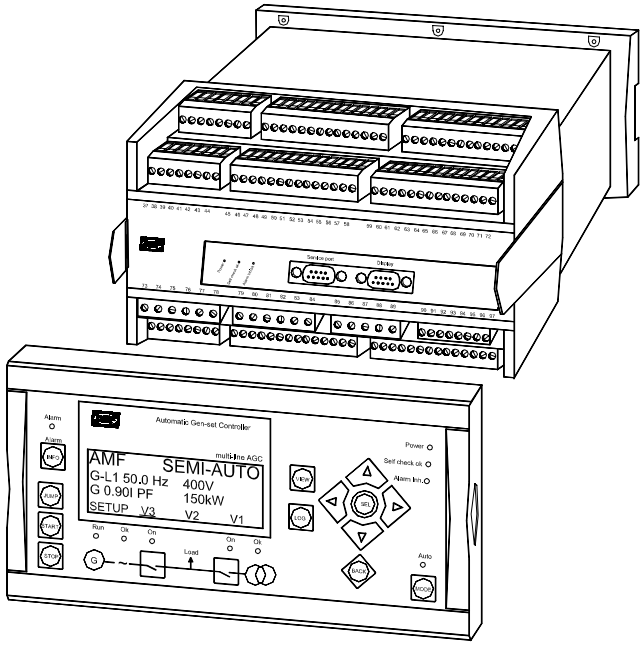
DEIF A/S

Description of options

Option H2,
Modbus communication
Automatic Gen-set Controller

4189340356H
SW version 2.33.X



- *Description of option*
- *Parameter list*
- *Data tables*
- *Parameter table*

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1. Warnings and legal information

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 set controlled by the unit, the company responsible for the installation or the operation of the set must be contacted.

The 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 unit implies 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.

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

Definitions

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

Notes

The notes provide general information which will be helpful for the reader to bear in mind.

Warnings

The warnings indicate a potentially dangerous situation which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.

2. Description of option

H2 option

Option H2 is a hardware option, and therefore a separate PCB is installed in slot #2 in addition to the standard-installed hardware.

Function	ANSI no.
RS485 Modbus communication	-

Terminal description

Term.	Function	Description
29	DATA + (A)	Modbus RTU, RS485
30	GND	
31	DATA - (B)	
32	Not used	
33	DATA + (A)	
34	Not used	
35	DATA - (B)	
36	Not used	

Terminals 29 and 33 are internally connected.
Terminals 31 and 35 are internally connected.

For wiring diagram, please refer to the installation instructions.

Hardware settings

These are the AGC RS485 hardware settings:

a. 9600 or 19200 bps
b. 8 data bits
c. None parity
d. 1 stop bit

3. Parameter list

Modbus setup

7010 External communication control

No.	Setting		Min. setting	Max. setting	Factory setting
7011	Ext. communication ID	ID	1	247	3
7012	Ext. communication ID	Baud rate	9600	19200	9600
7013	Ext. communication ID	Comm. mode	RTU	ASCII	RTU

The mode ASCII is used for modem communication (ASCII: 7 data bit. RTU: 8 data bit).

The Baud rate can be changed for the Modbus communication. (To activate the change, switch the auxiliary supply off/on).

Modbus alarm

7080 External communication error

No.	Setting		Min. setting	Max. setting	Factory setting
7081	Ext. communication error	Timer	1.0 s	100.0 s	10.0 s
7082	Ext. communication error	Relay output A	R0 (none)	Option-dependent	R0 (none)
7083	Ext. communication error	Relay output B	R0 (none)		R0 (none)
7084	Ext. communication error	Enable	OFF	ON	OFF

Control functions

7120 Communication control enable/disable control

No.	Setting		Min. setting	Max. setting	Factory setting
7121	Communication control	Power	OFF	ON	OFF
7122	Communication control	Frequency	OFF	ON	OFF
7123	Communication control	Voltage	OFF	ON	OFF
7124	Communication control	PF	OFF	ON	OFF

Selecting communication control ON will overrule external and internal settings.

4. Data tables

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

Address	Content	Type	
		AGC Standard	**AGC Mains**
0		Application version	
1	U_{L1-L2}	Generator voltage. Measured in [V]	Mains voltage. Measured in [V]
2	U_{L2-L3}	Generator voltage. Measured in [V]	Mains voltage. Measured in [V]
3	U_{L3-L1}	Generator voltage. Measured in [V]	Mains voltage. Measured in [V]
4	U_{L1-N}	Generator voltage. Measured in [V]	Mains voltage. Measured in [V]
5	U_{L2-N}	Generator voltage. Measured in [V]	Mains voltage. Measured in [V]
6	U_{L3-N}	Generator voltage. Measured in [V]	Mains voltage. Measured in [V]
7	F_{GEN}	Generator freq. Measured in [Hz/100]	Mains freq. Measured in [Hz/100]
8	I_{L1}	Generator current. Measured in [A]	Mains current. Measured in [A]
9	I_{L2}	Generator current. Measured in [A]	Mains current. Measured in [A]
10	I_{L3}	Generator current. Measured in [A]	Mains 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 [kW]. Negative value means reverse power	
13	Q_{GEN}	Generator reactive power. Measured in [kVAr]. 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 [HI] 17 [LO]	R_{GEN}	Reactive energy counter. Measured in [kVArh]. Max. 300000 MVArh	
18 [HI] 19 [LO]	E_{GEN}	Energy counter. Measured in [kWh]. Max. 300000 MWh	
20	Alarms	Bit 0 1010. Reverse power	
		Bit 1 1020. Overcurrent 1	
		Bit 2 1030. Overcurrent 2	
		Bit 3 1060. Reserved	
		Bit 4 1070. Fast overcurrent 1	
		Bit 5 1080. Fast overcurrent 2	
		Bit 6 Reserved	
		Bit 7 1100. DG high volt 1	1100. Mains high volt 1
		Bit 8 1110. DG high volt 2	1110. Mains high volt 2

Address	Content	Type		
		AGC Standard		**AGC Mains**
		Bit 9	1120. DG low volt 1	1120. Mains low volt 1
		Bit 10	1130. DG low volt 2	1130. Mains low volt 2
		Bit 11	1140. DG high freq 1	1140. Mains high freq 1
		Bit 12	1150. DG high freq 2	1150. Mains high freq 2
		Bit 13	1160. DG low freq 1	1160. Mains low freq 1
		Bit 14	1170. DG low freq 2	1170. Mains low freq 2
		Bit 15	1180. BB high volt 1	
21	Alarms	Bit 0	1190. BB high volt 2	
		Bit 1	1200. BB low volt 1	
		Bit 2	1210. BB low volt 2	
		Bit 3	1220. BB high freq 1	
		Bit 4	1230. BB high freq 2	
		Bit 5	1240. BB low freq 1	
		Bit 6	1250. BB low freq 2	
		Bit 7	1260. Overload 1	
		Bit 8	1270. Overload 2	
		Bit 9	1280. Unbalance current	
		Bit 10	1290. Unbalance voltage	
		Bit 11	1300. Q import	
		Bit 12	1310. Q export	
		Bit 13	1320. Gen. neg. sequence current	
		Bit 14	1330. Gen. neg. sequence voltage	
		Bit 15	1390. Busbar positive sequence voltage	
22	Alarms	Bit 0	1350. df/dt (ROCOF)	
		Bit 1	1360. Vector jump	
		Bit 2	4010. 4-20 mA input no. 98.1	
		Bit 3	4030. 4-20 mA input no. 100.1	
		Bit 4	4050. 4-20 mA input no. 102.1	
		Bit 5	4070. 4-20 mA input no. 104.1	
		Bit 6	4090. 4-20 mA input no. 91.1	
		Bit 7	4110. 4-20 mA input no. 93.1	
		Bit 8	4130. 4-20 mA input no. 95.1	
		Bit 9	4150. 4-20 mA input no. 97.1	
		Bit 10	4240. Pt100 no. 106.1	
		Bit 11	4260. Pt100 no. 109.1	
		Bit 12	4310. Overspeed 1 (Tacho)	
		Reserved		
		Reserved		
		Reserved		
23	Alarms	Reserved		

Address	Content	Type			
		AGC Standard		**AGC Mains**	
		Reserved			
		Bit 2	3060. Dig. input term. 43		
		Bit 3	3070. Dig. input term. 44		
		Bit 4	3080. Dig. input term. 45		
		Bit 5	3090. Dig. input term. 46		
		Bit 6	3100. Dig. input term. 47		
		Bit 7	3110. Dig. input term. 48		
		Bit 8	3120. Dig. input term. 49		
		Bit 9	3130. Dig. input term. 50		
		Bit 10	3140. Dig. input term. 51		
		Bit 11	3150. Dig. input term. 52		
		Bit 12	3160. Dig. input term. 53		
		Bit 13	3190. Dig. input term. 91		
		Bit 14	3200. Dig. input term. 92		
		Bit 15	3210. Dig. input term. 93		
24	Alarms	Bit 0	3220. Dig. input term. 94		
		Bit 1	3230. Dig. input term. 95		
		Bit 2	3240. Dig. input term. 96		
		Bit 3	3250. Dig. input term. 97		
		Bit 4	3260. Dig. input term. 110		
		Bit 5	3270. Dig. input term. 111		
		Bit 6	3280. Dig. input term. 112		
		Bit 7	3290. Dig. input term. 113		
		Bit 8	3300. Dig. input term. 114		
		Bit 9	3310. Dig. input term. 115		
		Bit 10	3320. Dig. input term. 116		
		Bit 11	3330. Dig. input term. 117		
		Bit 12	3340. Dig. input term. 118		
		Bit 13	4170. Oil pressure 104.1 (VDO sensor 1)		
		Bit 14	4190. Water temperature 105.1 (VDO sensor 2)		
		Bit 15	4210. Fuel level 106.1 (VDO sensor 3)		
25	System alarms/ status	Bit 0	GB sync. fail. alarm		
		Bit 1	Generator breaker ON fail.	Bit 1	Tie breaker ON fail.
		Bit 2	Generator breaker OFF fail.	Bit 2	Tie breaker OFF fail.
		Bit 3	GB position fail. alarm	Bit 3	TB position fail. alarm
		Bit 4	Phase sequence error alarm		
		Bit 5	Governor regulator fail. alarm		
		Bit 6	AVR regulator fail. alarm		
		Bit 7	Battery voltage alarm		
		Bit 8	Sync. timer runout ***** (see note p.16)		
		Bit 9	MB sync. fail. alarm		
		Bit 10	Mains breaker ON fail.		

Address	Content	Type	
		AGC Standard	**AGC Mains**
		Bit 11 Mains breaker OFF fail.	
		Bit 12 Mains breaker position fail. alarm	
		NOT USED	
		NOT USED	
		NOT USED	
26	Alarm relay status	Bit 0 Relay 0	
		Bit 1 Relay 1	
		Bit 2 Relay 2	
		Bit 3 Relay 3	
		Bit 4 Relay 4	
		Bit 5 Relay 5	
		Bit 6 Relay 6	
		Bit 7 Relay 7	
		Bit 8 Relay 8	
		Bit 9 Relay 9	
		Bit 10 Relay 10	
		Bit 11 Relay 11	
		Bit 12 Relay 12	
		Bit 13 Relay 13	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
27		Bit 0 Start failure	
		Bit 1 Ramp down failure	
		Bit 2 Stop failure	
		Bit 3 DG voltage/frequency failure	
		Bit 4 Mains failure	
		Bit 5 Mains breaker position ON	
		Bit 6 Deload	
		Bit 7 Start sync./reg.	
		Bit 8 Alarm inhibit	
		Bit 9 Generator breaker position ON	
		Bit 10 Synchronising	
		Bit 11 Running	
		Bit 12 6410. Battery test alarm	
		Bit 13 AMF/mode shift active	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
28	Alarms	Bit 0 4020. 4-20 mA input no. 98.2	
		Bit 1 4040. 4-20 mA input no. 100.2	
		Bit 2 4060. 4-20 mA input no. 102.2	
		Bit 3 4080. 4-20 mA input no. 104.2	
		Bit 4 4100. 4-20 mA input no. 91.2	
		Bit 5 4120. 4-20 mA input no. 93.2	
		Bit 6 4140. 4-20 mA input no. 95.2	

Address	Content	Type	
		AGC Standard	**AGC Mains**
		Bit 7 4160. 4-20 mA input no. 97.2	
		Bit 8 4250. Pt100 no. 106.2	
		Bit 9 4270. Pt100 no. 109.2	
		Bit 10 4320. Overspeed 2 (Tacho)	
		Bit 11 4180. Oil pressure 104.2 (VDO sensor 1)	
		Bit 12 4200. Water temperature 105.2 (VDO sensor 2)	
		Bit 13 4220. Fuel level 106.2 (VDO sensor 3)	
		Bit 14 1370. Gen. zero sequence current	
		Bit 15 1380. Gen. zero sequence voltage	
29		Bit 0 Block mode	
		Bit 1 Manual mode	
		Bit 2 Semi-auto mode	
		Bit 3 Auto mode	
		Bit 4 Test mode	
		Bit 5 Island mode	
		Bit 6 Automatic mains failure mode	
		Bit 7 Peak shaving mode	
		Bit 8 Fixed power mode	
		Bit 9 Mains power export	
		Bit 10 Load takeover mode	
		Bit 11 Power management	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
30	Alarms	Bit 0 4330. Wire break detection 91	
		Bit 1 4340. Wire break detection 93	
		Bit 2 4350. Wire break detection 95	
		Bit 3 4360. Wire break detection 97	
		Bit 4 4370. Wire break detection 98	
		Bit 5 4380. Wire break detection 100	
		Bit 6 4390. Wire break detection 102	
		Bit 7 4400. Wire break detection 104	
		Bit 8 4410. Wire break detection VDO 104	
		Bit 9 4420. Wire break detection VDO 105	
		Bit 10 4430. Wire break detection VDO 106	
		Bit 11 4410. Wire break detection Pt100 no. 106	
		Bit 12 4420. Wire break detection Pt100 no. 109	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
31	$U_{BBL2-L3}$	Busbar voltage. Measured in [V]	
32	$U_{BBL3-L1}$	Busbar voltage. Measured in [V]	
33		Number of alarms	

Address	Content	Type	
		AGC Standard	**AGC Mains**
34		Number of unacknowledged alarms	
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	Running time	Hour	
39	RPM	RPM	
40	S_{GEN}	Generator apparent power. Measured in [kVA]	
41	VDO 1	Oil pressure in [bar]/10	
42	VDO 2	Water temp. in [°C]	
43	VDO 3	Fuel level in [%]	
44	$PHI_{BBL1-L2}$	0...359 Busbar phase angle. Measured in [deg.]	
45	$PHI_{BBL1-DGL1}$	0...359 Busbar/generator phase angle. Measured in [deg.]	
46	CB_{oper}	Generator breaker operations counter	Mains breaker operations counter
47	U_{SUPPLY}	Supply voltage. Measured in [V/10]	
48	Pt100 (1)	-40 – 250 temperature in deg. (engine interface)	
49	Pt100 (2)	-40 – 250 temperature in deg. (engine interface)	
50		Control register table address 0	
51		Control register table address 1	
52		Control register table address 3	
53		Control register table address 4	
54		Control register table address 5	
55		Analogue input no. 98 (scaled)	
56		Analogue input no. 100 (scaled)	
57		Analogue input no. 102 (scaled)	
58		Analogue input no. 104 (scaled)	
59		Analogue input no. 91 (scaled)	
60		Analogue input no. 93 (scaled)	
61		Analogue input no. 95 (scaled)	
62		Analogue input no. 97 (scaled)	
63		PHI_{L1-L2}	
64		PHI_{L2-L3}	
65		PHI_{L3-L1}	
66		Mains power	
67		MB operations	
68		Running time service	
69	Power management	Bit 0 TB exists	
		Bit 1 Mains exists	
		Bit 2 3170. Dig. input term. 54	
		Bit 3 3180. Dig. input term. 55	
		Bit 4 MB position ON (CAN, power management)	
		Bit 5 MB position OFF (CAN, power management)	
		Bit 6 TB position ON (CAN, power management)	
		Bit 7 TB position OFF (CAN, power management)	

Address	Content	Type	
		AGC Standard	**AGC Mains**
		Bit 8 Volt./freq. OK	
		Bit 9 Run detect.	
		Bit 10 Tacho failure	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
70		Total power	
71		Available power	
72	Power management	Bit 0 GB1 position ON (CAN)	
		Bit 1 GB2 position ON (CAN)	
		Bit 2 GB3 position ON (CAN)	
		Bit 3 GB4 position ON (CAN)	
		Bit 4 GB5 position ON (CAN)	
		Bit 5 GB6 position ON (CAN)	
		Bit 6 GB7 position ON (CAN)	
		Bit 7 GB8 position ON (CAN)	
		Bit 8 NOT USED	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
73	Power management	Bit 0 GB1 position OFF (CAN)	
		Bit 1 GB2 position OFF (CAN)	
		Bit 2 GB3 position OFF (CAN)	
		Bit 3 GB4 position OFF (CAN)	
		Bit 4 GB5 position OFF (CAN)	
		Bit 5 GB6 position OFF (CAN)	
		Bit 6 GB7 position OFF (CAN)	
		Bit 7 GB8 position OFF (CAN)	
		Bit 8 NOT USED	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
74	Power management	Bit 0 Volt./freq. OK DG1 (CAN)	
		Bit 1 Volt./freq. OK DG2 (CAN)	
		Bit 2 Volt./freq. OK DG3 (CAN)	

Address	Content	Type	
		AGC Standard	**AGC Mains**
		Bit 3 Volt./freq. OK DG4 (CAN)	
		Bit 4 Volt./freq. OK DG5 (CAN)	
		Bit 5 Volt./freq. OK DG6 (CAN)	
		Bit 6 Volt./freq. OK DG7 (CAN)	
		Bit 7 Volt./freq. OK DG8 (CAN)	
		Bit 8 NOT USED	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
75	Power management	Bit 0 Ready auto-start DG1 (CAN)	
		Bit 1 Ready auto-start DG2 (CAN)	
		Bit 2 Ready auto-start DG3 (CAN)	
		Bit 3 Ready auto-start DG4 (CAN)	
		Bit 4 Ready auto-start DG5 (CAN)	
		Bit 5 Ready auto-start DG6 (CAN)	
		Bit 6 Ready auto-start DG7 (CAN)	
		Bit 7 Ready auto-start DG8 (CAN)	
		Bit 8 NOT USED	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
76		No. of DGs	
77		Total nominal power	
78		LD stop	
79		LD start	
80		Nominal power DG1	
81		Nominal power DG2	
82		Nominal power DG3	
83		Nominal power DG4	
84		Nominal power DG5	
85		Nominal power DG6	
86		Nominal power DG7	
87		Nominal power DG8	
88		Power DG1	
89		Power DG2	
90		Power DG3	

Address	Content	Type	
		AGC Standard	**AGC Mains**
91		Power DG4	
92		Power DG5	
93		Power DG6	
94		Power DG7	
95		Power DG8	
96		Reactive power DG1	
97		Reactive power DG2	
98		Reactive power DG3	
99		Reactive power DG4	
100		Reactive power DG5	
101		Reactive power DG6	
102		Reactive power DG7	
103		Reactive power DG8	
104	Power management	Bit 0 Any alarm on DG1 (CAN)	
		Bit 1 Any alarm on DG2 (CAN)	
		Bit 2 Any alarm on DG3 (CAN)	
		Bit 3 Any alarm on DG4 (CAN)	
		Bit 4 Any alarm on DG5 (CAN)	
		Bit 5 Any alarm on DG6 (CAN)	
		Bit 6 Any alarm on DG7 (CAN)	
		Bit 7 Any alarm on DG8 (CAN)	
		Bit 8 Any alarm on mains (CAN)	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
105	Power management	Bit 0 Running DG1 (CAN)	
		Bit 1 Running DG2 (CAN)	
		Bit 2 Running DG3 (CAN)	
		Bit 3 Running DG4 (CAN)	
		Bit 4 Running DG5 (CAN)	
		Bit 5 Running DG6 (CAN)	
		Bit 6 Running DG7 (CAN)	
		Bit 7 Running DG8 (CAN)	
		Bit 8 NOT USED	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	

Address	Content	Type	
		AGC Standard	**AGC Mains**
		Bit 15 NOT USED	
106		Stop DG calculation	
107		Total DG power	
108		Total reactive power	
109	Engine communication	Bit 0 Communication error	
		Bit 1 Common warning	
		Bit 2 Common shutdown	
		Bit 3 Overspeed alarm	
		Bit 4 Coolant water temp. 1	
		Bit 5 Coolant water temp. 2	
		Bit 6 Oil pressure 1	
		Bit 7 Oil pressure 2	
		Bit 8 NOT USED	
		Bit 9 NOT USED	
		Bit 10 NOT USED	
		Bit 11 NOT USED	
		Bit 12 NOT USED	
		Bit 13 NOT USED	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
110		Bit 0 Engine interface 0	
		Bit 1 Engine interface 1	
		Bit 2 Engine interface 2	
		Bit 3 Engine interface 3	
		Bit 4 Engine interface 4	
		Bit 5 Engine interface 5	
		Bit 6 Engine interface 6	
		Bit 7 Engine interface 7	
		Bit 8 Engine interface 8	
		Bit 9 Engine interface 9	
		Bit 10 Engine interface 10	
		Bit 11 Engine interface 11	
		Bit 12 Engine interface 12	
		Bit 13 Engine interface 13	
		Bit 14 NOT USED	
		Bit 15 NOT USED	
111		Engine interface data	
112		Engine interface data	
113		Engine interface data	
114		Engine interface data	
115		Engine interface data	
116		Engine interface data	
117		Engine interface data	
118		Engine interface data	

Address	Content	Type	
		AGC Standard	**AGC Mains**
119		Engine interface data	
120		Engine interface data	
121		Engine interface data	
122		Engine interface data	
123		Engine interface data	
124		Engine interface data	
125		Engine interface data	
126		Engine interface data	
127		Engine interface data	
128		Engine interface data	
129		Engine interface data	
130		Engine interface data	
131		Engine interface data	
132		Engine interface data	
133		Engine interface data	
134		Engine interface data	
135		Engine interface data	
136		Engine interface data	
137		Relative running hours	
138		Running minute counter (fire pump)	
139		Running hour counter (fire pump)	

***Address 25, bit 8: This bit is a status bit and is always high (1 value) as long as the unit is not synchronising. When synchronising, this bit is automatically reset to 0 and will remain 0 until synchronisation is achieved or the electrical measured values have been out of the synchronisation window for too long (longer than the programmed timer value of the synchronisation window parameter).**

Control register table (write only) (function code 10h)

Address	Content	Description
0	Power regulator setpoint	0...100% of nominal power Activated in menu 7121
1	PF regulator setpoint	60...100 stated as PF value/100. The value 100 means PF = 1 Activated in menu 7124
2	Control command	Bit 0 This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored Bit 1 Start Bit 2 GB ON Bit 3 GB OFF Bit 4 Stop Bit 5 MB ON Bit 6 MB OFF Bit 7 Event printer Bit 8 Reset analogue regulation outputs Bit 9 Bit 10 Alarm ack. This bit is automatically reset in the Multi-line 2 Bit 11 Manual mode Bit 12 Auto mode Bit 13 Semi-auto mode Bit 14 Test mode Bit 15 Auto start/stop
3	Frequency regulator setpoint	-500...500%/10. Based on nominal frequency Activated in menu 7122
4	Voltage regulator setpoint	-100...100%/10 of nominal voltage Activated in menu 7123
5	Reactive power regulator setpoint	-250…250% of nominal power. A negative value means capacitive reactive power, and a positive value means inductive reactive power. Activated in menu 7125
6		Bit 0 This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored Bit 1 Island Bit 2 Automatic mains failure (AMF) Bit 3 Peak shaving Bit 4 Fixed power Bit 5 Mains power export (MPE) Bit 6 Load takeover (LTO) Bit 7 Bit 8 Bit 9 Bit 10 Bit 11 Bit 12 Bit 13 Bit 14 Bit 15

Address	Content	Description	
7		Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored
		Bit 1	External frequency control
		Bit 2	External voltage control
		Bit 3	External power control
		Bit 4	External reactive power control
		Bit 5	External power factor control
		Bit 6	
		Bit 7	
		Bit 8	
		Bit 9	
		Bit 10	
		Bit 11	
		Bit 12	
		Bit 13	
		Bit 14	
		Bit 15	

Command flags table (write only) (function code 0Fh)

Address	Content	Description
0	Start	These bits are automatically reset in Multi-line 2
1	GB/TB ON	
2	GB/TB OFF	
3	Stop	
4	MB ON	
5	MB OFF	
6		
7	Manual mode	
8	Alarm inhibit	
9	Alarm ack.	
10	Auto mode	
11	Semi-auto mode	
12	Test mode	
13	Island	
14	AMF	
15	Peak shaving	
16	Fixed power	
17	MPE	
18	LTO	
19	Battery test	
20	Event printer	
21	External frequency control	
22	External voltage control	
23	External power control	
24	External reactive power control	
25	External power factor control	
26	Reset analogue regulation outputs	

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

Address	Content	Description
0	GB position ON	
1	MB position ON	
2	Alarm inhibit	
3	Running	
4	Generator voltage/ frequency OK	
5	Mains failure	
6	Block mode	
7	Manual mode	
8	Semi-auto mode	
9	Auto mode	
10	Test mode	
11	bGDUMainFail	
12	bLEDindicator	
13	Island	
14	AMF	
15	Peak shaving	
16	Fixed power	
17	MPE	
18	LTO	
19	Power management	
20	Any alarm DG1	
21	Any alarm DG2	
22	Any alarm DG3	
23	Any alarm DG4	
24	Any alarm DG5	
25	Any alarm DG6	
26	Any alarm DG7	
27	Any alarm DG8	
28	Any alarm mains	
29	Battery test	
30	Event printer	
31	Ready auto-start DG1	
32	Ready auto-start DG2	
33	Ready auto-start DG3	
34	Ready auto-start DG4	
35	Ready auto-start DG5	
36	Ready auto-start DG6	
37	Ready auto-start DG7	
38	Ready auto-start DG8	

5. Parameter table

Parameter table reading and writing

The entire setting of parameters can be made using the Modbus. The combination of function and address areas used is described below:

Function 01(01hex) read flag status

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

Address area for reading of status flags

Multi-line 2 Data to request	Multi-line 2 Table	Address area
Status	Status table	0-999 (status address)
Alarm active	Parameter table	1000-1999 (status address + 1000)
Alarm acknowledge	Parameter table	2000-2999 (status address + 2000)
Digital input	Digital input table	3000-3999 (status address + 3000)
Digital output	Digital output table	4000-4999 (status address + 4000)
Timer output	Parameter table	5500-5999 (status address + 5000)
Timer running	Parameter table	6000-6999 (status address + 6000)
Enable	Parameter table	7000-7999 (status address + 7000)

The maximum number of data query is limited by the length of the actual table.

Function 03(03hex) read registers

Reads the binary of registers in the slave unit.

Address area for reading of registers

Multi-line 2 Data to request	Multi-line 2 Table	Address area
Measuring values	Measuring values table	0-999 (data address)
Timers used	Parameter table	1000-1999 (data address + 1000)
Timers minimum	Parameter table	2000-2999 (data address + 2000)
Timers maximum	Parameter table	3000-3999 (data address + 3000)
Values used	Parameter table	4000-4999 (data address + 4000)
Values minimum	Parameter table	5000-5999 (data address + 5000)
Values maximum	Parameter table	6000-6999 (data address + 6000)
Output a	Parameter table	10000-10999 (data address + 10000)
Output b	Parameter table	18000-18999 (data address + 18000)

Fail class used	Parameter table	21000-21999 (data address + 21000)
Fail class minimum	Parameter table	22000-22999 (data address + 22000)
Fail class maximum	Parameter table	23000-23999 (data address + 23000)

The maximum number of data query is limited by the length of the actual table.

Function 15(0Fhex) write multiple flags

Writes each flag (0 x reference) 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	0-999 (command address)
Alarm acknowledge	Parameter table	2000-2999 (command address + 2000)
Enable	Parameter table	7000-7999 (command address + 7000)

The maximum number of data query is limited by 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 setpoint	0-999 (control address)
Timers used	Parameter table	1000-1999 (control address + 1000)
Values used	Parameter table	4000-4999 (control address + 4000)
Relay A used	Parameter table	10000-10999 (control address + 10000)
Relay B used	Parameter table	18000-18999 (control address + 18000)

The maximum number of data query is limited of the length of the actual table.

Parameter table

Address and channel number overview

Offset address	Ch. no.	Content	Value unit	Delay unit
0	-	-	-	-
1	1010	Reverse power	%/10	1/10 s
2	1016	Reserved	-	-
3	1020	Overcurrent 1	%/10	1/10 s
4	1030	Overcurrent 2	%/10	1/10 s
5		Reserved	%/10	1/10 s
6		Reserved	%/10	1/10 s
7		Reserved	%/10	1/10 s
8		Reserved	%/10	1/10 s
9		Reserved	%/10	1/10 s
10		Reserved	%/10	1/10 s
11		Reserved	-	-
12	1070	Fast overcurr. 1	%/10	1/10 s
13	1080	Fast overcurr. 2	%/10	1/10 s
14		Reserved	-	-
15	1100	DG high volt 1	%/10	1/10 s
16	1110	DG high volt 2	%/10	1/10 s
17	1120	DG low volt 1	%/10	1/10 s
18	1130	DG low volt 2	%/10	1/10 s
19	1140	DG high freq 1	%/10	1/10 s
20	1150	DG high freq 2	%/10	1/10 s
21	1160	DG low freq 1	%/10	1/10 s
22	1170	DG low freq 2	%/10	1/10 s
23	1180	BB high volt 1	%/10	1/100 s
24	1190	BB high volt 2	%/10	1/100 s
25	1200	BB low volt 1	%/10	1/100 s
26	1210	BB low volt 2	%/10	1/100 s
27	1220	BB high freq 1	%/10	1/100 s
28	1230	BB high freq 2	%/10	1/100 s
29	1240	BB low freq 1	%/10	1/100 s
30	1250	BB low freq 2	%/10	1/100 s
31	1260	Overload 1	%/10	1/10 s
32	1270	Overload 2	%/10	1/10 s
33	1280	Unbalance curr.	%/10	1/10 s
34	1290	Unbalance volt.	%/10	1/10 s
35	1300	VAr import	%/10	1/10 s
36	1310	VAr export	%/10	1/10 s
37	1320	Gen. neg. sequence current	%/10	1/10 s
38	1330	Gen. neg. sequence voltage	%/10	1/10 s
39	1350	df/dt (ROCOF)	Hz/10/s	n
40	1352	df/dt (ROCOF) measuring time	Periods	n

Offset address	Ch. no.	Content	Value unit	Delay unit
41	1360	Vector jump	Deg./10	n
42	1370	Gen. zero seq. curr.		
43	1380	Gen. zero seq. volt.		
44-68		Reserved for 2nd setpoints	%/10	1/10 s
69-75		Reserved		
76	2011	Static sync. (enable/disable only)		
77	2021	Sync. df max.	Hz/10	n
78	2022	Sync. df min.	Hz/10	n
79	2023	Sync. dU max.	%	n
80	2024	Sync. t GB/TB	ms	n
81	2031	Static sync. df max.	Hz/10	n
82	2032	Static sync. dU max.	%	n
83	2033	Static close window	Deg.	n
84	2034	Static phase controller Kp	None	n
85	2035	Static phase controller Ki	None	n
86	2041	Blackout df max.	Hz/10	n
87	2042	Blackout dU max.	%	n
88	2043	Reserved for blackout enable	n	n
89	2050	Sync. window	%	1/10 s
90	2060	Sync. failure (reserved)	n	1/10 s
91	2070	GB general failure	n	1/10 s
92	2080	MB general failure	n	1/10 s
93	2091	MB open		
94	2092	MB close		
95	2093	GB open		
96	2094	GB close		
97		Reserved		
98		Reserved		
99		Reserved		
100		Reserved	n	n
101	2511	Freq. control DB	%/10	n
102	2512	Freq. control Kp	None	n
103	2513	Freq. control Ki	None	n
104	2514	Reserved for freq. control droop	%/10	n
105	2521	Power control DB	%/10	n
106	2522	Power control Kp	None	n
107	2523	Power control Ki	None	n
108	2531	Power ramp up speed	%/10/s	n
109	2532	Power ramp up point	%	n
110	2541	Power ramp down speed	%/10/s	n
111	2542	Power ramp down open point	%	n
112	2550	Analogue governor offset	%	n
113		Reserved		
114		Reserved		

Offset address	Ch. no.	Content	Value unit	Delay unit
115		Reserved		
116	2560	Governor regulator failure	%	1/10 s
117	2581	Volt. control DB	%/10	n
118	2582	Volt. control Kp	None	n
119	2583	Volt. control Ki	None	n
120	2591	VAr control DB	%/10	n
121	2592	VAr control Kp	None	n
122	2593	VAr control Ki	None	n
123	2600	Analogue AVR offset	%	n
124		Reserved		
125		Reserved		
126		Reserved		
127	2610	AVR regulator fail.	n	1/10 s
128		Reserved		
129		Reserved		
130		Reserved		
131	2641	GOV min. ON time	ms	n
132	2642	GOV period time	ms	n
133	2643	AVR min. ON time	ms	n
134	2644	AVR period time	ms	n
135	2650	GOV/AVR setup (outputs)	None	n
136	2261	Minimum value (PWM)	%	n
137	2262	Initial value (PWM)	%	n
138	2263	Maximum value (PWM)	%	n
139	2264	Enable PWM	None	n
140	2265	Droop PWM		
141	2690	Start regulation		
142	2700	Short time paralleling		
143		Reserved		
144		Reserved	None	y
145		Reserved	None	y
146		Reserved	None	y
147		Reserved	None	y
148		Reserved	None	y
149	3060	Dig. input term. 43	None	y
150	3070	Dig. input term. 44	None	y
151	3080	Dig. input term. 45	None	y
152	3090	Dig. input term. 46	None	y
153	3100	Dig. input term. 47	None	y
154	3110	Dig. input term. 48	None	y
155	3120	Dig. input term. 49	None	y
156	3130	Dig. input term. 50	None	y
157	3140	Dig. input term. 51	None	y
158	3150	Dig. input term. 52	None	y

Offset address	Ch. no.	Content	Value unit	Delay unit
159	3160	Dig. input term. 53	None	y
160	3170	Dig. input term. 54	None	y
161	3180	Dig. input term. 55	None	y
162	3190	Dig. input term. 91	None	y
163	3200	Dig. input term. 92	None	y
164	3210	Dig. input term. 93	None	y
165	3220	Dig. input term. 94	None	y
166	3230	Dig. input term. 95	None	y
167	3240	Dig. input term. 96	None	y
168	3250	Dig. input term. 97	None	y
169	3260	Dig. input term. 110	None	y
170	3270	Dig. input term. 111	None	y
171	3280	Dig. input term. 112	None	y
172	3290	Dig. input term. 113	None	y
173	3300	Dig. input term. 114	None	y
174	3310	Dig. input term. 115	None	y
175	3320	Dig. input term. 116	None	y
176	3330	Dig. input term. 117	None	y
177	3340	Dig. input term. 118	None	y
178		(Reserved)	None	y
179		(Reserved)	None	y
180		(Reserved)	None	y
181		(Reserved)	None	y
182		(Reserved)	None	y
183		(Reserved)	None	y
184		(Reserved)	None	y
185	4010	4-20 mA in no. 91.1 (alarm setting)		y
186	4020	4-20 mA in no. 91.2 (alarm setting)		y
187	4030	4-20 mA in no. 93.1 (alarm setting)		y
188	4040	4-20 mA in no. 93.2 (alarm setting)		y
189	4050	4-20 mA in no. 95.1 (alarm setting)		y
190	4060	4-20 mA in no. 95.2 (alarm setting)		y
191	4070	4-20 mA in no. 97.1 (alarm setting)		y
192	4080	4-20 mA in no. 97.2 (alarm setting)		y
193	4090	4-20 mA in no. 98.1 (alarm setting)		y
194	4100	4-20 mA in no. 98.2 (alarm setting)		y
195	4110	4-20 mA in no. 100.1 (alarm setting) Pt100		y
196	4110	4-20 mA in no. 100.1 (alarm setting) VDO		y
197	4120	4-20 mA in no. 100.2 (alarm setting) Pt100		y
198	4120	4-20 mA in no. 100.2 (alarm setting) VDO		y
199	4130	4-20 mA in no. 102.1 (alarm setting) Pt100		y
200	4130	4-20 mA in no. 102.1 (alarm setting) VDO		y
201	4140	4-20 mA in no. 102.2 (alarm setting) Pt100		y
202	4140	4-20 mA in no. 102.2 (alarm setting) VDO		y

Offset address	Ch. no.	Content	Value unit	Delay unit
203	4150	4-20 mA in no. 104.1 (alarm setting)		y
204	4160	4-20 mA in no. 104.2 (alarm setting)		y
205	4170	Oil pressure (VDO 104.1)	%	1/10 s
206	4177	VDO 1 type	None	n
207	4180	Oil pressure (VDO 104.2)		
208	4190	Cool water temp. (VDO 105.1)	%	1/10 s
209	4197	VDO 2 type	None	n
210	4200	Cool water temp. (VDO 105.2)		
211	4210	Fuel level (VDO 106.1)	%	1/10 s
212	4217	VDO 3 type	None	n
213	4240	Pt100 no. 106.1		
214	4250	Pt100 no. 106.2 (reserved)		
215	4260	Pt100 no. 109.1		
216	4270	Pt100 no. 109.2 (reserved)		
217		Fuel level (VDO 106.1)	%	1/10 s
218		(Reserved)		
219	4300	Running detection		
220	4310	Overspeed 1 (Tacho)		
221	4320	Overspeed 2 (Tacho)		
222	4600	Relay 0 virtual	None	1/10 s
223	5010	Relay 1	None	1/10 s
224	5020	Relay 2	None	1/10 s
225	5030	Relay 3	None	1/10 s
226	5040	Relay 4	None	1/10 s
227	5050	Relay 5	None	1/10 s
228	5060	Relay 6	None	1/10 s
229	5070	Relay 7	None	1/10 s
230	5080	Relay 8	None	1/10 s
231	5090	Relay 9	None	1/10 s
232	5100	Relay 10	None	1/10 s
233		Relay 11 (reserved)	None	1/10 s
234		Relay 12 (reserved)	None	1/10 s
235		Relay 13 (reserved)	None	1/10 s
236		Relay 14 (reserved)	None	1/10 s
237	5502	Transducer output (power)		n
238	5512	Transducer output (apparent power)		n
239	5522	Transducer output (reactive power)		n
240	5532	Transducer output (power factor)		
241	5542	Transducer output (frequency)		
242	5552	Transducer output (voltage)		
243	5562	Transducer output (current)		
244	5503	Transducer max. (power)		
245	5513	Transducer max. (apparent power)		
246	5523	Transducer max. (reactive power)		

Offset address	Ch. no.	Content	Value unit	Delay unit
247	5533	Transducer max. (power factor)		
248	5543	Transducer max. (frequency)		
249	5553	Transducer max. (voltage)		
250	5563	Transducer max. (current)		
251	5504	Transducer min. (power)		n
252	5514	Transducer min. (apparent power)		n
253	5524	Transducer min. (reactive power)		n
254	5534	Transducer min. (power factor)		
255	5544	Transducer min. (frequency)		
256	5554	Transducer min. (voltage)		
257	5564	Transducer min. (current)		
258	6011	Nom. frequency	Hz/10	n
259	6012	Nom. power	kW	n
260	6013	Nom. current	A	n
261	6014	Nom. voltage	V	n
262	6021	Volt prim. GEN	V	n
263	6022	Volt sec. GEN	V	n
264	6023	Current prim.	A	n
265	6024	Current sec.	A	n
266	6031	Volt prim. BUS	V	n
267	6032	Volt sec. BUS	V	n
268	6050	Engine type		
269	6060	Gen-set mode		
270	6081	Running hours offset	n0	n
271	6082	Generator breaker operations	n0	n
272	6083	Mains breaker operations	n0	n
273	6084	Reset kWh counter	n0	n
274	6090	Service timer 1		
275	6100	Service timer 2 (reserved)		
276	6110	Battery low V	V/10	1/10 s
277	6120	Battery high V (reserved)	V/10	1/10 s
278	6130	Language	None	n
279	6140	Alarm horn		1/10 s
280	6150	Run status	b	1/10 s
281	6161	Running RPM	RPM	n
282	6162	No. of teeth (flywheel)	None	n
283	6171	Start prepare	n	1/10 s
284	6172	Start ON time (crank)	n	1/10 s
285	6173	Start OFF time (pause)	n	1/10 s
286	6180	Start attempts	None	n
287	6190	f/U OK	n	1/10 s
288	6200	f/U failure	n	1/10 s
289	6211	Cooldown time	n	1/10 s
290	6212	Extended stop time (stop coil)	n	1/10 s

Offset address	Ch. no.	Content	Value unit	Delay unit
291	6213	Coil type	None	n
292	6220	Stop failure	n	1/10 s
293	6230	Remote status (reserved)		
294	6240	DG Relay (reserved)		
295	6250	GB Control		
296		(Reserved)		
297		(Reserved)		
298	6220	Fuel logic (reserved)		
299	6230	Fuel check (reserved)		
300	6380	Load share out	1/10 V	n
301	6390	Load share type	None	n
302		(Reserved)		
303		Cmd timer function 1		
304		Cmd timer day 1		
305		Cmd timer hour 1		
306		Cmd timer minute 1		
307		Cmd timer function 2		
308		Cmd timer day 2		
309		Cmd timer hour 2		
310		Cmd timer minute 2		
311		Cmd timer function 3		
312		Cmd timer day 3		
313		Cmd timer hour 3		
314		Cmd timer minute 3		
315		Cmd timer function 4		
316		Cmd timer day 4		
317		Cmd timer hour 4		
318		Cmd timer minute 4		
319		Cmd timer function 5		
320		Cmd timer day 5		
321		Cmd timer hour 5		
322		Cmd timer minute 5		
323		Cmd timer function 6		
324		Cmd timer day 6		
325		Cmd timer hour 6		
326		Cmd timer minute 6		
327		Cmd timer function 7		
328		Cmd timer day 7		
329		Cmd timer hour 7		
330		Cmd timer minute 7		
331		Cmd timer function 8		
332		Cmd timer day 8		
333		Cmd timer hour 8		
334		Cmd timer minute 8		

Offset address	Ch. no.	Content	Value unit	Delay unit
335		(Reserved)		
336		(Reserved)		
337	6501	Mains power setpoint day		
338	6502	Mains power setpoint night		
339		(Reserved)		
340	6511	Daytime period start hour		
341	6512	Daytime period start min.		
342	6513	Daytime period stop hour		
343	6514	Daytime period stop min.		
344	6521	Start generator	%	1/10 s
345	6522	Min. load		
346	6530	Stop generator		
347	6541	Test		
348	6543	Enable sync. (test)		
349	6551	Fixed power		
350	6552	Power factor		
351				
352				
353	6503	Mains power transducer max.		
354	6504	Mains power transducer min.		
355		(Reserved)		
356		(Reserved)		
357		(Reserved)		
358	6591	Mains voltage fail. delay		
359	6592	Mains voltage OK delay		
360	6593	Mains low voltage limit		
361	6594	Mains high voltage limit		
362	6595	Mains fail. control		
363	6601	Mains frequency fail. delay		
364	6602	Mains frequency OK delay		
365	6603	Mains low frequency limit		
366	6604	Mains high frequency limit		
367	6611	Mode shift		
368	6612	MB ON delay		
369	6613	Back synchronisation		
370	7011	Ext. comm. ID	None	n
371	7012	Baud rate 0=9600, 1=19200	None	n
372	7013	Comm. mode (ASCII, RTU)		
373		(Reserved)		
374		(Reserved)		
375		(Reserved)		
376		Reserved		
377		Reserved		
378	7080	Ext. comm. error	n1	1/10 s

Offset address	Ch. no.	Content	Value unit	Delay unit
379		(Reserved) CANbus OFF		
380		CANbus transmit fail.		
381		(Reserved)	%	n
382		(Reserved)	%	n
383		(Reserved)	None	n
384		(Reserved)	n0	n
385		(Reserved)	n0	n
386		(Reserved)	n0	n
387		(Reserved)	n0	n
388		VAr control via comm.	n0	n
389	7121	Power control via comm.		
390	7122	Frequency control via comm.		
391	7123	Voltage control via comm.		
392	7124	Power factor control via comm.		
393	7130	Internal comm. ID		
394	7140	(Reserved)		
395	7200	CCM Baud rate	None	n
396	7211	MID/UNIT number	None	n
397	7212	Enable list 1	n0	n
398	7213	Update rate	None	n
399	7221	MID/UNIT number	None	n
400	7222	Enable list 2	n0	n
401	7223	Update rate	None	n
402	7231	MID/UNIT number	None	n
403	7232	Enable list 3	n0	n
404	7233	Update rate	None	n
405	7241	MID/UNIT number	None	n
406	7242	Enable list 4	n0	n
407	7243	Update rate	None	n
408	7251	MID/UNIT number	None	n
409	7252	Enable list 5	n0	n
410	7253	Update rate	None	n
411	7261	MID/UNIT number	None	n
412	7262	Enable list 6	n0	n
413	7263	Update rate	None	n
414	7271	MID/UNIT number	None	n
415	7272	Enable list 7	n0	n
416	7273	Update rate	None	n
417	7281	MID/UNIT number	None	n
418	7282	Enable list 8	n0	n
419	7283	Update rate	None	n
420	7291	MID/UNIT number	None	n
421	7292	Enable list 9	n0	n
422	7293	Update rate	None	n

Offset address	Ch. no.	Content	Value unit	Delay unit
423	7301	MID/UNIT number	None	n
424	7302	Enable list 10	n0	n
425	7203	Update rate	None	n
426	7311	MID/UNIT number	None	n
427	7312	Enable list 11	n0	n
428	7213	Update rate	None	n
429	7321	MID/UNIT number	None	n
430	7322	Enable list 12	n0	n
431	7223	Update rate	None	n
432	7331	MID/UNIT number	None	n
433	7332	Enable list 13	n0	n
434	7233	Update rate	None	n
435	7341	MID/UNIT number	None	n
436	7342	Enable list 14	n0	n
437	7243	Update rate	None	n
438	7351	MID/UNIT number	None	n
439	7352	Enable list 15	n0	n
440	7253	Update rate	None	n
441	7361	MID/UNIT number	None	n
442	7362	Enable list 16	n0	n
443	7263	Update rate	None	n
444	7501	Load-dependent start		
445	7502	Load-dependent stop		
446	7510	Min. load		
447	7521	Number of gen-sets available		
448	7522	Mains available		
449	7523	Activate power management		
450	7524	Enable command unit		
451	7525	Plant start/stop type		
452	7530	Priority selector		
453-458	7541-46	Number of IDs (1-5)		
459-464	7551-56	Number of IDs (6-11)		
465-469	7561-65	Number of IDs (12-16)		
470		Duplicate CAN ID alarm		
471-87		CAN ID error (1-16)		
488	7600	Running hours		
489	7610	Ground relay		
490	7620	Power capacity		
491	7630	Tie breaker enable		
492	7640	Non connected DG		
493	7650	Tie breaker open point		
494-495		Reserved		
496	9000	Application selection		
497	9116	Customer password		

Offset address	Ch. no.	Content	Value unit	Delay unit
498	9117	Service password		
499	9118	Master password		
500		Logged for USW product ID		
501-505	7571-75	Priority (1-5)		
506-511	7581-86	Priority (6-11)		
512-516	7591-95	Priority (12-16)		
517	7576	Priority transmit		
518		Reserved		
519		Reserved		
520		Reserved		
521		Reserved		
522		Reserved		
523		Reserved		
524		VDO 1 at 0.0 bar	Ohm/10	n
525		VDO 1 at 2.5 bar	Ohm/10	n
526		VDO 1 at 5.0 bar	Ohm/10	n
527		VDO 1 at 6.0 bar	Ohm/10	n
528		VDO 1 at 7.0 bar	Ohm/10	n
529		VDO 1 at 8.0 bar	Ohm/10	n
530		VDO 1 at 9.0 bar	Ohm/10	n
531		VDO 1 at 10.0 bar	Ohm/10	n
532		VDO 2 at 40°C	Ohm	n
533		VDO 2 at 50°C	Ohm	n
534		VDO 2 at 60°C	Ohm	n
535		VDO 2 at 70°C	Ohm	n
536		VDO 2 at 80°C	Ohm	n
537		VDO 2 at 90°C	Ohm	n
538		VDO 2 at 100°C	Ohm	n
539		VDO 2 at 110°C	Ohm	n
540		VDO 3 at 0%	Ohm/10	n
541		VDO 3 at 40%	Ohm/10	n
542		VDO 3 at 50%	Ohm/10	n
543		VDO 3 at 60%	Ohm/10	n
544		VDO 3 at 70%	Ohm/10	n
545		VDO 3 at 80%	Ohm/10	n
546		VDO 3 at 90%	Ohm/10	n
547		VDO 3 at 100%	Ohm/10	n
548		SMS phone no. 1 GSM		
549		SMS phone no. 2 GSM		
550		SMS phone no. 3 GSM		
551		SMS phone no. 4 GSM		
552		SMS phone no. 5 GSM		
553		Pin code GSM		
554		Reserved		

Offset address	Ch. no.	Content	Value unit	Delay unit
555		Reserved		
556		Used internally		
557		Used internally		
558		Used internally		
559		Used internally		
560		Used internally		
561		Used internally		
562		Used internally		
563	2025	MB close time		
564		Reserved		
565		Reserved		
566		Reserved		
567		Reserved		
568	7532	No. of DGs to start		
569	7533	Min. DGs to run		
570	7534	Enable multi-start		
571	7660	Breaker/ATS select		
572	7671	Optimisation setpoint		
573	7672	Optimal gen-set combination		
574	7673	Delay of 7672		
575	7674	Run. hour quarantine		
576	6401	Frequency clock start hour		
577	6402	Frequency clock stop hour		
578	6403	Compensation start		
579	6404	Max. frequency change		
580	6261	Power derate input type		
581	6262	Start derate point		
582	6263	Derate slope		
583	6266	Derate limit		
584	6544	Mode return after test		
585	6184	Start attempts in fire pump mode		
586	4330	Wire break detection analogue 91		
587	4340	Wire break detection analogue 93		
588	4350	Wire break detection analogue 95		
589	4360	Wire break detection analogue 97		
590	4370	Wire break detection analogue 98		
591	4380	Wire break detection analogue 100		
592	4390	Wire break detection analogue 102		
593	4400	Wire break detection analogue 104		
594	4411	Wire break detection VDO 104 max.		
595	4412	Wire break detection VDO 104 min.		
596	4415	Wire break detection VDO 104		
597	4421	Wire break detection VDO 105 max.		
598	4422	Wire break detection VDO 105 min.		

Offset address	Ch. no.	Content	Value unit	Delay unit
599	4425	Wire break detection VDO 105		
600	4431	Wire break detection VDO 106 max.		
601	4432	Wire break detection VDO 106 min.		
602	4435	Wire break detection VDO 106		
603	4411	Wire break detection Pt100 106 max.		
604	4412	Wire break detection Pt100 106 min.		
605	4415	Wire break detection Pt100 106		
606	4421	Wire break detection Pt100 109 max.		
607	4422	Wire break detection Pt100 109 min.		
608	4425	Wire break detection Pt100 109		
609	6085	Start attempt counter		
610	6311	Start idle run		
611	6312	Enable start		
612	6313	Stop idle run		
613	6314	Enable stop		
614	6316	Enable idle run		
615	1390	Positive sequence low voltage		
616		Reserved		
617		Reserved for USW		
618		Reserved for USW		
619		Reserved for USW		
620	7371	Enable event printer		
621	7372	Print extra values		
622	7373	Number of events		
623	6410	Battery test		
624	6420	Phase – neutral		
625		CCM single parameter read ID 01		
626		CCM single parameter read ID 02		
627		CCM single parameter read ID 03		
628		CCM single parameter read ID 04		
629		CCM single parameter read ID 05		
630		CCM single parameter read ID 06		
631		CCM single parameter read ID 07		
632		CCM single parameter read ID 08		
633		CCM single parameter read ID 09		
634		CCM single parameter read ID 10		
635		CCM single parameter read enable 01		
636		CCM single parameter read enable 02		
637		CCM single parameter read enable 03		
638		CCM single parameter read enable 04		
639		CCM single parameter read enable 05		
640		CCM single parameter read enable 06		
641		CCM single parameter read enable 07		
642		CCM single parameter read enable 08		

Offset address	Ch. no.	Content	Value unit	Delay unit
643		CCM single parameter read enable 09		
644		CCM single parameter read enable 10		
645		CCM single parameter read upd. rate 01		
646		CCM single parameter read upd. rate 02		
647		CCM single parameter read upd. rate 03		
648		CCM single parameter read upd. rate 04		
649		CCM single parameter read upd. rate 05		
650		CCM single parameter read upd. rate 06		
651		CCM single parameter read upd. rate 07		
652		CCM single parameter read upd. rate 08		
653		CCM single parameter read upd. rate 09		
654		CCM single parameter read upd. rate 10		
655	7381	Engine interface communication type selection J1939		
656	7381	Engine interface communication type selection Cummins		
657	7391	Bar/Psi selection		
658	7400	EIC communication error		
659	7410	EIC common warning		
660	7420	EIC common shutdown		
661	7430	EIC overspeed		
662	7440	EIC coolant water temp. 1		
663	7450	EIC coolant water temp. 2		
664	7460	EIC oil pressure 1		
665	7470	EIC oil pressure 2		
666	4302	Running detection type		
667	7132	CAN fail. mode		
668	7602	Running hour priority type		
669	7603	Reset relative running hours		
670	2100	Separate synchronisation		
671	6185	Cooling down timer (fire pump)		
672	6120	High battery voltage alarm		
673	5491	kWh transistor setup		
674	5492	kVArh transistor setup		
675	7680	Available power 1		
676	7690	Available power 2		
677	2111	Excitation before closing RPM setup		
678	2112	Excitation before closing delay		
679	2113	Excitation before closing relay		
680	2122	Excitation before closing regulation delay		
681	2121	Excitation before closing breaker sequence		
682	2123	Excitation before closing RPM trip level		
683	2130	Excitation before closing protection		
684	6086	Reset fire pump counter		

Please refer to the Designer's Reference Handbook for information about:

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

Note that several channels also depend on the options.

Limitations

It is possible to write to channels, where the option is not activated. 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 address 0. These values are used for DEIF internal version control.

Abbreviations

These abbreviations are used in the tables:

- '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 (6011), offset 258, 60 Hz

ID = 1, 60 Hz = 600 Hz/10 = 0258h
Address 4000 + 258 = 4258d = 10A2h
Tx: 01h 10h 10h A2h 00h 01h 02h 02h 58h AEh 49h
Rx: 01h 10h 10h A2h 00h 01h A4h EBh

Read nominal frequency (6011) offset 258, 60 Hz

Tx: 01h 03h 10h A2h 00h 01h 21h 28h
Rx: 01h 03h 02h 02h 58h B8h DEh
Read 0258h = 600d

Digital input table (read only 01h)

Address	Terminal	Description
3000	91	Dig. input term. 91
3001	92	Dig. input term. 92
3002	93	Dig. input term. 93
3003	94	Dig. input term. 94
3004	95	Dig. input term. 95
3005	96	Dig. input term. 96
3006	97	Dig. input term. 97
3007-3027		NOT USED
3028	43	Dig. input term. 43
3029	44	Dig. input term. 44
3030	45	Dig. input term. 45
3031	46	Dig. input term. 46
3032	47	Dig. input term. 47
3033	48	Dig. input term. 48
3034	49	Dig. input term. 49
3035	50	Dig. input term. 50
3036	51	Dig. input term. 51
3037	52	Dig. input term. 52
3038	53	Dig. input term. 53
3039	54	Dig. input term. 54
3040	55	Dig. input term. 55
3041		Alarm inhibit
3042		Mains breaker position OFF
3043		Mains breaker position ON
3044		Generator breaker position OFF
3045		Generator breaker position ON
3046-3073		NOT USED
3074	110	Dig. input term. 110
3075	111	Dig. input term. 111
3076	112	Dig. input term. 112
3077	113	Dig. input term. 113
3078	114	Dig. input term. 114
3079	115	Dig. input term. 115
3080	116	Dig. input term. 116
3081	117	Dig. input term. 117
3082	118	Dig. input term. 118

Digital output table (read only 01h)

Address	Terminal	Description
4000	65/66	Governor up
4001	67/68	Governor down
4002	69/70	AVR up/relay 9
4003	71/72	AVR down/relay 10
4004	90/91	Relay 1
4005	92/93	Relay 2
4006	94/95	Relay 3
4007	96/97	Relay 4
4008-4015	-	NOT USED
4016	57/58	Relay 5
4017	59/60	Relay 6
4018	61/62	Relay 7
4019	63/64	Relay 8
4020	-	NOT USED
4021	-	NOT USED
4022	-	NOT USED
4023	-	NOT USED
4024	-	NOT USED
4025	5/6	Relay 11
4026	8/9	MB OFF
4027	11/12	Mains sync. relay (on in short time)
4028	14/15	GB OFF
4029	17/18	Generator sync. relay (on in short time)
4030	-	Relay 12 (kWh transistor output)
4031	-	Relay 13 (kVArh transistor output)
4044	120/121	Start (engine)
4045	122/123	Stop (engine)
4046	124/125	Start prepare (engine)
4047	69/70	PWM relay 9
4048	71/72	PWM relay 10

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