DEIF

-power in control

$C \, E$

OPERATOR'S MANUAL

Compact Genset Controller, CGC 200

- Push-buttons, LEDs and display
- Basic tasks
- Controller parameters
- Monitoring operating data

6. Glossary

1. Introduction

1.1 About the Operator's manual

1.1.1 General purpose

This is the **Operator's manual** for DEIF's Compact Genset Controller, the CGC 200 series. The general purpose is to give the operator important information to be used in the daily operation of the unit.

⚠ **Please read this manual before working with the CGC 200 controller and the genset to be controlled. Failure to do this could result in damage to the equipment or human injury.**

The document includes information about push-buttons, LEDs, display readings and an icon list. Basic tasks are described, as well as using the utility software to monitor operation.

1.1.2 Intended users

This Operator's manual is mainly intended for the daily user. Using the information in this document, the operator will be able to carry out simple day-to-day tasks. The operator will also be able to monitor the system using the utility software.

1.1.3 Revision information

The letter at the end of the document number on the front page indicates the revision number of this document.

The latest version of this document can be downloaded at www.deif.com. If you click on the revision letter to the right of the document name, the revision history is displayed.

1.1.4 Software version

This document is based on the following software versions:

Software type	Software version
CGC 200 firmware	CGC 200 SW version 1.xx
Utility software	Multi-line 2 Utility Software v.3.x.

1.1.5 Other technical documentation

The CGC 200 documentation consists of the following documents:

- Quick start guide
  - Front panel
  - Initial start-up
  - Parameter setting
  - Wiring diagram
  - Mounting
  - Some technical specifications
- Data sheet
  - Description, features, functions and approvals
  - Layout and dimensions
  - Terminals and wiring diagram
  - Technical specifications

- Designer's handbook
  - Description of functions and sequences
  - Parameters
  - Utility software
- Installation and commissioning instructions
  - Tools required
  - Mounting the controller
  - Terminals and wiring diagram
  - Parameters
  - Sequence for commissioning
  - Commissioning using the utility software
  - Commissioning using the front panel
  - Technical support
- Operator's manual
  - Basic operator tasks
  - Front panel
  - Parameters
  - Utility software
  - Technical support

Glossaries are included in the **Designer's handbook**, the **Installation and commissioning instructions** and the **Operator's manual**.

1.1.6 Getting technical support

You can read about service and support options on the DEIF website, www.deif.com. You can also find contact details on the DEIF website.

You have the following options if you need technical support for your controller:
- Technical documentation: All the product technical documentation is available on the DEIF website.
- Training: You can ask for training.
- Support: You can call or email DEIF. DEIF offers 24-hour support. There may also be a local DEIF subsidiary.
- Service: DEIF engineers can help with design, commissioning, operating and optimisation.

1.2 Warnings, safety and legal information

1.2.1 Warnings and notes

A number of warnings and notes are included in this document. These are highlighted, to separate them from the general text.

⚠️ **Warnings indicate potentially dangerous situations. If the guidelines are not followed, these situations could result in death, personal injury or damaged equipment.**

ⓘ **Notes provide general, helpful information.**

1.2.2 Safety issues

Installing and operating the unit may require work with dangerous currents and voltages. The installation must only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.

⚠ **Hazardous live currents and voltages. Do not touch any terminals, especially the AC measurement inputs. Touching the terminals could lead to injury or death.**

⚠ **DEIF does not recommend using the PC USB as the primary power supply for the CGC 200. The power drawn on start up exceeds the USB standard and may damage the PC.**

1.2.3 Factory settings

The controller is delivered pre-programmed from the factory with a set of factory settings. These are based on average values and are therefore not necessarily correct for your genset. All controller parameters must be checked before running the genset.

1.2.4 Electrostatic discharge awareness

Protect the controller terminals from static discharge during installation. You must also protect the terminals if you need to remove the controller.

These precautions are no longer necessary once the controller is correctly installed and connected, as required by the designer's wiring diagram.

1.2.5 Legal information

DEIF takes no responsibility for the installation or operation of the genset. Contact the genset company if you have any doubt about installing or operating the genset.

⚠ **The controller must not be opened by unauthorised personnel. If opened, the warranty is void.**

Disclaimer

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

Trademarks

DEIF, power in control and the DEIF logo are trademarks of DEIF A/S.
Windows is a registered trademark of Microsoft Corporation in the United States and other countries.
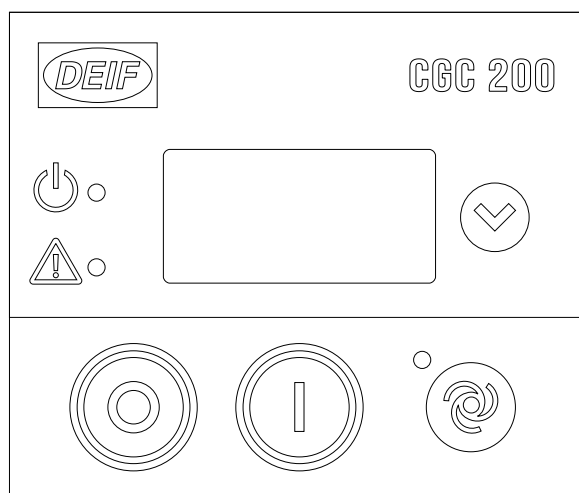All trademarks are the properties of their respective owners.

Copyright

© Copyright DEIF A/S 2012. All rights reserved.

2. Front panel, push-buttons, LEDs and display

2.1 Front panel

2.1.1 Front panel drawing
The drawing below shows the CGC 200 front panel.

2.2 Push-buttons

2.2.1 Push-button functions
The push-buttons on the front panel have the following functions:

Button	Description	Function
Stop	Stop	• Stops the engine and changes the mode to **Stop** if the genset is running. • Resets the alarms if there is a shutdown alarm. • Tests all the LEDs and the full LCD display if pressed for more than three seconds in **Stop** mode. • Changes the mode to **Manual**, if in **Auto** mode.
Start	Start	• Starts the engine (**Manual** mode only). • Changes the mode to **Manual**, if in **Auto** mode.
Auto mode	Auto mode	Changes from **Manual** to **Auto** mode.
Page down	Page down	Pages down, to show other operating values.

The push-buttons on the front panel can also be used to change the controller parameters. This is described later in this manual.

2.3 LEDs

2.3.1 LED functions

The display unit has three LEDs. The lighting and status of the LEDs vary according to the situation.

The display LEDs indicate the following:

LED	Description	Status	Situation
	Power OK	OFF	The unit is not powered up.
		RED STEADY	The power supply is within the limits.
	Alarm LED	OFF	No alarm present.
		RED FLASHING	Active, non-acknowledged alarm(s) present.
	Mode	OFF	The unit is in manual mode.
		RED STEADY	The unit is in auto mode.

2.4 Display

2.4.1 Display functions

The display (dimensions 20 mm x 40 mm) shows readings and alarms. Examples, with icons, in English, are given below.
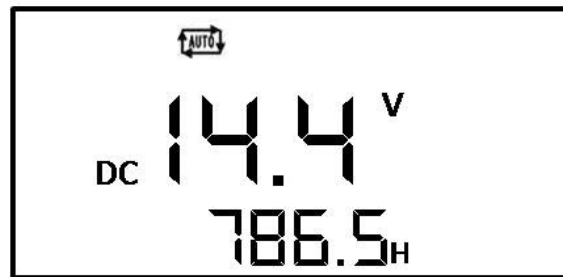
2.4.2 Display views

You can see the genset's measured values in the views on the CGC 200 LCD display. Press ⌄ to scroll through the views.

Example: Genset AC voltage and frequency (Hz)

Example: Battery DC voltage and genset running speed (RPM)

Example: Battery DC voltage and total genset running hours

2.4.3 Alarms

If an alarm is activated, it is shown on the screen by the alarm icon. See the examples below.

Example of over-speed alarm

Example of auxiliary alarm

## 2.4.4 General icons

The general icons are listed in the table below.

General icons	Description
⌐AUTO⌐	Auto mode
⓪	Stop mode
✋	Manual mode
AC	Generator voltage indication
DC	Battery voltage indication
rpm	Speed unit (revolutions per minute)
kPa	Oil pressure unit
V	Voltage unit
%	Fuel level unit (%)
ºC	Temperature unit
Hz	Frequency unit
H	Accumulated running time (hours)
○	Engine running

2.4.5 Alarm icons

The table below lists the CGC 200 display alarms icons, along with their descriptions.

Alarm icons	Description
	High temperature
	Low oil pressure
	Over-speed
	Under-speed
	Emergency stop
	Generator over-voltage
	Generator under-voltage
	Start failure
	Stop failure
	Battery over- or under-voltage
	Auxilliary alarm
	Low fuel level

2.4.6 Display

The display is a backlit LCD text display containing lines with characters and icons.

The display light intensity can be adjusted by pressing ⌄ for more than five seconds.

You can test the LED lamps and display by pressing ◎ for more than three seconds.

ⓘ **During operation, the units and icons that are not relevant will not be displayed.**

3. Using the controller

3.1 Genset control mode and status

3.1.1 Genset control mode

There are three possible genset control modes:

- Manual: The genset is started and stopped by pressing the push-buttons on the front panel.
- Auto: The genset can be started using a remote signal.
- Stop: The genset is stopped. In this mode, alarms can be reset and the display can be tested.

The genset can be on standby in the **Auto** and **Stop** modes.

3.1.2 Genset status

There are four possible genset statuses:

- Stopped
- Starting: this can include Crank, Fuel on and Not running
- Running
- Cooling down

See the **Designer's handbook** for more information about the controller functions and sequences. The **Designer's handbook** also has more information on the genset statuses listed above.

3.2 Basic tasks

3.2.1 Manual start

To start the genset manually:

1. Ensure that the controller is in **Manual** mode.

   - If the controller is in **Auto** mode, the LED next to will be lit. Press to change to **Manual** mode.

2. Press .
   - The controller will run the start sequence. If everything is OK, the genset will start.

3.2.2 Auto start

For auto start:

1. Make sure that the controller is in **Auto** mode. The LED next to will be lit in **Auto** mode.

   - If the controller is not in **Auto** mode, press .

2. Send the remote start signal to the controller. The controller will run the auto start sequence. If everything is OK, the genset will start.

3.2.3 Viewing operating values

To view operating values on the front panel, press . The display will show a new set of operating values each time the button is pressed.

3.2.4 Viewing alarms

The ⚠️○ LED flashes when there is an alarm condition. You can see which alarm is present by looking at the icons on the display.

3.2.5 Resetting alarms

To reset the alarms if there is a shutdown alarm, press ◎.

3.2.6 Stopping the genset

To stop the genset:

1. Make sure that the genset is in **Manual** mode.

   ● If the genset is in Auto mode, press ◎.

2. Press ◎.

3.2.7 Adjusting and testing the display

The display light intensity can be adjusted by pressing ⌄ for more than five seconds. Keep pressing ⌄ until the light level (0 to 7) is right for you. 0 corresponds to the dimmest light, and 7 corresponds to the brightest light.

You can test the LED lamps and display by pressing ◎ for more than three seconds. If the LED lamps are working correctly, these will all be lit. If the display is working correctly, it should look like the image below.
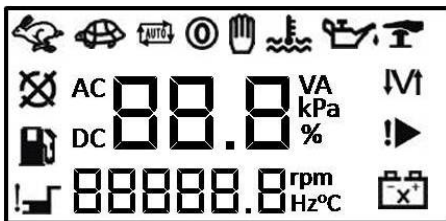
4. Parameters

4.1 Changing parameters

4.1.1 Warning about changing parameters

Be very careful about changing the controller parameters. Changing the controller parameters may affect the genset protections and performance.

The controller parameters are set during the design. These parameters may be adjusted if necessary during commissioning. Controller parameters should not be changed without first consulting qualified and experienced persons.

For more information about the controller functions and sequences that the parameters are based on, see the **Designer's handbook**.

You should make a back-up of the controller before changing parameters.

You should also make a back-up of the controller after changing parameters, to be able to restore the system in future.

⚠ **Make sure that the new controller parameters will not damage the genset system.**

4.1.2 Parameter list

The parameters used by CGC 200 that can be changed from the controller front panel are listed in the table below.

Param-eter num-ber	Parameter name	Range	De-fault value	Value chos-en*	Description
P00	Auto start delay	0 to 3600 s	1		Timer for starting using the Auto start signal
P01	Auto stop delay	0 to 3600 s	1		Timer for stopping after the Auto start signal is removed
P02	Start attempts	1 to 10	3		Number of start attempts in one start se-quence
P03	Start prepare	0 to 300 s	0		Timer for start prepare
P04	Start on time	3 to 60 s	8		Timer for starter ON time during crank-ing
P05	Start off time	3 to 60 s	10		Timer for starter OFF time before a new start attempt is made
P06	Initial inhibit de-lay	1 to 60 s	10		Timer for bypassing frequency and volt-age shutdown during starting
P07	Idle start	0 to 3600 s	0		Timer for idle speed after starting
P08	GB close delay	3 to 3600 s	10		Timer for generator breaker close after frequency and voltage OK
P09	Cooldown time	3 to 3600 s	10		Cooling down time
P10	Idle stop	0 to 3600 s	0		Timer for idle speed before stopping
P11	Extended stop	0 to 120 s	20		Timer for extended stop
P12	Stop failure	0 to 120 s	0		Maximum allowable time for stopping the genset
P13	Number of teeth	10 to 300	118		The number of teeth on flywheel. This is only used when MPU is selected as run-ning detection (see **P40**).
P14	Number of gen. poles	2 to 32	4		The number of genset poles. This is used in the frequency calculation.
P15	Hz/V OK delay	0 to 20.0 s	10.0		Voltage and frequency OK delay after starting of genset
P16	G U >	30 to 360 V	264		Generator over-voltage protection
P17	G U <	30 to 360 V	196		Generator under-voltage protection
P18	G RPM <	0 to 6000 RPM	1200		Generator under-speed protection, if running detection (see **P40**) is RPM in-put only

Param-eter num-ber	Parameter name	Range	De-fault value	Value chos-en*	Description
P19	G RPM >	0 to 6000 RPM	1710		Generator over-speed protection, if running detection (see **P40**) is RPM input only
P20	G f <	0 to 75.0 Hz	45.0		Generator under-frequency protection
P21	G f >	0 to 75.0 Hz	57.0		Generator over-frequency protection
P22	Running feed-back timer	0 to 20.0 s	5.0		Maximum allowable time for running detection (see **P40**)
P23	U > aux. term.1	12.0 to 40.0 V	33.0		High battery supply voltage
P24	U < aux. term.1	4.0 to 30.0 V	8.0		Low battery supply voltage
P25	Relay 01	0 to 6	4		See Table 1: Configurable output functions
P26	Relay 02	0 to 6	1		
P27	Relay 03	0 to 6	2		
P28	Digital input 1	0 to 10	5		See Table 2: Configurable input functions
P29	Digital input 1 timer	0 to 20.0 s	10.0		
P30	Digital input 2	0 to 10	6		
P31	Digital input 2 timer	0 to 20.0 s	2.0		
P32	Digital input 3	0 to 10	4		
P33	Digital input 3 timer	0 to 20.0 s	1.0		
P34	Digital input 4	0 to 10	2		
P35	Digital input 4 timer	0 to 20.0 s	3.0		
P36	Digital input 5	0 to 10	1		
P37	Digital input 5 timer	0 to 20.0 s	10.0		
P38	Default genset mode	0 to 2	0		0: Stop mode 1: Manual start 2: Auto start
P39	Display password	0 to 9999	2000		Prevents unauthorised changes to parameters using the controller front panel

Param-eter num-ber	Parameter name	Range	De-fault value	Value chos-en*	Description
P40	Running detect.	0 to 2	2		0: RPM 1: Genset frequency 2: RPM and frequency (running detection is present when the value required to remove the starter is met for either engine speed (see **P41**) or genset frequency (see **P42**)) For RPM, **P13** and **P41** must be defined. For frequency, **P42** must be defined.
P41	Remove starter RPM	0 to 3000 RPM	360		Minimum engine speed required for removal of the starter and running detection
P42	Remove starter Hz	10.0 to 30.0 Hz	14.0		Minimum genset frequency required for removal of the starter and running detection

*You can fill in the values chosen for your system.

The parameters used by CGC 200 that can only be viewed and changed from the utility software are listed in the table below.

Parameter number	Parameter name	Range	Default value	Value chosen*	Description
43	Calibrate AC voltage	700 to 1300	1000		See the **Designer's handbook** for more information
44	Calibrate battery voltage	700 to 1300	1000		See the **Designer's handbook** for more information
45	Running hours offset (9999-19998)	0 to 9999 hours	0		Additional offset for the genset's running time timer
46	Running hours offset (0-9999)	0 to 9999 hours	0		Additional offset for the genset's running time timer
47	Running minutes offset	0 to 59 minutes	0		Additional offset for the genset's running time timer
48	Running seconds offset	0 to 59 s	0		Additional offset for the genset's running time timer
49	Start attempts offset (9999-19998)	0 to 9999	0		Additional offset for the genset's start attempts counter
50	Start attempts offset (0-9999)	0 to 9999	0		Additional offset for the genset's start attempts counter

*You can fill in the values chosen for your system.

Table 1: Configurable output functions

Configurable output function	Value in the controller	Config. output*
Not used	0	
Common alarm	1	
Stop coil	2	
Pre-heat	4	
Idle speed	3	
Close breaker	6	

*You can fill in the number of the corresponding relay configured for this function in your system.

Table 2: Configurable input functions

Configurable input function	Value in the controller	Digital input*
Not used	0	
Remote start/stop	6	
Low fuel level warning	5	
Low oil pressure warning	8	
Low oil pressure shutdown	2	
High oil temperature warning	7	
High oil temperature shutdown	1	
High coolant temperature shutdown	9	
Auxiliary alarm shutdown (Emergency stop)	4	

*You can fill in the number of the corresponding digital input configured for this function in your system.

4.1.3 Changing parameters using the front panel

To change parameters by using the front panel:

1. Press ⊚ and ⌄ simultaneously to go into parameter setting mode.
2. The access code screen opens. The four-digit access code prevents unauthorised people from changing the CGC 200 setup via the front buttons. The factory default code is 2000. To enter the access code:

    1. Press ⊚ to increase the value of the digit where the cursor is blinking. You can use Ⅰ to decrease the value.

    2. Press ⌄ to move to the next digit.

    3. When the cursor is on the last digit, press ⌄ to enter the access code. The parameter list now opens.

3. Press ⊚ or Ⅰ to get to the parameter you want to change.

4. Press ⌄ to start editing the parameter.

    1. Press ⊚ to increase the value of the digit where the cursor is blinking. You can use Ⅰ to decrease the value.

    2. Press ⌄ to move to the next digit.

    3. When the cursor is on the last digit, press ⌄ to enter the change.

    4. After the change is entered, none of the parameter digits will blink. You can now press ⊚ or Ⅰ to get to the next parameter you want to change.

5. When you have finished changing parameters, press ⊚ to exit parameter setting mode.

The table below lists the functions of the push-buttons in parameter setting mode.

Button	Description	Function
and	OFF and PAGE DOWN together	Enter parameter setting mode
	AUTO	Increase value, or next parameter
	ON	Decrease value, or previous parameter
	PAGE DOWN	Next, or Enter
	OFF	Exit

5. Using the Utility Software

5.1 Getting started

5.1.1 Installing the Utility Software

The Utility Software (USW) must be installed on a PC (either a laptop or a desktop computer) running the Microsoft Windows operating system.

(i) **Do not connect the controller to the PC (using the USB cable) before the software is installed. Microsoft Windows creates an incorrect USB driver if the controller is connected before the software is installed. If you have this problem, you need to find the correct USB driver in the software installation folder and install it.**

The USW is normally downloaded from DEIF via the internet.
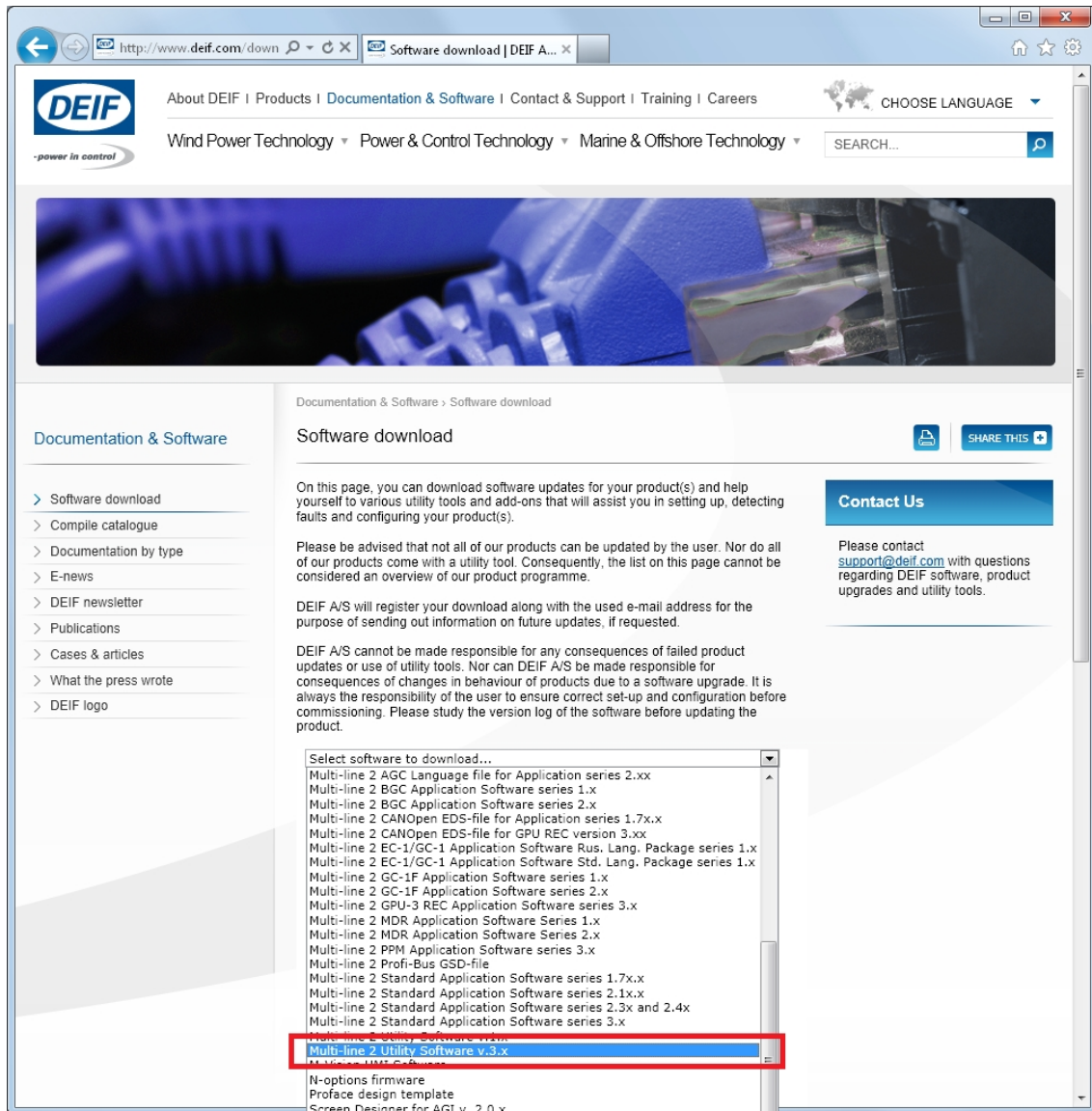
To download the Utility Software:
1. Open www.deif.com in a browser.
2. Click **Documentation and Software** in the top menu.
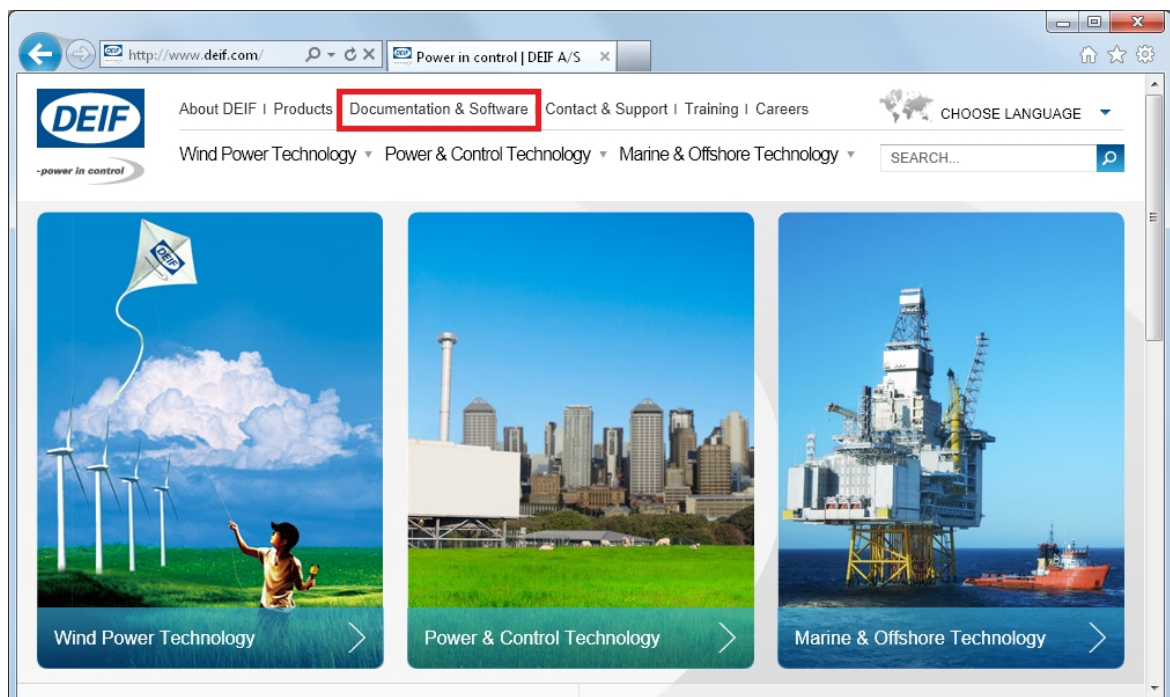
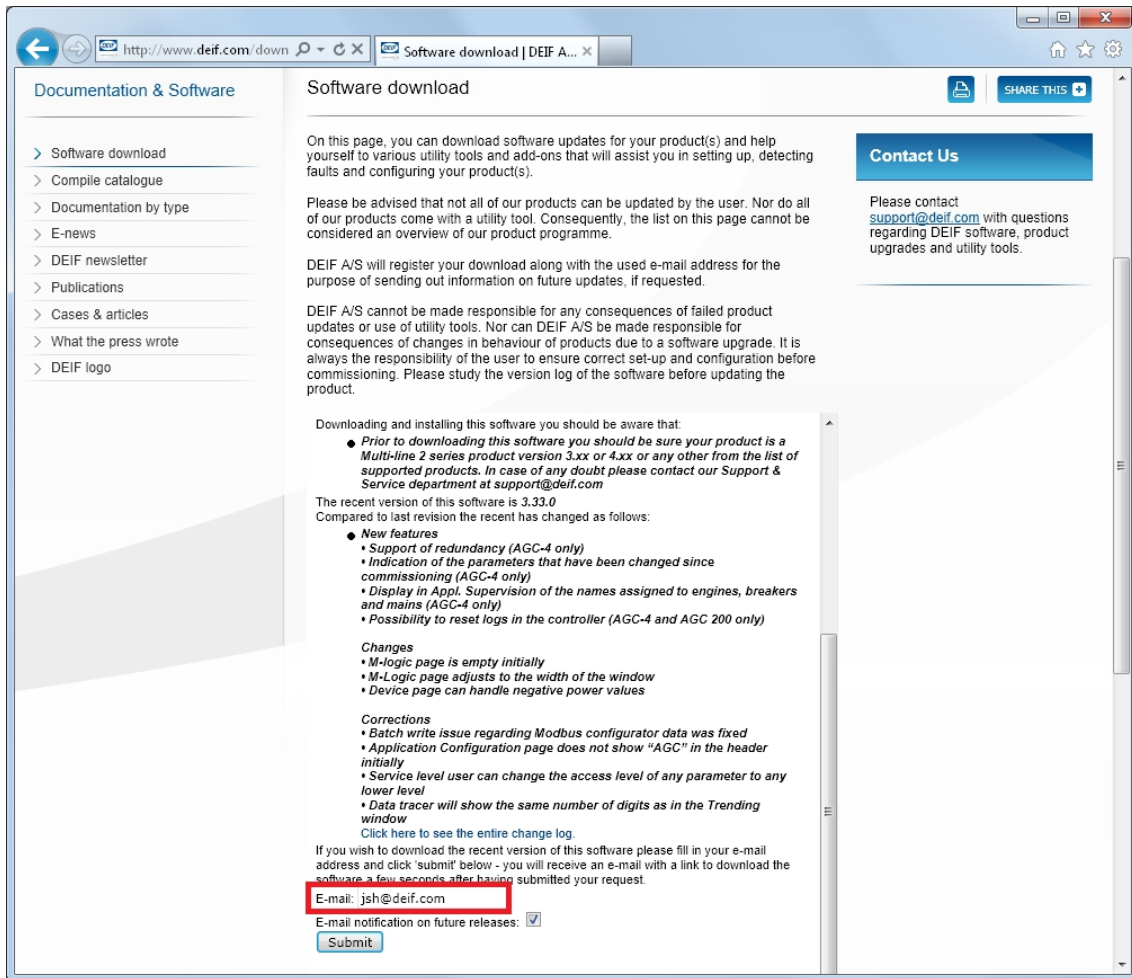3. Click **Software download** on the left side of the page.
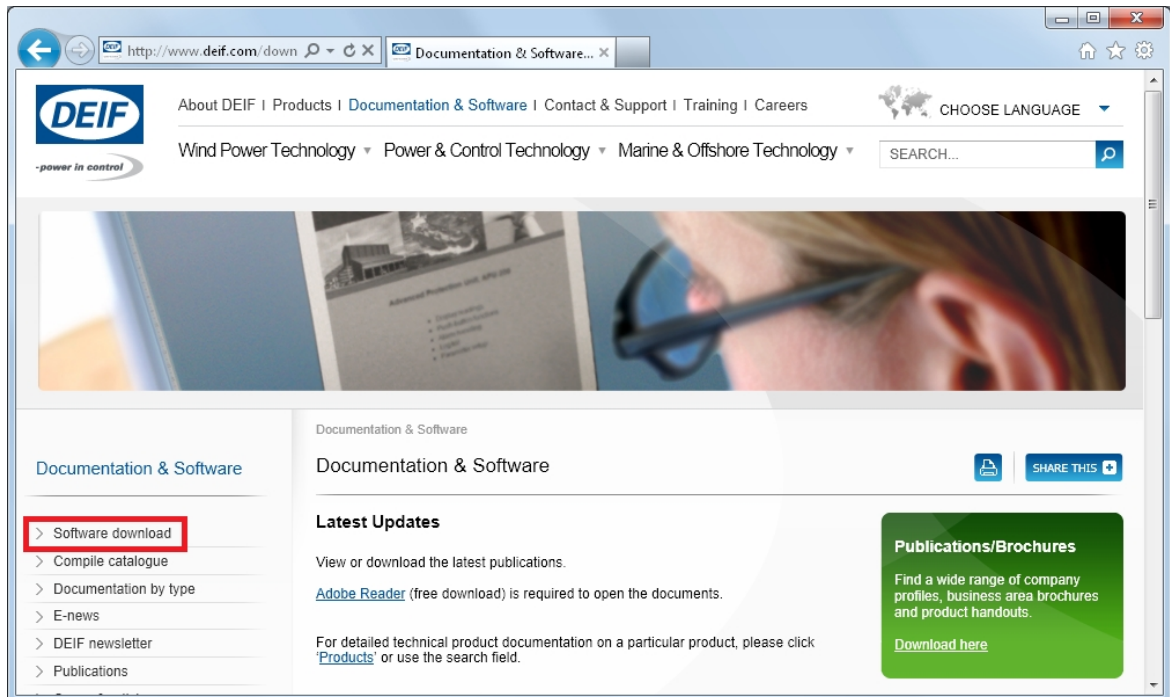
4. Select **Multi-line 2 Utility Software v.3.x.** from the drop-down list.

A dialogue box opens, with information about the most recent version of the software.

5. Enter your email address. Click **Submit**. An email with a link to download the software will be sent to you.

6. Click the link in the email to download the executable Utility Software setup file.

To install the Utility Software:
1. After downloading the software, choose **Run**. An installation wizard opens.
2. Use the suggested default settings.
   ● Note: Option N refers to a TCP/IP connection, and is not relevant for CGC 200.

3. When the installation is complete, there will be a Utility Software shortcut icon ( ) on your PC desktop.

5.1.2 Starting the Utility Software
To start using the Utility Software:

1. Double click the Utility Software shortcut icon (   ) on your desktop. The Utility Software program will open.
2. The first time you use the Utility Software, you need to set up the connection to the CGC 200:

> ⚠ **DEIF does not recommend using the PC USB as the primary power supply for the CGC 200. The power drawn on start up exceeds the USB standard and may damage the PC.**

   1. Use the USB cable to connect the CGC 200 to the PC. The CGC 200 Power OK LED should light up.
   2. If the Settings dialogue box does not open automatically, select **File**, then click **Settings**. Alternatively, press F3, or click the Settings icon (   ) on the toolbar.
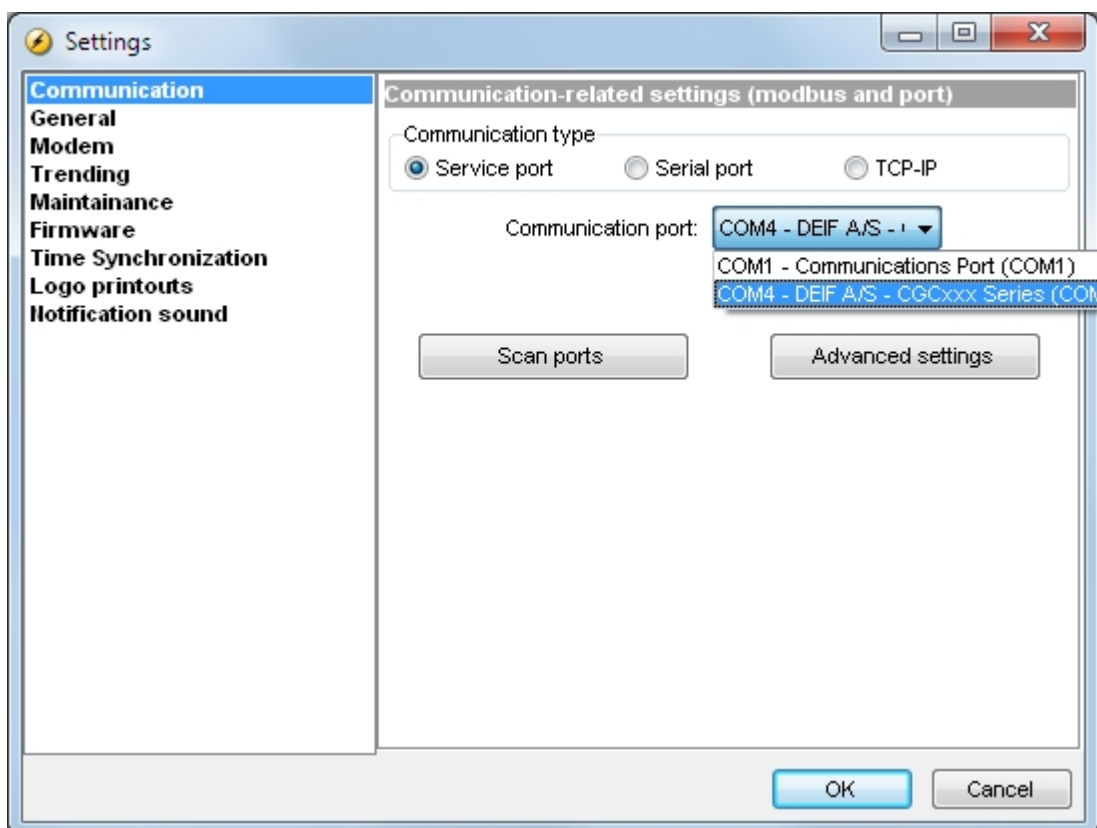
   3. Under **Communication**, in the Communication type field, select **Service port**. The other communication types are not relevant for CGC 200.
   4. In the **Communication port** drop-down list, select the port that indicates that the CGC 200 is present, as indicated above. If no ports indicate the CGC 200, check the connection and click **Scan ports**.
   5. Click **OK**.
3. If you already have a connection set up, select **Connection** from the menu, then click **Connect**. Alternatively, press F5.

After successful connection, a **Device** page opens (see example below). The **Device** page shows the current status of the device, the type of device, the connection status, the device software version, and so on.
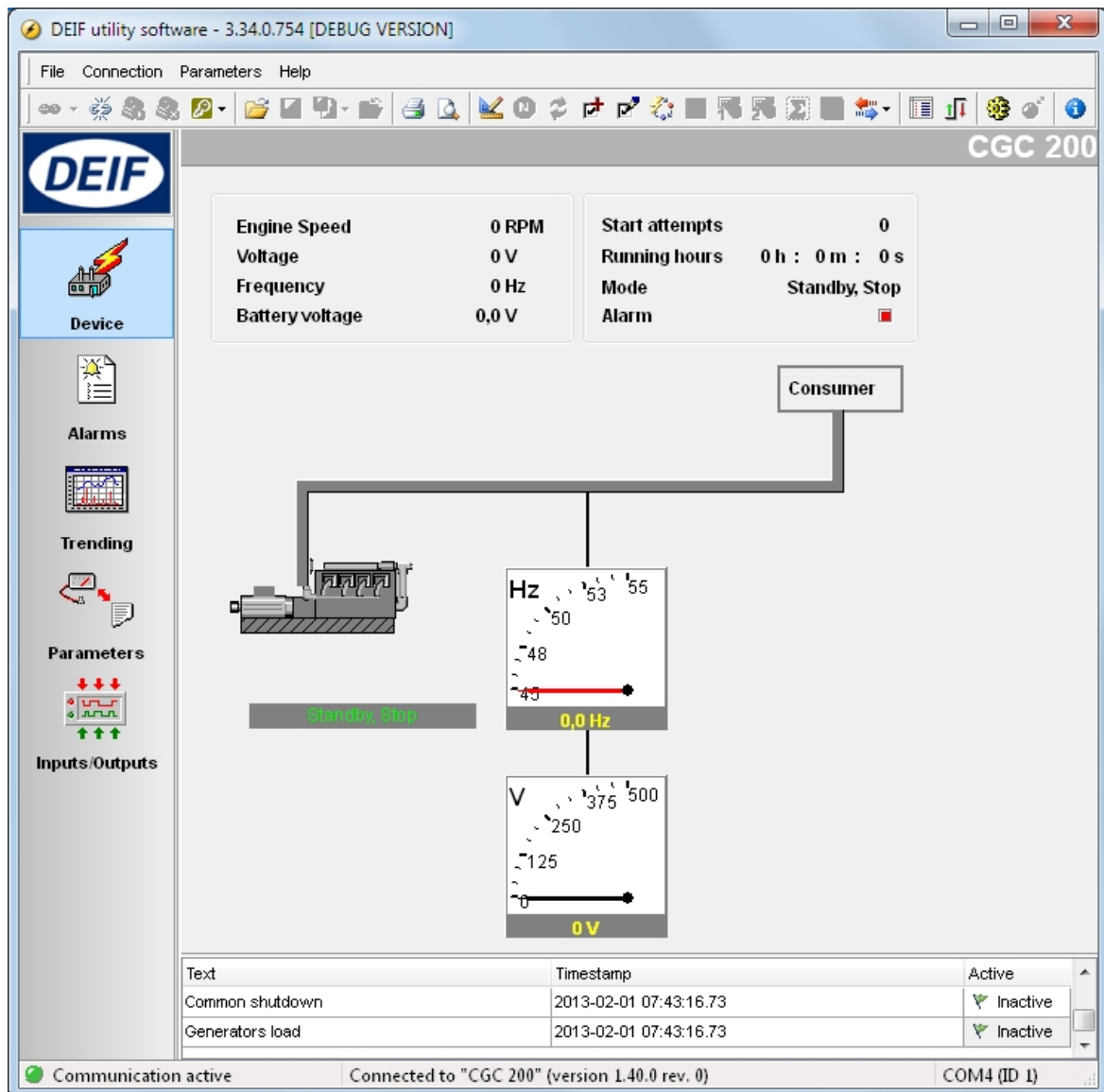
ℹ **You must have a CGC 200 connected to your PC in order to see the Device, Alarms, Trending, Parameters and Inputs/Outputs pages.**
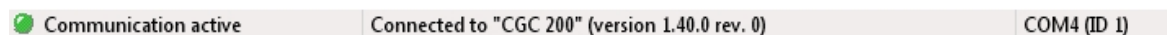
5.2 Utility Software overview

5.2.1 Utility Software pages and icons

The table below lists and describes the Utility Software pages. The pages are used to display and edit the controller information and settings.

Page	Name	Description
Device	Device	Overview for the connected CGC 200
Alarms	Alarms	Alarm history
Trending	Trending	Real-time trending of measured values
Parameters	Parameters	View and edit parameters, configure inputs and outputs, and set delays and timers in Tree and List view modes
Inputs/Outputs	Inputs/Outputs	Status of digital inputs and relay outputs

For all pages, information about the connection, controller type and software version is displayed in the bottom status bar. An example is given in the following screenshot:

Communication active   Connected to "CGC 200" (version 1.40.0 rev. 0)   COM4 (ID 1)

The table below lists and describes the most commonly used Utility Software icons.

Commonly used icons	Description
	Connect the device to the Utility Software
	Disconnect the device from the Utility Software
	Change or View the permission level
	Open a Utility Software or project file
	Print
	Print preview
	Settings
	Write firmware to the controller
	Batch read or write parameters to the controller
	Monitor parameters in real time
	Send a command to the device using the PC
	About the Utility Software

5.2.2 Device page

The **Device** page is shown after successful connection with the controller.
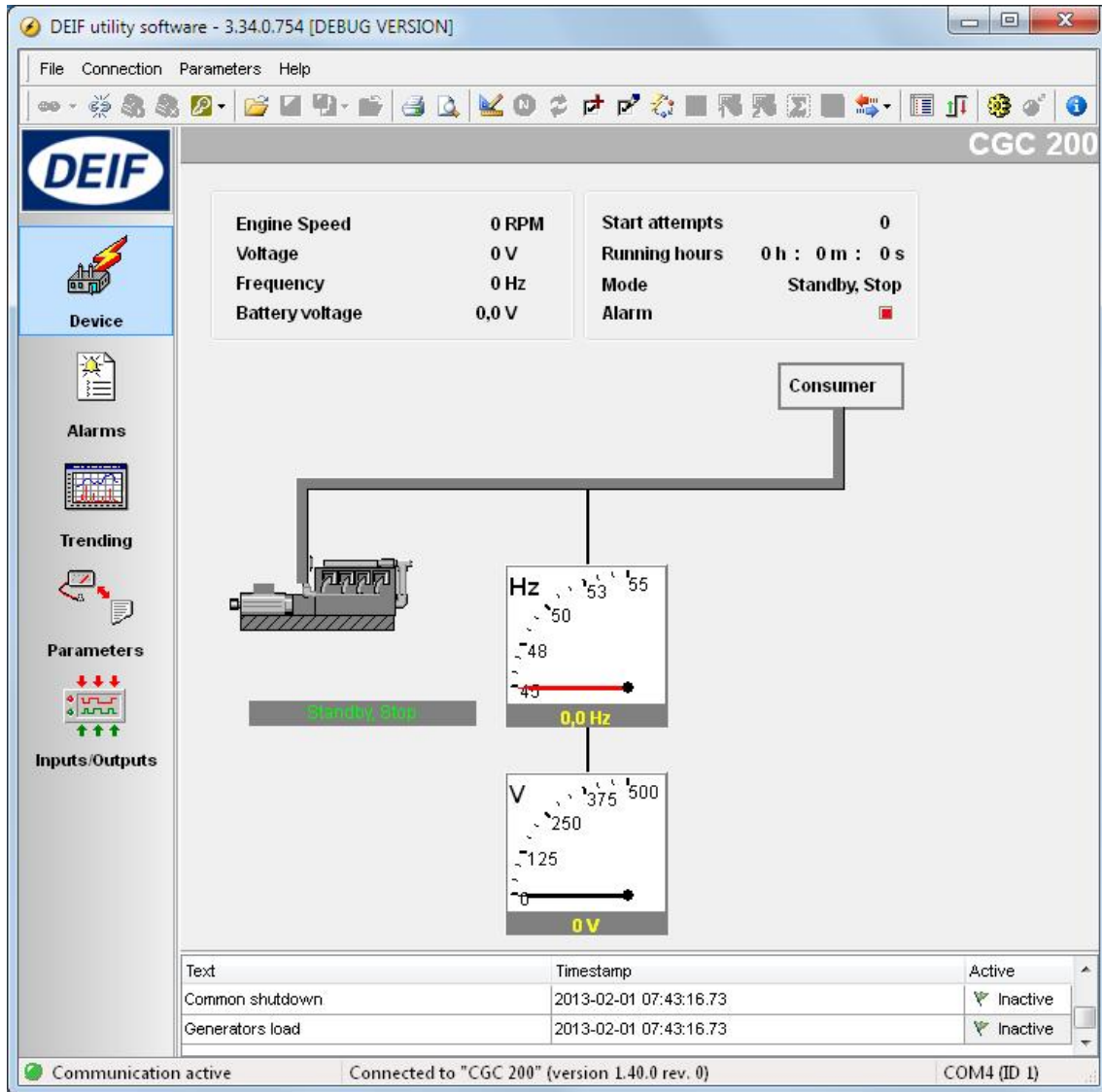
The following information is shown:

- Engine speed (RPM)
- Generator voltage
- Generator frequency
- Battery voltage
- Start attempts
- Running hours, minutes and seconds
- Genset mode (Auto or Manual) and current status (Standby, Crank, Fuel on, and so on)
- Alarm status

5.2.3 Alarms page

You can see the alarm history, with text, a time stamp and the status for each alarm on the **Alarms** page.
See the following screenshot for an example.
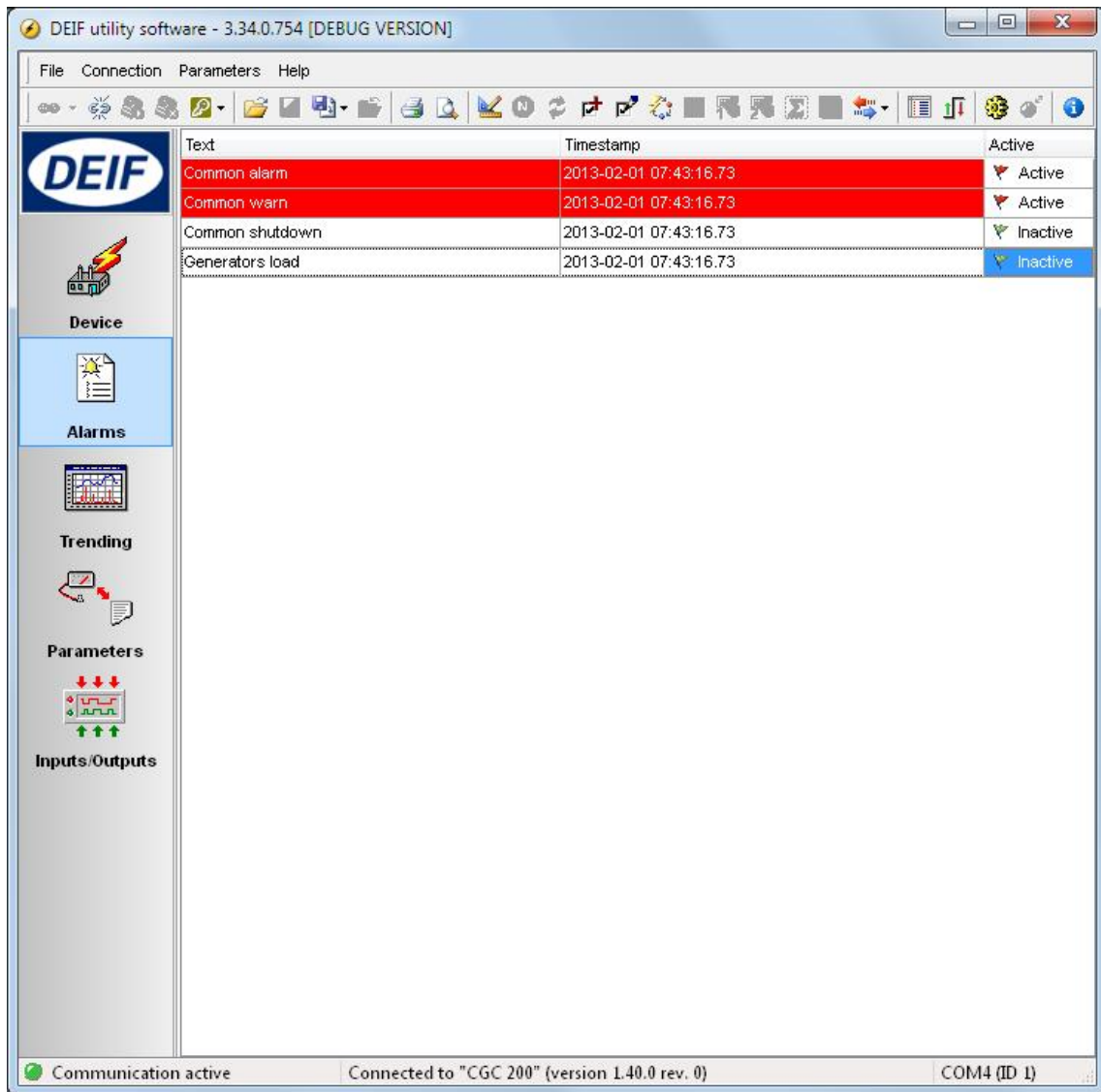
5.2.4 Trending page

You can see the real-time trends for operating data on the **Trending** page. See the following screenshot for
an example.
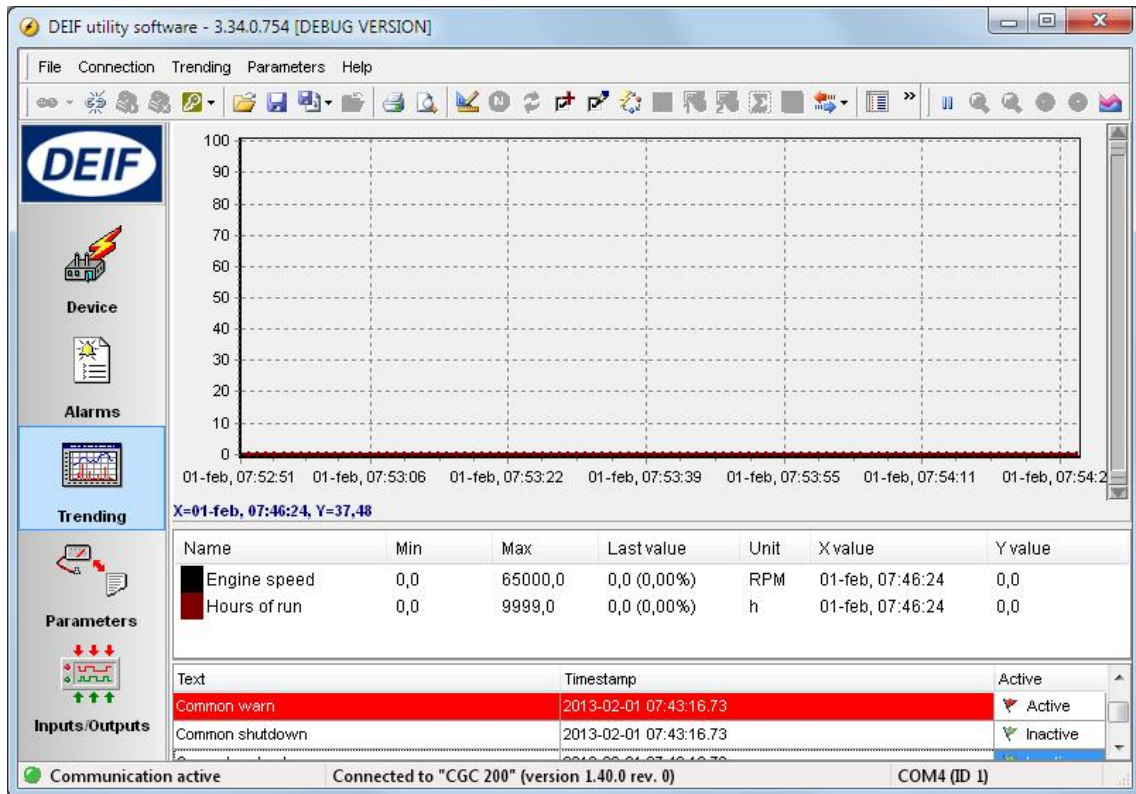
To start real-time trends:

1. Open the **Trending** page.

2. Click the ⟋ icon to select the measured values you would like to see on the trend, and click **OK**. An example is shown below.
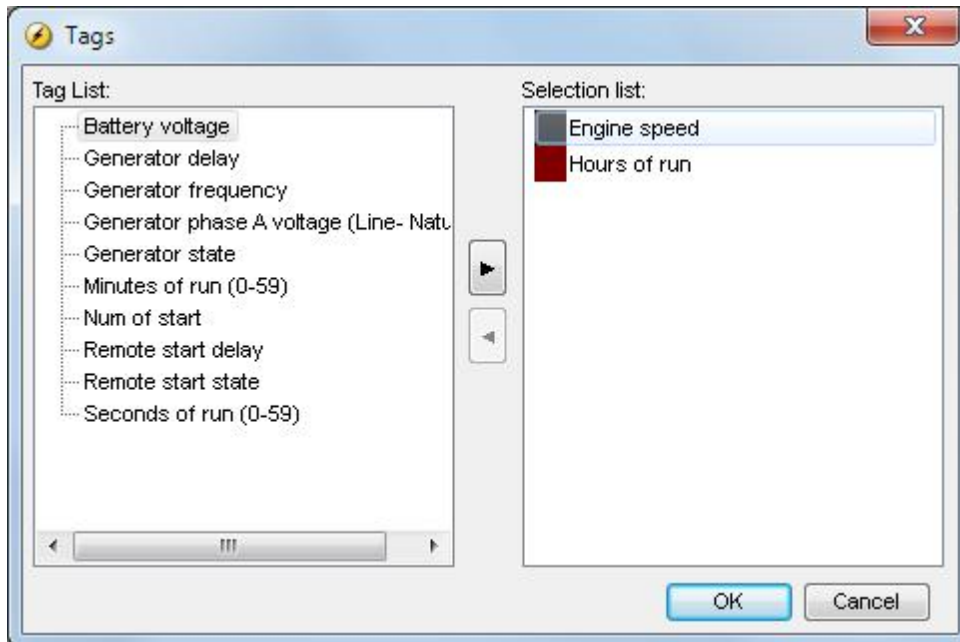
3. To set how often the trend updates, as well as the trend width and memory, select **File**, then **Settings**, then the **Trending** tab. Set the values you want and click **OK**. An example is shown below.
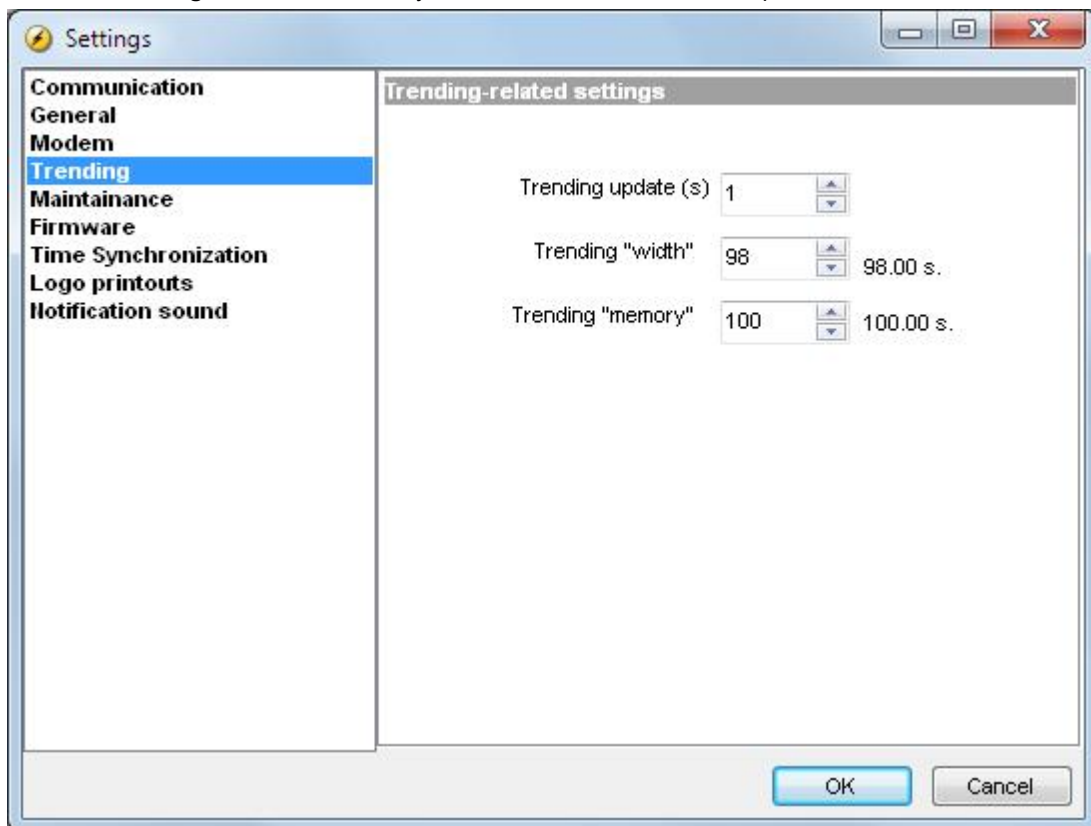
5.2.5 Parameters page

You can read and edit parameters in either tree view (the default) or list view. Select the radio button at the top of the **Parameter** page to choose the view that you want.

Tree view

In Tree view, the parameters are listed in groups, as shown below. Click on the group name to display all the parameters in that group.
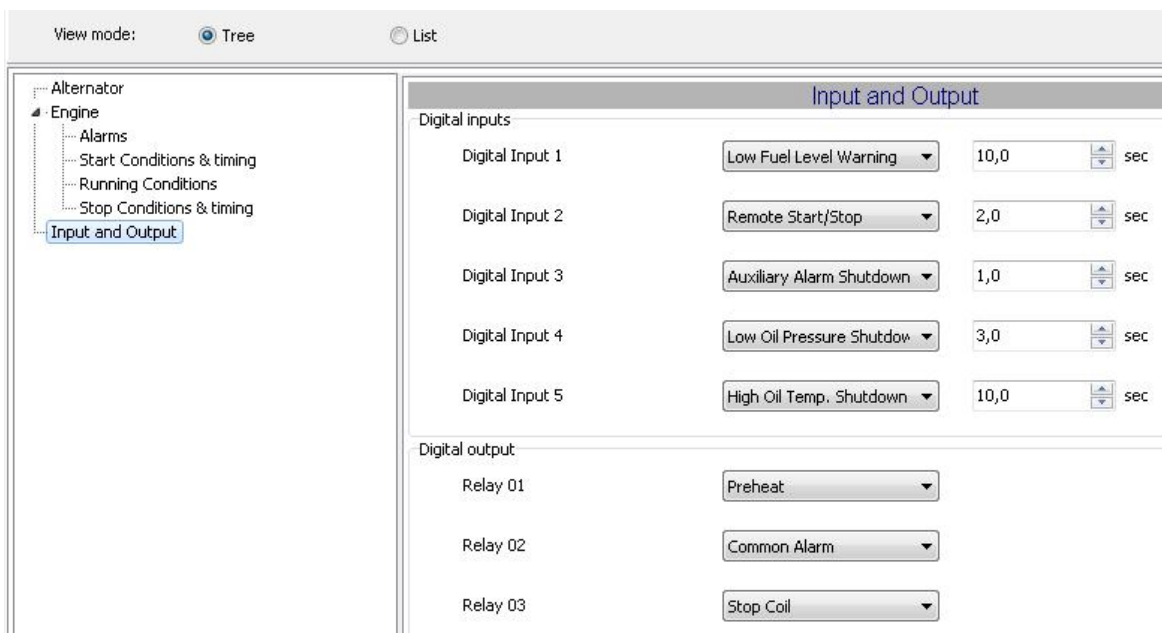
You can edit the parameters using the sliders, selectable text and values boxes. The parameter range and units are given (where applicable).

Click the folder symbol to expand or collapse sub-groups.

List view

In List view, you can read and write all parameters from one table.

The table headings are as follows:
- **ParamID:** Utility software identifier for the individual parameter
- **LCDNumber:** Parameter number on the CGC 200 LCD display
- **Text:** Parameter short description
- **Unit:** Unit of the parameter
- **MinValue:** Minimum adjustable value
- **MaxValue:** Maximum adjustable value
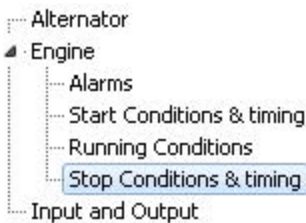- **Value:** Current parameter value in the utility software*
- **Default:** Default value for the parameter
- **Address:** Modbus address for the parameter

*The utility software may have a different parameter value from that in the controller. For example, you may have made a change and did not write the new value to the controller. The change will not be updated in the controller until you write it to the controller. Alternatively, the parameter value may have been changed using the controller front panel. This change will not be updated in the utility software unless the parameters are read from the controller.

To select a parameter as a favourite parameter:
1. Double click on the parameter line in the table.
2. Click the Favorite icon (⭐) in the dialogue box and click **OK**.

The Favorite icon (⭐) on the toolbar toggles between showing all parameters and only showing favourite parameters.

ⓘ **You must be in List view to set favourite parameters and write individual parameters.**

5.2.6 Inputs/Outputs page

The status of inputs and outputs can be monitored on the **Inputs/Outputs** page. An example is shown below.

5.3 Using the Utility Software

5.3.1 Changing parameters
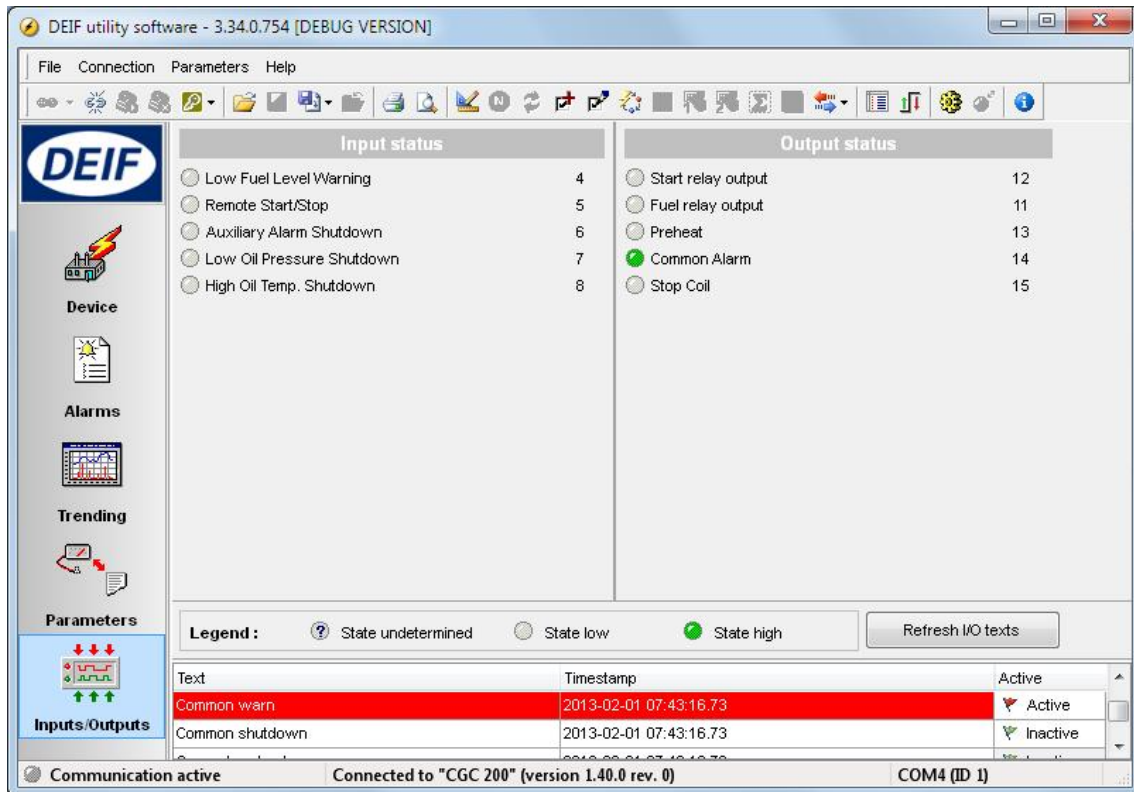
To change parameters, do the following:

1. Open the **Parameters** page in either tree or list view.
2. Find the parameter you want to change.
3. If the parameter selects an **option**:
   - In **Tree** view, change the parameter by selecting the option you want from the drop-down list.
   - In **List** view, double click the parameter line you want to change. A dialogue box containing the drop-down list opens. Select the option you want.
4. If the parameter selects a **value**:
   - In **Tree** view, change the parameter by changing the value using the slider. Alternatively, type the value in the box.
   - In **List** view, double click the parameter line you want to change. A dialogue box containing the value and a slider opens. Change the value using the slider.

Alternatively, click the value. A dialogue box opens where you can type in the value and click **OK**.
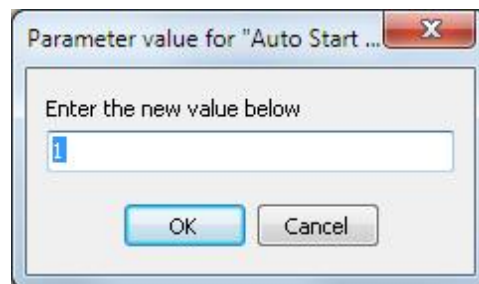
5.   See **Writing to the controller** for information about how to write the changed values to the CGC 200.

5.3.2 Configuring inputs and outputs

Digital inputs and outputs can be configured in either **Tree** or **List** view.

In **Tree** view, select the input or output you want to assign from the drop-down list.
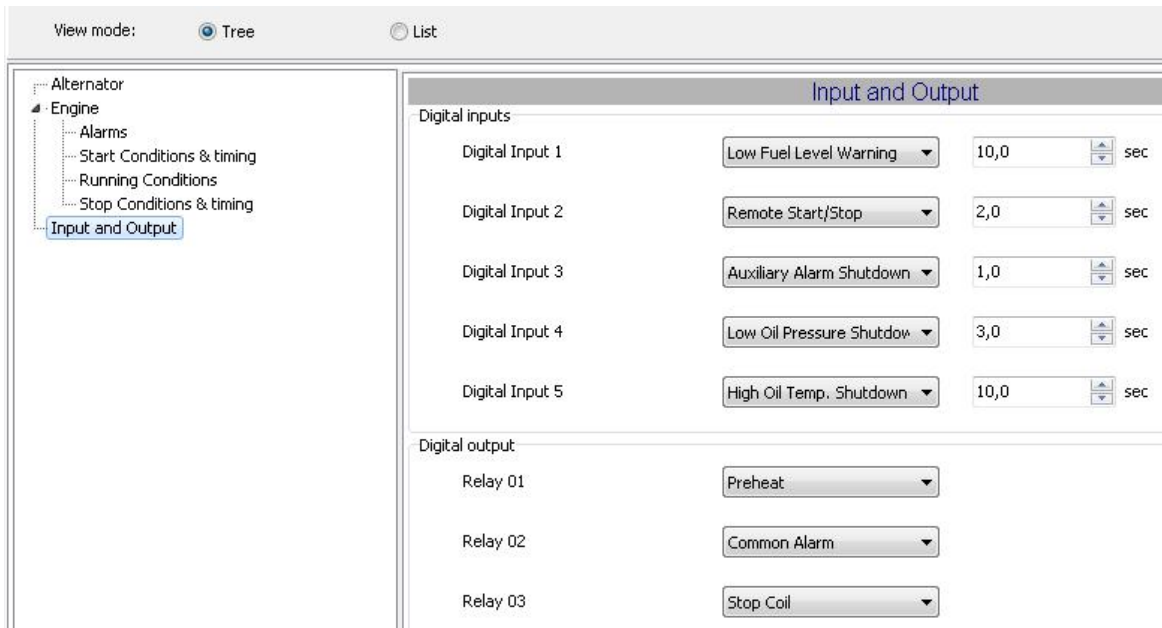
In **List** view, double click the parameter line for the input or output you want to change. Select the input or output you want from the drop-down list in the dialogue box.
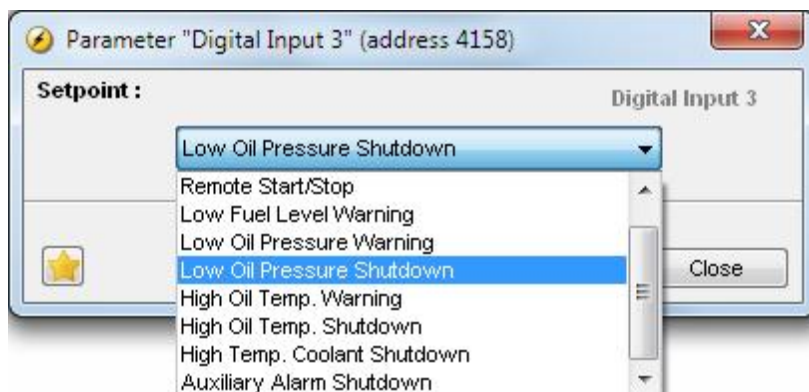
5.3.3 Reading from the controller

Parameters, logs and the input and output configuration are stored in the CGC 200. This information can also be stored in a file on the PC.

You can read from the controller by:

● Connecting to the controller: the utility software automatically reads the information in the CGC 200 after connection.

● Reading all the parameters from the controller. Select **Parameters**, then **Read** ( ). When you are on the **Parameters** page, the read icon ( ) is also available on the toolbar.

- Reading information using the batch read function (🔴➡) (described below): this reads all the information from the controller, then writes it to a .usw file on the PC.
- Backing up the controller: this writes the controller information to a .bak file on the PC.

Batch read function
The controller logs, input and output configuration, and parameter settings can be read and saved in a file on the PC. To use the batch read function:

1. Click the batch read and write icon (🔴➡) on the toolbar and select **Read from device.**

2. The Batch job (Reading) dialogue box opens. Select the information that you would like to read using the check boxes and click **Run**.
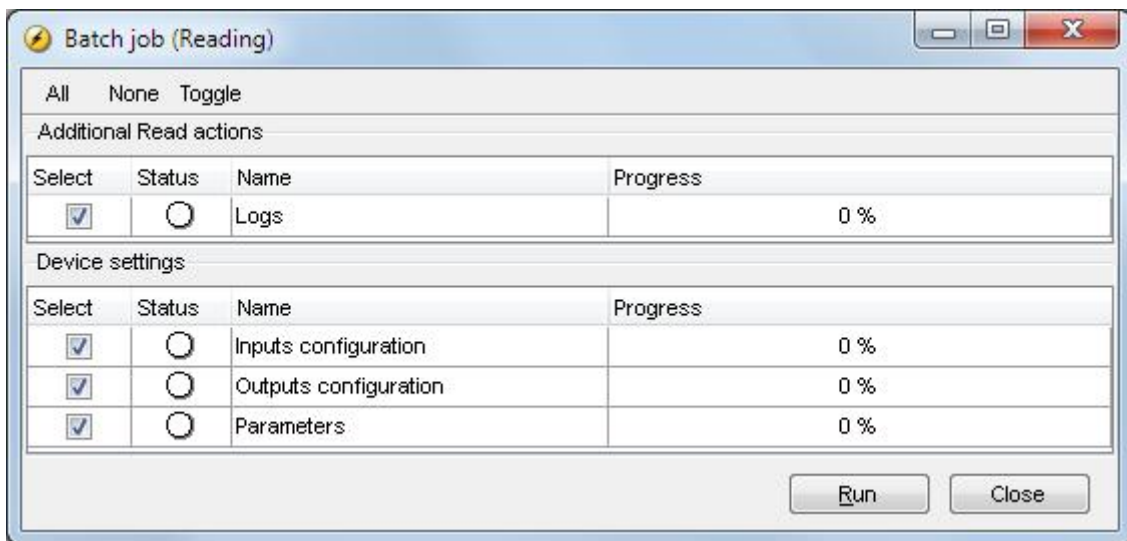
3. A window opens. Browse to the location where you would like to save the file, type in the name, and click **Save**
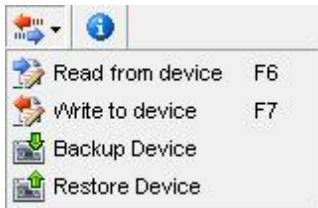4. The parameters and input and output configuration may be changed, and written to the CGC 200. Alternatively, the parameters can be saved to a file on the PC. See **Writing to the controller** for more information.

5.3.4 Writing to the controller
You can write to the controller by:

● Writing the parameter and input and output values as you change them. To do this, open the **Parameter** page in **List** view. Double click on a parameter to open it. Change the parameter and click **Write** in the parameter dialogue box.

● Writing all the parameters in the utility software. Select **Parameters**, then **Write** (![icon]). When you are on the **Parameters** page, the write icon (![icon]) is also available on the toolbar.

● Writing information using the batch write function (![icon]) (described below).

● Restoring the controller information from a .bak file, using **Restore Device**.

Batch write function

If a CGC 200 file has been saved on the PC, it can be opened, edited and then written to one or more CGC 200s. To use the batch write function:

1. Click the batch read and write icon (![icon]) on the toolbar.

2. Select **Write to device.**
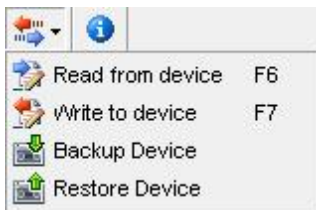
3. The Batch job (Writing) dialogue box opens.
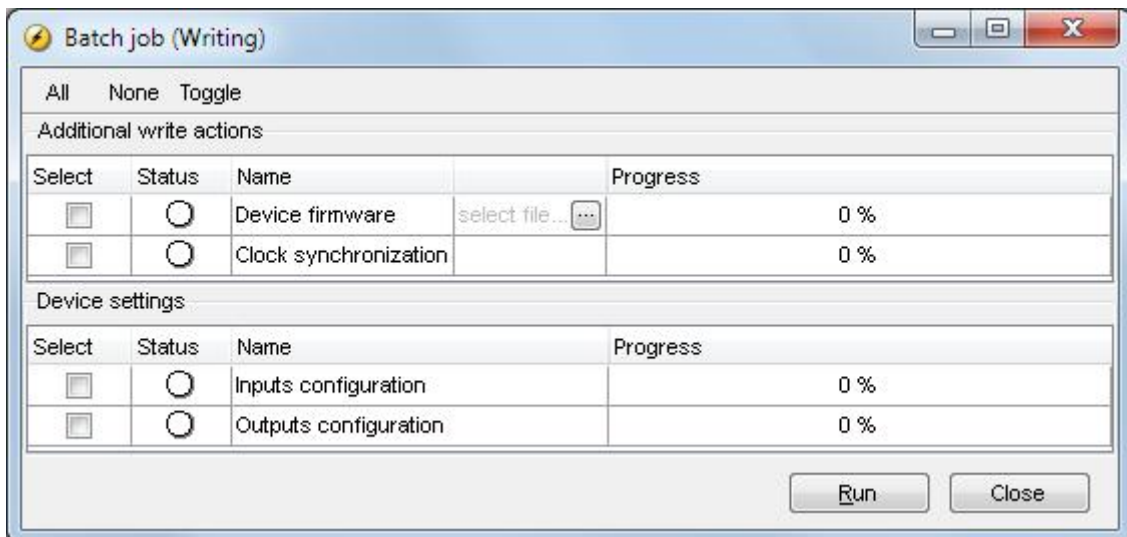
Select the information that you would like to write and click **Run**.

5.3.5 Firmware upgrade

You can use the utility software to upgrade the firmware on the CGC 200.

To upgrade the firmware:

1. Click the firmware upgrade icon ( ) on the toolbar. A window will open.
2. Browse to the firmware file you want to use.
3. Click **Open**.

⚠ **Do not disconnect the power supply or the USB cable during the firmware upgrade. Interrupting a firmware upgrade can make the controller unusable.**

6. Glossary

6.1 Abbreviations and terms

6.1.1 Abbreviations

ac
Alternating Current

CE
Conformité Européenne
Indicates that the product meets the legal requirements described in the applicable directive(s). All products with CE marking have free access to markets in the European Economic Area (EEA).

CGC
Compact Genset Controller

dc
Direct Current

EN
European Norm
Standards issued by the European Committee for Standardisation (also known as Comité Européen de Normalisation).

GB
Generator breaker

GOST
Regional standards maintained by the Euro-Asian Council for Standardization, Metrology and Certification.

IEC
International Electrotechnical Commission

IP
Ingress Protection Rating, or International Protection Rating
The degree of protection against solids and water provided by mechanical casings and electrical enclosures.

ISO
International Organization for Standardization

L1
Line 1
The main power line for one phase of the genset.

LCD
Liquid Crystal Display
The part of the front panel that displays icons and values. The icons and values displayed vary, depending on the CGC 200 mode and the operation of the equipment.

LED
Light Emitting Diode
The controller front panel LEDs are used to show the genset status and alarms.

MPU

Magnetic Pick Up

Used to measure the genset speed.

MTBF

Mean Time Between Failures

MTTF

Mean Time To Failure

N

Neutral

The neutral line for the genset.

NEMA

National Electrical Manufacturers Association

OP

Oil Pressure

PC

Personal Computer

The DEIF software must be run on a Windows PC, for example, a laptop computer.

rms

Root mean squared

Refers to the average value of a sinusoidal wave. For example, V_{rms} refers to the average AC voltage.

t

Time

U

Voltage

U is typically used as an abbreviation for voltage in Europe. In other countries, V may be used instead.

U$_{nom}$

Nominal voltage

U is typically used as an abbreviation for voltage in Europe. In other countries, V may be used instead.

USB

Universal Serial Bus

USW

Utility Software

6.1.2 Terms

Firmware

Software that is installed in the controller. This software enables the controller to, for example, process inputs and outputs, display operating data, and keep track of the genset status.

Parameter

A value, or set point, used to determine the controller's operation. Parameters include alarm settings, and the configuration options for configurable inputs and outputs. The same set of parameters can be uploaded to several controllers.

6.1.3 Units

The table below lists the units used in the documentation.

Unit	Name	Measures
A	ampere	Current
°C	degrees Celsius	Temperature
g	gram	Mass
H	hour	Time
kPa	kilopascal	Pressure
m	metre	Distance
mm	millimetre	Distance
ms	millisecond	Time
RPM	revolutions per minute	Speed
s	second	Time
V	volt	Voltage
V_{ac}	volt (alternating current)	Voltage (alternating current)
V_{dc}	volt (direct current)	Voltage (direct current)
W	watt	Power
Ω	ohm	Resistance