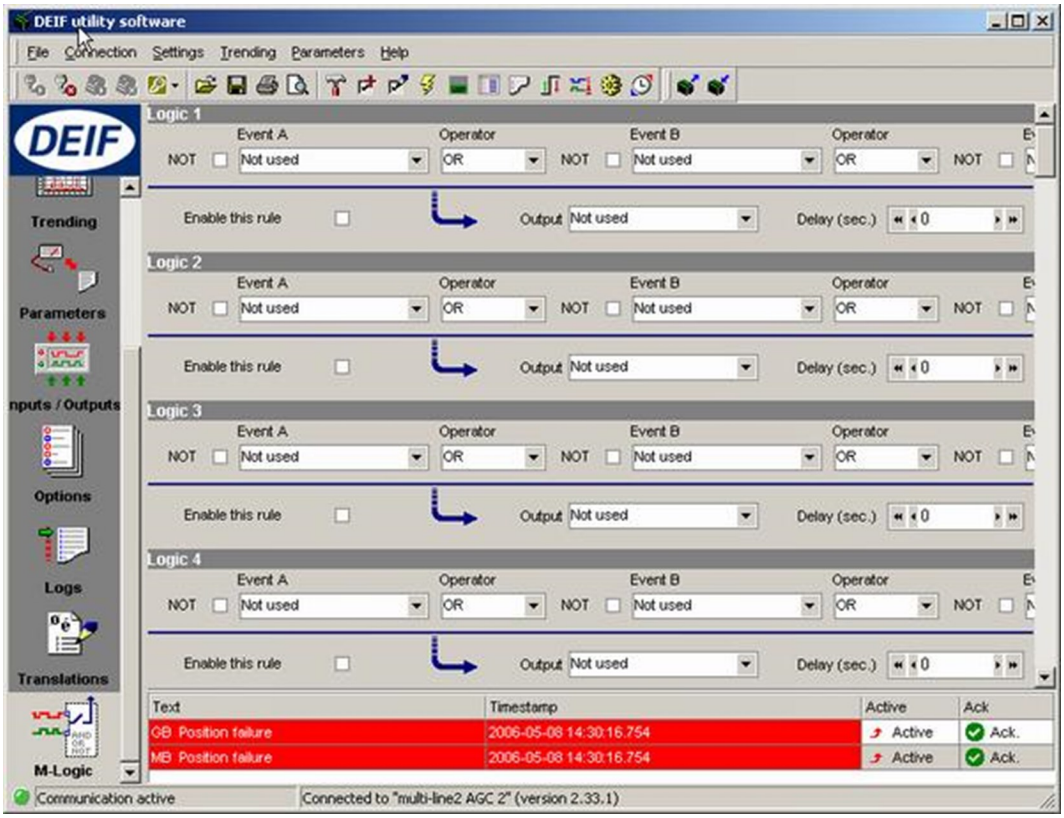
The download starts.



6.10 M-Logic file

6.10.1 M-Logic file

Open the USW and connect to your device. Select the menu "M-Logic" in the toolbar on the left. (Press Alt + F1 if it is not visible).



Open the file with the "open" icon in the horizontal toolbar. Download the M-Logic settings with the "download" icon (marked with a blue arrow).

7. Cable connections

7.1 General information

Different cables are used for connection, depending on type of the ML-2 unit.

7.2 DIN rail-mounted units

7.2.1 DIN rail-mounted units

This applies to the AGC, GPC, GPU, MDR-2, PPM and PPU units.

Use the PC cable that can be purchased from DEIF, option J3.

Extract from data sheet – list of available options:

J	Cables	
J1	Display cable with plugs, 3 m. UL94 (V1) approved	Other
J2	Display cable with plugs, 6 m. UL94 (V1) approved	Other
J3	PC cable for utility software (RS232). UL94 (V1) approved	Other
J4	Display cagle with plugs, 1 m. UL94 (V1) approved	Other

7.3 Panel-mounted units

7.3.1 Panel-mounted units

This applies to the BGC, EC-1, EC-1M, GC-1 and GC-1M units.

Extract from data sheet – list of available options:

J	Cables	
J5	BGC converter box kit	Other