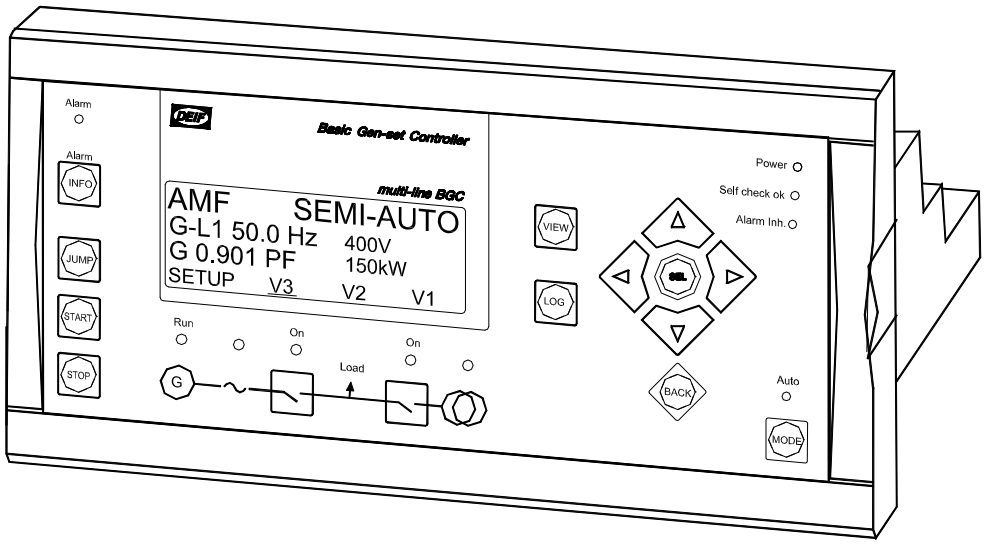
DEIF A/S

Description of options

Option H2,
Modbus RTU/ASCII
Basic Gen-set Controller

4189340310D
SW version 2.31.x



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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 unauthorised 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 Modbus communication.

Terminal description

Term		Function	Description
47	55	DATA + (A)	Modbus RTU/ASCII, RS485
48	56	GND	
49	57	DATA - (B)	
50	58	DATA + (A)	
51	59	Not used	
52	60	DATA - (B)	
53	61	Not used	
54	62	Not used	

Menu settings

4070 Communication control

No.	Setting		Min. setting	Max. setting	Factory setting
4071	Comm. control	Power	OFF	ON	OFF
4072	Comm. control	Frequency	OFF	ON	OFF
4073	Comm. control	Voltage	OFF	ON	OFF
4074	Comm. control	PF	OFF	ON	OFF
4075	Comm. control	VAr	OFF	ON	OFF

Selecting communication control ON will overrule external and internal settings.

4080 External communication control

No.	Setting		Min. setting	Max. setting	Factory setting
4081	External comm.	ID	1	247	3
4082	External comm.	Baud rate	9600	19200	9600
4083	External comm.	Mode	RTU	ASCII	RTU

4090 External communication error

No.	Setting		Min. setting	Max. setting	Factory setting
4091	External comm. error	Delay	1.0 s	100.0 s	10.0 s
4092	External comm. error	Relay output A	R0 (none)	option-dependent	R0 (none)
4093	External comm. error	Relay output B	R0 (none)	option-dependent	R0 (none)
4094	External comm. error	Enable	OFF	ON	OFF

Regarding relay settings and selections: see description in the Designer's Reference Handbook.

Hardware settings

The BGC can be used for the serial transmission modes RTU or ASCII.

These settings refer to the option H2 (Modbus).

The hardware settings of the Multi-line 2 are as listed below:

	Baud rate	Number of data bits	Parity bit	Stop bits	ID
RTU	9600/19200	8	None	1	1-247
ASCII	9600/19200	7	None	1	1-247

Change the serial transmission mode in the menu 4083

Service port

The service port can be used for the DEIF utility software (USW) or for Modbus communication using the ASCII serial transmission mode. In menu 6020, it is possible to change the service port to be used either for the USW or for Modbus ASCII.

6020 Service port

No.	Setting		First setting	Second setting	Factory setting
6021	Service port	Mode	0	1	0

0 = Utility software
1 = ASCII communication

The menu can only be reached using the 'JUMP' push-button.

Hardware settings

The hardware settings used for the communication through the service port is shown in this table.

	Baud rate	Number of data bits	Parity bit	Stop bits	ID
USW (RTU)	9600	8	None	1	1
ASCII	9600	8	None	1	1

Communication through the service port requires that the BGC has ID number 1!

3. Function codes

Function code overview

The following function codes can be used in the BGC:

01 (0x01) Read Coils	This function code is used to read contiguous status of coils in a remote device.
03 (0x03) Read Holding Registers	This function code is used to read the contents of a contiguous block of holding registers in a remote device.
05 (0x05) Write Single Coil	This function code is used to write a single output to either ON or OFF in a remote device.
06 (0x06) Write Single Register	This function code is used to write a single holding register in a remote device.
15 (0x0F) Write Multiple Coils	This function code is used to force each coil in a sequence of coils to either ON or OFF in a remote device.
16 (0x10) Write Multiple registers	This function code is used to write a block of contiguous registers in a remote device.

Function 01(01hex) read flag status

Reads the ON/OFF status of discrete flags in the slave.

Address area for reading of status flags

Multi-line 2 **Data to request**	***Multi-line 2*** **Table**	**Address area**
Status	Status table	0-499
Alarm active	Parameter table	500-999
Alarm acknowledge	Parameter table	1000-1499
Digital input	Digital input table	1500-1599
Digital output	Digital output table	2000-2499
Timer output	Parameter table	2500-2999
Timer running	Parameter table	3000-3499
Enable	Parameter table	3500-3999

*) The max. number of data query is limited of the length of the actual table.

Function 03(03hex) read registers

Reads the binary of registers in the slave.

Address area for reading of registers

Multi-line 2 **Data to request**	***Multi-line 2*** **Table**	**Address area**
Measuring values	Measuring values table	0-499
Timers used	Parameter table	500-999
Timers minimum	Parameter table	1000-1499
Timers maximum	Parameter table	1500-1599
Values used	Parameter table	2000-2499
Values minimum	Parameter table	2500-2999
Values maximum	Parameter table	3000-3499
Output a	Parameter table	5000-5499
Output b	Parameter table	9000-9499
Failclass	Parameter table	10500 - 11000

*) The max. number of data query is limited of the length of the actual table or max. 100.

Function 05(05hex) write single flags

Writes a single flag to either ON or OFF.

Address area for writing of status flags

Multi-line 2 **Data to request**	***Multi-line 2*** **Table**	**Address area**
Commands	Command table	0-499
Alarm acknowledge	Parameter table	1000-1499
Enable	Parameter table	3500-3999

*) The max. number of data query is limited of the length of the actual table.

Function 06(06hex) write register

Writes a single value into a register.

Address area for writing of registers

Multi-line 2 **Data to request**	***Multi-line 2*** **Table**	**Address area**
Control	Control table	0-499
Timers used	Parameter table	500-999
Values used	Parameter table	2000-2499
Output a	Parameter table	5000-5499
Output b	Parameter table	9000-9499
Failclass used	Parameter table	10500-11000

*) The max. number of data query is limited of the length of the actual table and max. 100.

Function 15(0Fhex) write multiple flags

Writes each flag in a sequence of flags to either ON or OFF.

Address area for writing of status flags

Multi-line 2 **Data to request**	***Multi-line 2*** **Table**	**Address area**
Commands	Command table	0-499
Alarm acknowledge	Parameter table	1000-1499
Enable	Parameter table	3500-3999

*) The max. number of data query is limited of the length of the actual table.

Function 16(10hex) write register

Writes values into a sequence of registers.

Address area for writing of registers

Multi-line 2 **Data to request**	***Multi-line 2*** **Table**	**Address area**
Control	Control table	0-499
Timers used	Parameter table	500-999
Values used	Parameter table	2000-2499
Output a	Parameter table	5000-5499
Output b	Parameter table	9000-9499
Failclass used	Parameter table	10500-11000

*) The max. number of data query is limited of the length of the actual table and max. 100.

4. Data tables

Measurement table (read only - function code = 03h)

Address	Content	Type
0		Application version
1	U_{L1-L2}	Generator voltage. Measured in [V]
2	U_{L2-L3}	Generator voltage. Measured in [V]
3	U_{L3-L1}	Generator voltage. Measured in [V]
4	U_{L1-N}	Generator voltage. Measured in [V]
5	U_{L2-N}	Generator voltage. Measured in [V]
6	U_{L3-N}	Generator voltage. Measured in [V]
7	F_{GEN}	Generator frequency. Measured in [Hz/100]
8	I_{L1}	Generator current. Measured in [A]
9	I_{L2}	Generator current. Measured in [A]
10	I_{L3}	Generator current. Measured in [A]
11	Cos-phi	-99...0...100 Generator cosinus-phi. Measured in cos-phi:100 Negative value means capacitive cos-phi
12	P_{GEN}	Generator active power. Measured in [W]. Negative value means reverse power
13	Q_{GEN}	Generator reactive power. Measured in [VAr]. Positive value means generated inductive reactive power
14	$U_{BBL1-L2}$	Busbar. Measured in [V]
15	F_{BB}	Busbar frequency L1. Measured in [Hz/100]
16		Reserved
17		Reserved
18 [HI] 19 [LO]	E_{GEN}	Energy counter. Measured in [kWh]. Max. 300000MWh
20	Alarms	Bit 0 1010. U-BB High step 1 Bit 1 1020. U-BB High step 2 Bit 2 1030. U-BB Low step 1 Bit 3 1040. U-BB Low step 2 Bit 4 1050. f-BB High step 1 Bit 5 1060. f-BB High step 2 Bit 6 1070. f-BB Low step 1 Bit 7 1080. f-BB Low step 2 Bit 8 1090. Reverse power Bit 9 1100. High current step 1 Bit 10 1110. High current step 2 Bit 11 1120. High power step 1 Bit 12 1130. High power step 2 Bit 13 1140. Unbalance current Bit 14 1150. Unbalance voltage

Address	Content	Type	
21	Alarms	Bit 0	1160 Q import
		Bit 1	1170 Q export
		Bit 2	1180 df/dt
		Bit 3	1190 Vector jump
		Bit 4	2060 GB Sync. fail.
		Bit 5	4220 Supply alarm
		Bit 6	GB Breaker close fail.
		Bit 7	GB Breaker open fail.
		Bit 8	GB Breaker position feedback fail.
		Bit 9	Phase sequence error
		Bit 10	2070 MB Sync. fail.
		Bit 11	MB Breaker close fail.
		Bit 12	MB Breaker open fail.
		Bit 13	MB Breaker position feedback fail.
		Bit 14	4390 DG volt / frequency fail
		Bit 15	Tacho fail
22	Alarms	Bit 0	1210. U-DG High step 1
		Bit 1	1220. U-DG High step 2
		Bit 2	1230. U-DG Low step 1
		Bit 3	1240. U-DG Low step 2
		Bit 4	1250. f-DG High step 1
		Bit 5	1260. f-DG High step 2
		Bit 6	1270. f-DG Low step 1
		Bit 7	1280. f-DG Low step 2
		Bit 8	1290. Peak Current 1
		Bit 9	1300. Peak Current 2
		Bit 10	Gov regulation error
		Bit 11	AVR regulation error
		Bit 13	DG Start fail
		Bit 14	Ramp down fail
		Bit 15	DG Stop fail
23		Reserved	
24	Alarms	Bit 0	1800 4-20mA in No3.1
		Bit 1	1820 4-20mA in No4.1
		Bit 2	1840 4-20mA in No5
		Bit 3	1850 4-20mA in No6
		Bit 4	1600 Binary input 11 Option PCB
		Bit 5	1610 Binary input 12 Option PCB
		Bit 6	1620 Binary input 13 Option PCB
		Bit 7	1630 Binary input 14 Option PCB
		Bit 8	1640 Binary input 15 Option PCB
		Bit 9	1650 Binary input 16 Option PCB
		Bit 10	1660 Binary input 17 Option PCB
25	Alarms	Bit 0	
		Bit 1	
		Bit 2	
		Bit 3	1700 Binary input 1 conf. term.
		Bit 4	1710 Binary input 2 conf. term.
		Bit 5	1720 Binary input 3 conf. term.
		Bit 6	1730 Binary input 4 conf. term.
		Bit 7	1740 Binary input 5 conf. term.
		Bit 8	1750 Binary input 6 conf. term.
		Bit 9	1760 Binary input 7 conf. term.
		Bit 10	
		Bit 11	
		Bit 12	

Address	Content	Type
26		Bit 0 GB On Bit 1 MB On Bit 2 Alarm inhibit Bit 3 DG Running Bit 4 Timer, DG volt / frequency OK Bit 5 Mains fail Bit 6 Auto mode Bit 7 Semi mode Bit 8 Test mode Bit 9 Man mode Bit 10 Island Bit 11 AMF Bit 12 RES Bit 13 Fixed power
27		Number of alarms
28		Number of unacknowledged alarms
29	U_{DG-max}	Generator max. voltage. Measured in [V]
30	U_{DG-min}	Generator min. voltage. Measured in [V]
31	$U_{BBL2-L3}$	Busbar voltage. Measured in [V]
32	$U_{BBL3-L1}$	Busbar voltage. Measured in [V]
33	U_{BB-max}	Busbar max. voltage. Measured in [V]
34	U_{BB-min}	Busbar min. voltage. Measured in [V]
35	U_{BBL1-N}	Busbar voltage. Measured in [V]
36	U_{BBL2-N}	Busbar voltage. Measured in [V]
37	U_{BBL3-N}	Busbar voltage. Measured in [V]
38	Reserved	
39	RPM	Tacho
40	S_{GEN}	Generator seeming power. Measured in [VA]
41	PHI_{L1-L2}	0...359 generator phase angle. Measured in [deg]
42	PHI_{L2-L3}	0...359 generator phase angle. Measured in [deg]
43	PHI_{L3-L1}	0...359 generator phase angle. Measured in [deg]
44	$PHI_{BBL3-L1}$	0...359 busbar phase angle. Measured in [deg]
45	$PHI_{BBL1-DGL1}$	0...359 busbar/generator phase angle. Measured in [deg]
46	Res	
47	U_{SUPPLY}	Supply voltage. Measured in [V/10]
48	Res	
49	Res	
50	Control reg.	Control register table address 0
51	Control reg.	Control register table address 1
52	Control reg.	Control register table address 3
53	Control reg.	Control register table address 4
54	Control reg.	Control register table address 5
55	Res	
56	Res	

Address	Content	Type
57	Res	
58	Analogue 1 M15	4..20mA analogue input
59	Analogue 2 M15	4..20mA analogue input
60	Analogue 3 M15	4..20mA analogue input
61	Analogue 4 M15	4..20mA analogue input
62	Running Hour	DG Running Hour
63	Counter	GB Close counter
64	Counter	MB Close counter
65	Running Hour	Service timer 1
66	VDO	Pressure
67	VDO	Temperature
68	VDO	Fuel level
69	Alarms	Bit 0 Res. Bit 1 Res. Bit 2 Res. Bit 3 Res. Bit 4 1810 4-20mA in No 3.2 Bit 5 1810 4-20mA in No 4.2 Bit 6 Bit 7 Bit 8 Bit 9 Bit 10 Bit 11 Bit 12 Bit 13
70	Res.	
71	Engine Can val.	XDEC 0 – refer to the option H5 manual
72	Engine Can val.	XDEC 1 – refer to the option H5 manual
73	Engine Can val.	XDEC 2 – refer to the option H5 manual
74	Engine Can val.	XDEC 3 – refer to the option H5 manual
75	Engine Can val.	XDEC 4 – refer to the option H5 manual
76	Engine Can val.	XDEC 5 – refer to the option H5 manual
77	Engine Can val.	XDEC 6 – refer to the option H5 manual
78	Engine Can val.	XDEC 7 – refer to the option H5 manual
79	Engine Can val.	XDEC 8 – refer to the option H5 manual
80	Engine Can val.	XDEC 9 – refer to the option H5 manual
81	Engine Can val.	XDEC 10 – refer to the option H5 manual
82	Engine Can val.	XDEC 11 – refer to the option H5 manual
83	Engine Can val.	XDEC 12 – refer to the option H5 manual

Control register table (write only – function code = 06h and 10h)

Address	Content	Description
0	Power regulator set point	0…100% of nominal power Activated in menu 4071.
1	PF regulator set point	60…100 stated as PF value/100. The value 100 means PF = . Activated in menu 4074.
2	Control Commands for	Bit 0 Write access (This bit must be 1 when writing the command word) Bit 1 Start Bit 2 GB on Bit 3 GB off Bit 4 Stop Bit 5 MB on Bit 6 MB off Bit 7 Bit 8 Bit 9 Bit 10 Alarm ack. Bit 11 Auto Bit 12 Semi Bit 13 Test Bit 14 Man All bits are automatically reset in the BGC
3	Frequency regulator set point	-50…50Hz/10. Based on nominal frequency. Activated in menu 4072
4	Voltage regulator set point	-100…100%/10 of nominal voltage. Activated in menu 4073.
5	Reactive power regulator set point	-100…100% of nominal power. A negative value means capacitive reactive power, and a positive value means inductive reactive power. Activated in menu 4075.

Command flags table (write only – function code = 05h and 0Fh)

Address	Content	Description
0	Button start	Start engine
1	Button GB On	GB on sequence
2	Button GB Off	GB off sequence
3	Button stop	Stop engine
4	Button MB On	MB on sequence
5	Button MB off	MB off sequence
6		
7		
8	Input inhibit	Alarm inhibit
9	ACK alarm	Alarm acknowledge
10	Button auto	Auto mode
11	Button semi	Semi mode
12	Button test	Test mode
13	Button man	Man mode

Same function as address 2 in the control register table.

Status flags table (read only – function code = 01h)

Address	Content	Description
0	GB feedback On	Generator breaker closed
1	MB feedback On	Mains breaker closed
2	Alarm inhibit, input	Alarm inhibit, input
3	DG running	
4	DG Volt / frequency OK	Generator voltage and frequency within limits
5	Mainsfail	
6	Auto mode	
7	Semi mode	
8	Test mode	
9	Man mode	

Parameter table

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
0	-	-	-	-	-	-	
1	1010	BUS high-volt 1	%/10	Y	Y	Y	Y
2	1020	BUS high-volt 2	%/10	Y	Y	Y	Y
3	1030	BUS low-volt 1	%/10	Y	Y	Y	Y
4	1040	BUS low-volt 2	%/10	Y	Y	Y	Y
5	1050	BUS high-freq 1	%/10	Y	Y	Y	Y
6	1060	BUS high-freq 2	%/10	Y	Y	Y	Y
7	1070	BUS low-freq 1	%/10	Y	Y	Y	Y
8	1080	BUS low-freq 2	%/10	Y	Y	Y	Y
9	1090	Reverse power	%/10	Y	Y	Y	Y
11	1100	Overcurrent 1	%/10	Y	Y	Y	Y
12	1110	Overcurrent 2	%/10	Y	Y	Y	Y
13	1120	Overload 1	%/10	Y	Y	Y	Y
14	1130	Overload 2	%/10	Y	Y	Y	Y
15	1140	Unbalance curr.	%/10	Y	Y	Y	Y
16	1150	Unbalance volt.	%/10	Y	Y	Y	Y
17	1160	VAr import	%/10	Y	Y	Y	Y
18	1170	VAr export	%/10	Y	Y	Y	Y
19	1180	df/dt (ROCOF)	%/10	Y	Y	Y	Y
20	1182	df/dt (ROCOF)	%/10	Y	Y	Y	Y
21	1190	Vector jump	%/10	Y	Y	Y	Y
23	1210	Gen high-volt 1	%/10	Y	Y	Y	Y
24	1220	Gen high-volt 2	%/10	Y	Y	Y	Y
25	1230	Gen low-volt 1	%/10	Y	Y	Y	Y
26	1240	Gen low-volt 2	%/10	Y	Y	Y	Y
27	1250	Gen high-freq 1	%/10	Y	Y	Y	Y
28	1260	Gen high-freq 2	%/10	Y	Y	Y	Y
29	1270	Gen low-freq 1	%/10	Y	Y	Y	Y
30	1280	Gen low-freq 2	%/10	Y	Y	Y	Y
31	1290	Peak current 1	%/10	Y	Y	Y	Y
32	1300	Peak current 2	%/10	Y	Y	Y	Y
37	1350	VDO 1.1	bar/10	Y	Y	Y	Y
38	1357	VDO 1 type	None	-	-	-	-
39	1360	VDO 1.2	bar/10	Y	Y	Y	Y
40	1370	VDO 2.1	deg/10	Y	Y	Y	Y
41	1377	VDO 2 type	None	-	-	-	-
42	1380	VDO 2.2	deg/10	Y	Y	Y	Y

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
43	1390	Fuel Level	%/10	Y	Y	Y	Y
44	1397	Fuel level VDO type	None	-	-	-	-
45	1401	Fuel pump set point 2	None	-	-	-	-
46	1402	Fuel pump set point 3	None	-	-	-	-
47	1405	Fuel pump fill check	None	Y	N	N	N
48	Res.						
49	1410	Fuel level 2	%/10	Y	Y	Y	N
50	1420	Overspeed	Rpm	Y	Y	Y	N
51	1430	Overspeed S2	Rpm	Y	Y	Y	N
54	1440	Engine failure	None	Y	Y	Y	Y
55	1450	Emergency STOP	None	Y	Y	Y	Y
56	1460	Coolant temp. 1	deg	Y	Y	Y	Y
57	1470	Coolant temp. 2	deg	Y	Y	Y	Y
58	1480	Oil pressure	Bar	Y	Y	Y	Y
59 - 64	Res						
65	1600	Dig. Input No11	None	Y	Y	Y	Y
66	1610	Dig. Input No12	None	Y	Y	Y	Y
67	1620	Dig. Input No13	None	Y	Y	Y	Y
68	1630	Dig. Input No14	None	Y	Y	Y	Y
69	1640	Dig. Input No15	None	Y	Y	Y	Y
70	1650	Dig. Input No16	None	Y	Y	Y	Y
71	1660	Dig. Input No17	None	Y	Y	Y	Y
72	1700	Dig. Input No1	None	Y	Y	Y	Y
73	1710	Dig. Input No2	None	Y	Y	Y	Y
74	1720	Dig. Input No3	None	Y	Y	Y	Y
75	1730	Dig. Input No4	None	Y	Y	Y	Y
76	1740	Dig. Input No5	None	Y	Y	Y	Y
77	1750	Dig. Input No6	None	Y	Y	Y	Y
78	1760	Dig. Input No7	None	Y	Y	Y	Y
82	1793	Disable Relay 1	None	N	N	N	N
83	1793	Disable Relay 2	None	N	N	N	N
84	1800	4-20mA in No3.1	mA/10	Y	Y	Y	Y
85	1810	4-20mA in No3.2	mA /10	Y	Y	Y	Y
86	1820	4-20mA in No4.1	mA /10	Y	Y	Y	Y
87	1830	4-20mA in No4.2	mA /10	Y	Y	Y	Y
88	1840	4-20mA in No5	mA /10	Y	Y	Y	Y
89	1850	4-20mA in No6	mA /10	Y	Y	Y	Y

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
90	1860	Run status	None	Y	Y	Y	N
91	1870	W/L Input	None	Y	Y	N	N
92	1880	Static charger	None	Y	Y	Y	N
93	2011	Static sync	None	N	N	N	N
94	2021	Sync. DfMax	None	N	N	N	N
95	2022	Sync. DfMin	n	N	N	Y	N
96	2023	Sync. DUMax	n	N	N	Y	N
97	2024	Sync. t GB	n	N	N	Y	N
98	2031	Static GB close time	n	N	N	Y	N
99	2032	Static close window	n	N	N	Y	N
100	2033	Static phase gain	None	N	N	N	N
101	2034	Static freq gain	None	N	N	N	N
102	2040	Sync Window	None	N	N	N	N
103	2051	Blackout dfMax	None	N	N	N	N
104	2052	Blackout dUMax	None	N	N	N	N
105	Res						N
106	2060	GB Sync. failure	None	N	N	N	N
107	2070	MB Sync. failure	None	N	N	N	N
108	Res						
109	Res						
110	2091	Freq. Control DB	None	N	N	N	N
111	2092	Freq. Control Gain	None	N	N	N	N
112	2093	Freq. Control Time	None	N	N	N	N
113	2101	Power Control DB	None	N	N	N	N
114	2102	Power Control Gain	None	N	N	N	N
115	2103	Power Control Time	None	N	N	N	N
116	2111	Power ramp up speed	None	N	N	N	N
117	2112	Power ramp up point	None	N	N	N	N
118	2121	De-load Error	None	N	N	N	N
119	2122	Power ramp d. point	None	N	N	N	N
120	2130	P/f contr. Mix Fact.	None	N	N	N	N
121	2141	Volt Control DB	None	N	N	N	N
122	2142	Volt Control Gain	None	N	N	N	N
123	2143	Volt Control Time	None	N	N	N	N

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
124	2151	VAr Control DB	None	N	N	N	N
125	2152	VAr Control Gain	None	N	N	N	N
126	2153	VAr Control Time	None	N	N	N	N
127	2160	Q/U contr. Mix Fact.	None	N	N	N	N
128	2171	PF Control DB	None	N	N	N	N
129	2172	PF Control Gain	None	N	N	N	N
130	2173	PF Control Time	None	N	N	N	N
131	2180	GOV reg. Fail	None	N	N	Y	N
132	2190	AVR reg. Fail	None	N	N	Y	N
133	2201	GB Type	None	N	N	N	N
134	2202	MB Type	None	N	N	N	N
135	3011	Day Setting	None	N	N	N	N
136	3012	Night Setting	None	N	N	N	N
137	3013	Transducer Range	None	N	N	N	N
138	3021	Start Hour	None	N	N	N	N
139	3022	Start Minute	None	N	N	N	N
140	3023	Stop Hour	None	N	N	N	N
141	3024	Stop Minute	None	N	N	N	N
142	3031	Start Generator	None	Y	N	N	N
143	3033	Minimum Load	None	N	N	N	N
144	3041	Stop Generator	None	Y	N	N	N
145	3070	Test	None	Y	N	N	N
146	3073	Test Syncr.	None	N	N	Y	N
147	3081	Contr. settings P	None	N	N	N	N
148	3082	Contr. settings VAr	None	N	N	N	N
149	3033	Contr. settings PF	None	N	N	N	N
150	4011	Nom. Frequency	Hz/100	N	N	N	N
151	4012	Nom. Power	KW	N	N	N	N
152	4013	Nom. Current	A	N	N	N	N
153	4014	Nom. Voltage	V	N	N	N	N
154	4021	Nom. Frequency 2	Hz/100	N	N	N	N
155	4022	Nom. Power 2	KW	N	N	N	N
156	4023	Nom. Current 2	A	N	N	N	N
157	4024	Nom. Voltage 2	V	N	N	N	N
158	4031	Nom. Frequency 3	Hz/100	N	N	N	N
166	4051	Volt prim GEN	V	N	N	N	N

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
167	4052	Volt sec GEN	V	N	N	N	N
168	4053	Current prim	A	N	N	N	N
169	4054	Current sec	A	N	N	N	N
170	4061	Volt prim BUS	V	N	N	N	N
171	4062	Volt sec BUS	V	N	N	N	N
172	4071	Comm. bus control P	None	N	N	Y	N
173	4072	Comm. bus control f	None	N	N	Y	N
174	4073	Comm. bus control U	None	N	N	Y	N
175	4075	Comm. bus control Q	None	N	N	Y	N
176	4074	Comm. bus control PF	None	N	N	N	N
177	4081	Ext. Comm. ID	None	N	N	N	N
178	4082	Ext. Comm. Speed	None	N	N	N	N
179	4091	Ext Comm. Error	None	N	N	N	N
180	4100	Engine comms.	None	N	N	N	N
181	4124	KWH counter	None	N	N	Y	N
182	4220	Battery low V	V	Y	Y	Y	Y
183	4230	Battery high V	V	Y	Y	Y	Y
184	4241	Language	None	N	N	N	N
185	4250	Loadshare out	None	N	N	N	N
186	4260	L. Sharing Type	None	N	N	N	N
187	4301	Engine Type	None	N	N	Y	N
188	Res						
189	4321	Gen-set Mode	None	N	N	N	N
190	Res						
191	Res						
192	4351	Running RPM	None	N	N	N	N
193	4352	Number of Teeth	None	N	N	N	N
194	4361	Start Prepare	None	N	N	N	N
195	4362	Start On Time	None	Y	N	N	N
196	4363	Start Off Time	None	N	N	N	N
197	4371	Start attempts	None	N	Y	N	N
198	4381	f/U OK	None	Y	N	N	N
199	4391	f/U failure	None	Y	Y	N	N
200	4401	Cooldown Time	None	Y	N	N	N
201	4402	Extended Stop Time	None	Y	N	N	N
202	4403	Coil type	None	N	N	Y	N

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
203	4410	Stop failure	None	Y	Y	Y	N
204	4421	Mains Fail. Delay U	None	Y	N	N	N
205	4422	Mains OK Delay U	None	Y	N	N	N
206	4423	Low Frequency	None	N	N	N	N
207	4424	High Frequency	None	N	N	N	N
208	Res						
209	4431	Mains Fail. Delay F	None	Y	N	N	N
210	4432	Mains OK Delay F	None	Y	N	N	N
211	Res						
212	Res						
213	4443	Back Synchro-nising	None	N	N	Y	N
214	Res						
215	4441	MB Control	None	N	N	N	N
216	4451	Alarm Horn	None	Y	N	N	N
217 - 229	Res						
230	4502	P Output type	None	N	Y	N	N
231	4512	S Output type	None	N	Y	N	N
232	4522	Q Output type	None	N	Y	N	N
233	4532	PF Output type	None	N	Y	N	N
234	4542	f Output type	None	N	Y	N	N
235	4552	U Output type	None	N	Y	N	N
236	4562	I Output type	None	N	Y	N	N
237	4503	P Output max	None	N	Y	N	N
238	4513	S Output max	None	N	Y	N	N
239	4523	Q Output max	None	N	Y	N	N
240	4533	PF Output max	None	N	Y	N	N
241	4543	f Output max	None	N	Y	N	N
242	4553	U Output max	None	N	Y	N	N
243	4563	I Output max	None	N	Y	N	N
244	4504	P Output min	None	N	Y	N	N
245	4514	S Output min	None	N	Y	N	N
246	4524	Q Output min	None	N	Y	N	N
247	4534	PF Output min	None	N	Y	N	N
248	4544	f Output min	None	N	Y	N	N
249	4554	U Output min	None	N	Y	N	N
250	4564	I Output min	None	N	Y	N	N
251	Res						

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
252	4610	Relay 1	None	Y	N	N	N
253	4620	Relay 2	None	Y	N	N	N
254	4630	Relay 3	None	Y	N	N	N
255	4640	Relay 4	None	Y	N	N	N
256	4650	Relay 5	None	Y	N	N	N
257	4660	Relay 6	None	Y	N	N	N
258	4670	Relay 7	None	Y	N	N	N
259	4680	Relay 8	None	Y	N	N	N
260	4710	Start/Stop Cmd1	None	N	N	Y	N
261	4713	Cmd. 1 Day(s)	None	N	N	N	N
262	4714	Cmd. 1 Hour	None	N	N	N	N
263	4715	Cmd. 1 Min.	None	N	N	N	N
264	4720	Start/Stop Cmd2	None	N	N	Y	N
265	4723	Cmd. 2 Day(s)	None	N	N	N	N
266	4724	Cmd. 2 Hour	None	N	N	N	N
267	4725	Cmd. 2 Min	None	N	N	N	N
268	4730	Start/Stop Cmd3	None	N	N	Y	N
269	4733	Cmd. 3 Day(s)	None	N	N	N	N
270	4734	Cmd. 3 Hour	None	N	N	N	N
271	4735	Cmd. 3 Min	None	N	N	N	N
272	4740	Start/Stop Cmd4	None	N	N	Y	N
273	4743	Cmd. 4 Day(s)	None	N	N	N	N
274	4744	Cmd. 4 Hour	None	N	N	N	N
275	4745	Cmd. 4 Min	None	N	N	N	N
276	4750	Start/Stop Cmd5	None	N	N	Y	N
277	4753	Cmd. 5 Day(s)	None	N	N	N	N
278	4754	Cmd. 5 Hour	None	N	N	N	N
279	4755	Cmd. 5 Min	None	N	N	N	N
280	4760	Start/Stop Cmd6	None	N	N	Y	N
281	4763	Cmd. 6 Day(s)	None	N	N	N	N
282	4764	Cmd. 6 Hour	None	N	N	N	N
283	4765	Cmd. 6 Min	None	N	N	N	N
284	4770	Start/Stop Cmd7	None	N	N	Y	N
285	4773	Cmd. 7 Day(s)	None	N	N	N	N
286	4774	Cmd. 7 Hour	None	N	N	N	N
287	4775	Cmd. 7 Min	None	N	N	N	N
288	4780	Start/Stop Cmd8	None	N	N	Y	N
289	4783	Cmd. 8 Day(s)	None	N	N	N	N
290	4784	Cmd. 8 Hour	None	N	N	N	N

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
291	4785	Cmd. 8 Min	None	N	N	N	N
292	4910	Service timer 1	None	N	N	Y	N
293	4913	Service timer 1	None	N	N	N	N
294	4920	Service timer 2	None	N	N	Y	N
295	4923	Service timer 2	None	N	N	N	N
296	4930	Diagnostics	None	N	N	N	N
297	4971	User Password	None	N	N	N	N
298	4972	Service Password	None	N	N	N	N
299	4973	Master Password	None	N	N	N	N
300	5011	VDO 1 at 0.0 bar	Ohm/10	N	N	N	N
301	5012	VDO 1 at 2.5 bar	Ohm/10	N	N	N	N
302	5013	VDO 1 at 5.0 bar	Ohm/10	N	N	N	N
303	5014	VDO 1 at 6.0 bar	Ohm/10	N	N	N	N
304	5021	VDO 1 at 7.0 bar	Ohm/10	N	N	N	N
305	5022	VDO 1 at 8.0 bar	Ohm/10	N	N	N	N
306	5023	VDO 1 at 9.0 bar	Ohm/10	N	N	N	N
307	5024	VDO 1 at 10.0 bar	Ohm/10	N	N	N	N
308	5031	VDO 2 at 40 deg. C	Ohm	N	N	N	N
309	5032	VDO 2 at 50 deg. C	Ohm	N	N	N	N
310	5033	VDO 2 at 60 deg. C	Ohm	N	N	N	N
311	5034	VDO 2 at 70 deg. C	Ohm	N	N	N	N
312	5041	VDO 2 at 80 deg. C	Ohm	N	N	N	N
313	5042	VDO 2 at 90 deg. C	Ohm	N	N	N	N
314	5043	VDO 2 at 100 deg. C	Ohm	N	N	N	N
315	5044	VDO 2 at 110 deg. C	Ohm	N	N	N	N
316	5051	VDO 3 at 0 %	Ohm/10	N	N	N	N
317	5052	VDO 3 at 40 %	Ohm/10	N	N	N	N
318	5053	VDO 3 at 50 %	Ohm/10	N	N	N	N
319	5054	VDO 3 at 60 %	Ohm/10	N	N	N	N
320	5061	VDO 3 at 70 %	Ohm/10	N	N	N	N

Offset address	Ch. no.	Content	Unit	Delay	Relay	Enable	Fail-class
321	5062	VDO 3 at 80 %	Ohm/10	N	N	N	N
322	5063	VDO 3 at 90 %	Ohm/10	N	N	N	N
323	5064	VDO 3 at 100 %	Ohm/10	N	N	N	N
324		### 822 0999 97_02	None	N	N	N	N
332		GSM Pin code	None	N	N	N	N
333		Reset Eventlog	None	N	N	N	N
334	1490	Fuel Level 3	%/10	Y	Y	Y	Y
335	4690	Relay 9	None	Y	N	N	N
336	2231	GOV Min ON time	ms	N	N	N	N
337	2232	GOV period time	ms	N	N	N	N
338	2233	AVR Min ON time	ms	N	N	N	N
339	2234	AVR period time	ms	N	N	N	N
340	2220	Analogue AVR offset	%	N	N	N	N
341	2210	Analogue AVR offset	%	N	N	N	N
342	4800	Option M14 Type	None	N	N	N	N
343	2241	GOV/AVR setup	None	N	N	N	N

See the Designer's reference handbook of your BGC for information about:

- Availability of channels
- Min./max. settings
- Factory settings

Several channels depend on the selected options.

However, it is possible to write to channels, where the option is not set. It is not possible to enable the channel e.g. if an attempt is made to write a "1" to the enable flag, then the "1" will be discarded, and the enable flag remains "0".

It is not possible to write to offset 0. These values are used for DEIF internal version control.

"y" means that the channel is writeable.
"n" means that a "0" can be written to the channel only.
"n10" means that only the value 10 can be written.

Examples:

- Write nominal frequency (4016) 60Hz

ID = 1, 60Hz = 600Hz/10 = 0258h
Address 2000 + 80 = 2080d = 0820h
Tx: 01h 10h 08h 20h 00h 01h 02h 02h 58h 28h 6Ah
Rx: 01h 10h 08h 20h 00h 01h 02h 63h

- Read nominal frequency (4016) 60Hz

Tx: 01h 03h 08h 20h 00h 01h 87h A8h
Rx: 01h 03h 02h 02h 58h B8h DEh
Read 0258h = 600d

Digital input table (read only – function code = 01h)

Address	Terminal	Description
1500		
1501		Dig. Input No11
1502		Dig. Input No12
1503		Dig. Input No13
1504		Dig. Input No14
1505		Dig. Input No15
1506		Dig. Input No16
1507		Dig. Input No17
1508 - 1528		
1529		GB Pos On
1530		Configurable input
1531		MB Pos On
1532		Configurable input
1533		Configurable input
1534		Configurable input
1535		Configurable input
1536		Configurable input
1537		Configurable input
1538		Configurable input
1543		Configurable input
1544		Configurable input
1545		Configurable input
1546		Configurable input
1581		Configurable input
1582		Configurable input
1583		Configurable input
1584		Configurable input
1585		Configurable input
1586		Configurable input
1587		Configurable input
1588		Configurable input

Digital output table (read only – function code = 01h)

Address	Terminal	Description
2000 - 2003		Relay 6
2004		Relay 7
2005		Relay 8
2006		Relay 9
2007 - 2051		Res
2052		Mains Breaker On
2053		Mains Breaker Off / config.
2054		Gen. Breaker On
2055		Gen. Breaker Off / config.
2061		kWh Pulse
2062		kVAr Pulse
2063		Start/config (loadshare PCB)
2064		Stop/config (loadshare PCB)

DEIF A/S reserves the right to change any of the above