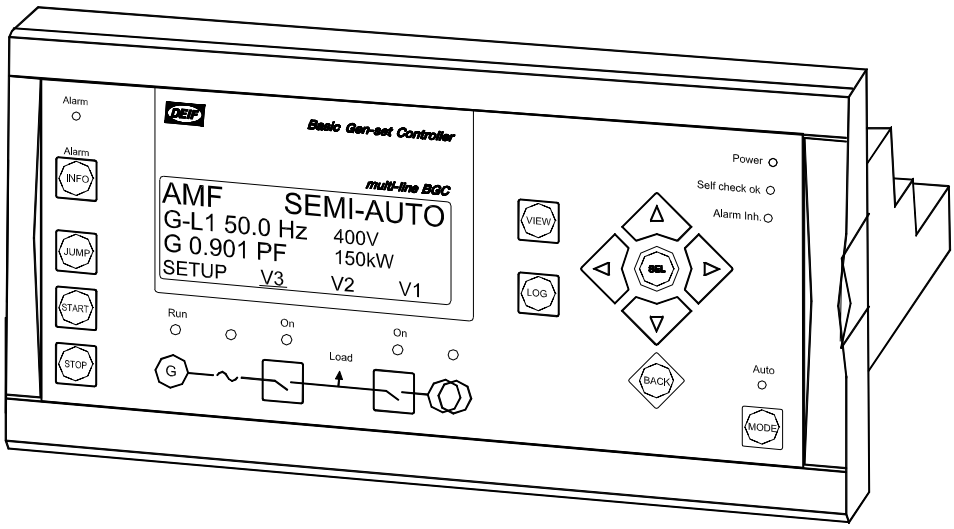
DEIF A/S

Description of options

-power in control

Option C,
Generator add-on protection package
Basic Gen-set Controller

4189340304B



- *Description of option*
- *Functional description*
- *Parameter list*
- *Etc.*

CE

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Table of contents

1. Warnings and legal information

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

Legal information and responsibility

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

The BGC units are not to be opened by unauthorized personnel. If opened anyway, the warranty will be lost.

Electrostatic discharge awareness

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

Safety issues

Installing the BGC unit implies work with dangerous currents and voltages. Therefore, the installation of the BGC should only be carried out by authorized personnel who understand the risks involved in the working with live electrical equipment.

Notes

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

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2. Description of option

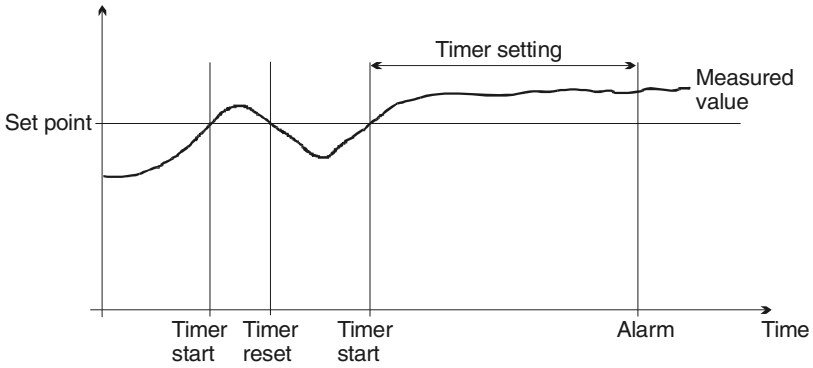
This option includes the generator add-on protection package.

- Over-/undervoltage (generator)
- Over-/underfrequency (generator)
- Overload
- Peak current
- Current unbalance
- Voltage unbalance
- Reactive power import (excitation loss)
- Reactive power export (overexcitation)

3. Functional description

The protections are all of the definite time type, i.e. a set point and time is selected.

If the function is e.g. overvoltage, the timer will be activated, if the set point is exceeded. If the voltage value goes below the set point value, before the timer runs out, then the timer will be stopped and reset.



When the timer runs out, the output is activated.

4. Parameter list

Parameter table description

The table consists of the following possible adjustments:

Set point: The alarm set point is adjusted in the set point menu. The setting is a percentage of the nominal values.

Timer: The timer setting is the time that must expire from the alarm level is reached until the alarm occurs.

Relay output A: A relay can be activated by the output A

Relay output B: A relay can be activated by the output B

Enable: The alarm can be activated or deactivated. ON means always activated, RUN means that the alarm has run status. This means that it is activated when the running signal is present.

Fail class: When the alarm occurs the BGC will react depending on the selected fail class.

For further information about the structure of the parameter descriptions, see the Designer's Reference Handbook.

Protection

Generator add-on protections

1120 Overload 1

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1121	Over load 1	Set point	1.0%	200.0%	-	100.0%
1122	Over load 1	Timer	0.1 s	100.0 s	-	10.0 s
1123	Over load 1	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1124	Over load 1	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1125	Over load 1	Enable	OFF	ON	RUN	OFF
1126	Over load 1	Fail class	1	5	-	2

1130 Overload 2

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1131	Over load 2	Set point	1.0%	200.0%	-	110.0%
1132	Over load 2	Timer	0.1 s	100.0 s	-	5.0 s
1133	Over load 2	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1134	Over load 2	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1135	Over load 2	Enable	OFF	ON	RUN	OFF
1136	Over load 2	Fail class	1	5	-	3

1140 Current unbalance

Settings relate to nominal generator current.

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1141	Current unbalance	Set point	0.0%	100.0%	-	30.0%
1142	Current unbalance	Timer	0.1 s	100.0 s	-	10.0 s
1143	Current unbalance	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1144	Current unbalance	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1145	Current unbalance	Enable	OFF	ON	RUN	OFF
1146	Current unbalance	Fail class	1	5	-	3

1150 Voltage unbalance

Settings relate to nominal generator voltage.

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1151	Voltage unbalance	Set point	0.0%	50.0%	-	10.0%
1152	Voltage unbalance	Timer	0.1 s	100.0 s	-	10.0 s
1153	Voltage unbalance	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1154	Voltage unbalance	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1155	Voltage unbalance	Enable	OFF	ON	RUN	OFF
1156	Voltage unbalance	Fail class	1	5	-	3

1160 var import

Settings relate to nominal generator power value (kW).

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1161	var import	Set point	0.0%	150.0%	-	50.0%
1162	var import	Timer	0.1 s	100.0 s	-	10.0 s
1163	var import	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1164	var import	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1165	var import	Enable	OFF	ON	RUN	OFF
1166	var import	Fail class	1	5	-	2

1170 var export

Settings relate to nominal generator power value (kW).

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1171	var export	Set point	0.0%	100.0%	-	60.0%
1172	var export	Timer	0.1 s	100.0 s	-	10.0 s
1173	var export	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1174	var export	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1175	var export	Enable	OFF	ON	RUN	OFF
1176	var export	Fail class	1	5	-	2

1210 Generator high voltage1

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1211	Gen. high volt. 1	Set point	100.0%	120.0%	-	103.0%
1212	Gen. high volt. 1	Timer	0.1 s	100.0 s	-	10.0 s
1213	Gen. high volt. 1	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1214	Gen. high volt. 1	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1215	Gen. high volt. 1	Enable	OFF	ON	RUN	OFF
1216	Gen. high volt. 1	Fail class	1	5	-	2

1220 generator high voltage 2

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1221	Gen. high volt. 2	Set point	100.0%	120.0%	-	105.0%
1222	Gen. high volt. 2	Timer	0.1 s	100.0 s	-	5.0 s
1223	Gen. high volt. 2	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1224	Gen. high volt. 2	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1225	Gen. high volt. 2	Enable	OFF	ON	RUN	OFF
1226	Gen. high volt. 2	Fail class	1	5	-	2

1230 Generator low volt1

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1231	Gen. low volt. 1	Set point	80.0%	100.0%	-	97.0%
1232	Gen. low volt. 1	Timer	0.1 s	100.0 s	-	10.0 s
1233	Gen. low volt. 1	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1234	Gen. low volt. 1	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1235	Gen. low volt. 1	Enable	OFF	ON	RUN	OFF
1236	Gen. low volt. 1	Fail class	1	5	-	2

1240 Generator low volt2

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1241	Gen. low volt. 2	Set point	50.0%	100.0%	-	95.0%
1242	Gen. low volt. 2	Timer	0.1 s	100.0 s	-	5.0 s
1243	Gen. low volt. 2	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1244	Gen. low volt. 2	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1245	Gen. low volt. 2	Enable	OFF	ON	RUN	OFF
1246	Gen. low volt.2	Fail class	1	5	-	2

1250 Generator high frequency 1

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1251	Gen. high freq. 1	Set point	100.0%	120.0%	-	103.0%
1252	Gen. high freq. 1	Timer	0.2 s	100.0 s	-	10.0 s
1253	Gen. high freq. 1	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1254	Gen. high freq. 1	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1255	Gen. high freq. 1	Enable	OFF	ON	RUN	OFF
1256	Gen. high freq. 1	Fail class	1	5	-	2

1260 Generator high frequency 2

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1261	Gen. high freq. 2	Set point	100.0%	120.0%	-	105.0%
1262	Gen. high freq. 2	Timer	0.2 s	100.0 s	-	5.0 s
1263	Gen. high freq. 2	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1264	Gen. high freq. 2	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1265	Gen. high freq. 2	Enable	OFF	ON	RUN	OFF
1266	Gen. high freq. 2	Fail class	1	5	-	2

1270 Generator low frequency 1

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1271	Gen. low freq. 1	Set point	80.0%	100.0%	-	97.0%
1272	Gen. low freq. 1	Timer	0.2 s	100.0 s	-	10.0 s
1273	Gen. low freq. 1	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1274	Gen. low freq. 1	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1275	Gen. low freq. 1	Enable	OFF	ON	RUN	OFF
1276	Gen. low freq. 1	Fail class	1	5	-	2

1280 Generator low frequency 2

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1281	Gen. low freq. 2	Set point	80.0%	100.0%	-	95.0%
1282	Gen. low freq. 2	Timer	0.2 s	100.0 s	-	5.0 s
1283	Gen. low freq. 2	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1284	Gen. low freq. 2	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1285	Gen. low freq. 2	Enable	OFF	ON	RUN	OFF
1286	Gen. low freq. 2	Fail class	1	5	-	2

1290 Peak current 1

Setting relates to nominal generator current.

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1291	Peak current1	Set point	50.0%	350.0%	-	115.0%
1292	Peak current1	Timer	0.0 s	100.0 s	-	10.0 s
1293	Peak current1	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1294	Peak current1	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1295	Peak current1	Enable	OFF	ON	RUN	ON
1296	Peak current1	Fail class	1	5	-	2

1300 Peak current 2

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
1301	Peak current 2	Set point	50.0%	350.0%	-	120.0%
1302	Peak current 2	Timer	0.0 s	100.0 s	-	5.0 s
1303	Peak current 2	Relay output A	R0 (none)	R3 (relay3)	-	R0 (none)
1304	Peak current 2	Relay output B	R0 (none)	R3 (relay3)	-	R0 (none)
1305	Peak current 2	Enable	OFF	ON	RUN	ON
1306	Peak current 2	Fail class	1	5	-	3

The ‘peak overcurrent alarm’ is faster than 50 msec, when time is set to 0.0 s.

5. Relay function

Relay setup

As illustrated below the relays can be configured in two different ways.

1. Alarm relay function:
   When an alarm activates the relay, it will remain activated as long as the alarm is present and unacknowledged.

2. Limit function:
   When an alarm activates the relay, no alarm message is displayed. When the condition activating the relay has returned to normal, the relay will deactivate, when the 'Off delay' has expired.

The setup of the relay is done in the setup menu (system). All relays are set up in the same way. This example illustrates relay 6:

No.	Setting		First/min. setting	Second/max. setting	Factory setting
4661	Relay 6	Function	Alarm	Limit	Alarm
4662	Relay 6	Off delay	0.0 s	999.9 s	5.0 s

The 'off delay' is the time between the disappearance of the event that caused the relay to activate and the actual activation of the relay.

PC utility software: