DEIF

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INSTALLATION AND COMMISSIONING INSTRUCTIONS

Compact Genset Controller, CGC 200

- Mounting
- Terminals and wiring
- Commissioning, using the Utility
  Software and/or the front panel

1. Introduction

1.1 About the Installation and commissioning instructions

1.1.1 General purpose

These are the **Installation and commissioning instructions** for DEIF's Compact Genset Controller, CGC 200. The general purpose is to provide information for the correct installation and commissioning of CGC 200.

⚠️ **Read this manual before installing or commissioning the CGC 200. Failure to do this could result in human injury or damage to the equipment.**

1.1.2 Intended users

The instructions are mainly intended for the people responsible for installing and commissioning the genset control system.

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 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.

1.1.6 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**.

1.2 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.**

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2. Installation

2.1 Tools

2.1.1 Tools required

The following tools are required to install the controller:

| Tool	Used to
Conducting wrist strap	Prevent electrostatic discharge damage to controller
Flat-bladed screwdriver with 3.2 mm (1/8") tip	Tighten the mounting screw clamps (optional). Tighten terminal block screws.

⚠️ **Do not use power tools to tighten the screws. Too much torque will damage the controller and the terminal blocks.**

2.2 Wiring and terminals

2.2.1 Connection of 1-phase voltage

The drawing below shows the connection of the generator to the controller terminals, for a 1-phase voltage system. Refer to the wiring diagram for more information.
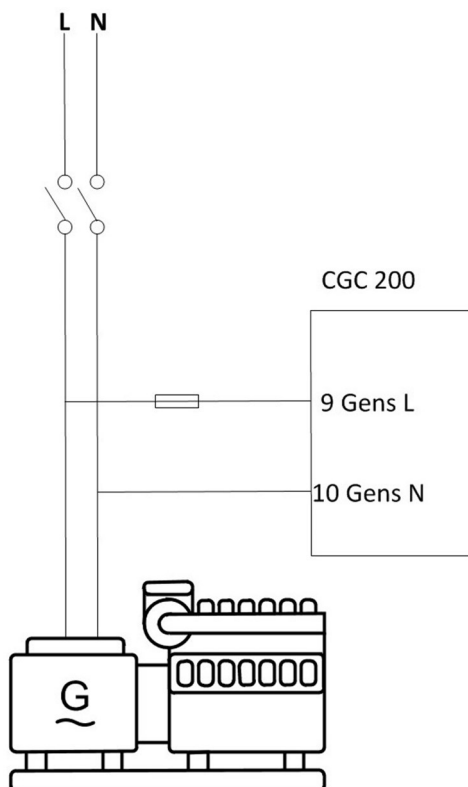
2.2.2 Wiring diagram

A wiring diagram for a typical installation is given below. Your system's wiring diagram may be different to the diagram given below, since a different configuration may have been chosen.

Fuses

Fuses must be used to protect the controller. The auxiliary supply (DC) fuse rating must not be more than 2 A. The Genset L (AC) fuse rating must not be more than 1 A.

Grounding

The ground (Aux. supply -) is common for digital inputs. On the diagram below, the wiring drawn in the controller box is internal wiring (this wiring is part of controller, and therefore not connected externally).

⚠ **Connect the wiring according to the designer's wiring diagram for your system.**
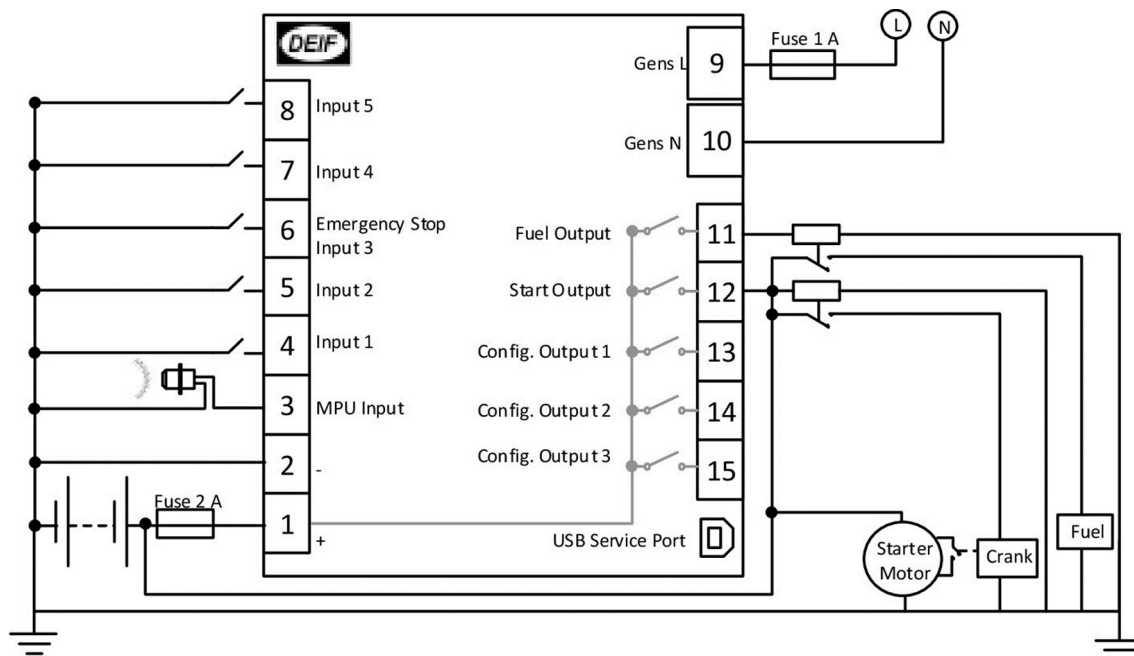
2.2.3 Digital inputs

All digital inputs are 12 or 24 V_{dc} optocouplers. The typical wiring is illustrated below:
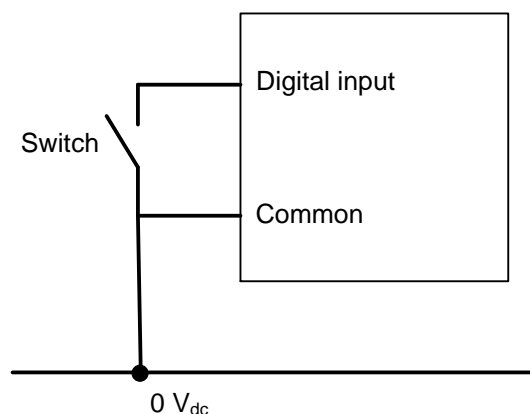
⚠️ **The digital inputs require DC voltage. AC voltage will damage the controller.**

2.2.4 List of terminal connections

The power supply, inputs and outputs are connected to the CGC 200 terminals. CGC 200 also has a USB B-socket for connecting to a PC. The terminal connections are listed in the following table.

No.	Name	Type	Details
1	+	Power supply +	8 to 35 V_{dc}
2	-	Power supply -	Ground
3	MPU Input	RPM input	Magnetic pickup, or tacho generator
4	Input 1	Digital input	Coolant temperature switch, or configurable
5	Input 2	Digital input	Low oil pressure switch, or configurable
6	Emergency Stop Input 3	Digital input	Emergency stop input (Auxiliary)
7	Input 4	Digital input	Remote start, or configurable
8	Input 5	Digital input	Configurable
9	Gens L	Generator voltage L1	Generator voltage measurement
10	Gens N	Generator neutral	Generator voltage measurement
11	Fuel Output	Relay output (normally open)	Run coil
12	Start Output	Relay output (normally open)	Starter (crank)
13	Config. Output1	Relay output (normally open)	Configurable
14	Config. Output2	Relay output (normally open)	Configurable
15	Config. Output3	Relay output (normally open)	Configurable
USB	USB Service Port	USB B female connection	For connection to a PC

2.2.5 Connecting the terminals

The wiring is connected to the controller terminals using pull-apart PCB terminal blocks.

(i) **For the MPU input, a magnetic head signal input and a shielding line are recommended.**

⚠ **Protect the controller terminals from static discharge during installation.**

⚠ **For safety reasons, the work must be carried out by qualified personnel.**

To connect the terminals:

1. Connect each wire to the correct connection on the terminal block, then tighten the screw using a flat-bladed screwdriver.
2. Make sure that the removable part of the terminal block is pressed all the way into the terminal block on the CGC 200.

3. Mounting

3.1 CGC 200 mounting

⚠ **Protect the controller terminals from static discharge during installation.**

3.1.1 Mounting of the unit

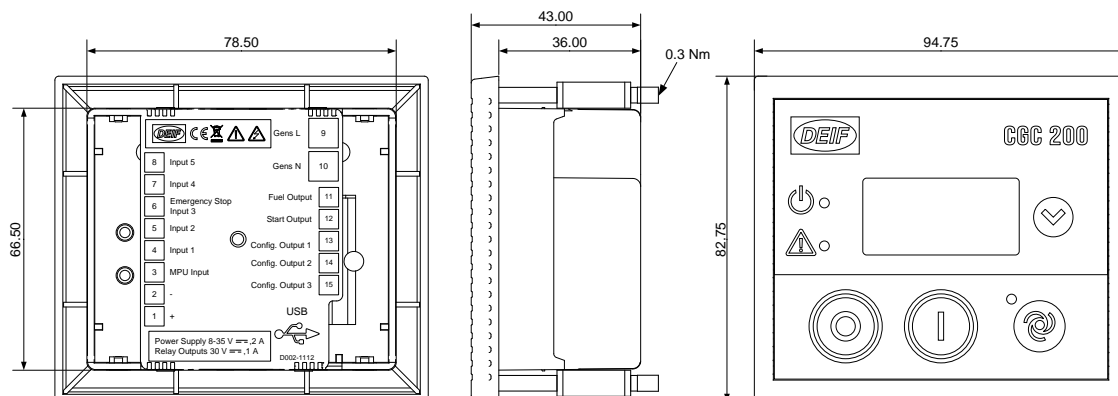The unit is designed for mounting by means of two fixing clamps, which are included at delivery.

3.1.2 Unit dimensions and panel cutout

The unit is designed for mounting in the panel front.

In order to ensure optimum mounting, the panel door must be cut out according to the following measurements:

H × W = 68.00 × 80.00 +0.40 mm and -0.00 mm

H × W = 2.68" × 3.15" + 0.02" and -0.00"

3.1.3 Tightening torques

Unit panel door mounting: 0.3 Nm (see diagram in "Unit dimensions and panel cutout")
Plug connections (terminals): 0.5 Nm

4. Commissioning

4.1 Overview and parameter list

4.1.1 Sequence

The sequence followed to commission the CGC 200 can be varied according to your needs.

For example, you can upload the parameters from the utility software before mounting and wiring up the controller. This can be done in an office environment, and may simplify commissioning.

Alternatively, you can upload the parameters to the controller where it is mounted, using a laptop computer. You can then use the utility software on the laptop computer to adjust the parameters as required, as well as to check the wiring.

Finally, you can use the CGC 200 front panel to adjust the parameters during commissioning.

4.1.2 People and preparation

Commissioning requires in-depth knowledge of the genset, the system and the controller. The people responsible for commissioning must therefore be suitably qualified.

In addition, the people responsible for commissioning must have the following information from the system designer:
- Detailed system drawing
- Wiring diagram for the controller
- Configuration of the inputs and outputs
- Controller parameter settings

4.1.3 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 number	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 pass-word	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.

Param-eter number	Parameter name	Range	De-fault value	Value chos-en*	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 mi-nutes	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.

4.2 Wiring

4.2.1 Checking the wiring

You can use the utility software during commissioning to check the wiring. You can connect the CGC 200 to a PC using a USB cable and check whether the operating values are as expected. You can use **P43** and **P44** to calibrate the genset and battery voltage measurements. See the **Designer's handbook** for more information. Voltage calibration is only available through the utility software.

You can also use the CGC 200 front panel to monitor operating values during commissioning.

4.3 Commissioning using the Utility Software

4.3.1 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.
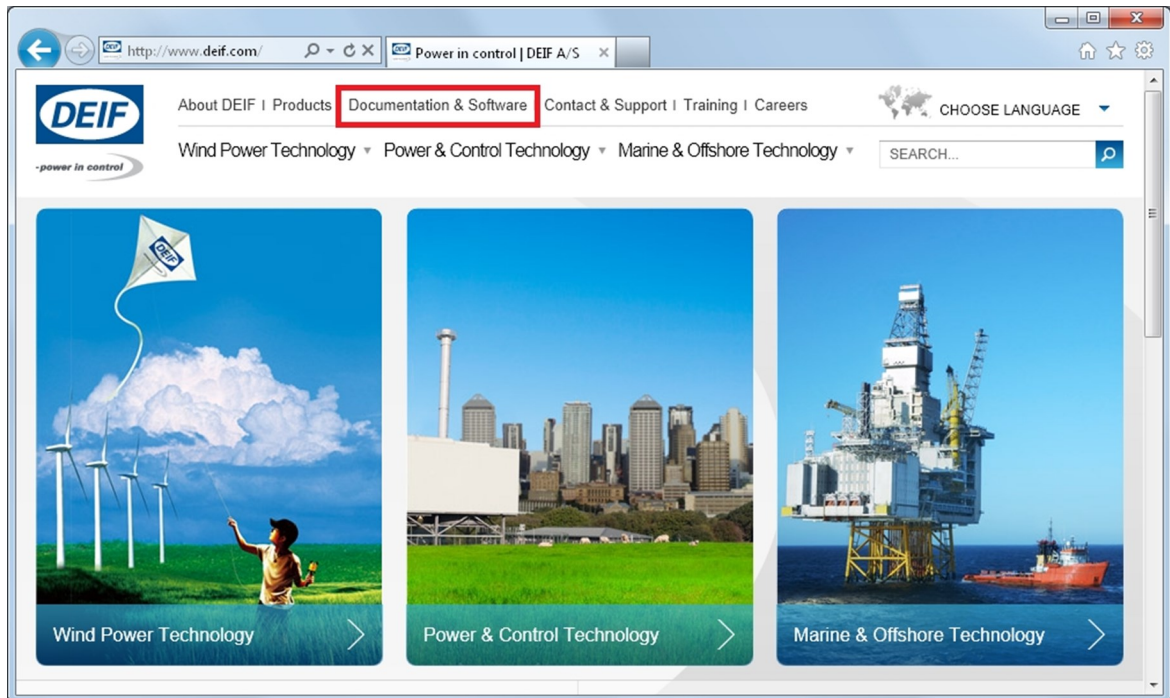
3. Click **Software download** on the left side of the page.
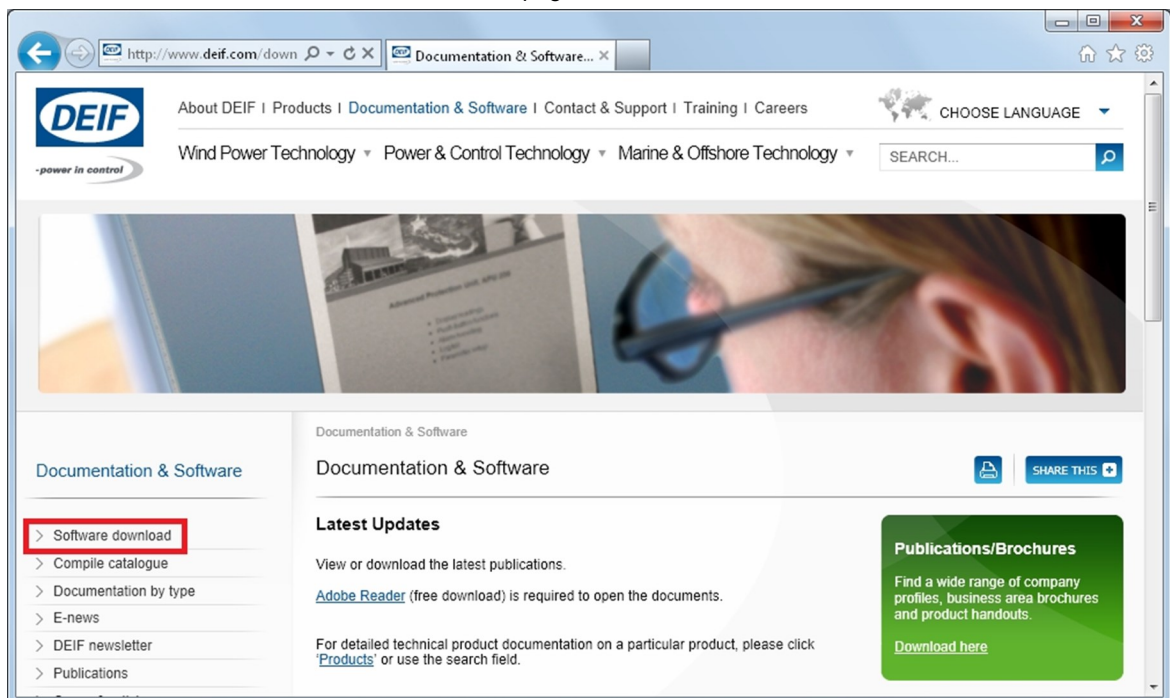
4. Select **Multi-line 2 Utility Software v.3.x.** from the drop-down list.
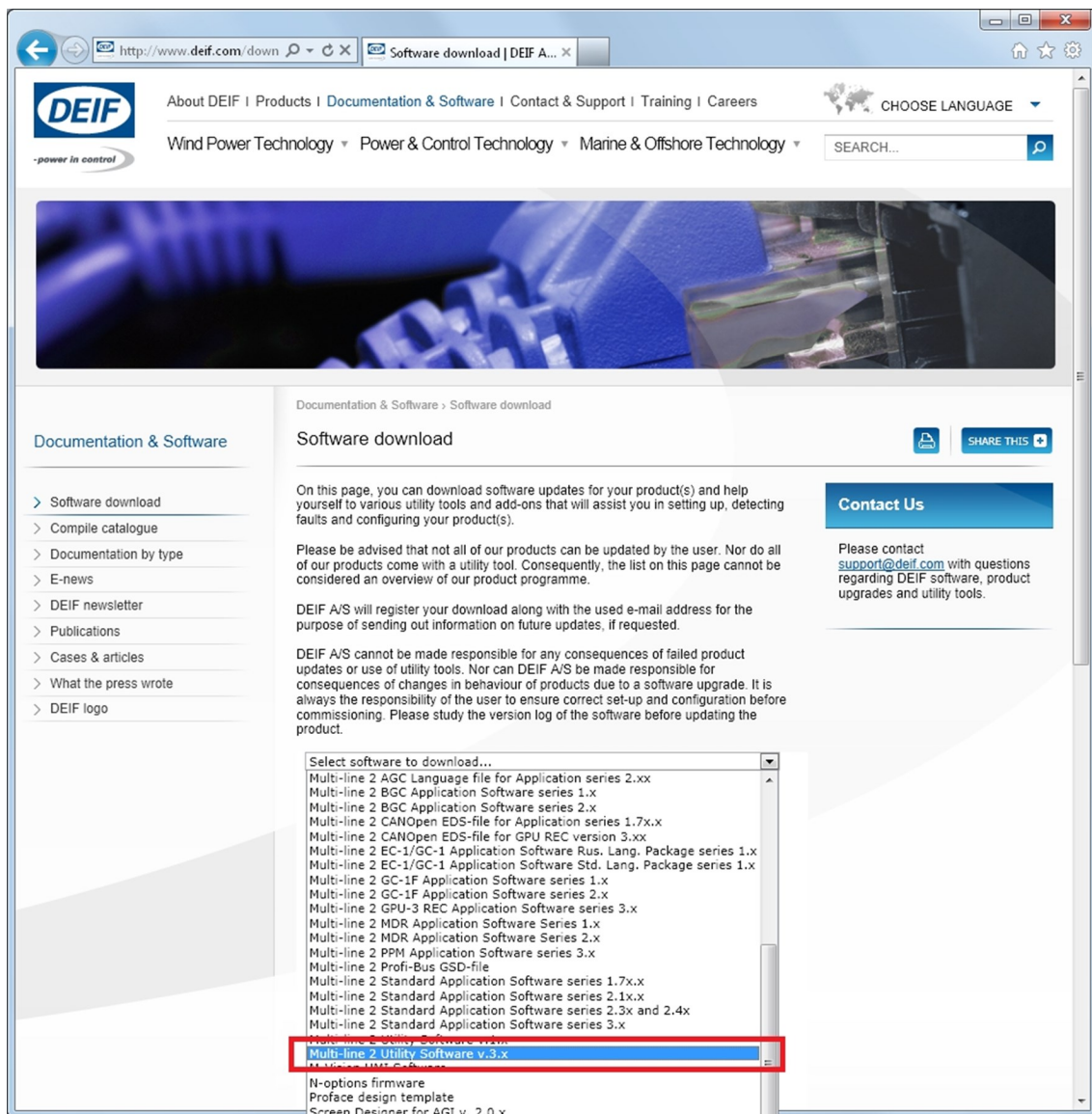
A dialogue box opens, with information about the most recent version of the software.

5. Enter your email address. Click **Submit**. An email with a link to download the software will be sent to you.
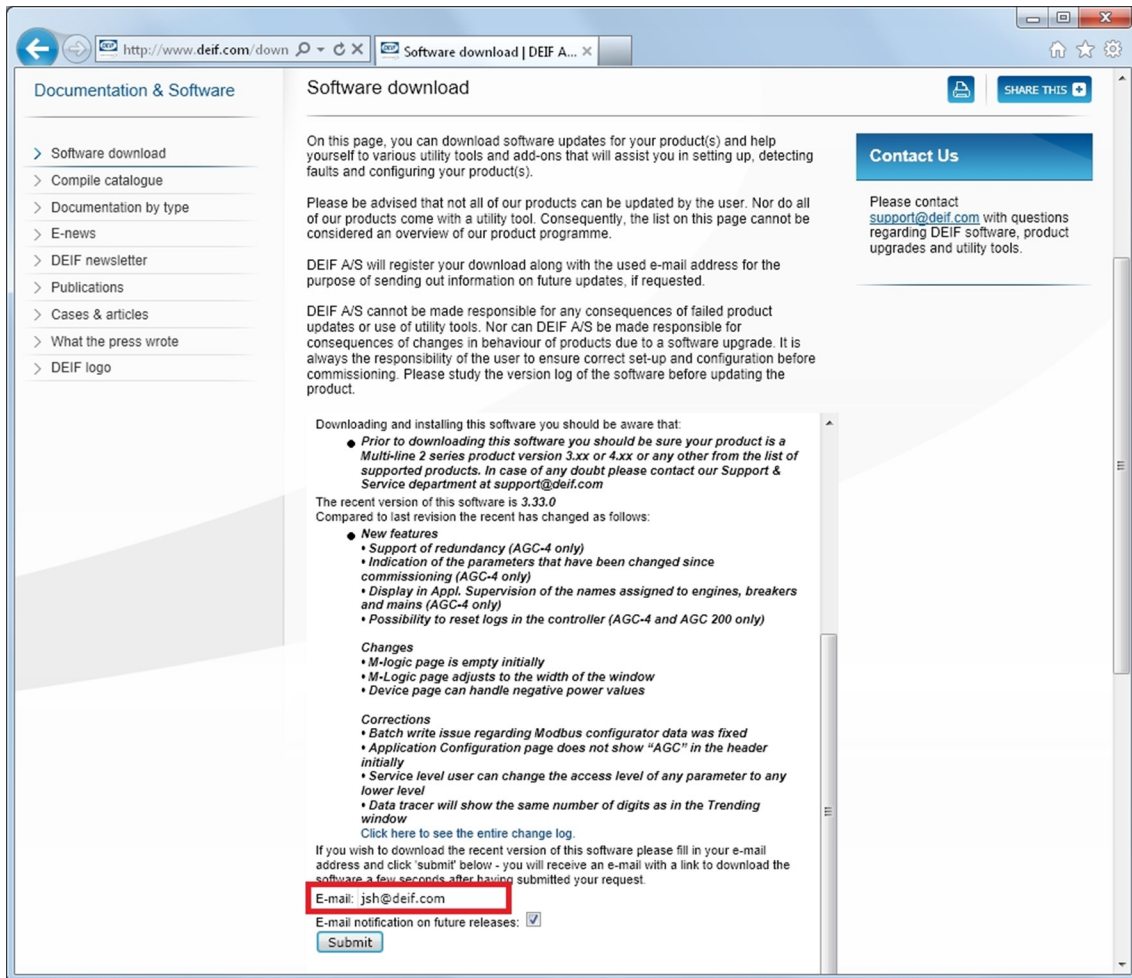
6. Click the link in the email to download the executable Utility Software setup file.

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.

4.3.2 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.
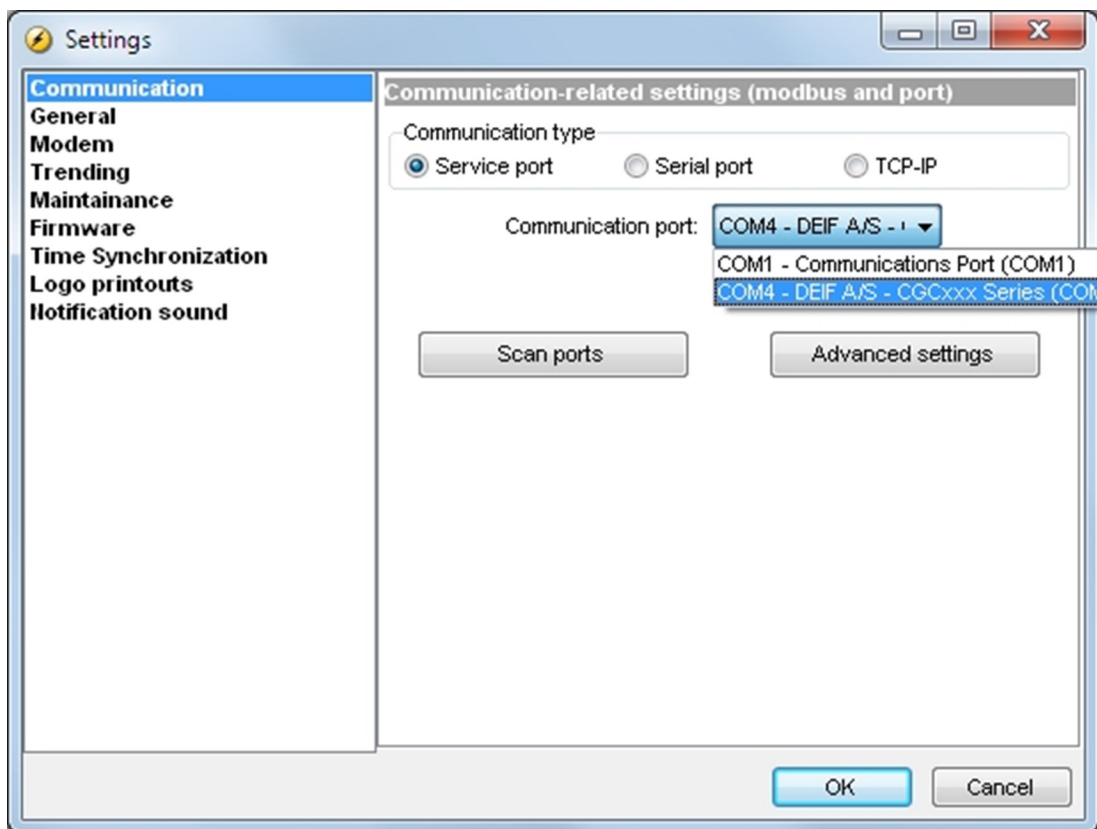
    3. Under **Communication**, in the Communication type field, select **Service port**. The other communication types are not relevant for CGC 200.
    4. In the **Communication port** drop-down list, select the port that indicates that the CGC 200 is present, as indicated above. If no ports indicate the 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.
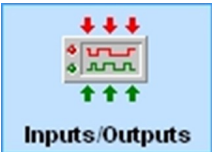
After successful connection, a **Device** page opens (see example below). The **Device** page shows the current status of the device, the type of device, the connection status, the device software version, and so on.
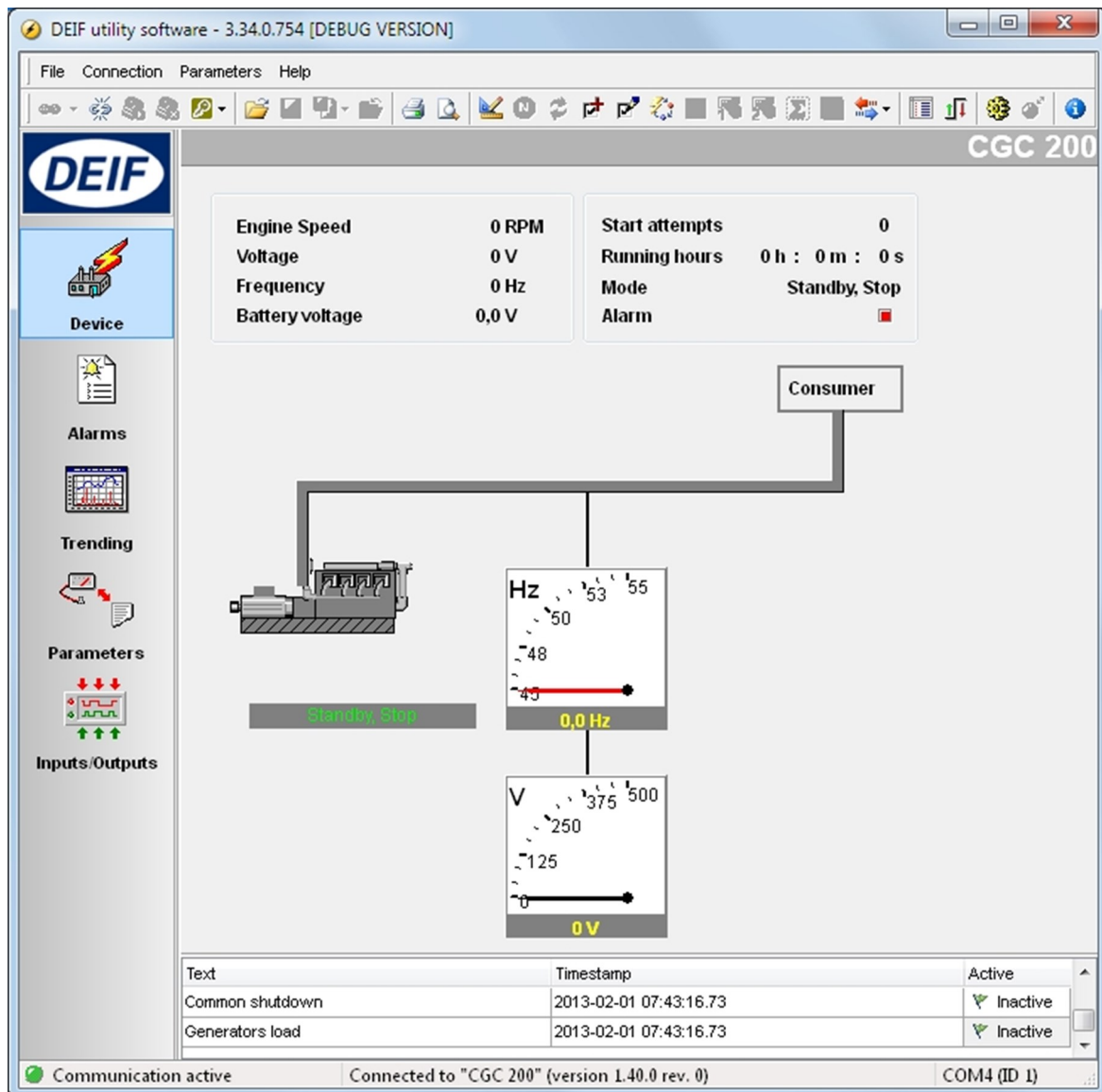
You must have a CGC 200 connected to your PC in order to see the **Device, Alarms, Trending, Parameters** and **Inputs/Outputs** pages.

4.3.3 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) |
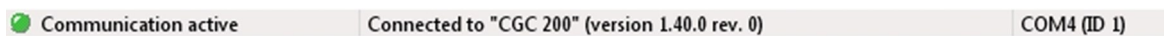
The table below lists and describes the most commonly used Utility Software icons.

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

4.3.4 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.
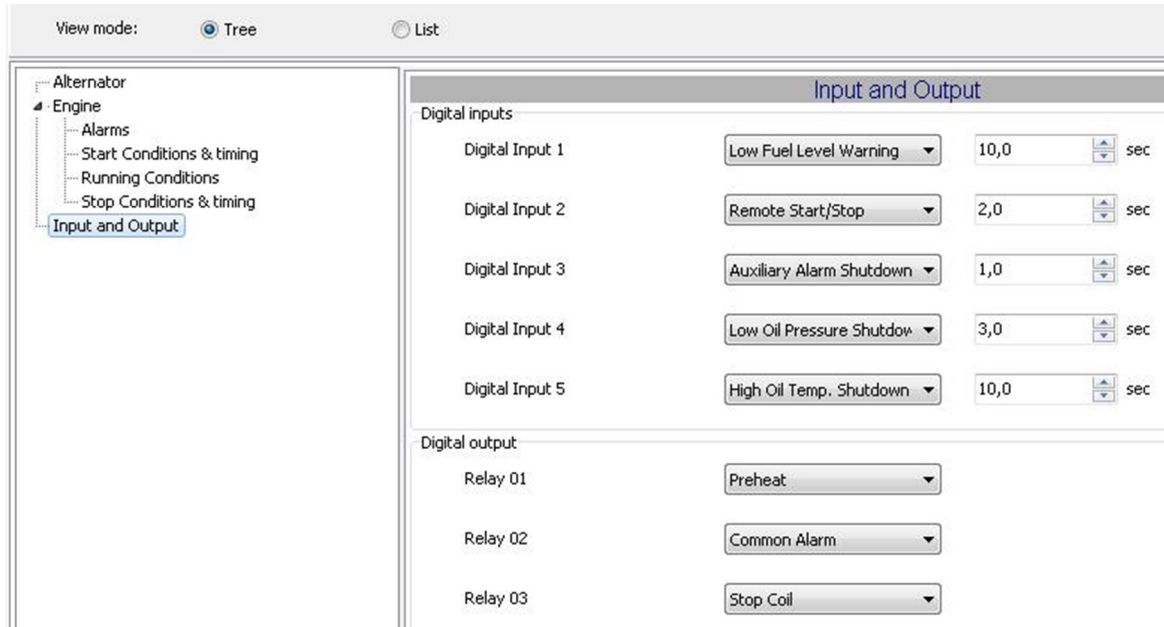
You can edit the parameters using the sliders, selectable text and values boxes. The parameter range and units are given (where applicable).

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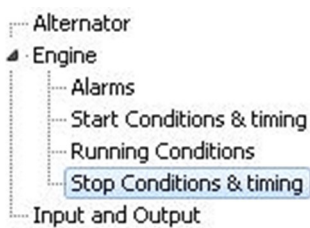
List view

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

☰ Pɛ △	LCDN	Addres	Text	Unit	MinVal	MaxVɛ	Value	Defaut
24	P24	4137	U <aux. Term. 1	V	4	30	8	8
25	P25	4148	Relay 01		0	6	4	4
26	P26	4149	Relay 02		0	6	1	1
27	P27	4150	Relay 03		0	6	2	2
28	P28	4154	Digital Input 1		0	10	5	5
29	P29	4155	Digital input 1 Timer	sec	0,0	20,0	10,0	10,0
30	P30	4156	Digital Input 2		0	10	6	6
31	P31	4157	Digital input 2 Timer	sec	0,0	20,0	2,0	2,0
32	P32	4158	Digital Input 3		0	10	4	4
33	P33	4159	Digital input 3 Timer	sec	0,0	20,0	1,0	1,0
34	P34	4160	Digital Input 4		0	10	2	2
35	P35	4161	Digital input 4 Timer	sec	0,0	20,0	3,0	3,0
36	P36	4162	Digital Input 5		0	10	1	1
37	P37	4163	Digital input 5 Timer	sec	0,0	20,0	10,0	10,0

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.**
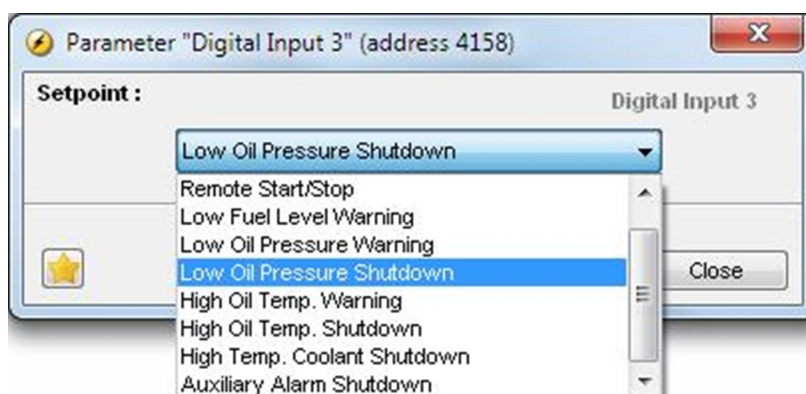
4.3.5 Configuring inputs and outputs

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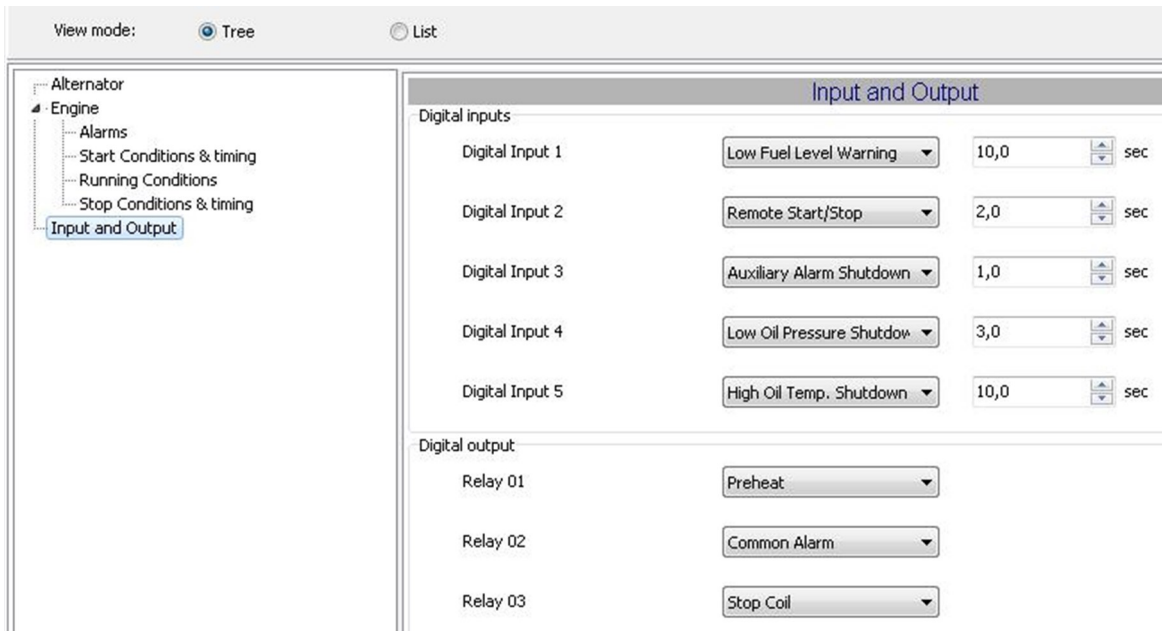
In **List** view, double click the parameter line for the input or output you want to change. Select the input or output you want from the drop-down list in the dialogue box.


4.3.6 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**.
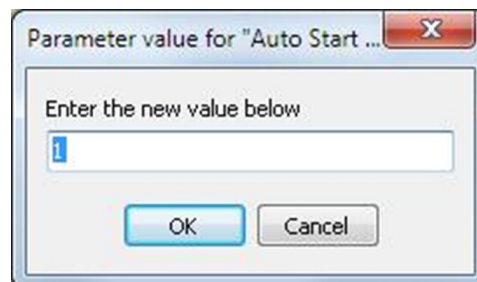
5. See **Writing to the controller** for information about how to write the changed values to the CGC 200.

4.3.7 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** (🖊). When you are on the **Parameters** page, the write icon (🖊) is also available on the toolbar.

● Writing information using the batch write function (📤) (described below).
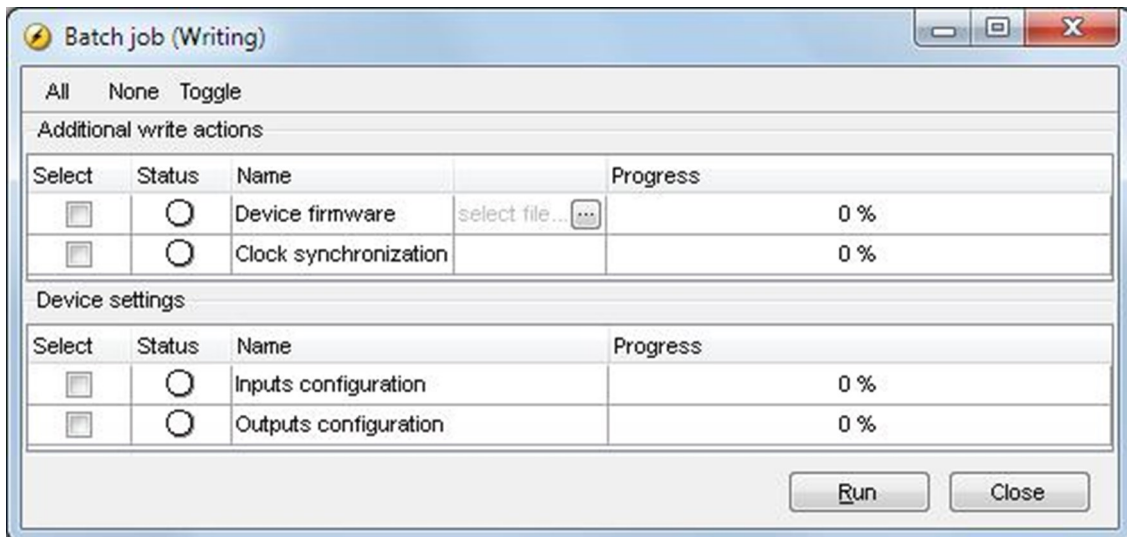● Restoring the controller information from a .bak file, using **Restore Device**.

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 ( ) 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**.

4.3.8 Other Utility Software pages

The other utility software pages are not relevant to commissioning the system. See the **Operator's manual** for more information about these pages.

4.4 Commissioning using the front panel

4.4.1 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 ⬤ 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 ⬤ 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 ⬤ 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 ⬤ 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. Glossary

5.1 Abbreviations and terms

5.1.1 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

5.1.2 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.

5.1.3 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