DEIF

-power in control

CE

Automatic Load Controller
DESCRIPTION OF OPTIONS



ALC-4
Option H2, Modbus communication

- Description of option
- Data tables
- Parameter table

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1. Delimitations

1.1 Scope of the Option

This description of options covers the following product:

Product	SW version
ALC-4	SW version 4.00.0 or later

2. General information

2.1 Warnings, legal information and safety

2.1.1 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

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

Notes

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

2.1.2 Legal information and disclaimer

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

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.

2.1.3 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.

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

2.1.4 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.

2.1.5 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.

2.2 About the installation instructions

2.2.1 General purpose

These Installation Instructions mainly include general product and hardware information, mounting instructions, terminal strip descriptions, I/O lists and wiring descriptions.

The general purpose of this document is to give the user important information to be used in the installation of the unit.

Make sure to read this document 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.

2.2.2 Intended users

These Installation Instructions are mainly intended for the person responsible for the design and installation. In most cases, this would be a panel builder designer. Naturally, other users might also find useful information in the document.

2.2.3 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.

3. Description of option

3.1 Terminal description

Option H2 is a hardware option, and therefore a separate PCB is installed in slot #2 in addition to the standard-installed hardware. These terminal positions are used in all products mentioned in this document.

Term.	Function	Description
29	DATA + (A)	Modbus RTU, RS-485
30	GND	
31	DATA - (B)	
32		
33	DATA + (A)	
34		
35	DATA - (B)	
36		

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

3.2 Hardware settings

These are the RS-485 hardware settings:

1. 9600 or 19200 bps
2. 8 data bits
3. None parity
4. 1 stop bit
5. No flow control

4. Data tables (read only, function code 04)

4.1 Configurable area

4.1.1 Analogue values

Columns:
”X” means included feature.
Empty field means not available.
Letter/number combination refers to an option number.

Value format: Signed integers

Function code 4			
Address	**Bit**	**Parameter**	**Content**
0			Load Controller voltage L1-L2 [V]
1			Load Controller voltage L2-L3 [V]
2			Load Controller voltage L3-L1 [V]
3			Load Controller voltage L1-N [V]
4			Load Controller voltage L2-N [V]
5			Load Controller voltage L3-N [V]
6			Load Controller Frequency L1 [Hz/100]
7			Not Used
8			Not Used
9			Not Used
10			Load Controller power [kW]
11			Not Used
12			Not Used
13			Not Used
14			Not Used
15			Not Used
16			Active Energy Counter [kWh] (High word)
17			Active Energy Counter [kWh] (Low word)
18			U BB L1-L2 [V]
19			U BB L2-L3 [V]
20			U BB L3-L1 [V]
21			U BB L1-N [V]
22			U BB L2-N [V]
23			U BB L3-N [V]
24			BB f L1 [Hz/100]
25			U BB phase angle L1-L2 [Deg/10]
26			U BB L1 - U GEN L1 phase angle [Deg/10]

Function code 4			
Address	**Bit**	**Parameter**	**Content**
27			No. of alarms
28			No. of unack. alarms
29			Not Used
30			Not Used
31			Not Used
32			Not Used
33			Not Used
34			DC supply term. 1-2 [V/10]
35			DC supply term. 98-99 [V/10]
36			Not Used
37			Multi-input 102 unscaled
38			Multi-input 105 unscaled
39			Multi-input 108 unscaled
40			Control register address 0
41			Control register address 1
42			Control register address 2
43			Control register address 3
44			Control register address 4
45			Control register address 5
46	0		Load Group 1 ON
	1		Load Group 1 OFF
	2		Load Group 2 ON
	3		Load Group 2 OFF
	4		Load Group 3 ON
	5		Load Group 3 OFF
	6		Load Group 4 ON
	7		Load Group 4 OFF
	8		Load Group 5 ON
	9		Load Group 5 OFF
	10		Load Group 6 ON

Function code 4			
Address	**Bit**	**Parameter**	**Content**
	11		Load Group 6 OFF
	12		Load Group 7 ON
	13		Load Group 7 OFF
	14		Load Group 8 ON
	15		Load Group 8 OFF
47			Control register address 7
48	*Not used*		
49	*Not used*		
50	0	2110	Load Group 1 Open Failure
	1	2120	Load Group 1 Close Failure
	2	2130	Load Group 1 Position Failure
	3	2140	Load Group 2 Open Failure
	4	2150	Load Group 2 Close Failure
	5	2160	Load Group 2 Position Failure
	6	2170	Load Group 3 Open Failure
	7	2180	Load Group 3 Close Failure
	8	2190	Load Group 3 Position Failure
	9	2200	Load Group 4 Open Failure
	10	2210	Load Group 4 Close Failure
	11	2220	Load Group 4 Position Failure
	12	2230	Load Group 5 Open Failure
	13	2240	Load Group 5 Close Failure
	14	2250	Load Group 5 Position Failure
	15		

Function code 4			
Address	**Bit**	**Parameter**	**Content**
51	0	2260	Load Group 6 Open Failure
	1	2270	Load Group 6 Close Failure
	2	2280	Load Group 6 Position Failure
	3	2290	Load Group 7 Open Failure
	4	2300	Load Group 7 Close Failure
	5	2310	Load Group 7 Position Failure
	6	2320	Load Group 8 Open Failure
	7	2330	Load Group 8 Close Failure
	8	2340	Load Group 8 Position Failure
	9	2100	Synchronising window
	10		
	11		
	12		
	13		
	14		
	15		
52	0	3130	Digital alarm input 43
	1	3140	Digital alarm input 44
	2	3150	Digital alarm input 45
	3	3160	Digital alarm input 46
	4	3170	Digital alarm input 47
	5	3180	Digital alarm input 48
	6	3190	Digital alarm input 49
	7	3200	Digital alarm input 50
	8	3210	Digital alarm input 51
	9	3220	Digital alarm input 52
	10	3230	Digital alarm input 53
	11	3240	Digital alarm input 54
	12	3250	Digital alarm input 55

Function code 4			
Address	**Bit**	**Parameter**	**Content**
	13		
	14		
	15		
53	0		
	1		
	2		
	3		
	4		
	5		
	6		
	7	3330	Digital alarm input 91
	8	3340	Digital alarm input 92
	9	3350	Digital alarm input 93
	10	3360	Digital alarm input 94
	11	3370	Digital alarm input 95
	12	3380	Digital alarm input 96
	13	3390	Digital alarm input 97
	14		
	15		
54	0	3400	Multi-input alarm 102
	1	3410	Multi-input alarm 105
	2	3420	Multi-input alarm 108
	3	3401	Multi-input wire fail alarm 102
	4	3411	Multi-input wire fail alarm 105
	5	3421	Multi-input wire fail alarm 108
	6	3430	Digital alarm input 112
	7	3440	Digital alarm input 113
	8	3450	Digital alarm input 114
	9	3460	Digital alarm input 115
	10	3470	Digital alarm input 116
	11	3480	Digital alarm input 117
	12	3490	Digital alarm input 118 (Emergency stop)
	13		

Function code 4			
Address	**Bit**	**Parameter**	**Content**
	14		
	15		
55	0	3500	Digital alarm input 127
	1	3510	Digital alarm input 128
	2	3520	Digital alarm input 129
	3	3530	Digital alarm input 130
	4	3540	Digital alarm input 131
	5	3550	Digital alarm input 132
	6	3560	Digital alarm input 133
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	0	4000	4-20 mA 91.1
	1	4010	4-20 mA 91.2
	2	4020	Wire failure 91 analogue
	3	4030	4-20 mA 93.1
	4	4040	4-20 mA 93.2
	5	4050	Wire failure 93 analogue
	6	4060	4-20 mA 95.1
	7	4070	4-20 mA 95.2
	8	4080	Wire failure 95 analogue
	9	4090	4-20 mA 97.1
	10	4100	4-20 mA 97.2
	11	4110	Wire failure 97 analogue
	12		
	13		
	14		
	15		
57	0	4120	4-20 mA 102.1
	1	4130	4-20 mA 102.2

Function code 4			
Address	**Bit**	**Parameter**	**Content**
	0	4140	V DC 102.1
	1	4150	V DC 102.2
	0	4160	PT 102.1
	1	4170	PT 102.2
	2	4240	W. fail 102
	3	4250	4-20 mA 105.1
	4	4260	4-20 mA 105.2
	3	4270	V DC 105.1
	4	4280	V DC 105.2
	3	4290	PT 105.1
	4	4300	PT 105.2
	5	4370	W. fail 105
	6	4380	4-20 mA 108.1
	7	4390	4-20 mA 108.2
	6	4400	V DC 108.1
	7	4410	V DC 108.2
	6	4420	PT 108.1
	7	4430	PT 108.2
	8	4500	W. fail 108
58	0	5000	Relay 5
	1	5010	Relay 8
	2	5020	Relay 11
	3	5030	Relay 14
	4	5040	Relay 17
	5	5050	Relay T20
	6	5060	Relay T21
	7	5070	Relay 29
	8	5080	Relay 31
	9	5090	Relay 33
	10	5100	Relay 35
	11	5110	Relay 57
	12	5120	Relay 59
	13	5130	Relay 61
	14	5140	Relay 63
	15		*not used*
59	0-1		*not used*

Function code 4			
Address	**Bit**	**Parameter**	**Content**
	2		Semi auto mode
	3		Auto mode
	4-10		*not used*
	11		Power Management
	12-15		
60	*not used*		
61	0	4800	4-20 mA 127.1
	1	4810	4-20 mA 127.2
	2	4820	W. fail input 127
	3	4830	4-20 mA 129.1
	4	4840	4-20 mA 129.2
	5	4850	W. fail input 129
	6	4860	4-20 mA 131.1
	7	4870	4-20 mA 131.2
	8	4880	W. fail input 131
	9	4890	4-20 mA 133.1
	10	4900	4-20 mA 133.2
	11	4910	W. fail input 133
	12		
	13		
	14		
	15		

4.1.2 Multi-inputs - unscaled values

A short description of the unscaled values and how to interpret these according to the input type selected is made in this document.

The unscaled values have a full range of 0 to 1023 bit.

4-20 mA	
0 mA:	0 bit
4 mA:	170 bit
20 mA:	853 bit
25 mA:	1023 bit

Linearity between the unscaled value and the scaled value yields.

0-40 V DC		
0	V DC:	0 bit
40	V DC:	925 bit

Linearity between the unscaled value and the scaled value yields.

Pt100

Linearity between the unscaled value and the input resistance yields according to the following equation:

Ω = (x + 509) * 100/771

x: Unscaled value. Ω:
PT resistance value.

Pt1000

Linearity between the unscaled value and the input resistance yields according to the following equation:
Ω = (x + 519) * 10/79

x: Unscaled value. Ω:
PT resistance value.

4.2 Measurement table

Function code 4			
Address	**bit**	**Content**	
501		UL1-L2	Load controller voltage L1-L2 [V]
502		UL2-L3	Load controller voltage L2-L3 [V]
503		UL3-L1	Load controller voltage L3-L1 [V]
504		UL1-N	Load controller voltage L1-N [V]
505		UL2-N	Load controller voltage L2-N [V]
506		UL3-N	Load controller voltage L3-N [V]
507		fL1	Load controller frequency L1 [Hz/100]
508		fL2	Load controller frequency L2 [Hz/100]
509		fL3	Load controller frequency L3 [Hz/100]
510		Phi	Load controller phase angle L1-L2 [Deg/10]
511		Phi	Load controller phase angle L2-L3 [Deg/10]
512		Phi	Load controller phase angle L3-L1 [Deg/10]
513			*Not used*
514			*Not used*
515			*Not used*
516		PL1	Load Controller Power L1 [kW]
517		PL2	Load controller power L2 [kW]
518		PL3	Load controller power L3 [kW]
519		P	Load controller power [kW]
520			*Not used*
521			*Not used*
522			*Not used*
523			*Not used*
524			*Not used*

Function code 4			
Address	**bit**	**Content**	
525			*Not used*
526			*Not used*
527			*Not used*
528			*Not used*
529			*Not used*
530	[Hi]		Export active energy counter day [kWh]
531	[Lo]		
532	[Hi]		Export active energy counter week [kWh]
533	[Lo]		
534	[Hi]		Export active energy counter month [kWh]
535	[Lo]		
536	[Hi]		Export active energy counter total [kWh]
537	[Lo]		
538		PF	Generator PF [PF/100]
539			U BB L1-L2 [V]
540			U BB L2-L3 [V]
541			U BB L3-L1 [V]
542			U BB L1-N [V]
543			U BB L2-N [V]
544			U BB L3-N [V]
545			BB FL1 [Hz/100]
546			f BB L2 [Hz/100]
547			f BB L3 [Hz/100]
548			U BB phase angle L1-L2
549			U BB phase angle L2-L3
550			U BB phase angle L3-L1
551			BB L1 - U GEN L1
552			BB L1 - U GEN L2
553			BB L1 - U GEN L3
554			*Not used*
555			*Not used*
556			*Not used*
557			*Not used*
558		Alarm	No. of alarms
559		Alarm	No. of unack alarms
560		Alarm	No. of active acknowl-edged alarms

Function code 4			
Address	**bit**	**Content**	
561			*Not used*
562			*Not used*
563			*Not used*
564			*Not used*
565			*Not used*
566			*Not used*
567			DC supply term. 1-2 [V/10]
568			DC supply term. 98-99 [V/10]
569			*Not used*
570			*Not used*
571			*Not used*
572			*Not used*
573			*Not used*
574			*Not used*
575			*Not used*
576			*Not used*
577			*Not used*
578			*Not used*
579			*Not used*
580			Multi-input 102 unscaled
581			Multi-input 105 unscaled
582			Multi-input 108 unscaled
583			Multi-input 102 scaled
584			Multi-input 105 scaled
585			Multi-input 108 scaled
586			4-20 mA input, scaled 91
587			4-20 mA input, scaled 93
588			4-20 mA input, scaled 95
589			4-20 mA input, scaled 97
590			*Not used*
591			*Not used*
592			*Not used*
642		RegAddr	Control register address 0

Function code 4			
Address	**bit**	**Content**	
643		RegAddr	Control register address 1
644		RegAddr	Control register address 2
645		RegAddr	Control register address 3
646		RegAddr	Control register address 4
647		RegAddr	Control register address 5
648		RegAddr	Control register address 6
649		RegAddr	Control register address 7
650		RegAddr	Control register address 8
651		RegAddr	Control register address 9
652		RegAddr	Control register address 10
653		RegAddr	Control register address 11
654		RegAddr	Control register address 12
655		RegAddr	Control register address 13
656		Ain	Analogue input 127
657		Ain	Analogue input 129
658		Ain	Analogue input 131
659		Ain	Analogue input 133
660 -999			*Not used*
1000			*Not used*
1001			*Not used*
1002			*Not used*
1003	0		Load group 1 externally tripped
	1		Load group 2 externally tripped
	2		Load group 3 externally tripped

Function code 4			
Address	**bit**	**Content**	
	3		Load group 4 externally tripped
	4		Load group 5 externally tripped
	5		Load group 6 externally tripped
	6		Load group 7 externally tripped
	7		Load group 8 externally tripped
	8		ALC overload alarm 1
	9		ALC overload alarm 2
	10		ALC overload alarm 3
	11		ALC overload alarm 4
	12		ALC overload alarm 5
1004	0	2110	Load group 1 open failure
	1	2120	Load group 1 close failure
	2	2130	Load group 1 position failure
	3	2140	Load group 2 open failure
	4	2150	Load group 2 close failure
	5	2160	Load group 2 position failure
	6	2170	Load group 3 open failure
	7	2180	Load group 3 close failure
	8	2190	Load group 3 position failure
	9	2200	Load group 4 open failure
	10	2210	Load group 4 close failure
	11	2220	Load group 4 position failure
	12	2230	Load group 5 open failure

Function code 4			
Address	**bit**	**Content**	
	13	2240	Load group 5 close failure
	14	2250	Load group 5 position failure
1005	0	2260	Load group 6 open failure
	1	2270	Load group 6 close failure
	2	2280	Load group 6 position failure
	3	2290	Load group 7 open failure
	4	2300	Load group 7 close failure
	5	2310	Load group 7 position failure
	6	2320	Load group 8 open failure
	7	2330	Load group 8 close failure
	8	2340	Load group 8 position failure
	9	2100	Synchronising window
	10		
	11		
	12		
	13		
	14		
	15		
1006	0	3000	Digital alarm input 23
	1	3010	Digital alarm input 24
	2	3020	Digital alarm input 25
	3	3030	Digital alarm input 26
	4	3040	Digital alarm input 27
	5	3050	Digital alarm input
	6	3060	Digital alarm input 29
	7	3070	Digital alarm input 30
	8	3080	Digital alarm input 31
	9	3090	Digital alarm input 32

Function code 4			
Address	**bit**	**Content**	
	10	3100	Digital alarm input 33
	11	3110	Digital alarm input 34
	12	3120	Digital alarm input 35
	13		
1007			Same as AGC-4 H2
1008			Same as AGC-4 H2
1009			Same as AGC-4 H2
1010			Same as AGC-4 H2
1011			Same as AGC-4 H2
1012			Same as AGC-4 H2
1013	0		4-20 mA 102.1
	1		4-20 mA 102.2
	2		Wire fail 102
	3		4-20 mA 105.1
	4		4-20 mA 105.2
	5		Wire fail 105
	6		4-20 mA 108.1
	7		4-20 mA 108.2
	8		Wire Fail 108
1014	0		
	1	4960	U< aux. term.
	2	4970	U> aux. term.
	3	4980	U< aux. term.
	4	4990	U> aux. term.
1015	3	6280	Internal communication failure
	12	6540	Unit not in auto
1016			Same as AGC-4 H2
1017			Same as AGC-4 H2 minus 12,13,14,15
1018	8	4560	DG Hz/V OK, timer expired
1019	2		Semi mode
	3		Auto mode
1031			Same as AGC-4 H2
1032			Same as AGC-4 H2
1033			Same as AGC-4 H2

Function code 4			
Address	**bit**	**Content**	
1034			*Not used*
1035			*Not used*
1036			*Not used*
1037			*Not used*
1038			*Not used*
1039			*Not used*
1040	0		CAN 1 missing ID no. 1
	1		CAN 1 missing ID no. 2
	2		CAN 1 missing ID no. 3
	3		CAN 1 missing ID no. 4
	4		CAN 1 missing ID no. 5
	5		CAN 1 missing ID no. 6
	6		CAN 1 missing ID no. 7
	7		CAN 1 missing ID no. 8
	8		CAN 1 missing ID no. 9
	9		CAN 1 missing ID no. 10
	10		CAN 1 missing ID no. 11
	11		CAN 1 missing ID no. 12
	12		CAN 1 missing ID no. 13
	13		CAN 1 missing ID no. 14
	14		CAN 1 missing ID no. 15
	15		CAN 1 missing ID no. 16
1041	0		CAN 1 missing ID no. 17
	1		CAN 1 missing ID no. 18
	2		CAN 1 missing ID no. 19
	3		CAN 1 missing ID no. 20
	4		CAN 1 missing ID no. 21
	5		CAN 1 missing ID no. 22
	6		CAN 1 missing ID no. 23
	7		CAN 1 missing ID no. 24
	8		CAN 1 missing ID no. 25
	9		CAN 1 missing ID no. 26
	10		CAN 1 missing ID no. 27
	11		CAN 1 missing ID no. 28
	12		CAN 1 missing ID no. 29
	13		CAN 1 missing ID no. 30

Function code 4			
Address	**bit**	**Content**	
	14		CAN 1 missing ID no. 31
	15		CAN 1 missing ID no. 32
1042	0		CAN 1 missing ID no. 33
	1		CAN 1 missing ID no. 34
	2		CAN 1 missing ID no. 35
	3		CAN 1 missing ID no. 36
	4		CAN 1 missing ID no. 37
	5		CAN 1 missing ID no. 38
	6		CAN 1 missing ID no. 39
	7		CAN 1 missing ID no. 40
1043	0		CAN 2 missing ID no. 1
	1		CAN 2 missing ID no. 2
	2		CAN 2 missing ID no. 3
	3		CAN 2 missing ID no. 4
	4		CAN 2 missing ID no. 5
	5		CAN 2 missing ID no. 6
	6		CAN 2 missing ID no. 7
	7		CAN 2 missing ID no. 8
	8		CAN 2 missing ID no. 9
	9		CAN 2 missing ID no. 10
	10		CAN 2 missing ID no. 11
	11		CAN 2 missing ID no. 12
	12		CAN 2 missing ID no. 13
	13		CAN 2 missing ID no. 14
	14		CAN 2 missing ID no. 15
	15		CAN 2 missing ID no. 16
1044	0		CAN 2 missing ID no. 17
	1		CAN 2 missing ID no. 18
	2		CAN 2 missing ID no. 19
	3		CAN 2 missing ID no. 20
	4		CAN 2 missing ID no. 21
	5		CAN 2 missing ID no. 22
	6		CAN 2 missing ID no. 23
	7		CAN 2 missing ID no. 24
	8		CAN 2 missing ID no. 25
	9		CAN 2 missing ID no. 26

Function code 4			
Address	**bit**	**Content**	
	10		CAN 2 missing ID no. 27
	11		CAN 2 missing ID no. 28
	12		CAN 2 missing ID no. 29
	13		CAN 2 missing ID no. 30
	14		CAN 2 missing ID no. 31
	15		CAN 2 missing ID no. 32
1045	0		CAN 2 missing ID no. 33
	1		CAN 2 missing ID no. 34
	2		CAN 2 missing ID no. 35
	3		CAN 2 missing ID no. 36
	4		CAN 2 missing ID no. 37
	5		CAN 2 missing ID no. 38
	6		CAN 2 missing ID no. 39
	7		CAN 2 missing ID no. 40
1046	0		4-20 mA alarm no. 127.1
	1		4-20 mA alarm no. 127.2
	2		Wire fail analogue input 127
	3		4-20 mA alarm no. 129.1
	4		4-20 mA alarm no. 129.2
	5		Wire fail analogue input 129
	6		4-20 mA alarm no. 131.1
	7		4-20 mA alarm no. 131.2
	8		Wire fail analogue input 131
	9		4-20 mA alarm no. 133.1
	10		4-20 mA alarm no. 133.2
	11		Wire fail analogue input 133
1047			*Not used*
1048			*Not used*
1049			*Not used*
1050			*Not used*
1051	0		Virtual event 1
	1		Virtual event 2
	2		Virtual event 3

Function code 4			
Address	**bit**	**Content**	
	3		Virtual event 4
	4		Virtual event 5
	5		Virtual event 6
	6		Virtual event 7
	7		Virtual event 8
	8		Virtual event 9
	9		Virtual event 10
	10		Virtual event 11
	11		Virtual event 12
	12		Virtual event 13
	13		Virtual event 14
	14		Virtual event 15
	15		Virtual event 16
1052	0		Virtual event 17
	1		Virtual event 18
	2		Virtual event 19
	3		Virtual event 20
	4		Virtual event 21
	5		Virtual event 22
	6		Virtual event 23
	7		Virtual event 24
	8		Virtual event 25
	9		Virtual event 26
	10		Virtual event 27
	11		Virtual event 28
	12		Virtual event 29
	13		Virtual event 30
	14		Virtual event 31
	15		Virtual event 32
1053	0		*Not used*
	1		*Not used*
	2		*Not used*
	3		*Not used*
	4		Delta Analogue 1.1 alarm
	5		Delta analogue 1.2 alarm

Function code 4			
Address	**bit**	**Content**	
	6		Delta analogue 2.1 alarm
	7		Delta analogue 2.2 alarm
	8		Delta analogue 3.1 alarm
	9		Delta analogue 3.2 alarm
	10		Delta analogue 4.1 alarm
	11		Delta analogue 4.2 alarm
	12		Delta analogue 5.1 alarm
	13		Delta analogue 5.2 alarm
	14		Delta analogue 6.1 alarm
	15		Delta analogue 6.2 alarm
1054			*Not used*
1055			*Not used*
1056			*Not used*
1057	0		Failclass warning active
	1		Failclass trip LG1 active
	2		Failclass trip LG2 active
	3		Failclass trip LG3 active
	4		Failclass trip LG4 active
	5		Failclass trip LG5 active
	6		Failclass trip LG6 active
	7		Failclass trip LG7 active
	8		Failclass trip LG8 active
	9		Failclass trip all LGs active
1058- 1499			*Not used*

4.3 Power management

4.3.1 Power management table

Function code 4			
Address	**bit**	**Content**	
1500			*Not used*
1501			Available DG power
1502			Total nominal power DG
1503			Total genset power
1504			*Not used*
1505			Number of gensets
1506			*Not used*
1507			*Not used*
1508			*Not used*
1509			*Not used*
1510			Nominal power genset 1
1511			Nominal power genset 2
1512			Nominal power genset 3
1513			Nominal power genset 4
1514			Nominal power genset 5
1515			Nominal power genset 6
1516			Nominal power genset 7
1517			Nominal power genset 8
1518			Nominal power genset 9
1519			Nominal power genset 10
1520			Nominal power genset 11
1521			Nominal power genset 12
1522			Nominal power genset 13
1523			Nominal power genset 14
1524			Nominal power genset 15
1525			Nominal power genset 16
1526			Power genset 1
1527			Power genset 2

Function code 4			
Address	**bit**	**Content**	
1528			Power genset 3
1529			Power genset 4
1530			Power genset 5
1531			Power genset 6
1532			Power genset 7
1533			Power genset 8
1534			Power genset 9
1535			Power genset 10
1536			Power genset 11
1537			Power genset 12
1538			Power genset 13
1539			Power genset 14
1540			Power genset 15
1541			Power genset 16
1542			Reactive power genset 1
1543			Reactive power genset 2
1544			Reactive power genset 3
1545			Reactive power genset 4
1546			Reactive power genset 5
1547			Reactive power genset 6
1548			Reactive power genset 7
1549			Reactive power genset 8
1550			Reactive power genset 9
1551			Reactive power genset 10
1552			Reactive power genset 11
1553			Reactive power genset 12
1554			Reactive power genset 13
1555			Reactive power genset 14
1556			Reactive power genset 15
1557			Reactive power genset 16
1558			*Not used*

Function code 4			
Address	**bit**	**Content**	
1559			*Not used*
1560			*Not used*
1561			*Not used*
1562			*Not used*
1563			*Not used*
1564			*Not used*
1565			*Not used*
1566			*Not used*
1567			*Not used*
1568			*Not used*
1569			Power mains 17
1570			Power mains 18
1571			Power mains 19
1572			Power mains 20
1573			Power mains 21
1574			Power mains 22
1575			Power mains 23
1576			Power mains 24
1577			Power mains 25
1578			Power mains 26
1579			Power mains 27
1580			Power mains 28
1581			Power mains 29
1582			Power mains 30
1583			Power mains 31
1584			Power mains 32
1585			Reactive power mains 17
1586			Reactive power mains 18
1587			Reactive power mains 19
1588			Reactive power mains 20
1589			Reactive power mains 21
1590			Reactive power mains 22

Function code 4			
Address	**bit**	**Content**	
1591			Reactive power mains 23
1592			Reactive power mains 24
1593			Reactive power mains 25
1594			Reactive power mains 26
1595			Reactive power mains 27
1596			Reactive power mains 28
1597			Reactive power mains 29
1598			Reactive power mains 30
1599			Reactive power mains 31
1600			Reactive power mains 32
1601			Power breaker 33
1602			Power breaker 34
1603			Power breaker 35
1604			Power breaker 36
1605			Power breaker 37
1606			Power breaker 38
1607			Power breaker 39
1608			Power breaker 40
1609			Reactive power breaker 33
1610			Reactive power breaker 34
1611			Reactive power breaker 35
1612			Reactive power breaker 36
1613			Reactive power breaker 37
1614			Reactive power breaker 38

Function code 4			
Address	**bit**	**Content**	
1615			Reactive power breaker 39
1616			Reactive power breaker 40
1617			Plant mode mains 17
1618			Plant mode mains 18
1619			Plant mode mains 19
1620			Plant mode mains 20
1621			Plant mode mains 21
1622			Plant mode mains 22
1623			Plant mode mains 23
1624			Plant mode mains 24
1625			Plant mode mains 25
1626			Plant mode mains 26
1627			Plant mode mains 27
1628			Plant mode mains 28
1629			Plant mode mains 29
1630			Plant mode mains 30
1631			Plant mode mains 31
1632			Plant mode mains 32
1633			Bus power mains 17
1634			Bus power mains 18
1635			Bus power mains 19
1636			Bus power mains 20
1637			Bus power mains 21
1638			Bus power mains 22
1639			Bus power mains 23
1640			Bus power mains 24
1641			Bus power mains 25
1642			Bus power mains 26
1643			Bus power mains 27
1644			Bus power mains 28
1645			Bus power mains 29
1646			Bus power mains 30
1647			Bus power mains 31
1648			Bus power mains 32

Function code 4			
Address	**bit**	**Content**	
1649	0		ID 17 mains transducer-configured
	1		ID 18 mains transducer-configured
	2		ID 19 mains transducer-configured
	3		ID 20 mains transducer-configured
	4		ID 21 mains transducer-configured
	5		ID 22 mains transducer-configured
	6		ID 23 mains transducer-configured
	7		ID 24 mains transducer-configured
	8		ID 25 mains transducer-configured
	9		ID 26 mains transducer-configured
	10		ID 27 mains transducer-configured
	11		ID 28 mains transducer-configured
	12		ID 29 mains transducer-configured
	13		ID 30 mains transducer-configured
	14		ID 31 mains transducer-configured
	15		ID 32 mains transducer-configured
1650	0		ID 17 TB transducer-configured
	1		ID 18 TB transducer-configured
	2		ID 19 TB transducer-configured
	3		ID 20 TB transducer-configured

Function code 4			
Address	**bit**	**Content**	
	4		ID 21 TB transducer-configured
	5		ID 22 TB transducer-configured
	6		ID 23 TB transducer-configured
	7		ID 24 TB transducer-configured
	8		ID 25 TB transducer-configured
	9		ID 26 TB transducer-configured
	10		ID 27 TB transducer-configured
	11		ID 28 TB transducer-configured
	12		ID 29 TB transducer-configured
	13		ID 30 TB transducer-configured
	14		ID 31 TB transducer-configured
	15		ID 32 TB transducer-configured
1651	0		ID 33 BTB transducer-configured
	1		ID 34 BTB transducer-configured
	2		ID 35 BTB transducer-configured
	3		ID 36 BTB transducer-configured
	4		ID 37 BTB transducer-configured
	5		ID 38 BTB transducer-configured
	6		ID 39 BTB transducer-configured
	7		ID 40 BTB transducer-configured
1652	0		ID 33 BTB-controlled

Function code 4			
Address	**bit**	**Content**	
	1		ID 34 BTB-controlled
	2		ID 35 BTB-controlled
	3		ID 36 BTB-controlled
	4		ID 37 BTB-controlled
	5		ID 38 BTB-controlled
	6		ID 39 BTB-controlled
	7		ID 40 BTB-controlled
1653			ID 17 nominal power
1654			ID 18 nominal power
1655			ID 19 nominal power
1656			ID 20 nominal power
1657			ID 21 nominal power
1658			ID 22 nominal power
1659			ID 23 nominal power
1660			ID 24 nominal power
1661			ID 25 nominal power
1662			ID 26 nominal power
1663			ID 27 nominal power
1664			ID 28 nominal power
1665			ID 29 nominal power
1666			ID 30 nominal power
1667			ID 31 nominal power
1668			ID 32 nominal power
1669-1699			*Not used*
1700	0		*Not used*
	1		*Not used*
	2		Any MB pos ON
	3		All MB pos OFF
	4		TB pos on (mains command Unit)
	5		TB pos off (mains command Unit)
	6		Any GB pos on
	7		All GB pos off
	8		Any TB pos on
	9		All TB pos off
	10		Any BTB pos. ON

Function code 4			
Address	**bit**	**Content**	
	10		Any BTB pos. Off
1701	0		GB pos. ON ID 1
	1		GB pos. ON ID 2
	2		GB pos. ON ID 3
	3		GB pos. ON ID 4
	4		GB pos. ON ID 5
	5		GB pos. ON ID 6
	6		GB pos. ON ID 7
	7		GB pos. ON ID 8
	8		GB pos. ON ID 9
	9		GB pos. ON ID 10
	10		GB pos. ON ID 11
	11		GB pos. ON ID 12
	12		GB pos. ON ID 13
	13		GB pos. ON ID 14
	14		GB pos. ON ID 15
	15		GB pos. ON ID 16
1702	0		GB pos. OFF ID 1
	1		GB pos. OFF ID 2
	2		GB pos. OFF ID 3
	3		GB pos. OFF ID 4
	4		GB pos. OFF ID 5
	5		GB pos. OFF ID 6
	6		GB pos. OFF ID 7
	7		GB pos. OFF ID 8
	8		GB pos. OFF ID 9
	9		GB pos. OFF ID 10
	10		GB pos. OFF ID 11
	11		GB pos. OFF ID 12
	12		GB pos. OFF ID 13
	13		GB pos. OFF ID 14
	14		GB pos. OFF ID 15
	15		GB pos. OFF ID 16
1703	0		DG Hz/V OK, ID 1
	1		DG Hz/V OK, ID 2
	2		DG Hz/V OK, ID 3

Function code 4			
Address	**bit**	**Content**	
	3		DG Hz/V OK, ID 4
	4		DG Hz/V OK, ID 5
	5		DG Hz/V OK, ID 6
	6		DG Hz/V OK, ID 7
	7		DG Hz/V OK, ID 8
	8		DG Hz/V OK, ID 9
	9		DG Hz/V OK, ID10
	10		DG Hz/V OK, ID 11
	11		DG Hz/V OK, ID 12
	12		DG Hz/V OK, ID 13
	13		DG Hz/V OK, ID 14
	14		DG Hz/V OK, ID 15
	15		DG Hz/V OK, ID 16
1704			*Not used*
1705	0		Ready for auto start, ID 1
	1		Ready for auto start, ID 2
	2		Ready for auto start, ID 3
	3		Ready for auto start, ID 4
	4		Ready for auto start, ID 5
	5		Ready for auto start, ID 6
	6		Ready for auto start, ID 7
	7		Ready for auto start, ID 8
	8		Ready for auto start, ID 9
	9		Ready for auto start, ID 10
	10		Ready for auto start, ID 11
	11		Ready for auto start, ID 12

Function code 4			
Address	**bit**	**Content**	
	12		Ready for auto start, ID 13
	13		Ready for auto start, ID 14
	14		Ready for auto start, ID 15
	15		Ready for auto start, ID 16
1706			*Not used*
1707	0		Any alarms, ID 1
	1		Any alarms, ID 2
	2		Any alarms, ID 3
	3		Any alarms, ID 4
	4		Any alarms, ID 5
	5		Any alarms, ID 6
	6		Any alarms, ID 7
	7		Any alarms, ID 8
	8		Any alarms, ID 9
	9		Any alarms, ID 10
	10		Any alarms, ID 11
	11		Any alarms, ID 12
	12		Any alarms, ID 13
	13		Any alarms, ID 14
	14		Any alarms, ID 15
	15		Any alarms, ID 16
1708			*Not used*
1709	0		Engine running, ID 1
	1		Engine running, ID 2
	2		Engine running, ID 3
	3		Engine running, ID 4
	4		Engine running, ID 5
	5		Engine running, ID 6
	6		Engine running, ID 7
	7		Engine running, ID 8
	8		Engine running, ID 9
	9		Engine running, ID 10
	10		Engine running, ID 11

Function code 4			
Address	**bit**	**Content**	
	11		Engine running, ID 12
	12		Engine running, ID 13
	13		Engine running, ID 14
	14		Engine running, ID 15
	15		Engine running, ID 16
1710			*Not used*
1711	0		GB synchronising, ID 1
	1		GB synchronising, ID 2
	2		GB synchronising, ID 3
	3		GB synchronising, ID 4
	4		GB synchronising, ID 5
	5		GB synchronising, ID 6
	6		GB synchronising, ID 7
	7		GB synchronising, ID 8
	8		GB synchronising, ID 9
	9		GB synchronising, ID 10
	10		GB synchronising, ID 11
	11		GB synchronising, ID 12
	12		GB synchronising, ID 13
	13		GB synchronising, ID 14
	14		GB synchronising, ID 15
	15		GB synchronising, ID 16
1712	0		Mains OK, ID 17
	1		Mains OK, ID 18
	2		Mains OK, ID 19
	3		Mains OK, ID 20
	4		Mains OK, ID 21
	5		Mains OK, ID 22
	6		Mains OK, ID 23
	7		Mains OK, ID 24
	8		Mains OK, ID 25
	9		Mains OK, ID 26
	10		Mains OK, ID 27
	11		Mains OK, ID 28
	12		Mains OK, ID 29
	13		Mains OK, ID 30

Function code 4			
Address	**bit**	**Content**	
	14		Mains OK, ID 31
	15		Mains OK, ID 32
1713	0		Mains not in semi 17
	1		Mains not in semi 18
	2		Mains not in semi 19
	3		Mains not in semi 20
	4		Mains not in semi 21
	5		Mains not in semi 22
	6		Mains not in semi 23
	7		Mains not in semi 24
	8		Mains not in semi 25
	9		Mains not in semi 26
	10		Mains not in semi 27
	11		Mains not in semi 28
	12		Mains not in semi 29
	13		Mains not in semi 30
	14		Mains not in semi 31
	15		Mains not in semi 32
1714	0		Any alarms, mains ID 17
	1		Any alarms, mains ID 18
	2		Any alarms, mains ID 19
	3		Any alarms, mains ID 20
	4		Any alarms, mains ID 21
	5		Any alarms, mains ID 22
	6		Any alarms, mains ID 23
	7		Any alarms, mains ID 24
	8		Any alarms, mains ID 25
	9		Any alarms, mains ID 26
	10		Any alarms, mains ID 27
	11		Any alarms, mains ID 28
	12		Any alarms, mains ID 29
	13		Any alarms, mains ID 30
	14		Any alarms, mains ID 31
	15		Any alarms, mains ID 32
1715	0		MB pos. ON, ID 17
	1		MB pos. ON, ID 18

Function code 4			
Address	**bit**	**Content**	
	2		MB pos. ON, ID 19
	3		MB pos. ON, ID 20
	4		MB pos. ON, ID 21
	5		MB pos. ON, ID 22
	6		MB pos. ON, ID 23
	7		MB pos. ON, ID 24
	8		MB pos. ON, ID 25
	9		MB pos. ON, ID 26
	10		MB pos. ON, ID 27
	11		MB pos. ON, ID 28
	12		MB pos. ON, ID 29
	13		MB pos. ON, ID 30
	14		MB pos. ON, ID 31
	15		MB pos. ON, ID 32
1716	0		MB pos. OFF, ID 17
	1		MB pos. OFf, ID 18
	2		MB pos. OFF, ID 19
	3		MB pos. OFF, ID 20
	4		MB pos. OFF, ID 21
	5		MB pos. OFF, ID 22
	6		MB pos. OFF, ID 23
	7		MB pos. OFF, ID 24
	8		MB pos. OFF, ID 25
	9		MB pos. OFF, ID 26
	10		MB pos. OFF, ID 27
	11		MB pos. OFF, ID 28
	12		MB pos. OFF, ID 29
	13		MB pos. OFF, ID 30
	14		MB pos. OFF, ID 31
	15		MB pos. OFF, ID 32
1717	0		Mains failure, ID 17
	1		Mains failure, ID 18
	2		Mains failure, ID 19
	3		Mains failure, ID 20
	4		Mains failure, ID 21
	5		Mains failure, ID 22

Function code 4			
Address	**bit**	**Content**	
	6		Mains failure, ID 23
	7		Mains failure, ID 24
	8		Mains failure, ID 25
	9		Mains failure, ID 26
	10		Mains failure, ID 27
	11		Mains failure, ID 28
	12		Mains failure, ID 29
	13		Mains failure, ID 30
	14		Mains failure, ID 31
	15		Mains failure, ID 32
1718	0		MB synchronising, ID 17
	1		MB synchronising, ID 18
	2		MB synchronising, ID 19
	3		MB synchronising, ID 20
	4		MB synchronising, ID 21
	5		MB synchronising, ID 22
	6		MB synchronising, ID 23
	7		MB synchronising, ID 24
	8		MB synchronising, ID 25
	9		MB synchronising, ID 26
	10		MB synchronising, ID 27
	11		MB synchronising, ID 28
	12		MB synchronising, ID 29
	13		MB synchronising, ID 30
	14		MB synchronising, ID 31
	15		MB synchronising, ID 32
1719	0		TB pos. ON, ID 17
	1		TB pos. ON, ID 18
	2		TB pos. ON, ID 19
	3		TB pos. ON, ID 20
	4		TB pos. ON, ID 21
	5		TB pos. ON, ID 22
	6		TB pos. ON, ID 23
	7		TB pos. ON, ID 24
	8		TB pos. ON, ID 25
	9		TB pos. ON, ID 26

Function code 4			
Address	**bit**	**Content**	
	10		TB pos. ON, ID 27
	11		TB pos. ON, ID 28
	12		TB pos. ON, ID 29
	13		TB pos. ON, ID 30
	14		TB pos. ON, ID 31
	15		TB pos. ON, ID 32
1720	0		TB pos. OFF, ID 17
	1		TB pos. OFF, ID 18
	2		TB pos. OFF, ID 19
	3		TB pos. OFF, ID 20
	4		TB pos. OFF, ID 21
	5		TB pos. OFF, ID 22
	6		TB pos. OFF, ID 23
	7		TB pos. OFF, ID 24
	8		TB pos. OFF, ID 25
	9		TB pos. OFF, ID 26
	10		TB pos. OFF, ID 27
	11		TB pos. OFF, ID 28
	12		TB pos. OFF, ID 29
	13		TB pos. OFF, ID 30
	14		TB pos. OFF, ID 31
	15		TB pos. OFF, ID 32
1721	0		TB synchronising, ID 17
	1		TB synchronising, ID 18
	2		TB synchronising, ID 19
	3		TB synchronising, ID 20
	4		TB synchronising, ID 21
	5		TB synchronising, ID 22
	6		TB synchronising, ID 23
	7		TB synchronising, ID 24
	8		TB synchronising, ID 25
	9		TB synchronising, ID 26
	10		TB synchronising, ID 27
	11		TB synchronising, ID 28
	12		TB synchronising, ID 29
	13		TB synchronising, ID 30

Function code 4			
Address	**bit**	**Content**	
	14		TB synchronising, ID 31
	15		TB synchronising, ID 32
1722	0		Any alarms, ID 33
	1		Any alarms, ID 34
	2		Any alarms, ID 35
	3		Any alarms, ID 36
	4		Any alarms, ID 37
	5		Any alarms, ID 38
	6		Any alarms, ID 39
	7		Any alarms, ID 40
1723	0		BTB pos. ON, ID 33
	1		BTB pos. ON, ID 34
	2		BTB pos. ON, ID 35
	3		BTB pos. ON, ID 36
	4		BTB pos. ON, ID 37
	5		BTB pos. ON, ID 38
	6		BTB pos. ON, ID 39
	7		BTB pos. ON, ID 40
1724	0		BTB pos. OFF, ID 33
	1		BTB pos. OFF, ID 34
	2		BTB pos. OFF, ID 35
	3		BTB pos. OFF, ID 36
	4		BTB pos. OFF, ID 37
	5		BTB pos. OFF, ID 38
	6		BTB pos. OFF, ID 39
	7		BTB pos. OFF, ID 40
1725	0		BTB synchronising, ID 33
	1		BTB synchronising, ID 34
	2		BTB synchronising, ID 35
	3		BTB synchronising, ID 36
	4		BTB synchronising, ID 37
	5		BTB synchronising, ID 38

Function code 4			
Address	**bit**	**Content**	
	6		BTB synchronising, ID 39
	7		BTB synchronising, ID 40
1726	0		Ext. comm. error, ID 1
	1		Ext. comm. error, ID 2
	2		Ext. comm. error, ID 3
	3		Ext. comm. error, ID 4
	4		Ext. comm. error, ID 5
	5		Ext. comm. error, ID 6
	6		Ext. comm. error, ID 7
	7		Ext. comm. error, ID 8
	8		Ext. comm. error, ID 9
	9		Ext. comm. error, ID 10
	10		Ext. comm. error, ID 11
	11		Ext. comm. error, ID 12
	12		Ext. comm. error, ID 13
	13		Ext. comm. error, ID 14
	14		Ext. comm. error, ID 15
	15		Ext. comm. error, ID 16
1727	0		Ext. comm. error, ID 17
	1		Ext. comm. error, ID 18
	2		Ext. comm. error, ID 19
	3		Ext. comm. error, ID 20
	4		Ext. comm. error, ID 21
	5		Ext. comm. error, ID 22
	6		Ext. comm. error, ID 23
	7		Ext. comm. error, ID 24
	8		Ext. comm. error, ID 25
	9		Ext. comm. error, ID 26
	10		Ext. comm. error, ID 27
	11		Ext. comm. error, ID 28
	12		Ext. comm. error, ID 29
	13		Ext. comm. error, ID 30
	14		Ext. comm. error, ID 31
	15		Ext. comm. error, ID 32
1728	0		Ext. comm. error, ID 33

Function code 4			
Address	**bit**	**Content**	
	1		Ext. comm. error, ID 34
	2		Ext. comm. error, ID 35
	3		Ext. comm. error, ID 36
	4		Ext. comm. error, ID 37
	5		Ext. comm. error, ID 38
	6		Ext. comm. error, ID 39
	7		Ext. comm. error, ID 40
1729			*Not used*
1730			*Not used*
1731			*Not used*
1732	0		BB Hz/V OK, ID 1
	1		BB Hz/V OK, ID 2
	2		BB Hz/V OK, ID 3
	3		BB Hz/V OK, ID 4
	4		BB Hz/V OK, ID 5
	5		BB Hz/V OK, ID 6
	6		BB Hz/V OK, ID 7
	7		BB Hz/V OK, ID 8
	8		BB Hz/V OK, ID 9
	9		BB Hz/V OK, ID 10
	10		BB Hz/V OK, ID 11
	11		BB Hz/V OK, ID 12
	12		BB Hz/V OK, ID 13
	13		BB Hz/V OK, ID 14
	14		BB Hz/V OK, ID 15
	15		BB Hz/V OK, ID 16
1733	0		BB Hz/V OK, ID 17
	1		BB Hz/V OK, ID 18
	2		BB Hz/V OK, ID 19
	3		BB Hz/V OK, ID 20
	4		BB Hz/V OK, ID 21
	5		BB Hz/V OK, ID 22
	6		BB Hz/V OK, ID 23
	7		BB Hz/V OK, ID 24
	8		BB Hz/V OK, ID 25
	9		BB Hz/V OK, ID 26

Function code 4			
Address	**bit**	**Content**	
	10		BB Hz/V OK, ID 27
	11		BB Hz/V OK, ID 28
	12		BB Hz/V OK, ID 29
	13		BB Hz/V OK, ID 30
	14		BB Hz/V OK, ID 31
	15		BB Hz/V OK, ID 32
1734	0		BB Hz/V OK, ID 33
	1		BB Hz/V OK, ID 34
	2		BB Hz/V OK, ID 35
	3		BB Hz/V OK, ID 36
	4		BB Hz/V OK, ID 37
	5		BB Hz/V OK, ID 38
	6		BB Hz/V OK, ID 39
	7		BB Hz/V OK, ID 40
1735	0		BB Hz/V present, ID 1
	1		BB Hz/V present, ID 2
	2		BB Hz/V present, ID 3
	3		BB Hz/V present, ID 4
	4		BB Hz/V present, ID 5
	5		BB Hz/V present, ID 6
	6		BB Hz/V present, ID 7
	7		BB Hz/V present, ID 8
	8		BB Hz/V present, ID 9
	9		BB Hz/V present, ID 10
	10		BB Hz/V present, ID 11
	11		BB Hz/V present, ID 12
	12		BB Hz/V present, ID 13
	13		BB Hz/V present, ID 14
	14		BB Hz/V present, ID 15
	15		BB Hz/V present, ID 16
1736	0		BB Hz/V present, ID 17
	1		BB Hz/V present, ID 18
	2		BB Hz/V present, ID 19
	3		BB Hz/V present, ID 20
	4		BB Hz/V present, ID 21
	5		BB Hz/V present, ID 22

Function code 4			
Address	**bit**	**Content**	
	6		BB Hz/V present, ID 23
	7		BB Hz/V present, ID 24
	8		BB Hz/V present, ID 25
	9		BB Hz/V present, ID 26
	10		BB Hz/V present, ID 27
	11		BB Hz/V present, ID 28
	12		BB Hz/V present, ID 29
	13		BB Hz/V present, ID 30
	14		BB Hz/V present, ID 31
	15		BB Hz/V present, ID 32
1737	0		BB Hz/V present, ID 33
	1		BB Hz/V present, ID 34
	2		BB Hz/V present, ID 35
	3		BB Hz/V present, ID 36
	4		BB Hz/V present, ID 37
	5		BB Hz/V present, ID 38
	6		BB Hz/V present, ID 39
	7		BB Hz/V present, ID 40
1738	0		BA Hz/V OK, ID 32
	1		BA Hz/V OK, ID 33
	2		BA Hz/V OK, ID 34
	3		BA Hz/V OK, ID 35
	4		BA Hz/V OK, ID 36
	5		BA Hz/V OK, ID 37
	6		BA Hz/V OK, ID 38
	7		BA Hz/V OK, ID 39
1739	0		DG Hz/V present, ID 1
	1		DG Hz/V present, ID 2
	2		DG Hz/V present, ID 3
	3		DG Hz/V present, ID 4
	4		DG Hz/V present, ID 5
	5		DG Hz/V present, ID 6
	6		DG Hz/V present, ID 7
	7		DG Hz/V present, ID 8
	8		DG Hz/V present, ID 9
	9		DG Hz/V present, ID 10

Function code 4			
Address	**bit**	**Content**	
	10		DG Hz/V present, ID 11
	11		DG Hz/V present, ID 12
	12		DG Hz/V present, ID 13
	13		DG Hz/V present, ID 14
	14		DG Hz/V present, ID 15
	15		DG Hz/V present, ID 16
1740	0		DG Hz/V present, ID 17
	1		DG Hz/V present, ID 18
	2		DG Hz/V present, ID 19
	3		DG Hz/V present, ID 20
	4		DG Hz/V present, ID 21
	5		DG Hz/V present, ID 22
	6		DG Hz/V present, ID 23
	7		DG Hz/V present, ID 24
	8		DG Hz/V present, ID 25
	9		DG Hz/V present, ID 26
	10		DG Hz/V present, ID 27
	11		DG Hz/V present, ID 28
	12		DG Hz/V present, ID 29
	13		DG Hz/V present, ID 30
	14		DG Hz/V present, ID 31
	15		DG Hz/V present, ID 32
1741	0		DG Hz/V present, ID 33
	1		DG Hz/V present, ID 34
	2		DG Hz/V present, ID 35
	3		DG Hz/V present, ID 36
	4		DG Hz/V present, ID 37
	5		DG Hz/V present, ID 38
	6		DG Hz/V present, ID 39
	7		DG Hz/V present, ID 40
1742			*Not used*
1743	0		Redundant backup present ID 1
	1		Redundant backup present ID 2
	2		Redundant backup present ID 3

Function code 4			
Address	**bit**	**Content**	
	3		Redundant backup present ID 4
	4		Redundant backup present ID 5
	5		Redundant backup present ID 6
	6		Redundant backup present ID 7
	7		Redundant backup present ID 8
	8		Redundant backup present ID 9
	9		Redundant backup present ID 10
	10		Redundant backup present ID 11
	11		Redundant backup present ID 12
	12		Redundant backup present ID 13
	13		Redundant backup present ID 14
	14		Redundant backup present ID 15
	15		Redundant backup present ID 16
1744	0		Redundant backup present ID 17
	1		Redundant backup present ID 18
	2		Redundant backup present ID 19
	3		Redundant backup present ID 20
	4		Redundant backup present ID 21
	5		Redundant backup present ID 22
	6		Redundant backup present ID 23

Function code 4			
Address	**bit**	**Content**	
	7		Redundant backup present ID 24
	8		Redundant backup present ID 25
	9		Redundant backup present ID 26
	10		Redundant backup present ID 27
	11		Redundant backup present ID 28
	12		Redundant backup present ID 29
	13		Redundant backup present ID 30
	14		Redundant backup present ID 31
	15		Redundant backup present ID 32
1745	0		Redundant backup present ID 33
	1		Redundant backup present ID 34
	2		Redundant backup present ID 35
	3		Redundant backup present ID 36
	4		Redundant backup present ID 37
	5		Redundant backup present ID 38
	6		Redundant backup present ID 39
	7		Redundant backup present ID 40
1746	0		B controller ID 1
	1		B controller ID 2
	2		B controller ID 3
	3		B controller ID 4
	4		B controller ID 5
	5		B controller ID 6

Function code 4			
Address	**bit**	**Content**	
	6		B controller ID 7
	7		B controller ID 8
	8		B controller ID 9
	9		B controller ID 10
	10		B controller ID 11
	11		B controller ID 12
	12		B controller ID 13
	13		B controller ID 14
	14		B controller ID 15
	15		B controller ID 16
1747	0		B controller ID 17
	1		B controller ID 18
	2		B controller ID 19
	3		B controller ID 20
	4		B controller ID 21
	5		B controller ID 22
	6		B controller ID 23
	7		B controller ID 24
	8		B controller ID 25
	9		B controller ID 26
	10		B controller ID 27
	11		B controller ID 28
	12		B controller ID 29
	13		B controller ID 30
	14		B controller ID 31
	15		B controller ID 32
1748	0		B controller ID 33
	1		B controller ID 34
	2		B controller ID 35
	3		B controller ID 36
	4		B controller ID 37
	5		B controller ID 38
	6		B controller ID 39
	7		B controller ID 40
1749-1771			*Not used*
1772	0		Controller in Auto – ID33

Function code 4			
Address	**bit**	**Content**	
	1		Controller in Auto – ID34
	2		Controller in Auto – ID35
	3		Controller in Auto – ID36
	4		Controller in Auto – ID37
	5		Controller in Auto – ID38
	6		Controller in Auto – ID39
	7		Controller in Auto – ID40
1773	0		Load Group 1 Pos ON – ID 33
	1		Load Group 1 Pos ON – ID 34
	2		Load Group 1 Pos ON – ID 35
	3		Load Group 1 Pos ON – ID 36
	4		Load Group 1 Pos ON – ID 37
	5		Load Group 1 Pos ON – ID 38
	6		Load Group 1 Pos ON – ID 39
	7		Load Group 1 Pos ON – ID 40
1774	0		Load Group 2 Pos ON – ID 33
	1		Load Group 2 Pos ON – ID 34
	2		Load Group 2 Pos ON – ID 35
	3		Load Group 2 Pos ON – ID 36
	4		Load Group 2 Pos ON – ID 37
	5		Load Group 2 Pos ON – ID 38
	6		Load Group 2 Pos ON – ID 39
	7		Load Group 2 Pos ON – ID 40

Function code 4			
Address	**bit**	**Content**	
1775	0		Load Group 3 Pos ON – ID 33
	1		Load Group 3 Pos ON – ID 34
	2		Load Group 3 Pos ON – ID 35
	3		Load Group 3 Pos ON – ID 36
	4		Load Group 3 Pos ON – ID 37
	5		Load Group 3 Pos ON – ID 38
	6		Load Group 3 Pos ON – ID 39
	7		Load Group 3 Pos ON – ID 40
1776	0		Load Group 4 Pos ON – ID 33
	1		Load Group 4 Pos ON – ID 34
	2		Load Group 4 Pos ON – ID 35
	3		Load Group 4 Pos ON – ID 36
	4		Load Group 4 Pos ON – ID 37
	5		Load Group 4 Pos ON – ID 38
	6		Load Group 4 Pos ON – ID 39
	7		Load Group 4 Pos ON – ID 40
1777	0		Load Group 5 Pos ON – ID 33
	1		Load Group 5 Pos ON – ID 34
	2		Load Group 5 Pos ON – ID 35
	3		Load Group 5 Pos ON – ID 36

Function code 4			
Address	**bit**	**Content**	
	4		Load Group 5 Pos ON – ID 37
	5		Load Group 5 Pos ON – ID 38
	6		Load Group 5 Pos ON – ID 39
	7		Load Group 5 Pos ON – ID 40
1778	0		Load Group 6 Pos ON – ID 33
	1		Load Group 6 Pos ON – ID 34
	2		Load Group 6 Pos ON – ID 35
	3		Load Group 6 Pos ON – ID 36
	4		Load Group 6 Pos ON – ID 37
	5		Load Group 6 Pos ON – ID 38
	6		Load Group 6 Pos ON – ID 39
	7		Load Group 6 Pos ON – ID 40
1779	0		Load Group 7 Pos ON – ID 33
	1		Load Group 7 Pos ON – ID 34
	2		Load Group 7 Pos ON – ID 35
	3		Load Group 7 Pos ON – ID 36
	4		Load Group 7 Pos ON – ID 37
	5		Load Group 7 Pos ON – ID 38
	6		Load Group 7 Pos ON – ID 39
	7		Load Group 7 Pos ON – ID 40

Function code 4			
Address	**bit**	**Content**	
1780	0		Load Group 8 Pos ON – ID 33
	1		Load Group 8 Pos ON – ID 34
	2		Load Group 8 Pos ON – ID 35
	3		Load Group 8 Pos ON – ID 36
	4		Load Group 8 Pos ON – ID 37
	5		Load Group 8 Pos ON – ID 38
	6		Load Group 8 Pos ON – ID 39
	7		Load Group 8 Pos ON – ID 40
1781	0		Load Group 1 Pos OFF – ID 33
	1		Load Group 1 Pos OFF – ID 34
	2		Load Group 1 Pos OFF – ID 35
	3		Load Group 1 Pos OFF – ID 36
	4		Load Group 1 Pos OFF – ID 37
	5		Load Group 1 Pos OFF – ID 38
	6		Load Group 1 Pos OFF – ID 39
	7		Load Group 1 Pos OFF – ID 40
1782	0		Load Group 2 Pos OFF – ID 33
	1		Load Group 2 Pos OFF – ID 34
	2		Load Group 2 Pos OFF – ID 35
	3		Load Group 2 Pos OFF – ID 36

Function code 4			
Address	**bit**	**Content**	
	4		Load Group 2 Pos OFF – ID 37
	5		Load Group 2 Pos OFF – ID 38
	6		Load Group 2 Pos OFF – ID 39
	7		Load Group 2 Pos OFF – ID 40
1783	0		Load Group 3 Pos OFF – ID 33
	1		Load Group 3 Pos OFF – ID 34
	2		Load Group 3 Pos OFF – ID 35
	3		Load Group 3 Pos OFF – ID 36
	4		Load Group 3 Pos OFF – ID 37
	5		Load Group 3 Pos OFF – ID 38
	6		Load Group 3 Pos OFF – ID 39
	7		Load Group 3 Pos OFF – ID 40
1784	0		Load Group 4 Pos OFF – ID 33
	1		Load Group 4 Pos OFF – ID 34
	2		Load Group 4 Pos OFF – ID 35
	3		Load Group 4 Pos OFF – ID 36
	4		Load Group 4 Pos OFF – ID 37
	5		Load Group 4 Pos OFF – ID 38
	6		Load Group 4 Pos OFF – ID 39
	7		Load Group 4 Pos OFF – ID 40

Function code 4			
Address	**bit**	**Content**	
1785	0		Load Group 5 Pos OFF – ID 33
	1		Load Group 5 Pos OFF – ID 34
	2		Load Group 5 Pos OFF – ID 35
	3		Load Group 5 Pos OFF – ID 36
	4		Load Group 5 Pos OFF – ID 37
	5		Load Group 5 Pos OFF – ID 38
	6		Load Group 5 Pos OFF – ID 39
	7		Load Group 5 Pos OFF – ID 40
1786	0		Load Group 6 Pos OFF – ID 33
	1		Load Group 6 Pos OFF – ID 34
	2		Load Group 6 Pos OFF – ID 35
	3		Load Group 6 Pos OFF – ID 36
	4		Load Group 6 Pos OFF – ID 37
	5		Load Group 6 Pos OFF – ID 38
	6		Load Group 6 Pos OFF – ID 39
	7		Load Group 6 Pos OFF – ID 40
1787	0		Load Group 7 Pos OFF – ID 33
	1		Load Group 7 Pos OFF – ID 34
	2		Load Group 7 Pos OFF – ID 35
	3		Load Group 7 Pos OFF – ID 36

Function code 4			
Address	**bit**	**Content**	
	4		Load Group 7 Pos OFF – ID 37
	5		Load Group 7 Pos OFF – ID 38
	6		Load Group 7 Pos OFF – ID 39
	7		Load Group 7 Pos OFF – ID 40
1788	0		Load Group 8 Pos OFF – ID 33
	1		Load Group 8 Pos OFF – ID 34
	2		Load Group 8 Pos OFF – ID 35
	3		Load Group 8 Pos OFF – ID 36
	4		Load Group 8 Pos OFF – ID 37
	5		Load Group 8 Pos OFF – ID 38
	6		Load Group 8 Pos OFF – ID 39
	7		Load Group 8 Pos OFF – ID 40
1789	0		Load Group 1 enabled – ID 33
	1		Load Group 1 enabled – ID 34
	2		Load Group 1 enabled – ID 35
	3		Load Group 1 enabled – ID 36
	4		Load Group 1 enabled – ID 37
	5		Load Group 1 enabled – ID 38
	6		Load Group 1 enabled – ID 39
	7		Load Group 1 enabled – ID 40

Function code 4			
Address	**bit**	**Content**	
1790	0		Load Group 2 enabled – ID 33
	1		Load Group 2 enabled – ID 34
	2		Load Group 2 enabled – ID 35
	3		Load Group 2 enabled – ID 36
	4		Load Group 2 enabled – ID 37
	5		Load Group 2 enabled – ID 38
	6		Load Group 2 enabled – ID 39
	7		Load Group 2 enabled – ID 40
1791	0		Load Group 3 enabled – ID 33
	1		Load Group 3 enabled – ID 34
	2		Load Group 3 enabled – ID 35
	3		Load Group 3 enabled – ID 36
	4		Load Group 3 enabled – ID 37
	5		Load Group 3 enabled – ID 38
	6		Load Group 3 enabled – ID 39
	7		Load Group 3 enabled – ID 40
1792	0		Load Group 4 enabled – ID 33
	1		Load Group 4 enabled – ID 34
	2		Load Group 4 enabled – ID 35
	3		Load Group 4 enabled – ID 36

Function code 4			
Address	**bit**	**Content**	
	4		Load Group 4 enabled – ID 37
	5		Load Group 4 enabled – ID 38
	6		Load Group 4 enabled – ID 39
	7		Load Group 4 enabled – ID 40
1793	0		Load Group 5 enabled – ID 33
	1		Load Group 5 enabled – ID 34
	2		Load Group 5 enabled – ID 35
	3		Load Group 5 enabled – ID 36
	4		Load Group 5 enabled – ID 37
	5		Load Group 5 enabled – ID 38
	6		Load Group 5 enabled – ID 39
	7		Load Group 5 enabled – ID 40
1794	0		Load Group 6 enabled – ID 33
	1		Load Group 6 enabled – ID 34
	2		Load Group 6 enabled – ID 35
	3		Load Group 6 enabled – ID 36
	4		Load Group 6 enabled – ID 37
	5		Load Group 6 enabled – ID 38
	6		Load Group 6 enabled – ID 39
	7		Load Group 6 enabled – ID 40

Function code 4			
Address	**bit**	**Content**	
1795	0		Load Group 7 enabled – ID 33
	1		Load Group 7 enabled – ID 34
	2		Load Group 7 enabled – ID 35
	3		Load Group 7 enabled – ID 36
	4		Load Group 7 enabled – ID 37
	5		Load Group 7 enabled – ID 38
	6		Load Group 7 enabled – ID 39
	7		Load Group 7 enabled – ID 40
1796	0		Load Group 8 enabled – ID 33
	1		Load Group 8 enabled – ID 34
	2		Load Group 8 enabled – ID 35
	3		Load Group 8 enabled – ID 36
	4		Load Group 8 enabled – ID 37
	5		Load Group 8 enabled – ID 38
	6		Load Group 8 enabled – ID 39
	7		Load Group 8 enabled – ID 40

5. Data tables read (03h)/write (10h)

5.1 Control register table

Function code read 3/Write 16			
Address	**bit**	**Content**	
0			*Not used*
1			*Not used*
2			*Not used*
3			*Not used*
4			*Not used*
5	0		This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.
	1		*Not used*
	2		*Not used*
	3		*Not used*
	4		*Not used*
	5		*Not used*
	6		*Not used*
	7		Alarm inhibit 1
	8		Alarm inhibit 2
	9		Alarm inhibit 3
	10		Alarm ack. this bit is automatically reset
	11		Nominal setting 1
	12		Nominal setting 2
	13		*Not used*
	14		*Not used*
	15		*Not used*
6	0		This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.
	1		Load Group 1 ON
	2		Load Group 1 OFF
	3		Load Group 2 ON

Function code read 3/Write 16			
Address	**bit**	**Content**	
	4		Load Group 2 OFF
	5		Load Group 3 ON
	6		Load Group 3 OFF
	7		Load Group 4 ON
	8		Load Group 4 OFF
	9		Load Group 5 ON
	10		Load Group 5 OFF
	11		Load Group 6 ON
	12		Load Group 6 OFF
7	0		This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.
	1		Load Group 7 ON
	2		Load Group 7 OFF
	3		Load Group 8 ON
	4		Load Group 8 OFF
	5		Semi-auto mode
	6		Auto mode
	7		*Not used*
	8		*Not used*
	9		Application 1
	10		Application 2
	11		Application 3
	12		Application 4
	13		Battery test
	14		*Not used*
	15		Synchronise clock to 4:00 AM
8	0		This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored
	1		Virtual 1
	2		Virtual 2
	3		Virtual 3

Function code read 3/Write 16			
Address	**bit**	**Content**	
	4		Virtual 4
	5		Virtual 5
	6		Virtual 6
	7		Virtual 7
	8		Virtual 8
	9		Virtual 9
	10		Virtual 10
	11		Virtual 11
	12		Virtual 12
	13		Virtual 13
	14		Virtual 14
	15		Virtual 15
9	0		This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored
	1		Virtual 16
	2		Virtual 17
	3		Virtual 18
	4		Virtual 19
	5		Virtual 20
	6		Virtual 21
	7		Virtual 22
	8		Virtual 23
	9		Virtual 24
	10		Virtual 25
	11		Virtual 26
	12		Virtual 27
	13		Virtual 28
	14		Virtual 29
	15		Virtual 30
10	0		This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored
	1		Virtual 31

Function code read 3/Write 16			
Address	**bit**	**Content**	
	2		Virtual 32
	3		
	4		Clear log
	5		Clear all parameter edit flags
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
11			
12			
13			
58000	Year		2010-2099
58001	Month		1-12
58002	Date		1-31
58003	Day		1 to 7 (Monday to Sunday)
58004	Hour		0-23
58005	Min.		0-59
58006	Sec.		0-59

6. Data tables (write only, function code 15)

6.1 Command flags table

Function code 15			
Address	**bit**	**Content**	
0			
1			
2			
3			
4			
5			
6			
7			*Not used*
8			*Not used*
9			Alarm Acknowledge
10			Nominal setting 1
11			Nominal setting 2
12			Nominal setting 3
13			Nominal setting 4
14			*Not used*
15			*Not used*
16			Load Group 1 ON
17			Load Group 1 OFF
18			Load Group 2 ON
19			Load Group 2 OFF
20			Load Group 3 ON
21			Load Group 3 OFF
22			Load Group 4 ON
23			Load Group 4 OFF
24			Load Group 5 ON
25			Load Group 5 OFF
26			Load Group 6 ON
27			Load Group 6 OFF
28			Load Group 7 ON
29			Load Group 7 OFF
30			Load Group 8 ON

Function code 15			
Address	**bit**	**Content**	
31			Load Group 8 OFF
32			Semi-Auto mode
33			Auto mode
34			*Not used*
35			*Not used*
36			*Not used*
37			*Not used*
38			*Not used*
39			*Not used*
40			Application 1
41			Application 2
42			Application 3
43			Application 4
44			Battery test
45			*Not used*
46			Synchronise clock to 4:00 a.m.
47			*Not used*
48			Virtual event 1
49			Virtual event 2
50			Virtual event 3
51			Virtual event 4
52			Virtual event 5
53			Virtual event 6
54			Virtual event 7
55			Virtual event 8
56			Virtual event 9
57			Virtual event 10
58			Virtual event 11
59			Virtual event 12
60			Virtual event 13
61			Virtual event 14
62			Virtual event 15
63			Virtual event 16
64			Virtual event 17
65			Virtual event 18
66			Virtual event 19

Function code 15			
Address	**bit**	**Content**	
67			Virtual event 20
68			Virtual event 21
69			Virtual event 22
70			Virtual event 23
71			Virtual event 24
72			Virtual event 25
73			Virtual event 26
74			Virtual event 27
75			Virtual event 28
76			Virtual event 29
77			Virtual event 30
78			Virtual event 31
79			Virtual event 32

7. Data tables (read only, function code 02)

7.1 Status flags table

Function code 2			
Address	**bit**	**Content**	
0-7			*Not used*
8			Semi-auto mode
9			Auto mode
10-19			*Not used*
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 (mains command unit)
29			*Not used*
30			*Not used*
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

7.2 Digital input table

Function code 2			
Address	**bit**	**Content**	
22500			Digital input 97
22501			Digital input 96
22502			Digital input 95
22503			Digital input 94
22504			Digital input 93
22505			Digital input 92
22506			Digital input 91
22507			Digital input 133
22508			Digital input 132
22509			Digital input 131
22510			Digital input 130
22511			Digital input 129
22512			Digital input 128
22513			Digital input 127
22514			Digital input 29
22515			Digital input 30
22516			Digital input 31
22517			Digital input 32
22518			Digital input 33
22519			Digital input 34
22520			Digital input 35
22521			
22522			
22523			
22524			
22525			
22526			
22527			
22528			Digital input 43
22529			Digital input 44
22530			Digital input 45
22531			Digital input 46
22532			Digital input 47
22533			Digital input 48

Function code 2			
Address	**bit**	**Content**	
22534			Digital input 49
22535			Digital input 50
22536			Digital input 51
22537			Digital input 52
22538			Digital input 53
22539			Digital input 54
22540			Digital input 55
22541			Digital input 23
22542			Digital input 24
22543			Digital input 25
22544			Digital input 26
22545			Digital input 27
22546			
22547			
22548			
22549			
22550			
22551			
22552			
22553			
22554			
22555			
22556			
22557			
22558			
22559			
22560			
22561			
22562			
22563			
22564			
22565			
22566			
22567			
22568			
22569			

Function code 2			
Address	**bit**	**Content**	
22570			
22571			
22572			
22573			
22574			
22575			
22576			
22577			
22578			
22579			
22580			
22581			
22582			
22583			Digital input (emer. stop) 118
22584			Digital input 117
22585			Digital input 116
22586			Digital input 115
22587			Digital input 114
22588			Digital input 113
22589			Digital input 112
22590			Stop coil superv. 123
22591			Multi-func. Input 108
22592			Multi-func. Input 105
22593			Multi-func. input 102

7.3 Digital output table

Address	bit	Content	
23000			Relay 65
23001			Relay 67
23002			Relay 69
23003			Relay 71
23004			Relay 132
23005			Relay 130
23006			Relay 128
23007			Relay 126
23008			Relay 96
23009			Relay 94
23010			Relay 92
23011			Relay 90
23012			
23013			
23014			
23015			
23016			Relay 57
23017			Relay 59
23018			Relay 61
23019			Relay 63
23020			
23021			
23022			
23023			
23024			
23025			Relay 5
23026			Relay 8
23027			Relay 11
23028			Relay 14
23029			Relay 17
23030			Relay T20
23031			Relay T21
23032			
23033			
23034			

Address	bit	Content	
23035			
23036			
23037			
23038			
23039			
23040			
23041			
23042			
23043			
23044			
23045			
23046			
23047			
23048			
23049			
23050			
23051			
23052			
23053			LED CAN B
23054			LED CAN A
23055			LED USB

8. Parameter table

8.1 Parameter table reading and writing

8.1.1 Function code 01 read/write flag status

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

Function code 01 read/write flag status
Reads the ON/OFF status of discrete flags in the slave unit.

Address area for reading of status flags:

Data to request	Table	Address area
Enable	Parameter table	2000-3999

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

8.1.2 Function code 02 read flag status

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

Address area for reading of status flags:

Data to request	Table	Address area
Alarm active	Parameter table	4000-5999
Alarm status acknowledge	Parameter table	6000-7999
Timer output	Parameter table	8000-9999
Timer running	Parameter table	10000-11999

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

8.1.3 Function code 03 read/write registers

Reads the digital of registers in the slave unit.

Address area for reading of registers:

Data to request	Table	Address area
Timers used	Parameter table	2000-3999
Values used	Parameter table	4000-4999
Values minimum	Parameter table	6000-7999
Values maximum	Parameter table	8000-9999
Output a	Parameter table	10000-11999
Output b	Parameter table	12000-13999
Fail class used	Parameter table	14000-15999
Enable	Parameter table	16000-17999
Inhibit	Parameter table	18000-19999

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

8.1.4 Function code 04 read registers

Reads the digital of registers in the slave unit.

Address area for reading of registers:

Data to request	Table	Address area
Timers minimum	Parameter table	2000-3999
Timers maximum	Parameter table	4000-4999
Output a minimum	Parameter table	6000-7999
Output a maximum	Parameter table	8000-9999
Output b minimum	Parameter table	10000-11999
Output b maximum	Parameter table	12000-13999
Fail class minimum	Parameter table	14000-15999
Fail class maximum	Parameter table	16000-17999
Timers elapsed time	Parameter table	20000-21999

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

8.1.5 Function code 15 write multiple flags, function code 05 write single flag

Writes each flag (0 x reference) in a sequence of flags to either ON or OFF.

Address area for writing of status flags:

Data to request	Table	Address area
Enable	Parameter table	2000-3999
Ack. alarm	Parameter table	6000-7999

8.1.6 Function code 16 write multiple registers, function code 06 write single register

Writes values into a sequence of registers.

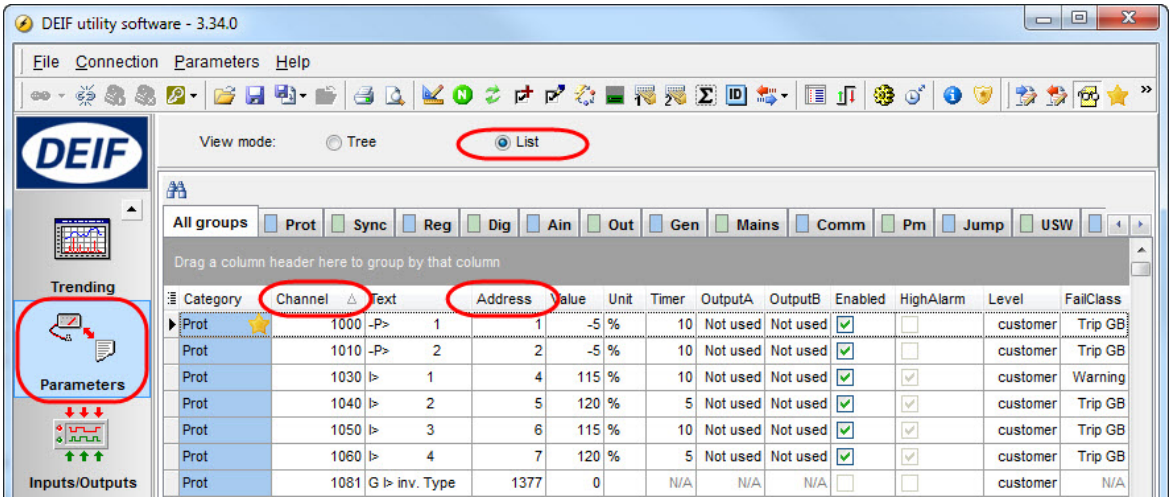
Address area for writing of registers:

Data to request	Table	Address area
Timers used	Parameter table	2000-3999
Values used	Parameter table	4000-4999
Output a	Parameter table	10000-11999
Output b	Parameter table	12000-13999
Fail class used	Parameter table	14000-15999
Enable	Parameter table	16000-17999
Inhibit	Parameter table	18000-19999

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

8.1.7 Parameter addresses

Parameters/channel and Modbus address numbers can be found in the utility software - Parameters.
View mode needs to be: List.



Addresses found in the utility software are the offset address, which are to be used in combination with the previous mentioned address areas.

8.1.8 Examples

Write nominal frequency 2 (6011), offset 413, 60 Hz
ID = 1, 60Hz = 600 Hz/10 = 0258h
Address 4000 + 413 = 4413d = 113Dh
Tx: 01h 10h 11h 3Dh 00h 01h 02h 02h 58h A3h 26h
Rx: 01h 10h 11h 3Dh 00h 01h 95h 39h

Read nominal frequency 2 (6011) offset 413, 60 Hz
Tx: 01h 03h 11h 3Dh 00h 01h 10h FAh
Rx: 01h 03h 02h 02h 58h B8h DEh
Read 0258h = 600d