AGC-4

4189340689F

QUICK START GUIDE

Improve
Tomorrow



1. General information

1.1 Warnings, legal information and safety ... **3**

1.1.1 Warnings and notes ... 3

1.1.2 Legal information and disclaimer ... 3

1.1.3 Safety issues ... 3

1.1.4 Electrostatic discharge awareness ... 3

1.1.5 Factory settings ... 4

1.2 About the Quick Start Guide ... **4**

1.2.1 General purpose ... 4

1.2.2 Intended users ... 4

1.2.3 Contents and overall structure ... 4

2. What's in the delivery?

2.1 Standard delivery ... **5**

2.2 Optional delivery ... **5**

3. Getting started

3.1 Connecting the devices ... **7**

3.1.1 Connecting the display with the main unit ... 7

4. The first steps

4.1 Switching on the first time ... **8**

4.1.1 AGC single application ... 8

4.1.2 AGC island ... 10

4.1.3 AGC mains ... 12

4.1.4 AGC BTB ... 14

4.2 Getting started with the DEIF utility software (USW) ... **15**

4.2.1 Downloading the software ... 15

4.2.2 Installation of USB drivers ... 15

4.2.3 Getting connected ... 16

4.2.4 Read parameters from the device ... 17

4.2.5 Basic configuration of a device using the utility software ... 18

5. Display push-buttons and LEDs

5.1 Push-button functions ... **19**

5.2 LED functions ... **20**

5.2.1 LED functions ... 20

5.2.2 Display navigation ... 21

5.3 Controller setup ... **22**

5.3.1 Controllers available ... 22

5.3.2 Controller output types ... 22

1. General information

1.1 Warnings, legal information and safety

1.1.1 Warnings and notes

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

Warnings



DANGER!
This highlights dangerous situations. If the guidelines are not followed, these situations could result in death, serious personal injury, and equipment damage or destruction.



CAUTION
This highlights potentially dangerous situations. If the guidelines are not followed, these situations could result in personal injury or damaged equipment.

Notes



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

1.1.2 Legal information and disclaimer

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

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

Disclaimer

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

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 a discrepancy, the English version prevails.

1.1.3 Safety issues

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



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

1.1.4 Electrostatic discharge awareness

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

1.1.5 Factory settings

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

1.2 About the Quick Start Guide

1.2.1 General purpose

This Quick Start Guide mainly includes general product information, mounting instructions and wiring descriptions.

The general purpose of this document is to help the user with the first steps of installing and using the Multi-line 2 system.



DANGER!
Please make sure that you also read the Installation Instructions before starting to work with the Multi-line 2 unit and the genset to be controlled. Failure to do this could result in human injury or damage to the equipment.

1.2.2 Intended users

This Quick Start Guide is mainly intended for the panel builder in charge. On the basis of this document, the panel builder designer will give the electrician the information he needs in order to get started with the installation. For detailed electrical drawings, please see the Installation Instructions.

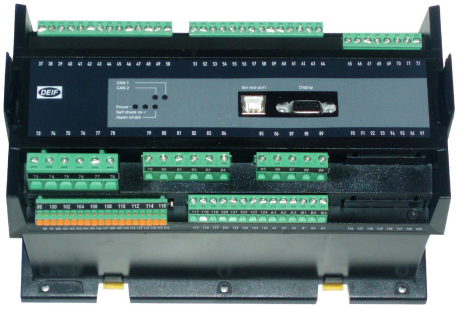
1.2.3 Contents and overall structure

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

2. What's in the delivery?

2.1 Standard delivery

The main unit



Installation Instructions



Standard display, DU-2



2.2 Optional delivery

Display cable (option J1/J2/J6)



PC cable for utility software (option J7)



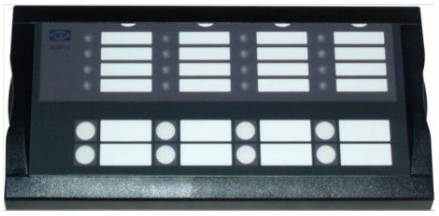
Additional standard display, DU-2 (option X2)





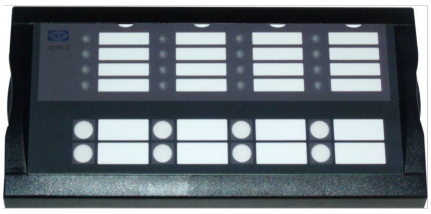


Additional Operator's Panel, AOP-1 (option X3)





Additional Operator's Panel, AOP-2 (option X4)







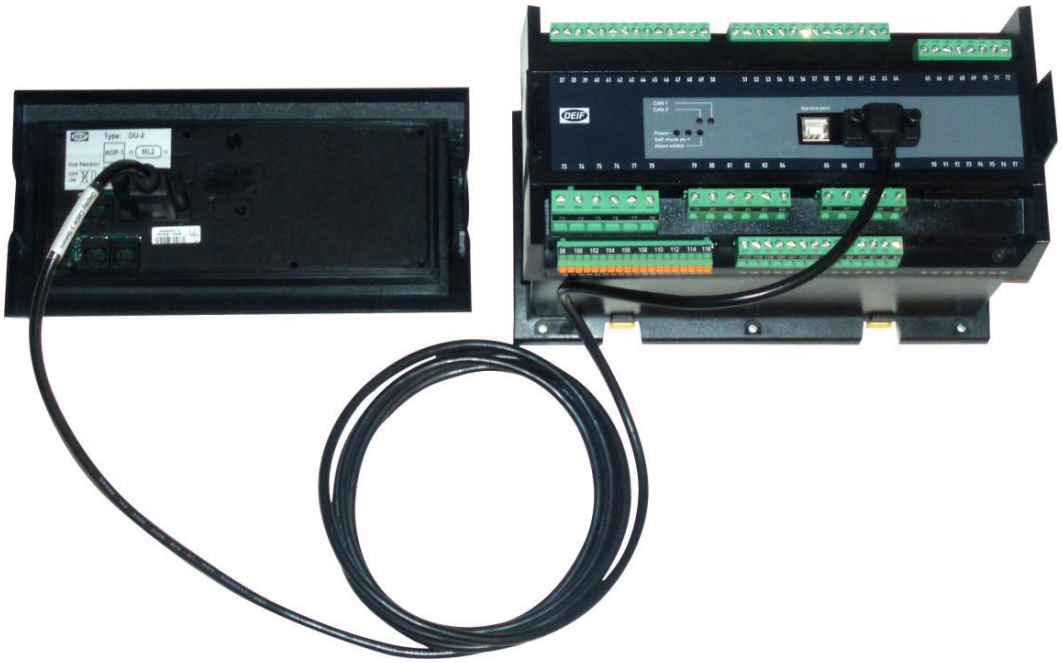
INFO
For connection description of the optional deliveries, please refer to the option X manual.

3. Getting started

3.1 Connecting the devices

3.1.1 Connecting the display with the main unit

Connect the SUB-D display cable to the main unit and the display unit as shown in the picture below.



INFO
No use of tools or brute force when tightening finger-screws on display cable.

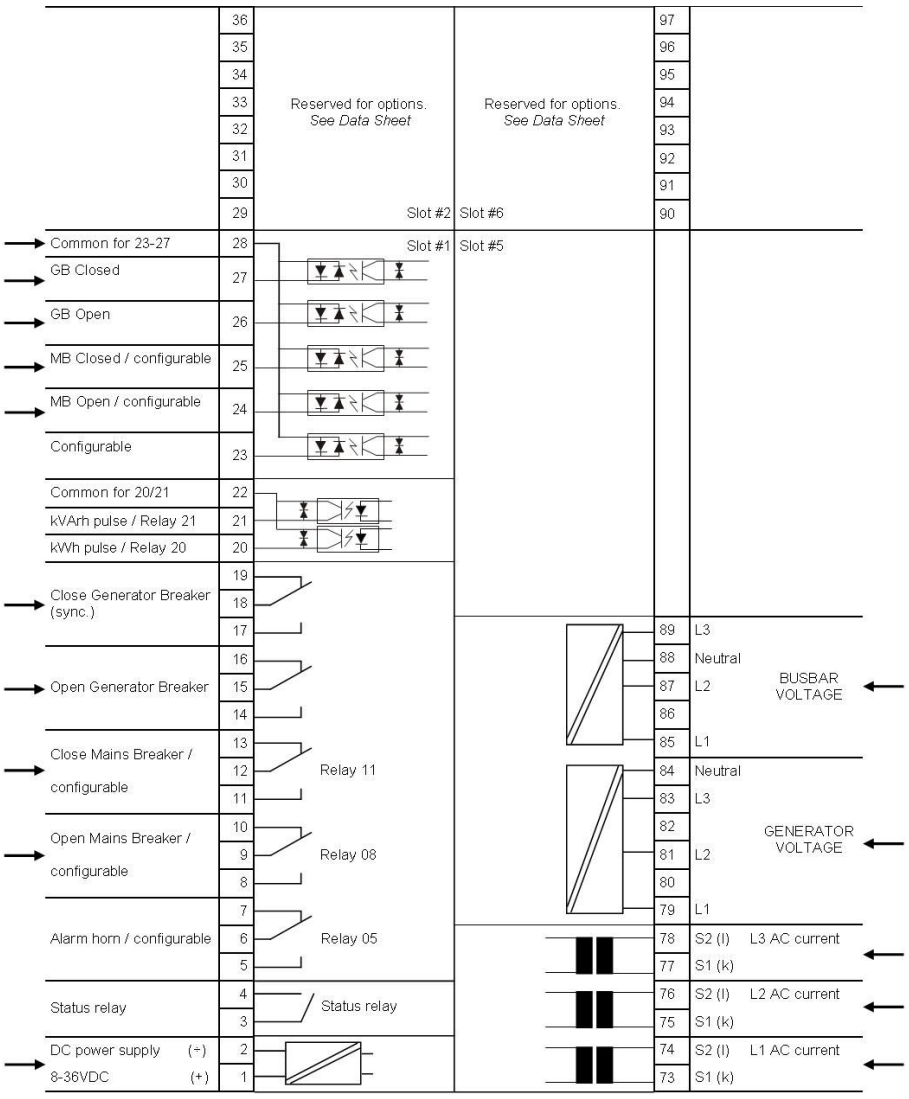
4. The first steps

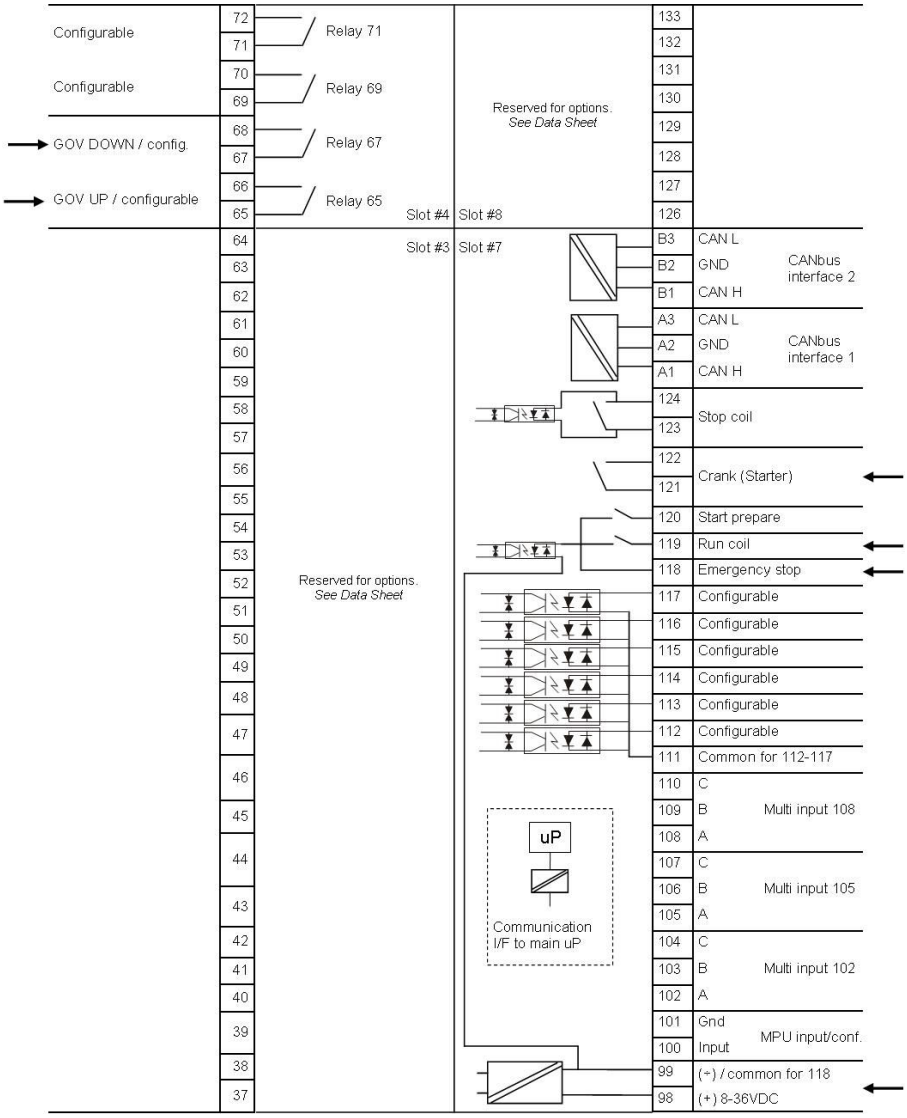
4.1 Switching on the first time

The drawings below show the wiring of the most important signals. Once all connections to the main units are done, the units are ready to be switched on.

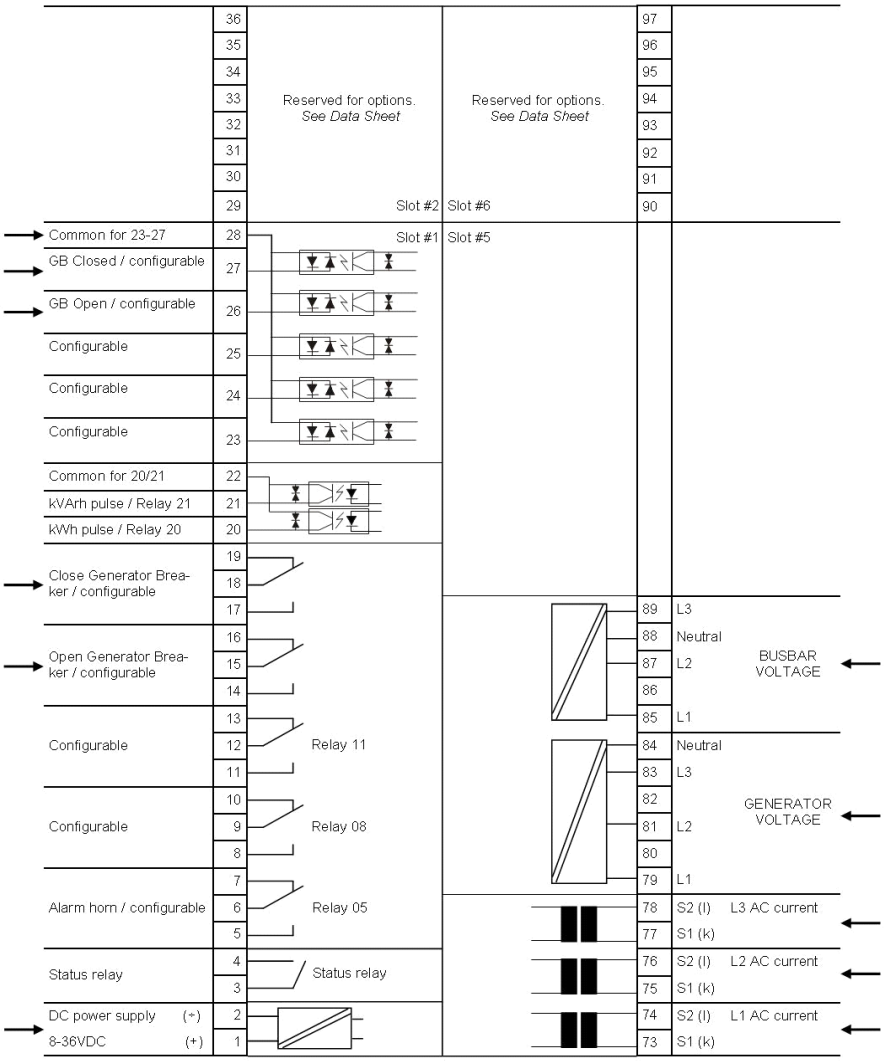
4.1.1 AGC single application

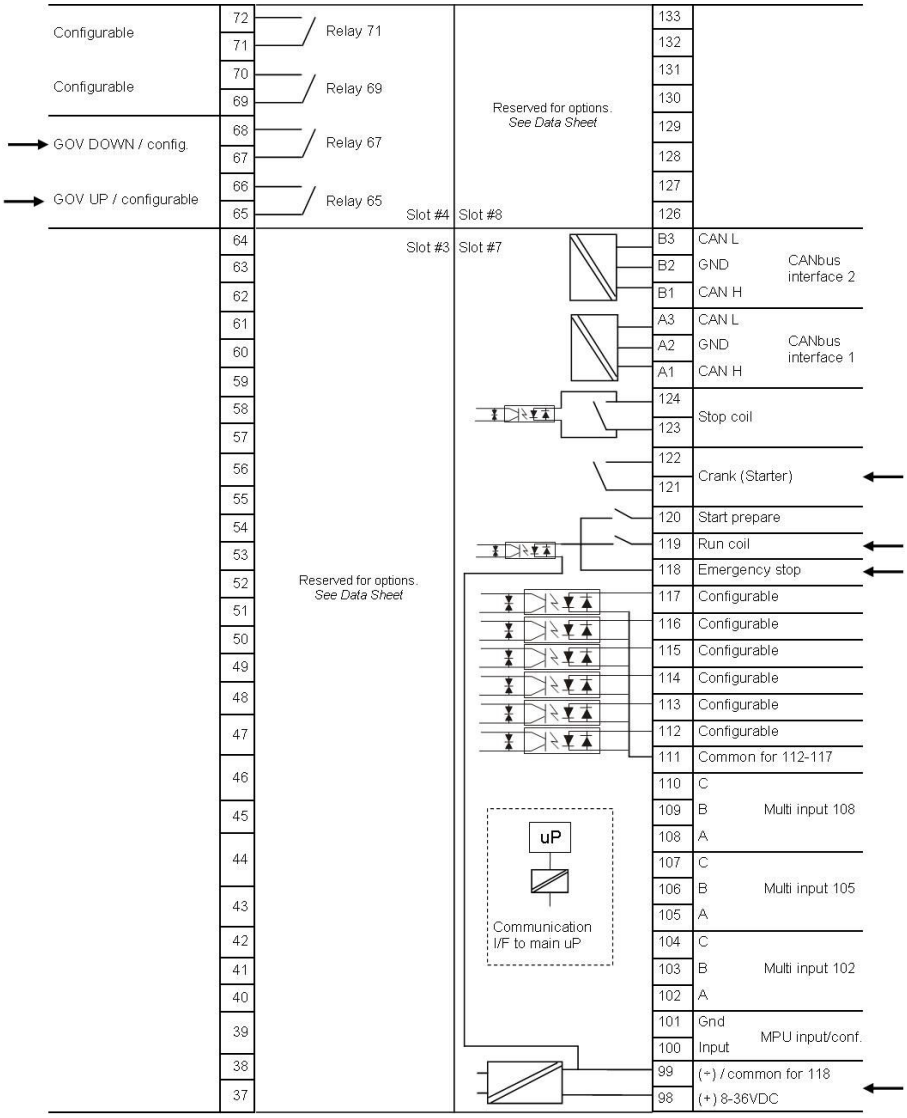
INFO
The most important connections are marked with an arrow.



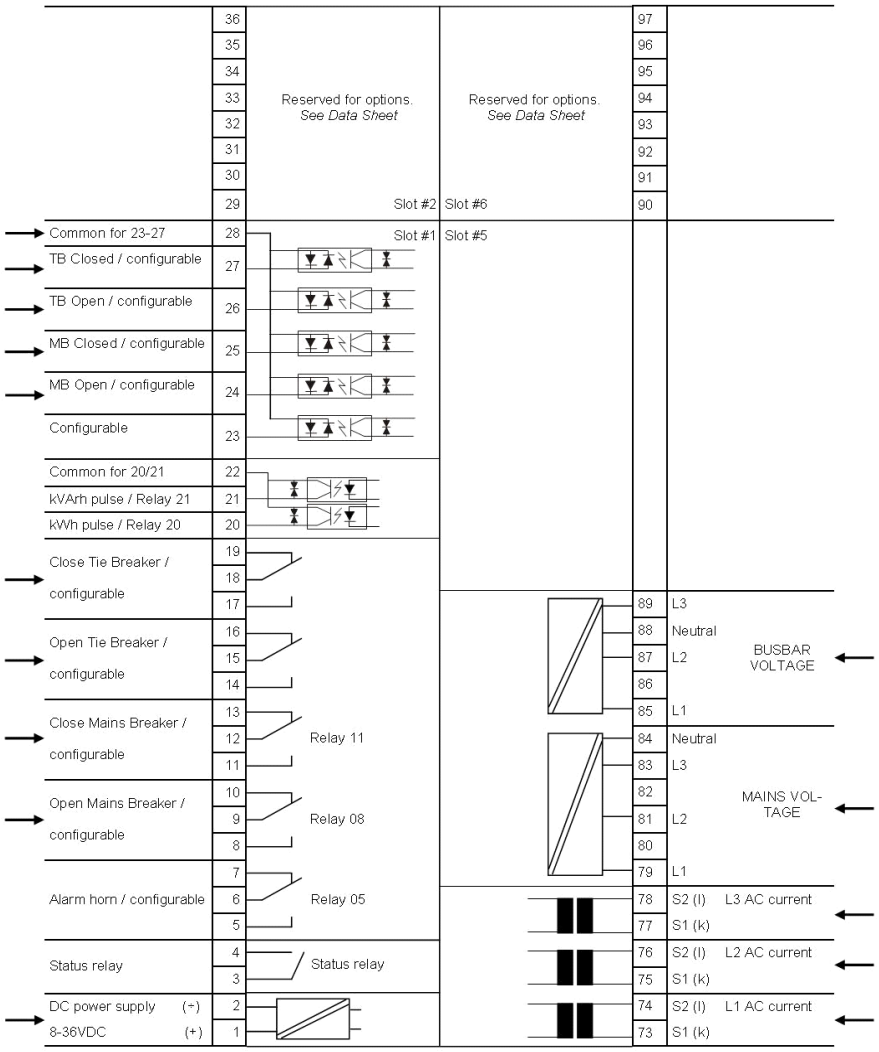

Configurable
Configurable
GOV DOWN / config.
GOV UP / configurable
72
71
70
69
68
67
66
65
Relay 71
Relay 69
Relay 67
Relay 65
Slot #4
Slot #8
Reserved for options.
See Data Sheet
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
Slot #3
Slot #7
Reserved for options.
See Data Sheet
uP
Communication
I/F to main uP
133
132
131
130
129
128
127
126
B3
B2
B1
CAN L
GND
CAN H
CANbus
interface 2
A3
A2
A1
CAN L
GND
CAN H
CANbus
interface 1
124
123
Stop coil
122
121
Crank (Starter)
120
Start prepare
119
Run coil
118
Emergency stop
117
Configurable
116
Configurable
115
Configurable
114
Configurable
113
Configurable
112
Configurable
111
Common for 112-117
110
109
108
C
B
A
Multi input 108
107
106
105
C
B
A
Multi input 105
104
103
102
C
B
A
Multi input 102
101
100
Gnd
Input
MPU input/conf.
99
98
(+) / common for 118
(+) 8-36VDC

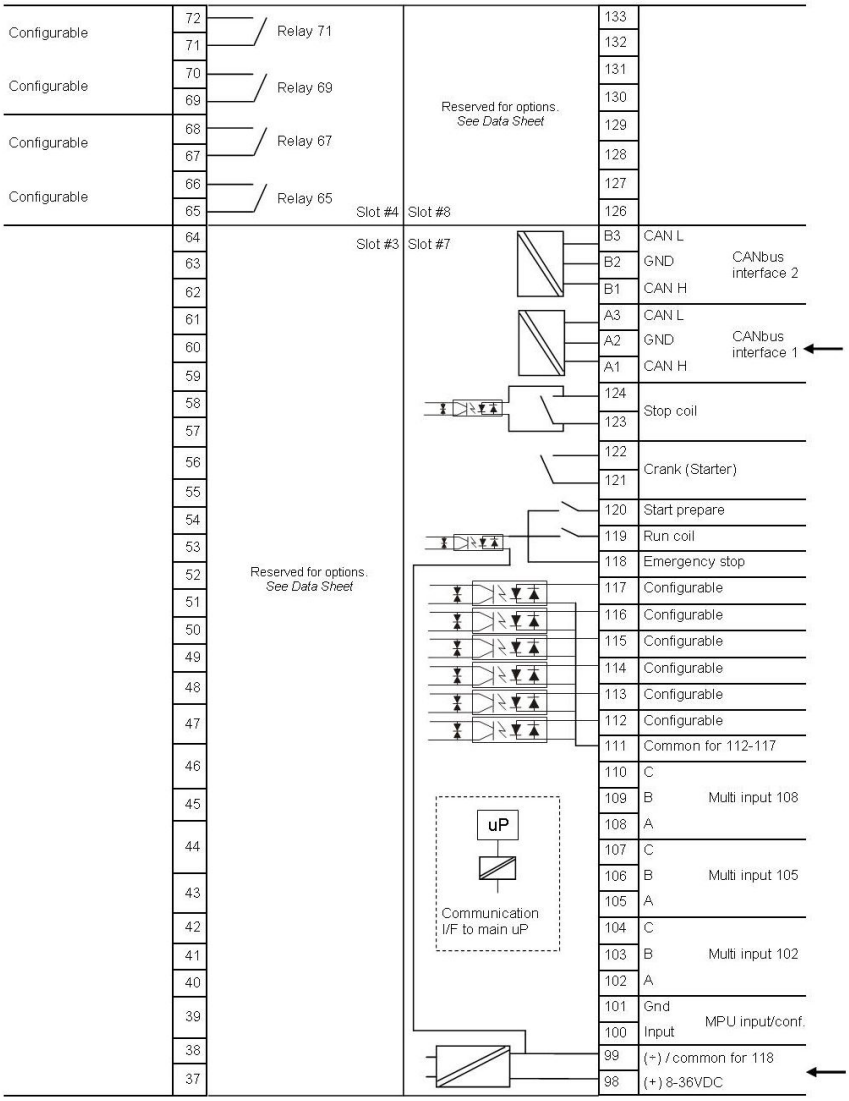
4.1.2 AGC island



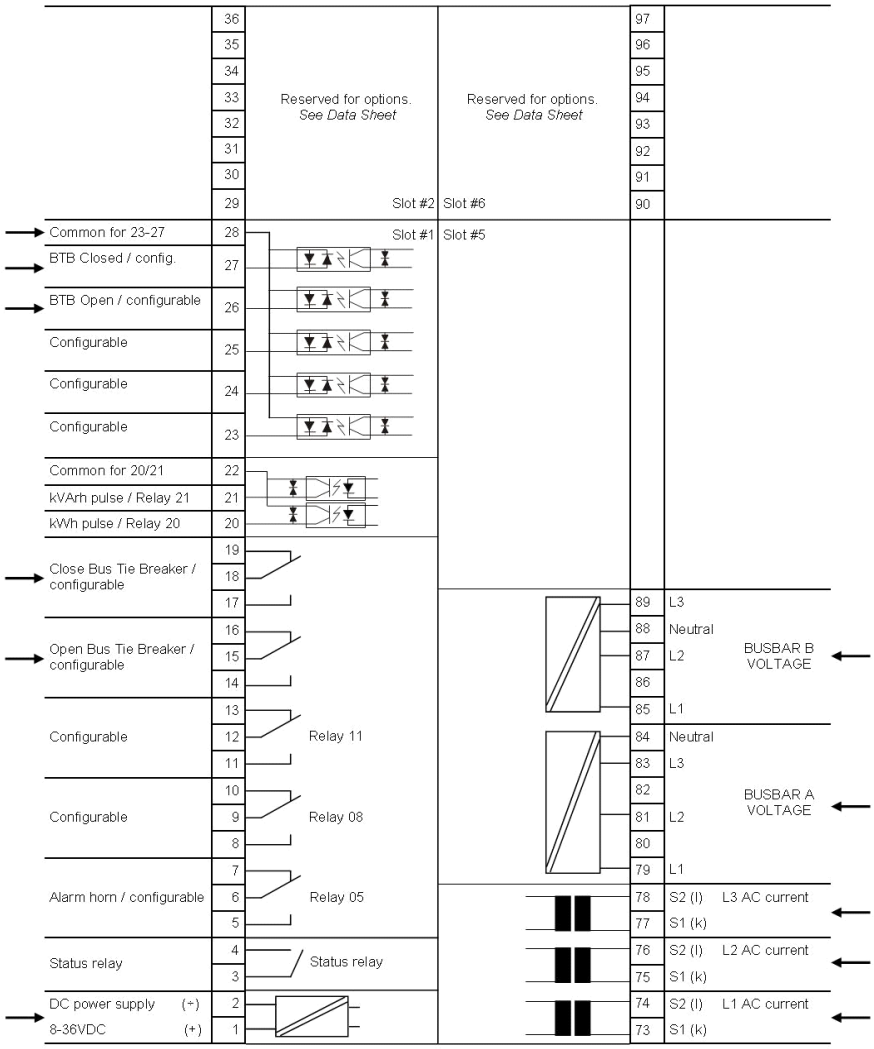

Configurable
Configurable
GOV DOWN / config.
GOV UP / configurable
72
71
70
69
68
67
66
65
Relay 71
Relay 69
Relay 67
Relay 65
Slot #4
Slot #8
Reserved for options.
See Data Sheet
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
Slot #3
Slot #7
Reserved for options.
See Data Sheet
uP
Communication
I/F to main uP
133
132
131
130
129
128
127
126
B3
B2
B1
CAN L
GND
CAN H
CANbus
interface 2
A3
A2
A1
CAN L
GND
CAN H
CANbus
interface 1
124
123
Stop coil
122
121
Crank (Starter)
120
Start prepare
119
Run coil
118
Emergency stop
117
Configurable
116
Configurable
115
Configurable
114
Configurable
113
Configurable
112
Configurable
111
Common for 112-117
110
109
108
C
B
A
Multi input 108
107
106
105
C
B
A
Multi input 105
104
103
102
C
B
A
Multi input 102
101
100
Gnd
Input
MPU input/conf.
99
98
(-) / common for 118
(+) 8-36VDC

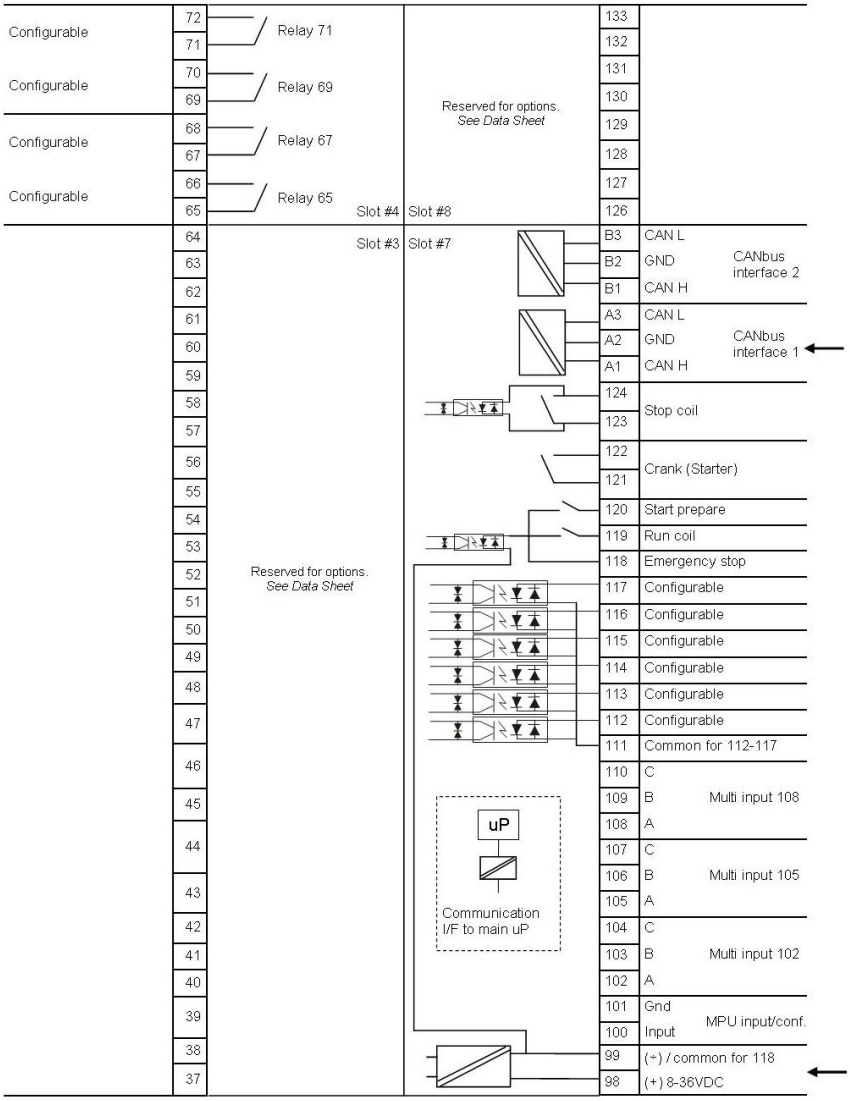
4.1.3 AGC mains




Configurable
Configurable
Configurable
Configurable
72
71
70
69
68
67
66
65
Relay 71
Relay 69
Relay 67
Relay 65
Slot #4
Slot #8
Reserved for options.
See Data Sheet
133
132
131
130
129
128
127
126
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
Slot #3
Slot #7
Reserved for options.
See Data Sheet
B3
B2
B1
CAN L
GND
CAN H
CANbus interface 2
A3
A2
A1
CAN L
GND
CAN H
CANbus interface 1
124
123
Stop coil
122
121
Crank (Starter)
120
Start prepare
119
Run coil
118
Emergency stop
117
Configurable
116
Configurable
115
Configurable
114
Configurable
113
Configurable
112
Configurable
111
Common for 112-117
110
109
108
C
B
A
Multi input 108
107
106
105
C
B
A
Multi input 105
104
103
102
C
B
A
Multi input 102
101
100
Gnd
Input
MPU input/conf.
99
98
(+) / common for 118
(+) 8-36VDC
uP
Communication
I/F to main uP

4.1.4 AGC BTB


Reserved for options.
See Data Sheet
Reserved for options.
See Data Sheet
Slot #2
Slot #6
Slot #1
Slot #5
Common for 23-27
BTB Closed / config.
BTB Open / configurable
Configurable
Configurable
Configurable
Common for 20/21
kVArh pulse / Relay 21
kWh pulse / Relay 20
Close Bus Tie Breaker / configurable
Open Bus Tie Breaker / configurable
Configurable
Relay 11
Configurable
Relay 08
Alarm horn / configurable
Relay 05
Status relay
Status relay
DC power supply (+)
8-36VDC (+)
L3
Neutral
L2
L1
BUSBAR B VOLTAGE
Neutral
L3
L2
L1
BUSBAR A VOLTAGE
S2 (l) L3 AC current
S1 (k)
S2 (l) L2 AC current
S1 (k)
S2 (l) L1 AC current
S1 (k)



INFO
For further information regarding the installation, please follow the Installation Instructions.

4.2 Getting started with the DEIF utility software (USW)

4.2.1 Downloading the software

1. Go to www.deif.com
2. Select Software in the top menu bar
3. Scroll to the Software downloads list
4. Select Multi-line 2 Utility Software v.3.x in the list
5. Fill in your email address and click “Submit”

You will then receive an email with a link. Click the link and follow the instructions.

The USW is now installed on your computer.

4.2.2 Installation of USB drivers

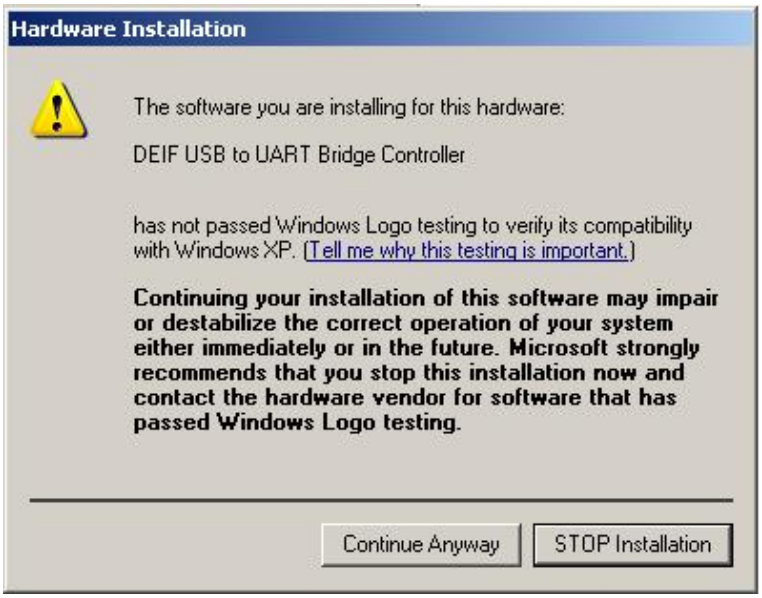
On Windows Vista machines, the USB drivers are installed automatically.

This is the procedure on Windows XP machines:

When you connect the DEIF product, Windows XP will launch two "Hardware Wizards". Two drivers are installed, so please let Windows execute both "Found new Hardware Wizard"s.

We recommend letting the Hardware Wizard install the software automatically by choosing the "Recommended" option. If the "Advanced" option is chosen, the needed files are available from the USW3 installation folder (default: C:\Program Files \DEIF\USW3\) in the "USB driver files/source PreInstaller" folder.

Select "Continue Anyway" if a "Hardware Installation" warning (see screenshot below) appears during the installation.



4.2.3 Getting connected

Connect the service port to the USB on the computer (option J7 or option J3).

Click the Utility Software 3 icon on the desktop or in the Windows Start menu.

Desktop icon: 

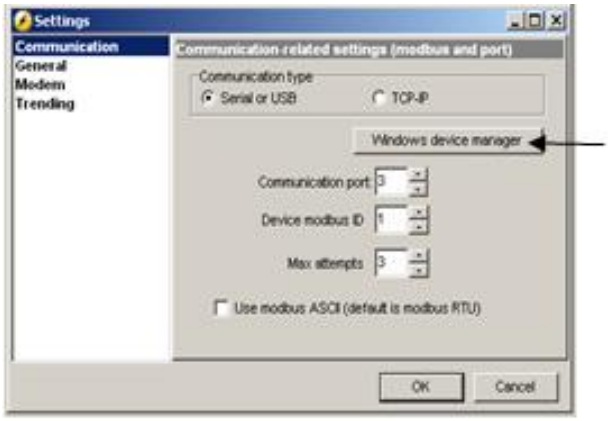
Quick launch and Start menu icon: 

The below window appears.

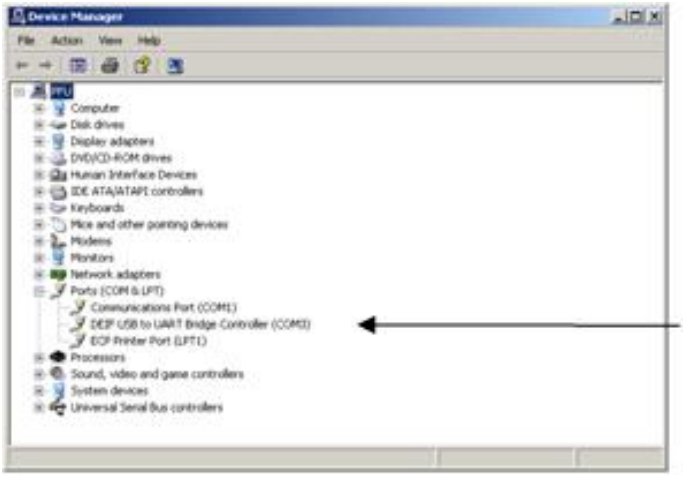


Open the application settings by clicking this icon.





Open "Windows device manager".



Check the COM port used for communication, and make sure the settings correspond to the application settings.



Click the "Connect" icon.



You are now online with the unit.

4.2.4 Read parameters from the device



Open the "Parameters" list.



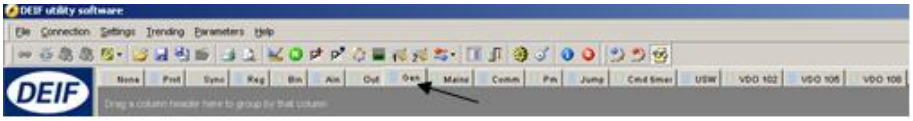
Click the "Read parameters from the device" icon.



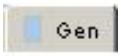
After retrieving all the parameters, the device is ready to be configured.

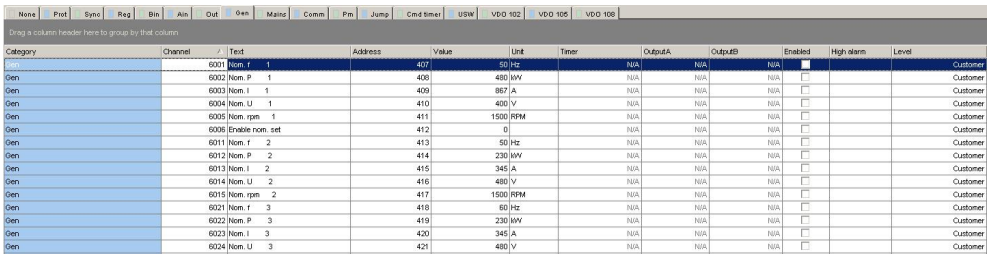
4.2.5 Basic configuration of a device using the utility software

When the parameters have been uploaded, the options below will be available.



Click the "Gen" tab.

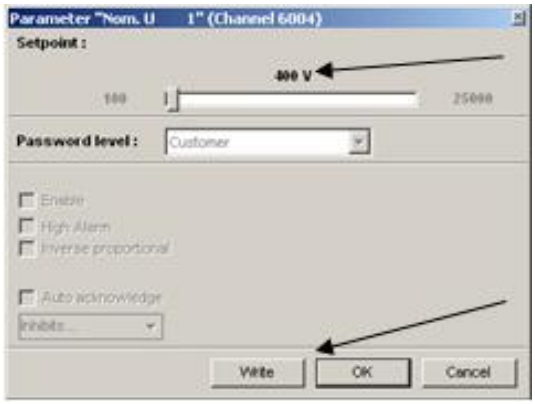




Category	Channel	Text	Address	Value	Unit	Timer	OutputA	OutputB	Enabled	High alarm	Level
	6001	Nom. f 1	407	50	Hz	N/A	N/A	N/A			Customer
Gen	6002	Nom. P 1	408	480	kW	N/A	N/A	N/A			Customer
Gen	6003	Nom. I 1	409	867	A	N/A	N/A	N/A			Customer
Gen	6004	Nom. U 1	410	400	V	N/A	N/A	N/A			Customer
Gen	6005	Nom. rpm 1	411	1500	RPM	N/A	N/A	N/A			Customer
Gen	6006	Enable nom. set	412	0		N/A	N/A	N/A			Customer
Gen	6011	Nom. f 2	413	50	Hz	N/A	N/A	N/A			Customer
Gen	6012	Nom. P 2	414	230	kW	N/A	N/A	N/A			Customer
Gen	6013	Nom. I 2	415	345	A	N/A	N/A	N/A			Customer
Gen	6014	Nom. U 2	416	480	V	N/A	N/A	N/A			Customer
Gen	6015	Nom. rpm 2	417	1500	RPM	N/A	N/A	N/A			Customer
Gen	6021	Nom. f 3	418	60	Hz	N/A	N/A	N/A			Customer
Gen	6022	Nom. P 3	419	230	kW	N/A	N/A	N/A			Customer
Gen	6023	Nom. I 3	420	345	A	N/A	N/A	N/A			Customer
Gen	6024	Nom. U 3	421	480	V	N/A	N/A	N/A			Customer

The parameters can be configured as follows:

Click a parameter and the dialogue box below will appear.



Click this or use the bar to adjust the set point, then click "Write" and "OK".

The parameter set point has now been changed and downloaded to the device.

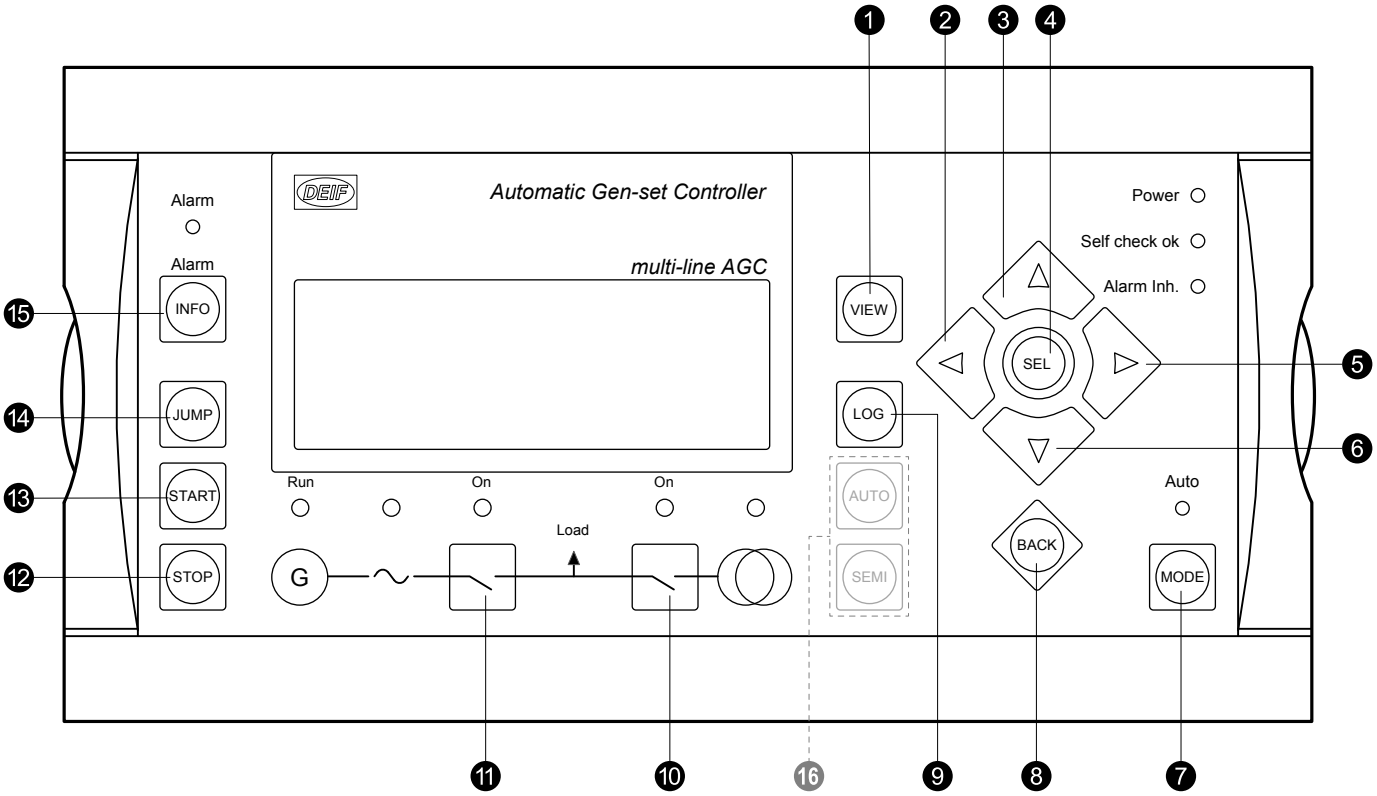
INFO
For further information, see the "General Guidelines for Commissioning".

5. Display push-buttons and LEDs

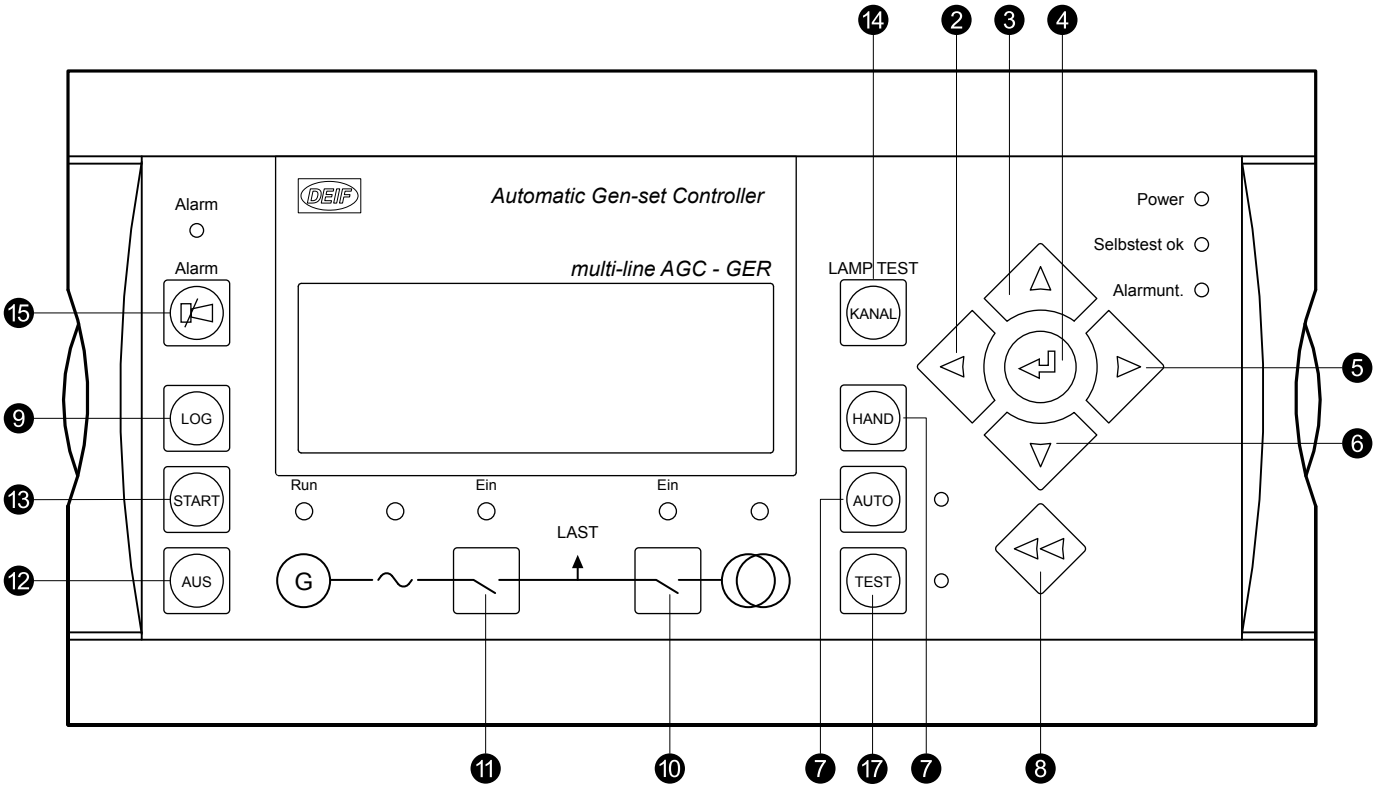
5.1 Push-button functions

Button functions

Standard AGC-4 folio



AGC - GER (German) folio



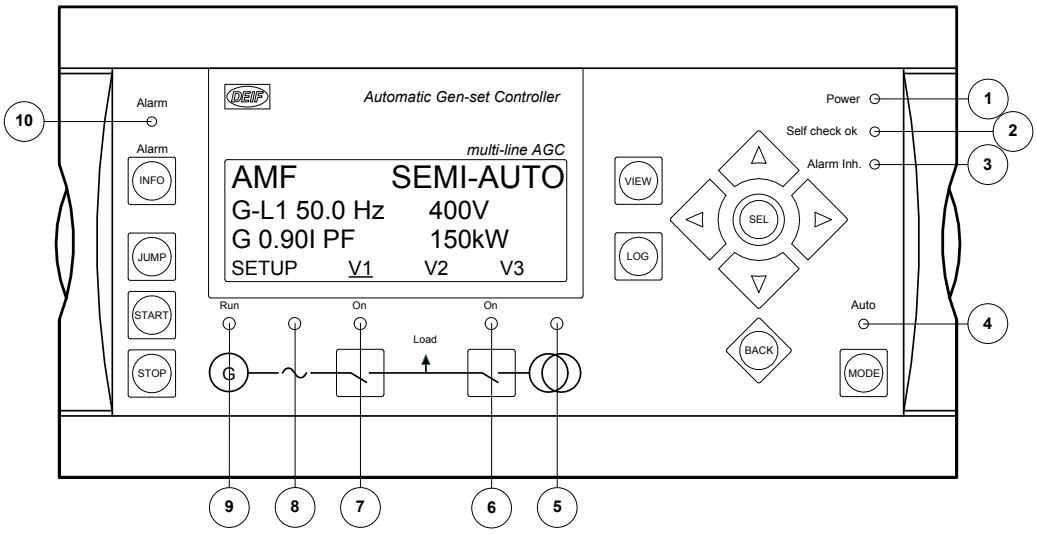
1. Shifts the first line displaying in the setup menus. If more than one DU-2 is connected to the controller, push for 2 seconds to make this DU-2 the master display.
2. Moves the cursor left.
3. Up button: Function depends on context.
   - V1: Scrolls the view lines.
   - Setup menu: Displays a different value in the second line.
   - A parameter: Increases the set point.
4. Selects the underscored entry in the fourth line of the display.
5. Moves the cursor right.
6. Down button: Function depends on context.
   - V1: Scrolls the view lines.
   - Setup menu: Displays a different value in the second line.
   - A parameter: Decreases the set point.
7. Changes the menu line (line four) in the display to mode selection.
   - Not present in group and plant controllers.
8. Jumps one step backwards in the menu (to previous display or to the entry window).
9. Displays the LOG SETUP window where you can choose between the Event, Alarm and Battery logs. The logs are not deleted when the auxiliary supply is switched off.
10. Manual activation of close/open breaker sequence if SEMI is selected.
11. Manual activation of close/open breaker sequence if SEMI is selected.
12. Stops the genset/plant if SEMI or MANUAL* is selected.
13. Starts the genset/plant if SEMI or MANUAL* is selected.
14. Enables the user to use the menu number to select and display any setting.
15. Shifts the display three lower lines to show the alarm list. By holding the button, all alarms will be acknowledged.
16. Group and plant controllers: Select AUTO and SEMI mode.
17. German AGC only: Test button.

*Note: MANUAL mode is not available in German controllers.

5.2 LED functions

5.2.1 LED functions

The display unit holds 10 LED functions. The colour is green or red or a combination in different situations. The display LEDs are indicating as follows:

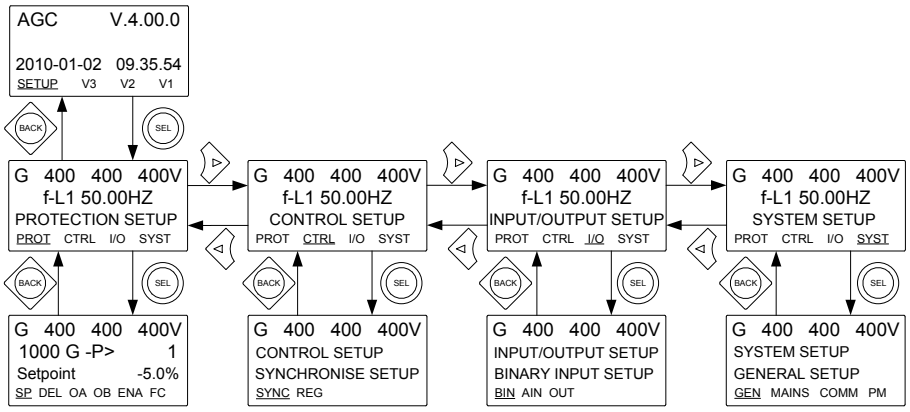


1. LED indicates that the auxiliary supply is switched on.

2. LED indicates that the unit is OK.
3. LED indicates that an alarm is inhibited, it could, for example, be low frequency when the genset is stopped.
4. LED indicates that auto mode is selected.
5. LED is green if the mains is present and OK. LED is red at a measured mains failure. LED is flashing green when the mains returns during the "mains OK delay" time.
6. LED indicates that the mains breaker is closed. LED is flashing yellow if the "MB spring loaded" signal from the breaker is missing or the MB load time has not expired.
7. LED green light indicates that the generator breaker is closed. LED yellow light indicates that the generator breaker has received a command to close on a black bus, but the breaker is not yet closed due to interlocking of the GB. LED is flashing yellow if the "enable GB black close" or the "GB spring loaded" signal is missing or the GB load time has not expired.
8. LED green light indicates that the voltage/frequency is present and OK.
9. LED indicates that the generator is running.
10. LED flashing indicates that unacknowledged alarms are present. LED fixed light indicates that ALL alarms are acknowledged, but some are still present.

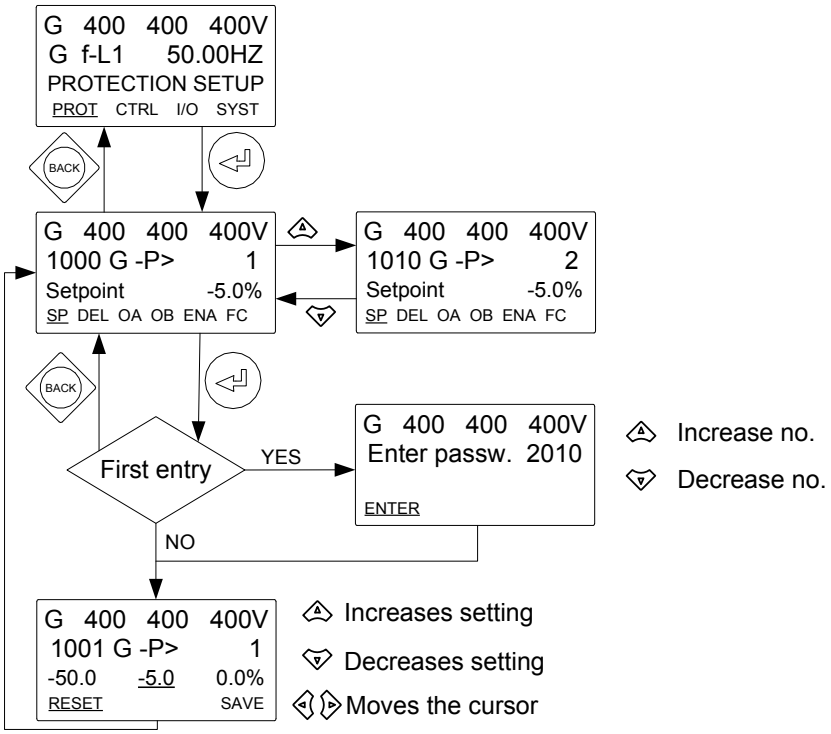
5.2.2 Display navigation

Setup structure



Setup example

The following example illustrates how a specific setting is changed in the setup menu. In this case, nominal voltage **"Nom. U 1"** is the selected parameter.



INFO
For further information, please refer to the Designer's Reference Handbook.

5.3 Controller setup

5.3.1 Controllers available

Governor (std.)

1. Synchronisation (static and dynamic sync.)
2. Phase angle (static sync.)
3. Frequency
4. Power
5. Load sharing

AVR (option D1)

1. Voltage
2. Reactive power
3. Reactive load sharing

5.3.2 Controller output types

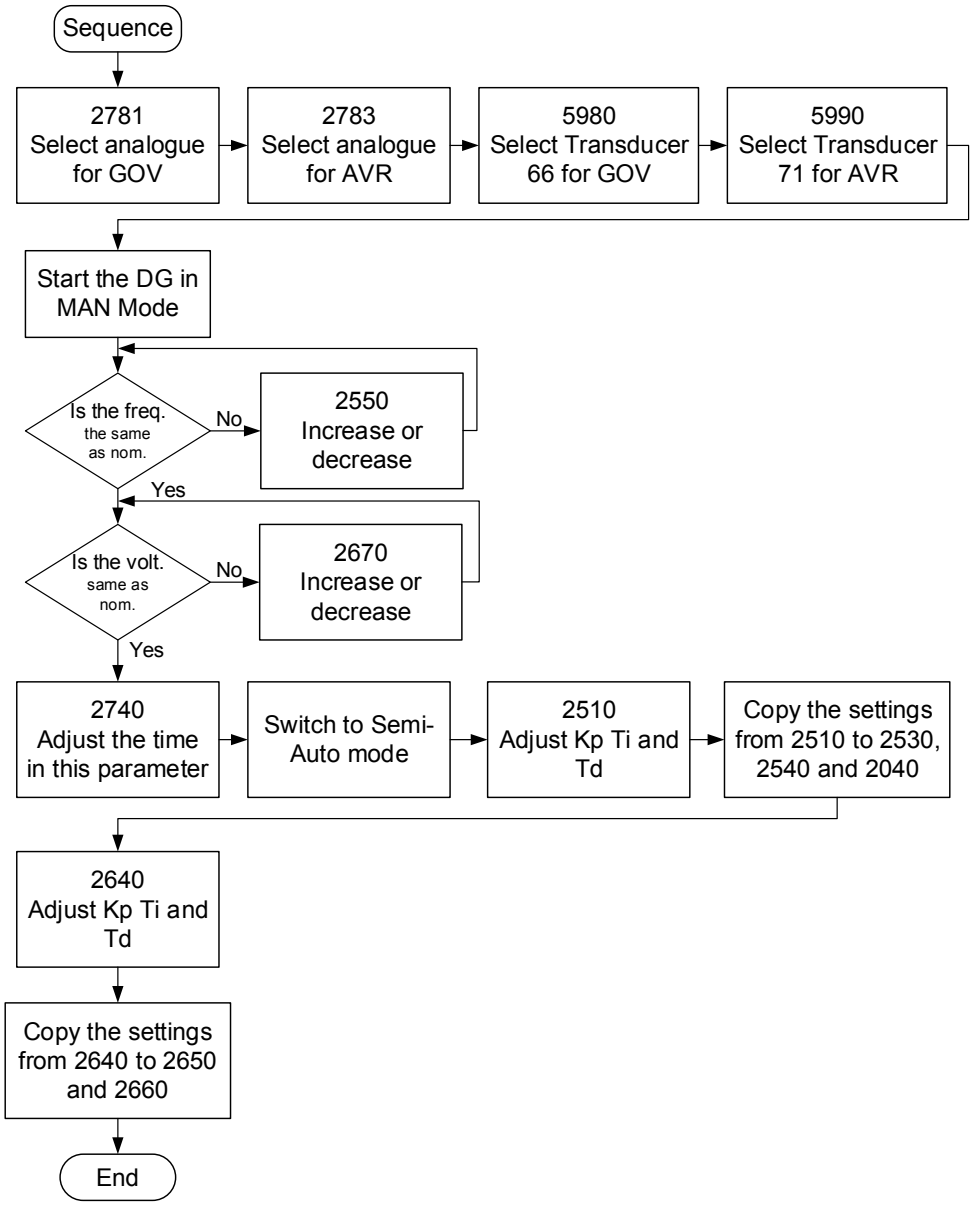
Analogue (option E1, E2, EF2 or EF4)

Transducer output 66 or 71

Relays (std.)

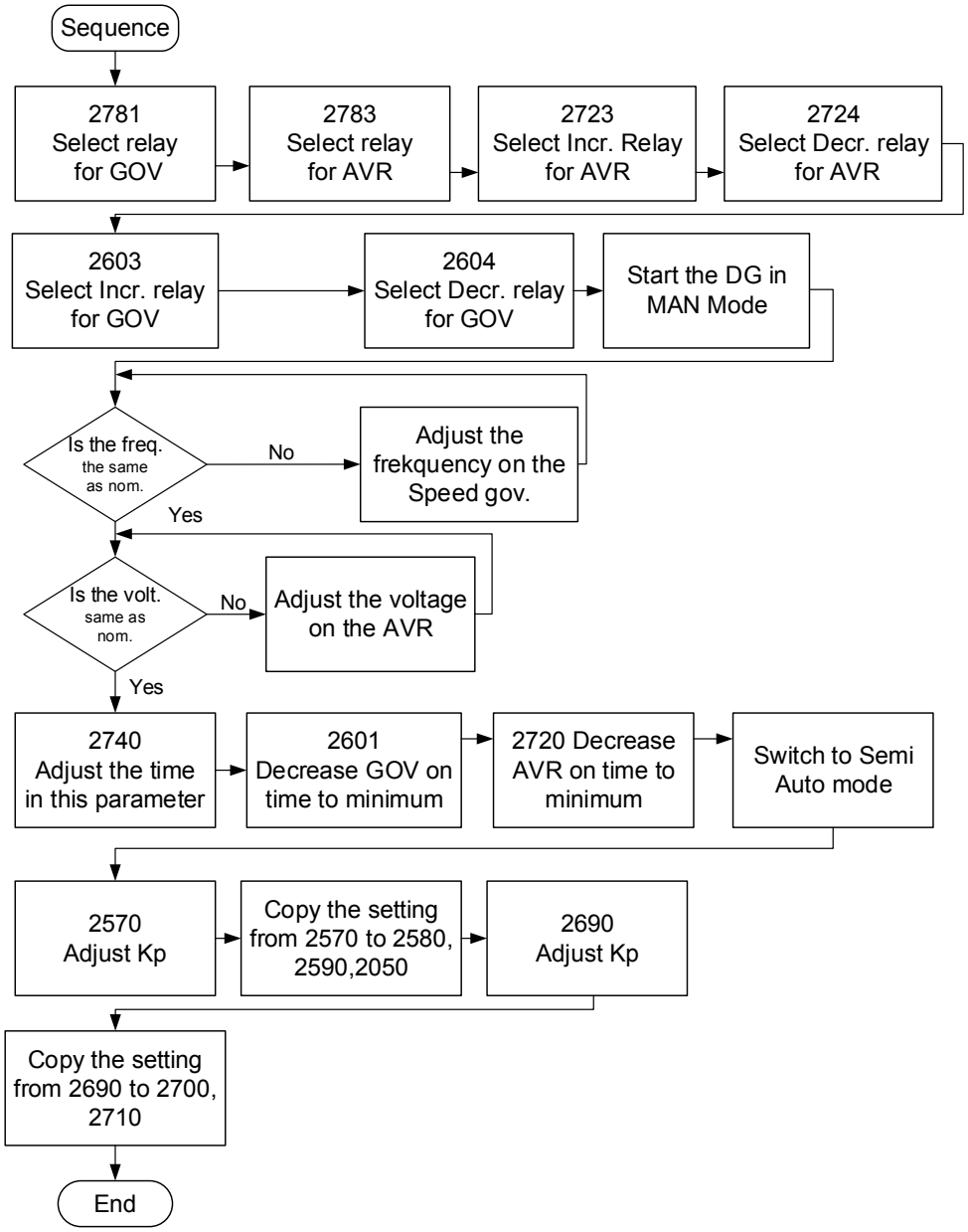
Normally relays 65, 67, 69 and 71, but any configurable relay can be used

Setup of a controller with analogue option and AVR option



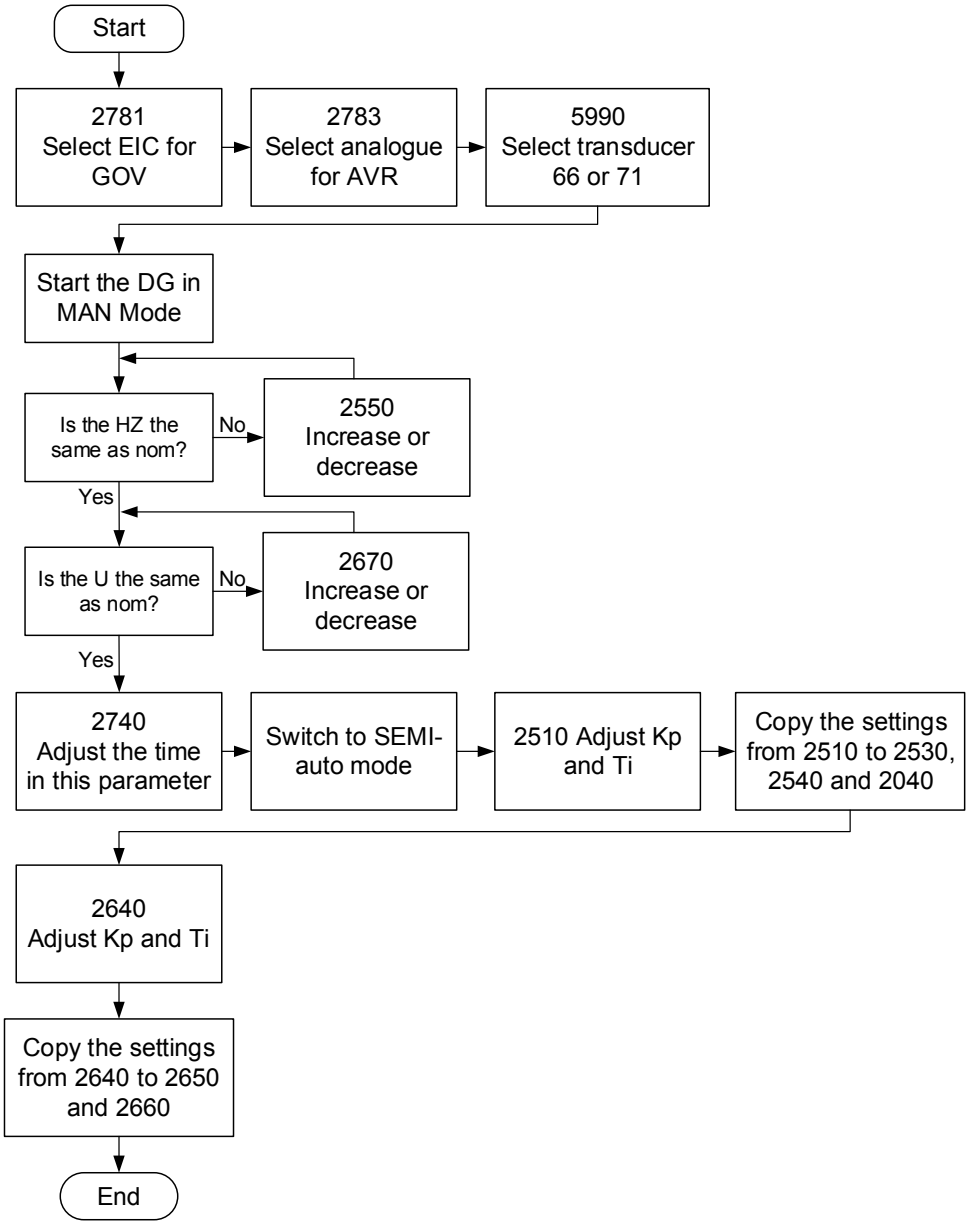
INFO
For further information, please refer to the General Guidelines for Commissioning.

Setup of a controller with relay and AVR option



INFO
For further information, please refer to the General Guidelines for Commissioning.

Setup of a controller with EIC for GOV control and analogue for AVR control



For further information, please check the following literature:

AGC Designer's Reference Handbook

AGC Installation Instructions

AGC Operator's Manual