APPLICATION NOTES



# Delomatic 4
# DM-4 Land/DM-4 Marine

- Download and install USW
- Download new application SW
- Up-/download/compare parameters
- Change fail class
- Translation and trending

DEIF A/S · Frisenborgvej 33 · DK-7800 Skive
Tel.: +45 9614 9614 · Fax: +45 9614 9615
info@deif.com · www.deif.com

Document no.: 4189232130D

Table of contents

# 1. About this document

## General purpose

The purpose of this document is to provide guidance on how to:

- Download Delomatic 4 Utility Software from the internet.
- Set up the Delomatic 4 Utility Software.
- Download new Delomatic 4 application with Delomatic 4 Utility Software.
- Read and write parameters with Delomatic 4 Utility Software.
- Change alarm fail class.
- Compare parameters.
- Change texts.
- Use trending to monitor engine performance, kW, kvar and so on.

We recommend that you read this guide in full before you begin.

## Help

For warranty reasons, we recommend that you contact your DM-4 supplier before you begin upgrading your software to determine if a software upgrade is necessary.

If there is any doubt about how to perform the upgrade, please contact the responsible Delomatic 4 supplier or DEIF A/S (delomaticsupport@deif.com).

**The warranty from DEIF A/S will not be lost as a consequence of a software upgrade.**

# 2. Warnings and legal information

This chapter includes important information about general legal issues relevant in the handling of DEIF products. Furthermore, some overall safety precautions will be introduced and recommended. Finally, the highlighted notes and warnings, which will be used throughout this document, are presented.

## Legal information and responsibility

DEIF takes no responsibility for installation or operation of DM-4. If there is any doubt about how to install or operate the product, the company responsible for the installation or the operation of the set must be contacted.

**The units are 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.

The English version of this document always contains the most recent and up-to-date information about the product. DEIF does not take responsibility for the accuracy of translations, and translations might not be updated at the same time as the English document. If there is any discrepancy, the English version prevails.

## Electrostatic discharge awareness

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

## Safety issues

Installing the unit implies 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.**

## Definitions

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

**Notes**

**The notes provide general information which will be helpful for the reader to bear in mind.**

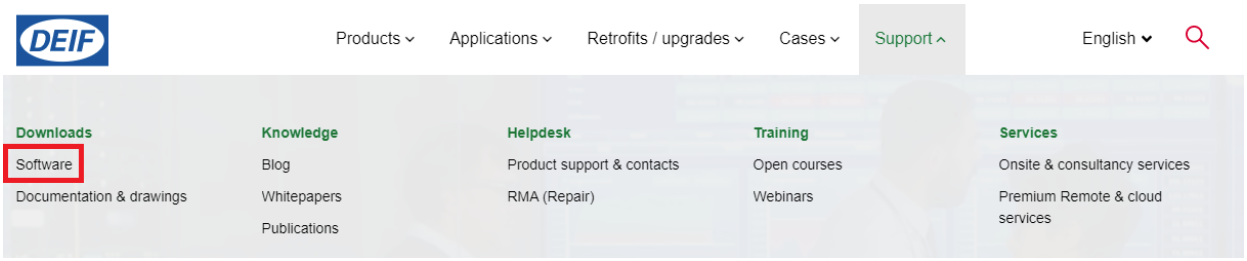
**Warnings**

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

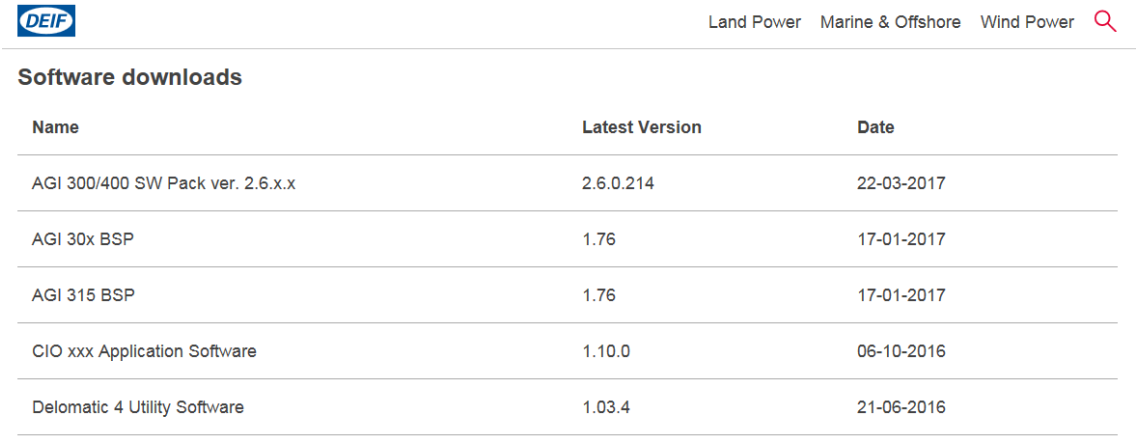
# 3. Download the Delomatic 4 Utility Software

The Delomatic 4 Utility Software is downloaded from the webpage www.deif.com.

1. Select "Software" from the top line on the webpage.

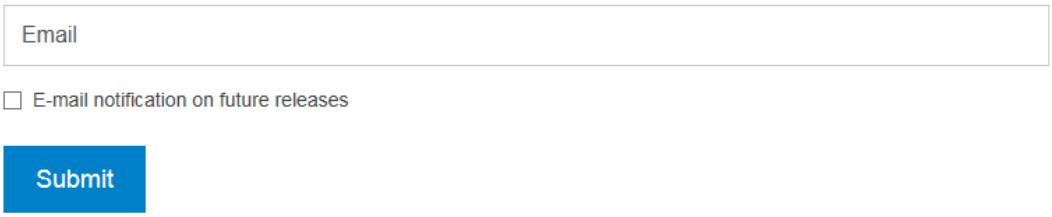



2. Select Delomatic 4 Utility Software from the menu list.




| Name | Latest Version | Date |
|---|---|---|
| AGI 300/400 SW Pack ver. 2.6.x.x | 2.6.0.214 | 22-03-2017 |
| AGI 30x BSP | 1.76 | 17-01-2017 |
| AGI 315 BSP | 1.76 | 17-01-2017 |
| CIO xxx Application Software | 1.10.0 | 06-10-2016 |
| Delomatic 4 Utility Software | 1.03.4 | 21-06-2016 |

3. Enter your e-mail address in the “Email” field and submit the request.
   Shortly afterwards, you will receive an e-mail containing a link to the installation file.
   Please follow the instructions in the e-mail carefully.

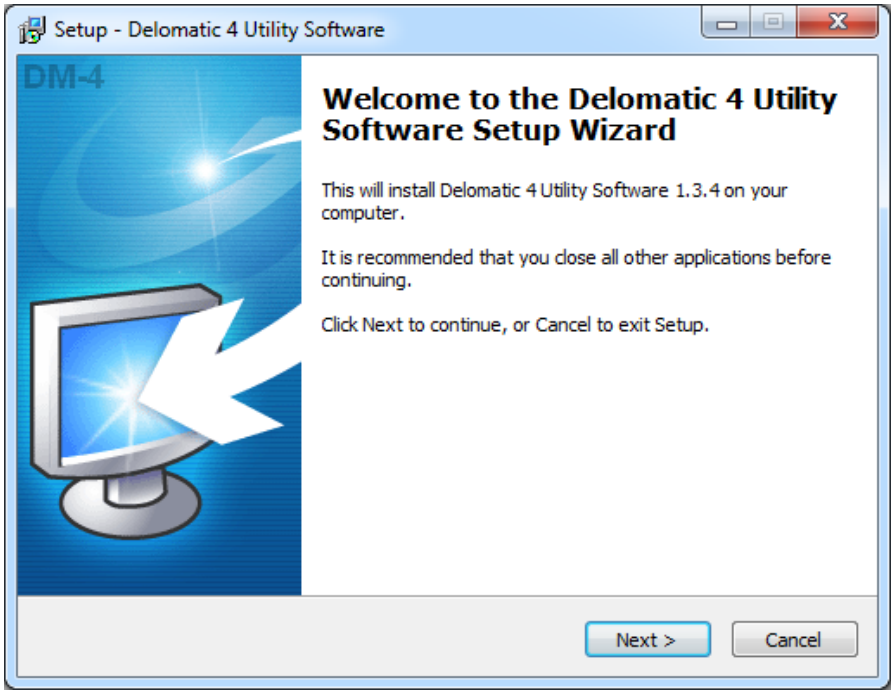



4. Save the Delomatic 4 Utility Software installation file on the PC.

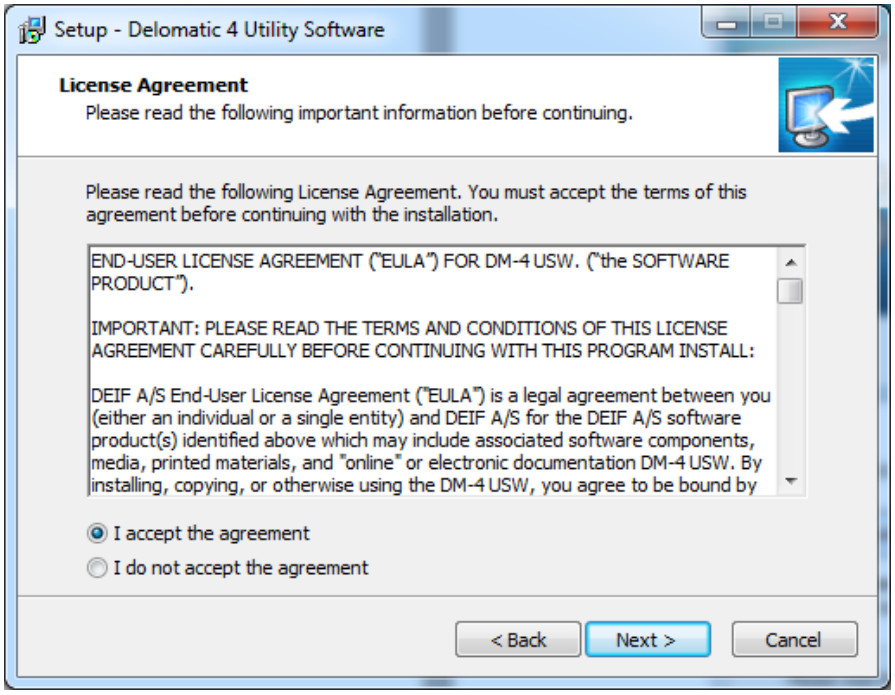
5. Execute the Delomatic 4 Utility Software installation file.
   Follow the instructions as per the next page.

# 4. How to install the Delomatic 4 Utility Software

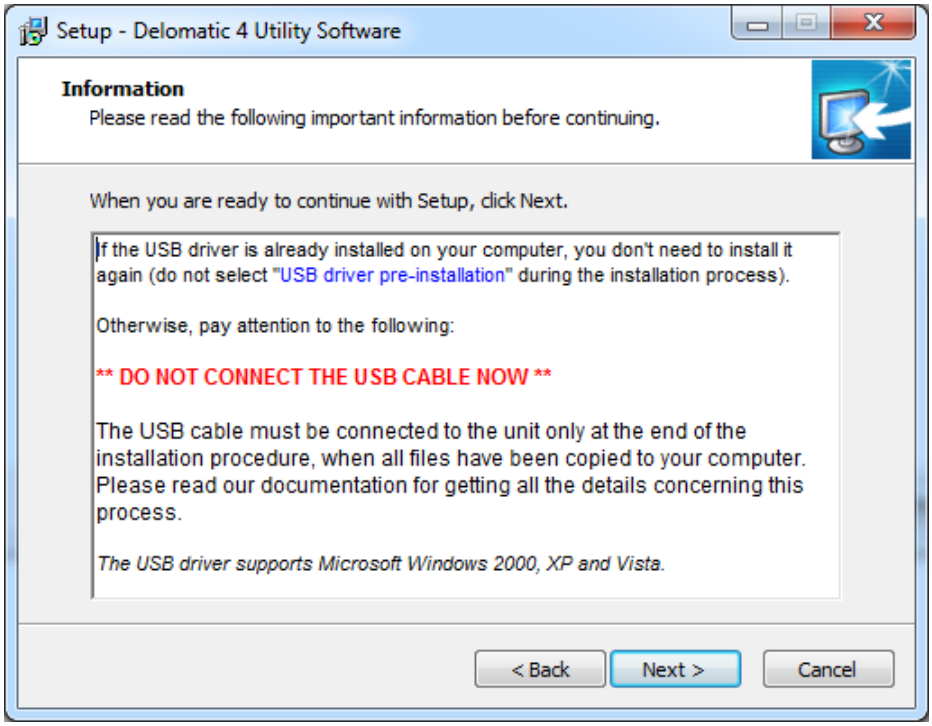
1. Run the "Setup_USW_DM4_xxxxx.exe" file and click next.



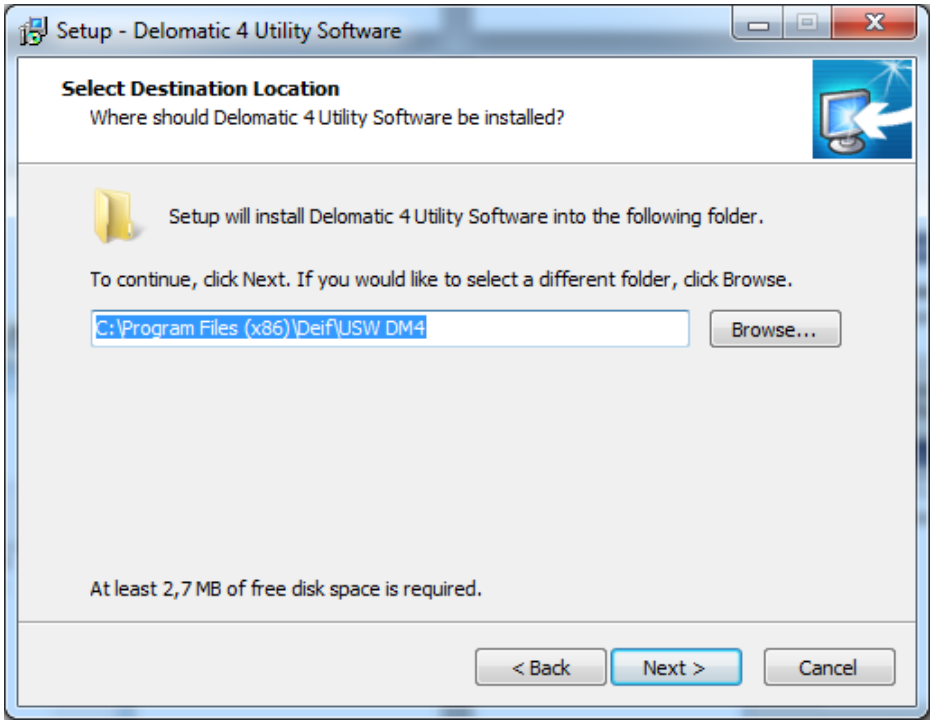

2. Read the text in the pop-up window carefully before you click next.



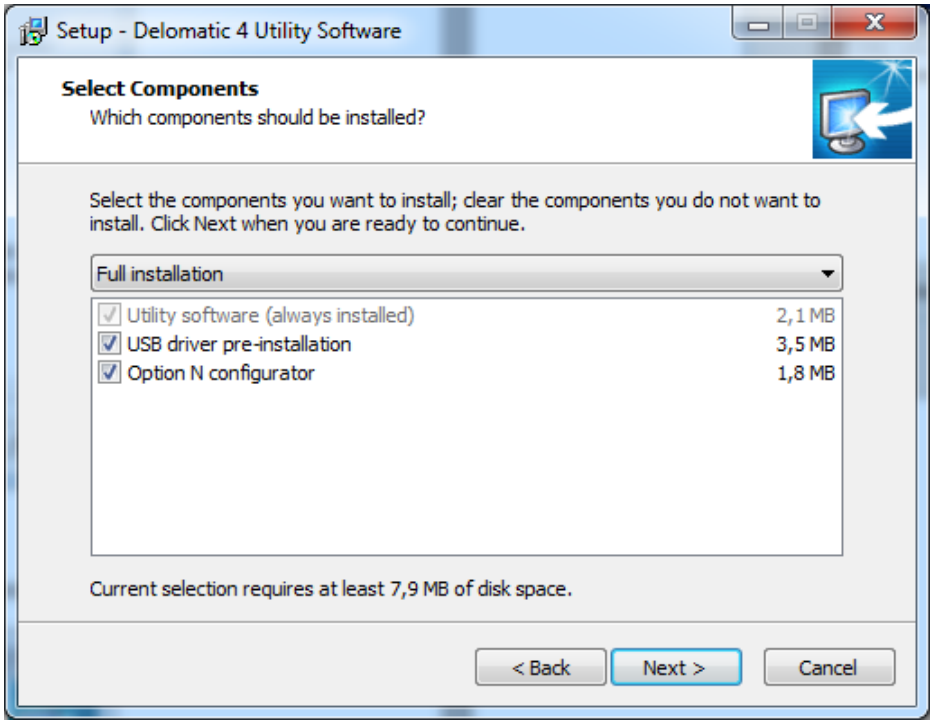
3. Read the text in the pop-up window carefully before you click next



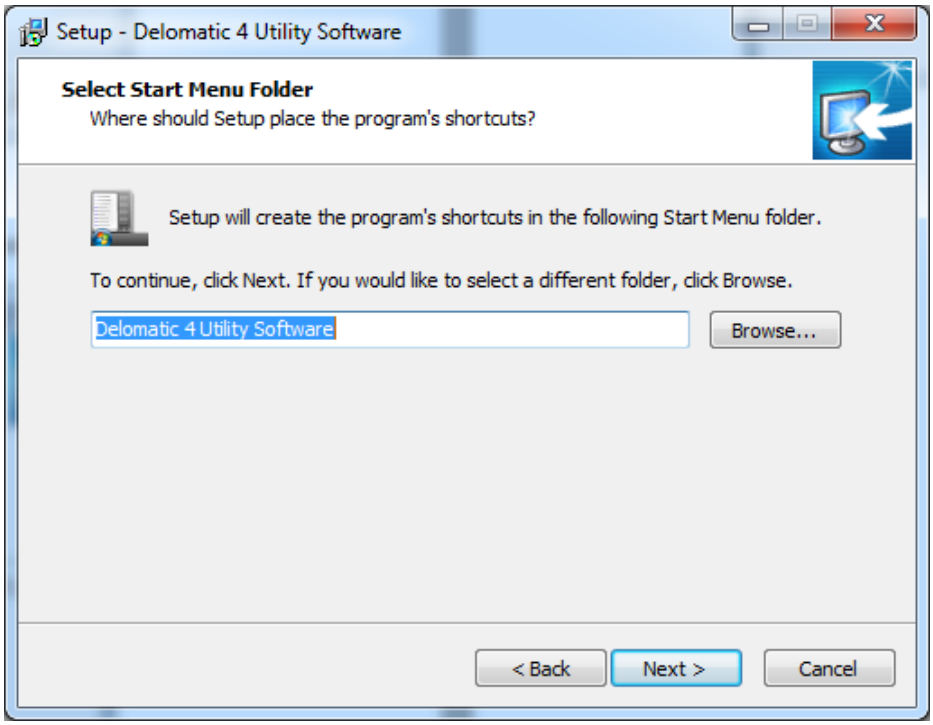

4. Select where the Delomatic 4 Utility Software should be installed and click next.



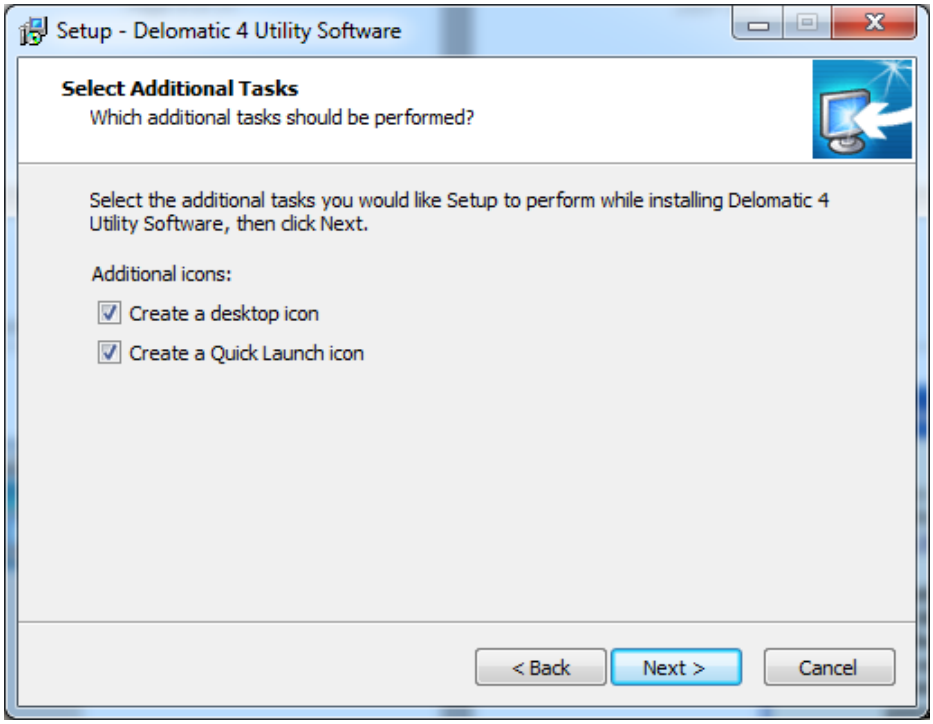
5. Select the USB driver to be installed and click next.



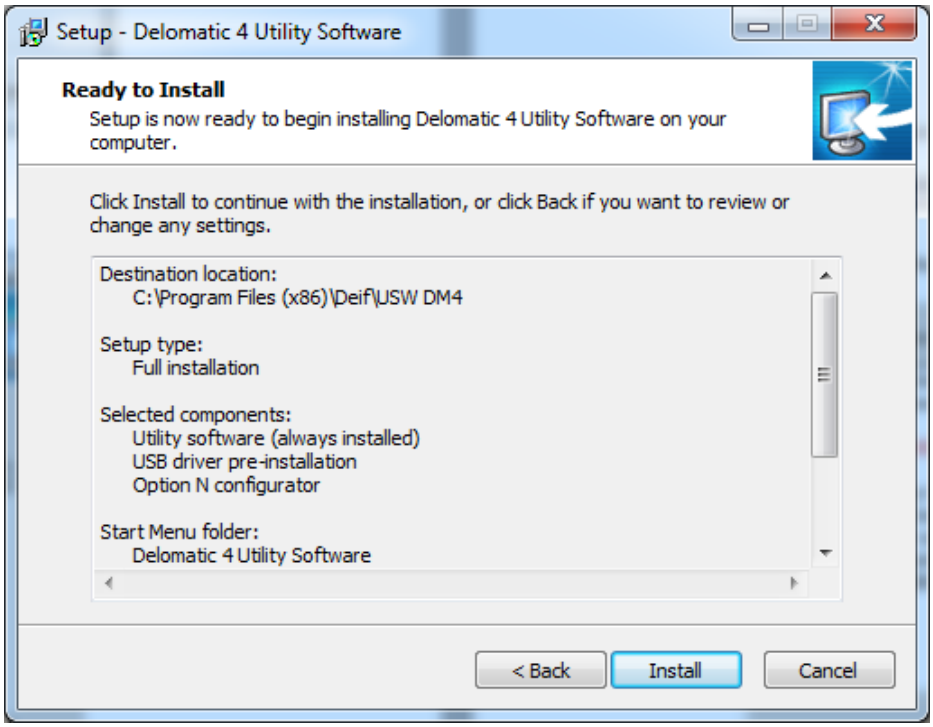

6. Click next.



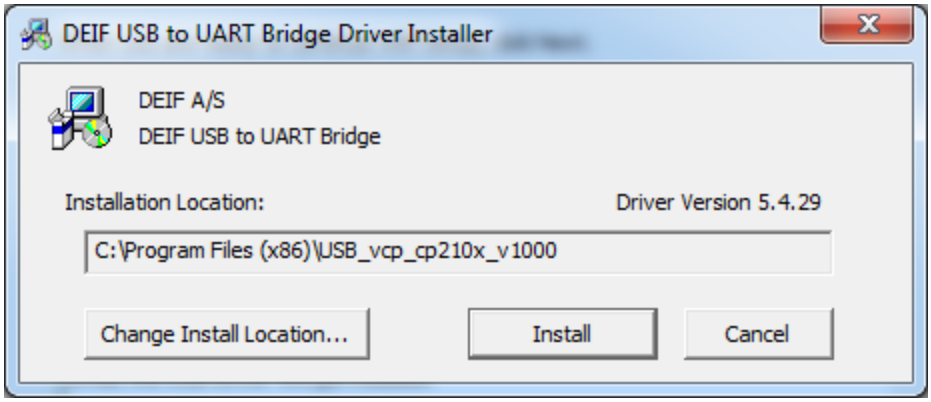
7. Select if additional icons and click next.



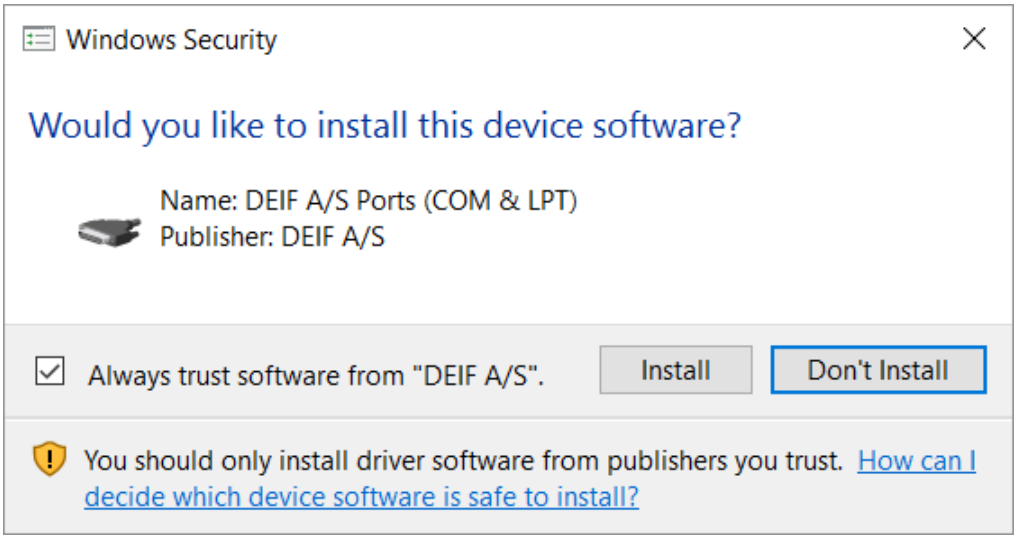

8. Click install for installing the Delomatic 4 Utility Software.



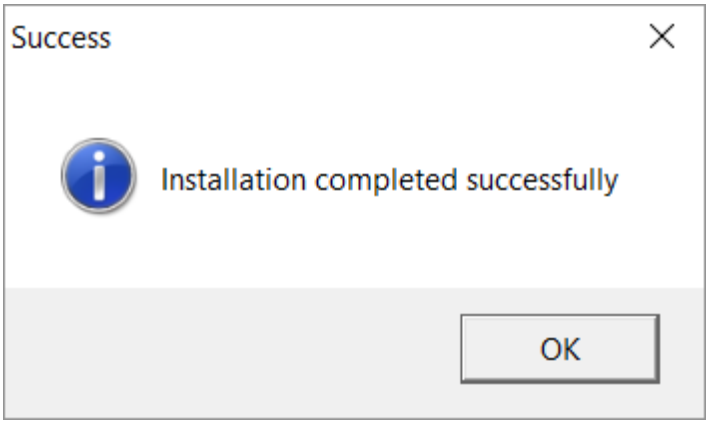
9. Install the USB drivers by clicking Install.



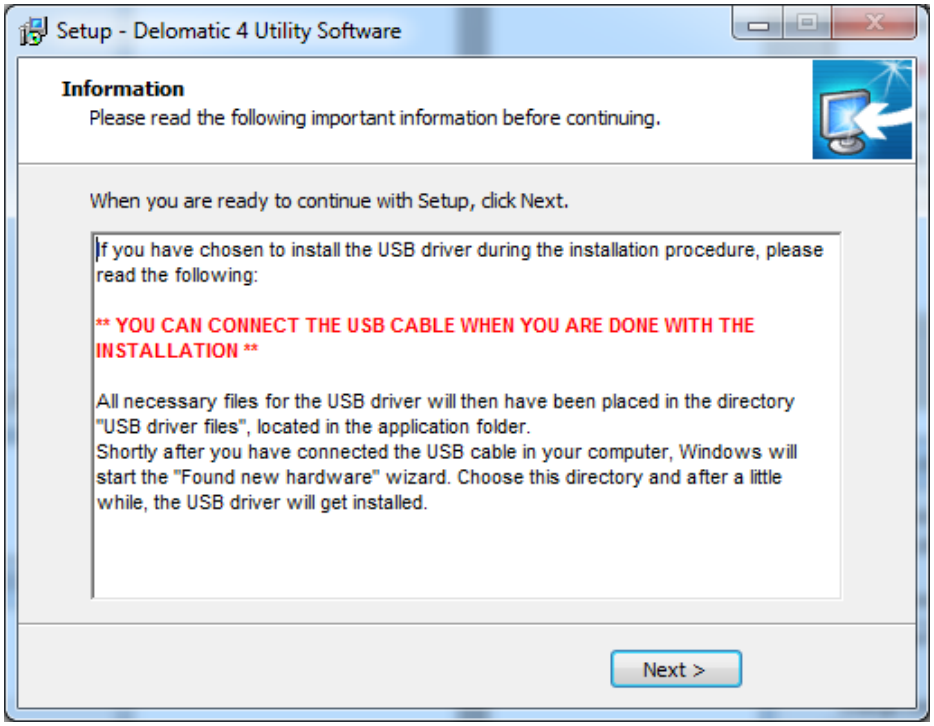

10. Install the USB drivers by clicking Install.



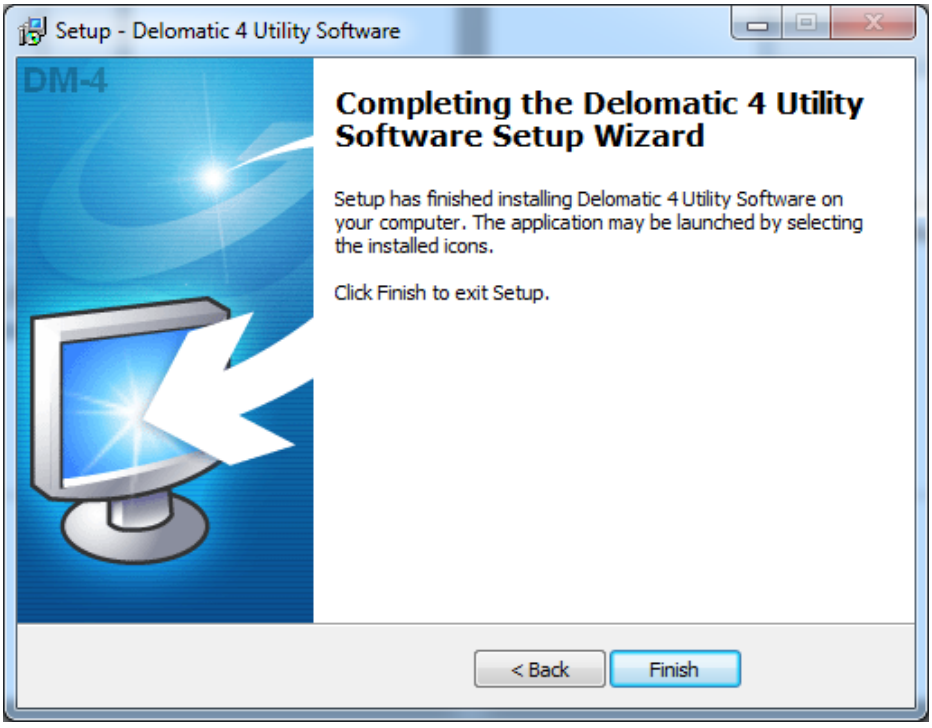

11. Click OK.



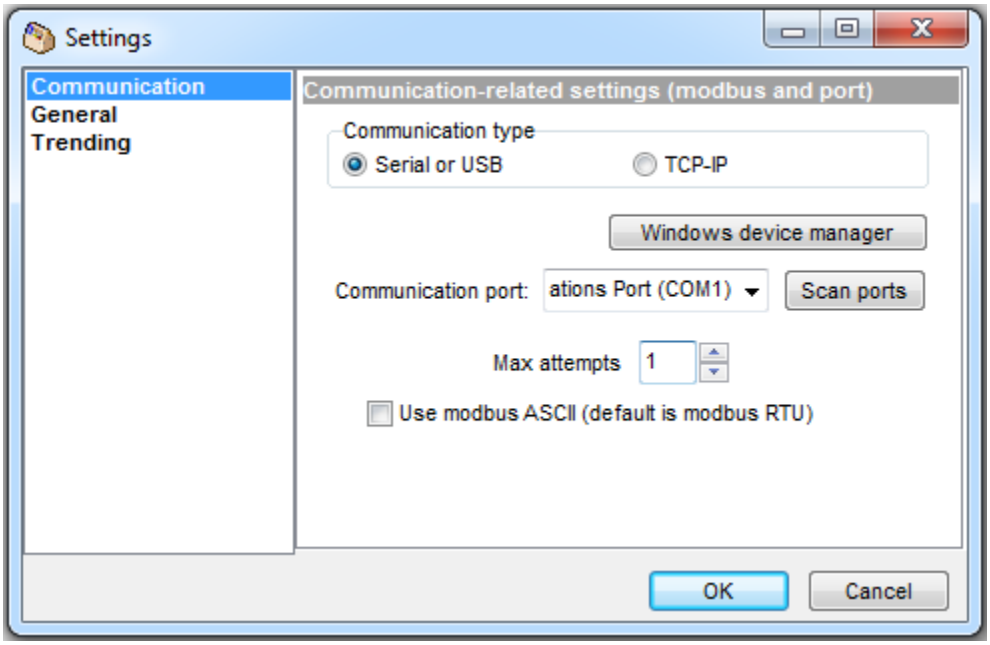
12. Read the text in the pop-up window carefully before you click next.




13. You have now installed the Delomatic 4 Utility Software on your computer. Click "Finish" to exit Setup.

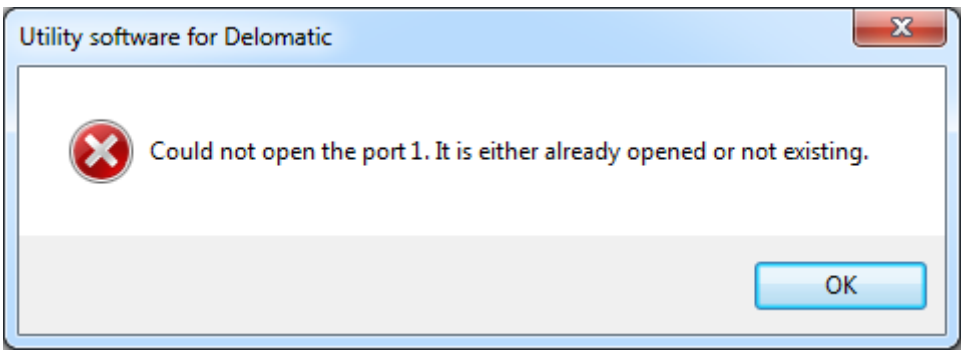


14. In order to connect to the PCM4.1 or PCM4.5 module, connect the USB cable between the DEIF Delomatic 4 PCM card and the computer, open the Delomatic 4 Utility Software just installed, and go to the settings dialogue box by clicking the icon “Application settings”. 

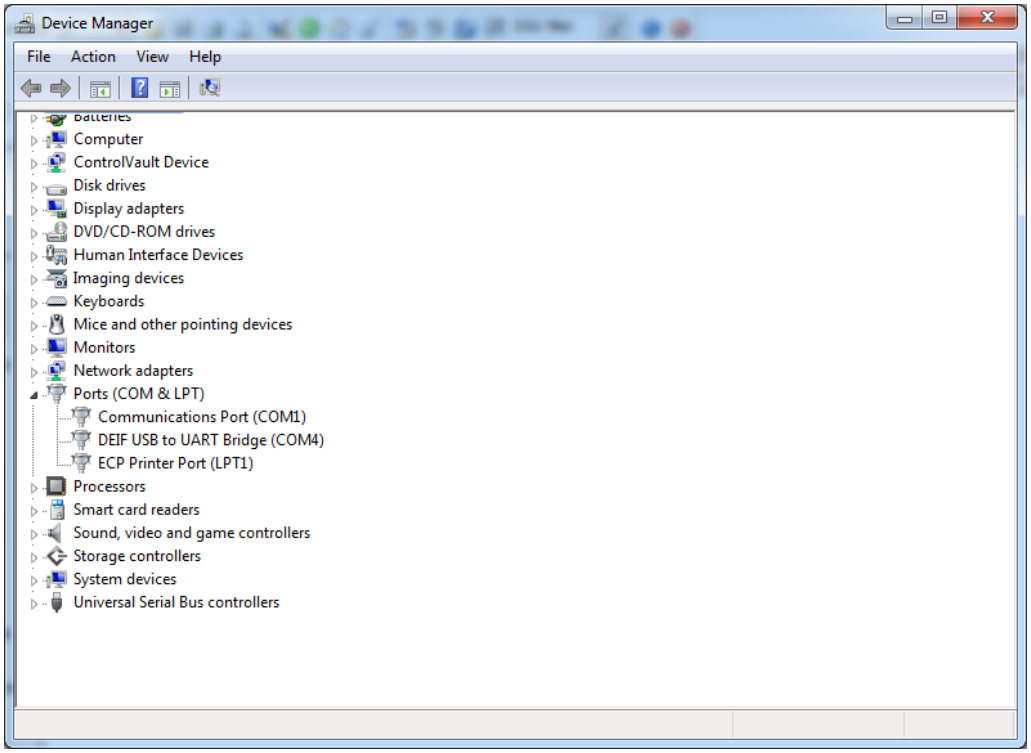



15. Choose the correct communication port and click OK.
The utility software is now ready for connection.

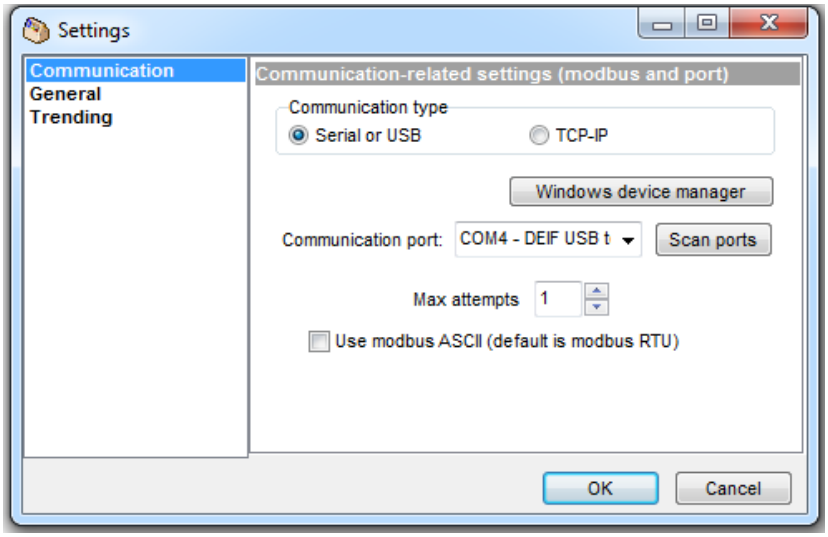
16. If the following dialogue box appears, the communication port must be set correctly.
The correct setting can be found in the Windows device manager.



17. Navigate to the “Windows device manager” to verify which port the Delomatic 4 Utility Software is using.
    In the Device Manager, look under "Ports (COM & LPT)".
    The COM Port is in this example Com Port 4.




18. Insert the correct Communication port number and click OK.



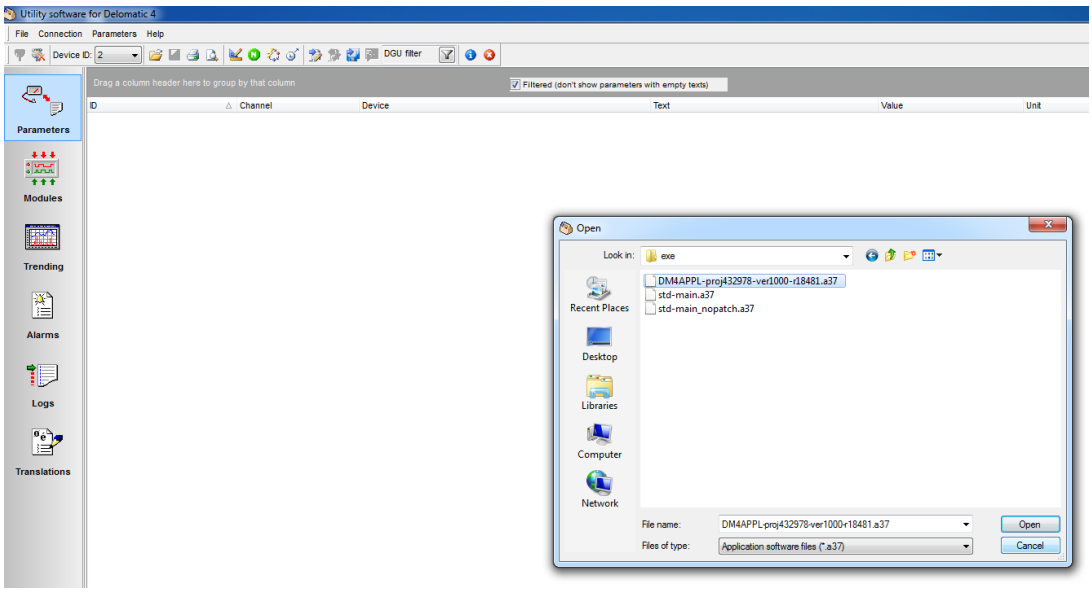

19. The Utility Software is now ready for connection.
    This is done by clicking the icon “Start communication with device (F5)”.

## 5. How to download the new Delomatic 4 application software

1. Start the Delomatic 4 Utility Software.

2. Select the button  “Upload a firmware to the device”.

3. Select the .a37 file received from DEIF.
Example: DM4APPL-proj432978-ver1000-r18481.a37

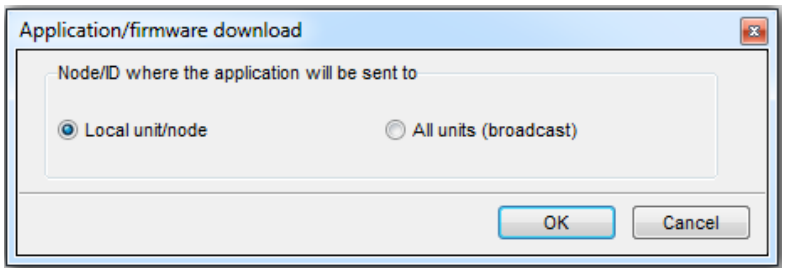



4. Click “Open”.

5. In the next window, you can tick the box "Download to local unit”, or the box “All units (broadcast)”.

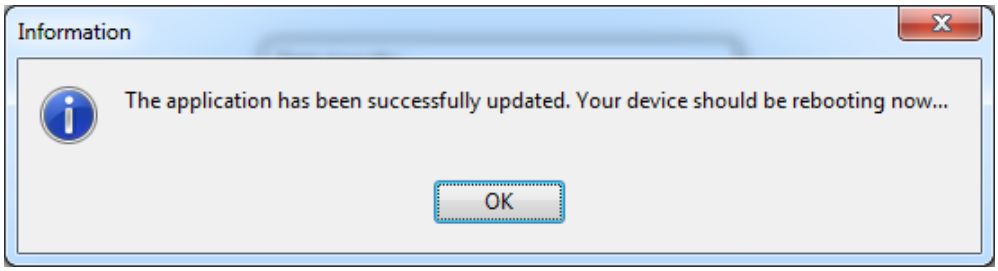
   “Local unit” will only download the software to the one where the USB cable is connected.

   “All units (broadcast)”will download the firmware to all DGUs that are connected to the ARC-net.




6. If you are using “Local unit”, please remember to remove all ARC-net, RS-485 and CAN cables from the DGU.

7. Download completed dialogue box will appear upon successful application software download.

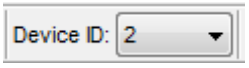



8. When the new software is downloaded, any previously changed parameter (parameters which are not factory settings anymore) must be changed back on the Delomatic 4 display unit, or via the Delomatic 4 Utility Software.
See the note below.

**When the Delomatic 4 application software download is in progress, the parameters which have been changed from the factory settings will be erased/set back to factory settings. Therefore please fill in chapter 3 "Parameter" in the Delomatic 4 user manual part 1 of 2 or make a backup of the parameter list with the Delomatic 4 Utility Software parameter function, before downloading new software.**
**Default Delomatic 4 password = 2000.**

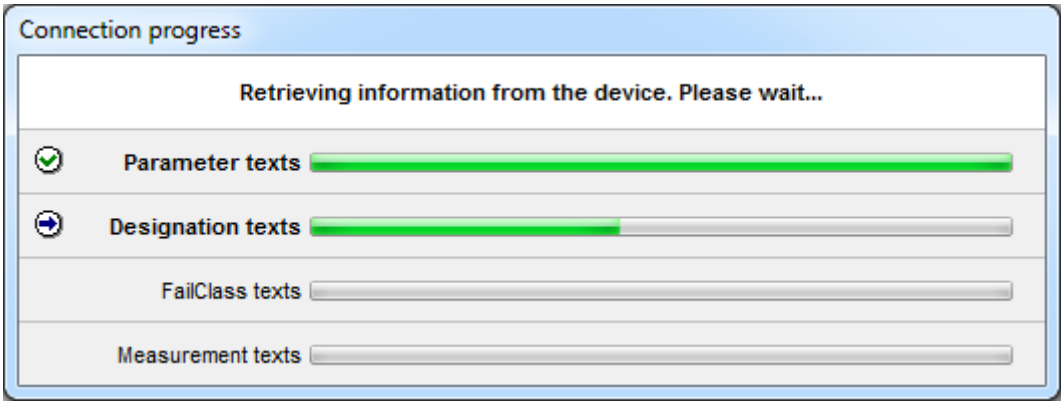
## 6. How to read and write parameters with Delomatic 4 Utility Software

1. Start the Delomatic 4 Utility Software.

2. Select the DGU no. in the “Device ID” dropdown menu: 

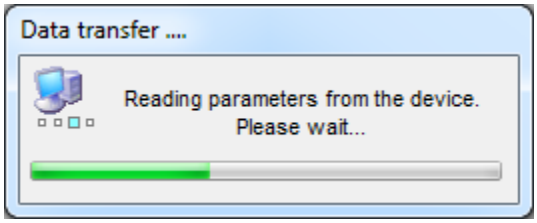
or local unit.

3. Press the button  “Start communication with the device (F5)”.
The Delomatic 4 Utility Software will connect to the DGU and start the data transfer.



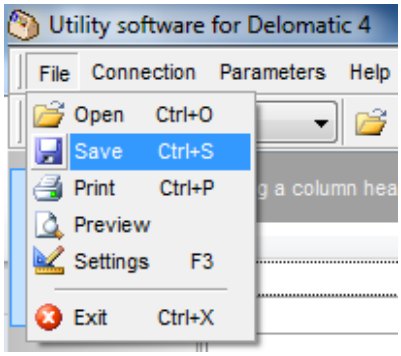
## Read parameters from the DGU

4. Press the button  "Read from the device".
The parameter list will be read from the DGU.

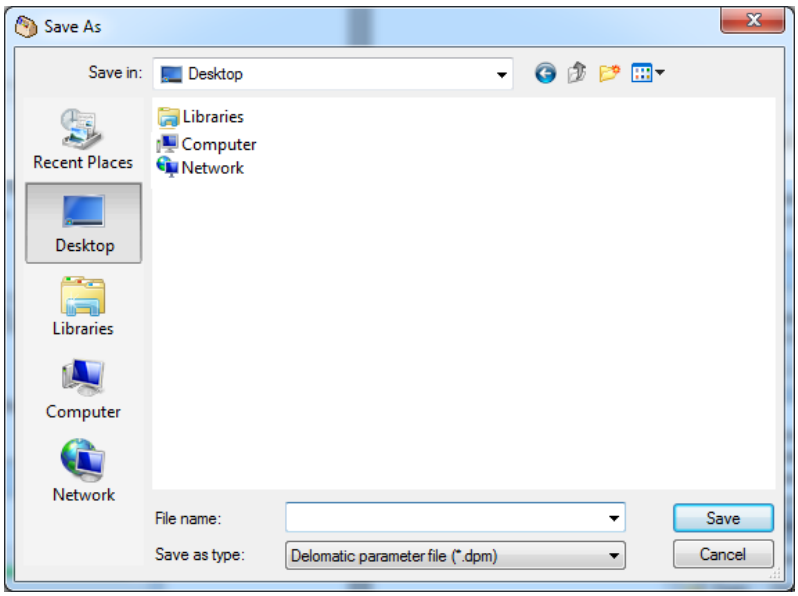



5. The parameter list can now be saved on the computer as a .dpm file.
Two ways of saving the parameter file exists:

   a. **Saving the current parameter file.**
   Select "File" from the top menu.



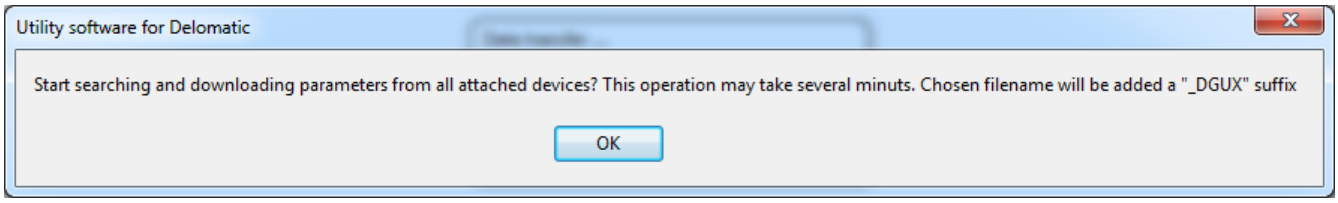

Select "Save".



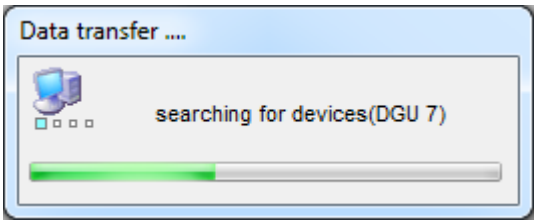

Enter a name of the parameter list, for example "DG1 parameter list" and click save. The parameter list is now stored on your computer.

### b. Saving all parameter files for all DGUs on the network.

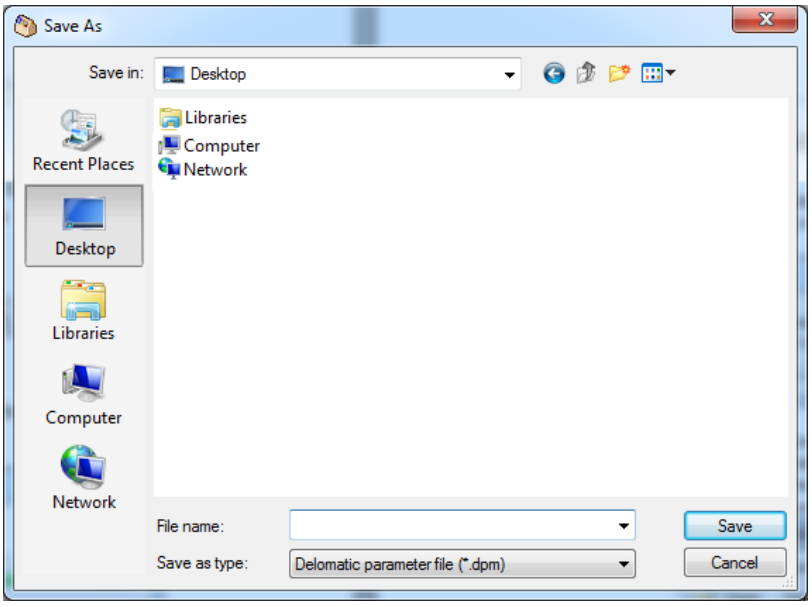
Press the  “Save all DGUs to files” button at the top tool bar.




Press “OK”




Enter a name of the parameter list, ex. “DG1” and click “Save”.




The parameter list is now stored on your computer.

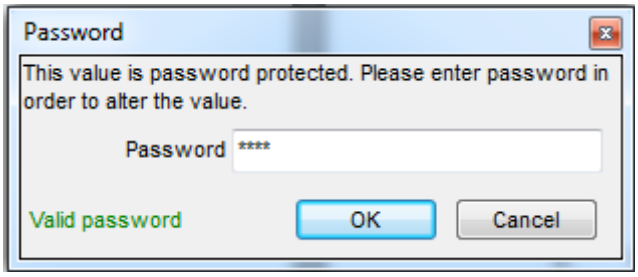
## Write parameters to the DGU

6. If you are not already connected, select the button  "Start communication with the device (F5)".
   The Delomatic 4 Utility Software will connect to the DGU and start the data transfer.

7. Two ways of writing parameters to the DGU exists:

   a. **Write single parameter to the device**
   Double-click the parameter that is to be changed.

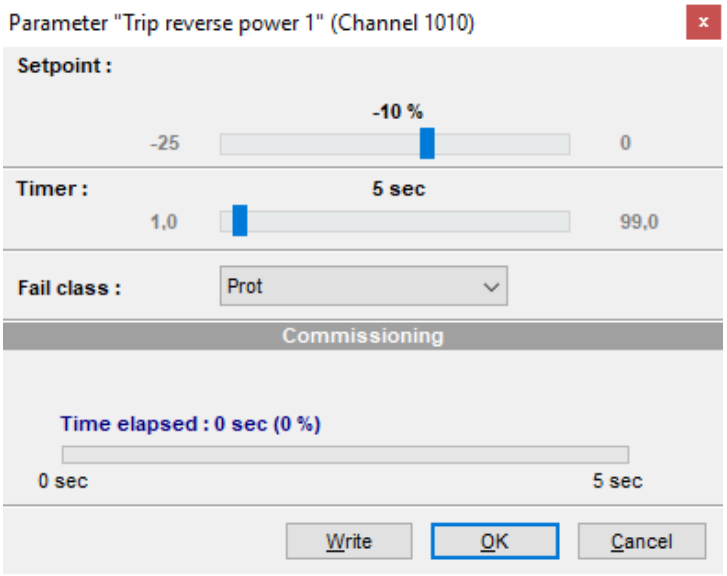
   You may be prompted for a password.
   The factory setting of the password is "2000" and is already written as default in the dialogue box.
   Click "OK".



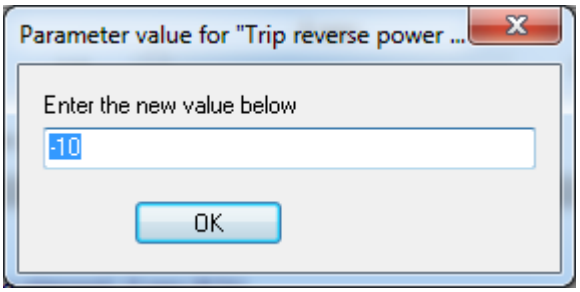

   A dialogue box for the parameter in question will appear.
   The dialogue box displays the current setting of the parameter, and additionally the minimum and maximum possible values for the parameter.

   Change of fail class is described in another chapter.

   The "Time elapsed" line displays if a timer is currently counting.




   Change the desired value or timer by moving the slider, or by clicking the value after which a dialogue box will appear where the value can be entered.

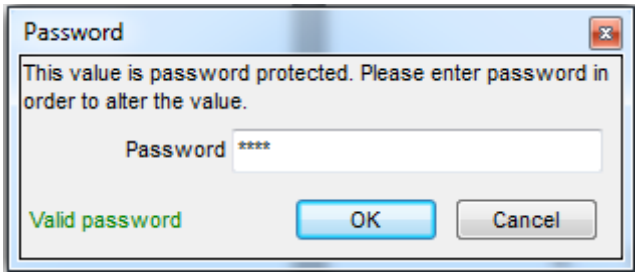



Click “OK”.
If the value was changed in the separate the dialogue box, also click “Write”, and click “OK” again.
The single value is now changed and stored on the connected device.

Note:
If a value is not updated, it is because the new value is conflicting with either the minimum or maximum allowed value of the parameter in question.

**b. Write all parameters to the device**
Double-click the parameters that are to be changed.

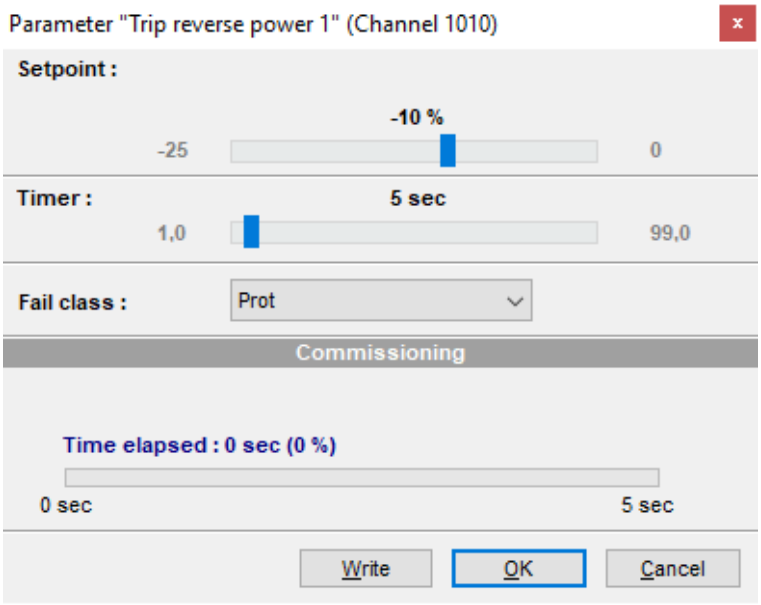
You may be prompted for a password.
The factory setting of the password is “2000” and is already written as default in the dialogue box.
Click “OK”.



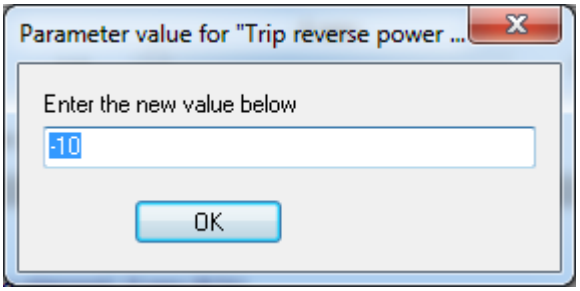

A dialogue box for the parameter in question will appear.
The dialogue box displays the current setting of the parameter, and additionally the minimum and maximum possible values for the parameter.

Change of fail class is described in another chapter.

The “Time elapsed” line displays if a timer is currently counting.




Change the desired value or timer by moving the slider, or by clicking the value after which a dialogue box will appear where the value can be entered.




Click “OK”, and click “OK” again.

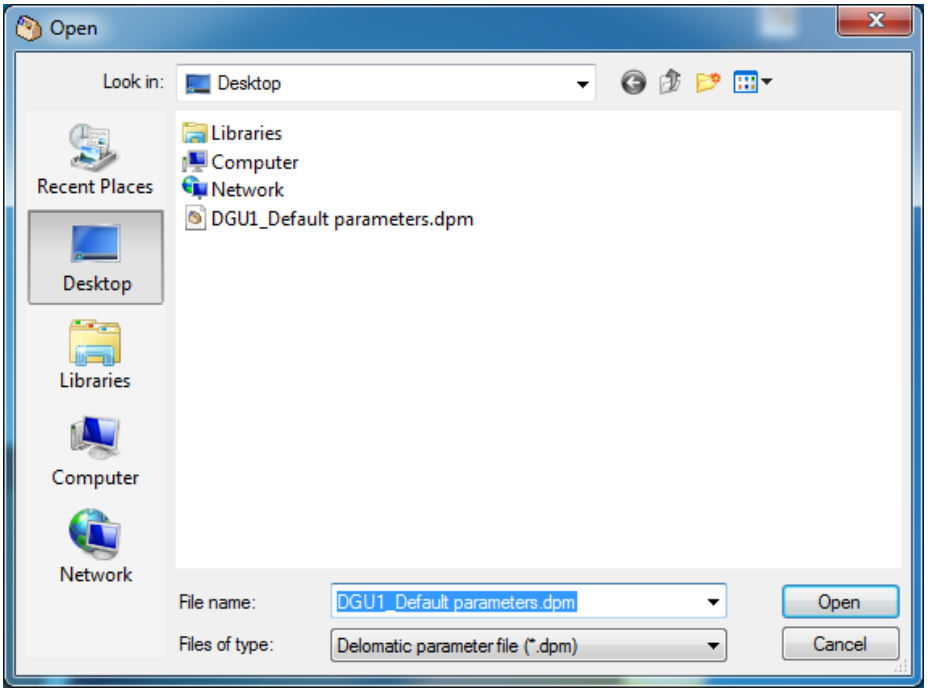
When all parameter are corrected as desired, the entire table of parameter can be updated on the device.

Save the new parameters locally on the laptop, as described in the chapter “Read parameters from the DGU”.

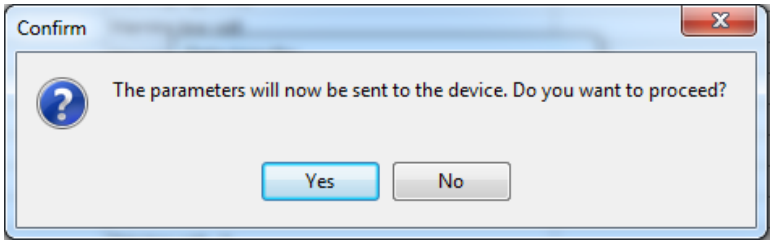
Note:
As all parameters will be sent to the device, make sure that all parameters are set as desired, and that all temporary values in the table are reset.

It is strongly recommended to make a backup copy of the parameters currently on the device before using the “Write to the device” function.

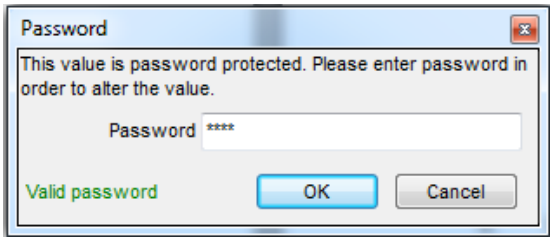
8. Open the stored parameter file on the laptop by clicking the button  “Open (Ctrl+O)”.
Select the stored parameter file and click "Open".
The parameter file is now opened in the Delomatic 4 Utility Software.




9. Select the button  “Write to the device” and select "Yes" to send the parameters to the DGU.




You may be prompted for a password.
The factory setting of the password is “2000” and is already written as default in the dialogue box.
Click “OK”.



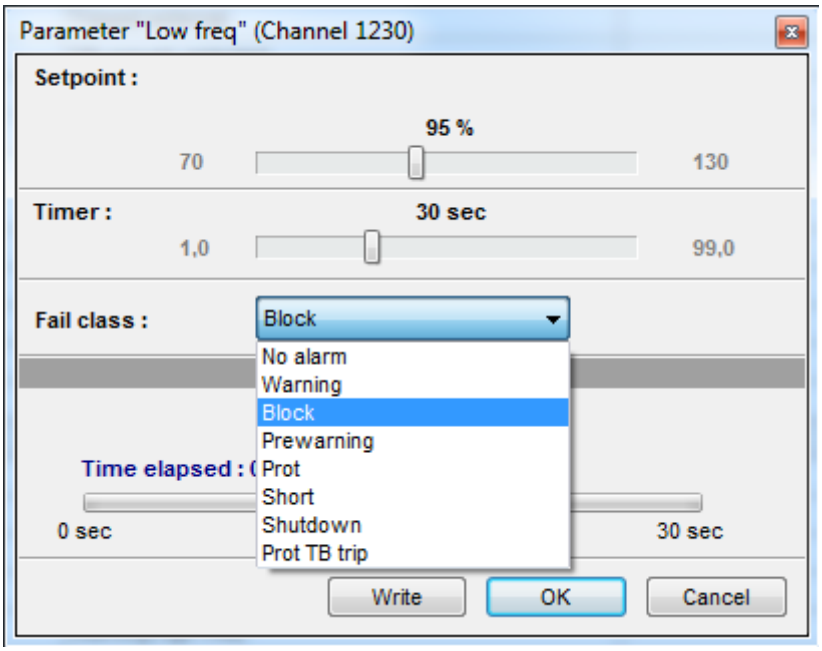

The parameters are now written in the DGU.

# 7. Changing fail class with Delomatic 4 Utility Software

1. Connect to the DGU with the Delomatic 4 Utility Software.

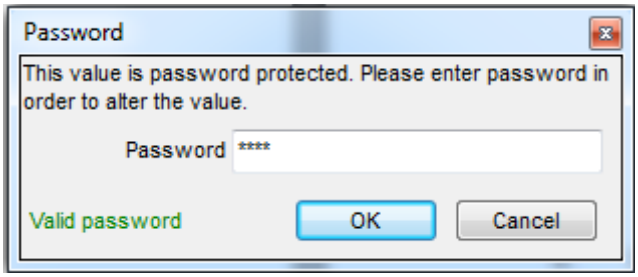
2. Double-click the parameter where you would like to change the fail class.
   Example: Channel1230 Low Freq

3. Choose the preferred fail class from the drop-down menu.




4. Then click “Write” and “OK”.

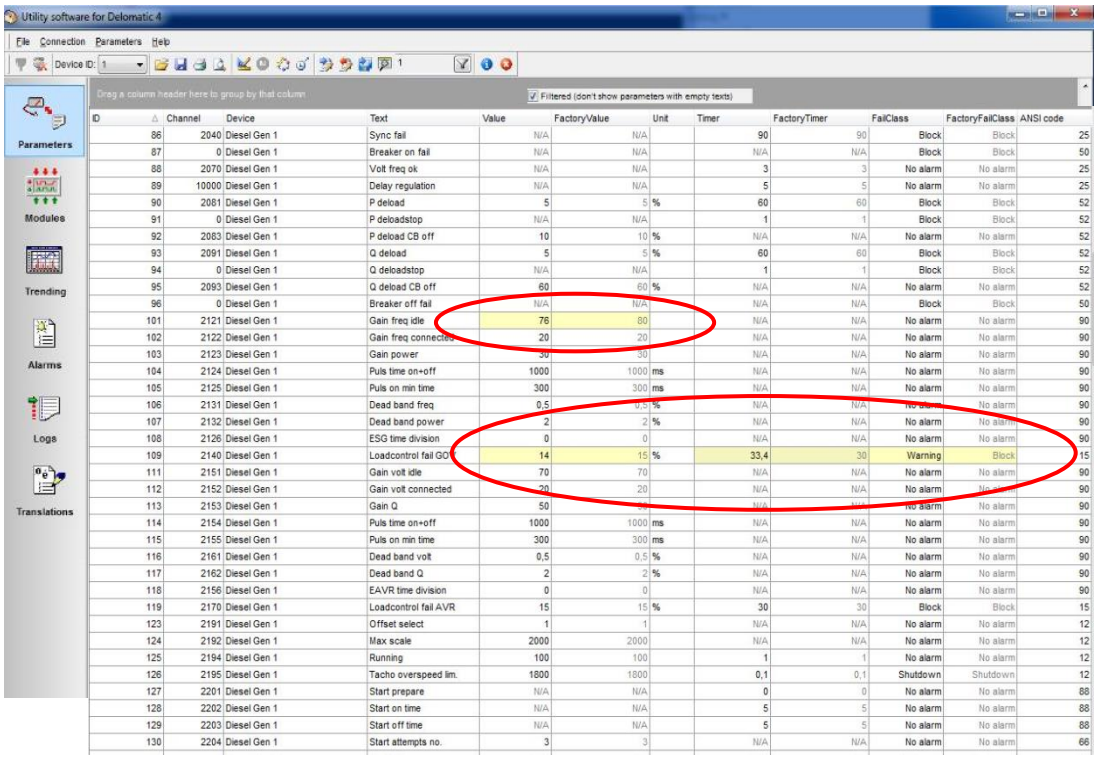
5. When changing a parameter, you may be prompted for a password.
   The factory setting of the password is “2000” and is already written as default in the dialogue box.
   Click “OK”.




**After changing the fail class, the box will change into yellow, indicating that the parameter setting is different from the factory settings. The following page will give you a better illustration.**

# 8. Comparing parameters with Delomatic 4 Utility Software

You can compare the parameters by clicking the button  “Compare to factory settings”.
The view is now expanded, and the user can easily compare the changed parameters to the factory settings.
The updated settings will be highlighted in yellow for easy indication.

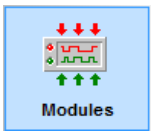



| ID | Channel | Device | Text | Value | FactoryValue | Unit | Timer | FactoryTimer | FailClass | FactoryFailClass | ANSI code |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86 | 2040 | Diesel Gen 1 | Sync fail | N/A | N/A | | 90 | 90 | Block | Block | 25 |
| 87 | 0 | Diesel Gen 1 | Breaker on fail | N/A | N/A | | N/A | N/A | Block | Block | 50 |
| 88 | 2070 | Diesel Gen 1 | Volt freq ok | N/A | N/A | | 3 | 3 | No alarm | No alarm | 25 |
| 89 | 10000 | Diesel Gen 1 | Delay regulation | N/A | N/A | | 5 | 5 | No alarm | No alarm | 25 |
| 90 | 2081 | Diesel Gen 1 | P deload | 5 | 5 | % | 60 | 60 | Block | Block | 52 |
| 91 | 0 | Diesel Gen 1 | P deloadstop | N/A | N/A | | 1 | 1 | Block | Block | 52 |
| 92 | 2083 | Diesel Gen 1 | P deload CB off | 10 | 10 | % | N/A | N/A | No alarm | No alarm | 52 |
| 93 | 2091 | Diesel Gen 1 | Q deload | 5 | 5 | % | 60 | 60 | Block | Block | 52 |
| 94 | 0 | Diesel Gen 1 | Q deloadstop | N/A | N/A | | 1 | 1 | Block | Block | 52 |
| 95 | 2093 | Diesel Gen 1 | Q deload CB off | 60 | 60 | % | N/A | N/A | No alarm | No alarm | 52 |
| 96 | 0 | Diesel Gen 1 | Breaker off fail | N/A | N/A | | N/A | N/A | Block | Block | 50 |
| 101 | 2121 | Diesel Gen 1 | Gain freq idle | 76 | 80 | | N/A | N/A | No alarm | No alarm | 90 |
| 102 | 2122 | Diesel Gen 1 | Gain freq connected | 20 | 20 | | N/A | N/A | No alarm | No alarm | 90 |
| 103 | 2123 | Diesel Gen 1 | Gain power | 30 | 30 | | N/A | N/A | No alarm | No alarm | 90 |
| 104 | 2124 | Diesel Gen 1 | Puls time on+off | 1000 | 1000 | ms | N/A | N/A | No alarm | No alarm | 90 |
| 105 | 2125 | Diesel Gen 1 | Puls on min time | 300 | 300 | ms | N/A | N/A | No alarm | No alarm | 90 |
| 106 | 2131 | Diesel Gen 1 | Dead band freq | 0,5 | 0,5 | % | N/A | N/A | No alarm | No alarm | 90 |
| 107 | 2132 | Diesel Gen 1 | Dead band power | 2 | 2 | % | N/A | N/A | No alarm | No alarm | 90 |
| 108 | 2126 | Diesel Gen 1 | ESG time division | 0 | 0 | | N/A | N/A | No alarm | No alarm | 90 |
| 109 | 2140 | Diesel Gen 1 | Loadcontrol fail GO | 14 | 15 | % | 33,4 | 30 | Warning | Block | 15 |
| 111 | 2151 | Diesel Gen 1 | Gain volt idle | 70 | 70 | | N/A | N/A | No alarm | No alarm | 90 |
| 112 | 2152 | Diesel Gen 1 | Gain volt connected | 20 | 20 | | N/A | N/A | No alarm | No alarm | 90 |
| 113 | 2153 | Diesel Gen 1 | Gain Q | 50 | 50 | | N/A | N/A | No alarm | No alarm | 90 |
| 114 | 2154 | Diesel Gen 1 | Puls time on+off | 1000 | 1000 | ms | N/A | N/A | No alarm | No alarm | 90 |
| 115 | 2155 | Diesel Gen 1 | Puls on min time | 300 | 300 | ms | N/A | N/A | No alarm | No alarm | 90 |
| 116 | 2161 | Diesel Gen 1 | Dead band volt | 0,5 | 0,5 | % | N/A | N/A | No alarm | No alarm | 90 |
| 117 | 2162 | Diesel Gen 1 | Dead band Q | 2 | 2 | % | N/A | N/A | No alarm | No alarm | 90 |
| 118 | 2156 | Diesel Gen 1 | EAVR time division | 0 | 0 | | N/A | N/A | No alarm | No alarm | 90 |
| 119 | 2170 | Diesel Gen 1 | Loadcontrol fail AVR | 15 | 15 | % | 30 | 30 | Block | Block | 15 |
| 123 | 2191 | Diesel Gen 1 | Offset select | 1 | 1 | | N/A | N/A | No alarm | No alarm | 12 |
| 124 | 2192 | Diesel Gen 1 | Max scale | 2000 | 2000 | | N/A | N/A | No alarm | No alarm | 12 |
| 125 | 2194 | Diesel Gen 1 | Running | 100 | 100 | | 1 | 1 | No alarm | No alarm | 12 |
| 126 | 2195 | Diesel Gen 1 | Tacho overspeed lim. | 1800 | 1800 | | 0,1 | 0,1 | Shutdown | Shutdown | 12 |
| 127 | 2201 | Diesel Gen 1 | Start prepare | N/A | N/A | | 0 | 0 | No alarm | No alarm | 88 |
| 128 | 2202 | Diesel Gen 1 | Start on time | N/A | N/A | | 5 | 5 | No alarm | No alarm | 88 |
| 129 | 2203 | Diesel Gen 1 | Start off time | N/A | N/A | | 5 | 5 | No alarm | No alarm | 88 |
| 130 | 2204 | Diesel Gen 1 | Start attempts no. | 3 | 3 | | N/A | N/A | No alarm | No alarm | 66 |

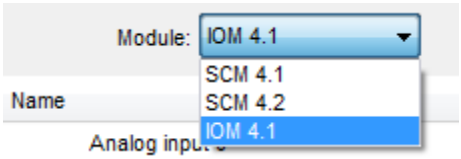
**This function can only be used in projects using PCM4.5.**

# 9. Modules

The Modules function can for example be used to perform a real-time monitoring of the digital or analogue inputs/outputs, or to monitor the generator live values.

1. Click the Modules button 


2. Select which module to monitor



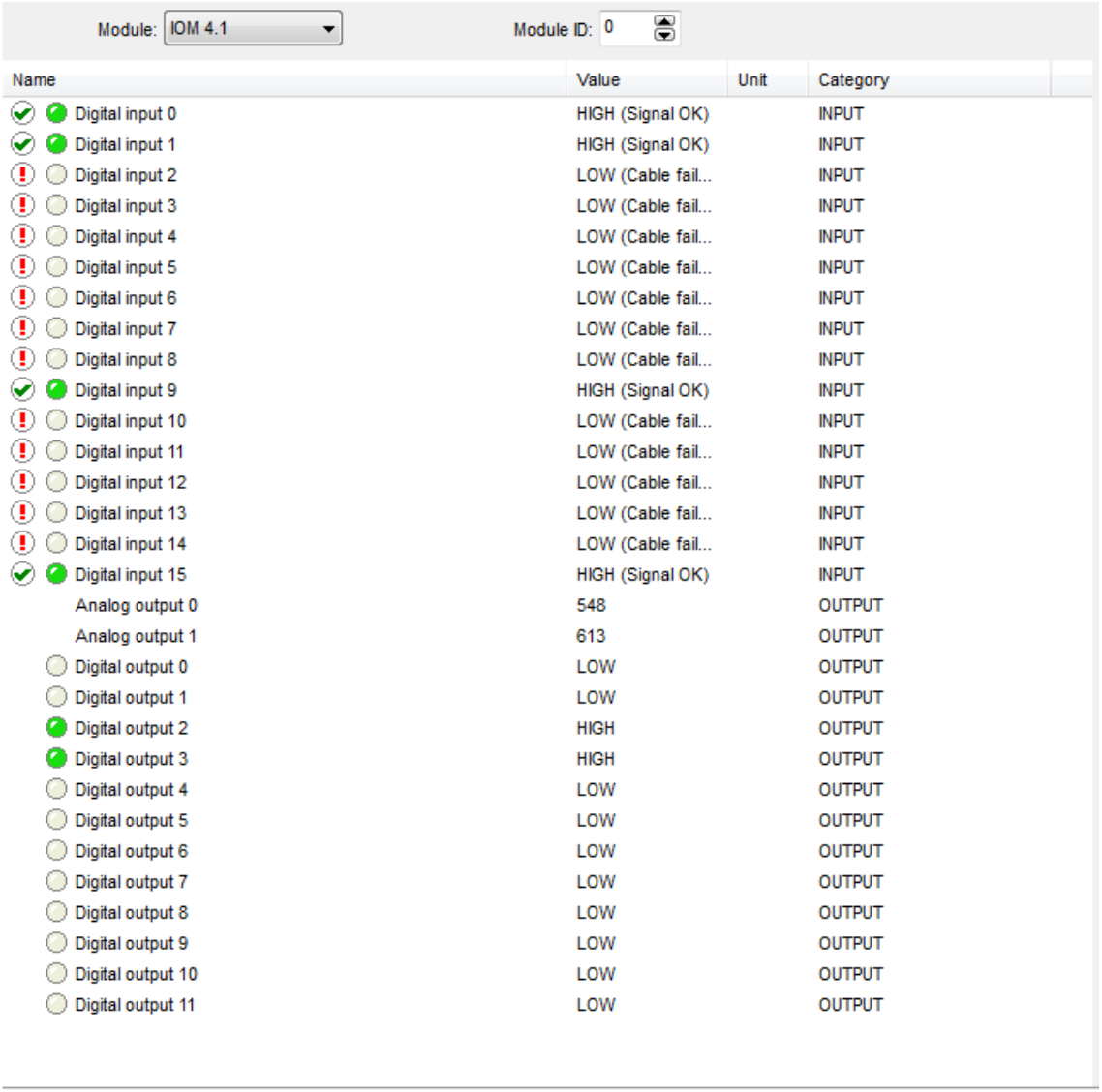

For available modules in your system, please refer to the document "43xxxx0105a_1IOlist".

3. Select Module ID of the desired module by clicking the arrows up/down.


For available modules in your system, please refer to the document "43xxxx0105a_1IOlist".

4. Example of an IOM4.1 module with Module ID 0.
   The green colour icon indicates that the inputs/output are active, which is also indicated by a High/Low text in the coloumn “Value”.

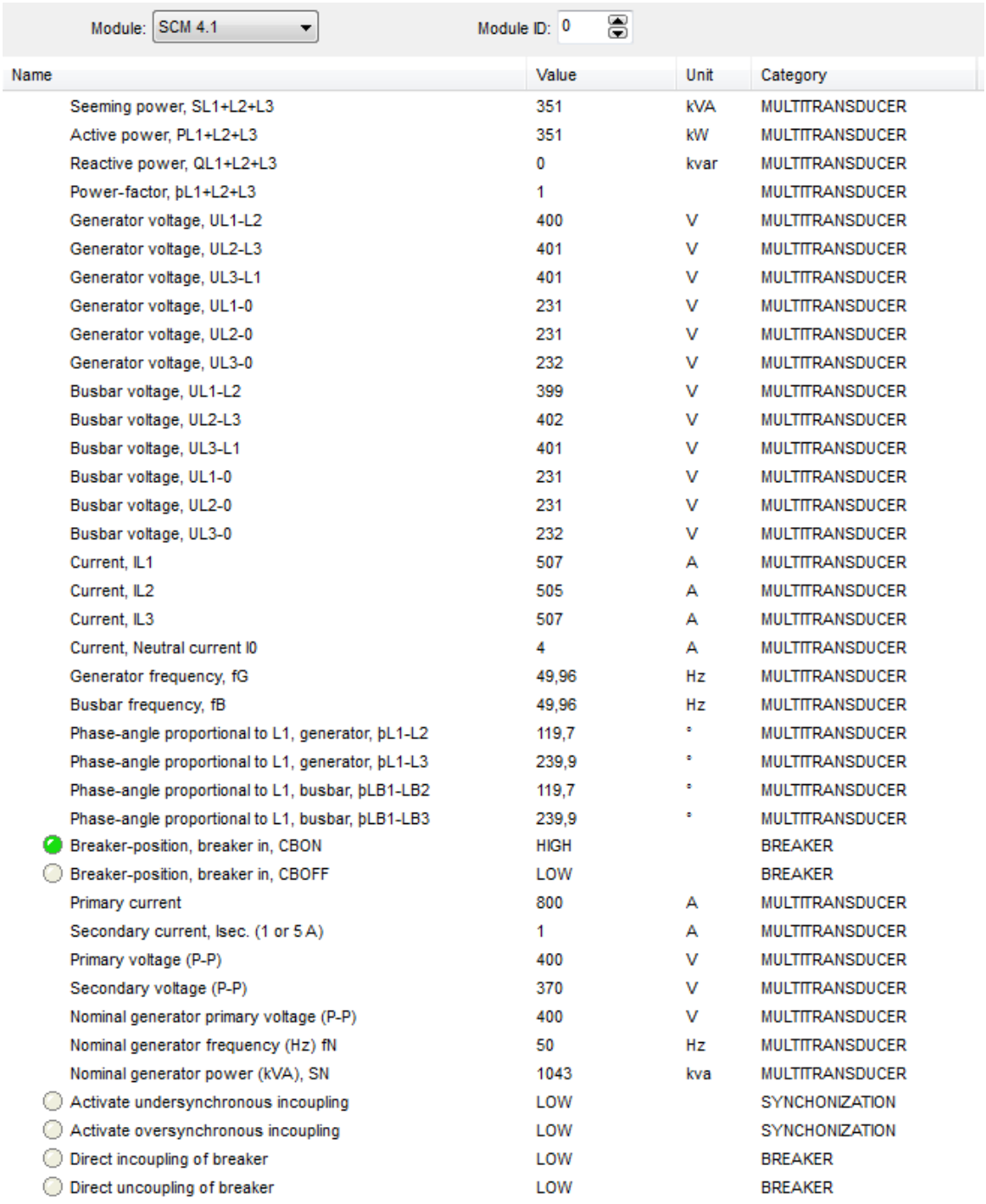
   For description of which signals represent the inputs/outputs in question in your system, please refer to the document “43xxxx0105a_1IOlist”.




| Name | Value | Unit | Category |
|---|---|---|---|
| Digital input 0 | HIGH (Signal OK) | | INPUT |
| Digital input 1 | HIGH (Signal OK) | | INPUT |
| Digital input 2 | LOW (Cable fail... | | INPUT |
| Digital input 3 | LOW (Cable fail... | | INPUT |
| Digital input 4 | LOW (Cable fail... | | INPUT |
| Digital input 5 | LOW (Cable fail... | | INPUT |
| Digital input 6 | LOW (Cable fail... | | INPUT |
| Digital input 7 | LOW (Cable fail... | | INPUT |
| Digital input 8 | LOW (Cable fail... | | INPUT |
| Digital input 9 | HIGH (Signal OK) | | INPUT |
| Digital input 10 | LOW (Cable fail... | | INPUT |
| Digital input 11 | LOW (Cable fail... | | INPUT |
| Digital input 12 | LOW (Cable fail... | | INPUT |
| Digital input 13 | LOW (Cable fail... | | INPUT |
| Digital input 14 | LOW (Cable fail... | | INPUT |
| Digital input 15 | HIGH (Signal OK) | | INPUT |
| Analog output 0 | 548 | | OUTPUT |
| Analog output 1 | 613 | | OUTPUT |
| Digital output 0 | LOW | | OUTPUT |
| Digital output 1 | LOW | | OUTPUT |
| Digital output 2 | HIGH | | OUTPUT |
| Digital output 3 | HIGH | | OUTPUT |
| Digital output 4 | LOW | | OUTPUT |
| Digital output 5 | LOW | | OUTPUT |
| Digital output 6 | LOW | | OUTPUT |
| Digital output 7 | LOW | | OUTPUT |
| Digital output 8 | LOW | | OUTPUT |
| Digital output 9 | LOW | | OUTPUT |
| Digital output 10 | LOW | | OUTPUT |
| Digital output 11 | LOW | | OUTPUT |

5. Example of an SCM4.1 module with Module ID 0.
   Each live value is described with text, and in the right coloumn the live value can be monitored.

   For description of which signals represent the live values in question in your system, please refer to the documents “43xxxx0105a_1IOlist” and ”43xxxx0001a_SingleLineDiagram”.


Module: SCM 4.1 Module ID: 0

| Name | Value | Unit | Category |
|---|---|---|---|
| Seeming power, SL1+L2+L3 | 351 | kVA | MULTITRANSDUCER |
| Active power, PL1+L2+L3 | 351 | kW | MULTITRANSDUCER |
| Reactive power, QL1+L2+L3 | 0 | kvar | MULTITRANSDUCER |
| Power-factor, þL1+L2+L3 | 1 | | MULTITRANSDUCER |
| Generator voltage, UL1-L2 | 400 | V | MULTITRANSDUCER |
| Generator voltage, UL2-L3 | 401 | V | MULTITRANSDUCER |
| Generator voltage, UL3-L1 | 401 | V | MULTITRANSDUCER |
| Generator voltage, UL1-0 | 231 | V | MULTITRANSDUCER |
| Generator voltage, UL2-0 | 231 | V | MULTITRANSDUCER |
| Generator voltage, UL3-0 | 232 | V | MULTITRANSDUCER |
| Busbar voltage, UL1-L2 | 399 | V | MULTITRANSDUCER |
| Busbar voltage, UL2-L3 | 402 | V | MULTITRANSDUCER |
| Busbar voltage, UL3-L1 | 401 | V | MULTITRANSDUCER |
| Busbar voltage, UL1-0 | 231 | V | MULTITRANSDUCER |
| Busbar voltage, UL2-0 | 231 | V | MULTITRANSDUCER |
| Busbar voltage, UL3-0 | 232 | V | MULTITRANSDUCER |
| Current, IL1 | 507 | A | MULTITRANSDUCER |
| Current, IL2 | 505 | A | MULTITRANSDUCER |
| Current, IL3 | 507 | A | MULTITRANSDUCER |
| Current, Neutral current I0 | 4 | A | MULTITRANSDUCER |
| Generator frequency, fG | 49,96 | Hz | MULTITRANSDUCER |
| Busbar frequency, fB | 49,96 | Hz | MULTITRANSDUCER |
| Phase-angle proportional to L1, generator, þL1-L2 | 119,7 | ° | MULTITRANSDUCER |
| Phase-angle proportional to L1, generator, þL1-L3 | 239,9 | ° | MULTITRANSDUCER |
| Phase-angle proportional to L1, busbar, þLB1-LB2 | 119,7 | ° | MULTITRANSDUCER |
| Phase-angle proportional to L1, busbar, þLB1-LB3 | 239,9 | ° | MULTITRANSDUCER |
| Breaker-position, breaker in, CBON | HIGH | | BREAKER |
| Breaker-position, breaker in, CBOFF | LOW | | BREAKER |
| Primary current | 800 | A | MULTITRANSDUCER |
| Secondary current, Isec. (1 or 5 A) | 1 | A | MULTITRANSDUCER |
| Primary voltage (P-P) | 400 | V | MULTITRANSDUCER |
| Secondary voltage (P-P) | 370 | V | MULTITRANSDUCER |
| Nominal generator primary voltage (P-P) | 400 | V | MULTITRANSDUCER |
| Nominal generator frequency (Hz) fN | 50 | Hz | MULTITRANSDUCER |
| Nominal generator power (kVA), SN | 1043 | kva | MULTITRANSDUCER |
| Activate undersynchronous incoupling | LOW | | SYNCHONIZATION |
| Activate oversynchronous incoupling | LOW | | SYNCHONIZATION |
| Direct incoupling of breaker | LOW | | BREAKER |
| Direct uncoupling of breaker | LOW | | BREAKER |

6. Example of an SCM4.2 module with AVR regulation and Module ID 0.
   Each live value is described with text, and in the right coloumn the live value can be monitored.

   For description of which signals represent the live values in question in your system, please refer to the documents “43xxxx0105a_1IOlist” and ”43xxxx0001a_SingleLineDiagram”.

Module: SCM 4.2 Module ID: 0

| Name | Value | Unit | Category |
|---|---|---|---|
| Seeming power, SL1+L2+L3 | 351 | kVA | MULTITRANSDUCER |
| Active power, PL1+L2+L3 | 351 | kW | MULTITRANSDUCER |
| Reactive power, QL1+L2+L3 | 0 | kvar | MULTITRANSDUCER |
| Power-factor, þL1+L2+L3 | 1 | | MULTITRANSDUCER |
| Generator voltage, UL1-L2 | 400 | V | MULTITRANSDUCER |
| Generator voltage, UL2-L3 | 402 | V | MULTITRANSDUCER |
| Generator voltage, UL3-L1 | 401 | V | MULTITRANSDUCER |
| Generator voltage, UL1-0 | 231 | V | MULTITRANSDUCER |
| Generator voltage, UL2-0 | 231 | V | MULTITRANSDUCER |
| Generator voltage, UL3-0 | 232 | V | MULTITRANSDUCER |
| Busbar voltage, UL1-L2 | 399 | V | MULTITRANSDUCER |
| Busbar voltage, UL2-L3 | 402 | V | MULTITRANSDUCER |
| Busbar voltage, UL3-L1 | 401 | V | MULTITRANSDUCER |
| Busbar voltage, UL1-0 | 231 | V | MULTITRANSDUCER |
| Busbar voltage, UL2-0 | 231 | V | MULTITRANSDUCER |
| Busbar voltage, UL3-0 | 232 | V | MULTITRANSDUCER |
| Current, IL1 | 507 | A | MULTITRANSDUCER |
| Current, IL2 | 505 | A | MULTITRANSDUCER |
| Current, IL3 | 508 | A | MULTITRANSDUCER |
| Current, Neutral current I0 | 4 | A | MULTITRANSDUCER |
| Generator frequency, fG | 49,97 | Hz | MULTITRANSDUCER |
| Busbar frequency, fB | 49,97 | Hz | MULTITRANSDUCER |
| Phase-angle proportional to L1, generator, þL1-L2 | 119,7 | ° | MULTITRANSDUCER |
| Phase-angle proportional to L1, generator, þL1-L3 | 239,8 | ° | MULTITRANSDUCER |
| Phase-angle proportional to L1, busbar, þLB1-LB2 | 119,6 | ° | MULTITRANSDUCER |
| Phase-angle proportional to L1, busbar, þLB1-LB3 | 239,9 | ° | MULTITRANSDUCER |
| Regulator output to govenor | 0 | Hz | SYNCHRONIZATION |
| Regulator output to AVR | 0 | V | SYNCHRONIZATION |
| Regulator output to govenor | -2 | kW | ACTIVE LOAD |
| Regulator output to govenor | 0 | Hz | FREQUENCY |
| Regulator output to AVR | 0 | kvar | REACTIVE LOAD |
| Regulator output to AVR | 0 | V | VOLTAGE |
| Breaker-position, breaker in, CBON | HIGH | | BREAKER |
| Breaker-position, breaker in, CBOFF | LOW | | BREAKER |
| Auto/manual change-over switch (ON for auto) | HIGH | | BREAKER |
| Primary current | 800 | A | MULTITRANSDUCER |
| Secondary current, Isec. (1 or 5 A) | 1 | A | MULTITRANSDUCER |
| Primary voltage (P-P) | 400 | V | MULTITRANSDUCER |
| Secondary voltage (P-P) | 370 | V | MULTITRANSDUCER |
| Nominal generator primary voltage (P-P) | 400 | V | MULTITRANSDUCER |
| Nominal generator frequency (Hz) fN | 50 | Hz | MULTITRANSDUCER |
| Nominal generator power (kVA), SN | 1043 | kva | MULTITRANSDUCER |
| Reference for power-regulator, Pset | 351 | kW | ACTIVE LOAD |
| Reference for frequency-regulator | 50 | Hz | FREQUENCY |
| Reference for reactive power-regulator | 0 | kvar | REACTIVE LOAD |
| Reference for voltage-regulator (P-N primary) | 231 | V | REACTIVE LOAD |
| Activate undersynchronous incoupling | LOW | | SYNCHONIZATION |
| Activate oversynchronous incoupling | LOW | | SYNCHONIZATION |
| Activate regulation of active power | HIGH | | ACTIVE LOAD |
| Activate regulation of frequency | LOW | | FREQUENCY |
| Activate regulation of reactive power | HIGH | | REACTIVE LOAD |
| Activate regulation of voltage | LOW | | VOLTAGE |
| Direct incoupling of breaker | LOW | | BREAKER |
| Direct uncoupling of breaker | LOW | | BREAKER |

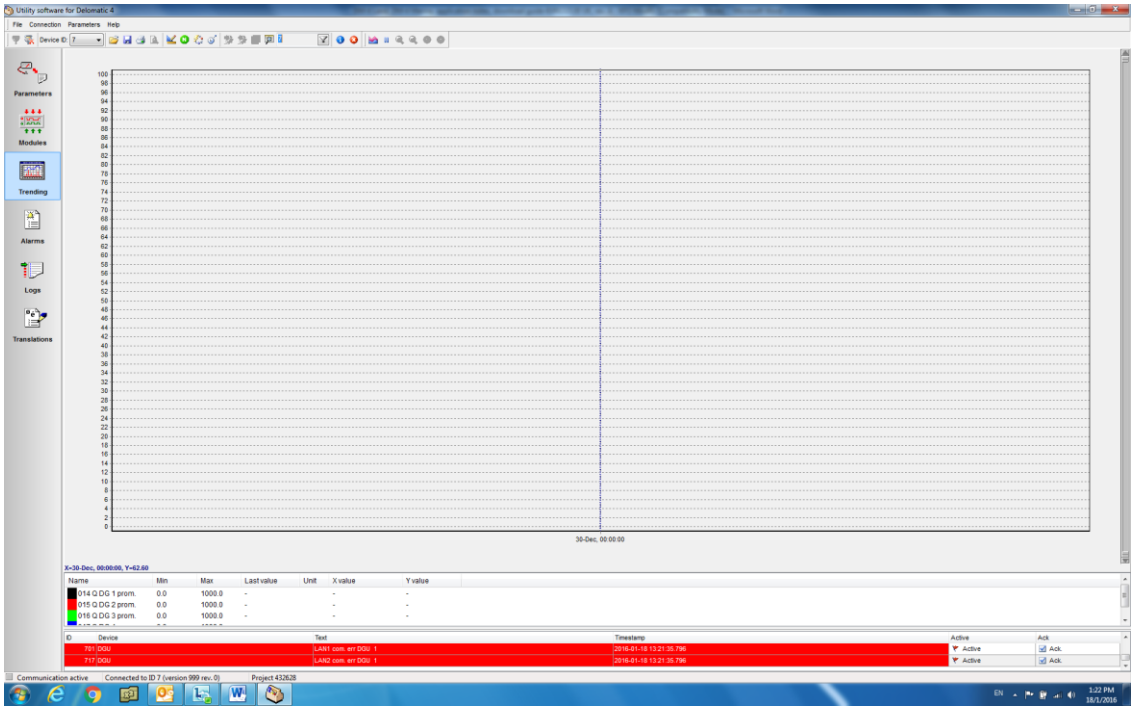
# 10. Trending

The trending function can for example be used to perform a real-time monitoring on the engine performance.

1. Click the trending button 

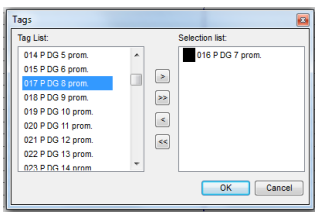
.

2. To add trends, click  “Edit the trending tags”.

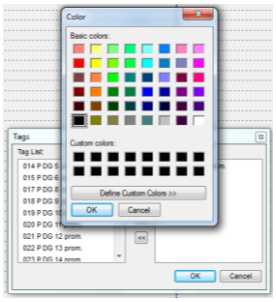



3. From the trending tag, choose the desired trending you would like to monitor, for example DG kW, kvar, and so on.

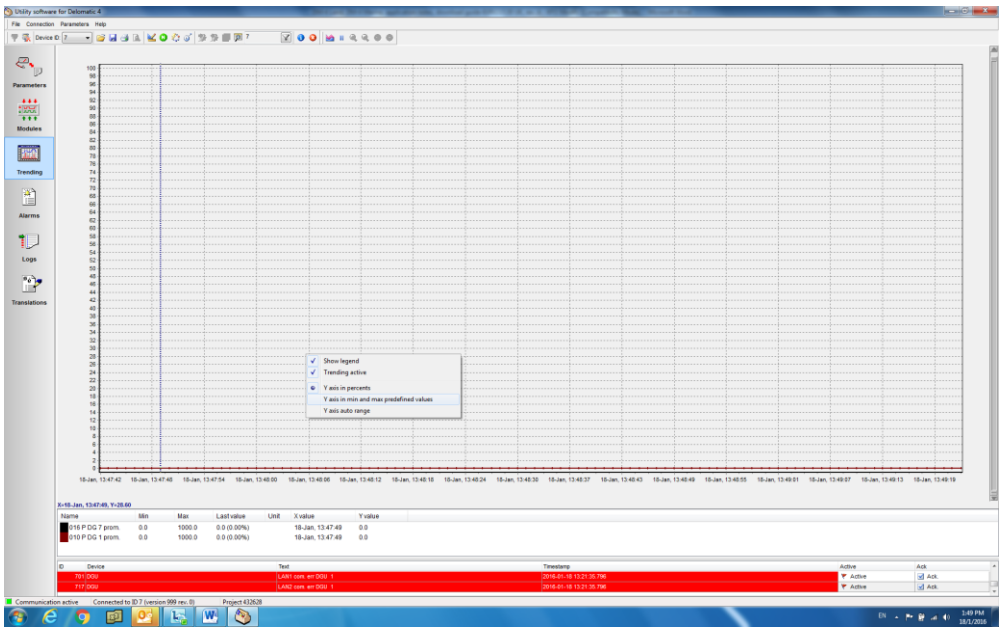
   Then click  and click OK. The USW will now monitor what is selected under the selection list.



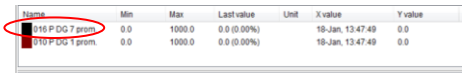
4. Select your preferred trend curve colour by double-clicking the desired colour icon.



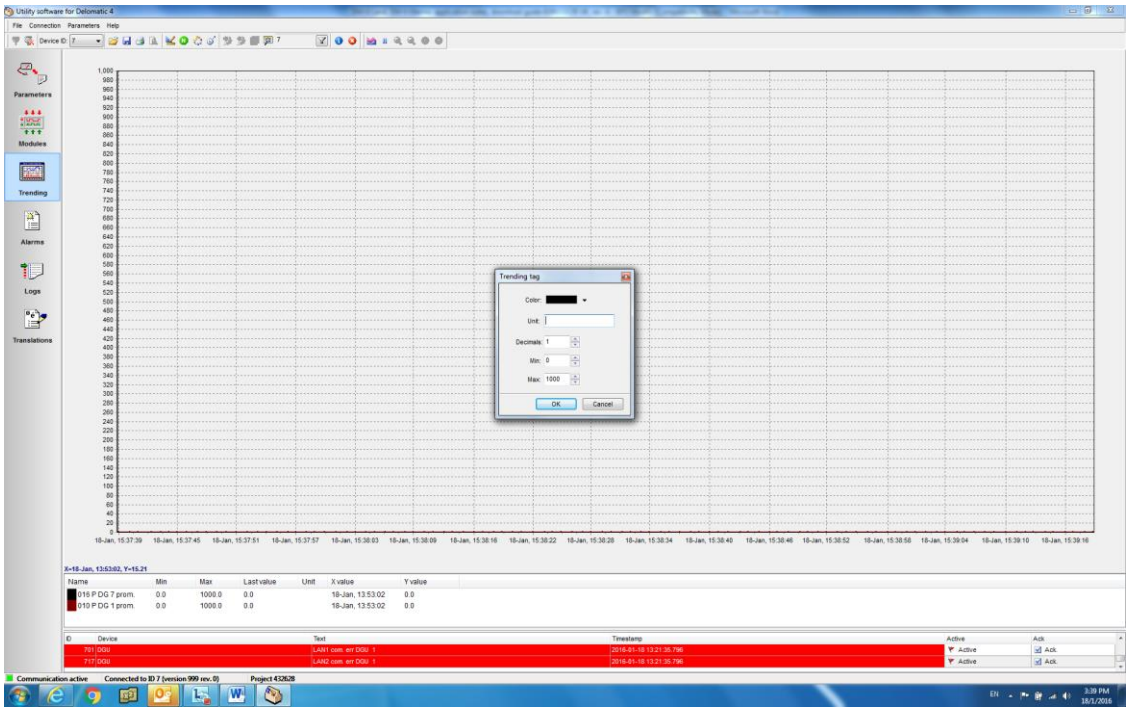
5. Select display of the trend curve as either percentage or actual value by right-clicking the trend field.



6. If “Y axis in min and max predefined values” is chosen, the min and max value can be set by double-clicking the following:

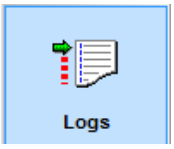


The following dialogue box will pop up. The user can now set the minimum and maximum value.



# 11. Logs

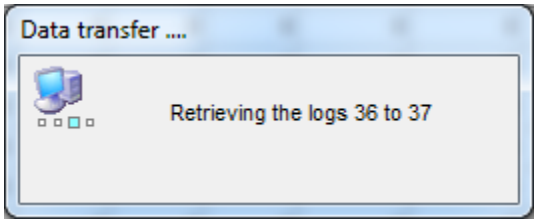
The Logs function can be used to draw out the complete alarm- and event log from the device. This is a commonly used function when performing troubleshooting either locally or by remote support.

1. Click the Logs button 


2. Click either the “Read logs” button 

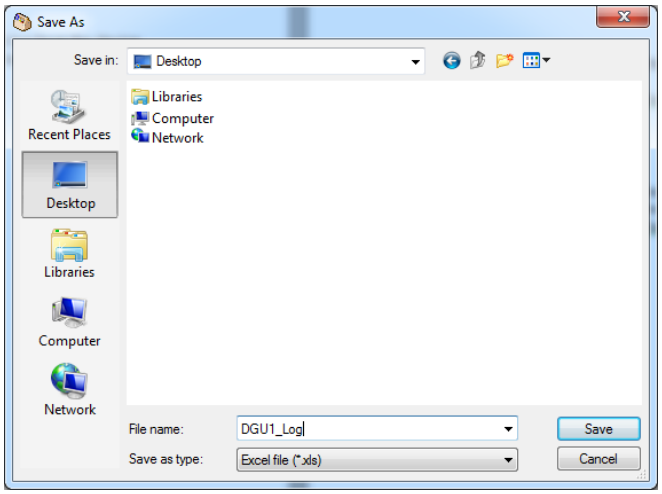
, or the “Read from the device” button  .

3. The current log will be retrieved from the device.




4. The current log will be retrieved from the device.

5. The log can be saved on the laptop by selecting “File” in the top menu bar, and “Save”. Name the log according to the DGU it was downloaded from, for example “DGU1_Logs”.




**The following functions can only be used in projects using PCM4.5.**

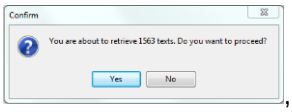
6. In the top menu bar of the log overview, the following values will be active:
    a. ID
    *Important to inform in case of remote support.*
    b. Channel
    c. Device text
    d. Log text
    e. TimeStamp
    f. Values when the alarm/event appeared
    g. Trig value of the alarm that was released (only for alarms)
    *Important to inform in case of remote support.*

# 12. Changing text (translation)

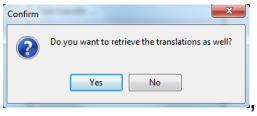
With the translation, the user can change the text to their preference by clicking the following button 

in the left side menu bar.

Then click the button  “Get languages from the device”.

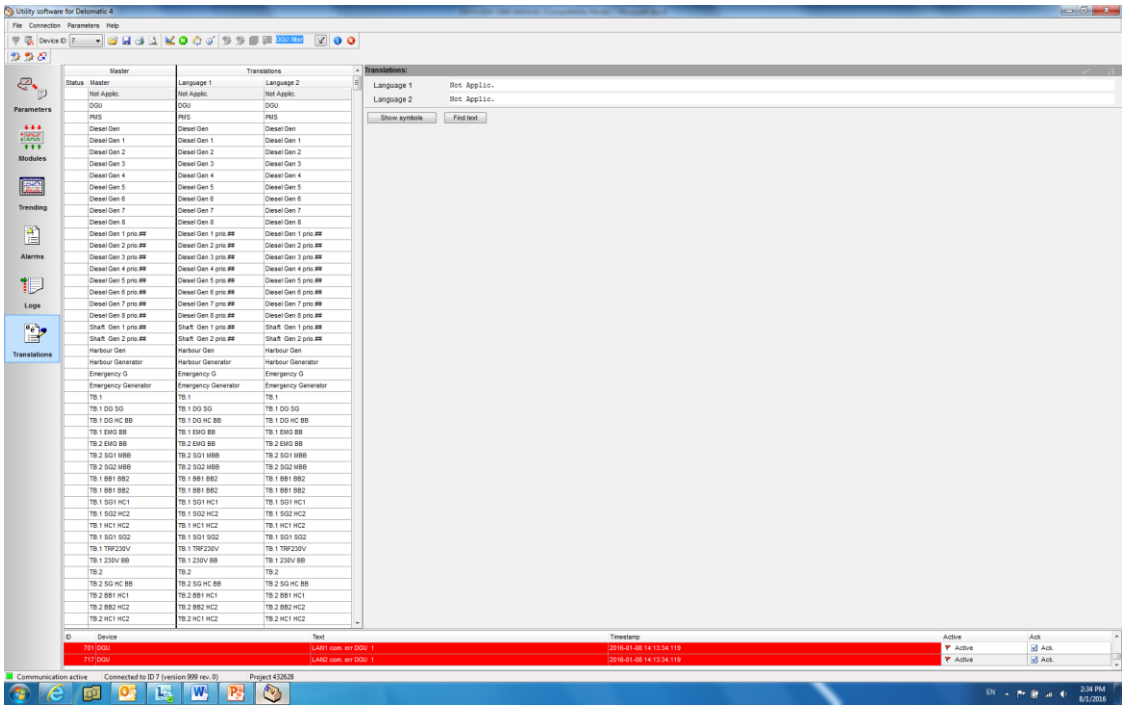
When prompted to retrieve all texts 

, click Yes.

When prompted to retrieve all translations 

, click Yes.

After retrieving all texts and translation, the user can now change the text to their own preferences.



There will be three text banks with two user-configurables and one master, which is a factory text. The user can input two different texts in the configurable text bank via “Language 1” and “Language 2”.
In the Delomatic 4 display unit, it is possible to choose the language to be displayed.

**This function can only be used in projects using PCM4.5.**