MULTI-LINE 2
DESCRIPTION OF OPTIONS



Options H2 and H9
Modbus communication

- Description of options
- Data tables
- Parameter tables

DEIF A/S · Frisenborgvej 33 · DK-7800 Skive
Tel.: +45 9614 9614 · Fax: +45 9614 9615
info@deif.com · www.deif.com

Document no.: 4189340442Z

This description of options covers the following products:

AGC-3	SW version 3.6x.x or later
AGC 100	SW version 4.0x.x or later
GPC-3/GPU-3 Hydro	SW version 3.1x.x or later
GPU-3/PPU-3	SW version 3.08.x or later
PPM-3	SW version 3.0x.x or later

Table of contents

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

Option H2

Terminal description AGC/GPC/GPU/PPM/PPU

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	DATA 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

Terminal description AGC 100

Term.	Function	Description
49	DATA - (B)	Modbus RTU, RS-485
50	DATA GND	
51	DATA + (A)	

Hardware settings

These are the RS-485 hardware settings:

a. 9600 or 19200 bps
b. 8 data bits
c. None parity
d. 1 stop bit
e. No flow control

Option H9

AGC-3, AGC 100 and PPM: Option H9 is not available.

Terminal description

Option H9.2 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.

H9.2

Term.	Function	Description
29		Modbus RTU, RS-232
30	DATA GND	
31		
32	TxD	
33		
34	RxD	
35		
36		

Hardware settings

These are the RS-232 hardware settings:

a. 9600 or 19200 bps
b. 8 data bits
c. None parity
d. 1 stop bit
e. No flow control

Wiring

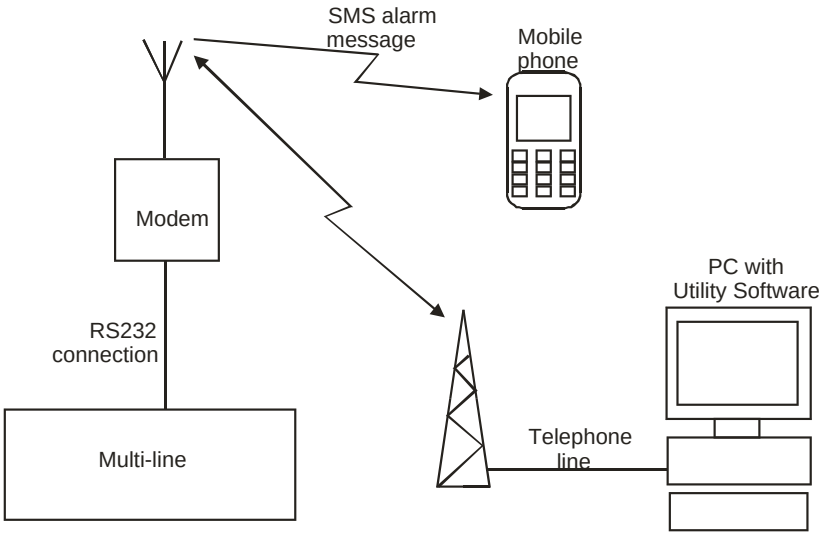
Regarding wiring, see the “Installation Instructions”.

3. Functional description

GSM communication

The GSM modem communication is used to send a GSM message to up to five cellular telephones when an alarm appears on the display.

Principle overview



DEIF recommends using a MOXA OnCell G2150I, Wavecom WMOD2 or Westermo GDW-11 terminal, as the application has been tested with these terminals.

Basic parameter settings

Setting no.	Name	Function	Set to
GSM	GSM PIN code	Set PIN code for GSM modem	None
GSM	12345678901	Set phone no. for SMS to cellular phone 1	None
GSM	12345678901	Set phone no. for SMS to cellular phone 2	None
GSM	12345678901	Set phone no. for SMS to cellular phone 3	None
GSM	12345678901	Set phone no. for SMS to cellular phone 4	None
GSM	12345678901	Set phone no. for SMS to cellular phone 5	None

"+ country code" instead of "00" is always required.

The phone number can only be dialled using the PC utility software.

The SIM card used in the cellular telephone must support data transfer.

PIN code configuration

After each auxiliary supply power up, the unit will send the required PIN code to the modem if this is necessary. The PIN code is adjusted in the PC utility software.

USW communication

It is possible to communicate with the unit via the PC utility software. The purpose is to be able to remote-monitor and control the genset application.

It is possible to remote-control the genset from the PC utility software if a modem is used. Take precautions that it is safe to remote-operate the genset to avoid personal injury or death.

Serial connection

Because of the RS-232 communication, the GSM function is only available with option H9.2 or option J5 for AGC 100.

Setup

The Modbus protocol type can be changed from RTU to ASCII in menu 7510. This menu can only be reached using the JUMP push-button. When set to 1, the ASCII protocol type is used, and the unit will allow for the slower modem communication.

Safety

If communication fails, the unit will operate according to the received data. For example, if only half of the parameter file has been downloaded when the communication is interrupted, the unit will use this actual data.

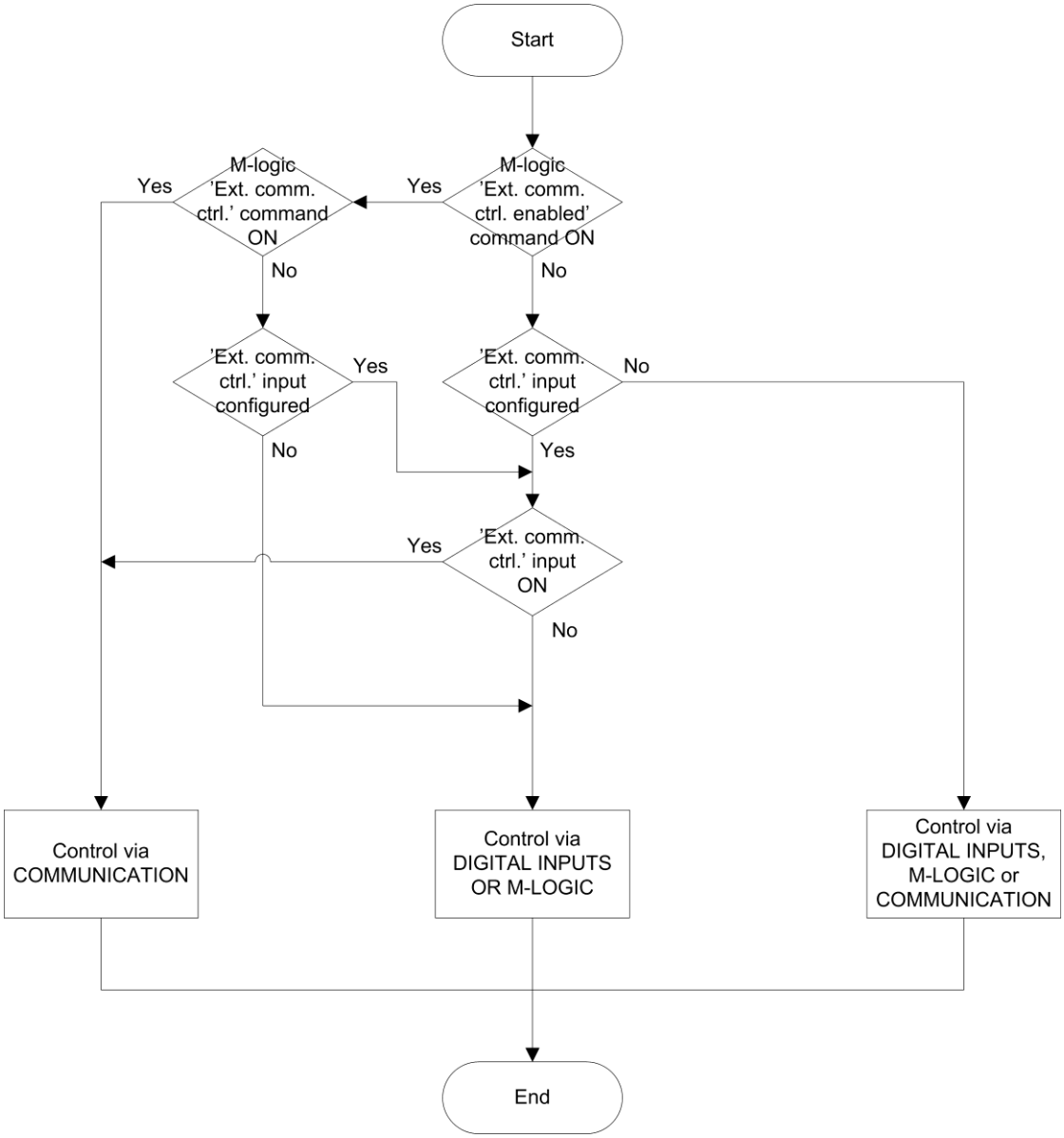
External communication control

Only valid for GPU-3, GPU-3 Hydro, PPU-3 and GPC-3.

With the serial communication, it is possible to control which commands the unit should accept. The possibilities are described below.

Commands accepted from	Description	Setup required
Digital inputs M-Logic External communication	The unit will accept commands from digital inputs, M-Logic and external communication.	Default (no setup required).
Digital inputs M-Logic	Commands from digital inputs and M-Logic are accepted.	Digital input function ”Ext. comm. ctrl.” configured and input OFF OR M-Logic command ”Ext. comm. ctrl. enabled” ON.
External communication	Only commands from external communication are accepted	Digital input function ”Ext. comm. ctrl.” configured and input ON OR M-Logic commands ”Ext. comm. ctrl. enabled” and ”Ext. comm. ctrl.” ON.

”Alarm inhibit” and ”Alarm acknowledge” commands from external communication are always accepted.


Start
M-logic 'Ext. comm. ctrl. enabled' command ON
Yes
M-logic 'Ext. comm. ctrl.' command ON
Yes
No
No
'Ext. comm. ctrl.' input configured
Yes
'Ext. comm. ctrl.' input configured
No
No
Yes
'Ext. comm. ctrl.' input ON
Yes
No
Control via COMMUNICATION
Control via DIGITAL INPUTS OR M-LOGIC
Control via DIGITAL INPUTS, M-LOGIC or COMMUNICATION
End

4. Parameters

The options H2 and H9 relate to the parameters 7500-7520.

For further information, see the separate parameter list for the Multi-line unit in question:

AGC-3	Document no. 4189340705
AGC 100	Document no. 4189340764
GPC-3/GPU-3 Hydro	Document no. 4189340580
GPU-3/PPU-3	Document no. 4189340581
PPM-3	Document no. 4189340672

5. Data tables

Configurable area (read only) (function code 04h)

Columns:
- **"X" means standard feature.**
- **Empty field means not available.**
- **Letter/number combination refers to an option number.**

Analogue values

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
0		U_{L1-L2}	Generator voltage L1-L2 [V]	X				X	X		X	X	X			X	X
		U_{L1-L2}	Mains voltage L1-L2 [V]		X					X							
		U_{L1-L2}	Bus A voltage L1-L2 [V]			X									X		
		U_{L1-L2}	Shore voltage L1-L2 [V]											X			
1		U_{L2-L3}	Generator voltage L2-L3 [V]	X				X	X		X	X	X			X	X
		U_{L2-L3}	Mains voltage L2-L3 [V]		X					X							
		U_{L2-L3}	Bus A voltage L2-L3 [V]			X									X		
		U_{L2-L3}	Shore voltage L2-L3 [V]											X			

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
2		U_{L3-L1}	Generator voltage L3-L1 [V]	X				X	X		X	X	X			X	X
		U_{L3-L1}	Mains voltage L3-L1 [V]		X					X							
		U_{L3-L1}	Bus A voltage L3-L1 [V]			X									X		
		U_{L3-L1}	Shore voltage L3-L1 [V]											X			
3		U_{L1-N}	Generator voltage L1-N [V]	X				X	X		X	X	X			X	X
		U_{L1-N}	Mains voltage L1-N [V]		X					X							
		U_{L1-N}	Bus A voltage L1-N [V]			X									X		
		U_{L1-N}	Shore voltage L1-N [V]											X			
4		U_{L2-N}	Generator voltage L2-N [V]	X				X	X		X	X	X			X	X
		U_{L2-N}	Mains voltage L2-N [V]		X					X							
		U_{L2-N}	Bus A voltage L2-N [V]			X									X		
		U_{L2-N}	Shore voltage L2-N [V]											X			
5		U_{L3-N}	Generator voltage L3-N [V]	X				X	X		X	X	X			X	X
		U_{L3-N}	Mains voltage L3-N [V]		X					X							
		U_{L3-N}	Bus A voltage L3-N [V]			X									X		
		U_{L3-N}	Shore voltage L3-N [V]											X			
6		f_{L1}	Generator f L1 [Hz/100]	X				X	X		X	X	X			X	X
		f_{L1}	Mains f L1 [Hz/100]		X					X							
		f_{L1}	Bus A f L1 [Hz/100]			X									X		

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		f_{L1}	Shore f L1 [Hz/100]											X			
7		I_{L1}	Generator current L1 [A]	X				X	X		X	X	X			X	X
		I_{L1}	Mains current L1 [A]		X					X							
		I_{L1}	Bus current L1 [A]			X									X		
		I_{L1}	Shore current L1 [A]											X			
8		I_{L2}	Generator current L2 [A]	X				X	X		X	X	X			X	X
		I_{L2}	Mains current L2 [A]		X					X							
		I_{L2}	Bus current L2 [A]			X									X		
		I_{L2}	Shore current L2 [A]											X			
9		I_{L3}	Generator current L3 [A]	X				X	X		X	X	X			X	X
		I_{L3}	Mains current L3 [A]		X					X							
		I_{L3}	Bus current L3 [A]			X									X		
		I_{L3}	Shore current L3 [A]											X			
10		P_{GEN}	Generator power [kW]	X				X	X		X	X	X			X	X
		P_{MAINS}	Mains power [kW]		X					X							
		P_{BA}	Bus power [kW]			X									X		
		P_{SC}	Shore power [kW]											X			
11		Q_{GEN}	Generator reactive power [kVAr]	X				X	X		X	X	X			X	X
		Q_{MAINS}	Mains reactive power [kVAr]		X					X							
		Q_{BA}	Bus reactive power [kVAr]			X									X		

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Q_{SC}	Shore reactive power [kVAr]											X			
12		S_{GEN}	Generator apparent power [kVA]	X				X	X		X	X	X			X	X
		S_{MAINS}	Mains apparent power [kVA]		X					X							
		S_{BA}	Bus apparent power [kVA]			X									X		
		S_{SC}	Shore apparent power [kVA]											X			
13		PF	Generator PF [PF/100]	X				X	X		X	X	X			X	X
		PF	Mains PF [PF/100]		X					X							
		PF	Bus PF [PF/100]												X		
		PF	Shore PF [PF/100]											X			
14	[Hi]	R_{GEN}	Reactive energy counter [kVArh]	X				X	X		X	X	X			X	X
15	[Lo]			X				X	X		X	X	X			X	X
16	[Hi]	E_{GEN}	Active energy counter [kWh]	X	X	X		X	X	X	X	X	X	X	X	X	X
17	[Lo]																
18		$U_{BBL1-L2}$	U BB L1-L2 [V]	X	X			X	X	X	X	X	X	X		X	X
		$U_{BBL1-L2}$	U BB B L1-L2 [V]			X									X		
19		$U_{BBL2-L3}$	U BB L2-L3 [V]	X	X			X	X	X	X	X	X	X		X	X
		$U_{BBL2-L3}$	U BB B L2-L3 [V]			X									X		
20		$U_{BBL3-L1}$	U BB L3-L1 [V]	X	X			X	X	X	X	X	X	X		X	X
		$U_{BBL3-L1}$	U BB B L3-L1 [V]			X									X		
21		U_{BBL1-N}	U BB L1-N [V]	X	X			X	X	X	X	X	X	X		X	X
		U_{BBL1-N}	U BB B L1-N [V]			X									X		

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
22		U_{BBL2-N}	U BB L2-N [V]	X	X			X	X	X	X	X	X	X		X	X
		U_{BBL2-N}	U BB B L2-N [V]			X									X		
23		U_{BBL3-N}	U BB L3-N [V]	X	X			X	X	X	X	X	X	X		X	X
		U_{BBL3-N}	U BB B L3-N [V]			X									X		
24		F_{BB}	BB f L1 [Hz/100]	X	X			X	X	X	X	X	X	X		X	X
			BB B f L1 [Hz/100]			X									X		
25		$PHI_{BBL1-L2}$	U BB phase angle L1-L2 [Deg/10]	X	X	X		X	X	X	X	X	X	X	X	X	X
26		$PHI_{BBL1-DGL1}$	U BB L1 - U GEN L1 phase angle [Deg/10]	X				X	X		X	X	X	X		X	X
		$PHI_{BBL1-ML1}$	U BB L1 - U Mains L1 phase angle [Deg/10]		X					X							
		$PHI_{BAL1-BBL1}$	U BB A L1 - U BB 2 L1 phase angle [Deg/10]			X									X		
27		Alarms	No. of alarms	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28		Alarms	No. of unack. Alarms	X	X	X	X	X	X	X	X	X	X	X	X	X	X
29		Start attempts	Start attempts	X			X	X	X		X	X				X	X
30	[Hi]	Abs. run. hours	Abs. run hours	X			X	X	X		X	X	X			X	X
31	[Lo]																
32		GB_{oper}	No. of GB operations	X				X	X		X	X	X			X	X
		TB_{oper}	No. of TB operations		X					X							
		BTB_{oper}	No. of BTB operations			X									X		

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		SCB_{oper}	No. of SCB operations											X			
33		MB_{oper}	No. of MB operations	X	X	X		X	X	X							
		TB_{oper}	No. of TB operations									X					
34		U_{SUPPLY}	DC supply term. 1-2 [V/10]	X	X	X	X	X	X	X	X	X	X	X	X	X	X
35		$U_{SUPPLY\ M4}$	DC supply term. 98-99 [V/10]	X	X						X	X	X	X	X	X	X
36		RPM	RPM	X		X	X	X	X		X	X	X			X	X
37			Multi-input 102 unscaled	X	X					X	X	X	X	X	X	X	X
			Multi-input 46 unscaled														
			Multi-input 6 unscaled				X	X	X	X							
38			Multi-input 105 unscaled	X	X					X	X	X	X	X	X	X	X
			Multi-input 47 unscaled														
			Multi-input 7 unscaled				X	X	X	X							
39			Multi-input 108 unscaled	X	X					X	X	X	X	X	X	X	X
			Multi-input 48 unscaled														
			Multi-input 8 unscaled				X	X	X	X							
40			Control register address 0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
41			Control register address 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
42			Control register address 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
43			Control register address 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
44			Control register address 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
45			Control register address 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X
46			Control register address 6	X	X	X	X	X	X	X	X	X	X	X	X		

Address	Bit	Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	0		SWBD mode													X	X
	1		Fixed frequency													X	X
	2		Fixed P													X	
	3		P load sharing													X	
	4		Frequency droop													X	
	5		Ext. GOV setpoint													X	X
	6		Fixed voltage													X	X
	7		Fixed Q													X	
	8		Fixed PF													X	
	9		Q load sharing													X	
	10		Voltage droop													X	
	11		Ext. AVR setpoint													X	X
	12		Remote													X	X
	13		Local													X	X
	14		Deload													X	X
	15		Start sync./control													X	X
47			Control register address 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Alarms

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
48			**Generator/mains/busbar 1/ shore connection**														
	0	1000	G -P> 1	X				X	X		X	X	X			X	X
			M -P> 1		X					X							
			BTB -P> 1			X									X		
			SC -P> 1											X			
	1	1010	G –P> 2	X				X	X		X	X	X			X	X
			M -P> 2		X					X							
			BTB -P> 2			X									X		
			SC -P> 2											X			
	2	1020	Reserved														
	3	1030	G I> 1	X				X	X		X	X	X			X	X
			M I> 1		X					X							
			BTB I> 1			X									X		
			SC I> 1											X			
	4	1040	G I> 2	X				X	X		X	X	X			X	X
			M I> 2		X					X							
			BTB I> 2			X									X		

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			SC I> 2											X			
	5	1050	G I> 3	X				X	X		X	X	X			X	X
			M I> 3		X					X							
			BTB I> 3			X									X		
			SC I> 3											X			
	6	1060	G I> 4	X				X	X		X	X	X			X	X
			M I> 4		X					X							
			BTB I> 4			X									X		
			SC I> 4											X			
	7	1090	Reserved														
	8	1120	Reserved														
	9	1130	G I>> 1	X				X	X		X	X	X			X	X
			M I>> 1		X					X							
			BTB I>> 1			X									X		
			SC I>> 1											X			
	10	1140	G I>> 2	X				X	X		X	X	X			X	X
			M I>> 2		X					X							
			BTB I>> 2			X									X		
			SC I>> 2											X			

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	11	1150	G U> 1	X				X	X		X	X	X			X	X
			M U> 1		X					X							
			BB-A U> 1			X									X		
			SC U> 1											X			
	12	1160	G U> 2	X				X	X		X	X	X			X	X
			M U> 2		X					X							
			BB-A U> 2			X									X		
			SC U> 2											X			
	13	1170	G U< 1	X				X	X		X	X	X			X	X
			M U< 1		X					X							
			BB-A U< 1			X									X		
			SC U< 1											X			
	14	1180	G U< 2	X				X	X		X	X	X			X	X
			M U< 2		X					X							
			BB-A U< 2			X									X		
			SC U< 2											X			
	15	1190	G U< 3	X				X	X		X	X	X			X	X
			M U< 3		X					X							
			BB-A U< 3			X									X		

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			SC U< 3											X			
49	0	1210	G f> 1	X				X	X		X	X	X			X	X
			M f> 1		X					X							
			B1 f> 1			X									X		
			SC f> 1											X			
	1	1220	G f> 2	X				X	X		X	X	X			X	X
			M f> 2		X					X							
			BB-A f> 2			X									X		
			SC f> 2											X			
	2	1230	G f> 3	X				X	X		X	X	X			X	X
			M f> 3		X					X							
			BB-A f> 3			X									X		
			SC f> 3											X			
	3	1240	G f< 1	X				X	X		X	X	X	X		X	X
			M f< 1		X					X							
			BB-A f < 1			X									X		
	4	1250	G f< 2	X				X	X		X	X	X			X	X
			M f< 2		X					X							
			BB-A f< 2			X									X		

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			SC f< 2											X			
	5	1260	G f< 3	X				X	X		X	X	X			X	X
			M f< 3		X					X							
			BB-A f< 3			X									X		
			SC f< 3											X			
			Busbar/mains														
	6	1270	BB U> 1	X	X			X	X	X	X	X	X	X		X	X
			BB-B U> 1			X									X		
	7	1280	BB U> 2	X	X			X	X	X	X	X	X	X		X	X
			BB-B U> 2			X									X		
	8	1290	BB U> 3	X	X			X	X	X	X	X	X	X		X	X
			BB-B U> 3			X									X		
	9	1300	BB U< 1	X	X			X	X	X	X	X	X	X		X	X
			BB-B U< 1			X									X		
	10	1310	BB U< 2	X	X			X	X	X	X	X	X	X		X	X
			BB-B U< 2			X									X		
	11	1320	BB U< 3	X	X			X	X	X	X	X	X	X		X	X
			BB-B U< 3			X									X		
	12	1330	BB U< 4	X	X			X	X	X	X	X	X	X		X	X

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			BB-B U< 4			X									X		
	13	1350	BB f> 1	X	X			X	X	X	X	X	X	X		X	X
			BB-B f> 1			X									X		
	14	1360	BB f> 2	X	X			X	X	X	X	X	X	X		X	X
			BB-B f> 2			X									X		
	15	1370	BB f> 3	X	X			X	X	X	X	X	X	X		X	X
			BB-B f> 3			X									X		
50	0	1380	BB f< 1	X	X			X	X	X	X	X	X	X		X	X
			BB-B f< 1			X									X		
	1	1390	BB f< 2	X	X			X	X	X	X	X	X	X		X	X
			BB-B f< 2			X									X		
	2	1400	BB f< 3	X	X			X	X	X	X	X	X	X		X	X
			BB-B f< 3			X									X		
	3	1410	BB f< 4	X	X			X	X	X	X	X	X	X		X	X
			BB-B f< 4			X									X		
	4	1420	df/dt (ROCOF)	X	X	X											
	5	1430	Vector jump	X	X	X											
	6	1440	BB pos. seq. volt. low	X	X	X											
			Generator/mains/busbar A/ shore														

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	7	1450	G P> 1	X				X	X		X	X	X			X	X
			M P> 1		X					X							
			BA P> 1			X									X		
			SC P> 1											X			
	8	1460	G P> 2	X				X	X		X	X	X			X	X
			M P> 2		X					X							
			BA P> 2			X									X		
			SC P> 2											X			
	9	1470	G P> 3	X				X	X		X	X	X			X	X
			M P> 3		X					X							
			BA P> 3			X									X		
			SC P> 3											X			
	10	1480	G P> 4	X				X	X		X	X	X			X	X
			M P> 4		X					X							
			BA P> 4			X									X		
			SC P> 4											X			
	11	1490 1500 1510	G P> 5	X				X	X		X	X	X			X	X
			M P> 5		X					X							
			BA P> 5			X									X		

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			SC P> 5											X			
	12		Unbalance curr.	X	X			X	X	X	X	X	X	X		X	X
	13		Unbalance volt.	X	X			X	X	X	X	X	X	X		X	X
	14	1520	G -Q>	X				X	X		X	X	X			X	X
			M -Q>		X					X							
			BA -Q>			X									X		
			SC -Q>											X			
	15	1530	G Q>	X				X	X		X	X	X			X	X
			M Q>		X					X							
			BA Q>			X									X		
			SC Q>											X			
51			**Synchronising**														
	0	2120	Synchronising window	X	X	X					X	X	X	X	X	X	X
	1	2130	Synchronising failure GB	X							X	X				X	X
			Synchronising failure TB		X												
			Synchronising failure BTB			X									X		
	2	2140	Synchronising failure MB	X	X												
			Synchronising failure SGB										X				
			Synchronising failure SCB											X			

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	3	2150	Phase sequence failure	X	X	X		X	X	X	X	X	X	X	X	X	X
	4	2160	GB open failure	X				X	X		X	X				X	X
			TB open failure		X					X							
			BTB open failure			X									X		
	5	2170	GB close failure	X				X	X		X	X				X	X
			TB close failure		X					X							
			BTB close failure			X									X		
	6	2180	GB pos. failure	X				X	X		X	X				X	X
			TB pos. failure		X					X							
			BTB pos. failure			X									X		
	7	2200	MB open failure	X	X			X	X	X							
			TB open failure									X					
			SGB open failure										X				
			SCB open failure											X			
	8	2210	MB close failure	X	X			X	X	X							
			TB close failure									X					
			SGB close failure										X				
			SCB close failure											X			
	9	2220	MB pos. failure	X	X			X	X	X							

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			TB pos. failure									X					
			SGB pos failure										X				
			SCB pos failure											X			
	10	2250	Close before excitation failure	X													
	11	2190	Vector mismatch													X	X
	12	2320	BTB A pos. failure													X	X
	13	2330	BTB B pos. failure													X	X
	14	2340	BTB C pos. failure													X	X
	15	2350	BTB D pos. failure													X	X
52			**Digital alarms**														
	0	3130	Digital alarm input	43	43	43					43	43	43	43	43	43	43
	1	3140	Digital alarm input	44	44	44					44	44	44	44	44	44	44
	2	3150	Digital alarm input	45	45	45					45	45	45	45	45	45	45
	3	3160	Digital alarm input	46	46	46					46	46	46	46	46	46	46
	4	3170	Digital alarm input	47	47	47					47	47	47	47	47	47	47
	5	3180	Digital alarm input	48	48	48					48	48	48	48	48	48	48
	6	3190	Digital alarm input	49	49	49					49	49	49	49	49	49	49
	7	3200	Digital alarm input	50	50	50					50	50	50	50	50	50	50
	8	3210	Digital alarm input	51	51	51					51	51	51	51	51	51	51

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	9	3220	Digital alarm input	52	52	52					52	52	52	52	52	52	52
	10	3230	Digital alarm input	53	53	53					53	53	53	53	53	53	53
	11	3240	Digital alarm input	54	54	54					54	54	54	54	54	54	54
	12	3250	Digital alarm input	55	55	55					55	55	55	55	55	55	55
	13																
	14																
	15																
53	0																
	1																
	2																
	3																
	4																
	5																
	6																
	7	3330	Digital alarm input	91	91	91					91	91	91	91	91	91	91
	8	3340	Digital alarm input	92	92	92					92	92	92	92	92	92	92
	9	3350	Digital alarm input	93	93	93					93	93	93	93	93	93	93
	10	3360	Digital alarm input	94	94	94					94	94	94	94	94	94	94
	11	3370	Digital alarm input	95	95	95					95	95	95	95	95	95	95

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	12	3380	Digital alarm input	96	96	96					96	96	96	96	96	96	96
	13	3390	Digital alarm input	97	97	97					97	97	97	97	97	97	97
	14																
	15																
54	0	3400	Multi-in. alarm	102	102	102	6	6	6	6	102	102	102	102	102	102	102
	1	3410	Multi-in. alarm	105	105	105	7	7	7	7	105	105	105	105	105	105	105
	2	3420	Multi-in. alarm	108	108	108	8	8	8	8	108	108	108	108	108	108	108
	3	3401	Wire fail.	102	102	102	6	6	6	6	102	102	102	102	102	102	102
	4	3411	Wire fail.	105	105	105	7	7	7	7	105	105	105	105	105	105	105
	5	3421	Wire fail.	108	108	108	8	8	8	8	108	108	108	108	108	108	108
	6	3430	Digital alarm input	112	112	112					112	112	112	112	112	112	112
	7	3440	Digital alarm input	113	113	113					113	113	113	113	113	113	113
	8	3450	Digital alarm input	114	114	114					114	114	114	114	114	114	114
	9	3460	Digital alarm input	115	115	115					115	115	115	115	115	115	115
	10	3470	Digital alarm input	116	116	116					116	116	116	116	116	116	116
	11	3480	Digital alarm input	117	117	117					117	117	117	117	117	117	117
	12	3490	Digital alarm input (Emer. stop)	118	118	118	20	20	20	20	118	118	118	118	118	118	118
	13																
	14																

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	15																
55	0	3500	Digital alarm input	127	127	127					127	127	127	127	127	127	127
	1	3510	Digital alarm input	128	128	128					128	128	128	128	128	128	128
	2	3520	Digital alarm input	129	129	129					129	129	129	129	129	129	129
	3	3530	Digital alarm input	130	130	130					130	130	130	130	130	130	130
	4	3540	Digital alarm input	131	131	131					131	131	131	131	131	131	131
	5	3550	Digital alarm input	132	132	132					132	132	132	132	132	132	132
	6	3560	Digital alarm input	133	133	133					133	133	133	133	133	133	133
	7																
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
56			**Analogue input alarm**														
	0	4000	4-20mA	91.1	91.1	91.1					91.1	91.1	91.1	91.1	91.1	91.1	91.1

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	1	4010	4-20mA	91.2	91.2	91.2					91.2	91.2	91.2	91.2	91.2	91.2	91.2
	2	4020	Wire failure analogue	91	91	91					91	91	91	91	91	91	91
	3	4030	4-20mA	93.1	93.1	93.1					93.1	93.1	93.1	93.1	93.1	93.1	93.1
	4	4040	4-20mA	93.2	93.2	93.2					93.2	93.2	93.2	93.2	93.2	93.2	93.2
	5	4050	Wire failure analogue	93	93	93					93	93	93	93	93	93	93
	6	4060	4-20mA	95.1	95.1	95.1					95.1	95.1	95.1	95.1	95.1	95.1	95.1
	7	4070	4-20mA	95.2	95.2	95.2					95.2	95.2	95.2	95.2	95.2	95.2	95.2
	8	4080	Wire failure analogue	95	95	95					95	95	95	95	95	95	95
	9	4090	4-20mA	97.1	97.1	97.1					97.1	97.1	97.1	97.1	97.1	97.1	97.1
	10	4100	4-20mA	97.2	97.2	97.2					97.2	97.2	97.2	97.2	97.2	97.2	97.2
	11	4110	Wire failure analogue	97	97	97					97	97	97	97	97	97	97
	12																
	13																
	14																
	15																
57			**Multi-functional input**														
	0	4120	4-20mA	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	1	4130	4-20mA	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4140	V DC	102.1	102.1	102.1					102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4150	V DC	102.2	102.2	102.2					102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4160	PT	102.1	102.1	102.1					102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4170	PT	102.2	102.2	102.2					102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4180	VDO/RMI oil	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4190	VDO/RMI oil	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4200	VDO/RMI water	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4210	VDO/RMI water	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4220	VDO/RMI fuel	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4230	VDO/RMI fuel	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	2	4240	W. fail.	102	102	102	6	6	6	6	102	102	102	102	102	102	102
	3	4250	4-20mA	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4260	4-20mA	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4270	V DC	105.1	105.1	105.1					105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4280	V DC	105.2	105.2	105.2					105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4290	PT	105.1	105.1	105.1					105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4300	PT	105.2	105.2	105.2					105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4310	VDO/RMI oil	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	4	4320	VDO/RMI oil	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4330	VDO/RMI water	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4340	VDO/RMI water	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4350	VDO/RMI fuel	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4360	VDO/RMI fuel	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	5	4370	W. fail.	105	105	105	7	7	7	7	105	105	105	105	105	105	105
	6	4380	4-20mA	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4390	4-20mA	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4400	V DC	108.1	108.1	108.1					108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4410	V DC	108.2	108.2	108.2					108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4420	PT	108.1	108.1	108.1					108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4430	PT	108.2	108.2	108.2					108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4440	VDO/RMI oil	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4450	VDO/RMI oil	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4460	VDO/RMI water	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4470	VDO/RMI water	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4480	VDO/RMI fuel	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4490	VDO/RMI fuel	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	8	4500	Wire failure	108	108	108	8	8	8	8	108	108	108	108	108	108	108

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			Analogue input alarm														
	9	4510	Oversp. 1	X			X	X	X		X	X	X			X	X
	10	4520	Oversp. 2	X			X	X	X		X	X	X			X	X
	11	4530	Crank failure	X			X	X	X		X	X				X	X
	12	4540	Running feedback failure	X			X	X	X		X	X				X	X
	13	4550	MPU wire failure	X							X	X				X	X
	14	4560	Hz/V failure	X			X	X	X		X	X	X	X		X	X
	15	4570	Start failure	X			X	X	X		X	X				X	X
			Output														
58	0	5000	Relay	5	5	5	3	3	3	3	5	5	5	5	5	5	5
	1	5010	Relay	8	8	8	21	21	21	21	8	8	8	8	8	8	8
	2	5020	Relay	11	11	11	22	22	22	22	11	11	11	11	11	11	11
	3	5030	Relay	14	14	14	23	23	23	23	14	14	14	14	14	14	14
	4	5040	Relay	17	17	17	24	24	24	24	17	17	17	17	17	17	17
	5	5050	Relay	T20	T20	T20	26	26	26	26	T20	T20	T20	T20	T20	T20	T20
	6	5060	Relay	T21	T21	T21	45	45	45	45	T21	T21	T21	T21	T21	T21	T21
	7	5070	Relay	29	29	29	47	47	47	47	29	29	29	29	29	29	29
	8	5080	Relay	31	31	31					31	31	31	31	31	31	31
	9	5090	Relay	33	33	33					33	33	33	33	33	33	33

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	10	5100	Relay	35	35	35					35	35	35	35	35	35	35
	11	5110	Relay	57	57	57					57	57	57	57	57	57	57
	12	5120	Relay	59	59	59					59	59	59	59	59	59	59
	13	5130	Relay	61	61	61					61	61	61	61	61	61	61
	14	5140	Relay	63	63	63					63	63	63	63	63	63	63
	15																
59			**General**														
	0		Block mode	X		X	X	X	X								
	1		Manual mode	X			X	X	X	X						X	X
			SWBD mode								X	X	X	X	X		
	2		Semi auto mode	X	X	X	X	X	X	X	X	X					
	3		Auto mode	X	X	X	X	X	X	X	X	X					
	4		Test	X	X			X	X	X		X					
	5		Island	X	X		X	X	X	X							
	6		AMF	X	X			X	X	X							
	7		Peak shaving	X	X					X							
	8		Fixed power	X	X					X							
	9		Mains power export	X	X					X							
	10		Load takeover	X	X			X	X	X							

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	11		Power management	X		X											
			Genset group		X												
	12		DG supply										X	X			
	13		SG/SC supply										X	X			
	14		Reserved														
	15		AMF active	X	X			X	X	X							
60			**EIC alarm**														
	0	7570	Communication error	X			X	X	X		X	X	X	X	X	X	X
	1	7580	Warning	X			X	X	X		X	X	X			X	X
	2	7590	Shutdown	X			X	X	X		X	X	X			X	X
	3	7600	Overspeed	X			X	X	X		X	X	X			X	X
	4	7610	Cool water temp. high 1	X			X	X	X		X	X	X			X	X
	5	7620	Cool water temp. high 2	X			X	X	X		X	X	X			X	X
	6	7630	Oil pressure low 1	X			X	X	X		X	X	X			X	X
	7	7640	Oil pressure low 2	X			X	X	X		X	X	X			X	X
	8	7650	Oil temp. 1	X			X	X	X		X	X	X			X	X
	9	7660	Oil temp. 2	X			X	X	X		X	X	X			X	X
	10	7670	Coolant level 1	X			X	X	X							X	X
	11	7680	Coolant level 2	X			X	X	X							X	X

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	12																
	13																
	14																
	15																
61			**Analogue inputs**														
	0	4800	4-20 mA	127.1	127.1	127.1					127.1	127.1	127.1	127.1	127.1	127.1	127.1
	1	4810	4-20 mA	127.2	127.2	127.2					127.2	127.2	127.2	127.2	127.2	127.2	127.2
	2	4820	W. fail input	127	127	127					127	127	127	127	127	127	127
	3	4830	4-20 mA	129.1	129.1	129.1					129.1	129.1	129.1	129.1	129.1	129.1	129.1
	4	4840	4-20 mA	129.2	129.2	129.2					129.2	129.2	129.2	129.2	129.2	129.2	129.2
	5	4850	W. fail input	129	129	129					129	129	129	129	129	129	129
	6	4860	4-20 mA	131.1	131.1	131.1					131.1	131.1	131.1	131.1	131.1	131.1	131.1
	7	4870	4-20 mA	131.2	131.2	131.2					131.2	131.2	131.2	131.2	131.2	131.2	131.2
	8	4880	W. fail input	131	131	131					131	131	131	131	131	131	131
	9	4890	4-20 mA	133.1	133.1	133.1					133.1	133.1	133.1	133.1	133.1	133.1	133.1
	10	4900	4-20 mA	133.2	133.2	133.2					133.2	133.2	133.2	133.2	133.2	133.2	133.2
	11	4910	W. fail input	133	133	133					133	133	133	133	133	133	133
	12																

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	13																
	14																
	15																
62	0		Virtual event 1													X	X
	1		Virtual event 2													X	X
	2		Virtual event 3													X	X
	3		Virtual event 4													X	X
	4		Virtual event 5													X	X
	5		Virtual event 6													X	X
	6		Virtual event 7													X	X
	7		Virtual event 8													X	X
	8		Virtual event 9													X	X
	9		Virtual event 10													X	X
	10		Virtual event 11													X	X
	11		Virtual event 12													X	X
	12		Virtual event 13													X	X
	13		Virtual event 14													X	X
	14		Virtual event 15													X	X
	15		Virtual event 16													X	X

Address	Bit	Parameter	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
63	0		Virtual event 17													X	X
	1		Virtual event 18													X	X
	2		Virtual event 19													X	X
	3		Virtual event 20													X	X
	4		Virtual event 21													X	X
	5		Virtual event 22													X	X
	6		Virtual event 23													X	X
	7		Virtual event 24													X	X
	8		Virtual event 25													X	X
	9		Virtual event 26													X	X
	10		Virtual event 27													X	X
	11		Virtual event 28													X	X
	12		Virtual event 29													X	X
	13		Virtual event 30													X	X
	14		Virtual event 31													X	X
	15		Virtual event 32													X	X

***Multi-input – 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.

VDO/RMI

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

If maximum resistance on the sensor is less than or equal to 90.0Ω:

Ω = ((x * 1000) + 300)/10330

x: Unscaled value.
Ω: VDO/RMI resistance value.

If maximum resistance on the sensor is above 90.0Ω and less than or equal to 190.0Ω:

Ω = ((x * 1000) - 800)/5160

x: Unscaled value.
Ω: VDO/RMI resistance value.

If maximum resistance on the sensor is above 190.0Ω and less than or equal to 490.0Ω:

Ω = ((x * 1000) + 1000)/2070

x: Unscaled value.
Ω: VDO/RMI resistance value.

If maximum resistance on the sensor is above 490.0Ω:

Ω = ((x * 1000) + 294)/520

x: Unscaled value.
Ω: VDO/RMI resistance value.

Binary

Input high: < 50 bit
Input low: ≥ 50 bit
Cable failure: > 950 bit

It is recommended to use the scaled values for Pt100/1000 and VDO/RMI readings.

Measurement table (read only) (function code 04h)

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
501		U_{L1-L2}	Generator voltage L1-L2 [V]	X				X	X		X	X	X			X	X
		U_{L1-L2}	Mains voltage L1-L2 [V]		X					X							
		U_{L1-L2}	Bus A voltage L1-L2 [V]			X									X		
		U_{L1-L2}	Shore voltage L1-L2 [V]											X			
502		U_{L2-L3}	Generator voltage L2-L3 [V]	X				X	X		X	X	X			X	X
		U_{L2-L3}	Mains voltage L2-L3 [V]		X					X							
		U_{L2-L3}	Bus A voltage L2-L3 [V]			X									X		
		U_{L2-L3}	Shore voltage L2-L3 [V]											X			
503		U_{L3-L1}	Generator voltage L3-L1 [V]	X				X	X		X	X	X			X	X
		U_{L3-L1}	Mains voltage L3-L1 [V]		X					X							
		U_{L3-L1}	Bus A voltage L3-L1 [V]			X									X		
		U_{L3-L1}	Shore voltage L3-L1 [V]											X			
504		U_{L1-N}	Generator voltage L1-N [V]	X				X	X		X	X	X			X	X
		U_{L1-N}	Mains voltage L1-N [V]		X					X							
		U_{L1-N}	Bus A voltage L1-N [V]			X									X		
		U_{L1-N}	Shore voltage L1-N [V]											X			
505		U_{L2-N}	Generator voltage L2-N [V]	X				X	X		X	X	X			X	X

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		U_{L2-N}	Mains voltage L2-N [V]		X					X							
		U_{L2-N}	Bus A voltage L2-N [V]			X									X		
		U_{L2-N}	Shore voltage L2-N [V]											X			
506		U_{L3-N}	Generator voltage L3-N [V]	X				X	X		X	X	X			X	X
		U_{L3-N}	Mains voltage L3-N [V]		X					X							
		U_{L3-N}	Bus A voltage L3-N [V]			X									X		
		U_{L3-N}	Shore voltage L3-N [V]											X			
507		f_{L1}	Generator f L1 [Hz/100]	X				X	X		X	X	X			X	X
		f_{L1}	Mains f L1 [Hz/100]		X					X							
		f_{L1}	Bus A f L1 [Hz/100]			X									X		
		f_{L1}	Shore f L1 [Hz/100]											X	X		
508		f_{L2}	Generator f L2 [Hz/100]	X				X	X		X	X	X			X	X
		f_{L2}	Mains f L2 [Hz/100]		X					X							
		f_{L2}	Bus A f L2 [Hz/100]			X									X		
		f_{L2}	Shore f L2 [Hz/100]											X			
509		f_{L3}	Generator f L3 [Hz/100]	X				X	X		X	X	X			X	X
		f_{L3}	Mains f L3 [Hz/100]		X					X							
		f_{L3}	Bus A f L3 [Hz/100]			X									X		
		f_{L3}	Shore f L3 [Hz/100]											X			

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
510		Phi	U gen. phase angle L1-L2 [Deg/10]	X				X	X		X	X	X			X	X
		Phi	U mains phase angle L1-L2 [Deg/10]		X					X							
		Phi	U BA phase angle L1-L2 [Deg/10]			X									X		
		Phi	U SC phase angle L1-L2 [Deg/10]											X			
511		Phi	U gen. phase angle L2-L3 [Deg/10]	X				X	X		X	X	X			X	X
		Phi	U mains phase angle L2-L3 [Deg/10]		X					X							
		Phi	U BA phase angle L2-L3 [Deg/10]			X									X		
		Phi	U SC phase angle L2-L3 [Deg/10]											X			
512		Phi	U gen. phase angle L3-L1 [Deg/10]	X				X	X		X	X	X			X	X
		Phi	U mains phase angle L3-L1 [Deg/10]		X					X							
		Phi	U BA phase angle L3-L1 [Deg/10]			X									X		
		Phi	U SC phase angle L3-L1 [Deg/10]											X			
513		I_{L1}	Generator current L1 [A]	X				X	X		X	X	X			X	X
		I_{L1}	Mains current L1 [A]		X					X							

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		I_{L1}	Bus A current L1 [A]			X									X		
		I_{L1}	Shore current L1 [A]											X			
514		I_{L2}	Generator current L2 [A]	X				X	X		X	X	X			X	X
		I_{L2}	Mains current L2 [A]		X					X							
		I_{L2}	Bus A current L2 [A]			X									X		
		I_{L2}	Shore current L2 [A]											X			
515		I_{L3}	Generator current L3 [A]	X				X	X		X	X	X			X	X
		I_{L3}	Mains current L3 [A]		X					X							
		I_{L3}	Bus A current L3 [A]			X									X		
		I_{L3}	Shore current L3 [A]											X			
516		$P_{GEN\ L1}$	Generator power L1 [kW]	X				X	X		X	X	X			X	X
		$P_{MAINS\ L1}$	Mains power L1 [kW]		X					X							
		$P_{BA\ L1}$	Bus A power L1 [kW]			X									X		
		$P_{SC\ L1}$	Bus A power L1 [kW]											X			
517		$P_{GEN\ L2}$	Generator power L2 [kW]	X				X	X		X	X	X			X	X
		$P_{MAINS\ L2}$	Mains power L2 [kW]		X					X							
		$P_{BA\ L2}$	Bus A power L2 [kW]			X									X		
		$P_{SC\ L2}$	Bus A power L2 [kW]											X			
518		$P_{GEN\ L3}$	Generator power L3 [kW]	X				X	X		X	X	X			X	X
		$P_{MAINS\ L3}$	Mains power L3 [kW]		X					X							

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		$P_{BA\ L3}$	Bus A power L3 [kW]			X									X		
		$P_{SC\ L3}$	Bus A power L3 [kW]											X			
519		P_{GEN}	Generator power [kW]	X		X		X	X		X	X	X			X	X
		P_{MAINS}	Mains power [kW]		X					X							
		P_{BA}	Bus A power [kW]												X		
		P_{SC}	Shore power [kW]											X			
520		$Q_{GEN\ L1}$	Generator reactive power L1 [kVAr]	X		X		X	X		X	X	X			X	X
		$Q_{MAINS\ L1}$	Mains reactive power L1 [kVAr]		X					X							
		$Q_{BA\ L1}$	Bus A reactive power L1 [kVAr]														
		$Q_{SC\ L1}$	Bus A reactive power L1 [kVAr]											X			
521		$Q_{GEN\ L2}$	Generator reactive power L2 [kVAr]	X		X		X	X		X	X	X			X	X
		$Q_{MAINS\ L2}$	Mains reactive power L2 [kVAr]		X					X							
		$Q_{BA\ L2}$	Bus A reactive power L2 [kVAr]														
		$Q_{SC\ L2}$	Bus A reactive power L2 [kVAr]											X			
522		$Q_{GEN\ L3}$	Generator reactive power L3 [kVAr]	X		X		X	X		X	X	X			X	X
		$Q_{MAINS\ L3}$	Mains reactive power L3 [kVAr]		X					X							
		$Q_{BA\ L3}$	Bus A reactive power L3 [kVAr]														
		$Q_{SC\ L3}$	Bus A reactive power L3 [kVAr]											X			
523		Q_{GEN}	Generator reactive power [kVAr]	X		X		X	X		X	X	X			X	X
		Q_{MAINS}	Mains reactive power [kVAr]		X	X				X							
		Q_{BA}	Bus A reactive power [kVar]												X		

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Q_{SC}	Shore reactive power [kVAr]											X			
524		$S_{GEN\ L1}$	Generator apparent power L1 [kVA]	X				X	X		X	X	X			X	X
		$S_{MAINS\ L1}$	Mains apparent power L1 [kVA]		X	X				X							
		$S_{BA\ L1}$	Bus A apparent power L1 [kVA]														
		$S_{SC\ L1}$	Bus A apparent power L1 [kVA]											X			
525		$S_{GEN\ L2}$	Generator apparent power L2 [kVA]	X				X	X		X	X	X			X	X
		$S_{MAINS\ L2}$	Mains apparent power L2 [kVA]		X	X				X							
		$S_{BA\ L2}$	Bus A apparent power L2 [kVA]														
		$S_{SC\ L2}$	Bus A apparent power L2 [kVA]											X			
526		$S_{GEN\ L3}$	Generator apparent power L3 [kVA]	X				X	X		X	X	X			X	X
		$S_{MAINS\ L3}$	Mains apparent power L3 [kVA]		X	X				X							
		$S_{BA\ L3}$	Bus A apparent power L3 [kVA]												X		
		$S_{SC\ L3}$	Bus A apparent power L3 [kVA]											X			
527		S_{GEN}	Generator apparent power [kVA]	X				X	X		X	X	X			X	X
		S_{MAINS}	Mains apparent power [kVA]		X	X				X							
		S_{BA}	Bus A apparent power [kVA]												X		
		S_{SC}	Shore apparent power [kVA]											X			
528	[Hi]	$R_{GEN,\ EXP}$	Export, reactive energy counter [kVArh]	X				X	X		X	X	X			X	X
529	[Lo]																
528	[Hi]	$R_{MAINS,\ EXP}$	Export, reactive energy counter [kVArh]		X					X							
529	[Lo]																

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
528	[Hi]	$R_{BA, EXP}$	Export, reactive energy counter [kVArh]												X		
529	[Lo]																
528	[Hi]	$R_{SC, EXP}$	Export, reactive energy counter [kVArh]											X			
529	[Lo]																
530	[Hi]	$E_{GEN, EXP}$	Export, active energy counter, day [kWh]	X				X	X		X	X	X			X	X
531	[Lo]																
530	[Hi]	$E_{MAINS, EXP}$	Export, active energy counter, day [kWh]		X					X							
531	[Lo]																
530	[Hi]	$E_{BA, EXP}$	Export, active energy counter, day [kWh]			X									X		
531	[Lo]																
530	[Hi]	$E_{SC, EXP}$	Export, active energy counter, day [kWh]											X			
531	[Lo]																
532	[Hi]	$E_{GEN, EXP}$	Export, active energy counter, week [kWh]	X				X	X		X	X	X			X	X
533	[Lo]																
532	[Hi]	$E_{MAINS, EXP}$	Export, active energy counter, week [kWh]		X					X							
533	[Lo]																
532	[Hi]	$E_{BA, EXP}$	Export, active energy counter, week [kWh]			X									X		
533	[Lo]																
532	[Hi]	$E_{SC, EXP}$	Export, active energy counter, week [kWh]											X			
533	[Lo]																
534	[Hi]	$E_{GEN, EXP}$	Export, active energy counter, month [kWh]	X				X	X		X	X	X			X	X
535	[Lo]																
534	[Hi]	$E_{MAINS, EXP}$	Export, active energy counter,		X					X							

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
535	[Lo]		month [kWh]														
534	[Hi]	$E_{BA, EXP}$	Export, active energy counter, month [kWh]			X									X		
535	[Lo]																
534	[Hi]	$E_{SC, EXP}$	Export, active energy counter, month [kWh]											X			
535	[Lo]																
536	[Hi]	$E_{GEN, EXP}$	Export, active energy counter, total [kWh]	X				X	X		X	X	X			X	X
537	[Lo]																
536	[Hi]	$E_{MAINS, EXP}$	Export, active energy counter, total [kWh]		X					X							
537	[Lo]																
536	[Hi]	$E_{BA, EXP}$	Export, active energy counter, total [kWh]			X									X		
537	[Lo]																
536	[Hi]	$E_{SC, EXP}$	Export, active energy counter, total [kWh]											X			
537	[Lo]																
538		PF	Generator PF [PF/100]	X				X	X		X	X	X			X	X
		PF	Mains PF [PF/100]		X					X							
		PF	Bus A PF [PF/100]			X									X		
		PF	Shore PF [PF/100]											X			
539		$U_{BBL1-L2}$	U BB L1-L2 [V]	X	X	X			X	X	X	X	X	X	X	X	X
540		$U_{BBL2-L3}$	U BB L2-L3 [V]	X	X	X			X	X	X	X	X	X	X	X	X
541		$U_{BBL3-L1}$	U BB L3-L1 [V]	X	X	X			X	X	X	X	X	X	X	X	X
542		U_{BBL1-N}	U BB L1-N [V]	X	X	X			X	X	X	X	X	X	X	X	X
543		U_{BBL2-N}	U BB L2-N [V]	X	X	X			X	X	X	X	X	X	X	X	X

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
544		U_{BBL3-N}	U BB L3-N [V]	X	X	X			X	X	X	X	X	X	X	X	X
545		F_{BB}	BB FL1 [Hz/100]	X	X	X		X	X	X	X	X	X	X	X	X	X
546		F_{BB}	f BB L2 [Hz/100]	X	X	X					X	X	X	X	X	X	X
547		F_{BB}	f BB L3 [Hz/100]	X	X	X					X	X	X	X	X	X	X
548		$PHI_{BBL1-L2}$	U BB phase angle L1-L2 [Deg/10]	X	X	X		X	X	X	X	X	X	X	X	X	X
549		$PHI_{BBL2-L3}$	U BB phase angle L2-L3 [Deg/10]	X	X	X					X	X	X	X	X	X	X
550		$PHI_{BBL3-L1}$	U BB phase angle L3-L1 [Deg/10]	X	X	X					X	X	X	X	X	X	X
551		$PHI_{BBL1-DGL1}$	U BB L1 - U GEN L1 phase angle [Deg/10]	X				X	X		X	X	X			X	X
		$PHI_{BBL1-ML1}$	U BB L1 - U Mains L1 phase angle [Deg/10]		X					X							
		$PHI_{BAL1-BBL1}$	U BB A L1 - U BB B L1 phase angle [Deg/10]			X									X		
		$PHI_{SCL1-BBL1}$	U BB A L1 - U BB B L1 phase angle [Deg/10]											X			
552		$PHI_{BBL2-DGL2}$	U BB L2 - U GEN L2 phase angle [Deg/10]	X							X	X	X			X	X
		$PHI_{BBL2-MAINSL2}$	U BB L2 - U mains L2 phase angle [Deg/10]		X												
		$PHI_{BBL2-BAL2}$	U BB L2 - U bus A L2 phase angle [Deg/10]			X									X		
		$PHI_{SCL2-BAL2}$	U BB L2 - U bus A L2 phase angle [Deg/10]											X			

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
553		$PHI_{BBL3-DGL3}$	U BB L3 - U GEN L3 phase angle [Deg/10]	X							X	X	X			X	X
		$PHI_{BBL3-MAINSL3}$	U BB L3 - U mains L3 phase angle [Deg/10]		X												
		$PHI_{BBL3-BAL3}$	U BB L3 - U bus A L3 phase angle [Deg/10]			X									X		
		$PHI_{SCL3-BAL3}$	U BB L3 - U bus A L3 phase angle [Deg/10]											X			
554	[Hi]	Abs. run. hours	Absolute. run hours	X				X	X		X	X	X			X	X
555	[Lo]																
556	[Hi]	Rel. run. hours	Relative. run hours	X				X	X		X	X	X				
557	[Lo]																
558		Alarms	No. of alarms	X	X	X	X	X	X	X	X	X	X	X	X	X	X
559		Alarms	No. of unack. alarms	X	X	X	X	X	X	X	X	X	X	X	X	X	X
560		Alarms	No. of active acknowledged alarms	X	X	X	X	X	X	X	X	X	X	X	X	X	X
561		Run. min.	Running min. counter, shutdown override	X				X	X			X				X	X
562		Run. hours	Running hour counter, shutdown override	X				X	X			X				X	X
563		GB_{oper}	No. of GB operations	X				X	X		X	X				X	X
		TB_{oper}	No. of TB operations		X					X							
		BTB_{oper}	No. of BTB operations			X									X		
564		MB_{oper}	No. of MB operations	X	X			X	X	X	X						

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		TB_{oper}	No. of TB operations									X					
		SGB_{oper}	No. of SGB operations										X				
		SCB_{oper}	No. of SCB operations											X			
565																	
566		Start attempts	Start attempts	X				X	X		X	X				X	X
567		U_{SUPPLY}	DC supply term. 1-2 [V/10]	X	X	X	X	X	X	X	X	X	X	X	X	X	X
568		$U_{SUPPLY\ M4}$	DC supply term. 98-99 [V/10]	X	X	X					X	X	X	X	X	X	X
569		Service	Service timer 1 run. hours	X			X	X	X		X	X	X			X	X
570		Service	Service timer 1 run. days	X			X	X	X		X	X	X			X	X
571		Service	Service timer 2 run. hours	X			X	X	X		X	X	X			X	X
572		Service	Service timer 2 run. days	X			X	X	X		X	X	X			X	X
573		Cos-phi	Cos-phi [cosPhi/100]	X	X	X		X	X	X							
574		Cos-phi	Cos-phi Inductive/Capacitive 0=Inductive, 1=Capacitive	X	X	X		X	X	X							
575																	
576		RPM	RPM	X			X	X	X		X	X	X			X	X
577	[Hi]	Running hours load profile	Running hours load profile														
578	[Lo]	Running hours load	Running hours load profile														

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		profile															
579																	
580			Multi-input 102 unscaled	X	X	X					X	X	X	X	X	X	X
			Multi-input 46 unscaled														
			Multi-input 6 unscaled				X	X	X	X							
581			Multi-input 105 unscaled	X	X	X					X	X	X	X	X	X	X
			Multi-input 47 unscaled														
			Multi-input 7 unscaled				X	X	X	X							
582			Multi-input 108 unscaled	X	X	X					X	X	X	X	X	X	X
			Multi-input 48 unscaled														
			Multi-input 8 unscaled				X	X	X	X							
583			Multi-input 102 scaled	X	X	X					X	X	X	X	X	X	X
			Multi-input 46 scaled														
			Multi-input 6 scaled				X	X	X	X							
584			Multi-input 105 scaled	X	X	X					X	X	X	X	X	X	X
			Multi-input 47 scaled														
			Multi-input 7 scaled				X	X	X	X							
585			Multi-input 108 scaled	X	X	X					X	X	X	X	X	X	X
			Multi-input 48 scaled														
			Multi-input 8 scaled				X	X	X	X							
586		Ain	4-20mA input, scaled	91	91	91					91	91	91	91	91	91	91
587		Ain	4-20mA input, scaled	93	93	93					93	93	93	93	93	93	93
588		Ain	4-20mA input, scaled	95	95	95					95	95	95	95	95	95	95

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
589		Ain	4-20mA input, scaled	97	97	97					97	97	97	97	97	97	97
590																	
591		P_{BB}	BUS power		105					7							
		P_{BA}	Bus A			105											
592		P_{MAINS}	Mains power [kW]	102	102			6	6								
		P_{TB}	Tie breaker power									102					
593-641			See H5/H7 manual or DRH	X			X	X	X		X	X				X	X
642		RegAddr.	Control register address 0	X	X	X	X	X	X	X	X	X				X	X
643		RegAddr.	Control register address 1	X	X	X	X	X	X	X	X	X				X	X
644		RegAddr.	Control register address 2	X	X	X	X	X	X	X	X	X				X	X
645		RegAddr.	Control register address 3	X	X	X	X	X	X	X	X	X				X	X
646		RegAddr.	Control register address 4	X	X	X	X	X	X	X	X	X				X	X
647		RegAddr.	Control register address 5	X	X	X	X	X	X	X	X	X				X	X
648		RegAddr.	Control register address 6	X	X	X	X	X	X	X	X	X				X	X
649		RegAddr.	Control register address 7	X	X	X	X	X	X	X	X	X				X	X
650		RegAddr	Control register address 8	X	X	X	X	X	X	X	X	X				X	X
651		RegAddr	Control register address 9	X	X	X	X	X	X	X	X	X				X	X
652		RegAddr	Control register address 10	X	X	X	X	X	X	X	X	X				X	X
653		RegAddr	Control register address 11													X	X
654			Reserved														
655		RegAddr	Control register address 13	X	X	X	X	X	X	X							
656		Ain	Analogue input 127	X	X						X	X	X	X	X		
657		Ain	Analogue input 129	X	X						X	X	X	X	X		

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
658		Ain	Analogue input 131	X	X						X	X	X	X	X		
659		Ain	Analogue input 133	X	X						X	X	X	X	X		
660		Ext Ain	External Ain 1 (unscaled)/ CIO 308 no. 1. Input 8 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
661		Ext Ain	External Ain 2 (unscaled)/ CIO 308 no. 1. Input 11 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
662		Ext Ain	External Ain 3 (unscaled)/ CIO 308 no. 1. Input 14 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
663		Ext Ain	External Ain 4 (unscaled)/ CIO 308 no. 1. Input 17 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
664		Ext Ain	External Ain 5 (unscaled)/ CIO 308 no. 1. Input 20 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
665		Ext Ain	External Ain 6 (unscaled)/ CIO 308 no. 1. Input 23 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
666		Ext Ain	External Ain 7 (unscaled)/ CIO 308 no. 1. Input 26 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
667		Ext Ain	External Ain 8 (unscaled)/ CIO 308 no. 1. Input 29 [Config]	X/X	X/X	X/X	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA	X /NA
668		Ext Ain	CIO 308 no. 2. Input 8 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
668	0		SWBD mode													X	X
	1		Fixed frequency													X	X
	2		Fixed P													X	
	3		P load sharing													X	
	4		Frequency droop													X	
	5		Ext. GOV setpoint													X	X
	6		Fixed voltage													X	X

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	7		Fixed Q													X	
	8		Fixed PF													X	
	9		Q load sharing													X	
	10		Voltage droop													X	
	11		Ext. AVR setpoint													X	X
	12		Remote													X	X
	13		Local													X	X
	14		Deload													X	X
	15		Start sync./control													X	X
669		Ext Ain	CIO 308 no. 2. Input 11 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
670		Ext Ain	CIO 308 no. 2. Input 14 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
671		Ext Ain	CIO 308 no. 2. Input 17 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
672		Ext Ain	CIO 308 no. 2. Input 20 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
673		Ext Ain	CIO 308 no. 2. Input 23 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
674		Ext Ain	CIO 308 no. 2. Input 26 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
675		Ext Ain	CIO 308 no. 2. Input 29 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
676		Ext Ain	CIO 308 no. 3. Input 8 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
677		Ext Ain	CIO 308 no. 3. Input 11 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
678		Ext Ain	CIO 308 no. 3. Input 14 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
679		Ext Ain	CIO 308 no. 3. Input 17 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
680		Ext Ain	CIO 308 no. 3. Input 20 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
681		Ext Ain	CIO 308 no. 3. Input 23 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
682		Ext Ain	CIO 308 no. 3. Input 26 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
683		Ext Ain	CIO 308 no. 3. Input 29 [Config]	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
700			Nominal power active (1-4)	X	X	X		X	X	X	X	X	X			X	X
701			Mains power transducer used	X		X		X	X								
			Tie breaker power transducer used									X					
702	[Hi]		Fan A running hours				X	X	X								
703	[Lo]		Fan A running hours				X	X	X								
704	[Hi]		Fan B running hours				X	X	X								
705	[Lo]		Fan B running hours				X	X	X								
706	[Hi]		Fan C running hours				X	X	X								
707	[Lo]		Fan C running hours				X	X	X								
708	[Hi]		Fan D running hours				X	X	X								
709	[Lo]		Fan D running hours				X	X	X								
790	[Hi]	$R_{GEN, EXP}$	Export reactive energy counter, month [kVAr]					X	X	X							
791	[Lo]																
790	[Hi]	$R_{MAINS, EXP}$	Export reactive energy counter, month [kVAr]					X	X	X							
791	[Lo]																
790	[Hi]	$R_{BA, EXP}$	Export reactive energy counter, month [kVAr]					X	X	X							
791	[Lo]																
792	[Hi]	$R_{GEN, EXP}$	Export reactive energy counter, week [kVAr]					X	X	X							
793	[Lo]																
792	[Hi]	$R_{MAINS, EXP}$	Export reactive energy counter,					X	X	X							

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
793	[Lo]		week [kVAr]														
792	[Hi]	$R_{BA, EXP}$	Export reactive energy counter, week [kVAr]					X	X	X							
793	[Lo]																
794	[Hi]	$R_{GEN, EXP}$	Export reactive energy counter, total [kVAr]					X	X	X							
795	[Lo]																
794	[Hi]	$R_{MAINS, EXP}$	Export reactive energy counter, total [kVAr]					X	X	X							
795	[Lo]																
794	[Hi]	$R_{BA, EXP}$	Export reactive energy counter, total [kVAr]					X	X	X							
795	[Lo]																
796	[Hi]	$E_{GEN, EXP}$	Import active energy counter, total [kWh]					X	X	X							
797	[Lo]																
796	[Hi]	$E_{MAINS, EXP}$	Import active energy counter, total [kWh]					X	X	X							
797	[Lo]																
796	[Hi]	$E_{BA, EXP}$	Import active energy counter, total [kWh]					X	X	X							
797	[Lo]																
798	[Hi]	$E_{GEN, EXP}$	Import active energy counter, month [kWh]					X	X	X							
799	[Lo]																
798	[Hi]	$E_{MAINS, EXP}$	Import active energy counter, month [kWh]					X	X	X							
799	[Lo]																
798	[Hi]	$E_{BA, EXP}$	Import active energy counter, month [kWh]					X	X	X							
799	[Lo]																
800	[Hi]	$E_{GEN, EXP}$	Import active energy counter, week [kWh]					X	X	X							
801	[Lo]																

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
800	[Hi]	$E_{MAINS, EXP}$	Import active energy counter, week [kWh]					X	X	X							
801	[Lo]																
800	[Hi]	$E_{BA, EXP}$	Import active energy counter, week [kWh]					X	X	X							
801	[Lo]																
802	[Hi]	$E_{GEN, EXP}$	Import active energy counter, day [kWh]					X	X	X							
803	[Lo]																
802	[Hi]	$E_{MAINS, EXP}$	Import active energy counter, day [kWh]					X	X	X							
803	[Lo]																
802	[Hi]	$E_{BA, EXP}$	Import active energy counter, day [kWh]					X	X	X							
803	[Lo]																
804	[Hi]	$R_{GEN, IMP}$	Import reactive energy counter, total [kVAr]					X	X	X							
805	[Lo]																
804	[Hi]	$R_{MAINS, IMP}$	Import reactive energy counter, total [kVAr]					X	X	X							
805	[Lo]																
804	[Hi]	$R_{BA, IMP}$	Import reactive energy counter, total [kVAr]					X	X	X							
805	[Lo]																
806	[Hi]	$R_{GEN, IMP}$	Import reactive energy counter, month [kVAr]					X	X	X							
807	[Lo]																
806	[Hi]	$R_{MAINS, IMP}$	Import reactive energy counter, month [kVAr]					X	X	X							
807	[Lo]																
806	[Hi]	$R_{BA, IMP}$	Import reactive energy counter, month [kVAr]					X	X	X							
807	[Lo]																
808	[Hi]	$R_{GEN, IMP}$	Import reactive energy counter,					X	X	X							

Address		Content		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
809	[Lo]		week [kVAr]														
808	[Hi]	$R_{MAINS, IMP}$	Import reactive energy counter, week [kVAr]					X	X	X							
809	[Lo]																
808	[Hi]	$R_{BA, IMP}$	Import reactive energy counter, week [kVAr]					X	X	X							
809	[Lo]																
810	[Hi]	$R_{GEN, IMP}$	Import reactive energy counter, day [kVAr]					X	X	X							
811	[Lo]																
810	[Hi]	$R_{MAINS, IMP}$	Import reactive energy counter, day [kVAr]					X	X	X							
811	[Lo]																
810	[Hi]	$R_{BA, IMP}$	Import reactive energy counter, day [kVAr]					X	X	X							
811	[Lo]																
812	[Hi]	Counter	Pulse counter 01														
813	[Lo]																
814	[Hi]	Counter	Pulse counter 02														
815	[Lo]																
816		I_{peak}	Demand of peak current 1														
817		I_{peak}	Demand of peak current 2														
818		I_{peak}	Demand of peak current 3														
819		$I_{peak, AVG}$	Demand of avg.peak current 1														
820		$I_{peak, AVG}$	Demand of avg. peak current 2														
821		$I_{peak, AVG}$	Demand of avg. peak current 3														
822			CANshare ID													X	X
823			CANshare section													X	X

Address			Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112. 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
824	[Hi]		CANshare, total active power [P]													X	X
825	[Lo]		CANshare, total active power [P]													X	X
826	[Hi]		CANshare, total reactive power [Q]													X	X
827	[Lo]		CANshare, total reactive power [Q]													X	X
830		Run Day	Running hour Day/Min.								X	X	X				
831		Run Day	Running hour Day/Hour								X	X	X				
832		Run Week	Running hour Week/Min.								X	X	X				
833		Run Week	Running hour Week/Hour								X	X	X				
834		Run Hour	Running hour Month/Min.								X	X	X				
835		Run Hour	Running hour Month/Hour								X	X	X				
850-999			See H5/H7 manual or DRH	X		X	X	X	X		X	X				X	X

It is not possible to use both CIO and other external I/O types (Beckhoff/Axiomatic) on a controller.
CIO and other external Ain share the addresses 660 through 667.

Alarm and status table (read only) (function code 04h)

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
1000			**Generator/mains/ busbar A/ shore connection**														
	0	1000	G -P> 1	X				X	X		X	X	X			X	X
			M -P> 1		X					X							
			BA -P> 1			X									X		
			SC -P> 1											X			
	1	1010	G -P> 2	X				X	X		X	X	X			X	X
			M -P> 2		X					X							
			BA -P> 2			X									X		
			SC -P> 2											X			
	2	1020	Reserved														
	3	1030	G I> 1	X				X	X		X	X	X			X	X
			M I> 1		X					X							
			BA I> 1			X									X		
			SC I> 1											X			
	4	1040	G I> 2	X				X	X		X	X	X			X	X
			M I> 2		X					X							

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			BA I> 2			X									X		
			SC I> 2											X			
	5	1050	G I> 3	X				X	X		X	X	X			X	X
			M I> 3		X					X							
			BA I> 3			X									X		
			SC I> 3											X			
	6	1060	G I> 4	X				X	X		X	X	X			X	X
			M I> 4		X					X							
			BA I> 4			X									X		
			SC I> 4											X			
	7	1080	G I> inv.					X	X							X	X
			M I> inv.							X							
			BA I> inv.														
	7	1090	G I> inv.													X	X
			M I> inv.														
			BA I> inv.			X											
	8	1110	G Iv>	X	X	X					X	X	X	X	X	X	X
	9	1130	G I>> 1	X				X	X		X	X	X			X	X
			M I>> 1		X					X							

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			BA I>> 1			X									X		
			SC I>> 1											X			
	10	1140	G I>> 2	X				X	X		X	X	X			X	X
			M I>> 2		X					X							
			BA I>> 2			X									X		
			SC I>> 2											X			
	11	1150	G U> 1	X				X	X		X	X	X			X	X
			M U> 1		X					X							
			BA U> 1			X									X		
			SC U> 1											X			
	12	1160	G U> 2	X				X	X		X	X	X			X	X
			M U> 2		X					X							
			BA U> 2			X									X		
			SC U> 2											X			
	13	1170	G U< 1	X				X	X		X	X	X			X	X
			M U< 1		X					X							
			BA U< 1			X									X		
			SC U< 1											X			
	14	1180	G U< 2	X				X	X		X	X	X			X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			M U< 2		X					X							
			BA U< 2			X									X		
			SC U< 2											X			
	15	1190	G U< 3	X				X	X		X	X	X			X	X
			M U< 3		X					X							
			BA U< 3			X									X		
			SC U< 3											X			
1001	0	1210	G f> 1	X				X	X		X	X	X			X	X
			M f> 1		X					X							
			BA f> 1			X									X		
			BA f> 1											X			
	1	1220	G f> 2	X				X	X		X	X	X			X	X
			M f> 2		X					X							
			BA f> 2			X									X		
			SC f> 2											X			
	2	1230	G f> 3	X				X	X		X	X	X			X	X
			M f> 3		X					X							
			BA f> 3			X									X		
			SC f> 3											X			

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	3	1240	G f< 1	X				X	X		X	X	X	X		X	X
			M f< 1		X					X							
			BA f < 1			X									X		
	4	1250	G f< 2	X				X	X		X	X	X			X	X
			M f< 2		X					X							
			BA f< 2			X									X		
			SC f< 2											X			
	5	1260	G f< 3	X				X	X		X	X	X			X	X
			M f< 3		X					X							
			BA f< 3			X									X		
			SC f< 3											X			
			BB/mains														
	6	1270	BB U> 1	X	X	X		X	X	X	X	X	X	X	X	X	X
	7	1280	BB U> 2	X	X	X		X	X	X	X	X	X	X	X	X	X
	8	1290	BB U> 3	X	X	X		X	X	X	X	X	X	X	X	X	X
	9	1300	BB U< 1	X	X	X		X	X	X	X	X	X	X	X	X	X
	10	1310	BB U< 2	X	X	X		X	X	X	X	X	X	X	X	X	X
	11	1320	BB U< 3	X	X	X		X	X	X	X	X	X	X	X	X	X
	12	1330	BB U< 4	X	X	X		X	X	X	X	X	X	X	X	X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	13	1350	BB f> 1	X	X	X		X	X	X	X	X	X	X	X	X	X
	14	1360	BB f> 2	X	X	X		X	X	X	X	X	X	X	X	X	X
	15	1370	BB f> 3	X	X	X		X	X	X	X	X	X	X	X	X	X
1002	0	1380	BB f< 1	X	X	X		X	X	X	X	X	X	X	X	X	X
	1	1390	BB f< 2	X	X	X		X	X	X	X	X	X	X	X	X	X
	2	1400	BB f< 3	X	X	X		X	X	X	X	X	X	X	X	X	X
	3	1410	BB f< 4	X	X	X		X	X	X	X	X	X	X	X	X	X
	4	1420	df/dt (ROCOF)	X	X	X										X	X
	5	1430	Vector jump	X	X	X										X	X
	6	1440	BB pos. seq. volt. low	X	X	X										X	X
			Generator/mains/ busbar A/shore														
	7	1450	G P> 1	X				X	X		X	X	X			X	X
			M P> 1		X					X							
			BA P> 1			X									X		
			SC P> 1											X			
	8	1460	G P> 2	X				X	X		X	X	X			X	X
			M P> 2		X					X							
			BA P> 2			X									X		
			SC P> 2											X			

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	9	1470	G P> 3	X				X	X		X	X	X			X	X
			M P> 3		X					X							
			BA P> 3			X									X		
			SC P> 3											X			
	10	1480	G P> 4	X				X	X		X	X	X			X	X
			M P> 4		X					X							
			BA P> 4			X									X		
			SC P> 4											X			
	11	1490	G P> 5	X				X	X		X	X	X			X	X
			M P> 5		X					X							
			BA P> 5			X									X		
			SC P> 5											X			
	12	1500	Unbalance curr.	X	X			X	X	X	X	X	X	X		X	X
	13	1510	Unbalance volt.	X	X			X	X	X	X	X	X	X		X	X
	14	1520	G -Q>	X				X	X		X	X	X			X	X
			M -Q>		X					X							
			BA -Q>			X									X		
			SC -Q>											X			
	15	1530	G Q>	X				X	X		X	X	X			X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			M Q>		X					X							
			BA Q>			X									X		
			SC Q>											X			
1003			**Generator/busbar**														
	0	1540	Gen. neg. seq. I	X							X	X	X			X	X
			Mains neg. seq. I		X												
	1	1550	Generator neg. seq. U	X							X	X	X			X	X
			Mains neg. seq. U		X												
			Bus A neg. seq. U			X									X		
	2	1570	Gen. zero seq. I	X							X	X	X			X	X
			Mains zero seq. I		X												
			Bus A zero seq. I			X									X		
	3	1580	Zero seq. U	X							X	X	X		X	X	X
			Mains zero seq. U		X												
			Bus A zero seq. U			X									X		
			Busbar/mains														
	4	1600	Directional overcurrent 1	X	X	X										X	X
	5	1610	Directional overcurrent 2	X	X	X										X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	6	1620	BB unbalance U	X	X	X		X	X	X	X	X	X	X	X	X	X
	7	1800	NEL 1 I>	X	X						X	X	X	X		X	X
	8	1810	NEL 2 I>	X	X						X	X	X	X		X	X
	9	1820	NEL 3 I>	X	X						X	X	X	X		X	X
	10	1830	NEL 1 BB f<	X	X						X	X	X	X		X	X
	11	1840	NEL 2 BB f<	X	X						X	X	X	X		X	X
	12	1850	NEL 3 BB f<	X	X						X	X	X	X		X	X
	13	1860	NEL 1 P>	X	X						X	X	X	X		X	X
	14	1870	NEL 2 P>	X	X						X	X	X	X		X	X
	15	1880	NEL 3 P>	X	X						X	X	X	X		X	X
1004	0	1890	NEL 1 P>>	X	X						X	X	X	X		X	X
	1	1900	NEL 2 P>>	X	X						X	X	X	X		X	X
	2	1910	NEL 3 P>>	X	X						X	X	X	X		X	X
	3	1930	DG/SG max. parallel time								X						
	4	1940	DG/SC max. parallel time								X						
	5	1950	EDG/MSB max. parallel time									X					
	6	1960	Uq< 1					X	X	X						X	X
	7	1970	Uq< 2					X	X	X						X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	8	1980	GB ext. trip						X*							X	X
	9	1980	MB ext. trip						X*								
	10	1650	Ut< 1 monitoring active													X	X
	11	1660	Ut< 1													X	X
	12	1690	Ut< 2 monitoring active													X	X
	13	1700	Ut< 2													X	X
	14	1760	G P dep. Q<													X	X
	15	1790	G P dep. Q>													X	X
1005			**Synchronising**														
	0	2120	Synchronising window	X	X	X					X	X	X	X	X	X	X
	1	2130	Synchronising failure GB	X							X	X				X	X
			Synchronising failure TB		X												
			Synchronising failure BTB			X									X		
	2	2140	Synchronising failure MB	X	X												
			Synchronising failure SGB										X				
			Synchronising failure SCB											X			
			Synchronising failure TB									X					

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	3	2150	Phase seq. failure	X	X	X		X	X	X	X	X	X	X	X	X	X
	4	2160	GB open failure	X				X	X		X	X				X	X
			TB open failure		X					X							
			BTB open failure			X									X		
	5	2170	GB close failure	X				X	X		X	X				X	X
			TB close failure		X					X							
			BTB close failure			X									X		
	6	2180	GB pos. failure	X				X	X		X	X				X	X
			TB pos. failure		X					X							
			BTB pos. failure			X									X		
	7	2200	MB open failure	X	X			X	X	X							
			SGB open failure										X				
			SCB open failure											X			
			TB open failure									X					
	8	2210	MB close failure	X	X			X	X	X							
			SGB close failure										X				
			SCB close failure											X			
			TB close failure									X					
	9	2220	MB pos. failure	X	X			X	X	X							

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			SGB pos. failure										X				
			SCB pos. failure											X			
			TB pos. failure									X					
	10	2270	Close before excitation failure	X													
	11	2190	Vector mismatch													X	X
	12	2320	BTB A pos. failure													X	X
	13	2330	BTB B pos. failure													X	X
	14	2340	BTB C pos. failure													X	X
	15	2350	BTB D pos. failure													X	X
1006			**Regulation**														
	0	2560	GOVERNOR regulation fail.	X							X	X				X	X
	1	2630	Deload error	X							X	X				X	X
	2	2680	AVR regulation fail.	X							X	X				X	X
	3	2960	P loadshare fail.								X	X				X	X
	4	2970	Q loadshare fail.								X	X				X	X
	5	2730	GOV mode undef.													X	X
	6	2750	AVR mode undef.													X	X
	7																
	8																

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	9																
	10																
	11																
	12																
	13																
	14																
	15																
1007			**Digital alarms**														
	0	3000	Digital alarm input	23	23	23	10	10	10	10	23	23	23	23	23	23	23
	1	3010	Digital alarm input	24	24	24	11	11	11	11	24	24	24	24	24	24	24
	2	3020	Digital alarm input	25	25	25	12	12	12	12	25	25	25	25	25	25	25
	3	3030	Digital alarm input	26	26	26	13	13	13	13	26	26	26	26	26	26	26
	4	3040	Digital alarm input	27	27	27	14	14	14	14	27	27	27	27	27	27	27
	5	3050	Digital alarm input				15	15	15	15							
	6	3060	Digital alarm input	29	29	29					29	29	29	29	29	29	29
	7	3070	Digital alarm input	30	30	30					30	30	30	30	30	30	30
	8	3080	Digital alarm input	31	31	31					31	31	31	31	31	31	31
	9	3090	Digital alarm input	32	32	32					32	32	32	32	32	32	32
	10	3100	Digital alarm input	33	33	33					33	33	33	33	33	33	33

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	11	3110	Digital alarm input	34	34	34					34	34	34	34	34	34	34
	12	3120	Digital alarm input	35	35	35					35	35	35	35	35	35	35
	13																
	14																
	15																
1008	0	3130	Digital alarm input	43	43	43					43	43	43	43	43	43	43
	1	3140	Digital alarm input	44	44	44					44	44	44	44	44	44	44
	2	3150	Digital alarm input	45	45	45					45	45	45	45	45	45	45
	3	3160	Digital alarm input	46	46	46					46	46	46	46	46	46	46
	4	3170	Digital alarm input	47	47	47					47	47	47	47	47	47	47
	5	3180	Digital alarm input	48	48	48					48	48	48	48	48	48	48
	6	3190	Digital alarm input	49	49	49					49	49	49	49	49	49	49
	7	3200	Digital alarm input	50	50	50					50	50	50	50	50	50	50
	8	3210	Digital alarm input	51	51	51					51	51	51	51	51	51	51
	9	3220	Digital alarm input	52	52	52					52	52	52	52	52	52	52
	10	3230	Digital alarm input	53	53	53					53	53	53	53	53	53	53
	11	3240	Digital alarm input	54	54	54					54	54	54	54	54	54	54
	12	3250	Digital alarm input	55	55	55					55	55	55	55	55	55	55
	13																

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	14																
	15																
1009	0	3260	Digital alarm input	65	65	65					65	65	65	65	65	65	65
	1	3270	Digital alarm input	66	66	66					66	66	66	66	66	66	66
	2	3280	Digital alarm input	67	67	67					67	67	67	67	67	67	67
	3	3290	Digital alarm input	68	68	68					68	68	68	68	68	68	68
	4	3300	Digital alarm input	69	69	69					69	69	69	69	69	69	69
	5	3310	Digital alarm input	70	70	70					70	70	70	70	70	70	70
	6	3320	Digital alarm input	71	71	71					71	71	71	71	71	71	71
	7	3330	Digital alarm input	91	91	91					91	91	91	91	91	91	91
	8	3340	Digital alarm input	92	92	92					92	92	92	92	92	92	92
	9	3350	Digital alarm input	93	93	93					93	93	93	93	93	93	93
	10	3360	Digital alarm input	94	94	94					94	94	94	94	94	94	94
	11	3370	Digital alarm input	95	95	95					95	95	95	95	95	95	95
	12	3380	Digital alarm input	96	96	96					96	96	96	96	96	96	96
	13	3390	Digital alarm input	97	97	97					97	97	97	97	97	97	97
	14																
	15																
1010	0	3400	Multi-in. alarm	102	102	102	6	6	6	6	102	102	102	102	102	102	102

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	1	3410	Multi-in. alarm	105	105	105	7	7	7	7	105	105	105	105	105	105	105
	2	3420	Multi-in. alarm	108	108	108	8	8	8	8	108	108	108	108	108	108	108
	3	3401	Wire fail.	102	102	102	6	6	6	6	102	102	102	102	102	102	102
	4	3411	Wire fail.	105	105	105	7	7	7	7	105	105	105	105	105	105	105
	5	3421	Wire fail.	108	108	108	8	8	8	8	108	108	108	108	108	108	108
	6	3430	Digital alarm input	112	112	112					112	112	112	112	112	112	112
	7	3440	Digital alarm input	113	113	113					113	113	113	113	113	113	113
	8	3450	Digital alarm input	114	114	114					114	114	114	114	114	114	114
	9	3460	Digital alarm input	115	115	115					115	115	115	115	115	115	115
	10	3470	Digital alarm input	116	116	116					116	116	116	116	116	116	116
	11	3480	Digital alarm input	117	117	117					117	117	117	117	117	117	117
	12	3490	Digital alarm input (Emergency stop)	118	118	118	20	20	20	20	118	118	118	118	118	118	118
	13																
	14																
	15																
1011	0	3500	Digital alarm input	127	127	127					127	127	127	127	127	127	127
	1	3510	Digital alarm input	128	128	128					128	128	128	128	128	128	128
	2	3520	Digital alarm input	129	129	129					129	129	129	129	129	129	129
	3	3530	Digital alarm input	130	130	130					130	130	130	130	130	130	130

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	4	3540	Digital alarm input	131	131	131					131	131	131	131	131	131	131
	5	3550	Digital alarm input	132	132	132					132	132	132	132	132	132	132
	6	3560	Digital alarm input	133	133	133					133	133	133	133	133	133	133
	7	3570	M-Logic alarm 1	X	X	X	X	X	X	X							
	8	3580	M-Logic alarm 2	X	X	X	X	X	X	X							
	9	3590	M-Logic alarm 3	X	X	X	X	X	X	X							
	10	3600	M-Logic alarm 4	X	X	X	X	X	X	X							
	11	3610	M-Logic alarm 5	X	X	X	X	X	X	X							
	12																
	13																
	14																
	15																
1012			**Analogue input alarm**														
	0	4000	4-20 mA	91.1	91.1	91.1					91.1	91.1	91.1	91.1	91.1	91.1	91.1
	1	4010	4-20 mA	91.2	91.2	91.2					91.2	91.2	91.2	91.2	91.2	91.2	91.2
	2	4020	Wire failure analogue	91	91	91					91	91	91	91	91	91	91
	3	4030	4-20 mA	93.1	93.1	93.1					93.1	93.1	93.1	93.1	93.1	93.1	93.1
	4	4040	4-20 mA	93.2	93.2	93.2					93.2	93.2	93.2	93.2	93.2	93.2	93.2
	5	4050	Wire failure analogue	93	93	93					93	93	93	93	93	93	93

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	6	4060	4-20 mA	95.1	95.1	95.1					95.1	95.1	95.1	95.1	95.1	95.1	95.1
	7	4070	4-20 mA	95.2	95.2	95.2					95.2	95.2	95.2	95.2	95.2	95.2	95.2
	8	4080	Wire failure analogue	95	95	95					95	95	95	95	95	95	95
	9	4090	4-20 mA	97.1	97.1	97.1					97.1	97.1	97.1	97.1	97.1	97.1	97.1
	10	4100	4-20 mA	97.2	97.2	97.2					97.2	97.2	97.2	97.2	97.2	97.2	97.2
	11	4110	Wire failure analogue	97	97	97					97	97	97	97	97	97	97
	12																
	13																
	14																
	15																
1013			**Multi-functional input**														
	0	4120	4-20 mA	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4130	4-20 mA	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4140	V DC	102.1	102.1	102.1					102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4150	V DC	102.2	102.2	102.2					102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4160	Pt	102.1	102.1	102.1					102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4170	Pt	102.2	102.2	102.2					102.2	102.2	102.2	102.2	102.2	102.2	102.2

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	0	4180	VDO/RMI oil	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4190	VDO/RMI oil	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4200	VDO/RMI water	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4210	VDO/RMI water	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	0	4220	VDO/RMI fuel	102.1	102.1	102.1	6.1	6.1	6.1	6.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
	1	4230	VDO/RMI fuel	102.2	102.2	102.2	6.2	6.2	6.2	6.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
	2	4240	W. fail.	102	102	102	6	6	6	6	102	102	102	102	102	102	102
	3	4250	4-20 mA	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4260	4-20 mA	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4270	V DC	105.1	105.1	105.1					105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4280	V DC	105.2	105.2	105.2					105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4290	Pt	105.1	105.1	105.1					105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4300	Pt	105.2	105.2	105.2					105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4310	VDO/RMI oil	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4320	VDO/RMI oil	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	3	4330	VDO/RMI water	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4340	VDO/RMI water	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	3	4350	VDO/RMI fuel	105.1	105.1	105.1	7.1	7.1	7.1	7.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
	4	4360	VDO/RMI fuel	105.2	105.2	105.2	7.2	7.2	7.2	7.2	105.2	105.2	105.2	105.2	105.2	105.2	105.2
	5	4370	W. fail.	105	105	105	7	7	7	7	105	105	105	105	105	105	105
	6	4380	4-20 mA	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4390	4-20 mA	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4400	V DC	108.1	108.1	108.1					108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4410	V DC	108.2	108.2	108.2					108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4420	Pt	108.1	108.1	108.1					108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4430	Pt	108.2	108.2	108.2					108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4440	VDO/RMI oil	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4450	VDO/RMI oil	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	6	4460	VDO/RMI water	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4470	VDO/RMI water	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	6	4480	VDO/RMI fuel	108.1	108.1	108.1	8.1	8.1	8.1	8.1	108.1	108.1	108.1	108.1	108.1	108.1	108.1
	7	4490	VDO/RMI fuel	108.2	108.2	108.2	8.2	8.2	8.2	8.2	108.2	108.2	108.2	108.2	108.2	108.2	108.2
	8	4500	W. fail.	108	108	108	8	8	8	8	108	108	108	108	108	108	108
			Analogue input alarm														
	9	4510	Overspeed 1	X			X	X	X		X	X	X			X	X
	10	4520	Overspeed 2	X			X	X	X		X	X	X			X	X
	11	4530	Crank failure	X			X	X	X		X	X				X	X
	12	4540	Running feedback failure	X			X	X	X		X	X	X			X	X
	13	4550	MPU wire failure	X			X	X	X		X	X	X			X	X
	14	4560	Hz/V failure	X			X	X	X		X	X	X	X		X	X
	15	4570	Start failure	X			X	X	X		X	X				X	X
1014	0	4580	Stop failure	X			X	X	X		X	X				X	X
	1	4960	U< aux. term.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	4970	U> aux. term.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	4980	U< aux. term.	98	98	98					98	98	98	98	98	98	98
	4	4990	U> aux. term.	98	98	98					98	98	98	98	98	98	98
	5	4590	Underspeed 1	X			X	X	X							X	X
	6																

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	7																
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
1015	0	6110	Service timer 1	X			X	X	X		X	X	X			X	X
	1	6120	Service timer 2	X			X	X	X		X	X	X			X	X
	2	6270	Stop coil wire break	X							X	X				X	X
	3	6280	Internal communication failure	X	X	X		X	X	X	X	X	X	X	X	X	X
	4	6330	Engine heater 1	X			X	X	X							X	X
	5	6410	Battery test	X			X	X	X							X	X
	6	6440	Battery asymmetry 1	X	X	X										X	X
	7	6450	Battery asymmetry 2	X	X	X										X	X
	8	6470	Max. ventilation 1	X			X	X	X							X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	9	6480	Max. ventilation 2	X			X	X	X							X	X
	10	6500	Blk. swbd. error	X			X	X	X								
	11	6510	Stp. swbd. error	X			X	X	X								
	12	6540	Unit not in auto	X	X	X	X	X	X	X							
	13	6550	Fuel pump logic	X			X	X	X							X	X
	14	6370	Not in remote													X	X
	15																
1016			**Output**														
	0	5000	Relay	5	5	5	3	3	3	3	5	5	5	5	5	5	5
	1	5010	Relay	8	8	8	21	21	21	21	8	8	8	8	8	8	8
	2	5020	Relay	11	11	11	22	22	22	22	11	11	11	11	11	11	11
	3	5030	Relay	14	14	14	23	23	23	23	14	14	14	14	14	14	14
	4	5040	Relay	17	17	17	24	24	24	24	17	17	17	17	17	17	17
	5	5050	Relay	T20	T20	T20	26	26	26	26	T20	T20	T20	T20	T20	T20	T20
	6	5060	Relay	T21	T21	T21	45	45	45	45	T21	T21	T21	T21	T21	T21	T21
	7	5070	Relay	29	29	29	47	47	47	47	29	29	29	29	29	29	29
	8	5080	Relay	31	31	31					31	31	31	31	31	31	31
	9	5090	Relay	33	33	33					33	33	33	33	33	33	33
	10	5100	Relay	35	35	35					35	35	35	35	35	35	35

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	11	5110	Relay	57	57	57					57	57	57	57	57	57	57
	12	5120	Relay	59	59	59					59	59	59	59	59	59	59
	13	5130	Relay	61	61	61					61	61	61	61	61	61	61
	14	5140	Relay	63	63	63					63	63	63	63	63	63	63
	15																
1017	0	5150	Relay	65	65	65					65	65	65	65	65	65	65
	1	5160	Relay	67	67	67					67	67	67	67	67	67	67
	2	5170	Relay	69	69	69					69	69	69	69	69	69	69
	3	5180	Relay	71	71	71					71	71	71	71	71	71	71
	4	5190	Relay	90	90	90					90	90	90	90	90	90	90
	5	5200	Relay	92	92	92					92	92	92	92	92	92	92
	6	5210	Relay	94	94	94					94	94	94	94	94	94	94
	7	5220	Relay	96	96	96					96	96	96	96	96	96	96
	8	5230	Relay	126	126	126					126	126	126	126	126	126	126
	9	5240	Relay	128	128	128					128	128	128	128	128	128	128
	10	5250	Relay	130	130	130					130	130	130	130	130	130	130
	11	5260	Relay	132	132	132					132	132	132	132	132	132	132
	12		Run. coil relay	X			X	X	X		X	X				X	X
	13		Start prepare	X			X	X	X		X	X				X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	14		Start relay	X			X	X	X		X	X				X	X
	15		Stop coil relay	X			X	X	X		X	X				X	X
1018			**Status**														
	0		Mains failure	X	X			X	X	X							
			Main busbar failure									X					
	1		MB pos. ON	X	X			X	X	X							
			SGB pos. ON										X				
			SCB pos. ON											X			
			TB pos. ON									X					
	2		DG ramp down	X							X	X				X	X
	3		Start regulation	X							X	X				X	X
	4		GB pos. ON	X				X	X		X	X				X	X
			TB pos. ON		X					X							
			BTB pos. ON			X									X		
	5		GB synchronising	X							X	X				X	X
			TB synchronising		X												
			BTB synchronising			X									X		
	6		Engine running	X				X	X		X	X	X			X	X
	7		Running detect. timer expired	X				X	X		X	X	X			X	X

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	8	4560	DG Hz/V OK, timer expired	X				X	X		X	X				X	X
	9	6410	Battery test	X				X	X							X	X
	10		Printing log	X	X	X											
	11		GB position OFF	X				X	X		X	X				X	X
			TB position OFF		X					X							
			BTB position OFF			X									X		
	12		MB position OFF	X	X			X	X	X							
			SGB position OFF										X				
			SCB position OFF											X			
			TB position OFF												X		
	13		BB Hz/V OK	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	14		MB synchronising	X													
	15																
1019			**General/Modes**														
	0		Block mode	X		X	X	X	X								
	1		Manual mode	X				X	X							X	X
			SWBD mode								X	X	X	X	X		
	2		Semi auto mode	X	X	X	X	X	X	X	X	X					
	3		Auto mode	X	X	X	X	X	X	X	X	X					

Address	Bit	Channel	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
	4		Test	X	X			X	X	X		X					
	5		Island	X	X			X	X	X							
	6		AMF	X	X			X	X	X							
	7		Peak shaving	X	X					X							
	8		Fixed power	X	X					X						X	
	9		Mains power export	X	X					X							
	10		Load takeover	X	X			X	X	X							
	11		Power management	X		X											
			Genset group		X												
	12		DG supply										X	X			
	13		SG/SC suppl										X	X			
	14		Reserved														
	15		AMF active	X	X			X	X	X							
1020-1024			See H5/H7 manual or DRH	X			X	X	X		X	X				X	X
1025			Reserved														
1026-1028			See H5/H7 manual or DRH	X			X	X	X		X	X				X	X

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
1031			**Internal communications**														
	0	7860	CAN ID missing													X	X
	1		CAN 1 missing ID	1	1	1				1	1	1	1	1	1		
	2		CAN 1 missing ID	2	2	2				2	2	2	2	2	2		
	3		CAN 1 missing ID	3	3	3				3	3	3	3	3	3		
	4		CAN 1 missing ID	4	4	4				4	4	4	4	4	4		
	5		CAN 1 missing ID	5	5	5				5	5	5	5	5	5		
	6		CAN 1 missing ID	6	6	6				6	6	6	6	6	6		
	7		CAN 1 missing ID	7	7	7				7	7	7	7	7	7		
	8		CAN 1 missing ID	8	8	8				8	8	8	8	8	8		
	9		CAN 1 missing ID	9	9	9				9	9	9	9	9	9		
	10		CAN 1 missing ID	10	10	10				10	10	10	10	10	10		
	11		CAN 1 missing ID	11	11	11				11	11	11	11	11	11		
	12		CAN 1 missing ID	12	12	12				12	12	12	12	12	12		
	13		CAN 1 missing ID	13	13	13				13	13	13	13	13	13		
	14		CAN 1 missing ID	14	14	14				14	14	14	14	14	14		
	15		CAN 1 missing ID	15	15	15				15	15	15	15	15	15		
1032	0		CAN 1 missing ID	16	16	16				16	16	16	16	16	16		
	1																
	2		CAN 2 missing ID	1	1	1				1	1	1	1	1	1		
	3		CAN 2 missing ID	2	2	2				2	2	2	2	2	2		
	4		CAN 2 missing ID	3	3	3				3	3	3	3	3	3		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	5		CAN 2 missing ID	4	4	4				4	4	4	4	4	4		
	6		CAN 2 missing ID	5	5	5				5	5	5	5	5	5		
	7		CAN 2 missing ID	6	6	6				6	6	6	6	6	6		
	8		CAN 2 missing ID	7	7	7				7	7	7	7	7	7		
	9		CAN 2 missing ID	8	8	8				8	8	8	8	8	8		
	10		CAN 2 missing ID	9	9	9				9	9	9	9	9	9		
	11		CAN 2 missing ID	10	10	10				10	10	10	10	10	10		
	12		CAN 2 missing ID	11	11	11				11	11	11	11	11	11		
	13		CAN 2 missing ID	12	12	12				12	12	12	12	12	12		
	14		CAN 2 missing ID	13	13	13				13	13	13	13	13	13		
	15		CAN 2 missing ID	14	14	14				14	14	14	14	14	14		
1033	0		CAN 2 missing ID	15	15	15				15	15	15	15	15	15		
	1		CAN 2 missing ID	16	16	16				16	16	16	16	16	16		
	2		Communication error ext.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10																
	11																

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	12																
	13																
	14																
	15																
1034	0																
	1		Ext. comm. error ID	1	1	1				1	1	1	1	1	1		
	2		Ext. comm. error ID	2	2	2				2	2	2	2	2	2		
	3		Ext. comm. error ID	3	3	3				3	3	3	3	3	3		
	4		Ext. comm. error ID	4	4	4				4	4	4	4	4	4		
	5		Ext. comm. error ID	5	5	5				5	5	5	5	5	5		
	6		Ext. comm. error ID	6	6	6				6	6	6	6	6	6		
	7		Ext. comm. error ID	7	7	7				7	7	7	7	7	7		
	8		Ext. comm. error ID	8	8	8				8	8	8	8	8	8		
	9		Ext. comm. error ID	9	9	9				9	9	9	9	9	9		
	10		Ext. comm. error ID	10	10	10				10	10	10	10	10	10		
	11		Ext. comm. error ID	11	11	11				11	11	11	11	11	11		
	12		Ext. comm. error ID	12	12	12				12	12	12	12	12	12		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	13		Ext. comm. error ID	13	13	13				13	13	13	13	13	13		
	14		Ext. comm. error ID	14	14	14				14	14	14	14	14	14		
	15		Ext. comm. error ID	15	15	15				15	15	15	15	15	15		
1035	0		Ext. comm. error ID	16	16	16				16	16	16	16	16	16		
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
1036	**External inputs**																
	0	12000	Analogue in. 1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	1	12010	Analogue in. 1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	2	12020	W. fail. analogue 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	12030	Analogue in. 2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	4	12040	Analogue in. 2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
	5	12050	W. fail. analogue 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	12060	Analogue in. 3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
	7	12070	Analogue in. 3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
	8	12080	W. fail. analogue 3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	9	12090	Analogue in. 4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
	10	12100	Analogue in. 4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
	11	12110	W. fail. analogue 4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	12	12120	Analogue in. 5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
	13	12130	Analogue in. 5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
	14	12140	W. fail. analogue 5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	15	12150	Analogue in. 6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
1037	0	12160	Analogue in. 6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
	1	12170	W. fail. analogue 6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	2	12180	Analogue in. 7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
	3	12190	Analogue in. 7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
	4	12200	W. fail. analogue 7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	5	12210	Analogue in. 8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
	6	12220	Analogue in. 8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
	7	12230	W. fail. analogue 8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
1038	0	12540	External digital input	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	12550	External digital input	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	12560	External digital input	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	3	12570	External digital input	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	4	12580	External digital input	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5	12590	External digital input	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	6	12600	External digital input	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	7	12610	External digital input	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	8	12620	External digital input	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	9	12630	External digital input	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	10	12640	External digital input	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	11	12650	External digital input	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	12	12660	External digital input	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	13	12670	External digital input	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	14	12680	External digital input	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	15	12690	External digital input	16	16	16	16	16	16	16	16	16	16	16	16	16	16
1039	0	12790	External digital output	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	12800	External digital output	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	12810	External digital output	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	3	12820	External digital output	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	4	12830	External digital output	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5	12840	External digital output	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	6	12850	External digital output	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	7	12860	External digital output	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	8	12870	External digital output	9	9	9	9	9	9	9	9	9	9	9	9	9	9

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	9	12880	External digital output	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	10	12890	External digital output	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	11	12900	External digital output	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	12	12910	External digital output	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	13	12920	External digital output	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	14	12930	External digital output	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	15	12940	External digital output	16	16	16	16	16	16	16	16	16	16	16	16	16	16
1040	0		CAN 1 missing ID no.	1	1	1				1	1	1	1	1	1		
	1		CAN 1 missing ID no.	2	2	2				2	2	2	2	2	2		
	2		CAN 1 missing ID no.	3	3	3				3	3	3	3	3	3		
	3		CAN 1 missing ID no.	4	4	4				4	4	4	4	4	4		
	4		CAN 1 missing ID no.	5	5	5				5	5	5	5	5	5		
	5		CAN 1 missing ID no.	6	6	6				6	6	6	6	6	6		
	6		CAN 1 missing ID no.	7	7	7				7	7	7	7	7	7		
	7		CAN 1 missing ID no.	8	8	8				8	8	8	8	8	8		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	8		CAN 1 missing ID no.	9	9	9				9	9	9	9	9	9		
	9		CAN 1 missing ID no.	10	10	10				10	10	10	10	10	10		
	10		CAN 1 missing ID no.	11	11	11				11	11	11	11	11	11		
	11		CAN 1 missing ID no.	12	12	12				12	12	12	12	12	12		
	12		CAN 1 missing ID no.	13	13	13				13	13	13	13	13	13		
	13		CAN 1 missing ID no.	14	14	14				14	14	14	14	14	14		
	14		CAN 1 missing ID no.	15	15	15				15	15	15	15	15	15		
	15		CAN 1 missing ID no.	16	16	16				16	16	16	16	16	16		
1041	0		CAN 1 missing ID no.	17	17	17				17	17	17	17	17	17		
	1		CAN 1 missing ID no.	18	18	18				18	18	18	18	18	18		
	2		CAN 1 missing ID no.	19	19	19				19	19	19	19	19	19		
	3		CAN 1 missing ID no.	20	20	20				20	20	20	20	20	20		
	4		CAN 1 missing ID no.	21	21	21				21	21	21	21	21	21		
	5		CAN 1 missing ID no.	22	22	22				22	22	22	22	22	22		
	6		CAN 1 missing ID no.	23	23	23				23	23	23	23	23	23		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	7		CAN 1 missing ID no.	24	24	24				24	24	24	24	24	24		
	8		CAN 1 missing ID no.	25	25	25				25	25	25	25	25	25		
	9		CAN 1 missing ID no.	26	26	26				26	26	26	26	26	26		
	10		CAN 1 missing ID no.	27	27	27				27	27	27	27	27	27		
	11		CAN 1 missing ID no.	28	28	28				28	28	28	28	28	28		
	12		CAN 1 missing ID no.	29	29	29				29	29	29	29	29	29		
	13		CAN 1 missing ID no.	30	30	30				30	30	30	30	30	30		
	14		CAN 1 missing ID no.	31	31	31				31	31	31	31	31	31		
	15		CAN 1 missing ID no.	32	32	32				32	32	32	32	32	32		
1042	0		CAN 1 missing ID no.	33	33	33				33	33	33	33	33	33		
	1		CAN 1 missing ID no.	34	34	34				34	34	34	34	34	34		
	2		CAN 1 missing ID no.	35	35	35				35	35	35	35	35	35		
	3		CAN 1 missing ID no.	36	36	36				36	36	36	36	36	36		
	4		CAN 1 missing ID no.	37	37	37				37	37	37	37	37	37		
	5		CAN 1 missing ID no.	38	38	38				38	38	38	38	38	38		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	6		CAN 1 missing ID no.	39	39	39				39	39	39	39	39	39		
	7		CAN 1 missing ID no.	40	40	40				40	40	40	40	40	40		
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
1043	0		CAN 2 missing ID no.	1	1	1				1	1	1	1	1	1		
	1		CAN 2 missing ID no.	2	2	2				2	2	2	2	2	2		
	2		CAN 2 missing ID no.	3	3	3				3	3	3	3	3	3		
	3		CAN 2 missing ID no.	4	4	4				4	4	4	4	4	4		
	4		CAN 2 missing ID no.	5	5	5				5	5	5	5	5	5		
	5		CAN 2 missing ID no.	6	6	6				6	6	6	6	6	6		
	6		CAN 2 missing ID no.	7	7	7				7	7	7	7	7	7		
	7		CAN 2 missing ID no.	8	8	8				8	8	8	8	8	8		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	8		CAN 2 missing ID no.	9	9	9				9	9	9	9	9	9		
	9		CAN 2 missing ID no.	10	10	10				10	10	10	10	10	10		
	10		CAN 2 missing ID no.	11	11	11				11	11	11	11	11	11		
	11		CAN 2 missing ID no.	12	12	12				12	12	12	12	12	12		
	12		CAN 2 missing ID no.	13	13	13				13	13	13	13	13	13		
	13		CAN 2 missing ID no.	14	14	14				14	14	14	14	14	14		
	14		CAN 2 missing ID no.	15	15	15				15	15	15	15	15	15		
	15		CAN 2 missing ID no.	16	16	16				16	16	16	16	16	16		
1044	0		CAN 2 missing ID no.	17	17	17				17	17	17	17	17	17		
	1		CAN 2 missing ID no.	18	18	18				18	18	18	18	18	18		
	2		CAN 2 missing ID no.	19	19	19				19	19	19	19	19	19		
	3		CAN 2 missing ID no.	20	20	20				20	20	20	20	20	20		
	4		CAN 2 missing ID no.	21	21	21				21	21	21	21	21	21		
	5		CAN 2 missing ID no.	22	22	22				22	22	22	22	22	22		
	6		CAN 2 missing ID no.	23	23	23				23	23	23	23	23	23		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	7		CAN 2 missing ID no.	24	24	24				24	24	24	24	24	24		
	8		CAN 2 missing ID no.	25	25	25				25	25	25	25	25	25		
	9		CAN 2 missing ID no.	26	26	26				26	26	26	26	26	26		
	10		CAN 2 missing ID no.	27	27	27				27	27	27	27	27	27		
	11		CAN 2 missing ID no.	28	28	28				28	28	28	28	28	28		
	12		CAN 2 missing ID no.	29	29	29				29	29	29	29	29	29		
	13		CAN 2 missing ID no.	30	30	30				30	30	30	30	30	30		
	14		CAN 2 missing ID no.	31	31	31				31	31	31	31	31	31		
	15		CAN 2 missing ID no.	32	32	32				32	32	32	32	32	32		
1045	0		CAN 2 missing ID no.	33	33	33				33	33	33	33	33	33		
	1		CAN 2 missing ID no.	34	34	34				34	34	34	34	34	34		
	2		CAN 2 missing ID no.	35	35	35				35	35	35	35	35	35		
	3		CAN 2 missing ID no.	36	36	36				36	36	36	36	36	36		
	4		CAN 2 missing ID no.	37	37	37				37	37	37	37	37	37		
	5		CAN 2 missing ID no.	38	38	38				38	38	38	38	38	38		

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	6		CAN 2 missing ID no.	39	39	39				39	39	39	39	39	39		
	7		CAN 2 missing ID no.	40	40	40				40	40	40	40	40	40		
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
1046	0	4800	4-20 mA alarm no.	127.1	127.1	127.1					127.1	127.1	127.1	127.1	127.1	127.1	127.1
	1	4810	4-20 mA alarm no.	127.2	127.2	127.2					127.2	127.2	127.2	127.2	127.2	127.2	127.2
	2	4820	Wire fail analogue input	127	127	127					127	127	127	127	127	127	127
	3	4830	4-20 mA alarm no.	129.1	129.1	129.1					129.1	129.1	129.1	129.1	129.1	129.1	129.1
	4	4840	4-20 mA alarm no.	129.2	129.2	129.2					129.2	129.2	129.2	129.2	129.2	129.2	129.2
	5	4850	Wire fail analogue input	129	129	129					129	129	129	129	129	129	129
	6	4860	4-20 mA alarm no.	131.1	131.1	131.1					131.1	131.1	131.1	131.1	131.1	131.1	131.1
	7	4870	4-20 mA alarm no.	131.2	131.2	131.2					131.2	131.2	131.2	131.2	131.2	131.2	131.2
	8	4880	Wire fail analogue input	131	131	131					131	131	131	131	131	131	131
	9	4890	4-20 mA alarm no.	133.1	133.1	133.1					133.1	133.1	133.1	133.1	133.1	133.1	133.1
	10	4900	4-20 mA alarm no.	133.2	133.2	133.2					133.2	133.2	133.2	133.2	133.2	133.2	133.2

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	11	4910	Wire fail analogue input	133	133	133					133	133	133	133	133	133	133
	12																
	13																
	14																
	15																
1047	0		GG group 1 missing		X												
	1		GG group 2 missing		X												
	2		GG group 3 missing		X												
	3		GG group 4 missing		X												
	4		GG group 5 missing		X												
	5		GG group 6 missing		X												
	6		GG group 7 missing		X												
	7		GG group 8 missing		X												
	8		GG group 9 missing		X												
	9		GG group 10 missing		X												
	10		GG group 11 missing		X												
	11		GG group 12		X												

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
			missing														
	12		GG group 13 missing		X												
	13		GG group 14 missing		X												
	14		GG group 15 missing		X												
	15		GG group 16 missing		X												
1048	0		GG mains 17 missing		X												
	1		GG mains 18 missing		X												
	2		GG mains 19 missing		X												
	3		GG mains 20 missing		X												
	4		GG mains 21 missing		X												
	5		GG mains 22 missing		X												
	6		GG mains 23 missing		X												
	7		GG mains 24 missing		X												
	8		GG mains 25 missing		X												
	9		GG mains 26 missing		X												
	10		GG mains 27		X												

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
			missing														
	11		GG mains 28 missing		X												
	12		GG mains 29 missing		X												
	13		GG mains 30 missing		X												
	14		GG mains 31 missing		X												
	15		GG mains 32 missing		X												
1049			Reserved														
1050			Reserved														
1051	0		Virtual event 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1		Virtual event 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2		Virtual event 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3		Virtual event 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4		Virtual event 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	5		Virtual event 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	6		Virtual event 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	7		Virtual event 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	8		Virtual event 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	9		Virtual event 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	10		Virtual event 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	11		Virtual event 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	12		Virtual event 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	13		Virtual event 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	14		Virtual event 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	15		Virtual event 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1052	0		Virtual event 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1		Virtual event 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2		Virtual event 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3		Virtual event 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4		Virtual event 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	5		Virtual event 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	6		Virtual event 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	7		Virtual event 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	8		Virtual event 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	9		Virtual event 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	10		Virtual event 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	11		Virtual event 28	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	12		Virtual event 29	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	13		Virtual event 30	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	14		Virtual event 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	15		Virtual event 32	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1053	0		Not used														
1054	0		G In> Inverse														
	1		G Ie> Inverse														
	2		Reserved														

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	3		Reserved														
	4	1710	G unbalance I 2					X	X							X	X
	5	7480	Avg U BB > 1	X	X			X	X	X						X	X
	6	7490	Avg U BB > 2	X	X			X	X	X						X	X
	7		Reserved														
	8		Reserved														
	9		Reserved														
	10		Reserved														
	11		Reserved														
	12		Reserved														
	13		Reserved														
	14		Reserved														
	15		Reserved														
1055	0		LED 1 Red colour				X	X	X	X							
	1		LED 1 yellow colour				X	X	X	X							
	2		LED 1 Green colour				X	X	X	X							
	3		LED 1 Flash				X	X	X	X							
	4		LED 2 Red colour				X	X	X	X							
	5		LED 2 yellow colour				X	X	X	X							
	6		LED 2 Green colour				X	X	X	X							
	7		LED 2 Flash				X	X	X	X							

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	8		LED 3 Red colour				X	X	X	X							
	9		LED 3 yellow colour				X	X	X	X							
	10		LED 3 Green colour				X	X	X	X							
	11		LED 3 Flash				X	X	X	X							
	12		LED 4 Red colour				X	X	X	X							
	13		LED 4 yellow colour				X	X	X	X							
	14		LED 4 Green colour				X	X	X	X							
	15		LED 4 Flash				X	X	X	X							
1056	0		Digital input 97													X	X
	1		Digital input 96													X	X
	2		Digital input 95													X	X
	3		Digital input 94													X	X
	4		Digital input 93													X	X
	5		Digital input 92													X	X
	6		Digital input 91													X	X
	7		Digital input 133													X	X
	8		Digital input 132													X	X
	9		Digital input 131													X	X
	10		Digital input 130													X	X
	11		Digital input 129													X	X
	12		Digital input 128													X	X

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	13		Digital input 127													X	X
	14		Reserved													X	X
	15		Reserved													X	X
1057	0		Digital input 43													X	X
	1		Digital input 44													X	X
	2		Digital input 45													X	X
	3		Digital input 46													X	X
	4		Digital input 47													X	X
	5		Digital input 48													X	X
	6		Digital input 49													X	X
	7		Digital input 50													X	X
	8		Digital input 51													X	X
	9		Digital input 52													X	X
	10		Digital input 53													X	X
	11		Digital input 54													X	X
	12		Digital input 55													X	X
	13		Reserved													X	X
	14		Reserved													X	X
	15		Reserved													X	X
1058	0		Digital input 23													X	X
	1		Digital input 24													X	X
	2		Digital input 25													X	X
	3		Digital input 26													X	X

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	4		Digital input 27													X	X
	5		Digital input 118 (Emergency stop)													X	X
	6		Digital input 117													X	X
	7		Digital input 116													X	X
	8		Digital input 115													X	X
	9		Digital input 114													X	X
	10		Digital input 113													X	X
	11		Digital input 112													X	X
	12		Digital input 123													X	X
	13		Multi input 108													X	X
	14		Multi input 105													X	X
	15		Multi input 102													X	X
1059	0		Relay 65													X	X
	1		Relay 67													X	X
	2		Relay 69													X	X
	3		Relay 71													X	X
	4		Relay 132													X	X
	5		Relay 130													X	X
	6		Relay 128													X	X
	7		Relay 126													X	X
	8		Relay 96													X	X
	9		Relay 94													X	X
	10		Relay 92													X	X

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	11		Relay 90													X	X
	12		Relay 57													X	X
	13		Relay 59													X	X
	14		Relay 61													X	X
	15		Relay 63													X	X
1060	0		Relay 5													X	X
	1		Relay 8													X	X
	2		Relay 11													X	X
	3		Relay 14													X	X
	4		Relay 17													X	X
	5		Relay T20													X	X
	6		Relay T21													X	X
	7		Relay 29													X	X
	8		Relay 31													X	X
	9		Relay 33													X	X
	10		Relay 35													X	X
	11		Run coil													X	X
	12		Start prepare													X	X
	13		Start relay													X	X
	14		Stop coil													X	X
	15		Reserved													X	X
1067	0		Power limit value1													X**	
	1		Power limit value2													X**	

Address	Bit	Channel	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	GPC/PPU	GPU/GPU Hydro
	2		Power limit value3													X**	
	3		Power limit value4													X**	
1071			Blackout Unit								X						
1072			Blackout Section								X						
1073			Blackout System								X						
1074			Blackout Emergency busbar								X						
1075			P%								X						
1076			Q%								X						
1077			S%								X						

Columns marked with ** only apply to GPC.

Bits 3, 7, 11 and 15 only have significance when one of the colour indication bits is high. When bit 3, 7, 11 or 15 is “0”, then the LED is on solid, and when bit 3, 7, 11 or 15 is “1”, the LED is flashing.

Power management measurement table (read only) (function code 04h)

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		AGC-3: Option G5 AGC 145/146: Standard PPM: Standard									
1500		Total power	X				X	X	X	X	X
1501		Available power	X				X	X	X	X	X
1502		Total nominal power	X				X	X	X	X	X
1503		Total genset power	X				X	X	X	X	X
1504		Total reactive power	X				X	X	X	X	X
1505		Number of gensets	X				X	X	X	X	X
1506		Mains selection	X								
1507		Load-dependent stop	X				X				
1508		Load-dependent start	X				X				
1509		Stop genset calculation	X				X				
1510		Nominal power genset	1				1				
1511		Nominal power genset	2				2				
1512		Nominal power genset	3				3				
1513		Nominal power genset	4				4				
1514		Nominal power genset	5				5				
1515		Nominal power genset	6				6				
1516		Nominal power genset	7				7				
1517		Nominal power genset	8				8				
1518		Nominal power genset	9				9				
1519		Nominal power genset	10				10				

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1520		Nominal power genset	11				11				
1521		Nominal power genset	12				12				
1522		Nominal power genset	13				13				
1523		Nominal power genset	14				14				
1524		Nominal power genset	15				15				
1525		Nominal power genset	16				16				
1526		Power genset	1				1				
1527		Power genset	2				2				
1528		Power genset	3				3				
1529		Power genset	4				4				
1530		Power genset	5				5				
1531		Power genset	6				6				
1532		Power genset	7				7				
1533		Power genset	8				8				
1534		Power genset	9				9				
1535		Power genset	10				10				
1536		Power genset	11				11				
1537		Power genset	12				12				
1538		Power genset	13				13				
1539		Power genset	14				14				
1540		Power genset	15				15				
1541		Power genset	16				16				
1542		Reactive power genset	1				1				
1543		Reactive power genset	2				2				
1544		Reactive power genset	3				3				

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1545		Reactive power genset	4				4				
1546		Reactive power genset	5				5				
1547		Reactive power genset	6				6				
1548		Reactive power genset	7				7				
1549		Reactive power genset	8				8				
1550		Reactive power genset	9				9				
1551		Reactive power genset	10				10				
1552		Reactive power genset	11				11				
1553		Reactive power genset	12				12				
1554		Reactive power genset	13				13				
1555		Reactive power genset	14				14				
1556		Reactive power genset	15				15				
1557		Reactive power genset	16				16				
1558											
1559											
1560		Power, mains 1A	X								
1561		Power, mains 1B	X								
1562		Power, mains 2A	X								
1563		Power, mains 2B	X								
1564											
1565		Reactive power mains 1A	X								
1566		Reactive power mains 1B	X								
1567		Reactive power mains 2A	X								
1568		Reactive power mains 2B	X								
1569		Power mains 17	X								

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		Power shaft 17							X		
		Power shore 17								X	
1570		Power mains 18	X								
		Power shaft 18							X		
		Power shore 18								X	
1571		Power mains 19	X								
		Power shaft 19							X		
		Power shore 19								X	
1572		Power mains 20	X								
		Power shaft 20							X		
		Power shore 20								X	
1573		Power mains 21	X								
1574		Power mains 22	X								
1575		Power mains 23	X								
1576		Power mains 24	X								
1577		Power mains 25	X								
1578		Power mains 26	X								
1579		Power mains 27	X								
1580		Power mains 28	X								
1581		Power mains 29	X								
1582		Power mains 30	X								
1583		Power mains 31	X								
1584		Power mains 32	X								
1585		Reactive power mains 17	X								
		Reactive power shaft 17							X		

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		Reactive power shore 17								X	
1586		Reactive power mains 18	X								
		Reactive power shaft 18							X		
		Reactive power shore 18								X	
1587		Reactive power mains 19	X								
		Reactive power shaft 19							X		
		Reactive power shore 19								X	
1588		Reactive power mains 20	X								
		Reactive power shaft 20							X		
		Reactive power shore 20								X	
1589		Reactive power mains 21	X								
1590		Reactive power mains 22	X								
1591		Reactive power mains 23	X								
1592		Reactive power mains 24	X								
1593		Reactive power mains 25	X								
1594		Reactive power mains 26	X								
1595		Reactive power mains 27	X								
1596		Reactive power mains 28	X								
1597		Reactive power mains 29	X								
1598		Reactive power mains 30	X								
1599		Reactive power mains 31	X								
1600		Reactive power mains 32	X								
1601		Power bus tie breaker 33	X								X
1602		Power bus tie breaker 34	X								X
1603		Power bus tie breaker 35	X								X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1604		Power bus tie breaker 36	X								X
1605		Power bus tie breaker 37	X								X
1606		Power bus tie breaker 38	X								X
1607		Power bus tie breaker 39	X								X
1608		Power bus tie breaker 40	X								X
1609		Reactive power bus tie breaker 33	X								X
1610		Reactive power bus tie breaker 34	X								X
1611		Reactive power bus tie breaker 35	X								X
1612		Reactive power bus tie breaker 36	X								X
1613		Reactive power bus tie breaker 37	X								X
1614		Reactive power bus tie breaker 38	X								X
1615		Reactive power bus tie breaker 39	X								X
1616		Reactive power bus tie breaker 40	X								X
1617		Plant mode mains 17	X								
1618		Plant mode mains 18	X								
1619		Plant mode mains 19	X								
1620		Plant mode mains 20	X								
1621		Plant mode mains 21	X								
1622		Plant mode mains 22	X								
1623		Plant mode mains 23	X								
1624		Plant mode mains 24	X								
1625		Plant mode mains 25	X								
1626		Plant mode mains 26	X								
1627		Plant mode mains 27	X								
1628		Plant mode mains 28	X								

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1629		Plant mode mains 29	X								
1630		Plant mode mains 30	X								
1631		Plant mode mains 31	X								
1632		Plant mode mains 32	X								
1633		Bus power mains 17	X								
1634		Bus power mains 18	X								
1635		Bus power mains 19	X								
1636		Bus power mains 20	X								
1637		Bus power mains 21	X								
1638		Bus power mains 22	X								
1639		Bus power mains 23	X								
1640		Bus power mains 24	X								
1641		Bus power mains 25	X								
1642		Bus power mains 26	X								
1643		Bus power mains 27	X								
1644		Bus power mains 28	X								
1645		Bus power mains 29	X								
1646		Bus power mains 30	X								
1647		Bus power mains 31	X								
1648		Bus power mains 32	X								
1649	0	ID 17 mains transducer-configured	X	X	X	X					
	1	ID 18 mains transducer-configured	X	X	X	X					
	2	ID 19 mains transducer-configured	X	X	X	X					
	3	ID 20 mains transducer-configured	X	X	X	X					
	4	ID 21 mains transducer-configured	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	5	ID 22 mains transducer-configured	X	X	X	X					
	6	ID 23 mains transducer-configured	X	X	X	X					
	7	ID 24 mains transducer-configured	X	X	X	X					
	8	ID 25 mains transducer-configured	X	X	X	X					
	9	ID 26 mains transducer-configured	X	X	X	X					
	10	ID 27 mains transducer-configured	X	X	X	X					
	11	ID 28 mains transducer-configured	X	X	X	X					
	12	ID 29 mains transducer-configured	X	X	X	X					
	13	ID 30 mains transducer-configured	X	X	X	X					
	14	ID 31 mains transducer-configured	X	X	X	X					
	15	ID 32 mains transducer-configured	X	X	X	X					
1650	0	ID 17 TB transducer-configured	X	X	X	X					
	1	ID 18 TB transducer-configured	X	X	X	X					
	2	ID 19 TB transducer-configured	X	X	X	X					
	3	ID 20 TB transducer-configured	X	X	X	X					
	4	ID 21 TB transducer-configured	X	X	X	X					
	5	ID 22 TB transducer-configured	X	X	X	X					
	6	ID 23 TB transducer-configured	X	X	X	X					
	7	ID 24 TB transducer-configured	X	X	X	X					
	8	ID 25 TB transducer-configured	X	X	X	X					
	9	ID 26 TB transducer-configured	X	X	X	X					
	10	ID 27 TB transducer-configured	X	X	X	X					
	11	ID 28 TB transducer-configured	X	X	X	X					
	12	ID 29 TB transducer-configured	X	X	X	X					
	13	ID 30 TB transducer-configured	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	14	ID 31 TB transducer-configured	X	X	X	X					
	15	ID 32 TB transducer-configured	X	X	X	X					
1651	0	ID 33 BTB transducer-configured	X	X	X						
	1	ID 34 BTB transducer-configured	X	X	X						
	2	ID 35 BTB transducer-configured	X	X	X						
	3	ID 36 BTB transducer-configured	X	X	X						
	4	ID 37 BTB transducer-configured	X	X	X						
	5	ID 38 BTB transducer-configured	X	X	X						
	6	ID 39 BTB transducer-configured	X	X	X						
	7	ID 40 BTB transducer-configured	X	X	X						
1652	0	ID 33 BTB controlled	X	X	X						
	1	ID 34 BTB controlled	X	X	X						
	2	ID 35 BTB controlled	X	X	X						
	3	ID 36 BTB controlled	X	X	X						
	4	ID 37 BTB controlled	X	X	X						
	5	ID 38 BTB controlled	X	X	X						
	6	ID 39 BTB controlled	X	X	X						
	7	ID 40 BTB controlled	X	X	X						
1653		ID 17 nominal power	X	X	X	X					
1654		ID 18 nominal power	X	X	X	X					
1655		ID 19 nominal power	X	X	X	X					
1656		ID 20 nominal power	X	X	X	X					
1657		ID 21 nominal power	X	X	X	X					
1658		ID 22 nominal power	X	X	X	X					
1659		ID 23 nominal power	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1660		ID 24 nominal power	X	X	X	X					
1661		ID 25 nominal power	X	X	X	X					
1662		ID 26 nominal power	X	X	X	X					
1663		ID 27 nominal power	X	X	X	X					
1664		ID 28 nominal power	X	X	X	X					
1665		ID 29 nominal power	X	X	X	X					
1666		ID 30 nominal power	X	X	X	X					
1667		ID 31 nominal power	X	X	X	X					
1668		ID 32 nominal power	X	X	X	X					
1669	0	ID 1 Transducer-configured									
	1	ID 2 Transducer-configured									
	2	ID 3 Transducer-configured									
	3	ID 4 Transducer-configured									
	4	ID 5 Transducer-configured									
	5	ID 6 Transducer-configured									
	6	ID 7 Transducer-configured									
	7	ID 8 Transducer-configured									
	8	ID 9 Transducer-configured									
	9	ID 10 Transducer-configured									
	10	ID 11 Transducer-configured									
	11	ID 12 Transducer-configured									
	12	ID 13 Transducer-configured									
	13	ID 14 Transducer-configured									
	14	ID 15 Transducer-configured									
	15	ID 16 Transducer-configured									

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1670		ID 1 Transducer-measured value									
1671		ID 2 Transducer- measured value									
1672		ID 3 Transducer-measured value									
1673		ID 4 Transducer-measured value									
1674		ID 5 Transducer-measured value									
1675		ID 6 Transducer-measured value									
1676		ID 7 Transducer-measured value									
1677		ID 8 Transducer-measured value									
1678		ID 9 Transducer-measured value									
1679		ID 10 Transducer-measured value									
1680		ID 11Transducer-measured value									
1681		ID 12 Transducer-measured value									
1682		ID 13 Transducer-measured value									
1683		ID 14 Transducer-measured value									
1684		ID 15 Transducer-measured value									
1685		ID 16 Transducer-measured value									
1690		Plant total DG P					X	X	X	X	X
1691		HC1 consumed P					X		X	X	
1692		HC2 consumed P					X		X	X	
1693		HC3 consumed P					X		X	X	
1694		HC4 consumed P					X		X	X	
1649-1699		Reserved									

Power management alarm and status table (read only) (function code 04h)

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1700		**AGC-3: Option G5 AGC 145, 146: Standard PPM: Standard**									
	0	TB available	X								
		Shore unit available								X	
	1	Mains unit available	X								
		SG unit available							X		
	2	Any MB pos. ON	X								
		Any SGB/SCB pos ON							X	X	
	3	Any MB pos. OFF	X								
		Any SGB/SCB pos OFF							X	X	
	4	TB pos. ON (Mains Command Unit)	X								
		SCB pos ON								X	
	5	TB pos. OFF (Mains Command Unit)	X								
		SCB pos OFF								X	
	6	Any GB pos. ON	X				X	X	X		
		Any GB pos ON on Main BB									
	7	Any GB pos. OFF	X				X	X	X		
		Any GB pos OFF on Main BB									
	8	Any TB pos. ON	X					X			

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	9	Any TB pos. OFF	X					X			
	10	Any BTB pos. ON	X								
	10	Any BTB pos. ON in section									X
	11	Any BTB pos. OFF	X								
		Any BTB pos. OFF in section									X
	12										
	13										
	14										
	15										
1701	0	GB pos. ON ID 1	X	X	X	X	X	X	X	X	X
	1	GB pos. ON ID 2	X	X	X	X	X	X	X	X	X
	2	GB pos. ON ID 3	X	X	X	X	X	X	X	X	X
	3	GB pos. ON ID 4	X	X	X	X	X	X	X	X	X
	4	GB pos. ON ID 5	X	X	X	X	X	X	X	X	X
	5	GB pos. ON ID 6	X	X	X	X	X	X	X	X	X
	6	GB pos. ON ID 7	X	X	X	X	X	X	X	X	X
	7	GB pos. ON ID 8	X	X	X	X	X	X	X	X	X
	8	GB pos. ON ID 9	X	X	X	X	X	X	X	X	X
	9	GB pos. ON ID 10	X	X	X	X	X	X	X	X	X
	10	GB pos. ON ID 11	X	X	X	X	X	X	X	X	X
	11	GB pos. ON ID 12	X	X	X	X	X	X	X	X	X
	12	GB pos. ON ID 13	X	X	X	X	X	X	X	X	X
	13	GB pos. ON ID 14	X	X	X	X	X	X	X	X	X
	14	GB pos. ON ID 15	X	X	X	X	X	X	X	X	X
	15	GB pos. ON ID 16	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1702	0	GB pos. OFF ID 1	X	X	X	X	X	X	X	X	X
	1	GB pos. OFF ID 2	X	X	X	X	X	X	X	X	X
	2	GB pos. OFF ID 3	X	X	X	X	X	X	X	X	X
	3	GB pos. OFF ID 4	X	X	X	X	X	X	X	X	X
	4	GB pos. OFF ID 5	X	X	X	X	X	X	X	X	X
	5	GB pos. OFF ID 6	X	X	X	X	X	X	X	X	X
	6	GB pos. OFF ID 7	X	X	X	X	X	X	X	X	X
	7	GB pos. OFF ID 8	X	X	X	X	X	X	X	X	X
	8	GB pos. OFF ID 9	X	X	X	X	X	X	X	X	X
	9	GB pos. OFF ID 10	X	X	X	X	X	X	X	X	X
	10	GB pos. OFF ID 11	X	X	X	X	X	X	X	X	X
	11	GB pos. OFF ID 12	X	X	X	X	X	X	X	X	X
	12	GB pos. OFF ID 13	X	X	X	X	X	X	X	X	X
	13	GB pos. OFF ID 14	X	X	X	X	X	X	X	X	X
	14	GB pos. OFF ID 15	X	X	X	X	X	X	X	X	X
	15	GB pos. OFF ID 16	X	X	X	X	X	X	X	X	X
1703	0	DG Hz/V OK, ID 1	X	X	X	X	X	X	X	X	X
	1	DG Hz/V OK, ID 2	X	X	X	X	X	X	X	X	X
	2	DG Hz/V OK, ID 3	X	X	X	X	X	X	X	X	X
	3	DG Hz/V OK, ID 4	X	X	X	X	X	X	X	X	X
	4	DG Hz/V OK, ID 5	X	X	X	X	X	X	X	X	X
	5	DG Hz/V OK, ID 6	X	X	X	X	X	X	X	X	X
	6	DG Hz/V OK, ID 7	X	X	X	X	X	X	X	X	X
	7	DG Hz/V OK, ID 8	X	X	X	X	X	X	X	X	X
	8	DG Hz/V OK, ID 9	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	9	DG Hz/V OK, ID10	X	X	X	X	X	X	X	X	X
	10	DG Hz/V OK, ID 11	X	X	X	X	X	X	X	X	X
	11	DG Hz/V OK, ID 12	X	X	X	X	X	X	X	X	X
	12	DG Hz/V OK, ID 13	X	X	X	X	X	X	X	X	X
	13	DG Hz/V OK, ID 14	X	X	X	X	X	X	X	X	X
	14	DG Hz/V OK, ID 15	X	X	X	X	X	X	X	X	X
	15	DG Hz/V OK, ID 16	X	X	X	X	X	X	X	X	X
1704	0	Mains OK, single mains	X	X	X	X					
	1	Mains OK, mains 1A	X	X	X						
	2	Mains OK, mains 1B	X	X	X						
	3	Mains OK, mains 2A	X	X	X						
	4	Mains OK, mains 2B	X	X	X						
	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
1705	0	Ready for auto start, ID 1	X	X	X	X	X	X	X	X	X
	1	Ready for auto start, ID 2	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	2	Ready for auto start, ID 3	X	X	X	X	X	X	X	X	X
	3	Ready for auto start, ID 4	X	X	X	X	X	X	X	X	X
	4	Ready for auto start, ID 5	X	X	X	X	X	X	X	X	X
	5	Ready for auto start, ID 6	X	X	X	X	X	X	X	X	X
	6	Ready for auto start, ID 7	X	X	X	X	X	X	X	X	X
	7	Ready for auto start, ID 8	X	X	X	X	X	X	X	X	X
	8	Ready for auto start, ID 9	X	X	X	X	X	X	X	X	X
	9	Ready for auto start, ID 10	X	X	X	X	X	X	X	X	X
	10	Ready for auto start, ID 11	X	X	X	X	X	X	X	X	X
	11	Ready for auto start, ID 12	X	X	X	X	X	X	X	X	X
	12	Ready for auto start, ID 13	X	X	X	X	X	X	X	X	X
	13	Ready for auto start, ID 14	X	X	X	X	X	X	X	X	X
	14	Ready for auto start, ID 15	X	X	X	X	X	X	X	X	X
	15	Ready for auto start, ID 16	X	X	X	X	X	X	X	X	X
1706	0	Mains not in semi, single mains	X	X	X	X					
	1	Mains not in semi, mains 1A	X	X	X						
	2	Mains not in semi, mains 1B	X	X	X						
	3	Mains not in semi, mains 2A	X	X	X						
	4	Mains not in semi, mains 2B	X	X	X						
	5										
	6										
	7										
	8										
	9										
	10										

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	11										
	12										
	13										
	14										
	15										
1707	0	Any alarms, ID 1	X	X	X	X	X	X	X	X	X
	1	Any alarms, ID 2	X	X	X	X	X	X	X	X	X
	2	Any alarms, ID 3	X	X	X	X	X	X	X	X	X
	3	Any alarms, ID 4	X	X	X	X	X	X	X	X	X
	4	Any alarms, ID 5	X	X	X	X	X	X	X	X	X
	5	Any alarms, ID 6	X	X	X	X	X	X	X	X	X
	6	Any alarms, ID 7	X	X	X	X	X	X	X	X	X
	7	Any alarms, ID 8	X	X	X	X	X	X	X	X	X
	8	Any alarms, ID 9	X	X	X	X	X	X	X	X	X
	9	Any alarms, ID 10	X	X	X	X	X	X	X	X	X
	10	Any alarms, ID 11	X	X	X	X	X	X	X	X	X
	11	Any alarms, ID 12	X	X	X	X	X	X	X	X	X
	12	Any alarms, ID 13	X	X	X	X	X	X	X	X	X
	13	Any alarms, ID 14	X	X	X	X	X	X	X	X	X
	14	Any alarms, ID 15	X	X	X	X	X	X	X	X	X
	15	Any alarms, ID 16	X	X	X	X	X	X	X	X	X
1708	0	Any alarms, single mains	X	X	X	X					
	1	Any alarms, mains 1A	X	X	X						
	2	Any alarms, mains 1B	X	X	X						
	3	Any alarms, mains 2A	X	X	X						

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	4	Any alarms, mains 2B	X	X	X						
	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
1709	0	Engine running, ID 1	X	X	X	X	X	X	X	X	X
	1	Engine running, ID 2	X	X	X	X	X	X	X	X	X
	2	Engine running, ID 3	X	X	X	X	X	X	X	X	X
	3	Engine running, ID 4	X	X	X	X	X	X	X	X	X
	4	Engine running, ID 5	X	X	X	X	X	X	X	X	X
	5	Engine running, ID 6	X	X	X	X	X	X	X	X	X
	6	Engine running, ID 7	X	X	X	X	X	X	X	X	X
	7	Engine running, ID 8	X	X	X	X	X	X	X	X	X
	8	Engine running, ID 9	X	X	X	X	X	X	X	X	X
	9	Engine running, ID 10	X	X	X	X	X	X	X	X	X
	10	Engine running, ID 11	X	X	X	X	X	X	X	X	X
	11	Engine running, ID 12	X	X	X	X	X	X	X	X	X
	12	Engine running, ID 13	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	13	Engine running, ID 14	X	X	X	X	X	X	X	X	X
	14	Engine running, ID 15	X	X	X	X	X	X	X	X	X
	15	Engine running, ID 16	X	X	X	X	X	X	X	X	X
1710	0	MB pos. ON, single mains	X	X	X	X					
	1	MB pos. ON, mains 1A	X	X	X						
	2	MB pos. ON, mains 1B	X	X	X						
	3	MB pos. ON, mains 2A	X	X	X						
	4	MB pos. ON, mains 2B	X	X	X						
	5	MB pos. OFF, single mains	X	X	X	X					
	6	MB pos. OFF, mains 1A	X	X	X						
	7	MB pos. OFF, mains 1B	X	X	X						
	8	MB pos. OFF, mains 2A	X	X	X						
	9	MB pos. OFF, mains 2B	X	X	X						
	10										
	11										
	12										
	13										
	14										
	15										
1711	0	GB synchronising, ID 1	X	X	X	X	X	X	X	X	X
	1	GB synchronising, ID 2	X	X	X	X	X	X	X	X	X
	2	GB synchronising, ID 3	X	X	X	X	X	X	X	X	X
	3	GB synchronising, ID 4	X	X	X	X	X	X	X	X	X
	4	GB synchronising, ID 5	X	X	X	X	X	X	X	X	X
	5	GB synchronising, ID 6	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	6	GB synchronising, ID 7	X	X	X	X	X	X	X	X	X
	7	GB synchronising, ID 8	X	X	X	X	X	X	X	X	X
	8	GB synchronising, ID 9	X	X	X	X	X	X	X	X	X
	9	GB synchronising, ID 10	X	X	X	X	X	X	X	X	X
	10	GB synchronising, ID 11	X	X	X	X	X	X	X	X	X
	11	GB synchronising, ID 12	X	X	X	X	X	X	X	X	X
	12	GB synchronising, ID 13	X	X	X	X	X	X	X	X	X
	13	GB synchronising, ID 14	X	X	X	X	X	X	X	X	X
	14	GB synchronising, ID 15	X	X	X	X	X	X	X	X	X
	15	GB synchronising, ID 16	X	X	X	X	X	X	X	X	X
1712	0	Mains OK, ID 17	X	X	X	X					
		Shaft OK, ID 17					X	X	X	X	X
		Shore OK, ID 17					X	X	X	X	X
	1	Mains OK, ID 18	X	X	X	X					
		Shaft OK, ID 18					X	X	X	X	X
		Shore OK, ID 18					X	X	X	X	X
	2	Mains OK, ID 19	X	X	X	X					
		Shaft OK, ID 19					X	X	X	X	X
		Shore OK, ID 19					X	X	X	X	X
	3	Mains OK, ID 20	X	X	X	X					
		Shaft OK, ID 20					X	X	X	X	X
		Shore OK, ID 20					X	X	X	X	X
	4	Mains OK, ID 21	X	X	X	X					
	5	Mains OK, ID 22	X	X	X	X					
	6	Mains OK, ID 23	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	7	Mains OK, ID 24	X	X	X	X					
	8	Mains OK, ID 25	X	X	X	X					
	9	Mains OK, ID 26	X	X	X	X					
	10	Mains OK, ID 27	X	X	X	X					
	11	Mains OK, ID 28	X	X	X	X					
	12	Mains OK, ID 29	X	X	X	X					
	13	Mains OK, ID 30	X	X	X	X					
	14	Mains OK, ID 31	X	X	X	X					
	15	Mains OK, ID 32	X	X	X	X					
1713	0	Mains not in semi 17	X	X	X	X					
	1	Mains not in semi 18	X	X	X	X					
	2	Mains not in semi 19	X	X	X	X					
	3	Mains not in semi 20	X	X	X	X					
	4	Mains not in semi 21	X	X	X	X					
	5	Mains not in semi 22	X	X	X	X					
	6	Mains not in semi 23	X	X	X	X					
	7	Mains not in semi 24	X	X	X	X					
	8	Mains not in semi 25	X	X	X	X					
	9	Mains not in semi 26	X	X	X	X					
	10	Mains not in semi 27	X	X	X	X					
	11	Mains not in semi 28	X	X	X	X					
	12	Mains not in semi 29	X	X	X	X					
	13	Mains not in semi 30	X	X	X	X					
	14	Mains not in semi 31	X	X	X	X					
	15	Mains not in semi 32	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1714	0	Any alarms, mains ID 17	X	X	X	X					
		Any alarms, Shaft ID 17					X	X	X	X	X
		Any alarms, Shore ID 17					X	X	X	X	X
	1	Any alarms, mains ID 18	X	X	X	X					
		Any alarms, Shaft ID 18					X	X	X	X	X
		Any alarms, Shore ID 18					X	X	X	X	X
	2	Any alarms, mains ID 19	X	X	X	X					
		Any alarms, Shaft ID 19					X	X	X	X	X
		Any alarms, Shore ID 19					X	X	X	X	X
	3	Any alarms, mains ID 20	X	X	X	X					
		Any alarms, Shaft ID 20					X	X	X	X	X
		Any alarms, Shore ID 20					X	X	X	X	X
	4	Any alarms, mains ID 21	X	X	X	X					
	5	Any alarms, mains ID 22	X	X	X	X					
	6	Any alarms, mains ID 23	X	X	X	X					
	7	Any alarms, mains ID 24	X	X	X	X					
	8	Any alarms, mains ID 25	X	X	X	X					
	9	Any alarms, mains ID 26	X	X	X	X					
	10	Any alarms, mains ID 27	X	X	X	X					
	11	Any alarms, mains ID 28	X	X	X	X					
	12	Any alarms, mains ID 29	X	X	X	X					
	13	Any alarms, mains ID 30	X	X	X	X					
	14	Any alarms, mains ID 31	X	X	X	X					
	15	Any alarms, mains ID 32	X	X	X	X					
1715	0	MB pos. ON, ID 17	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		SGB/SCB ON, ID 17					X	X	X	X	X
	1	MB pos. ON, ID 18	X	X	X	X					
		SGB ON, ID 18		X	X	X	X	X	X	X	X
	2	MB pos. ON, ID 19	X	X	X	X					
		SGB/SCB ON, ID 19		X	X	X	X	X	X	X	X
	3	MB pos. ON, ID 20	X	X	X	X					
		SGB/SCB ON, ID 20		X	X	X	X	X	X	X	X
	4	MB pos. ON, ID 21	X	X	X	X					
	5	MB pos. ON, ID 22	X	X	X	X					
	6	MB pos. ON, ID 23	X	X	X	X					
	7	MB pos. ON, ID 24	X	X	X	X					
	8	MB pos. ON, ID 25	X	X	X	X					
	9	MB pos. ON, ID 26	X	X	X	X					
	10	MB pos. ON, ID 27	X	X	X	X					
	11	MB pos. ON, ID 28	X	X	X	X					
	12	MB pos. ON, ID 29	X	X	X	X					
	13	MB pos. ON, ID 30	X	X	X	X					
	14	MB pos. ON, ID 31	X	X	X	X					
	15	MB pos. ON, ID 32	X	X	X	X					
1716	0	MB pos. OFF, ID 17	X	X	X	X					
		SGB/SCB pos OFF, ID 17					X	X	X	X	X
	1	MB pos. OFF, ID 18	X	X	X	X					
		SGB/SCB pos OFF, ID 18					X	X	X	X	X
	2	MB pos. OFF, ID 19	X	X	X	X					
		SGB/SCB pos OFF, ID 19					X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	3	MB pos. OFF, ID 20	X	X	X	X					
	4	MB pos. OFF, ID 21	X	X	X	X					
	5	MB pos. OFF, ID 22	X	X	X	X					
	6	MB pos. OFF, ID 23	X	X	X	X					
	7	MB pos. OFF, ID 24	X	X	X	X					
	8	MB pos. OFF, ID 25	X	X	X	X					
	9	MB pos. OFF, ID 26	X	X	X	X					
	10	MB pos. OFF, ID 27	X	X	X	X					
	11	MB pos. OFF, ID 28	X	X	X	X					
	12	MB pos. OFF, ID 29	X	X	X	X					
	13	MB pos. OFF, ID 30	X	X	X	X					
	14	MB pos. OFF, ID 31	X	X	X	X					
	15	MB pos. OFF, ID 32	X	X	X	X					
1717	0	Mains failure, ID 17	X	X	X	X					
	1	Mains failure, ID 18	X	X	X	X					
	2	Mains failure, ID 19	X	X	X	X					
	3	Mains failure, ID 20	X	X	X	X					
	4	Mains failure, ID 21	X	X	X	X					
	5	Mains failure, ID 22	X	X	X	X					
	6	Mains failure, ID 23	X	X	X	X					
	7	Mains failure, ID 24	X	X	X	X					
	8	Mains failure, ID 25	X	X	X	X					
	9	Mains failure, ID 26	X	X	X	X					
	10	Mains failure, ID 27	X	X	X	X					
	11	Mains failure, ID 28	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	12	Mains failure, ID 29	X	X	X	X					
	13	Mains failure, ID 30	X	X	X	X					
	14	Mains failure, ID 31	X	X	X	X					
	15	Mains failure, ID 32	X	X	X	X					
1718	0	MB synchronising, ID 17	X	X	X	X					
		SGB/SCB synchronising, ID 17					X	X	X	X	X
	1	MB synchronising, ID 18	X	X	X	X					
		SGB/SCB synchronising, ID 18					X	X	X	X	X
	2	MB synchronising, ID 19	X	X	X	X					
		SGB/SCB synchronising, ID 19					X	X	X	X	X
	3	MB synchronising, ID 20	X	X	X	X					
		SGB/SCB synchronising, ID 20					X	X	X	X	X
	4	MB synchronising, ID 21	X	X	X	X					
	5	MB synchronising, ID 22	X	X	X	X					
	6	MB synchronising, ID 23	X	X	X	X					
	7	MB synchronising, ID 24	X	X	X	X					
	8	MB synchronising, ID 25	X	X	X	X					
	9	MB synchronising, ID 26	X	X	X	X					
	10	MB synchronising, ID 27	X	X	X	X					
	11	MB synchronising, ID 28	X	X	X	X					
	12	MB synchronising, ID 29	X	X	X	X					
	13	MB synchronising, ID 30	X	X	X	X					
	14	MB synchronising, ID 31	X	X	X	X					
	15	MB synchronising, ID 32	X	X	X	X					
1719	0	TB pos. ON, ID 17	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	1	TB pos. ON, ID 18	X	X	X	X					
	2	TB pos. ON, ID 19	X	X	X	X					
	3	TB pos. ON, ID 20	X	X	X	X					
	4	TB pos. ON, ID 21	X	X	X	X					
	5	TB pos. ON, ID 22	X	X	X	X					
	6	TB pos. ON, ID 23	X	X	X	X					
	7	TB pos. ON, ID 24	X	X	X	X					
	8	TB pos. ON, ID 25	X	X	X	X					
	9	TB pos. ON, ID 26	X	X	X	X					
	10	TB pos. ON, ID 27	X	X	X	X					
	11	TB pos. ON, ID 28	X	X	X	X					
	12	TB pos. ON, ID 29	X	X	X	X					
	13	TB pos. ON, ID 30	X	X	X	X					
	14	TB pos. ON, ID 31	X	X	X	X					
	15	TB pos. ON, ID 32	X	X	X	X					
1720	0	TB pos. OFF, ID 17	X	X	X	X					
	1	TB pos. OFF, ID 18	X	X	X	X					
	2	TB pos. OFF, ID 19	X	X	X	X					
	3	TB pos. OFF, ID 20	X	X	X	X					
	4	TB pos. OFF, ID 21	X	X	X	X					
	5	TB pos. OFF, ID 22	X	X	X	X					
	6	TB pos. OFF, ID 23	X	X	X	X					
	7	TB pos. OFF, ID 24	X	X	X	X					
	8	TB pos. OFF, ID 25	X	X	X	X					
	9	TB pos. OFF, ID 26	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	10	TB pos. OFF, ID 27	X	X	X	X					
	11	TB pos. OFF, ID 28	X	X	X	X					
	12	TB pos. OFF, ID 29	X	X	X	X					
	13	TB pos. OFF, ID 30	X	X	X	X					
	14	TB pos. OFF, ID 31	X	X	X	X					
	15	TB pos. OFF, ID 32	X	X	X	X					
1721	0	TB synchronising, ID 17	X	X	X	X					
	1	TB synchronising, ID 18	X	X	X	X					
	2	TB synchronising, ID 19	X	X	X	X					
	3	TB synchronising, ID 20	X	X	X	X					
	4	TB synchronising, ID 21	X	X	X	X					
	5	TB synchronising, ID 22	X	X	X	X					
	6	TB synchronising, ID 23	X	X	X	X					
	7	TB synchronising, ID 24	X	X	X	X					
	8	TB synchronising, ID 25	X	X	X	X					
	9	TB synchronising, ID 26	X	X	X	X					
	10	TB synchronising, ID 27	X	X	X	X					
	11	TB synchronising, ID 28	X	X	X	X					
	12	TB synchronising, ID 29	X	X	X	X					
	13	TB synchronising, ID 30	X	X	X	X					
	14	TB synchronising, ID 31	X	X	X	X					
	15	TB synchronising, ID 32	X	X	X	X					
1722	0	Any alarms, BTB ID 33	X	X	X	X	X	X	X	X	X
	1	Any alarms, BTB ID 34	X	X	X	X	X	X	X	X	X
	2	Any alarms, BTB ID 35	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	3	Any alarms, BTB ID 36	X	X	X	X	X	X	X	X	X
	4	Any alarms, BTB ID 37	X	X	X	X	X	X	X	X	X
	5	Any alarms, BTB ID 38	X	X	X	X	X	X	X	X	X
	6	Any alarms, BTB ID 39	X	X	X	X	X	X	X	X	X
	7	Any alarms, BTB ID 40	X	X	X	X	X	X	X	X	X
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
1723	0	BTB pos. ON, ID 33	X	X	X	X	X	X	X	X	X
	1	BTB pos. ON, ID 34	X	X	X	X	X	X	X	X	X
	2	BTB pos. ON, ID 35	X	X	X	X	X	X	X	X	X
	3	BTB pos. ON, ID 36	X	X	X	X	X	X	X	X	X
	4	BTB pos. ON, ID 37	X	X	X	X	X	X	X	X	X
	5	BTB pos. ON, ID 38	X	X	X	X	X	X	X	X	X
	6	BTB pos. ON, ID 39	X	X	X	X	X	X	X	X	X
	7	BTB pos. ON, ID 40	X	X	X	X	X	X	X	X	X
	8										
	9										
	10										
	11										

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	12										
	13										
	14										
	15										
1724	0	BTB pos. OFF, ID 33	X	X	X	X	X	X	X	X	X
	1	BTB pos. OFF, ID 34	X	X	X	X	X	X	X	X	X
	2	BTB pos. OFF, ID 35	X	X	X	X	X	X	X	X	X
	3	BTB pos. OFF, ID 36	X	X	X	X	X	X	X	X	X
	4	BTB pos. OFF, ID 37	X	X	X	X	X	X	X	X	X
	5	BTB pos. OFF, ID 38	X	X	X	X	X	X	X	X	X
	6	BTB pos. OFF, ID 39	X	X	X	X	X	X	X	X	X
	7	BTB pos. OFF, ID 40	X	X	X	X	X	X	X	X	X
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
1725	0	BTB synchronising, ID 33	X	X	X	X	X	X	X	X	X
	1	BTB synchronising, ID 34	X	X	X	X	X	X	X	X	X
	2	BTB synchronising, ID 35	X	X	X	X	X	X	X	X	X
	3	BTB synchronising, ID 36	X	X	X	X	X	X	X	X	X
	4	BTB synchronising, ID 37	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	5	BTB synchronising, ID 38	X	X	X	X	X	X	X	X	X
	6	BTB synchronising, ID 39	X	X	X	X	X	X	X	X	X
	7	BTB synchronising, ID 40	X	X	X	X	X	X	X	X	X
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
1726	0	Ext. comm. error, ID 1	X	X	X	X	X	X	X	X	X
	1	Ext. comm. error, ID 2	X	X	X	X	X	X	X	X	X
	2	Ext. comm. error, ID 3	X	X	X	X	X	X	X	X	X
	3	Ext. comm. error, ID 4	X	X	X	X	X	X	X	X	X
	4	Ext. comm. error, ID 5	X	X	X	X	X	X	X	X	X
	5	Ext. comm. error, ID 6	X	X	X	X	X	X	X	X	X
	6	Ext. comm. error, ID 7	X	X	X	X	X	X	X	X	X
	7	Ext. comm. error, ID 8	X	X	X	X	X	X	X	X	X
	8	Ext. comm. error, ID 9	X	X	X	X	X	X	X	X	X
	9	Ext. comm. error, ID 10	X	X	X	X	X	X	X	X	X
	10	Ext. comm. error, ID 11	X	X	X	X	X	X	X	X	X
	11	Ext. comm. error, ID 12	X	X	X	X	X	X	X	X	X
	12	Ext. comm. error, ID 13	X	X	X	X	X	X	X	X	X
	13	Ext. comm. error, ID 14	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	14	Ext. comm. error, ID 15	X	X	X	X	X	X	X	X	X
	15	Ext. comm. error, ID 16	X	X	X	X	X	X	X	X	X
1727	0	Ext. comm. error, ID 17	X	X	X	X	X	X	X	X	X
	1	Ext. comm. error, ID 18	X	X	X	X	X	X	X	X	X
	2	Ext. comm. error, ID 19	X	X	X	X	X	X	X	X	X
	3	Ext. comm. error, ID 20	X	X	X	X	X	X	X	X	X
	4	Ext. comm. error, ID 21	X	X	X	X	X	X	X	X	X
	5	Ext. comm. error, ID 22	X	X	X	X	X	X	X	X	X
	6	Ext. comm. error, ID 23	X	X	X	X	X	X	X	X	X
	7	Ext. comm. error, ID 24	X	X	X	X	X	X	X	X	X
	8	Ext. comm. error, ID 25	X	X	X	X	X	X	X	X	X
	9	Ext. comm. error, ID 26	X	X	X	X	X	X	X	X	X
	10	Ext. comm. error, ID 27	X	X	X	X	X	X	X	X	X
	11	Ext. comm. error, ID 28	X	X	X	X	X	X	X	X	X
	12	Ext. comm. error, ID 29	X	X	X	X	X	X	X	X	X
	13	Ext. comm. error, ID 30	X	X	X	X	X	X	X	X	X
	14	Ext. comm. error, ID 31	X	X	X	X	X	X	X	X	X
	15	Ext. comm. error, ID 32	X	X	X	X	X	X	X	X	X
1728	0	Ext. comm. error, ID 33	X	X	X	X	X	X	X	X	X
	1	Ext. comm. error, ID 34	X	X	X	X	X	X	X	X	X
	2	Ext. comm. error, ID 35	X	X	X	X	X	X	X	X	X
	3	Ext. comm. error, ID 36	X	X	X	X	X	X	X	X	X
	4	Ext. comm. error, ID 37	X	X	X	X	X	X	X	X	X
	5	Ext. comm. error, ID 38	X	X	X	X	X	X	X	X	X
	6	Ext. comm. error, ID 39	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1729	7	Ext. comm. error, ID 40	X	X	X	X	X	X	X	X	X
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	0	EDG TB pos. ON, ID 1					X	X	X	X	X
	1	EDG TB pos. ON, ID 2					X	X	X	X	X
	2	EDG TB pos. ON, ID 3					X	X	X	X	X
	3	EDG TB pos. ON, ID 4					X	X	X	X	X
	4	EDG TB pos. ON, ID 5					X	X	X	X	X
	5	EDG TB pos. ON, ID 6					X	X	X	X	X
	6	EDG TB pos. ON, ID 7					X	X	X	X	X
	7	EDG TB pos. ON, ID 8					X	X	X	X	X
	8	EDG TB pos. ON, ID 9					X	X	X	X	X
	9	EDG TB pos. ON, ID 10					X	X	X	X	X
	10	EDG TB pos. ON, ID 11					X	X	X	X	X
	11	EDG TB pos. ON, ID 12					X	X	X	X	X
	12	EDG TB pos. ON, ID 13					X	X	X	X	X
	13	EDG TB pos. ON, ID 14					X	X	X	X	X
	14	EDG TB pos. ON, ID 15					X	X	X	X	X
	15	EDG TB pos. ON, ID 16					X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
1730	0	EDG TB pos. OFF, ID 1					X	X	X	X	X
	1	EDG TB pos. OFF, ID 2					X	X	X	X	X
	2	EDG TB pos. OFF, ID 3					X	X	X	X	X
	3	EDG TB pos. OFF, ID 4					X	X	X	X	X
	4	EDG TB pos. OFF, ID 5					X	X	X	X	X
	5	EDG TB pos. OFF, ID 6					X	X	X	X	X
	6	EDG TB pos. OFF, ID 7					X	X	X	X	X
	7	EDG TB pos. OFF, ID 8					X	X	X	X	X
	8	EDG TB pos. OFF, ID 9					X	X	X	X	X
	9	EDG TB pos. OFF, ID 10					X	X	X	X	X
	10	EDG TB pos. OFF, ID 11					X	X	X	X	X
	11	EDG TB pos. OFF, ID 12					X	X	X	X	X
	12	EDG TB pos. OFF, ID 13					X	X	X	X	X
	13	EDG TB pos. OFF, ID 14					X	X	X	X	X
	14	EDG TB pos. OFF, ID 15					X	X	X	X	X
	15	EDG TB pos. OFF, ID 16					X	X	X	X	X
1731	0	Shaft/shore running ID 17					X	X	X	X	X
	1	Shaft/shore running ID 18					X	X	X	X	X
	2	Shaft/shore running ID 19					X	X	X	X	X
	3	Shaft/shore running ID 20						X	X	X	X
	4										
	5										
	6										
	7										
	8										

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	9										
	10										
	11										
	12										
	13										
	14										
	15										
1732	0	BB Hz/V OK, ID 1	X	X	X	X	X	X	X	X	X
	1	BB Hz/V OK, ID 2	X	X	X	X	X	X	X	X	X
	2	BB Hz/V OK, ID 3	X	X	X	X	X	X	X	X	X
	3	BB Hz/V OK, ID 4	X	X	X	X	X	X	X	X	X
	4	BB Hz/V OK, ID 5	X	X	X	X	X	X	X	X	X
	5	BB Hz/V OK, ID 6	X	X	X	X	X	X	X	X	X
	6	BB Hz/V OK, ID 7	X	X	X	X	X	X	X	X	X
	7	BB Hz/V OK, ID 8	X	X	X	X	X	X	X	X	X
	8	BB Hz/V OK, ID 9	X	X	X	X	X	X	X	X	X
	9	BB Hz/V OK, ID 10	X	X	X	X	X	X	X	X	X
	10	BB Hz/V OK, ID 11	X	X	X	X	X	X	X	X	X
	11	BB Hz/V OK, ID 12	X	X	X	X	X	X	X	X	X
	12	BB Hz/V OK, ID 13	X	X	X	X	X	X	X	X	X
	13	BB Hz/V OK, ID 14	X	X	X	X	X	X	X	X	X
	14	BB Hz/V OK, ID 15	X	X	X	X	X	X	X	X	X
	15	BB Hz/V OK, ID 16	X	X	X	X	X	X	X	X	X
1733	0	BB Hz/V OK, ID 17	X	X	X	X	X	X	X	X	X
	1	BB Hz/V OK, ID 18	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	2	BB Hz/V OK, ID 19	X	X	X	X	X	X	X	X	X
	3	BB Hz/V OK, ID 20	X	X	X	X	X	X	X	X	X
	4	BB Hz/V OK, ID 21	X	X	X	X					
	5	BB Hz/V OK, ID 22	X	X	X	X					
	6	BB Hz/V OK, ID 23	X	X	X	X					
	7	BB Hz/V OK, ID 24	X	X	X	X					
	8	BB Hz/V OK, ID 25	X	X	X	X					
	9	BB Hz/V OK, ID 26	X	X	X	X					
	10	BB Hz/V OK, ID 27	X	X	X	X					
	11	BB Hz/V OK, ID 28	X	X	X	X					
	12	BB Hz/V OK, ID 29	X	X	X	X					
	13	BB Hz/V OK, ID 30	X	X	X	X					
	14	BB Hz/V OK, ID 31	X	X	X	X					
	15	BB Hz/V OK, ID 32	X	X	X	X					
1734	0	BB Hz/V OK, ID 33	X	X	X	X	X	X	X	X	X
	1	BB Hz/V OK, ID 34	X	X	X	X	X	X	X	X	X
	2	BB Hz/V OK, ID 35	X	X	X	X	X	X	X	X	X
	3	BB Hz/V OK, ID 36	X	X	X	X	X	X	X	X	X
	4	BB Hz/V OK, ID 37	X	X	X	X	X	X	X	X	X
	5	BB Hz/V OK, ID 38	X	X	X	X	X	X	X	X	X
	6	BB Hz/V OK, ID 39	X	X	X	X	X	X	X	X	X
	7	BB Hz/V OK, ID 40	X	X	X	X	X	X	X	X	X
1735	0	BB Hz/V present, ID 1	X	X	X	X	X	X	X	X	X
	1	BB Hz/V present, ID 2	X	X	X	X	X	X	X	X	X
	2	BB Hz/V present, ID 3	X	X	X	X	X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	3	BB Hz/V present, ID 4	X	X	X	X	X	X	X	X	X
	4	BB Hz/V present, ID 5	X	X	X	X	X	X	X	X	X
	5	BB Hz/V present, ID 6	X	X	X	X	X	X	X	X	X
	6	BB Hz/V present, ID 7	X	X	X	X	X	X	X	X	X
	7	BB Hz/V present, ID 8	X	X	X	X	X	X	X	X	X
	8	BB Hz/V present, ID 9	X	X	X	X	X	X	X	X	X
	9	BB Hz/V present, ID 10	X	X	X	X	X	X	X	X	X
	10	BB Hz/V present, ID 11	X	X	X	X	X	X	X	X	X
	11	BB Hz/V present, ID 12	X	X	X	X	X	X	X	X	X
	12	BB Hz/V present, ID 13	X	X	X	X	X	X	X	X	X
	13	BB Hz/V present, ID 14	X	X	X	X	X	X	X	X	X
	14	BB Hz/V present, ID 15	X	X	X	X	X	X	X	X	X
	15	BB Hz/V present, ID 16	X	X	X	X	X	X	X	X	X
1736	0	BB Hz/V present, ID 17	X	X	X	X	X	X	X	X	X
	1	BB Hz/V present, ID 18	X	X	X	X	X	X	X	X	X
	2	BB Hz/V present, ID 19	X	X	X	X	X	X	X	X	X
	3	BB Hz/V present, ID 20	X	X	X	X	X	X	X	X	X
	4	BB Hz/V present, ID 21	X	X	X	X					
	5	BB Hz/V present, ID 22	X	X	X	X					
	6	BB Hz/V present, ID 23	X	X	X	X					
	7	BB Hz/V present, ID 24	X	X	X	X					
	8	BB Hz/V present, ID 25	X	X	X	X					
	9	BB Hz/V present, ID 26	X	X	X	X					
	10	BB Hz/V present, ID 27	X	X	X	X					
	11	BB Hz/V present, ID 28	X	X	X	X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	12	BB Hz/V present, ID 29	X	X	X	X					
	13	BB Hz/V present, ID 30	X	X	X	X					
	14	BB Hz/V present, ID 31	X	X	X	X					
	15	BB Hz/V present, ID 32	X	X	X	X					
1737	0	BB Hz/V present, ID 33	X	X	X	X	X	X	X	X	
	1	BB Hz/V present, ID 34	X	X	X	X	X	X	X	X	
	2	BB Hz/V present, ID 35	X	X	X	X	X	X	X	X	
	3	BB Hz/V present, ID 36	X	X	X	X	X	X	X	X	
	4	BB Hz/V present, ID 37	X	X	X	X	X	X	X	X	
	5	BB Hz/V present, ID 38	X	X	X	X	X	X	X	X	
	6	BB Hz/V present, ID 39	X	X	X	X	X	X	X	X	
	7	BB Hz/V present, ID 40	X	X	X	X	X	X	X	X	
1738	0	BA Hz/V OK, ID 32	X	X	X	X	X	X	X	X	
	1	BA Hz/V OK, ID 33	X	X	X	X	X	X	X	X	
	2	BA Hz/V OK, ID 34	X	X	X	X	X	X	X	X	
	3	BA Hz/V OK, ID 35	X	X	X	X	X	X	X	X	
	4	BA Hz/V OK, ID 36	X	X	X	X	X	X	X	X	
	5	BA Hz/V OK, ID 37	X	X	X	X	X	X	X	X	
	6	BA Hz/V OK, ID 38	X	X	X	X	X	X	X	X	
	7	BA Hz/V OK, ID 39	X	X	X	X	X	X	X	X	
1739	0	BA Hz/V present, ID 1			X		X	X	X	X	
		Mains present, ID 1		X		X					
		DG Hz/V present, ID 1	X								
	1	BA Hz/V present, ID 2			X		X	X	X	X	
		Mains present, ID 2		X		X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		DG Hz/V present, ID 2	X								
	2	BA Hz/V present, ID 3			X		X	X	X	X	
		Mains present, ID 3		X		X					
		DG Hz/V present, ID 3	X								
	3	BA Hz/V present, ID 4			X		X	X	X	X	
		Mains present, ID 4		X		X					
		DG Hz/V present, ID 4	X								
	4	BA Hz/V present, ID 5			X		X	X	X	X	
		Mains present, ID 5		X		X					
		DG Hz/V present, ID 5	X								
	5	BA Hz/V present, ID 6			X		X	X	X	X	
		Mains present, ID 6		X		X					
		DG Hz/V present, ID 6	X								
	6	BA Hz/V present, ID 7			X		X	X	X	X	
		Mains present, ID 7		X		X					
		DG Hz/V present, ID 7	X								
	7	BA Hz/V present, ID 8			X		X	X	X	X	
		Mains present, ID 8		X		X					
		DG Hz/V present, ID 8	X								
	8	BA Hz/V present, ID 9			X		X	X	X	X	
		Mains present, ID 9		X		X					
		DG Hz/V present, ID 9	X								
	9	BA Hz/V present, ID 10			X		X	X	X	X	
		Mains present, ID 10		X		X					
		DG Hz/V present, ID 10	X								

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	10	BA Hz/V present, ID 11			X		X	X	X	X	
		Mains present, ID 11		X		X					
		DG Hz/V present, ID 11	X								
	11	BA Hz/V present, ID 12			X		X	X	X	X	
		Mains present, ID 12		X		X					
		DG Hz/V present, ID 12	X								
	12	BA Hz/V present, ID 13			X		X	X	X	X	
		Mains present, ID 13		X		X					
		DG Hz/V present, ID 13	X								
	13	BA Hz/V present, ID 14			X		X	X	X	X	
		Mains present, ID 14		X		X					
		DG Hz/V present, ID 14	X								
	14	BA Hz/V present, ID 15			X		X	X	X	X	
		Mains present, ID 15		X		X					
		DG Hz/V present, ID 15	X								
	15	BA Hz/V present, ID 16			X		X	X	X	X	
		Mains present, ID 16		X		X					
		DG Hz/V present, ID 16	X								
1740	0	BA Hz/V present, ID 17			X		X	X	X	X	
		Mains present, ID 17		X		X					
		DG Hz/V present, ID 17	X								
	1	BA Hz/V present, ID 18			X		X	X	X	X	
		Mains present, ID 18		X		X					
		DG Hz/V present, ID 18	X								
	2	BA Hz/V present, ID 19			X		X	X	X	X	

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		Mains present, ID 19		X		X					
		DG Hz/V present, ID 19	X								
	3	BA Hz/V present, ID 20			X		X	X	X	X	
		Mains present, ID 20		X		X					
		DG Hz/V present, ID 20	X								
	4	BA Hz/V present, ID 21			X						
		Mains present, ID 21		X		X					
		DG Hz/V present, ID 21	X								
	5	BA Hz/V present, ID 22			X						
		Mains present, ID 22		X		X					
		DG Hz/V present, ID 22	X								
	6	BA Hz/V present, ID 23			X						
		Mains present, ID 23		X		X					
		DG Hz/V present, ID 23	X								
	7	BA Hz/V present, ID 24			X						
		Mains present, ID 24		X		X					
		DG Hz/V present, ID 24	X								
	8	BA Hz/V present, ID 25			X						
		Mains present, ID 25		X		X					
		DG Hz/V present, ID 25	X								
	9	BA Hz/V present, ID 26			X						
		Mains present, ID 26		X		X					
		DG Hz/V present, ID 26	X								
	10	BA Hz/V present, ID 27			X						
		Mains present, ID 27		X		X					

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
		DG Hz/V present, ID 27	X								
	11	BA Hz/V present, ID 28			X						
		Mains present, ID 28		X		X					
		DG Hz/V present, ID 28	X								
	12	BA Hz/V present, ID 29			X						
		Mains present, ID 29		X		X					
		DG Hz/V present, ID 29	X								
	13	BA Hz/V present, ID 30			X						
		Mains present, ID 30		X		X					
		DG Hz/V present, ID 30	X								
	14	BA Hz/V present, ID 31			X						
		Mains present, ID 31		X		X					
		DG Hz/V present, ID 31	X								
	15	BA Hz/V present, ID 32			X						
		Mains present, ID 32		X		X					
		DG Hz/V present, ID 32	X								
1741	0	BA Hz/V present, ID 33			X		X	X	X	X	X
		Mains present, ID 33		X		X					
		DG Hz/V present, ID 33	X								
	1	BA Hz/V present, ID 34			X		X	X	X	X	X
		Mains present, ID 34		X		X					
		DG Hz/V present, ID 34	X								
	2	BA Hz/V present, ID 35			X		X	X	X	X	X
		Mains present, ID 35		X		X					
		DG Hz/V present, ID 35	X								

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	3	BA Hz/V present, ID 36			X		X	X	X	X	X
		Mains present, ID 36		X		X					
		DG Hz/V present, ID 36	X								
	4	BA Hz/V present, ID 37			X		X	X	X	X	X
		Mains present, ID 37		X		X					
		DG Hz/V present, ID 37	X								
	5	BA Hz/V present, ID 38			X		X	X	X	X	X
		Mains present, ID 38		X		X					
		DG Hz/V present, ID 38	X								
	6	BA Hz/V present, ID 39			X		X	X	X	X	X
		Mains present, ID 39		X		X					
		DG Hz/V present, ID 39	X								
	7	BA Hz/V present, ID 40			X		X	X	X	X	X
		Mains present, ID 40		X		X					
		DG Hz/V present, ID 40	X								
1742	0	EDG TB synchronising ID 1					X	X	X	X	X
	1	EDG TB synchronising ID 2					X	X	X	X	X
	2	EDG TB synchronising ID 3					X	X	X	X	X
	3	EDG TB synchronising ID 4					X	X	X	X	X
	4	EDG TB synchronising ID 5					X	X	X	X	X
	5	EDG TB synchronising ID 6					X	X	X	X	X
	6	EDG TB synchronising ID 7					X	X	X	X	X
	7	EDG TB synchronising ID 8					X	X	X	X	X
	8	EDG TB synchronising ID 9					X	X	X	X	X
	9	EDG TB synchronising ID 10					X	X	X	X	X

Addr.	Bit	Function	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB
	10	EDG TB synchronising ID 11					X	X	X	X	X
	11	EDG TB synchronising ID 12					X	X	X	X	X
	12	EDG TB synchronising ID 13					X	X	X	X	X
	13	EDG TB synchronising ID 14					X	X	X	X	X
	14	EDG TB synchronising ID 15					X	X	X	X	X
	15	EDG TB synchronising ID 16					X	X	X	X	X
1743-1999		Reserved									

Control register table read (03h)/write(10h)

Control commands must only be used to send a command. They cannot be used to monitor bit status.

Address	Content	Description		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
0	Power regulator setpoint	0...100% of nominal power. Activated in menu 7501		X	X						X	X				X	X
1	cosPhi regulator setpoint	60...100 stated as cosPhi value/100. The value 100 means cosPhi = 1. Activated in menu 7504		X							X	X				X	X
2	Reactive power regulator setpoint	+/-100% of nominal power. A negative value means capacitive reactive power, and a positive value means inductive reactive power. Activated in menu 7505		X							X	X				X	X
3	Frequency regulator setpoint	+/-100% corresponding to +/-10.0% of nominal frequency. Activated in menu 7502		X							X	X				X	X
4	Voltage regulator setpoint	+/-100% corresponding to +/-10.0% of nominal voltage. Activated in menu 7503		X							X	X				X	X
5	Control command	Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 1	Remote start	X		X	X	X	X		X	X				X	X

Address	Content	Description		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Bit 2	Remote GB ON	X		X		X	X		X	X				X	X
		Bit 2	Remote TB ON		X					X							
		Bit 3	Remote GB OFF	X		X		X	X		X	X				X	X
		Bit 3	Remote TB OFF		X					X							
		Bit 4	Remote stop	X		X	X	X	X		X	X				X	X
		Bit 5	Reset analogue regulation outputs	X		X					X	X				X	X
		Bit 6	Start + sync. (semi)								X	X					
		Bit 7	Alarm inhibit 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 8	Alarm inhibit 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 9	Alarm inhibit 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 10	Alarm ack. This bit is automatically reset	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 11	Nominal setting 1	X	X	X		X	X	X	X	X	X	X	X	X	X
		Bit 12	Nominal setting 2	X	X	X		X	X	X	X	X	X	X	X	X	X
		Bit 13	Nominal setting 3	X	X	X		X	X	X						X	X
		Bit 14	Nominal setting 4	X	X	X		X	X	X						X	X
		Bit 15	Deload (semi)								X	X					
6	Control command	Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Address	Content	Description		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			control command is ignored.														
		Bit 1	Island	X	X	X	X	X	X	X							
			DG supply										X	X	X		
		Bit 2	Automatic mains failure (AMF)	X	X	X		X	X	X							
			SG supply										X	X	X		
		Bit 3	Peak shaving	X	X	X				X							
			SHORE supply										X	X	X		
		Bit 4	Fixed power	X	X	X				X	X	X					
		Bit 5	Mains power export (MPE)	X	X	X				X							
			SPLIT												X		
		Bit 6	Load takeover (LTO)	X	X	X		X	X	X							
			Connect to DG supply												X		
		Bit 7	Connect to SG supply												X		
		Bit 8	Connect to SHORE supply												X		
		Bit 9	MB/SG/SC/EDG-TB ON	X	X	X						X					
		Bit 10	MB/SG/SC/EDG-TB OFF	X	X	X						X					
		Bit 11	Auto start/stop	X	X	X	X	X	X	X							
		Bit 12	Manual mode	X		X	X	X	X	X						X	X
		Bit 13	Auto mode	X	X	X	X	X	X	X	X	X					

Address	Content	Description		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Bit 14	Semi-auto mode	X	X	X	X	X	X	X	X	X					
		Bit 15	Test mode	X	X	X		X	X	X		X					
7		Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.	X	X	X	X		X	X	X	X	X	X	X	X	X
		Bit 1	External frequency control	X							X	X					
		Bit 2	External voltage control	X							X	X					
		Bit 3	External power control	X	X						X	X					
		Bit 4	External reactive power control	X							X	X					
		Bit 5	External power factor control	X							X	X					
		Bit 6	Capacitive cosPhi	X	X											X	
		Bit 7	Base load	X							X						
		Bit 8	1. priority	X	X						X						
		Bit 9	Application 1	X	X	X		X	X	X	X	X	X	X	X		
		Bit 10	Application 2	X	X	X		X	X	X	X	X	X	X	X		
		Bit 11	Application 3	X	X	X		X	X	X	X	X	X	X	X		
		Bit 12	Application 4	X	X	X		X	X	X	X	X	X	X	X		
		Bit 13	Battery test	X			X	X	X								
		Bit 14	Event printer	X	X												
		Bit 15	Synchronise clock	X	X	X				X	X	X	X	X	X	X	X

Address	Content	Description		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			to 4:00 AM														
8		Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 1	Virtual 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 2	Virtual 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 3	Virtual 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 4	Virtual 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 5	Virtual 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 6	Virtual 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 7	Virtual 7	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 8	Virtual 8	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 9	Virtual 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 10	Virtual 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 11	Virtual 11	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 12	Virtual 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 13	Virtual 13	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 14	Virtual 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 15	Virtual 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9		Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Address	Content	Description		AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
			control command is ignored.														
		Bit 1	Virtual 16	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 2	Virtual 17	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 3	Virtual 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 4	Virtual 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 5	Virtual 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 6	Virtual 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 7	Virtual 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 8	Virtual 23	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 9	Virtual 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 10	Virtual 25	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 11	Virtual 26	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 12	Virtual 27	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 13	Virtual 28	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 14	Virtual 29	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 15	Virtual 30	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10		Bit 0	This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 1	Virtual 31	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Bit 2	Virtual 32	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Bit 3 Reserved														
		Bit 4 Clear log	X	X	X	X	X	X	X							
11		Bit 0 This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.													X	X
		Bit 1 Fixed frequency													X	
		Bit 2 Fixed P													X	
		Bit 3 P load sharing													X	
		Bit 4 Frequency droop													X	
		Bit 5 Ext. GOV setpoint													X	
		Bit 6 Fixed voltage													X	

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Bit 7 Fixed Q													X	
		Bit 8 Fixed PF													X	
		Bit 9 Q load sharing													X	
		Bit 10 Voltage droop													X	
		Bit 11 Ext. AVR setpoint													X	
		Bit 12 Remote													X	X
		Bit 13 Local													X	X
		Bit 14 Deload													X	X
		Bit 15 Start sync./control													X	X
12		Bit 0 This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.													X	X
		Bit 1 Manual GOV up													X	X
		Bit 2 Manual GOV down													X	X
		Bit 3 Manual AVR up													X	X
		Bit 4 Manual AVR down													X	X
		Bit 5 Activate CANshare section 1													X	X
		Bit 6 Activate CANshare section 2													X	X
		Bit 7 Activate CANshare section 3													X	X
		Bit 8 Activate CANshare section 4													X	X

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		Bit 9 Activate CANshare section 5													X	X
		Bit 10 Reserved														
		Bit 11 Reserved														
		Bit 12 Reserved														
		Bit 13 Reserved														
		Bit 14 Reserved														
		Bit 15 Reserved														
13		Bit 0 This bit must be 1 when writing the command word. If the bit is 0, the control command is ignored.	X													
		Bit 1 Enable external frequency control	X													
		Bit 2 Disable external frequency control	X													
		Bit 3 Enable external voltage control	X													
		Bit 4 Disable external voltage control	X													
		Bit 5 Enable external power control	X													
		Bit 6 Disable external power control	X													
		Bit 7 Enable external VAr control	X													
		Bit 8 Disable external	X													

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
		VAr control														
		Bit 9 Enable external CosPhi control	X													
		Bit10 Disable external CosPhi control	X													
		Bit 11 Enable PM base load	X													
		Bit 12 Disable PM base load	X													
58000	Year	2003-2099	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58001	Month	1-12	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58002	Date	1-31	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58003	Day	1…7 (Monday…Sunday)	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58004	Hour	0-23	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58005	Min.	0-59	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58006	Sec.	0-59	X	X	X	X	X	X	X	X	X	X	X	X	X	X

All control bits are automatically reset by the ML-2 unit except for ”Auto start/stop” (register 6, bit 11).

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

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
0	Remote start		X			X	X	X		X	X				X	X
1	Remote GB ON		X				X	X		X	X				X	X
	Remote TB ON			X					X							
	Remote BTB ON				X									X		
2	Remote GB OFF		X				X	X		X	X				X	X
	Remote TB OFF			X					X							
	Remote BTB OFF				X									X		
3	Remote stop		X			X	X	X		X	X				X	X
4	Alarm inhibit 1		X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	Alarm inhibit 2		X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	Alarm inhibit 3		X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	Reset analogue regulation outputs		X							X	X				X	X
8	Reserved															
9	Alarm ack.		X	X	X	X	X	X	X	X	X	X	X	X	X	X
10	Nominal setting 1		X	X	X		X	X	X	X	X	X	X	X	X	X
11	Nominal setting 2		X	X	X		X	X	X	X	X	X	X	X	X	X
12	Nominal setting 3		X	X	X		X	X	X	X	X	X	X	X	X	X
13	Nominal setting 4		X	X	X		X	X	X						X	X
14	Start+sync. (semi)									X	X					

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
15	Deload/stop (semi)									X	X					
16	Island		X	X		X	X	X								
	DG supply											X	X	X		
17	Automatic mains failure (AMF)		X	X			X	X	X							
	SG 1 supply											X	X	X		
18	Peak shaving		X	X					X							
	SG 2 supply											X	X	X		
19	Fixed power		X	X					X							
	SHORE supply											X	X	X		
20	Mains power export (MPE)		X	X					X							
	SPLIT													X		
21	Load takeover (LTO)		X	X			X	X	X							
22	DG supply													X		
23	SG/SC supply													X		
24	MB/SG/SC/EDG TB ON		X	X					X		X	X	X			
25	MB/SG/SC/EDG TB OFF		X	X					X		X	X	X			
26	Auto start/stop		X			X	X	X		X						
27	Manual mode		X			X	X	X							X	X
28	Semi-auto mode		X			X	X	X		X	X					
29	Auto mode		X			X	X	X		X	X					

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
30	Test mode		X				X	X			X					
31	External frequency control		X							X	X					
32	External voltage control		X							X	X					
33	External power control		X							X	X					
34	External reactive power control		X							X	X					
35	External cosPhi control		X							X	X					
36	Capacitive cosPhi		X	X											X	
37	Base load		X							X						
38	1. priority		X	X						X						
39	Reserved															
40	Application 1		X	X	X		X	X	X	X	X	X	X	X		
41	Application 2		X	X	X		X	X	X	X	X	X	X	X		
42	Application 3		X	X	X		X	X	X	X	X	X	X	X		
43	Application 4		X	X	X		X	X	X	X	X	X	X	X		
44	Battery test		X			X		X							X	X
45	Event printer		X	X	X											
46	Synchronise clock to 4:00 a.m.		X	X	X				X	X	X	X	X	X	X	X
47	Reserved															
48	Virtual event 1		X	X	X	X	X	X	X	X	X	X	X	X	X	X
49	Virtual event 2		X	X	X	X	X	X	X	X	X	X	X	X	X	X

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
50	Virtual event 3		X	X	X	X	X	X	X	X	X	X	X	X	X	X
51	Virtual event 4		X	X	X	X	X	X	X	X	X	X	X	X	X	X
52	Virtual event 5		X	X	X	X	X	X	X	X	X	X	X	X	X	X
53	Virtual event 6		X	X	X	X	X	X	X	X	X	X	X	X	X	X
54	Virtual event 7		X	X	X	X	X	X	X	X	X	X	X	X	X	X
55	Virtual event 8		X	X	X	X	X	X	X	X	X	X	X	X	X	X
56	Virtual event 9		X	X	X	X	X	X	X	X	X	X	X	X	X	X
57	Virtual event 10		X	X	X	X	X	X	X	X	X	X	X	X	X	X
58	Virtual event 11		X	X	X	X	X	X	X	X	X	X	X	X	X	X
59	Virtual event 12		X	X	X	X	X	X	X	X	X	X	X	X	X	X
60	Virtual event 13		X	X	X	X	X	X	X	X	X	X	X	X	X	X
61	Virtual event 14		X	X	X	X	X	X	X	X	X	X	X	X	X	X
62	Virtual event 15		X	X	X	X	X	X	X	X	X	X	X	X	X	X
63	Virtual event 16		X	X	X	X	X	X	X	X	X	X	X	X	X	X
64	Virtual event 17		X	X	X	X	X	X	X	X	X	X	X	X	X	X
65	Virtual event 18		X	X	X	X	X	X	X	X	X	X	X	X	X	X
66	Virtual event 19		X	X	X	X	X	X	X	X	X	X	X	X	X	X
67	Virtual event 20		X	X	X	X	X	X	X	X	X	X	X	X	X	X
68	Virtual event 21		X	X	X	X	X	X	X	X	X	X	X	X	X	X
69	Virtual event 22		X	X	X	X	X	X	X	X	X	X	X	X	X	X
70	Virtual event 23		X	X	X	X	X	X	X	X	X	X	X	X	X	X
71	Virtual event 24		X	X	X	X	X	X	X	X	X	X	X	X	X	X

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
72	Virtual event 25		X	X	X	X	X	X	X	X	X	X	X	X	X	X
73	Virtual event 26		X	X	X	X	X	X	X	X	X	X	X	X	X	X
74	Virtual event 27		X	X	X	X	X	X	X	X	X	X	X	X	X	X
75	Virtual event 28		X	X	X	X	X	X	X	X	X	X	X	X	X	X
76	Virtual event 29		X	X	X	X	X	X	X	X	X	X	X	X	X	X
77	Virtual event 30		X	X	X	X	X	X	X	X	X	X	X	X	X	X
78	Virtual event 31		X	X	X	X	X	X	X	X	X	X	X	X	X	X
79	Virtual event 32		X	X	X	X	X	X	X	X	X	X	X	X	X	X
80	Fixed frequency														X	
81	Fixed P														X	
82	P load sharing														X	
83	Frequency droop														X	
84	Ext. GOV setpoint														X	
85	Fixed voltage														X	
86	Fixed Q														X	
87	Fixed PF														X	
88	Q load sharing														X	
89	Voltage droop														X	
90	Ext. AVR setpoint														X	
91	Remote														X	X
92	Local														X	X
93	Deload														X	X

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
94	Start sync./control														X	X
95	Reserved															
96	Manual GOV up														X	X
97	Manual GOV down														X	X
98	Manual AVR up														X	X
99	Manual AVR down														X	X
100	Activate CANshare section 1														X	X
101	Activate CANshare section 2														X	X
102	Activate CANshare section 3														X	X
103	Activate CANshare section 4														X	X
104	Activate CANshare section 5														X	X
123	Enable external frequency control		X													
124	Disable external frequency control		X													
125	Enable external voltage control		X													
126	Disable external voltage control		X													
127	Enable external power control		X													
128	Disable external power control		X													
129	Enable external VAr control		X													

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
130	Disable external VAr control		X													
131	Enable external CosPhi control		X													
132	Disable external CosPhi control		X													
133	Enable PM base load		X													
134	Disable PM base load		X													

All flags are automatically reset by the ML-2 unit except for ”Auto start/stop” (flag, address 26).

Command flags table (read only) (function code 01Fh)

Address	Content	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
142	HC1 Request									X			X			
143	HC2 Request									X			X			
144	HC3 Request									X			X			
145	HC4 Request									X			X			
146	HC1 Fixed load Feedback									X			X			
147	HC2 Fixed load Feedback									X			X			
148	HC3 Fixed load Feedback									X			X			
149	HC4 Fixed load Feedback									X			X			

Status flags table (read only) (function code 02h)

Address	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
0	GB position ON	X				X	X		X	X				X	X
	TB position ON		X					X							
	BTB position ON			X									X		
1	MB position ON	X	X			X	X	X							
	SGB position ON										X				
	SCB position ON											X			
	EDG-TB position ON									X					
2	Reserved														
3	Running	X			X	X	X		X	X	X			X	X
4	Generator voltage/frequency OK	X				X	X		X	X	X	X		X	X
5	Mains failure/main busbar failure	X	X			X	X	X		X					
6	Block mode	X		X	X	X	X								
7	Manual mode	X			X	X	X							X	X
	SWBD control								X	X	X	X	X		
8	Semi-auto mode	X			X	X	X		X	X					
9	Auto mode	X			X	X	X		X	X					
10	Test mode	X	X		X	X	X	X		X					
11	Remote													X	X
12	Local													X	X

Address	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
13	Island	X	X		X	X	X	X							
	DG supply										X	X	X		
14	Automatic mains failure (AMF)	X	X			X	X	X							
	SG 1 supply										X	X	X		
15	Peak shaving	X	X					X							
	SG 2 supply										X	X	X		
16	Fixed power	X	X					X						X	X
	SHORE supply										X	X	X		
17	Mains power export (MPE)	X	X					X							
	SPLIT												X		
18	Load takeover (LTO)	X	X			X	X	X							
19	Power management	X		X											
20	Any alarm DG1	X	X	X				X	X	X	X	X	X		
21	Any alarm DG2	X	X	X				X	X	X	X	X	X		
22	Any alarm DG3	X	X	X				X	X	X	X	X	X		
23	Any alarm DG4	X	X	X				X	X	X	X	X	X		
24	Any alarm DG5	X	X	X				X	X	X	X	X	X		
25	Any alarm DG6	X	X	X				X	X	X	X	X	X		
26	Any alarm DG7	X	X	X				X	X	X	X	X	X		
27	Any alarm DG8	X	X	X				X	X	X	X	X	X		
28	Any alarm mains (Mains Command Unit)	X	X	X				X							

Address	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
29	Battery test	X				X	X	X		X				X	X
30	Event printer	X													
31	Ready auto-start DG1	X						X	X						
32	Ready auto-start DG2	X						X	X						
33	Ready auto-start DG3	X						X	X						
34	Ready auto-start DG4	X						X	X						
35	Ready auto-start DG5	X						X	X						
36	Ready auto-start DG6	X						X	X						
37	Ready auto-start DG7	X						X	X						
38	Ready auto-start DG8	X						X	X						
39	Ready													X	X
40	Regulator ON													X	X
41	Fixed frequency													X	X
42	P load sharing													X	
43	Frequency droop													X	
44	Ext. GOV setpoint													X	X
45	Fixed voltage													X	X
46	Fixed Q													X	
47	Fixed PF													X	
48	Q load sharing													X	
49	Voltage droop													X	
50	Ext. AVR setpoint													X	X

Address	Content	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111	AGC 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro
51	Deload													X	X
52	Start sync./control													X	X
53	Mains sync. inhibit	X	X											X	X
54	Any mains sync. inhibit	X	X												
55	G7 any mains sync. inhibit	X	X												

Digital input table (read only 02h)

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22500	Digital input	97	97	97	10	10	10	97	97	97	97	97	97	97	Option M13.6 AGC 100: Standard
22501	Digital input	96	96	96	11	11	11	96	96	96	96	96	96	96	
22502	Digital input	95	95	95	12	12	12	95	95	95	95	95	95	95	
22503	Digital input	94	94	94	13	13	13	94	94	94	94	94	94	94	
22504	Digital input	93	93	93	14	14	14	93	93	93	93	93	93	93	
22505	Digital input	92	92	92	15	15	15	92	92	92	92	92	92	92	
22506	Digital input	91	91	91				91	91	91	91	91	91	91	
22507	Digital input	133	133	133				133	133	133	133	133	133	133	Option M13.8
22508	Digital input	132	132	132				132	132	132	132	132	132	132	
22509	Digital input	131	131	131				131	131	131	131	131	131	131	
22510	Digital input	130	130	130				130	130	130	130	130	130	130	
22511	Digital input	129	129	129				129	129	129	129	129	129	129	
22512	Digital input	128	128	128				128	128	128	128	128	128	128	
22513	Digital input	127	127	127				127	127	127	127	127	127	127	
22514	Digital input														
	Digital input	29	29	29											Option M13.2
22515	Stop coil wire break														
	Digital input	30	30	30											Option M13.2
22516	Emergency stop				20	20	20								
	Digital input	31	31	31											Option M13.2
22517	Digital input	32	32	32											

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22518	Digital input	33	33	33											
22519	Digital input	34	34	34											
22520	Digital input	35	35	35											
22521															
22522															
22523															
22524															
22525															
22526															
22527															
22528	Digital input	43	43	43				43	43	43	43	43	43	43	AGC/GPU: Option M12 PPM/PPU/GPC: Standard
22529	Digital input	44	44	44				44	44	44	44	44	44	44	
22530	Digital input	45	45	45				45	45	45	45	45	45	45	
22531	Digital input	46	46	46				46	46	46	46	46	46	46	
22532	Digital input	47	47	47				47	47	47	47	47	47	47	
22533	Digital input	48	48	48				48	48	48	48	48	48	48	
22534	Digital input	49	49	49				49	49	49	49	49	49	49	
22535	Digital input	50	50	50				50	50	50	50	50	50	50	
22536	Digital input	51	51	51				51	51	51	51	51	51	51	
22537	Digital input	52	52	52				52	52	52	52	52	52	52	
22538	Digital input	53	53	53				53	53	53	53	53	53	53	
22539	Digital input	54	54	54				54	54	54	54	54	54	54	
22540	Digital input	55	55	55				55	55	55	55	55	55	55	
22541	Digital input	23	23	23				23	23	23	23	23	23	23	Standard
22542	Digital input	24	24	24				24	24	24	24	24	24	24	

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22543	Digital input	25	25	25				25	25	25	25	25	25	25	
22544	Digital input	26	26	26				26	26	26	26	26	26	26	
22545	Digital input	27	27	27				27	27	27	27	27	27	27	
22546															
22547															
22548															
22549															
22550															
22551															
22552															
22553															
22554															
22555															
22556															
22557															
22558															
22559															
22560															
22561															
22562															
22563															
22564															
22565															
22566															
22567															

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22568															
22569															
22570															
22571															
22572															
22573															
22574															
22575															
22576															
22577															
22578															
22579															
22580															
22581															
22582															
22583	Digital input (emer. stop)	118	118	118				118	118	118	118	118	118	118	AGC/PPM: Standard PPU/GPC/GPU: Option M4
22584	Digital input	117	117	117				117	117	117	117	117	117	117	
22585	Digital input	116	116	116				116	116	116	116	116	116	116	
22586	Digital input	115	115	115				115	115	115	115	115	115	115	
22587	Digital input	114	114	114				114	114	114	114	114	114	114	
22588	Digital input	113	113	113				113	113	113	113	113	113	113	
22589	Digital input	112	112	112				112	112	112	112	112	112	112	
22590	Stop coil superv. (M4)	123	123	123				123	123	123	123	123	123	123	
22591	Multi-func. input	108	108	108	8	8	8	108	108	108	108	108	108	108	

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22592	Multi-func. input	105	105	105	7	7	7	105	105	105	105	105	105	105	
22593	Multi-func. input	102	102	102	6	6	6	102	102	102	102	102	102	102	
22594	External digital input/CIO 116 no. 1. Input 10	1/0	1/10	1/10	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	Option H8. It is not possible to use both CIO and other external I/O types (Beckhoff/Axiomatic) on a controller. External DIs share the addresses 22594 through 22609. The CIO modules are only available when using AGC-4 and/or AGC 200 series.
22595	External digital input/CIO 116 no. 1. Input 11	2/11	2/11	2/11	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	
22596	External digital input/CIO 116 no. 1. Input 12	3/2	3/12	3/12	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	
22597	External digital input/CIO 116 no. 1. Input 13	4/3	4/13	4/13	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	
22598	External digital input/CIO 116 no. 1. Input 14	5/14	5/14	5/14	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	
22599	External digital input/CIO 116 no. 1. Input 15	6/15	6/15	6/15	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	
22600	External digital input/CIO 116 no. 1. Input 16	7/16	7/16	7/16	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	
22601	External digital input/CIO 116 no. 1. Input 17	8/17	8/17	8/17	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	
22602	External digital input/CIO 116 no. 1. Input 19	9/19	9/19	9/19	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	
22603	External digital input/CIO 116 no. 1. Input 20	10/20	10/20	10/20	10/NA	10/NA	10/NA	10/ NA	10/ NA	10/NA	10/ NA	10/ NA	10/ NA	10/NA	

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22604	External digital input/CIO 116 no. 1. Input 21	11/21	11/21	11/21	11/NA	11/NA	11/NA	11 /NA	11 /NA	11/NA	11 /NA	11 /NA	11 /NA	11/NA	
22605	External digital input/CIO 116 no. 1. Input 22	12/22	12/22	12/22	12/NA	12/NA	12/NA	12 /NA	12 /NA	12/NA	12 /NA	12 /NA	12 /NA	12/NA	
22606	External digital input/CIO 116 no. 1. Input 23	13/23	13/23	13/23	13/NA	13/NA	13/NA	13 /NA	13 /NA	13/NA	13 /NA	13 /NA	13 /NA	13/NA	
22607	External digital input/CIO 116 no. 1. Input 24	14/24	14/24	14/24	14/NA	14/NA	14/NA	14 /NA	14 /NA	14/NA	14 /NA	14 /NA	14 /NA	14/NA	
22608	External digital input/CIO 116 no. 1. Input 25	15/25	15/25	15/25	15/NA	15/NA	15/NA	15 /NA	15 /NA	15/NA	15 /NA	15 /NA	15 /NA	15/NA	
22609	External digital input/CIO 116 no. 1. Input 26	16/26	16/26	16/26	16/NA	16/NA	16/NA	16 /NA	16 /NA	16/NA	16 /NA	16 /NA	16 /NA	16/NA	
22610	CIO 116 no. 2. Input 10	10	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22611	CIO 116 no. 2. Input 11	11	11	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22612	CIO 116 no. 2. Input 12	12	12	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22613	CIO 116 no. 2. Input 13	13	13	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22614	CIO 116 no. 2. Input 14	14	14	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22615	CIO 116 no. 2. Input 15	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22616	CIO 116 no. 2. Input 16	16	16	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22617	CIO 116 no. 2. Input 17	17	17	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22618	CIO 116 no. 2. Input 19	19	19	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22619	CIO 116 no. 2. Input 20	20	20	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22620	CIO 116 no. 2. Input 21	21	21	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22621	CIO 116 no. 2. Input 22	22	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22622	CIO 116 no. 2. Input 23	23	23	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22623	CIO 116 no. 2. Input 24	24	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22624	CIO 116 no. 2. Input 25	25	25	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22625	CIO 116 no. 2. Input 26	26	26	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22626	CIO 116 no. 3. Input 10	10	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22627	CIO 116 no. 3. Input 11	11	11	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22628	CIO 116 no. 3. Input 12	12	12	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22629	CIO 116 no. 3. Input 13	13	13	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22630	CIO 116 no. 3. Input 14	14	14	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22631	CIO 116 no. 3. Input 15	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22632	CIO 116 no. 3. Input 16	16	16	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Addr.	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111,112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU/GPU Hydro	Comments
22633	CIO 116 no. 3. Input 17	17	17	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22634	CIO 116 no. 3. Input 19	19	19	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22635	CIO 116 no. 3. Input 20	20	20	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22636	CIO 116 no. 3. Input 21	21	21	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22637	CIO 116 no. 3. Input 22	22	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22638	CIO 116 no. 3. Input 23	23	23	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22639	CIO 116 no. 3. Input 24	24	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22640	CIO 116 no. 3. Input 25	25	25	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
22641	CIO 116 no. 3. Input 26	26	26	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Digital output table (read only 02h)

Addr	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111, 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU	Comments
23000	Relay	65	65	65	3	3	3	65	65				65	65	Option M14.4
23001	Relay	67	67	67	21	21	21	67	67				67	67	
23002	Relay	69	69	69	22	22	22	69	69				69	69	
23003	Relay	71	71	71	23	23	23	71	71				71	71	
23004	Relay	132	132	132	24	24	24	132	132	132	132	132	132	132	Option M14.8
23005	Relay	130	130	130	26	26	26	130	130	130	130	130	130	130	
23006	Relay	128	128	128	45	45	45	128	128	128	128	128	128	128	
23007	Relay	126	126	126	47	47	47	126	126	126	126	126	126	126	
23008	Relay	96	96	96				96	96	96	96	96	96	96	Option M14.6
23009	Relay	94	94	94				94	94	94	94	94	94	94	
23010	Relay	92	92	92				92	92	92	92	92	92	92	
23011	Relay	90	90	90				90	90	90	90	90	90	90	
23012	Relay														
23013															
23014															
23015															
23016	Relay	57	57	57				57	57	57	57	57	57	57	AGC/GPU: Option M12 PPM/PPU/GPC: Standard
23017	Relay	59	59	59				59	59	59	59	59	59	59	
23018	Relay	61	61	61				61	61	61	61	61	61	61	
23019	Relay	63	63	63				63	63	63	63	63	63	63	
23020															
23021															

Addr	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111, 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU	Comments
23022															
23023															
23024															
23025	Relay	5	5	5				5	5	5	5	5	5	5	
23026	Relay	8	8	8				8	8	8	8	8	8	8	
23027	Relay	11	11	11				11	11	11	11	11	11	11	
23028	Relay	14	14	14				14	14	14	14	14	14	14	Standard
23029	Relay	17	17	17				17	17	17	17	17	17	17	
23030	Relay	T20	T20	T20				T20	T20	T20	T20	T20	T20	T20	
23031	Relay	T21	T21	T21				T21	T21	T21	T21	T21	T21	T21	
23032															
23033															
23034															
23035															
23036															
23037															
23038															
23039															
23040															
23041															
23042															
23043															
23044															
23045															
23046															

Addr	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111, 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU	Comments
23047															
23048															
23049	Run. coil	X			X	X		X	X				X	X	AGC/PPM: Standard PPU/GPC/GPU: Option M4
23050	Start prepare	X			X	X		X	X				X	X	
23051	Start relay (crank)	X			X	X		X	X				X	X	
23052	Stop coil	X			X	X		X	X				X	X	
23053	LED CAN B	X	X	X				X	X	X	X	X			AGC: Option G5 PPM: Standard
23054	LED CAN A	X						X	X				X	X	Option H5/H7
23055	LED USB	X	X	X				X	X	X	X	X			
23056	External digital output /CIO 208 no. 1. Output 9	1/9	1/9	1/9	1/NA	1 /NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	1/NA	Option H8.X It is not possible to use both CIO and other external I/O types (Beckhoff/Axiomatic) on a controller. External DOs share the addresses 23056 through 23071. The CIO modules are only available when using AGC-4 and/or AGC 200 series.
23057	External digital output /CIO 208 no. 1. Output 11	2/11	2/11	2/11	2/NA	2 /NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	2/NA	
23058	External digital output /CIO 208 no. 1. Output 13	3/13	3/13	3/13	3/NA	3 /NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	3/NA	
23059	External digital output /CIO 208 no. 1. Output 15	4/15	4/15	4/15	4/NA	4 /NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	4/NA	
23060	External digital output /CIO 208 no.	5/18	5/18	5/18	5/NA	5 /NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	5/NA	

Addr	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111, 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU	Comments
	1. Output 18														
23061	External digital output /CIO 208 no. 1. Output 21	6/21	6/21	6/21	6/NA	6 /NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	6/NA	
23062	External digital output /CIO 208 no. 1. Output 24	7/24	7/24	7/24	7/NA	7 /NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	7/NA	
23063	External digital output /CIO 208 no. 1. Output 27	8/27	8/27	8/27	8/NA	8 /NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	8/NA	
23064	External digital output /CIO 208 no. 2. Output 9	9/9	9/9	9/9	9/NA	9 /NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	9/NA	
23065	External digital output /CIO 208 no. 2. Output 11	10/11	10/11	10/11	10 /NA	10 /NA	10 /NA	10 /NA	10 /NA	10 /NA	10 /NA	10 /NA	10/NA	10 /NA	
23066	External digital output /CIO 208 no. 2. Output 13	11/13	11/13	11/13	11 /NA	11 /NA	11 /NA	11 /NA	11 /NA	11 /NA	11 /NA	11 /NA	11/NA	11 /NA	
23067	External digital output /CIO 208 no. 2. Output 15	12/15	12/15	12/15	12 /NA	12 /NA	12 /NA	12 /NA	12 /NA	12 /NA	12 /NA	12 /NA	12/NA	12 /NA	
23068	External digital output /CIO 208 no. 2. Output 18	13/18	13/18	13/18	13 /NA	13 /NA	13 /NA	13 /NA	13 /NA	13 /NA	13 /NA	13 /NA	13/NA	13 /NA	

Addr	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111, 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU	Comments
23069	External digital output /CIO 208 no. 2. Output 21	14/21	14/21	14/21	14 /NA	14 /NA	14 /NA	14 /NA	14 /NA	14 /NA	14 /NA	14 /NA	14/NA	14 /NA	
23070	External digital output /CIO 208 no. 2. Output 24	15/24	15/24	15/24	15 /NA	15 /NA	15 /NA	15 /NA	15 /NA	15 /NA	15 /NA	15 /NA	15/NA	15 /NA	
23071	External digital output /CIO 208 no. 2. Output 27	16/27	16/27	16/27	16 /NA	16 /NA	16 /NA	16 /NA	16 /NA	16 /NA	16 /NA	16 /NA	16/NA	16 /NA	
23072	CIO 208 no. 3. Output 9	9	9	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23073	CIO 208 no. 3. Output 11	11	11	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23074	CIO 208 no. 3. Output 13	13	13	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23075	CIO 208 no. 3. Output 15	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23076	CIO 208 no. 3. Output 18	18	18	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23077	CIO 208 no. 3. Output 21	21	21	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23078	CIO 208 no. 3. Output 24	24	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23079	CIO 208 no. 3. Output 27	27	27	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23080	CIO 116 no.1 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23081	CIO 116 no.2 conf.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Addr	Description	AGC-3	AGC-3 mains	AGC-3 bus tie	AGC 110	AGC 111, 112, 113	AGC 145, 146	PPM DG	PPM EDG	PPM SHAFT	PPM SHORE	PPM BTB	PPU/GPC	GPU	Comments
	status Out.														
23082	CIO 116 no.3 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23083	CIO 208 no.1 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23084	CIO 208 no.2 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23085	CIO 208 no.3 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23086	CIO 308 no.1 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23087	CIO 308 no.2 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23088	CIO 308 no.3 conf. status Out.	3	3	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

6. Parameter setting

Parameter 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/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.

Function 02(02hex) 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 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.

Function 03(03hex) read registers

Reads the binary 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	4000-5999
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.

Function 04(04hex) read registers

Reads the binary 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	4000-5999
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.

Function 15(0Fhex) write multiple flags, function 5(05hex) 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

Function 16(10hex) write multiple register, function 6(06hex) write single register

Writes values into a sequence of registers.

Address area for writing of registers

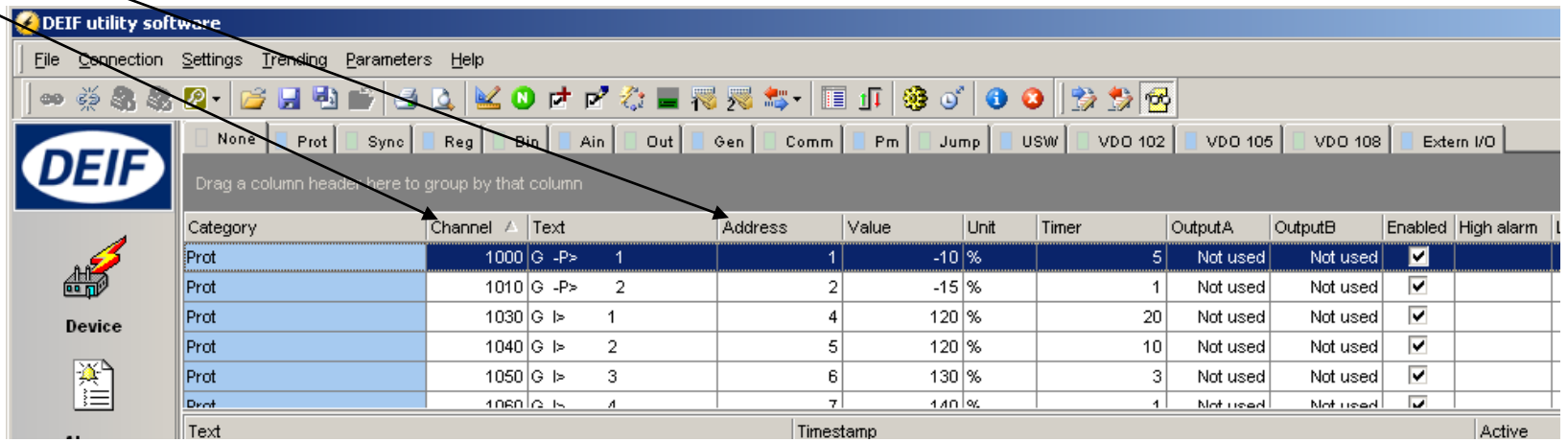
Data to request	Table	Address area
Timers used	Parameter table	2000-3999
Values used	Parameter table	4000-4999
Output a	Parameter table	10000-11999
Output b	Parameter table	12000-13999
Fail class used	Parameter table	14000-15999
Enable	Parameter table	16000-17999
Inhibit	Parameter table	18000-19999

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

Parameters written via Modbus are not safety checked the same way as when written via the PC Utility Software or the display. Care must be taken not to write erratic values. Writing erratic values will not lead to any warnings. If erratic values are written it may lead to dangerous situation.

Parameter addresses

Channel and Modbus address numbers can be found in the utility software parameter list for the unit in question.



Examples

Write nominal frequency (Channel = 6011), address offset = 413, new value to write = 60.0 Hz

Slave Modbus ID = 1, 60.0 Hz >> 600d = 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 (Channel = 6011), address offset = 413

Tx: 01h 03h 11h 3Dh 00h 01h 10h FAh
Rx: 01h 03h 02h 02h 58h B8h DEh

Read value = 0258h = 600d >> 60.0 Hz is the nominal frequency

Modbus address offset for alarms on CIO modules

The Modbus offset addresses related to the CIO modules are not listed in the USW like all other offset. The tables in the following pages show the CIO modules' Modbus offset addresses. The procedure for reading/writing in Modbus is still the same as previously described.

It is only possible to access these as read-only values. Configuration must be done using the USW.

The CIO modules are only available when using AGC-4 and/or AGC 200 series.

Modbus alarm offset addresses for CIO 116

Description	Address offset		Description	Address offset
CIO 116 no. 1. Input 10	1047		CIO 116 no. 2. Input 16	1200
CIO 116 no. 1. Input 11	1048		CIO 116 no. 2. Input 17	1237
CIO 116 no. 1. Input 12	1049		CIO 116 no. 2. Input 19	1238
CIO 116 no. 1. Input 13	1050		CIO 116 no. 2. Input 20	1257
CIO 116 no. 1. Input 14	1051		CIO 116 no. 2. Input 21	1260
CIO 116 no. 1. Input 15	1052		CIO 116 no. 2. Input 22	1261
CIO 116 no. 1. Input 16	1053		CIO 116 no. 2. Input 23	1264
CIO 116 no. 1. Input 17	1054		CIO 116 no. 2. Input 24	1266
CIO 116 no. 1. Input 19	1055		CIO 116 no. 2. Input 25	1267
CIO 116 no. 1. Input 20	1056		CIO 116 no. 2. Input 26	1272
CIO 116 no. 1. Input 21	1057		CIO 116 no. 3. Input 10	1296
CIO 116 no. 1. Input 22	1058		CIO 116 no. 3. Input 11	1316
CIO 116 no. 1. Input 23	1059		CIO 116 no. 3. Input 12	1323
CIO 116 no. 1. Input 24	1060		CIO 116 no. 3. Input 13	1324
CIO 116 no. 1. Input 25	1061		CIO 116 no. 3. Input 14	1325
CIO 116 no. 1. Input 26	1062		CIO 116 no. 3. Input 15	1327
CIO 116 no. 2. Input 10	1194		CIO 116 no. 3. Input 16	1328
CIO 116 no. 2. Input 11	1195		CIO 116 no. 3. Input 17	1329
CIO 116 no. 2. Input 12	1196		CIO 116 no. 3. Input 19	1330
CIO 116 no. 2. Input 13	1197		CIO 116 no. 3. Input 20	1331
CIO 116 no. 2. Input 14	1198		CIO 116 no. 3. Input 21	1332
CIO 116 no. 2. Input 15	1199		CIO 116 no. 3. Input 22	1333

Description	Address offset		Description	Address offset
CIO 116 no. 3. Input 23	1334		CIO 116 no. 1 missing	957
CIO 116 no. 3. Input 24	1362		CIO 116 no. 2 missing	958
CIO 116 no. 3. Input 25	1363		CIO 116 no. 3 missing	959
CIO 116 no. 3. Input 26	1364			

Modbus alarm offset addresses for CIO 208

Description	Address offset
CIO 208 no. 1 missing	960
CIO 208 no. 2 missing	961
CIO 208 no. 3 missing	962

Modbus alarm offset addresses for CIO 308

Description	Address offset		Description	Address offset
CIO 308 no. 1. Input 8 alarm 1	999		CIO 308 no. 2. Input 14 alarm 2	1020
CIO 308 no. 1. Input 8 alarm 2	1000		CIO 308 no. 2. Input 17 alarm 1	1021
CIO 308 no. 1. Input 11 alarm 1	1001		CIO 308 no. 2. Input 17 alarm 2	1022
CIO 308 no. 1. Input 11 alarm 2	1002		CIO 308 no. 2. Input 20 alarm 1	1023
CIO 308 no. 1. Input 14 alarm 1	1003		CIO 308 no. 2. Input 20 alarm 2	1024
CIO 308 no. 1. Input 14 alarm 2	1004		CIO 308 no. 2. Input 23 alarm 1	1025
CIO 308 no. 1. Input 17 alarm 1	1005		CIO 308 no. 2. Input 23 alarm 2	1026
CIO 308 no. 1. Input 17 alarm 2	1006		CIO 308 no. 2. Input 26 alarm 1	1027
CIO 308 no. 1. Input 20 alarm 1	1007		CIO 308 no. 2. Input 26 alarm 2	1028
CIO 308 no. 1. Input 20 alarm 2	1008		CIO 308 no. 2. Input 29 alarm 1	1029
CIO 308 no. 1. Input 23 alarm 1	1009		CIO 308 no. 2. Input 29 alarm 2	1030
CIO 308 no. 1. Input 23 alarm 2	1010		CIO 308 no. 3. Input 8 alarm 1	1531
CIO 308 no. 1. Input 26 alarm 1	1011		CIO 308 no. 3. Input 8 alarm 2	1532
CIO 308 no. 1. Input 26 alarm 2	1012		CIO 308 no. 3. Input 11 alarm 1	1560
CIO 308 no. 1. Input 29 alarm 1	1013		CIO 308 no. 3. Input 11 alarm 2	1563
CIO 308 no. 1. Input 29 alarm 2	1014		CIO 308 no. 3. Input 14 alarm 1	1565
CIO 308 no. 2. Input 8 alarm 1	1015		CIO 308 no. 3. Input 14 alarm 2	1566
CIO 308 no. 2. Input 8 alarm 2	1016		CIO 308 no. 3. Input 17 alarm 1	1567
CIO 308 no. 2. Input 11 alarm 1	1017		CIO 308 no. 3. Input 17 alarm 2	1568
CIO 308 no. 2. Input 11 alarm 2	1018		CIO 308 no. 3. Input 20 alarm 1	1569
CIO 308 no. 2. Input 14 alarm 1	1019		CIO 308 no. 3. Input 20 alarm 2	1570

Description	Address offset		Description	Address offset
CIO 308 no. 3. Input 23 alarm 1	1571		CIO 308 no. 2. Input 8 wire fail	1039
CIO 308 no. 3. Input 23 alarm 2	1572		CIO 308 no. 2. Input 11 wire fail	1040
CIO 308 no. 3. Input 26 alarm 1	1573		CIO 308 no. 2. Input 14 wire fail	1041
CIO 308 no. 3. Input 26 alarm 2	1574		CIO 308 no. 2. Input 17 wire fail	1042
CIO 308 no. 3. Input 29 alarm 1	1575		CIO 308 no. 2. Input 20 wire fail	1043
CIO 308 no. 3. Input 29 alarm 2	1576		CIO 308 no. 2. Input 23 wire fail	1044
CIO 308 No. 1 missing	963		CIO 308 no. 2. Input 26 wire fail	1045
CIO 308 No. 2 missing	964		CIO 308 no. 2. Input 29 wire fail	1046
CIO 308 No. 3 missing	965		CIO 308 no. 3. Input 8 wire fail	1083
CIO 308 no. 1. Input 8 wire fail	1031		CIO 308 no. 3. Input 11 wire fail	1085
CIO 308 no. 1. Input 11 wire fail	1032		CIO 308 no. 3. Input 14 wire fail	1086
CIO 308 no. 1. Input 14 wire fail	1033		CIO 308 no. 3. Input 17 wire fail	1110
CIO 308 no. 1. Input 17 wire fail	1034		CIO 308 no. 3. Input 20 wire fail	1391
CIO 308 no. 1. Input 20 wire fail	1035		CIO 308 no. 3. Input 23 wire fail	1392
CIO 308 no. 1. Input 23 wire fail	1036		CIO 308 no. 3. Input 26 wire fail	1427
CIO 308 no. 1. Input 26 wire fail	1037		CIO 308 no. 3. Input 29 wire fail	1529
CIO 308 no. 1. Input 29 wire fail	1038			

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