PARAMETER LIST

Protection and Power Management, PPM-3

- Alarm list
- Parameter list

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

Document no.: 4189340672C
SW version: 3.04. or later

1. General information

1.1 Warnings, legal information and safety 5

1.1.1 Warnings and notes 5

1.1.2 Legal information and disclaimer 5

1.1.3 Safety issues 5

1.1.4 Electrostatic discharge awareness 5

1.1.5 Factory settings 6

1.2 About the Parameter List 6

1.2.1 General purpose of the Parameter List 6

1.2.2 Intended users 6

1.2.3 Contents and overall structure 6

2. Alarm list

2.1 Reverse power protection 9

2.1.1 Reverse power protection 9

2.2 Over-current protection 10

2.2.1 Over-current protection 10

2.3 Generator voltage protection 14

2.3.1 Generator voltage protection 14

2.4 Generator frequency protection 16

2.4.1 Generator frequency protection 16

2.5 Busbar voltage protection 18

2.5.1 Busbar voltage protection 18

2.6 Busbar frequency protection 20

2.6.1 Busbar frequency protection 20

2.7 Overload protection 23

2.7.1 Overload protection 23

2.8 Current unbalance protection 25

2.8.1 Current unbalance protection 25

2.9 Voltage asymmetry protection 26

2.9.1 Voltage asymmetry protection 26

2.10 Reactive power import (loss of excitation) 26

2.10.1 Reactive power import (loss of excitation) 26

2.11 Reactive power export (over-excitation) 27

2.11.1 Reactive power export (over-excitation) 27

2.12 Busbar unbalance voltage protection 27

2.12.1 Busbar unbalance voltage protection 27

2.13 Non Essential Load trip 27

2.13.1 Non Essential Load trip 27

2.14 Max. parallel time protection 30

2.14.1 Max. parallel time protection 30

2.15 Breaker external trip alarm 30

2.15.1 Breaker external trip alarm 30

2.16 Synchronisation and breaker alarms 31

2.16.1 Synchronisation and breaker alarms 31

2.17 Regulation alarms 33

2.17.1 Regulation alarms 33

2.18 Binary input setup ... **34**
2.18.1 Binary input setup ... 34
2.19 Analogue input setup (option M15.6) ... **47**
2.19.1 Analogue input setup (option M15.6) ... 47
2.20 Multi-functional analogue input setup ... **51**
2.20.1 Multi-input no. 102 ... 51
2.20.2 Multi-input no. 105 ... 55
2.20.3 Multi-input no. 108 ... 60
2.21 Overspeed, running, start/stop failure ... **64**
2.21.1 Overspeed, running, start/stop failure ... 64
2.22 Analogue input setup (option M15.8) ... **67**
2.22.1 Analogue input setup (option M15.8) ... 67
2.23 Aux. supply setup ... **71**
2.23.1 Aux. supply setup ... 71
2.24 General setup ... **72**
2.24.1 General setup ... 72
2.25 Communication ... **73**
2.25.1 Communication ... 73
2.26 Engine interface communication alarms ... **73**
2.26.1 Engine interface communication alarms ... 73
2.27 Application error ... **77**
2.27.1 Application error ... 77
2.28 External I/O communication error ... **77**
2.28.1 External I/O communication error ... 77
2.29 External I/O alarm setup ... **78**
2.29.1 External I/O alarm setup ... 78
2.29.2 Analogue inputs ... 78
2.29.3 Digital inputs ... 79

3. Parameter list

3.1 Synchronisation ... **80**
3.1.1 Synchronisation ... 80
3.2 Regulation ... **81**
3.2.1 Regulation ... 81
3.3 Digital output setup ... **86**
3.3.1 Digital output setup ... 86
3.4 Pulse width modulation ... **89**
3.4.1 Pulse width modulation ... 89
3.5 Load reduction ... **90**
3.5.1 Load reduction ... 90
3.6 Analogue output limits ... **90**
3.6.1 Analogue output limits ... 90
3.7 Transducer outputs ... **91**
3.7.1 Transducer outputs ... 91
3.8 Regulator output selection ... **95**
3.8.1 Regulator output selection ... 95
3.9 System ... **96**

3.9.1 System ... 96
3.9.2 General setup ... 96
3.10 EDG setup ... 100
3.10.1 EDG setup ... 100
3.11 External communication ... 101
3.11.1 External communication ... 101
3.12 Internal communication ... 101
3.12.1 Internal communication ... 101
3.13 Engine interface communication ... 101
3.13.1 Engine interface communication ... 101
3.14 External I/O communication setup ... 102
3.14.1 External I/O communication setup ... 102
3.15 Power management setup ... 103
3.15.1 Power management setup ... 103
3.16 Jump menus ... 110
3.16.1 Jump menus ... 110
3.16.2 9000 Software version ... 110
3.16.3 9020 Service port ... 110
3.16.4 9070 M4 SW version ... 110
3.16.5 9100 Device type ... 111
3.16.6 911x Password ... 111
3.16.7 9120 Service menu ... 111
3.16.8 9130 AC configuration ... 111
3.16.9 9150 Backlight dimmer ... 112
3.16.10 9160 Application setup ... 112
3.16.11 9190 Application broadcast ... 112
3.17 GSM settings ... 112
3.17.1 GSM settings ... 112
3.18 Passwords ... 113
3.18.1 Passwords ... 113
3.19 RMI 102 ... 113
3.19.1 RMI 102 ... 113
3.20 RMI 105 ... 115
3.20.1 RMI 105 ... 115
3.21 RMI 108 ... 115
3.21.1 RMI 108 ... 115
3.22 Multi-inputs selections ... 115
3.22.1 Multi-inputs selections ... 115
3.23 External digital outputs ... 116
3.23.1 External digital outputs ... 116
3.24 External module status ... 117
3.24.1 External module status ... 117

1. General information

1.1 Warnings, legal information and safety

1.1.1 Warnings and notes

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

Warnings

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

Notes

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

1.1.2 Legal information and disclaimer

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

DANGER!
The Multi-line 2 unit is not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.

The English version of this document always contains the most recent and up-to-date information about the product. DEIF does not take responsibility for the accuracy of translations, and translations might not be updated at the same time as the English document. If there is a discrepancy, the English version prevails.

1.1.3 Safety issues

Installing and operating the Multi-line 2 unit may imply work with dangerous currents and voltages. Therefore, the installation should only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.

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

1.1.4 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.

1.1.5 Factory settings

The Multi-line 2 unit is delivered from factory with certain factory settings. These are based on average values and are not necessarily the correct settings for matching the engine/generator set in question. Precautions must be taken to check the settings before running the engine/generator set.

1.2 About the Parameter List

1.2.1 General purpose of the Parameter List

This document is a complete parameter list including all parameters, which means that some of the option parameters included may not be accessible in the system in question.

The document includes a complete standard alarm list and a complete standard parameter list for setup. Therefore, this document is to be used for reference, when information about specific alarms and parameters is needed.

DANGER!
Please make sure to read this document before starting to work with the Multi-line 2 unit and the genset to be controlled. Failure to do this could result in human injury or damage to the equipment.

1.2.2 Intended users

This Parameter List is mainly intended for the person responsible for the unit parameter setup. In most cases, this would be a panel builder designer. Naturally, other users might also find useful information here.

1.2.3 Contents and overall structure

This document is divided into chapters, and in order to make the structure simple and easy to use, each chapter will begin from the top of a new page.

2. Alarm list

INFO
In the following, these abbreviations are used:

G: Generator

GB: Generator breaker

TB: Tie breaker (for emergency generator)

SG: Shaft generator

SGB: Shaft generator breaker

SC: Shore connection

SCB: Shore connection breaker

BT: Bus tie

BTB: Bus tie breaker

BA: Busbar A (BTB unit)

N/A: Not available

This chapter includes a complete alarm list, including all possible options. Therefore, this chapter is to be used for reference when specific information about the individual parameters is needed for the unit setup.

The table consists of the following possible adjustments:

Set point:	The alarm set point is adjusted in the set point menu. The setting is a percentage of the nominal values.
Delay:	The timer setting is the time that must expire from the alarm level is reached until the alarm occurs.
Relay output A:	A relay can be activated by output A.
Relay output B:	A relay can be activated by output B.
Enable:	The alarm can be activated or deactivated. ON means always activated, RUN means that the alarm has run status. This means it is activated when the running signal is present.
Fail class:	When the alarm occurs, the unit will react depending on the selected fail class.

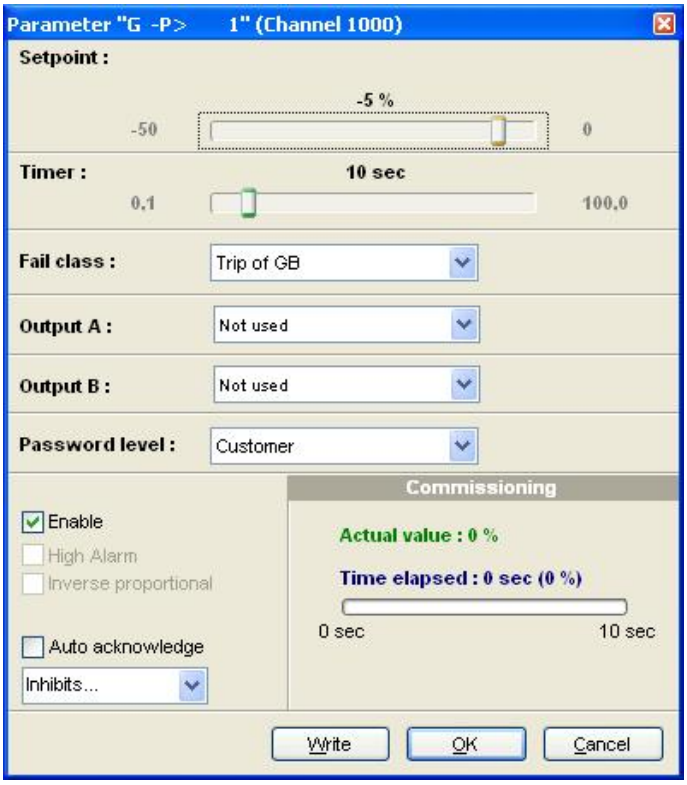
Fail classes are:

Fail class	DG (Diesel Generator)	EDG (Emergency Diesel Generator)	SC (Shore Connection)	SG (Shaft Generator)	BTB (Bus Tie Breaker)
1	Block	Block	Block	Block	Block
2	Warning	Warning	Warning	Warning	Warning
3	Trip GB	Trip GB	Trip SCB	Trip SGB	Trip BTB
4	Trip + Stop	Trip + Stop	N/A	N/A	N/A
5	Shut down	Shut down	N/A	N/A	N/A
6	Safety stop	N/A	N/A	N/A	N/A
7	N/A	Trip TB	N/A	N/A	N/A

INFO
Small differences due to the character of the parameters may exist between the individual tables.

It is also possible to configure the parameters by using the PC utility software. It will be possible to make the same configurations as described above.

By using the PC utility software, some extra functionalities are available. For all protections, it is possible to make an automatic acknowledgement of the alarm.



2.1 Reverse power protection

2.1.1 Reverse power protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1000 G/SG/SC reverse power 1							
1001	G/SG/SC – P> 1	Set point	-110.0 % 0.0 %	- 8.0 %		Designer's Reference Handbook	The alarm and fail class are activated when the reverse power has been continuously above the programmed value during the programmed delay.
1002	G/SG/SC - P> 1	Delay	0.1 s 300.0 s	5.0 s			
1003	G/SG/SC - P> 1	Relay output A	Not used Option-dependent	Not used			
1004	G/SG/SC - P> 1	Relay output B	Not used Option-dependent	Not used			
1005	G/SG/SC - P> 1	Enable	OFF ON	ON			
1006	G/SG/SC - P> 1	Fail class	F1…F7	Trip GB (F3)			
1010 G/SG/SC reverse power 2							
1011	G/SG/SC - P> 2	Set point	-110.0 % 0.0 %	- 15.0 %		Designer's Reference Handbook	The alarm and fail class are activated when the reverse power has been continuously above the programmed value during the programmed delay.
1012	G/SG/SC - P> 2	Delay	0.1 s 300.0 s	2.0 s			
1013	G/SG/SC - P> 2	Relay output A	Not used Option-dependent	Not used			
1014	G/SG/SC - P> 2	Relay output B	Not used Option-dependent	Not used			
1015	G/SG/SC - P> 2	Enable	OFF ON	ON			
1016	G/SG/SC - P> 2	Fail class	F1…F7	Trip GB (F3)			

2.2 Over-current protection

2.2.1 Over-current protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1030 G/SG/SC/BA overcurrent 1							
1031	G/SG/SC/BA I> 1	Set point	50 % 200 %	100 %		Designer's Reference Handbook	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1032	G/SG/SC/BA I> 1	Delay	0.1 s 999.9 s	20.0 s			
1033	G/SG/SC/BA I> 1	Relay output A	Not used Option-dependent	Not used			
1034	G/SG/SC/BA I> 1	Relay output B	Not used Option-dependent	Not used			
1035	G/SG/SC/BA I> 1	Enable	OFF ON	ON			
1036	G/SG/SC/BA I> 1	Fail class	F1…F7	Warning (F2)			
1040 G/SG/SC/BA overcurrent 2							
1041	G/SG/SC/BA I> 2	Set point	50 % 200 %	110 %		Designer's Reference Handbook	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1042	G/SG/SC/BA I> 2	Delay	0.1 s 999.9 s	60.0 s			
1043	G/SG/SC/BA I> 2	Relay output A	Not used Option-dependent	Not used			
1044	G/SG/SC/BA I> 2	Relay output B	Not used Option-dependent	Not used			
1045	G/SG/SC/BA I> 2	Enable	OFF ON	ON			
1046	G/SG/SC/BA I> 2	Fail class	F1…F7	Trip GB (F3)			
1050 G/SG/SC/BA overcurrent 3							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1051	G/SG/SC/BA I> 3	Set point	50 % 200 %	130 %		Designer's Reference Handbook	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1052	G/SG/SC/BA I> 3	Delay	0.1 s 999.9 s	30.0 s			
1053	G/SG/SC/BA I> 3	Relay output A	Not used Option-dependent	Not used			
1054	G/SG/SC/BA I> 3	Relay output B	Not used Option-dependent	Not used			
1055	G/SG/SC/BA I> 3	Enable	OFF ON	ON			
1056	G/SG/SC/BA I> 3	Fail class	F1…F7	Trip GB (F3)			
1060 G/SG/SC/BA overcurrent 4							
1061	G/SG/SC/BA I> 4	Set point	50 % 200 %	150 %		Designer's Reference Handbook	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1062	G/SG/SC/BA I> 4	Delay	0.1 s 999.9 s	10.0 s			
1063	G/SG/SC/BA I> 4	Relay output A	Not used Option-dependent	Not used			
1064	G/SG/SC/BA I> 4	Relay output B	Not used Option-dependent	Not used			
1065	G/SG/SC/BA I> 4	Enable	OFF ON	ON			
1066	G/SG/SC/BA I> 4	Fail class	F1…F7	Trip GB (F3)			
1070 Power import ship-to-ship							
1071	P>ship-to-ship	Delay	0.1 s 120.0 s	5.0 s		Designer's Reference Handbook	
1072	P>ship-to-ship	Relay A	Not used Option-dependent	Option-dependent			
1073	P>ship-to-ship	Relay B	Not used Option-dependent	Option-dependent			
1100 Voltage-dependent overcurrent curve setting							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1101	Voltage dep. I>	Set point I1	50 % 200 %	110 %	@50 % nom voltage	Designer's Reference Handbook	Settings relate to nominal generator current. The condition has to be true i.e. I1<I2<I3<I4<I5<I6. If this is not fulfilled, the worst-case set point I1 will be used.
1102	Voltage dep. I>	Set point I2	50 % 200 %	125 %	@60 % nom voltage		
1103	Voltage dep. I>	Set point I3	50 % 200 %	140 %	@70 % nom voltage		
1104	Voltage dep. I>	Set point I4	50 % 200 %	155 %	@80 % nom voltage		
1105	Voltage dep. I>	Set point I5	50 % 200 %	170 %	@90 % nom voltage		
1106	Voltage dep. I>	Set point I6	50 % 200 %	200 %	@100 % nom voltage		
1110 Voltage-dependent overcurrent alarm							
1111	Voltage dep. I>	Timer	0.1 s 300.0 s	1.0 s		Designer's Reference Handbook	The alarm and fail class are activated when the overcurrent has been continuously above the programmed value during the programmed delay. Values are set in parameters 1101-1106.
1112	Voltage dep. I>	Relay A	Not used Option-dependent	Not used			
1113	Voltage dep. I>	Relay B	Not used Option-dependent	Not used			
1114	Voltage dep. I>	Activate	OFF ON	OFF			
1115	Voltage dep. I>	Fail class	F1…F7	Warning (F2)			
1130 G/SG/SC/BA fast overcurrent 1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1131	G/SG/SC/BA I>> 1	Set point	80 % 350 %	200 %		Designer's Reference Handbook	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1132	G/SG/SC/BA I>> 1	Delay	0.0 s 3.0 s	0.0 s			
1133	G/SG/SC/BA I>> 1	Relay output A	Not used Option-dependent	Not used			
1134	G/SG/SC/BA I>> 1	Relay output B	Not used Option-dependent	Not used			
1135	G/SG/SC/BA I>> 1	Enable	OFF ON	OFF			
1136	G/SG/SC/BA I>> 1	Fail class	F1…F7	Trip GB (F3)			
1140 G/SG/SC/BA fast overcurrent 2							
1141	G/SG/SC/BA I>> 2	Set point	80 % 350 %	300 %		Designer's Reference Handbook	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1142	G/SG/SC/BA I>> 2	Delay	0.0 s 3.0 s	0.0 s			
1143	G/SG/SC/BA I>> 2	Relay output A	Not used Option-dependent	Not used			
1144	G/SG/SC/BA I>> 2	Relay output B	Not used Option-dependent	Not used			
1145	G/SG/SC/BA I>> 2	Enable	OFF ON	OFF			
1146	G/SG/SC/BA I>> 2	Fail class	F1…F7	Trip GB (F3)			

2.3 Generator voltage protection

2.3.1 Generator voltage protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1150 G/SG/SC overvoltage 1							
1151	G/SG/SC U> 1	Set point	80 % 120 %	105 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1152	G/SG/SC U> 1	Timer	0.1 s 100.0 s	5.0 s			
1153	G/SG/SC U> 1	Relay A	Not used Option-dependent	Not used			
1154	G/SG/SC U> 1	Relay B	Not used Option-dependent	Not used			
1155	G/SG/SC U> 1	Enable	OFF ON	ON			
1156	G/SG/SC U> 1	Fail class	F1…F7	Warning (F2)			
1160 G/SG/SC overvoltage 2							
1161	G/SG/SC U> 2	Set point	80 % 120 %	115 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1162	G/SG/SC U> 2	Timer	0.1 s 100.0 s	1.0 s			
1163	G/SG/SC U> 2	Relay A	Not used Option-dependent	Not used			
1164	G/SG/SC U> 2	Relay B	Not used Option-dependent	Not used			
1165	G/SG/SC U> 2	Enable	OFF ON	ON			
1166	G/SG/SC U> 2	Fail class	F1…F7	Block (F1)			
1170 G/SG/SC undervoltage 1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1171	G/SG/SC U< 1	Set point	50 % 100 %	95 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1172	G/SG/SC U< 1	Timer	0.1 s 100.0 s	5.0 s			
1173	G/SG/SC U< 1	Relay A	Not used Option-dependent	Not used			
1174	G/SG/SC U< 1	Relay B	Not used Option-dependent	Not used			
1175	G/SG/SC U< 1	Enable	OFF ON	ON			
1176	G/SG/SC U< 1	Fail class	F1…F7	Warning (F2)			
1180 G/SG/SC undervoltage 2							
1181	G/SG/SC U< 2	Set point	50 % 100 %	80 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1182	G/SG/SC U< 2	Timer	0.1 s 100.0 s	3.0 s			
1183	G/SG/SC U< 2	Relay A	Not used Option-dependent	Not used			
1184	G/SG/SC U< 2	Relay B	Not used Option-dependent	Not used			
1185	G/SG/SC U< 2	Enable	OFF ON	ON			
1186	G/SG/SC U< 2	Fail class	F1…F7	Block (F1)			
1190 G/SG/SC undervoltage 3							
1191	G/SG/SC U< 3	Set point	50 % 100 %	70 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1192	G/SG/SC U< 3	Timer	0.1 s 100.0 s	1.0 s			
1193	G/SG/SC U< 3	Relay A	Not used Option-dependent	Not used			
1194	G/SG/SC U< 3	Relay B	Not used Option-dependent	Not used			
1195	G/SG/SC U< 3	Enable	OFF ON	OFF			
1196	G/SG/SC U< 3	Fail class	F1…F7	Block (F1)			

2.4 Generator frequency protection

2.4.1 Generator frequency protection

INFO
Frequency settings relate to the nominal frequency setting.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1210 G/SG/SC overfrequency 1							
1211	G/SG/SC f> 1	Set point	80 % 120 %	105 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1212	G/SG/SC f> 1	Timer	0.2 s 100.0 s	5.0 s			
1213	G/SG/SC f> 1	Relay A	Not used Option- dep.	Not used			
1214	G/SG/SC f> 1	Relay B	Not used Option- dep.	Not used			
1215	G/SG/SC f> 1	Enable	OFF ON	ON			
1216	G/SG/SC f> 1	Fail class	F1…F7	Warning (F2)			
1220 G/SG/SC overfrequency 2							
1221	G/SG/SC f> 2	Set point	80 % 120 %	107 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1222	G/SG/SC f> 2	Timer	0.2 s 100.0 s	3.0 s			
1223	G/SG/SC f> 2	Relay A	Not used Option- dep.	Not used			
1224	G/SG/SC f> 2	Relay B	Not used Option- dep.	Not used			
1225	G/SG/SC f> 2	Enable	OFF ON	ON			
1226	G/SG/SC f> 2	Fail class	F1…F7	Block (F1)			
1230 G/SG/SC overfrequency 3							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1231	G/SG/SC f> 3	Set point	80 % 120 %	110 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1232	G/SG/SC f> 3	Timer	0.2 s 100.0 s	1.0 s			
1233	G/SG/SC f> 3	Relay A	Not used Option- dep.	Not used			
1234	G/SG/SC f> 3	Relay B	Not used Option- dep.	Not used			
1235	G/SG/SC f> 3	Enable	OFF ON	OFF			
1236	G/SG/SC f> 3	Fail class	F1…F7	Block (F1)			
1240 G/SG/SC underfrequency 1							
1241	G/SG/SC f< 1	Set point	80 % 100 %	95 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1242	G/SG/SC f< 1	Timer	0.2 s 100.0 s	5.0 s			
1243	G/SG/SC f< 1	Relay A	Not used Option- dep.	Not used			
1244	G/SG/SC f< 1	Relay B	Not used Option- dep.	Not used			
1245	G/SG/SC f< 1	Enable	OFF ON	ON			
1246	G/SG/SC f< 1	Fail class	F1…F7	Warning (F2)			
1250 G/SG/SC underfrequency 2							
1251	G/SG/SC f< 2	Set point	80 % 100 %	93 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1252	G/SG/SC f< 2	Timer	0.2 s 100.0 s	3.0 s			
1253	G/SG/SC f< 2	Relay A	Not used Option- dep.	Not used			
1254	G/SG/SC f< 2	Relay B	Not used Option- dep.	Not used			
1255	G/SG/SC f< 2	Enable	OFF ON	ON			
1256	G/SG/SC f< 2	Fail class	F1…F7	Block (F1)			
1260 G/SG/SC underfrequency 3							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1261	G/SG/SC f< 3	Set point	80 % 100 %	90 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1262	G/SG/SC f< 3	Timer	0.2 s 100.0 s	1.0 s			
1263	G/SG/SC f< 3	Relay A	Not used Option- dep.	Not used			
1264	G/SG/SC f< 3	Relay B	Not used Option- dep.	Not used			
1265	G/SG/SC f< 3	Enable	OFF ON	OFF			
1266	G/SG/SC f< 3	Fail class	F1…F7	Block (F1)			

2.5 Busbar voltage protection

2.5.1 Busbar voltage protection

INFO
Voltage settings relate to the nominal voltage setting.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1270 Busbar overvoltage 1							
1271	BB U> 1	Set point	90 % 150 %	110 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1272	BB U> 1	Timer	0.00 s 99.99 s	5.00 s			
1273	BB U> 1	Relay A	Not used Option- dep.	Not used			
1274	BB U> 1	Relay B	Not used Option- dep.	Not used			
1275	BB U> 1	Enable	OFF ON	ON			
1276	BB U> 1	Fail class	F1…F7	Warning (F2)			
1280 Busbar overvoltage 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1281	BB U> 2	Set point	90 % 150 %	120 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1282	BB U> 2	Timer	0.00 s 99.99 s	3.00 s			
1283	BB U> 2	Relay A	Not used Option- dep.	Not used			
1284	BB U> 2	Relay B	Not used Option- dep.	Not used			
1285	BB U> 2	Enable	OFF ON	ON			
1286	BB U> 2	Fail class	F1…F7	Trip GB (F3)			
1290 Busbar overvoltage 3							
1291	BB U> 3	Set point	90 % 150 %	130 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1292	BB U> 3	Timer	0.00 s 99.99 s	1.00 s			
1293	BB U> 3	Relay A	Not used Option- dep.	Not used			
1294	BB U> 3	Relay B	Not used Option- dep.	Not used			
1295	BB U> 3	Enable	OFF ON	OFF			
1296	BB U> 3	Fail class	F1…F7	Trip GB (F3)			
1300 Busbar undervoltage 1							
1301	BB U< 1	Set point	50 % 100 %	95 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1302	BB U< 1	Timer	0.00 s 99.99 s	5.00 s			
1303	BB U< 1	Relay A	Not used Option- dep.	Not used			
1304	BB U< 1	Relay B	Not used Option- dep.	Not used			
1305	BB U< 1	Enable	OFF ON	ON			
1306	BB U< 1	Fail class	F1…F7	Warning (F2)			
1310 Busbar undervoltage 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1311	BB U< 2	Set point	50 % 100 %	80 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1312	BB U< 2	Timer	0.00 s 99.99 s	3.00 s			
1313	BB U< 2	Relay A	Not used Option- dep.	Not used			
1314	BB U< 2	Relay B	Not used Option- dep.	Not used			
1315	BB U< 2	Enable	OFF ON	ON			
1316	BB U< 2	Fail class	F1…F7	Trip GB (F3)			
1320 Busbar undervoltage 3							
1321	BB U< 3	Set point	50 % 100 %	70 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1322	BB U< 3	Timer	0.00 s 99.99 s	2.00 s			
1323	BB U< 3	Relay A	Not used Option- dep.	Not used			
1324	BB U< 3	Relay B	Not used Option- dep.	Not used			
1325	BB U< 3	Enable	OFF ON	OFF			
1326	BB U< 3	Fail class	F1…F7	Trip GB (F3)			
1330 Busbar undervoltage 4							
1331	BB U< 4	Set point	50 % 100 %	60 %		Designer's Reference Handbook	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1332	BB U< 4	Timer	0.00 s 99.99 s	1.00 s			
1333	BB U< 4	Relay A	Not used Option- dep.	Not used			
1334	BB U< 4	Relay B	Not used Option- dep.	Not used			
1335	BB U< 4	Enable	OFF ON	OFF			
1336	BB U< 4	Fail class	F1…F7	Trip GB (F3)			

2.6 Busbar frequency protection

2.6.1 Busbar frequency protection

INFO
Frequency settings relate to the nominal frequency setting.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1350 Busbar overfrequency 1							
1351	BB f> 1	Set point	100 % 130 %	105 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1352	BB f> 1	Timer	0.00 s 99.99 s	5.00 s			
1353	BB f> 1	Relay A	Not used Option-dep.	Not used			
1354	BB f> 1	Relay B	Not used Option-dep.	Not used			
1355	BB f> 1	Enable	OFF ON	ON			
1356	BB f> 1	Fail class	F1…F7	Warning (F2)			
1360 Busbar overfrequency 2							
1361	BB f> 2	Set point	100 % 130 %	110 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1362	BB f> 2	Timer	0.00 s 99.99 s	8.00 s			
1363	BB f> 2	Relay A	Not used Option-dep.	Not used			
1364	BB f> 2	Relay B	Not used Option-dep.	Not used			
1365	BB f> 2	Enable	OFF ON	ON			
1366	BB f> 2	Fail class	F1…F7	Trip GB (F3)			
1370 Busbar overfrequency 3							
1371	BB f> 3	Set point	100 % 130 %	120 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1372	BB f> 3	Timer	0.00 s 99.99 s	6.00 s			
1373	BB f> 3	Relay A	Not used Option-dep.	Not used			
1374	BB f> 3	Relay B	Not used Option-dep.	Not used			
1375	BB f> 3	Enable	OFF ON	OFF			
1376	BB f> 3	Fail class	F1…F7	Trip GB (F3)			
1380 Busbar underfrequency 1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1381	BB f< 1	Set point	80 % 100 %	96 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1382	BB f< 1	Timer	0.00 s 99.99 s	5.00 s			
1383	BB f< 1	Relay A	Not used Option-dep.	Not used			
1384	BB f< 1	Relay B	Not used Option-dep.	Not used			
1385	BB f< 1	Enable	OFF ON	ON			
1386	BB f< 1	Fail class	F1…F7	Warning (F2)			
1390 Busbar underfrequency 2							
1391	BB f< 2	Set point	80 % 100 %	93 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1392	BB f< 2	Timer	0.00 s 99.99 s	10.00 s			
1393	BB f< 2	Relay A	Not used Option-dep.	Not used			
1394	BB f< 2	Relay B	Not used Option-dep.	Not used			
1395	BB f< 2	Enable	OFF ON	ON			
1396	BB f< 2	Fail class	F1…F7	Trip GB (F3)			
1400 Busbar underfrequency 3							
1401	BB f< 3	Set point	80 % 100 %	92 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1402	BB f< 3	Timer	0.00 s 99.99 s	8.00 s			
1403	BB f< 3	Relay A	Not used Option-dep.	Not used			
1404	BB f< 3	Relay B	Not used Option-dep.	Not used			
1405	BB f< 3	Enable	OFF ON	OFF			
1406	BB f< 3	Fail class	F1…F7	Trip GB (F3)			
1410 Busbar underfrequency 4							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1411	BB f< 4	Set point	80 % 100 %	90 %		Designer's Reference Handbook	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1412	BB f< 4	Timer	0.00 s 99.99 s	6.00 s			
1413	BB f< 4	Relay A	Not used Option-dep.	Not used			
1414	BB f< 4	Relay B	Not used Option-dep.	Not used			
1415	BB f< 4	Enable	OFF ON	OFF			
1416	BB f< 4	Fail class	F1…F7	Trip GB (F3)			

2.7 Overload protection

2.7.1 Overload protection

INFO
Settings relate to nominal power.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1450 G/SG/SC/BA overload 1							
1451	G/SG/SC/ BA P> 1	Set point	-200 % 200 %	95 %		Designer's Reference Handbook	The alarm and fail class are activated when the power has been continuously above the programmed value during the programmed delay. If negative values are chosen the high alarm must be deactivated. The deactivating is only available from the USW.
1452	G/SG/SC/ BA P> 1	Timer	0.1 s 100.0 s	30.0 s			
1453	G/SG/SC/ BA P> 1	Relay A	R0 Option-dep.	R0 (none)			
1454	G/SG/SC/ BA P> 1	Relay B	R0 Option-dep.	R0 (none)			
1455	G/SG/SC/ BA P> 1	Enable	OFF ON	ON			
1456	G/SG/SC/ BA P> 1	Fail class	F1…F7	Warning (F2)			
1460 G/SG/SC/BA overload 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1461	G/SG/SC/ BA P> 2	Set point	-200 % 200 %	110 %		Designer's Reference Handbook	The alarm and fail class are activated when the power has been continuously above the programmed value during the programmed delay. If negative values are chosen the high alarm must be deactivated. The deactivating is only available from the USW.
1462	G/SG/SC/ BA P> 2	Timer	0.1 s 100.0 s	30.0 s			
1463	G/SG/SC/ BA P> 2	Relay A	R0 Option-dep.	R0 (none)			
1464	G/SG/SC/ BA P> 2	Relay B	R0 Option-dep.	R0 (none)			
1465	G/SG/SC/ BA P> 2	Enable	OFF ON	ON			
1466	G/SG/SC/ BA P> 2	Fail class	F1…F7	Trip GB (F3)			
1470 G/SG/SC/BA overload 3							
1471	G/SG/SC/ BA P> 3	Set point	-200 % 200 %	120 %		Designer's Reference Handbook	The alarm and fail class are activated when the power has been continuously above the programmed value during the programmed delay. If negative values are chosen the high alarm must be deactivated. The deactivating is only available from the USW.
1472	G/SG/SC/ BA P> 3	Timer	0.1 s 100.0 s	10.0 s			
1473	G/SG/SC/ BA P> 3	Relay A	R0 Option-dep.	R0 (none)			
1474	G/SG/SC/ BA P> 3	Relay B	R0 Option-dep.	R0 (none)			
1475	G/SG/SC/ BA P> 3	Enable	OFF ON	OFF			
1476	G/SG/SC/ BA P> 3	Fail class	F1…F7	Trip GB (F3)			
1480 G/SG/SC/BA overload 4							
1481	G/SG/SC/ BA P> 4	Set point	-200 % 200 %	130 %		Designer's Reference Handbook	The alarm and fail class are activated when the power has been continuously above the programmed value during the programmed delay. If negative values are chosen the high alarm must be deactivated. The deactivating is only available from the USW.
1482	G/SG/SC/ BA P> 4	Timer	0.1 s 100.0 s	5.0 s			
1483	G/SG/SC/ BA P> 4	Relay A	R0 Option-dep.	R0 (none)			
1484	G/SG/SC/ BA P> 4	Relay B	R0 Option-dep.	R0 (none)			
1485	G/SG/SC/ BA P> 4	Enable	OFF ON	OFF			
1486	G/SG/SC/ BA P> 4	Fail class	F1…F7	Trip GB (F3)			
1490 G/SG/SC/BA overload 5							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1491	G/SG/SC/ BA P> 5	Set point	-200 % 200 %	150 %		Designer's Reference Handbook	The alarm and fail class are activated when the power has been continuously above the programmed value during the programmed delay. If negative values are chosen the high alarm must be deactivated. The deactivating is only available from the USW.
1492	G/SG/SC/ BA P> 5	Timer	0.1 s 100.0 s	1.0 s			
1493	G/SG/SC/ BA P> 5	Relay A	R0 Option-dep.	R0 (none)			
1494	G/SG/SC/ BA P> 5	Relay B	R0 Option-dep.	R0 (none)			
1495	G/SG/SC/ BA P> 5	Enable	OFF ON	OFF			
1496	G/SG/SC/ BA P> 5	Fail class	F1…F7	Trip GB (F3)			

2.8 Current unbalance protection

2.8.1 Current unbalance protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1500 G Unbalance I							
1501	G Unbalance I	Set point	0.00 % 100.00 %	30 %		Designer's Reference Handbook	Settings relate to nominal current. The alarm and fail class are activated when the difference between the max. reading and the min. reading of the 3 measured currents has been continuously above the programmed value during the programmed delay.
1502	G Unbalance I	Timer	0.1 s 100.0 s	10.0 s			
1503	G Unbalance I	Relay A	R0 Option-dep.	R0 (none)			
1504	G Unbalance I	Relay B	R0 Option-dep.	R0 (none)			
1505	G Unbalance I	Enable	OFF ON	ON			
1506	G Unbalance I	Fail class	F1…F7	Warning (F2)			

2.9 Voltage asymmetry protection

2.9.1 Voltage asymmetry protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1510 G Unbalance U							
1511	G Unbalance U	Set point	0.00 % 50.00 %	10 %		Designer's Reference Handbook	Settings relate to nominal voltage. The alarm and fail class are activated when the difference between the max. reading and the min. reading of the 3 measured generator voltages has been continuously above the programmed value during the programmed delay.
1512	G Unbalance U	Timer	0.1 s 100.0 s	10.0 s			
1513	G Unbalance U	Relay A	R0 Option-dep.	R0 (none)			
1514	G Unbalance U	Relay B	R0 Option-dep.	R0 (none)			
1515	G Unbalance U	Enable	OFF ON	ON			
1516	G Unbalance U	Fail class	F1…F7	Warning (F2)			

2.10 Reactive power import (loss of excitation)

2.10.1 Reactive power import (loss of excitation)

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1520 G/SG reactive power import (loss of excitation)							
1521	G/SG–Q>	Set point	0.00 % 150.00 %	50 %		Designer's Reference Handbook	Settings relate to nominal power. The alarm and fail class are activated when imported var has been continuously above the programmed value during the programmed delay.
1522	G/SG–Q>	Timer	0.1 s 100.0 s	10.0 s			
1523	G/SG–Q>	Relay A	R0 Option-dep.	R0 (none)			
1524	G/SG–Q>	Relay B	R0 Option-dep.	R0 (none)			
1525	G/SG–Q>	Enable	OFF ON	OFF			
1526	G/SG–Q>	Fail class	F1…F7	Warning (F2)			

2.11 Reactive power export (over-excitation)

2.11.1 Reactive power export (over-excitation)

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1530 G/SG reactive power export (overexcitation)							
1531	G/SG Q>	Set point	0.00 % 100.00 %	75 %		Designer's Reference Handbook	Settings relate to nominal power. The alarm and fail class are activated when exported var has been continuously above the programmed value during the programmed delay.
1532	G/SG Q>	Timer	0.1 s 100.0 s	10.0 s			
1533	G/SG Q>	Relay A	R0 Option-dep.	R0 (none)			
1534	G/SG Q>	Relay B	R0 Option-dep.	R0 (none)			
1535	G/SG Q>	Enable	OFF ON	OFF			
1536	G/SG Q>	Fail class	F1…F7	Warning (F2)			

2.12 Busbar unbalance voltage protection

2.12.1 Busbar unbalance voltage protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1620 BB Unbalance U							
1621	BB Unbalance U	Set point	0.00 % 50.00 %	10 %		Designer's Reference Handbook	Settings relate to average actual voltage. The alarm and fail class are activated when the difference between the max. reading and the min. reading of the 3 measured busbar voltages has been continuously above the programmed value during the programmed delay.
1622	BB Unbalance U	Timer	0.1 s 100.0 s	10.0 s			
1623	BB Unbalance U	Relay A	R0 Option-dep.	R0 (none)			
1624	BB Unbalance U	Relay B	R0 Option-dep.	R0 (none)			
1625	BB Unbalance U	Enable	OFF ON	ON			
1626	BB Unbalance U	Fail class	F1…F7	Warning (F2)			

2.13 Non Essential Load trip

2.13.1 Non Essential Load trip

INFO
Setting values relate to the nominal setting.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1800 NEL 1 Overcurrent							
1801	NEL 1 I>	Set point	50 % 200 %	100 %		Designer's Reference Handbook	Trip of Non Essential Load due to overcurrent. This function activates NEL group 1.
1802	NEL 1 I>	Timer	0.1 s 100.0 s	5.0 s			
1803	NEL 1 I>	Enable	OFF ON	OFF			
1810 NEL 2 Overcurrent							
1811	NEL 2 I>	Set point	50 % 200 %	100 %		Designer's Reference Handbook	Trip of Non Essential Load due to overcurrent. This function activates NEL group 2.
1812	NEL 2 I>	Timer	0.1 s 100.0 s	8.0 s			
1813	NEL 2 I>	Enable	OFF ON	OFF			
1820 NEL 3 Overcurrent							
1821	NEL 3 I>	Set point	50 % 200 %	100 %		Designer's Reference Handbook	Trip of Non Essential Load due to overcurrent. This function activates NEL group 3.
1822	NEL 3 I>	Timer	0.1 s 100.0 s	10.0 s			
1823	NEL 3 I>	Enable	OFF ON	OFF			
1830 NEL 1 Busbar underfrequency							
1831	NEL 1 Bus f<	Set point	70 % 100 %	95 %		Designer's Reference Handbook	Trip of Non Essential Load due to low frequency. This function activates NEL group 1.
1832	NEL 1 Bus f<	Timer	0.1 s 100.0 s	5.0 s			
1833	NEL 1 Bus f<	Enable	OFF ON	OFF			
1840 NEL 2 Busbar underfrequency							
1841	NEL 2 Bus f<	Set point	70 % 100 %	95 %		Designer's Reference Handbook	Trip of Non Essential Load due to low frequency. This function activates NEL group 2.
1842	NEL 2 Bus f<	Timer	0.1 s 100.0 s	8.0 s			
1843	NEL 2 Bus f<	Enable	OFF ON	OFF			
1850 NEL 3 Busbar underfrequency							
1851	NEL 3 Bus f<	Set point	70 % 100 %	95 %		Designer's Reference Handbook	Trip of Non Essential Load due to low frequency. This function activates NEL group 3.
1852	NEL 3 Bus f<	Timer	0.1 s 100.0 s	10.0 s			
1853	NEL 3 Bus f<	Enable	OFF ON	OFF			
1860 NEL 1 Overload							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1861	NEL 1 P>	Set point	10 % 200 %	100 %		Designer's Reference Handbook	Trip of Non Essential Load due to overload. This function activates NEL group 1.
1862	NEL 1 P>	Timer	0.1 s 999.0 s	5.0 s			
1863	NEL 1 P>	Enable	OFF ON	OFF			
1870 NEL 2 Overload							
1871	NEL 2 P>	Set point	10 % 200 %	100 %		Designer's Reference Handbook	Trip of Non Essential Load due to overload. This function activates NEL group 2.
1872	NEL 2 P>	Timer	0.1 s 999.0 s	8.0 s			
1873	NEL 2 P>	Enable	OFF ON	OFF			
1880 NEL 3 Overload							
1881	NEL 3 P>	Set point	10 % 200 %	100 %		Designer's Reference Handbook	Trip of Non Essential Load due to overload. This function activates NEL group 3.
1882	NEL 3 P>	Timer	0.1 s 999.0 s	10.0 s			
1883	NEL 3 P>	Enable	OFF ON	OFF			
1890 NEL 1 High overload							
1891	NEL 1 P>>	Set point	10 % 200 %	110 %		Designer's Reference Handbook	Trip of Non Essential Load due to high overload. This function activates NEL group 1.
1892	NEL 1 P>>	Timer	0.1 s 999.0 s	1.0 s			
1893	NEL 1 P>>	Enable	OFF ON	OFF			
1900 NEL 2 High overload							
1901	NEL 2 P>>	Set point	10 % 200 %	110 %		Designer's Reference Handbook	Trip of Non Essential Load due to high overload. This function activates NEL group 2.
1902	NEL 2 P>>	Timer	0.1 s 999.0 s	1.0 s			
1903	NEL 2 P>>	Enable	OFF ON	OFF			
1910 NEL 3 High overload							
1911	NEL 3 P>>	Set point	10 % 200 %	110 %		Designer's Reference Handbook	Trip of Non Essential Load due to high overload. This function activates NEL group 3.
1912	NEL 3 P>>	Timer	0.1 s 999.0 s	1.0 s			
1913	NEL 3 P>>	Enable	OFF ON	OFF			

2.14 Max. parallel time protection

2.14.1 Max. parallel time protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1930 DG/SG Max Time							
1931	DG/SG Max Time	Delay	0.1 s 120.0 s	120.0 s		Designer's Reference Handbook	Max. allowable parallel time between diesel generators and shaft generator (DG unit only).
1932	DG/SG Max Time	Relay output A	Not used Option-dependent	Not used			
1933	DG/SG Max Time	Relay output B	Not used Option-dependent	Not used			
1934	DG/SG Max Time	Enable	OFF ON	ON			
1935	DG/SG Max Time	Fail class	F1…F7	Trip + stop (F4)			
1940 DG/SC Max Time							
1941	DG/SC Max Time	Delay	0.1 s 120.0 s	120.0 s		Designer's Reference Handbook	Max. allowable parallel time between diesel generators and shore connection (DG unit only).
1942	DG/SC Max Time	Relay output A	Not used Option-dependent	Not used			
1943	DG/SC Max Time	Relay output B	Not used Option-dependent	Not used			
1944	DG/SC Max Time	Enable	ON OFF	ON			
1945	DG/SC Max Time	Fail class	F1...F7	Trip + stop (F4)			
1950 EG/MBB Max Time							
1951	EG/MBB Max Time	Delay	0.1 s 30.0 s	30.0 s		Designer's Reference Handbook	Max. allowable parallel time between emergency diesel generator and main switchboard (EDG unit only).
1952	EG/MBB Max Time	Relay output A	Not used Option-dependent	Not used			
1953	EG/MBB Max Time	Relay output B	Not used Option-dependent	Not used			

2.15 Breaker external trip alarm

2.15.1 Breaker external trip alarm

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1980 GB Externally tripped							
1981	GB Ext. trip	Enable	OFF ON	ON		Designer's Reference Handbook	The generator breaker has been tripped by an external device.

2.16 Synchronisation and breaker alarms

2.16.1 Synchronisation and breaker alarms

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2130 GB/BTB breaker synchronisation failure							
2131	GB/BTB sync failure	Delay	3.0 s 300.0 s	120.0 s		Designer's Reference Handbook	GB: Generator breaker BTB: Bus tie breaker The controller has unsuccessfully tried to synchronise the generator to the busbar within the time delay.
2132	GB/BTB sync failure	Relay output A	Not used Option-dep.	Not used			
2133	GB/BTB sync failure	Relay output B	Not used Option-dep.	Not used			
2134	GB/BTB sync failure	Enable	OFF ON	ON			
2135	GB/BTB sync failure	Fail class	F1…F7	Warning (F2)			
2140 SGB/SCB/TB breaker synchronisation failure							
2141	SGB/SCB/TB sync failure	Delay	3.0 s 300.0 s	120.0 s		Designer's Reference Handbook	SGB: Shaft generator breaker SCB: Shore connection breaker TB: Tie breaker (emergency generator) The controller has unsuccessfully tried to synchronise the generator to the busbar within the time delay.
2142	SGB/SCB/TB sync failure	Relay output A	Not used Option-dep.	Not used			
2143	SGB/SCB/TB sync failure	Relay output B	Not used Option-dep.	Not used			
2144	SGB/SCB/TB sync failure	Enable	OFF ON	OFF			
2145	SGB/SCB/TB sync failure	Fail class	F1…F7	Warning (F2)			
2150 Phase sequence error							
2151	Phase seq error	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	During synchronisation, the controller has detected that the rotation direction of the generator phases is opposite direction as the busbar.
2152	Phase seq error	Relay output B	Not used Option-dep.	Not used			
2153	Phase seq error	Fail class	F1…F7	Block (F1)			
2160 GB/BTB open failure							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2161	GB/BTB open fail	Delay	1.0 s 5.0 s	2.0 s		Designer's Reference Handbook	The breaker open failure will occur, if the unit has transmitted a breaker open signal and the breaker feedback has not changed position from ON to OFF within 2 s.
2162	GB/BTB open fail	Relay output A	Not used Option-dep.	Not used			
2163	GB/BTB open fail	Relay output B	Not used Option-dep.	Not used			
2164	GB/BTB open fail	Enable	OFF ON	ON			
2165	GB/BTB open fail	Fail class	F1…F7	Warning (F2)			
2170 GB/BTB breaker close failure							
2171	GB/BTB close fail	Delay	1.0 s 5.0 s	2.0 s		Designer's Reference Handbook	The breaker close failure will occur, if the unit has transmitted a breaker close signal and the breaker feedback has not changed position from OFF to ON within 2 s.
2172	GB/BTB close fail	Relay output A	Not used Option-dep.	Not used			
2173	GB/BTB close fail	Relay output B	Not used Option-dep.	Not used			
2174	GB/BTB close fail	Enable	OFF ON	ON			
2175	GB/BTB close fail	Fail class	F1…F7	Warning (F2)			
2180 GB/BTB breaker position failure							
2181	GB/BTB pos fail	Delay	1.0 s 5.0 s	1.0 s		Designer's Reference Handbook	This alarm will occur, if the breaker feedbacks for ON and OFF are both missing or active for more than 2 s at the time.
2182	GB/BTB pos fail	Relay output A	Not used Option-dep.	Not used			
2183	GB/BTB pos fail	Relay output B	Not used Option-dep.	Not used			
2184	GB/BTB pos fail	Enable	OFF ON	ON			
2185	GB/BTB pos fail	Fail class	F1…F7	Warning (F2)			
2200 SGB/SCB/TB open failure							
2201	SGB/SCB/TB open fail	Delay	1.0 s 5.0 s	2.0 s		Designer's Reference Handbook	The breaker open failure will occur, if the unit has transmitted a breaker open signal and the breaker feedback has not changed position from ON to OFF within 2 s.
2202	SGB/SCB/TB open fail	Relay output A	Not used Option-dep.	Not used			
2203	SGB/SCB/TB open fail	Relay output B	Not used Option-dep.	Not used			
2204	SGB/SCB/TB open fail	Enable	OFF ON	ON			
2205	SGB/SCB/TB open fail	Fail class	F1…F7	Warning (F2)			
2210 SGB/SCB/TB close failure							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2211	SGB/SCB/TB close fail	Delay	1.0 s 5.0 s	2.0 s		Designer's Reference Handbook	The breaker close failure will occur, if the unit has transmitted a breaker close signal and the breaker feedback has not changed position from OFF to ON within 2 s.
2212	SGB/SCB/TB close fail	Relay output A	Not used Option-dep.	Not used			
2213	SGB/SCB/TB close fail	Relay output B	Not used Option-dep.	Not used			
2214	SGB/SCB/TB close fail	Enable	OFF ON	ON			
2215	SGB/SCB/TB close fail	Fail class	F1…F7	Warning (F2)			
2220 SGB/SCB/TB position failure							
2221	SGB/SCB/TB pos fail	Delay	1.0 s 5.0 s	1.0 s		Designer's Reference Handbook	This alarm will occur, if the breaker feedbacks for ON and OFF are both missing or active for more than 2 s.
2222	SGB/SCB/TB pos fail	Relay output A	Not used Option-dep.	Not used			
2223	SGB/SCB/TB pos fail	Relay output B	Not used Option-dep.	Not used			
2224	SGB/SCB/TB pos fail	Enable	OFF ON	ON			
2225	SGB/SCB/TB pos fail	Fail class	F1…F7	Warning (F2)			

2.17 Regulation alarms

2.17.1 Regulation alarms

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2560 Governor regulation fail							
2561	Gov. reg fail	Deadband	1 % 100 %	30 %		Designer's Reference Handbook	The alarm is activated, if the difference between the measured value and the set point is outside the deadband for a longer time period than specified by the delay set point.
2562	Gov. reg fail	Delay	10.0 s 300.0 s	60.0 s			
2563	Gov. reg fail	Relay output A	Not used Option-dependent	Not used			
2564	Gov. reg fail	Relay output B	Not used Option-dependent	Not used			
2630 Deload error							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2631	Deload error	Delay	0.0 s 60.0 s	10.0 s		Designer's Reference Handbook	The alarm is activated, if the generator fails to de-load within the time delay.
2632	Deload error	Relay output A	Not used Option-dependent	Not used			
2633	Deload error	Relay output B	Not used Option-dependent	Not used			
2634	Deload error	Enable	OFF ON	ON			
2635	Deload error	Fail class	F1…F7	Warning (F2)			
2680 AVR regulation failure							
2681	AVR reg. failure	Deadband	1 % 100 %	30 %		Option: VAr control (D1)	The alarm is activated, if the difference between the measured value and the set point is outside the setting 'Deadband' for a longer time period than specified in the timer set point.
2682	AVR reg. failure	Delay	10.0 s 300.0 s	60.0 s			
2683	AVR reg. failure	Relay A	R0 Option-dep.	R0 (none)			
2684	AVR reg. failure	Relay B	R0 Option-dep.	R0 (none)			
2685	AVR reg. failure	Fail class	F1…F7	Warning (F2)			

2.18 Binary input setup

2.18.1 Binary input setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3010 Digital input 24							
3011	Dig. input 24	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3012	Dig. input 24	Relay output A	Not used Option-dep.	Not used			
3013	Dig. input 24	Relay output B	Not used Option-dep.	Not used			
3014	Dig. input 24	Enable	OFF ON	OFF			
3015	Dig. input 24	Fail class	F1…F7	Warning (F2)			
3016	Dig. input 24	N/X	N/O N/C	N/O			
3020 Digital input 25							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3021	Dig. input 25	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3022	Dig. input 25	Relay output A	Not used Option-dep.	Not used			
3023	Dig. input 25	Relay output B	Not used Option-dep.	Not used			
3024	Dig. input 25	Enable	OFF ON	OFF			
3025	Dig. input 25	Fail class	F1…F7	Warning (F2)			
3026	Dig. input 25	N/X	N/O N/C	N/O			
3130 Digital input 43							
3131	Dig. input 43	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3132	Dig. input 43	Relay output A	Not used Option-dep.	Not used			
3133	Dig. input 43	Relay output B	Not used Option-dep.	Not used			
3134	Dig. input 43	Enable	OFF ON	OFF			
3135	Dig. input 43	Fail class	F1…F7	Warning (F2)			
3136	Dig. input 43	N/X	N/O N/C	N/O			
3140 Digital input 44							
3141	Dig. input 44	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3142	Dig. input 44	Relay output A	Not used Option-dep.	Not used			
3143	Dig. input 44	Relay output B	Not used Option-dep.	Not used			
3144	Dig. input 44	Enable	OFF ON	OFF			
3145	Dig. input 44	Fail class	F1…F7	Warning (F2)			
3146	Dig. input 44	N/X	N/O N/C	N/O			
3150 Digital input 45							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3151	Dig. input 45	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3152	Dig. input 45	Relay output A	Not used Option-dep.	Not used			
3153	Dig. input 45	Relay output B	Not used Option-dep.	Not used			
3154	Dig. input 45	Enable	OFF ON	OFF			
3155	Dig. input 45	Fail class	F1…F7	Warning (F2)			
3156	Dig. input 45	N/X	N/O N/C	N/O			
3160 Digital input 46							
3161	Dig. input 46	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3162	Dig. input 46	Relay output A	Not used Option-dep.	Not used			
3163	Dig. input 46	Relay output B	Not used Option-dep.	Not used			
3164	Dig. input 46	Enable	OFF ON	OFF			
3165	Dig. input 46	Fail class	F1…F7	Warning (F2)			
3166	Dig. input 46	N/X	N/O N/C	N/O			
3170 Digital input 47							
3171	Dig. input 47	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3172	Dig. input 47	Relay output A	Not used Option-dep.	Not used			
3173	Dig. input 47	Relay output B	Not used Option-dep.	Not used			
3174	Dig. input 47	Enable	OFF ON	OFF			
3175	Dig. input 47	Fail class	F1…F7	Warning (F2)			
3176	Dig. input 47	N/X	N/O N/C	N/O			
3180 Digital input 48							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3181	Dig. input 48	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3182	Dig. input 48	Relay output A	Not used Option-dep.	Not used			
3183	Dig. input 48	Relay output B	Not used Option-dep.	Not used			
3184	Dig. input 48	Enable	OFF ON	OFF			
3185	Dig. input 48	Fail class	F1…F7	Warning (F2)			
3186	Dig. input 48	N/X	N/O N/C	N/O			
3190 Digital input 49							
3191	Dig. input 49	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3192	Dig. input 49	Relay output A	Not used Option-dep.	Not used			
3193	Dig. input 49	Relay output B	Not used Option-dep.	Not used			
3194	Dig. input 49	Enable	OFF ON	OFF			
3195	Dig. input 49	Fail class	F1…F7	Warning (F2)			
3196	Dig. input 49	N/X	N/O N/C	N/O			
3200 Digital input 50							
3201	Dig. input 50	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3202	Dig. input 50	Relay output A	Not used Option-dep.	Not used			
3203	Dig. input 50	Relay output B	Not used Option-dep.	Not used			
3204	Dig. input 50	Enable	OFF ON	OFF			
3205	Dig. input 50	Fail class	F1…F7	Warning (F2)			
3206	Dig. input 50	N/X	N/O N/C	N/O			
3210 Digital input 51							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3211	Dig. input 51	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3212	Dig. input 51	Relay output A	Not used Option-dep.	Not used			
3213	Dig. input 51	Relay output B	Not used Option-dep.	Not used			
3214	Dig. input 51	Enable	OFF ON	OFF			
3215	Dig. input 51	Fail class	F1…F7	Warning (F2)			
3216	Dig. input 51	N/X	N/O N/C	N/O			
3220 Digital input 52							
3221	Dig. input 52	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3222	Dig. input 52	Relay output A	Not used Option-dep.	Not used			
3223	Dig. input 52	Relay output B	Not used Option-dep.	Not used			
3224	Dig. input 52	Enable	OFF ON	OFF			
3225	Dig. input 52	Fail class	F1…F7	Warning (F2)			
3226	Dig. input 52	N/X	N/O N/C	N/O			
3230 Digital input 53							
3231	Dig. input 53	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3232	Dig. input 53	Relay output A	Not used Option-dep.	Not used			
3233	Dig. input 53	Relay output B	Not used Option-dep.	Not used			
3234	Dig. input 53	Enable	OFF ON	OFF			
3235	Dig. input 53	Fail class	F1…F7	Warning (F2)			
3236	Dig. input 53	N/X	N/O N/C	N/O			
3240 Digital input 54							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3241	Dig. input 54	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3242	Dig. input 54	Relay output A	Not used Option-dep.	Not used			
3243	Dig. input 54	Relay output B	Not used Option-dep.	Not used			
3244	Dig. input 54	Enable	OFF ON	OFF			
3245	Dig. input 54	Fail class	F1…F7	Warning (F2)			
3246	Dig. input 54	N/X	N/O N/C	N/O			
3250 Digital input 55							
3251	Dig. input 55	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3252	Dig. input 55	Relay output A	Not used Option-dep.	Not used			
3253	Dig. input 55	Relay output B	Not used Option-dep.	Not used			
3254	Dig. input 55	Enable	OFF ON	OFF			
3255	Dig. input 55	Fail class	F1…F7	Warning (F2)			
3256	Dig. input 55	N/X	N/O N/C	N/O			
3330 Digital input 91							
3331	Dig. input 91	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3332	Dig. input 91	Relay output A	R0 Option-dep.	R0 (none)			
3333	Dig. input 91	Relay output B	R0 Option-dep.	R0 (none)			
3334	Dig. input 91	Enable	OFF ON	OFF			
3335	Dig. input 91	Fail class	F1…F7	Warning (F2)			
3336	Dig. input 91	N/X	N/O N/C	N/O			
3340 Digital input 92							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3341	Dig. input 92	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3342	Dig. input 92	Relay output A	R0 Option-dep.	R0 (none)			
3343	Dig. input 92	Relay output B	R0 Option-dep.	R0 (none)			
3344	Dig. input 92	Enable	OFF ON	OFF			
3345	Dig. input 92	Fail class	F1…F7	Warning (F2)			
3346	Dig. input 92	N/X	N/O N/C	N/O			
3350 Digital input 93							
3351	Dig. input 93	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3352	Dig. input 93	Relay output A	R0 Option-dep.	R0 (none)			
3353	Dig. input 93	Relay output B	R0 Option-dep.	R0 (none)			
3354	Dig. input 93	Enable	OFF ON	OFF			
3355	Dig. input 93	Fail class	F1…F7	Warning (F2)			
3356	Dig. input 93	N/X	N/O N/C	N/O			
3360 Digital input 94							
3361	Dig. input 94	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3362	Dig. input 94	Relay output A	R0 Option-dep.	R0 (none)			
3363	Dig. input 94	Relay output B	R0 Option-dep.	R0 (none)			
3364	Dig. input 94	Enable	OFF ON	OFF			
3365	Dig. input 94	Fail class	F1…F7	Warning (F2)			
3366	Dig. input 94	N/X	N/O N/C	N/O			
3370 Digital input 95							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3371	Dig. input 95	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3372	Dig. input 95	Relay output A	R0 Option-dep.	R0 (none)			
3373	Dig. input 95	Relay output B	R0 Option-dep.	R0 (none)			
3374	Dig. input 95	Enable	OFF ON	OFF			
3375	Dig. input 95	Fail class	F1…F7	Warning (F2)			
3376	Dig. input 95	N/X	N/O N/C	N/O			
3380 Digital input 96							
3381	Dig. input 96	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3382	Dig. input 96	Relay output A	R0 Option-dep.	R0 (none)			
3383	Dig. input 96	Relay output B	R0 Option-dep.	R0 (none)			
3384	Dig. input 96	Enable	OFF ON	OFF			
3385	Dig. input 96	Fail class	F1…F7	Warning (F2)			
3386	Dig. input 96	N/X	N/O N/C	N/O			
3390 Digital input 97							
3391	Dig. input 97	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #6 (M13.6)	The input is configurable and can have different functions in different units.
3392	Dig. input 97	Relay output A	R0 Option-dep.	R0 (none)			
3393	Dig. input 97	Relay output B	R0 Option-dep.	R0 (none)			
3394	Dig. input 97	Enable	OFF ON	OFF			
3395	Dig. input 97	Fail class	F1…F7	Warning (F2)			
3396	Dig. input 97	N/X	N/O N/C	N/O			
3400 Digital input 102							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3401	Wire fail 102	Enable	OFF ON	OFF		Designer's Reference Handbook	The input is configurable and can have different functions in different units. (Only available if multi-input 102 is configured to 'digital').
3402	Dig. input 102	Delay	0.0 s 100.0 s	1.0 s			
3403	Dig. input 102	Relay output A	Not used Option-dep.	Not used			
3404	Dig. input 102	Relay output B	Not used Option-dep.	Not used			
3405	Dig. input 102	Enable	OFF ON	OFF			
3406	Dig. input 102	Fail class	F1…F7	Warning (F2)			
3410 Digital input 105							
3411	Wire fail 105	Enable	OFF ON	OFF		Designer's Reference Handbook	The input is configurable and can have different functions in different units. (Only available if multi-input 105 is configured to 'digital').
3412	Dig. input 105	Delay	0.0 s 100.0 s	1.0 s			
3413	Dig. input 105	Relay output A	Not used Option-dep.	Not used			
3414	Dig. input 105	Relay output B	Not used Option-dep.	Not used			
3415	Dig. input 105	Enable	OFF ON	OFF			
3416	Dig. input 105	Fail class	F1…F7	Warning (F2)			
3420 Digital input 108							
3421	Wire fail 108	Enable	OFF ON	OFF		Designer's Reference Handbook	The input is configurable and can have different functions in different units. (Only available if multi-input 108 is configured to 'digital').
3422	Dig. input 108	Delay	0.0 s 100.0 s	1.0 s			
3423	Dig. input 108	Relay output A	Not used Option-dep.	Not used			
3424	Dig. input 108	Relay output B	Not used Option-dep.	Not used			
3425	Dig. input 108	Enable	OFF ON	OFF			
3426	Dig. input 108	Fail class	F1…F7	Warning (F2)			
3430 Digital input 112							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3431	Dig. input 112	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3432	Dig. input 112	Relay output A	Not used Option-dep.	Not used			
3433	Dig. input 112	Relay output B	Not used Option-dep.	Not used			
3434	Dig. input 112	Enable	OFF ON	OFF			
3435	Dig. input 112	Fail class	F1…F7	Warning (F2)			
3436	Dig. input 112	N/X	N/O N/C	N/O			
3440 Digital input 113							
3441	Dig. input 113	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3442	Dig. input 113	Relay output A	Not used Option-dep.	Not used			
3443	Dig. input 113	Relay output B	Not used Option-dep.	Not used			
3444	Dig. input 113	Enable	OFF ON	OFF			
3445	Dig. input 113	Fail class	F1…F7	Warning (F2)			
3446	Dig. input 113	N/X	N/O N/C	N/O			
3450 Digital input 114							
3451	Dig. input 114	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3452	Dig. input 114	Relay output A	Not used Option-dep.	Not used			
3453	Dig. input 114	Relay output B	Not used Option-dep.	Not used			
3454	Dig. input 114	Enable	OFF ON	OFF			
3455	Dig. input 114	Fail class	F1…F7	Warning (F2)			
3456	Dig. input 114	N/X	N/O N/C	N/O			
3460 Digital input 115							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3461	Dig. input 115	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3462	Dig. input 115	Relay output A	Not used Option-dep.	Not used			
3463	Dig. input 115	Relay output B	Not used Option-dep.	Not used			
3464	Dig. input 115	Enable	OFF ON	OFF			
3465	Dig. input 115	Fail class	F1…F7	Warning (F2)			
3466	Dig. input 115	N/X	N/O N/C	N/O			
3470 Digital input 116							
3471	Dig. input 116	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3472	Dig. input 116	Relay output A	Not used Option-dep.	Not used			
3473	Dig. input 116	Relay output B	Not used Option-dep.	Not used			
3474	Dig. input 116	Enable	OFF ON	OFF			
3475	Dig. input 116	Fail class	F1…F7	Warning (F2)			
3476	Dig. input 116	N/X	N/O N/C	N/O			
3480 Digital input 117							
3481	Dig. input 117	Delay	0.0 s 100.0 s	1.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units.
3482	Dig. input 117	Relay output A	Not used Option-dep.	Not used			
3483	Dig. input 117	Relay output B	Not used Option-dep.	Not used			
3484	Dig. input 117	Enable	OFF ON	OFF			
3485	Dig. input 117	Fail class	F1…F7	Warning (F2)			
3486	Dig. input 117	N/X	N/O N/C	N/O			
3490 Emergency stop							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3491	Emer. stop	Delay	0.0 s 100.0 s	0.0 s		Designer's Reference Handbook	Emergency stop input is intended for a normally closed contact.
3492	Emer. stop	Relay output A	Not used Option-dep.	Not used			
3493	Emer. stop	Relay output B	Not used Option-dep.	Not used			
3494	Emer. stop	Enable	OFF ON	ON			
3495	Emer. stop	Fail class	F1…F7	Shutdown (F5)			
3500 Digital input 127							
3501	Dig. input 127	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3502	Dig. input 127	Relay output A	R0 Option-dep.	R0 (none)			
3503	Dig. input 127	Relay output B	R0 Option-dep.	R0 (none)			
3504	Dig. input 127	Enable	OFF ON	OFF			
3505	Dig. input 127	Fail class	F1…F7	Warning (F2)			
3506	Dig. input 127	N/X	N/O N/C	N/O			
3510 Digital input 128							
3511	Dig. input 128	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3512	Dig. input 128	Relay output A	R0 Option-dep.	R0 (none)			
3513	Dig. input 128	Relay output B	R0 Option-dep.	R0 (none)			
3514	Dig. input 128	Enable	OFF ON	OFF			
3515	Dig. input 128	Fail class	F1…F7	Warning (F2)			
3516	Dig. input 128	N/X	N/O N/C	N/O			
3520 Digital input 129							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3521	Dig. input 129	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3522	Dig. input 129	Relay output A	R0 Option-dep.	R0 (none)			
3523	Dig. input 129	Relay output B	R0 Option-dep.	R0 (none)			
3524	Dig. input 129	Enable	OFF ON	OFF			
3525	Dig. input 129	Fail class	F1…F7	Warning (F2)			
3526	Dig. input 129	N/X	N/O N/C	N/O			
3530 Digital input 130							
3531	Dig. input 130	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3532	Dig. input 130	Relay output A	R0 Option-dep.	R0 (none)			
3533	Dig. input 130	Relay output B	R0 Option-dep.	R0 (none)			
3534	Dig. input 130	Enable	OFF ON	OFF			
3535	Dig. input 130	Fail class	F1…F7	Warning (F2)			
3536	Dig. input 130	N/X	N/O N/C	N/O			
3540 Digital input 131							
3541	Dig. input 131	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3542	Dig. input 131	Relay output A	R0 Option-dep.	R0 (none)			
3543	Dig. input 131	Relay output B	R0 Option-dep.	R0 (none)			
3544	Dig. input 131	Enable	OFF ON	OFF			
3545	Dig. input 131	Fail class	F1…F7	Warning (F2)			
3546	Dig. input 131	N/X	N/O N/C	N/O			
3550 Digital input 132							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3551	Dig. input 132	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3552	Dig. input 132	Relay output A	R0 Option-dep.	R0 (none)			
3553	Dig. input 132	Relay output B	R0 Option-dep.	R0 (none)			
3554	Dig. input 132	Enable	OFF ON	OFF			
3555	Dig. input 132	Fail class	F1…F7	Warning (F2)			
3556	Dig. input 132	N/X	N/O N/C	N/O			
3560 Digital input 133							
3561	Dig. input 133	Delay	0.0 s 100.0 s	1.0 s		Option: 7 binary inputs in slot #8 (M13.8)	The input is configurable and can have different functions in different units.
3562	Dig. input 133	Relay output A	R0 Option-dep.	R0 (none)			
3563	Dig. input 133	Relay output B	R0 Option-dep.	R0 (none)			
3564	Dig. input 133	Enable	OFF ON	OFF			
3565	Dig. input 133	Fail class	F1…F7	Warning (F2)			
3566	Dig. input 133	N/X	N/O N/C	N/O			

2.19 Analogue input setup (option M15.6)

2.19.1 Analogue input setup (option M15.6)

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4000 4-20 mA 91.1							
4001	4-20 mA 91.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4002	4-20 mA 91.1	Delay	0.0 s 600.0 s	120.0 s			
4003	4-20 mA 91.1	Relay A	R0 Option-dep.	R0 (none)			
4004	4-20 mA 91.1	Relay B	R0 Option-dep.	R0 (none)			
4005	4-20 mA 91.1	Enable	OFF ON	OFF			
4006	4-20 mA 91.1	Fail class	F1…F7	Warning (F2)			
4010 4-20 mA 91.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4011	4-20 mA 91.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4012	4-20 mA 91.2	Delay	0.0 s 600.0 s	120.0 s			
4013	4-20 mA 91.2	Relay A	R0 Option-dep.	R0 (none)			
4014	4-20 mA 91.2	Relay B	R0 Option-dep.	R0 (none)			
4015	4-20 mA 91.2	Enable	OFF ON	OFF			
4016	4-20 mA 91.2	Fail class	F1…F7	Warning (F2)			
4020 Wire fail 4-20 mA 91							
4021	W. fail ana 91	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.6)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases, the alarm will be activated.
4022	W. fail ana 91	Relay B	R0 Option-dep.	R0 (none)			
4023	W. fail ana 91	Enable	OFF ON	OFF			
4024	W. fail ana 91	Fail class	F1…F7	Warning (F2)			
4030 4-20 mA 93.1							
4031	4-20 mA 93.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4032	4-20 mA 93.1	Delay	0.0 s 600.0 s	120.0 s			
4033	4-20 mA 93.1	Relay A	R0 Option-dep.	R0 (none)			
4034	4-20 mA 93.1	Relay B	R0 Option-dep.	R0 (none)			
4035	4-20 mA 93.1	Enable	OFF ON	OFF			
4036	4-20 mA 93.1	Fail class	F1…F7	Warning (F2)			
4040 4-20 mA 93.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4041	4-20 mA 93.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4042	4-20 mA 93.2	Delay	0.0 s 600.0 s	120.0 s			
4043	4-20 mA 93.2	Relay A	R0 Option-dep.	R0 (none)			
4044	4-20 mA 93.2	Relay B	R0 Option-dep.	R0 (none)			
4045	4-20 mA 93.2	Enable	OFF ON	OFF			
4046	4-20 mA 93.2	Fail class	F1…F7	Warning (F2)			
4050 Wire fail 4-20 mA 93							
4051	W. fail ana 93	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.6)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases, the alarm will be activated.
4052	W. fail ana 93	Relay B	R0 Option-dep.	R0 (none)			
4053	W. fail ana 93	Enable	OFF ON	OFF			
4054	W. fail ana 93	Fail class	F1…F7	Warning (F2)			
4060 4-20 mA 95.1							
4061	4-20 mA 95.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4062	4-20 mA 95.1	Delay	0.0 s 600.0 s	120.0 s			
4063	4-20 mA 95.1	Relay A	R0 Option-dep.	R0 (none)			
4064	4-20 mA 95.1	Relay B	R0 Option-dep.	R0 (none)			
4065	4-20 mA 95.1	Enable	OFF ON	OFF			
4066	4-20 mA 95.1	Fail class	F1…F7	Warning (F2)			
4070 4-20 mA 95.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4071	4-20 mA 95.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4072	4-20 mA 95.2	Delay	0.0 s 600.0 s	120.0 s			
4073	4-20 mA 95.2	Relay A	R0 Option-dep.	R0 (none)			
4074	4-20 mA 95.2	Relay B	R0 Option-dep.	R0 (none)			
4075	4-20 mA 95.2	Enable	OFF ON	OFF			
4076	4-20 mA 95.2	Fail class	F1…F7	Warning (F2)			
4080 Wire fail 4-20 mA 95							
4081	W. fail ana 95	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.6)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated.
4082	W. fail ana 95	Relay B	R0 Option-dep.	R0 (none)			
4083	W. fail ana 95	Enable	OFF ON	OFF			
4084	W. fail ana 95	Fail class	F1…F7	Warning (F2)			
4090 4-20 mA 97.1							
4091	4-20 mA 97.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4092	4-20 mA 97.1	Delay	0.0 s 600.0 s	120.0 s			
4093	4-20 mA 97.1	Relay A	R0 Option-dep.	R0 (none)			
4094	4-20 mA 97.1	Relay B	R0 Option-dep.	R0 (none)			
4095	4-20 mA 97.1	Enable	OFF ON	OFF			
4096	4-20 mA 97.1	Fail class	F1…F7	Warning (F2)			
4100 4-20 mA 97.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4101	4-20 mA 97.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.6)	Configurable analogue input.
4102	4-20 mA 97.2	Delay	0.0 s 600.0 s	120.0 s			
4103	4-20 mA 97.2	Relay A	R0 Option-dep.	R0 (none)			
4104	4-20 mA 97.2	Relay B	R0 Option-dep.	R0 (none)			
4105	4-20 mA 97.2	Enable	OFF ON	OFF			
4106	4-20 mA 97.2	Fail class	F1…F7	Warning (F2)			
4110 Wire fail 4-20 mA 97							
4111	W. fail ana 97	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.6)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated.
4112	W. fail ana 97	Relay B	R0 Option-dep.	R0 (none)			
4113	W. fail ana 97	Enable	OFF ON	OFF			
4114	W. fail ana 97	Fail class	F1…F7	Warning (F2)			

2.20 Multi-functional analogue input setup

2.20.1 Multi-input no. 102

INFO
The available menus for multi-input no. 102 depend on the input type configured in the PC utility software (menu 10980).

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4120 4-20 mA 102.1							
4121	4-20 mA 102.1	Set point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 102 has been configured as 4-20 mA.
4122	4-20 mA 102.1	Delay	0.0 s 999.0 s	120.0 s			
4123	4-20 mA 102.1	Relay output A	Not used Option-dep.	Not used			
4124	4-20 mA 102.1	Relay output B	Not used Option-dep.	Not used			
4125	4-20 mA 102.1	Enable	OFF ON	OFF			
4126	4-20 mA 102.1	Fail class	F1…F7	Warning (F2)			
4130 4-20 mA 102.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4131	4-20 mA 102.2	Set point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 102 has been configured as 4-20 mA.
4132	4-20 mA 102.2	Delay	0.0 s 999.0 s	120.0 s			
4133	4-20 mA 102.2	Relay output A	Not used Option-dep.	Not used			
4134	4-20 mA 102.2	Relay output B	Not used Option-dep.	Not used			
4135	4-20 mA 102.2	Enable	OFF ON	OFF			
4136	4-20 mA 102.2	Fail class	F1…F7	Warning (F2)			
4140 V DC 102.1							
4141	V DC 102.1	Set point	0.0 V DC 40.0 V DC	20.0 V DC		Designer's Reference Handbook	The multi-input 102 has been configured as V DC.
4142	V DC 102.1	Delay	0.0 s 999.0 s	10.0 s			
4143	V DC 102.1	Relay output A	Not used Option-dep.	Not used			
4144	V DC 102.1	Relay output B	Not used Option-dep.	Not used			
4145	V DC 102.1	Enable	OFF ON	OFF			
4146	V DC 102.1	Fail class	F1…F7	Warning (F2)			
4150 V DC 102.2							
4151	V DC 102.2	Set point	0.0 V DC 40.0 V DC	20.0 V DC		Designer's Reference Handbook	The multi-input 102 has been configured as V DC.
4152	V DC 102.2	Delay	0.0 s 999.0 s	10.0 s			
4153	V DC 102.2	Relay output A	Not used Option-dep.	Not used			
4154	V DC 102.2	Relay output B	Not used Option-dep.	Not used			
4155	V DC 102.2	Enable	OFF ON	OFF			
4156	V DC 102.2	Fail class	F1…F7	Warning (F2)			
4160 Pt100 102.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4161	PT 102.1	Set point	-49 482	80		Designer's Reference Handbook	The multi-input 102 has been configured as Pt100. Pt100 set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4162	PT 102.1	Delay	0.0 s 999.0 s	5.0 s			
4163	PT 102.1	Relay output A	Not used Option-dep.	Not used			
4164	PT 102.1	Relay output B	Not used Option-dep.	Not used			
4165	PT 102.1	Enable	OFF ON	OFF			
4166	PT 102.1	Fail class	F1…F7	Warning (F2)			
4170 Pt100 102.2							
4171	PT 102.2	Set point	-49 482	80		Designer's Reference Handbook	The multi-input 102 has been configured as Pt100. Pt100 set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4172	PT 102.2	Delay	0.0 s 999.0 s	5.0 s			
4173	PT 102.2	Relay output A	Not used Option-dep.	Not used			
4174	PT 102.2	Relay output B	Not used Option-dep.	Not used			
4175	PT 102.2	Enable	OFF ON	OFF			
4176	PT 102.2	Fail class	F1…F7	Warning (F2)			
4180 RMI oil 102.1							
4181	RMI oil 102.1	Set point	0 145	4		Designer's Reference Handbook	The multi-input 102 has been configured as RMI oil pressure. Oil pressure set point can be in Bar or PSI, dependent on the unit selection (setting 10970).
4182	RMI oil 102.1	Delay	0.0 s 999.0 s	5.0 s			
4183	RMI oil 102.1	Relay output A	Not used Option-dep.	Not used			
4184	RMI oil 102.1	Relay output B	Not used Option-dep.	Not used			
4185	RMI oil 102.1	Enable	OFF ON	OFF			
4186	RMI oil 102.1	Fail class	F1…F7	Warning (F2)			
4190 RMI oil 102.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4191	RMI oil 102.2	Set point	0 145	5		Designer's Reference Handbook	The multi-input 102 has been configured as RMI oil pressure. Oil pressure set point can be in Bar or PSI, dependent on the unit selection (setting 10970).
4192	RMI oil 102.2	Delay	0.0 s 999.0 s	5.0 s			
4193	RMI oil 102.2	Relay output A	Not used Option-dep.	Not used			
4194	RMI oil 102.2	Relay output B	Not used Option-dep.	Not used			
4195	RMI oil 102.2	Enable	OFF ON	OFF			
4196	RMI oil 102.2	Fail class	F1…F7	Warning (F2)			
4200 RMI water 102.1							
4201	RMI water 102.1	Set point	-49 482	100		Designer's Reference Handbook	The multi-input 102 has been configured as RMI water temperature. Water temperature set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4202	RMI water 102.1	Delay	0.0 s 999.0 s	5.0 s			
4203	RMI water 102.1	Relay output A	Not used Option-dep.	Not used			
4204	RMI water 102.1	Relay output B	Not used Option-dep.	Not used			
4205	RMI water 102.1	Enable	OFF ON	OFF			
4206	RMI water 102.1	Fail class	F1…F7	Warning (F2)			
4210 RMI water 102.2							
4211	RMI water 102.2	Set point	-49 482	110		Designer's Reference Handbook	The multi-input 102 has been configured as RMI water temperature. Water temperature set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4212	RMI water 102.2	Delay	0.0 s 999.0 s	5.0 s			
4213	RMI water 102.2	Relay output A	Not used Option-dep.	Not used			
4214	RMI water 102.2	Relay output B	Not used Option-dep.	Not used			
4215	RMI water 102.2	Enable	OFF ON	OFF			
4216	RMI water 102.2	Fail class	F1…F7	Warning (F2)			
4220 RMI fuel level 102.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4221	RMI fuel 102.1	Set point	0 % 100 %	10 %		Designer's Reference Handbook	The multi-input 102 has been configured as RMI fuel level.
4222	RMI fuel 102.1	Delay	0.0 s 999.0 s	10.0 s			
4223	RMI fuel 102.1	Relay output A	Not used Option-dep.	Not used			
4224	RMI fuel 102.1	Relay output B	Not used Option-dep.	Not used			
4225	RMI fuel 102.1	Enable	OFF ON	OFF			
4226	RMI fuel 102.1	Fail class	F1…F7	Warning (F2)			
4230 RMI fuel level 102.2							
4231	RMI fuel 102.2	Set point	0 % 100 %	10 %		Designer's Reference Handbook	The multi-input 102 has been configured as RMI fuel level.
4232	RMI fuel 102.2	Delay	0.0 s 999.0 s	10.0 s			
4233	RMI fuel 102.2	Relay output A	Not used Option-dep.	Not used			
4234	RMI fuel 102.2	Relay output B	Not used Option-dep.	Not used			
4235	RMI fuel 102.2	Enable	OFF ON	OFF			
4236	RMI fuel 102.2	Fail class	F1…F7	Warning (F2)			
4240 Wire fail 102							
4241	W. fail 102	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	The wire break fault detection is activated.
4242	W. fail 102	Relay output B	Not used Option-dep.	Not used			
4243	W. fail 102	Enable	OFF ON	OFF			
4244	W. fail 102	Fail class	F1…F7	Warning (F2)			

2.20.2 Multi-input no. 105

INFO
The available menus for multi-input no. 105 depend on the input type configured in the PC utility software (menu 10990).

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4250 4-20 mA 105.1							
4251	4-20 mA 105.1	Set point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 105 has been configured as 4-20 mA.
4252	4-20 mA 105.1	Delay	0.0 s 999.0 s	120.0 s			
4253	4-20 mA 105.1	Relay output A	Not used Option-dep.	Not used			
4254	4-20 mA 105.1	Relay output B	Not used Option-dep.	Not used			
4255	4-20 mA 105.1	Enable	OFF ON	OFF			
4256	4-20 mA 105.1	Fail class	F1…F7	Warning (F2)			
4260 4-20 mA 105.2							
4261	4-20 mA 105.2	Set point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 105 has been configured as 4-20 mA.
4262	4-20 mA 105.2	Delay	0.0 s 999.0 s	120.0 s			
4263	4-20 mA 105.2	Relay output A	Not used Option-dep.	Not used			
4264	4-20 mA 105.2	Relay output B	Not used Option-dep.	Not used			
4265	4-20 mA 105.2	Enable	OFF ON	OFF			
4266	4-20 mA 105.2	Fail class	F1…F7	Warning (F2)			
4270V DC 105.1							
4271	V DC 105.1	Set point	0.0 V DC 40.0 V DC	20.0 V DC		Designer's Reference Handbook	The multi-input 105 has been configured as V DC.
4272	V DC 105.1	Delay	0.0 s 999.0 s	10.0 s			
4273	V DC 105.1	Relay output A	Not used Option-dep.	Not used			
4274	V DC 105.1	Relay output B	Not used Option-dep.	Not used			
4275	V DC 105.1	Enable	OFF ON	OFF			
4276	V DC 105.1	Fail class	F1…F7	Warning (F2)			
4280V DC 105.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4281	V DC 105.2	Set point	0.0 V DC 40.0 V DC	20.0 V DC		Designer's Reference Handbook	The multi-input 105 has been configured as V DC.
4282	V DC 105.2	Delay	0.0 s 999.0 s	10.0 s			
4283	V DC 105.2	Relay output A	Not used Option-dep.	Not used			
4284	V DC 105.2	Relay output B	Not used Option-dep.	Not used			
4285	V DC 105.2	Enable	OFF ON	OFF			
4286	V DC 105.2	Fail class	F1…F7	Warning (F2)			
4290 Pt100 105.1							
4291	PT 105.1	Set point	-49 482	80		Designer's Reference Handbook	The multi-input 105 has been configured as Pt100. Pt100 set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4292	PT 105.1	Delay	0.0 s 999.0 s	5.0 s			
4293	PT 105.1	Relay output A	Not used Option-dep.	Not used			
4294	PT 105.1	Relay output B	Not used Option-dep.	Not used			
4295	PT 105.1	Enable	OFF ON	OFF			
4296	PT 105.1	Fail class	F1…F7	Warning (F2)			
4300 Pt100 105.2							
4301	PT 105.2	Set point	-49 482	80		Designer's Reference Handbook	The multi-input 105 has been configured as Pt100. Pt100 set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4302	PT 105.2	Delay	0.0 s 999.0 s	5.0 s			
4303	PT 105.2	Relay output A	Not used Option-dep.	Not used			
4304	PT 105.2	Relay output B	Not used Option-dep.	Not used			
4305	PT 105.2	Enable	OFF ON	OFF			
4306	PT 105.2	Fail class	F1…F7	Warning (F2)			
4310 RMI oil 105.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4311	RMI oil 105.1	Set point	0 145	4		Designer's Reference Handbook	The multi-input 105 has been configured as RMI oil pressure. Oil pressure set point can be in Bar or PSI, dependent on the unit selection (setting 10970).
4312	RMI oil 105.1	Delay	0.0 s 999.0 s	5.0 s			
4313	RMI oil 105.1	Relay output A	Not used Option-dep.	Not used			
4314	RMI oil 105.1	Relay output B	Not used Option-dep.	Not used			
4315	RMI oil 105.1	Enable	OFF ON	OFF			
4316	RMI oil 105.1	Fail class	F1…F7	Warning (F2)			
4320 RMI oil 105.2							
4321	RMI oil 105.2	Set point	0 145	5		Designer's Reference Handbook	The multi-input 105 has been configured as RMI oil pressure. Oil pressure set point can be in Bar or PSI, dependent on the unit selection (setting 10970).
4322	RMI oil 105.2	Delay	0.0 s 999.0 s	5.0 s			
4323	RMI oil 105.2	Relay output A	Not used Option-dep.	Not used			
4324	RMI oil 105.2	Relay output B	Not used Option-dep.	Not used			
4325	RMI oil 105.2	Enable	OFF ON	OFF			
4326	RMI oil 105.2	Fail class	F1…F7	Warning (F2)			
4330 RMI water 105.1							
4331	RMI water 105.1	Set point	-49 482	100		Designer's Reference Handbook	The multi-input 105 has been configured as RMI water temperature. Water temperature set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4332	RMI water 105.1	Delay	0.0 s 999.0 s	5.0 s			
4333	RMI water 105.1	Relay output A	Not used Option-dep.	Not used			
4334	RMI water 105.1	Relay output B	Not used Option-dep.	Not used			
4335	RMI water 105.1	Enable	OFF ON	OFF			
4336	RMI water 105.1	Fail class	F1…F7	Warning (F2)			
4340 RMI water 105.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4341	RMI water 105.2	Set point	-49 482	110		Designer's Reference Handbook	The multi-input 105 has been configured as RMI water temperature. Water temperature set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4342	RMI water 105.2	Delay	0.0 s 999.0 s	5.0 s			
4343	RMI water 105.2	Relay output A	Not used Option-dep.	Not used			
4344	RMI water 105.2	Relay output B	Not used Option-dep.	Not used			
4345	RMI water 105.2	Enable	OFF ON	OFF			
4346	RMI water 105.2	Fail class	F1…F7	Warning (F2)			
4350 RMI fuel level 105.1							
4351	RMI fuel 105.1	Set point	0 % 100 %	10 %		Designer's Reference Handbook	The multi-input 105 has been configured as RMI fuel level.
4352	RMI fuel 105.1	Delay	0.0 s 999.0 s	10.0 s			
4353	RMI fuel 105.1	Relay output A	Not used Option-dep.	Not used			
4354	RMI fuel 105.1	Relay output B	Not used Option-dep.	Not used			
4355	RMI fuel 105.1	Enable	OFF ON	OFF			
4356	RMI fuel 105.1	Fail class	F1…F7	Warning (F2)			
4360 RMI fuel level 105.2							
4361	RMI fuel 105.2	Set point	0 % 100 %	10 %		Designer's Reference Handbook	The multi-input 105 has been configured as RMI fuel level.
4362	RMI fuel 105.2	Delay	0.0 s 999.0 s	10.0 s			
4363	RMI fuel 105.2	Relay output A	Not used Option-dep.	Not used			
4364	RMI fuel 105.2	Relay output B	Not used Option-dep.	Not used			
4365	RMI fuel 105.2	Enable	OFF ON	OFF			
4366	RMI fuel 105.2	Fail class	F1…F7	Warning (F2)			
4370 Wire fail 105							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4371	W. fail 105	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	The wire break fault detection is activated.
4372	W. fail 105	Relay output B	Not used Option-dep.	Not used			
4373	W. fail 105	Enable	OFF ON	OFF			
4374	W. fail 105	Fail class	F1…F7	Warning (F2)			

2.20.3 Multi-input no. 108

INFO
The available menus for multi-input no. 108 depend on the input type configured in the PC utility software (menu 11000).

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4380 4-20 mA 108.1							
4381	4-20 mA 108.1	Set point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 108 has been configured as 4-20 mA.
4382	4-20 mA 108.1	Delay	0.0 s 999.0 s	120.0 s			
4383	4-20 mA 108.1	Relay output A	Not used Option-dep.	Not used			
4384	4-20 mA 108.1	Relay output B	Not used Option-dep.	Not used			
4385	4-20 mA 108.1	Enable	OFF ON	OFF			
4386	4-20 mA 108.1	Fail class	F1…F7	Warning (F2)			
4390 4-20 mA 108.2							
4391	4-20 mA 108.2	Set point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 108 has been configured as 4-20 mA.
4392	4-20 mA 108.2	Delay	0.0 s 999.0 s	120.0 s			
4393	4-20 mA 108.2	Relay output A	Not used Option-dep.	Not used			
4394	4-20 mA 108.2	Relay output B	Not used Option-dep.	Not used			
4395	4-20 mA 108.2	Enable	OFF ON	OFF			
4396	4-20 mA 108.2	Fail class	F1…F7	Warning (F2)			
4400 V DC 108.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4401	V DC 108.1	Set point	0.0 V DC 40.0 V DC	20.0 V DC		Designer's Reference Handbook	The multi-input 108 has been configured as V DC.
4402	V DC 108.1	Delay	0.0 s 999.0 s	10.0 s			
4403	V DC 108.1	Relay output A	Not used Option-dep.	Not used			
4404	V DC 108.1	Relay output B	Not used Option-dep.	Not used			
4405	V DC 108.1	Enable	OFF ON	OFF			
4406	V DC 108.1	Fail class	F1…F7	Warning (F2)			
4410 V DC 108.2							
4411	V DC 108.2	Set point	0.0 V DC 40.0 V DC	20.0 V DC		Designer's Reference Handbook	The multi-input 108 has been configured as V DC.
4412	V DC 108.2	Delay	0.0 s 999.0 s	10.0 s			
4413	V DC 108.2	Relay output A	Not used Option-dep.	Not used			
4414	V DC 108.2	Relay output B	Not used Option-dep.	Not used			
4415	V DC 108.2	Enable	OFF ON	OFF			
4416	V DC 108.2	Fail class	F1…F7	Warning (F2)			
4420 Pt100 108.1							
4421	PT 108.1	Set point	-49 482	80		Designer's Reference Handbook	The multi-input 108 has been configured as Pt100. Pt100 set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4422	PT 108.1	Delay	0.0 s 999.0 s	5.0 s			
4423	PT 108.1	Relay output A	Not used Option-dep.	Not used			
4424	PT 108.1	Relay output B	Not used Option-dep.	Not used			
4425	PT 108.1	Enable	OFF ON	OFF			
4426	PT 108.1	Fail class	F1…F7	Warning (F2)			
4430 Pt100 108.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4431	PT 108.2	Set point	-49 482	80		Designer's Reference Handbook	The multi-input 108 has been configured as Pt100. Pt100 set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4432	PT 108.2	Delay	0.0 s 999.0 s	5.0 s			
4433	PT 108.2	Relay output A	Not used Option-dep.	Not used			
4434	PT 108.2	Relay output B	Not used Option-dep.	Not used			
4435	PT 108.2	Enable	OFF ON	OFF			
4436	PT 108.2	Fail class	F1…F7	Warning (F2)			
4440 RMI oil 108.1							
4441	RMI oil 108.1	Set point	0 145	4		Designer's Reference Handbook	The multi-input 108 has been configured as RMI oil pressure. Oil pressure set point can be in Bar or PSI, dependent on the unit selection (setting 10970).
4442	RMI oil 108.1	Delay	0.0 s 999.0 s	5.0 s			
4443	RMI oil 108.1	Relay output A	Not used Option-dep.	Not used			
4444	RMI oil 108.1	Relay output B	Not used Option-dep.	Not used			
4445	RMI oil 108.1	Enable	OFF ON	OFF			
4446	RMI oil 108.1	Fail class	F1…F7	Warning (F2)			
4450 RMI oil 108.2							
4451	RMI oil 108.2	Set point	0 145	5		Designer's Reference Handbook	The multi-input 108 has been configured as RMI oil pressure. Oil pressure set point can be in Bar or PSI, dependent on the unit selection (setting 10970).
4452	RMI oil 108.2	Delay	0.0 s 999.0 s	5.0 s			
4453	RMI oil 108.2	Relay output A	Not used Option-dep.	Not used			
4454	RMI oil 108.2	Relay output B	Not used Option-dep.	Not used			
4455	RMI oil 108.2	Enable	OFF ON	OFF			
4456	RMI oil 108.2	Fail class	F1…F7	Warning (F2)			
4460 RMI water 108.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4461	RMI water 108.1	Set point	-49 482	100		Designer's Reference Handbook	The multi-input 108 has been configured as RMI water temperature. Water temperature set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4462	RMI water 108.1	Delay	0.0 s 999.0 s	5.0 s			
4463	RMI water 108.1	Relay output A	Not used Option-dep.	Not used			
4464	RMI water 108.1	Relay output B	Not used Option-dep.	Not used			
4465	RMI water 108.1	Enable	OFF ON	OFF			
4466	RMI water 108.1	Fail class	F1…F7	Warning (F2)			
4470 RMI water 108.2							
4471	RMI water 108.2	Set point	-49 482	110		Designer's Reference Handbook	The multi-input 108 has been configured as RMI water temperature. Water temperature set point can be in deg. C or Fahrenheit, dependent on the unit selection (setting 10970).
4472	RMI water 108.2	Delay	0.0 s 999.0 s	5.0 s			
4473	RMI water 108.2	Relay output A	Not used Option-dep.	Not used			
4474	RMI water 108.2	Relay output B	Not used Option-dep.	Not used			
4475	RMI water 108.2	Enable	OFF ON	OFF			
4476	RMI water 108.2	Fail class	F1…F7	Warning (F2)			
4480 RMI fuel level 108.1							
4481	RMI fuel 108.1	Set point	0 % 100 %	10 %		Designer's Reference Handbook	The multi-input 108 has been configured as RMI fuel level.
4482	RMI fuel 108.1	Delay	0.0 s 999.0 s	10.0 s			
4483	RMI fuel 108.1	Relay output A	Not used Option-dep.	Not used			
4484	RMI fuel 108.1	Relay output B	Not used Option-dep.	Not used			
4485	RMI fuel 108.1	Enable	OFF ON	OFF			
4486	RMI fuel 108.1	Fail class	F1…F7	Warning (F2)			
4490 RMI fuel level 108.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4491	RMI fuel 108.2	Set point	0 % 100 %	10 %		Designer’s Reference Handbook	The multi-input 108 has been configured as RMI fuel level.
4492	RMI fuel 108.2	Delay	0.0 s 999.0 s	10.0 s			
4493	RMI fuel 108.2	Relay output A	Not used Option-dep.	Not used			
4494	RMI fuel 108.2	Relay output B	Not used Option-dep.	Not used			
4495	RMI fuel 108.2	Enable	OFF ON	OFF			
4496	RMI fuel 108.2	Fail class	F1…F7	Warning (F2)			
4500 Wire fail 108							
4501	W. fail 108	Relay output A	Not used Option-dep.	Not used		Designer’s Reference Handbook	The wire break fault detection is activated.
4502	W. fail 108	Relay output B	Not used Option-dep.	Not used			
4503	W. fail 108	Enable	OFF ON	OFF			
4504	W. fail 108	Fail class	F1…F7	Warning (F2)			

2.21 Overspeed, running, start/stop failure

2.21.1 Overspeed, running, start/stop failure

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4510 Overspeed 1							
4511	Overspeed 1	Set point	100 % 150 %	110 %		Designer’s Reference Handbook	The set point in percentage relates to nominal RPM
4512	Overspeed 1	Delay	0.0 s 100.0 s	5.0 s			
4513	Overspeed 1	Relay output A	Not used Option-dep.	Not used			
4514	Overspeed 1	Relay output B	Not used Option-dep.	Not used			
4515	Overspeed 1	Enable	OFF ON	ON			
4516	Overspeed 1	Fail class	F1…F7	Warning (F2)			
4520 Overspeed 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4521	Overspeed 2	Set point	100 % 150 %	120 %		Designer's Reference Handbook	The set point in percentage relates to nominal RPM
4522	Overspeed 2	Delay	0.0 s 100.0 s	1.0 s			
4523	Overspeed 2	Relay output A	Not used Option-dep.	Not used			
4524	Overspeed 2	Relay output B	Not used Option-dep.	Not used			
4525	Overspeed 2	Enable	OFF ON	ON			
4526	Overspeed 2	Fail class	F1…F7	Shutdown (F5)			
4530 Crank failure							
4531	Crank failure	Set point	1 RPM 400 RPM	50 RPM		Designer's Reference Handbook	If MPU is chosen as the primary running feedback, this alarm will be raised if the specified RPM is not reached before the delay has expired.
4532	Crank failure	Delay	0.0 s 20.0 s	2.0 s			
4533	Crank failure	Relay output A	Not used Option-dep.	Not used			
4534	Crank failure	Relay output B	Not used Option-dep.	Not used			
4535	Crank failure	Enable	OFF ON	OFF			
4536	Crank failure	Fail class	F1…F7	Warning (F2)			
4540 Running feedback failure							
4541	Run feedb. fail	Delay	0.0 s 20.0 s	2.0 s		Designer's Reference Handbook	If running is detected on the frequency (secondary), but the primary running feedback, e.g. digital input, has not detected running, this alarm will be raised after the adjusted delay time.
4542	Run feedb. fail	Relay output A	Not used Option-dep.	Not used			
4543	Run feedb. fail	Relay output B	Not used Option-dep.	Not used			
4544	Run feedb. fail	Enable	OFF ON	ON			
4545	Run feedb. fail	Fail class	F1…F7	Warning (F2)			
4550 Magnetic pickup wire break							
4551	MPU wire break	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	The wire break monitoring is only active when the engine is at standstill.
4552	MPU wire break	Relay output B	Not used Option-dep.	Not used			
4553	MPU wire break	Enable	OFF ON	OFF			
4554	MPU wire break	Fail class	F1…F7	Warning (F2)			
4560 Hz/Voltage failure							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4561	Hz/V failure	Delay	1.0 s 99.0 s	30.0 s		Designer's Reference Handbook	If the frequency and voltage are not within the limits after the running feedback is received this alarm will be raised when the delay time has expired.
4562	Hz/V failure	Relay output A	Not used Option-dep.	Not used			
4563	Hz/V failure	Relay output B	Not used Option-dep.	Not used			
4564	Hz/V failure	Enable	OFF ON	ON			
4565	Hz/V failure	Fail class	F1…F7	Block (F1)			
4570 Start failure							
4571	Start failure	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	The start failure alarm occurs, if the genset has not started after the number of start attempts.
4572	Start failure	Relay output B	Not used Option-dep.	Not used			
4573	Start failure	Fail class	F1…F7	Block (F1)			
4580 Stop failure							
4581	Stop failure	Delay	10.0 s 120.0 s	30.0 s		Designer's Reference Handbook	A stop failure alarm will appear if the primary running feedback or the generator voltage and frequency are still present after the delay time has expired.
4582	Stop failure	Relay output A	Not used Option-dep.	Not used			
4583	Stop failure	Relay output B	Not used Option-dep.	Not used			
4584	Stop failure	Enable	OFF ON	ON			
4585	Stop failure	Fail class	F1…F7	Shutdown (F5)			

2.22 Analogue input setup (option M15.8)

2.22.1 Analogue input setup (option M15.8)

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4800 4-20 mA 127.1							
4801	4-20 mA 127.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4802	4-20 mA 127.1	Delay	0.0 s 600.0 s	120.0 s			
4803	4-20 mA 127.1	Relay A	R0 Option-dep.	R0 (none)			
4804	4-20 mA 127.1	Relay B	R0 Option-dep.	R0 (none)			
4805	4-20 mA 127.1	Enable	OFF ON	OFF			
4806	4-20 mA 127.1	Fail class	F1…F7	Warning (F2)			
4810 4-20 mA 127.2							
4811	4-20 mA 127.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4812	4-20 mA 127.2	Delay	0.0 s 600.0 s	120.0 s			
4813	4-20 mA 127.2	Relay A	R0 Option-dep.	R0 (none)			
4814	4-20 mA 127.2	Relay B	R0 Option-dep.	R0 (none)			
4815	4-20 mA 127.2	Enable	OFF ON	OFF			
4816	4-20 mA 127.2	Fail class	F1…F7	Warning (F2)			
4820 Wire fail 4-20 mA 127							
4821	W. fail ana 127	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.8)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases, the alarm will be activated.
4822	W. fail ana 127	Relay B	R0 Option-dep.	R0 (none)			
4823	W. fail ana 127	Enable	OFF ON	OFF			
4824	W. fail ana 127	Fail class	F1…F7	Warning (F2)			
4830 4-20 mA 129.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4831	4-20 mA 129.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4832	4-20 mA 129.1	Delay	0.0 s 600.0 s	120.0 s			
4833	4-20 mA 129.1	Relay A	R0 Option-dep.	R0 (none)			
4834	4-20 mA 129.1	Relay B	R0 Option-dep.	R0 (none)			
4835	4-20 mA 129.1	Enable	OFF ON	OFF			
4836	4-20 mA 129.1	Fail class	F1…F7	Warning (F2)			
4840 4-20 mA 129.2							
4841	4-20 mA 129.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4842	4-20 mA 129.2	Delay	0.0 s 600.0 s	120.0 s			
4843	4-20 mA 129.2	Relay A	R0 Option-dep.	R0 (none)			
4844	4-20 mA 129.2	Relay B	R0 Option-dep.	R0 (none)			
4845	4-20 mA 129.2	Enable	OFF ON	OFF			
4846	4-20 mA 129.2	Fail class	F1…F7	Warning (F2)			
4850 Wire fail 4-20 mA 129							
4851	W. fail ana 129	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.8)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases, the alarm will be activated.
4852	W. fail ana 129	Relay B	R0 Option-dep.	R0 (none)			
4853	W. fail ana 129	Enable	OFF ON	OFF			
4854	W. fail ana 129	Fail class	F1…F7	Warning (F2)			
4860 4-20 mA 131.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4861	4-20 mA 131.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4862	4-20 mA 131.1	Delay	0.0 s 600.0 s	120.0 s			
4863	4-20 mA 131.1	Relay A	R0 Option-dep.	R0 (none)			
4864	4-20 mA 131.1	Relay B	R0 Option-dep.	R0 (none)			
4865	4-20 mA 131.1	Enable	OFF ON	OFF			
4866	4-20 mA 131.1	Fail class	F1…F7	Warning (F2)			
4870 4-20 mA 131.2							
4871	4-20 mA 131.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4872	4-20 mA 131.2	Delay	0.0 s 600.0 s	120.0 s			
4873	4-20 mA 131.2	Relay A	R0 Option-dep.	R0 (none)			
4874	4-20 mA 131.2	Relay B	R0 Option-dep.	R0 (none)			
4875	4-20 mA 131.2	Enable	OFF ON	OFF			
4876	4-20 mA 131.2	Fail class	F1…F7	Warning (F2)			
4880 Wire fail 4-20 mA 131							
4881	W. fail ana 131	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.8)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated.
4882	W. fail ana 131	Relay B	R0 Option-dep.	R0 (none)			
4883	W. fail ana 131	Enable	OFF ON	OFF			
4884	W. fail ana 131	Fail class	F1…F7	Warning (F2)			
4890 4-20 mA 133.1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4891	4-20 mA 133.1	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4892	4-20 mA 133.1	Delay	0.0 s 600.0 s	120.0 s			
4893	4-20 mA 133.1	Relay A	R0 Option-dep.	R0 (none)			
4894	4-20 mA 133.1	Relay B	R0 Option-dep.	R0 (none)			
4895	4-20 mA 133.1	Enable	OFF ON	OFF			
4896	4-20 mA 133.1	Fail class	F1…F7	Warning (F2)			
4900 4-20 mA 133.2							
4901	4-20 mA 133.2	Set point	4 mA 20 mA	10 mA		Option: 4 x 4-20 mA inputs (M15.8)	Configurable analogue input.
4902	4-20 mA 133.2	Delay	0.0 s 600.0 s	120.0 s			
4903	4-20 mA 133.2	Relay A	R0 Option-dep.	R0 (none)			
4904	4-20 mA 133.2	Relay B	R0 Option-dep.	R0 (none)			
4905	4-20 mA 133.2	Enable	OFF ON	OFF			
4906	4-20 mA 133.2	Fail class	F1…F7	Warning (F2)			
4910 Wire fail 4-20 mA 133							
4911	W. fail ana 133	Relay A	R0 Option-dep.	R0 (none)		Option: 4 x 4-20 mA inputs (M15.8)	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated.
4912	W. fail ana 133	Relay B	R0 Option-dep.	R0 (none)			
4913	W. fail ana 133	Enable	OFF ON	OFF			
4914	W. fail ana 133	Fail class	F1…F7	Warning (F2)			

2.23 Aux. supply setup

2.23.1 Aux. supply setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4960 U< auxiliary power supply terminal 1							
4961	U< aux. term. 1	Set point	8.0 V DC 32.0 V DC	18.0 V DC		Designer's Reference Handbook	The power supply on terminal 1 and 2 has been continuously below the adjusted set point until the delay timer expired.
4962	U< aux. term. 1	Delay	0.0 s 999.0 s	1.0 s			
4963	U< aux. term. 1	Relay output A	Not used Option-dep.	Not used			
4964	U< aux. term. 1	Relay output B	Not used Option-dep.	Not used			
4965	U< aux. term. 1	Enable	OFF ON	ON			
4966	U< aux. term. 1	Fail class	F1…F7	Warning (F2)			
4970 U> auxiliary power supply terminal 1							
4971	U> aux. term. 1	Set point	12.0 V DC 36.0 V DC	30.0 V DC		Designer's Reference Handbook	The power supply on terminal 1 and 2 has been continuously above the adjusted set point until the delay timer expired.
4972	U> aux. term. 1	Delay	0.0 s 999.0 s	1.0 s			
4973	U> aux. term. 1	Relay output A	Not used Option-dep.	Not used			
4974	U> aux. term. 1	Relay output B	Not used Option-dep.	Not used			
4975	U> aux. term. 1	Enable	OFF ON	ON			
4976	U> aux. term. 1	Fail class	F1…F7	Warning (F2)			
4980 U< auxiliary power supply terminal 98							
4981	U< aux. term. 98	Set point	8.0 V DC 32.0 V DC	18.0 V DC		Designer's Reference Handbook	The power supply on terminal 98 and 99 has been continuously below the adjusted set point until the delay timer expired.
4982	U< aux. term. 98	Delay	0.0 s 999.0 s	1.0 s			
4983	U< aux. term. 98	Relay output A	Not used Option-dep.	Not used			
4984	U< aux. term. 98	Relay output B	Not used Option-dep.	Not used			
4985	U< aux. term. 98	Enable	OFF ON	ON			
4986	U< aux. term. 98	Fail class	F1…F7	Warning (F2)			
4990 U> auxiliary power supply terminal 98							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4991	U> aux. term. 98	Set point	8.0 V DC 32.0 V DC	30.0 V DC		Designer's Reference Handbook	The power supply on terminal 98 and 99 has been continuously above the adjusted set point until the delay timer expired.
4992	U> aux. term. 98	Delay	0.0 s 999.0 s	1.0 s			
4993	U> aux. term. 98	Relay output A	Not used Option-dep.	Not used			
4994	U> aux. term. 98	Relay output B	Not used Option-dep.	Not used			
4995	U> aux. term. 98	Enable	OFF ON	ON			
4996	U> aux. term. 98	Fail class	F1…F7	Warning (F2)			

2.24 General setup

2.24.1 General setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6270 Stop coil wire break							
6271	Stop coil wire break	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	The wire break monitoring is only active when the stop coil output is deactivated.
6272	Stop coil wire break	Relay output B	Not used Option-dep.	Not used			
6273	Stop coil wire break	Enable	OFF ON	OFF			
6274	Stop coil wire break	Fail class	F1…F7	Warning (F2)			
6280 Internal communication fail							
6281	Int. comm. fail	Relay output A	Not used Option-dep.	Not used		Designer's Reference Handbook	This is the alarm for communication fail between the main processor and the engine interface processor.
6282	Int. comm. fail	Relay output B	Not used Option-dep.	Not used			
6283	Int. comm. fail	Fail class	F1…F7	Warning (F2)			
6900 Alarm jump							
	Alarm Jump	Enable	OFF ON	ON		Designer's Reference Handbook	Selection of jump to alarm list view on the display if an alarm appears (ON) or stay at present view (OFF)

2.25 Communication

2.25.1 Communication

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7520 External communication error							
7521	Ext. comm. error	Delay	1.0 s 100.0 s	10.0 s		Option: Modbus (H2) Profibus (H3)	Supervision of the external communication line. The alarm will occur when there has not been any communication during the time delay.
7522	Ext. comm. error	Relay output A	R0 Option-dep.	R0 (none)			
7523	Ext. comm. error	Relay output B	R0 Option-dep.	R0 (none)			
7524	Ext. comm. error	Enable	OFF ON	OFF			
7525	Ext. comm. error	Fail class	F1…F7	Warning (F2)			
7530 Internal communication ID							
7532	Int. comm. ID	CAN fail. mode	Manual No mode change	Manual		Designer's Reference Handbook	CAN fail. modes available: - Manual - Semi-auto - No mode change
7533	Int. comm. ID	Missing all units	F1…F7	Warning (F2)			
7534	Int. comm. ID	Fatal CAN error	F1…F7	Warning (F2)			
7535	Int. comm. ID	Any DG missing	F1…F7	Warning (F2)			
7536	Int. comm. ID	Any SG/SC missing	F1…F7	Warning (F2)			

2.26 Engine interface communication alarms

2.26.1 Engine interface communication alarms

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7570 EI comm. Error							
7571	EI comm. error	Timer	0.0 s 100.0 s	0.0 s		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	Supervision of the EIC communication line. The alarm will occur when there has not been any communication during the time delay.
7572	EI comm. error	Relay A	Not used Option-dep.	Not used			
7573	EI comm. error	Relay B	Not used Option-dep.	Not used			
7574	EI comm. error	Enable	OFF ON	ON			
7575	EI comm. error	Fail class	F1…F7	Warning (F2)			
7580 EIC warning							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7581	EIC warning	Timer	0.0 s 100.0 s	0.0 s		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7582	EIC warning	Relay A	Not used Option-dep.	Not used			
7583	EIC warning	Relay B	Not used Option-dep.	Not used			
7584	EIC warning	Enable	OFF ON	ON			
7585	EIC warning	Fail class	F1…F7	Warning (F2)			
7590 EIC shutdown							
7591	EIC shutdown	Timer	0.0 s 100.0 s	0.0 s		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7592	EIC shutdown	Relay A	Not used Option-dep.	Not used			
7593	EIC shutdown	Relay B	Not used Option-dep.	Not used			
7594	EIC shutdown	Enable	OFF ON	ON			
7595	EIC shutdown	Fail class	F1…F7	Warning (F2)			
7600 EIC overspeed							
7601	EIC overspeed	Set point	0 % 400 %	107 %		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7602	EIC overspeed	Timer	0.0 s 100.0 s	2.0 s			
7603	EIC overspeed	Relay A	Not used Option-dep.	Not used			
7604	EIC overspeed	Relay B	Not used Option-dep.	Not used			
7605	EIC overspeed	Enable	OFF ON	ON			
7606	EIC overspeed	Fail class	F1…F7	Warning (F2)			
7610 EIC coolant temp. 1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7611	EIC coolant t. 1	Set point	-40 deg 210 deg	100 deg		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7612	EIC coolant t. 1	Timer	0.0 s 100.0 s	5.0 s			
7613	EIC coolant t. 1	Relay A	Not used Option-dep.	Not used			
7614	EIC coolant t. 1	Relay B	Not used Option-dep.	Not used			
7615	EIC coolant t. 1	Enable	OFF ON	ON			
7616	EIC coolant t. 1	Fail class	F1…F7	Warning (F2)			
7620 EIC coolant temp. 2							
7621	EIC coolant t. 2	Set point	-40 deg 210 deg	110 deg		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7622	EIC coolant t. 2	Timer	0.0 s 100.0 s	5.0 s			
7623	EIC coolant t. 2	Relay A	Not used Option-dep.	Not used			
7624	EIC coolant t. 2	Relay B	Not used Option-dep.	Not used			
7625	EIC coolant t. 2	Enable	OFF ON	ON			
7626	EIC coolant t. 2	Fail class	F1…F7	Warning (F2)			
7630 EIC oil pressure 1							
7631	EIC oil press. 1	Set point	0 bar 10 bar	2 bar		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7632	EIC oil press. 1	Timer	0.0 s 100.0 s	5.0 s			
7633	EIC oil press. 1	Relay A	Not used Option-dep.	Not used			
7634	EIC oil press. 1	Relay B	Not used Option-dep.	Not used			
7635	EIC oil press. 1	Enable	OFF ON	ON			
7636	EIC oil press. 1	Fail class	F1…F7	Warning (F2)			
7640 EIC oil pressure 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7641	EIC oil press. 2	Set point	0 bar 10 bar	1 bar		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7642	EIC oil press. 2	Timer	0.0 s 100.0 s	5.0 s			
7643	EIC oil press. 2	Relay A	Not used Option-dep.	Not used			
7644	EIC oil press. 2	Relay B	Not used Option-dep.	Not used			
7645	EIC oil press. 2	Enable	OFF ON	ON			
7646	EIC oil press. 2	Fail class	F1…F7	Warning (F2)			
7650 EIC oil temp 1							
7651	EIC oil temp. 1	Set point	0 deg. 300 deg	40 deg.		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7652	EIC oil temp. 1	Timer	0.0 s 100.0 s	5.0 s			
7653	EIC oil temp. 1	Relay A	Not used Option-dep.	Not used			
7654	EIC oil temp. 1	Relay B	Not used Option-dep.	Not used			
7655	EIC oil temp. 1	Enable	OFF ON	ON			
7656	EIC oil temp. 1	Fail class	F1…F7	Warning (F2)			
7660 EIC oil temp 2							
7661	EIC oil temp. 2	Set point	0 deg. 300 deg	40 deg.		Option: J1939 and MTU ADEC/ MDEC (H5) Cummins Modbus (H6) J1939 (H7)	
7662	EIC oil temp. 2	Timer	0.0 s 100.0 s	5.0 s			
7663	EIC oil temp. 2	Relay A	R0 Option-dep.	R0 (none)			
7664	EIC oil temp. 2	Relay B	Not used Option-dep.	Not used			
7665	EIC oil temp. 2	Enable	OFF ON	OFF			
7666	EIC oil temp. 2	Fail class	F1…F7	Warning (F2)			

2.27 Application error

2.27.1 Application error

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7870 Any BTB missing/appl. Hazard							
7871	Any BTB missing	Fail class	F1…F7	Block (F1)		Designer's Reference Handbook	The "Any BTB missing" alarm is activated, if the communication to any BTB unit failed. The application hazard alarm is activated, if different applications are installed in the controllers.
7872	Appl hazard	Enable	ON OFF	ON			
7873	Appl hazard	Fail class	F1…F7	Block (F1)			

2.28 External I/O communication error

2.28.1 External I/O communication error

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7930 H8.2 comm error							
7931	H8.2 comm error	Delay	2.0 s 600.0 s	10.0 s		Option: External I/O modules (H8.2)	If both options H8.x are present, an error on any of these will activate the alarm.
7932	H8.2 comm error	Relay output A	R0 Option-dep.	R0 (none)			
7933	H8.2 comm error	Relay output B	R0 Option-dep.	R0 (none)			
7934	H8.2 comm error	Enable	OFF ON	OFF			
7935	H8.2 comm error	Fail class	F1…F7	Warning (F2)			
7940 H8.8 comm error							
7941	H8.8 comm error	Delay	2.0 s 600.0 s	10.0 s		Option: External I/O modules (H8.8)	If both options H8.x are present, an error on any of these will activate the alarm.
7942	H8.8 comm error	Relay output A	Not used Option-dep.	Not used			
7943	H8.8 comm error	Relay output B	Not used Option-dep.	Not used			
7944	H8.8 comm error	Enable	OFF ON	OFF			
7945	H8.8 comm error	Fail class	F1…F7	Warning (F2)			

2.29 External I/O alarm setup

2.29.1 External I/O alarm setup

INFO
The alarms based on external I/O modules can only be configured using the PC utility software.

2.29.2 Analogue inputs

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
12000	**Ext. Ain 1.1**						
	Ext. Ain 1.1	Set point	-20000 20000	10		Option: External I/O modules (H8.x)	
	Ext. Ain 1.1	Delay	2.0 s 600.0 s	10.0 s			
	Ext. Ain 1.1	Fail class	F1…F7	Warning (F2)			
	Ext. Ain 1.1	Relay A	R0 Option-dep.	R0 (none)			
	Ext. Ain 1.1	Relay B	R0 Option-dep.	R0 (none)			
	Ext. Ain 1.1	Enable	OFF ON	OFF			
12010	**Ext. Ain 1.2**						
	Ext. Ain 1.2	Set point	-20000 20000	10		Option: External I/O modules (H8.x)	
	Ext. Ain 1.2	Delay	2.0 s 600.0 s	10.0 s			
	Ext. Ain 1.2	Fail class	F1…F7	Warning (F2)			
	Ext. Ain 1.2	Relay A	R0 Option-dep.	R0 (none)			
	Ext. Ain 1.2	Relay B	R0 Option-dep.	R0 (none)			
	Ext. Ain 1.2	Enable	OFF ON	OFF			

INFO
Same order for settings 12030-12230.

2.29.3 Digital inputs

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
12540	**Ext. dig. in 1**						
	Ext. dig. in 1	Delay	2.0 s 600.0 s	10.0 s		Option: External I/O modules (H8.x)	
	Ext. dig. in 1	Fail class	F1…F7	Warning (F2)			
	Ext. dig. in 1	Relay A	R0 Option-dep.	R0 (none)			
	Ext. dig. in 1	Relay B	R0 Option-dep.	R0 (none)			
	Ext. dig. in 1	Enable	OFF ON	OFF			

INFO
Same order for settings 12550-12690.

3. Parameter list

The parameter list contains settings for regulators and other non-alarm related settings.

3.1 Synchronisation

3.1.1 Synchronisation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2000 Sync type							
2001	Sync. type	Type	Static Dynamic	Dynamic		Designer's Reference Handbook	Static sync aims at a frequency difference of 0 Hz Dynamic sync aims at a frequency difference (midpoint between setting 2021 dfMax. and 2022 dfMin.)
2020 Dynamic synchronisation							
2021	Dynamic sync.	dfMax.	0.0 Hz 0.5 Hz	0.2 Hz		Designer's Reference Handbook	Setting 2020 is only available if 'Dynamic sync.' is chosen in setting 2001
2022	Dynamic sync.	dfMin.	-0.5 Hz 0.3 Hz	0.0 Hz			
2023	Dynamic sync.	dUMax.	2 % 10 %	5 %			
2024	Dynamic sync.	Sync t. GB	40 ms 300 ms	50 ms			
2025	Dynamic sync.	Sync t. TB/SGB/SCB /BTB	40 ms 300 ms	50 ms	EG/SG/SC /BTB only		
2030 Static synchronisation							
2031	Static sync.	dfMax.	0.00 Hz 0.50 Hz	0.10 Hz		Designer's Reference Handbook	Setting 2030 is only available if 'Static sync.' Is chosen in setting 2001
2032	Static sync.	dUMax	2 % 10 %	5 %			
2033	Static sync.	Close window	0.1 deg 20.0 deg	10.0 deg			
2034	Static sync.	Delay	0.1 s 99.0 s	1.0 s			
2040 f sync analogue							
2041	f sync	f Kp	0.00 60.00	0.50		Option E1, E2, EF2, EF4, EF5	PID controller for dynamic sync. This setting is only available if "analogue" or "PWM" or "EIC" is selected in setting 2780.
2042	f sync	f Ti	0.00 s 60.00 s	5.00 s			
2043	f sync	f Td	0.00 s 2.00 s	0.00 s			
2050 frequency synchronisation control relay							
2051	f sync	Kp	0 100	10		Designer's Reference Handbook	This setting is only available if "relay" is selected in setting 2780.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2060 Phase sync analogue							
2061	Phase sync	Phase Kp	0.00 60.00	0.50		Designer's Reference Handbook	PID controller for static sync. This setting is only available if "analogue" or "PWM" or "EIC" is selected in setting 2780.
2062	Phase sync	Phase Ti	0.00 s 60.00 s	5.00 s			
2063	Phase sync	Phase Td	0.00 s 2.00 s	0.00 s			
2070 Phase control relay							
2071	Phase	Kp	0 100	10		Designer's Reference Handbook	This setting is only available if "relay" is selected in setting 2780.
2100 Sync PTH							
2101	Sync PTH	dfMax	0.0 Hz 0.5 Hz	0.3 Hz		Designer's Reference Handbook	
2102	Sync PTH	dfMin	-0.5 Hz 0.3 Hz	0.0 Hz			
2103	Sync PTH	dUMax	2 % 30 %	5 %			
2104	Sync PTH	P ramp down	2 % 100 %	100 %			
2110 Synchronisation blackout							
2111	Sync. Blackout	dfMax.	0.0 Hz 0.5 Hz	3.0 Hz		Designer's Reference Handbook	Settings are accepted limits for closing of the breaker, referring to nominal frequency and voltage.
2112	Sync. Blackout	dUMax	2 % 10 %	5 %			
2240 Sep. sync. relay							
2241	Sep. sync. relay	Relay no.	Not used Option-dep.	Not used			A separate relay for check sync. can be added in series.

3.2 Regulation

3.2.1 Regulation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2510 Frequency control analogue							
2511	f control	f Kp	0.00 60.00	0.50		Designer's Reference Handbook	PID controller for frequency control This menu is only available if 'analogue' is chosen in menu 2781.
2512	f control	f Ti	0.00 s 60.00 s	5.00 s			
2513	f control	f Td	0.00 s 2.00 s	0.00 s			
2530 Power control analogue							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2531	P control	P Kp	0.00 60.00	0.50		Designer's Reference Handbook	PID controller for power control This menu is only available if 'analogue' is chosen in menu 2781.
2532	P control	P Ti	0.00 s 60.00 s	5.00 s			
2533	P control	P Td	0.00 s 2.00 s	0.00 s			
2540 Power load sharing control analogue							
2541	P LS control	P LS Kp	0.00 60.00	0.50		Designer's Reference handbook	PID controller for load sharing control This menu is only available if 'analogue' is chosen in menu 2781.
2542	P LS control	P LS Ti	0.00 s 60.00 s	5.00 s			
2543	P LS control	P LS Td	0.00 s 2.00 s	0.00 s			
2550 Analogue governor offset							
2551	Analogue GOV	Offset	0 % 100 %	50 %		Designer's Reference Handbook	PID controller for power control This menu is only available if 'analogue' is chosen in menu 2781.
2552	Analogue GOV	Set point	0 % 100 %	1 %/s			
2570 Frequency control relay output							
2571	f control relay	Deadband	0.20 % 10.00 %	2 %		Designer's Reference Handbook	This menu is only available if 'relay' is chosen in menu 2781.
2572	f control relay	Kp	0 100	10			
2580 Power control relay output							
2581	P control relay	Deadband	0.20 % 10.00 %	1 %		Designer's Reference Handbook	This menu is only available if 'relay' is chosen in menu 2781.
2582	P control relay	Kp	0 100	10			
2590 Load sharing control relay output							
2591	LS ctrl. relay	f deadband	0.20 % 10.00 %	1 %		Designer's Reference Handbook	This menu is only available if 'relay' is chosen in menu 2781.
2592	LS ctrl. relay	LS Kp	0 100	10			
2593	LS ctrl. relay	P deadband	0.20 % 10.00 %	2 %			
2594	LS ctrl. relay	P weight	0 % 100 %	15 %			
2600 Relay control							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2601	Relay control	GOV ON time	10 ms 6500 ms	500 ms		Designer's Reference Handbook	This menu is only available if 'relay' is chosen in menu 2781.
2602	Relay control	GOV period time	50 ms 32500 ms	2500 ms			
2603	Relay control	Increase relay	Not used Option-dependent	Not used			
2604	Relay control	Decrease relay	Not used Option-dependent	Not used			
2610 Power ramp up							
2611	Power ramp up	Speed	0.1 %/s 20.0 %/s	2.0 %/s		Designer's Reference Handbook	The delay point determines when the generator will make a temporary stop ramping up after closing of the generator breaker to pre-heat the engine before commencing load taking. If the delay function is not needed, set this time to 0. Power % settings relate to nominal generator power.
2612	Power ramp up	Delay point	1 % 100 %	10 %			
2613	Power ramp up	Delay time	0.0 s 990.0 s	10.0 s			
2620 Power ramp down							
2621	Power ramp down	Speed	0.1 %/s 20.0 %/s	10.0 %/s		Designer's Reference Handbook	The breaker open point determines when the 'open breaker' relay output is activated to open the generator breaker before reaching 0 kW. Power % settings relate to nominal generator power.
2622	Power ramp down	Breaker open point	1 % 20 %	5 %			
2640 Voltage control analogue							
2641	U control	U Kp	0.00 60.00	0.50		Option: AVR control (D1/D2)	PID controller for voltage control This menu is only available if analogue output is chosen in menu 2782.
2642	U control	U Ti	0.00 s 60.00 s	5.00 s			
2643	U control	U Td	0.00 s 2.00 s	0.00 s			
2650 Reactive power control analogue							
2651	Q control	Q Kp	0.00 60.00	0.50		Option: AVR control (D1)	PID controller for reactive power control. The reactive power control is used for power factor as well as reactive power control. This menu is only available if analogue output is chosen in menu 2782.
2652	Q control	Q Ti	0.00 s 60.00 s	5.00 s			
2653	Q control	Q Td	0.00 s 2.00 s	0.00 s			
2660 Reactive power load sharing control analogue							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2661	Q load sh. ctrl	Q LS Kp	0.00 60.00	5.00		Option: AVR control (D1)	The var (Q) load sharing is based on a mix of voltage and var control. The setting 2664 is setting the impact of the var controller over the voltage controller. This menu is only available if analogue output is chosen in menu 2782.
2662	Q load sh. ctrl	Q LS Ti	0.00 s 60.00 s	5.00 s			
2663	Q load sh. ctrl	Q LS Td	0.00 s 2.00 s	0.00 s			
2664	Q load sh. ctrl	Q weight	0.0 % 100.0 %	10.0 %			
2670 Analogue AVR output offset							
2671	Analogue AVR	Offset	-100 % +100 %	0 %		Option: AVR control (D1/D2)	Setting 2671 sets the offset of the analogue output when starting the generator. This menu is only available if analogue output is chosen in menu 2782.
2672	Analogue AVR	Man. slope	0 % 100 %	1 %/s			
2690 Voltage control relay							
2691	U control	U DB	0.0 % 10.0 %	2.0 %		Option: AVR control (D1/D2)	PI controller for voltage control This menu is only available if ‘relay’ is chosen in menu 2782.
2692	U control	U Kp	0.0 100.0	2.0			
2700 Reactive power control relay							
2701	Q control	Q DB	0.0 % 10.0 %	2.0 %		Option: AVR control (D1)	PI controller for reactive power control. The reactive power control is used for power factor as well as reactive power control. This menu is only available if ‘relay’ is chosen in menu 2782.
2702	Q control	Q Kp	0.0 s 100.0 s	2.0 s			
2710 Reactive power load sharing control relay							
2711	Q load sh. ctrl	U deadband	0.0 % 10.0 %	1.0 %		Option: AVR control (D1)	The var (Q) load sharing is based on a mix of voltage and var control. The setting 2664 is setting the impact of the var controller over the voltage controller. This menu is only available if ‘relay’ is chosen in menu 2782
2712	Q load sh. ctrl	U Kp	0.0 100.0	10.0			
2713	Q load sh. ctrl	Q deadband	0.0 % 10.0 %	2.0 %			
2714	Q load sh. ctrl	Q weight	0.0 s 100.0 s	2.0 s			
2720 Relay control setup (AVR)							
2721	Relay control	AVR ON time t_N	10 ms 3000 ms	100 ms		Option: AVR control (D1)	Relay outputs for voltage/var/power factor control. This menu is only available if ‘relay’ is chosen in menu 2782.
2722	Relay control	AVR per time t_P	50 ms 1500 ms	500 ms			
2723	Relay control	U increase	R0 Option-dep.	R0			
2724	Relay control	U decrease	R0 Option-dep.	R0			
2740 Delay regulation							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2741	Delay reg.	Delay	0 s 9900 s	0 s		Designer's Reference Handbook	Delay regulation is the waiting time before synchronising after the engine has started. It is used if the engine needs to stabilise after start before attempting to synchronise.
2742	Delay reg.	Relay output A	Not used Option-dependent	Not used			
2743	Delay reg.	Relay output B	Not used Option-dependent	Not used			
2744	Delay reg.	Enable	OFF ON	OFF			
2770 EIC speed control							
2771	Scania control	Droop	0.0 % 25.0 %	4.0 %	Only available if 'Scania' is selected in menu 7561	Option: J1939 (H5 or H7)	Setting of speed control via engine communication interface.
2772	Scania control	RPM	User 1500 RPM 1800 RPM Low idle	User			
2773	Cummins Gain	Kp	0.00 10.00	5.00	Only available when 'Cum-mins' is selected in menu 7561.		
2780 Regulator output							
2781	Reg. output	GOV	Relay EIC None	Relay		Designer's Reference Handbook	Selection of the speed output: Relay, analogue, engine interface communication or none. Analogue and EIC are option-dependent.
2782	Reg. output	AVR	Relay Analogue	Relay		Option: AVR control (D1/D2)	Generator voltage control based on relay or analogue output signals Analogue selection is only available if option E1, E2, EF2, EF4 or F2 is present.
2950 Base load							
2951	Base load	Power set	10 % 120 %	90 %		Designer's Reference Handbook	Setting and enabling of base load running. Note: Base load is only possible in semi-auto mode.
2952	Base load	Enable	OFF ON	OFF			
2960 Power loadshare failure							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2961	P Loadsh. fail	Set point	2.0 % 30.0 %	15.0 %		Designer’s Reference Handbook	The alarm and fail class are activated when the difference in “Power load share” between generators has been continuously above the programmed value during the programmed delay.
2962	P Loadsh. fail	Timer	0.0 s 999.0 s	30.0 s			
2963	P Loadsh. fail	Relay output A	Not used Option-dep.	Not used			
2964	P Loadsh. fail	Relay output B	Not used Option-dep.	Not used			
2965	P Loadsh. fail	Enable	OFF ON	ON			
2966	P Loadsh. fail	Fail class	F1…F7	Warning (F2)			
2970 Reactive power loadshare failure							
2971	Q Loadsh. fail	Set point	2.0 % 30.0 %	15.0 %		Designer’s Reference Handbook	The alarm and fail class are activated when the difference in “Reactive power load share” between generators has been continuously above the programmed value during the programmed delay. "Set point" is a percentage of P nominal.
2972	Q Loadsh. fail	Timer	0.0 s 999.0 s	30.0 s			
2973	Q Loadsh. fail	Relay output A	Not used Option-dep.	Not used			
2974	Q Loadsh. fail	Relay output B	Not used Option-dep.	Not used			
2975	Q Loadsh. fail	Enable	OFF ON	ON			
2976	Q Loadsh. fail	Fail class	F1…F7	Warning (F2)			
2980 Fixed PF set							
2981	Fixed PF set	Set point	0.60 1.00	0.80		Designer’s Reference Handbook	
2982	Fixed PF set	Set point	Inductive Capacitive	Inductive			

3.3 Digital output setup

3.3.1 Digital output setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5000 Relay 05							
5001	Relay 05	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5002	Relay 05	OFF delay	0.0 s 999.9 s	0.0 s			
5010 Relay 08							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5011	Relay 08	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5012	Relay 08	OFF delay	1.0 s 999.9 s	0.0 s			
5020 Relay 11							
5021	Relay 11	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5022	Relay 11	OFF delay	2.0 s 999.9 s	0.0 s			
5050 Relay 20							
5051	Relay 20	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5052	Relay 20	OFF delay	3.0 s 999.9 s	0.0 s			
5060 Relay 21							
5061	Relay 21	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5062	Relay 21	OFF delay	4.0 s 999.9 s	0.0 s			
5110 Relay 57							
5111	Relay 57	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5112	Relay 57	OFF delay	5.0 s 999.9 s	0.0 s			
5120 Relay 59							
5121	Relay 59	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5122	Relay 59	OFF delay	6.0 s 999.9 s	0.0 s			
5130 Relay 61							
5131	Relay 61	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5132	Relay 61	OFF delay	7.0 s 999.9 s	0.0 s			
5140 Relay 63							
5141	Relay 63	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Function selections: - Alarm - Limit - Horn
5142	Relay 63	OFF delay	8.0 s 999.9 s	0.0 s			
5150 Relay 65							
5151	Relay 65	Function	Alarm Horn	Alarm		Designer’s Reference Handbook	Normally used for governor UP command (menu 2600). Function selections: - Alarm - Limit - Horn
5152	Relay 65	OFF delay	9.0 s 999.9 s	0.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5160 Relay 67							
5161	Relay 67	Function	Alarm Horn	Alarm		Designer's Reference Handbook	Normally used for governor DOWN command (menu 2600). Function selections: - Alarm - Limit - Horn
5162	Relay 67	OFF delay	10.0 s 999.9 s	0.0 s			
5170 Relay 69							
5171	Relay 69	Function	Alarm Horn	Alarm		Designer's Reference Handbook	Function selections: - Alarm - Limit - Horn
5172	Relay 69	OFF delay	11.0 s 999.9 s	0.0 s			
5180 Relay 71							
5181	Relay 71	Function	Alarm Horn	Alarm		Designer's Reference Handbook	Function selections: - Alarm - Limit - Horn
5182	Relay 71	OFF delay	12.0 s 999.9 s	0.0 s			
5190 Relay 90							
5191	Relay 90	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #6 (M14.6)	Function selections: - Alarm - Limit - Horn
5192	Relay 90	OFF delay	0.0 s 999.9 s	5.0 s			
5200 Relay 92							
5201	Relay 92	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #6 (M14.6)	Function selections: - Alarm - Limit - Horn
5202	Relay 92	OFF delay	1.0 s 999.9 s	5.0 s			
5210 Relay 94							
5211	Relay 94	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #6 (M14.6)	Function selections: - Alarm - Limit - Horn
5212	Relay 94	OFF delay	2.0 s 999.9 s	5.0 s			
5220 Relay 96							
5221	Relay 96	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #6 (M14.6)	Function selections: - Alarm - Limit - Horn
5222	Relay 96	OFF delay	3.0 s 999.9 s	5.0 s			
5230 Relay 126							
5231	Relay 126	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #8 (M14.8)	Function selections: - Alarm - Limit - Horn
5232	Relay 126	OFF delay	4.0 s 999.9 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5240 Relay 128							
5241	Relay 128	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #8 (M14.8)	Function selections: - Alarm - Limit - Horn
5242	Relay 128	OFF delay	5.0 s 999.9 s	5.0 s			
5250 Relay 130							
5251	Relay 130	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #8 (M14.8)	Function selections: - Alarm - Limit - Horn
5252	Relay 130	OFF delay	6.0 s 999.9 s	5.0 s			
5260 Relay 132							
5261	Relay 132	Function	Alarm Limit Horn	Alarm		Option: 4 x relay output, slot #8 (M14.8)	Function selections: - Alarm - Limit - Horn
5262	Relay 132	OFF delay	7.0 s 999.9 s	5.0 s			
5270 Transistor output setup							
5271	Transistor 20	T20	Relay kWh	Relay		Designer's Reference Handbook	The transistor outputs on terminals 21 and 22 can be configured as relay outputs or pulse signals. If 'Relay' is selected, the relays 20 and 21 will be available. If set to 'relay', external relays are needed due to limited current output. Max. 10 mA.
5272	Transistor 21	T21	Relay kvarh	Relay			

3.4 Pulse width modulation

3.4.1 Pulse width modulation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5720 Governor PWM							
5721	Governor PWM	Min.	0.0 % 50.0 %	10.0 %		Option: EF5	This is the minimum output level of the PWM signal.
5722		Init. value	0.0 % 100.0 %	35.0 %			This is the initial output level, which is the level where the PWM signal will start the regulation.
5723		Max.	50.0 % 100.0 %	90.0 %			This is the maximum output level of the PWM signal.
5724		Enable	OFF ON	OFF			Enables or disables the PWM control.

3.5 Load reduction

3.5.1 Load reduction

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5730 Load reduction							
5731	Load reduction	Output A	Option-dep.	Off		Option: F1	The load reduction function is used in combination with diesel-electrical propulsion. With output A and output B, an available transducer output can be selected. Under type 1, the range can be selected to: 4-20 mA = 0-100 % of the available power. Under type 2, the range can be selected to: 4-20 mA = 100-0 % of the available power.
5732		Output B	Option-dep.	Off			
5733		Type	Disabled 0-20 mA 4-20 mA	Disabled			
5734		Type	Disabled 0-20 mA 4-20 mA	Disabled			

3.6 Analogue output limits

3.6.1 Analogue output limits

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5780 Aout 66 limits							
5781	AOut 66 limits	Min.	-25/0 mA 10 mA	-20/0 mA		Option: 2 x analogue outputs (E1/E2)	Min. range and factory setting value is option- dependent.
5782	AOut 66 limits	Max.	10 mA 25 mA	20 mA			
5790 Aout 71 limits							
5791	AOut 71 limits	Min.	-25/0 mA 10 mA	-20/0 mA		Option: 2 x analogue outputs (E1/E2)	Min. range and factory setting value is option- dependent.
5792	AOut 71 limits	Max.	10 mA 25 mA	20 mA			
5800 Aout 91 limits							
5801	AOut 91 limits	Min.	0 mA 10 mA	0 mA		Option: 2 x analogue outputs (F1)	Min. range and factory setting value is option- dependent.
5802	AOut 91 limits	Max.	10 mA 25 mA	20 mA			
5810 Aout 95 limits							
5811	AOut 95 limits	Min.	0 mA 10 mA	0 mA		Option: 2 x analogue outputs (F1)	Min. range and factory setting value is option- dependent.
5812	AOut 95 limits	Max.	10 mA 25 mA	20 mA			

3.7 Transducer outputs

3.7.1 Transducer outputs

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5820 P output 1							
5821	P output 1	Output A	R0 Option-dep.	R0 (none)			
5822	P output 1	Output B	R0 Option-dep.	R0 (none)			
5823	P output 1	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5824	P output 1	Max. value	0 kW 20000 kW	500 kW			
5825	P output 1	Min. value	-9999 kW 20000 kW	0 kW			
5830 P output 2							
5831	P output 2	Output A	R0 Option-dep.	R0 (none)			
5832	P output 2	Output B	R0 Option-dep.	R0 (none)			
5833	P output 2	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5834	P output 2	Max. value	0 kW 20000 kW	500 kW			
5835	P output 2	Min. value	-9999 kW 20000 kW	0 kW			
5840 P output 3							
5841	P output 3	Output A	R0 Option-dep.	R0 (none)			
5842	P output 3	Output B	R0 Option-dep.	R0 (none)			
5843	P output 3	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5844	P output 3	Max. value	0 kW 20000 kW	500 kW			
5845	P output 3	Min. value	-9999 kW 20000 kW	0 kW			
5850 S output							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5851	S output	Output A	R0 Option-dep.	R0 (none)			
5852	S output	Output B	R0 Option-dep.	R0 (none)			
5853	S output	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5854	S output	Max. value	0 kVA 20000 kVA	600 kVA			
5855	S output	Min. value	-9999 kVA 20000 kVA	0 kVA			
5860 Q output							
5861	Q output	Output A	R0 Option-dep.	R0 (none)			
5862	Q output	Output B	R0 Option-dep.	R0 (none)			
5863	Q output	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5864	Q output	Max. value	0 kvar 16000 kvar	400 kvar			
5865	Q output	Min. value	-9999 kvar 20000 kvar	0 kvar			
5870 PF output							
5871	PF output	Output A	R0 Option-dep.	R0 (none)			
5872	PF output	Output B	R0 Option-dep.	R0 (none)			
5873	PF output	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	Positive value means inductive. Negative value means capacitive.
5874	PF output	Max. value	0.50 0.99	0.80			
5875	PF output	Min. value	-0.99 -0.50	-0.80			
5880 f output							
5881	F output	Output A	R0 Option-dep.	R0 (none)			
5882	F output	Output B	R0 Option-dep.	R0 (none)			
5883	F output	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5884	F output	Max. value	0.0 Hz 70.0 Hz	55.0 Hz			
5885	F output	Min. value	0.0 Hz 70.0 Hz	45.0 Hz			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5890 U output							
5891	U output	Output A	R0 Option-dep.	R0 (none)		Option: Analogue outputs (E2 or F1 or EF2)	The voltage output represents L1-L2 voltage.
5892	U output	Output B	R0 Option-dep.	R0 (none)			
5893	U output	Type	Disabled 0-20 mA 4-20 mA	Disabled			
5894	U output	Max. value	0 V 28000 V	500 V			
5895	U output	Min. value	0 V 28000 V	0 V			
5900 I output							
5901	I output	Output A	R0 Option-dep.	R0 (none)		Option: Analogue outputs (E2 or F1 or EF2)	The current output represents L1 current.
5902	I output	Output B	R0 Option-dep.	R0 (none)			
5903	I output	Type	Disabled 0-20 mA 4-20 mA	Disabled			
5904	I output	Max. value	0 A 9000 A	1000 A			
5905	I output	Min. value	0 A 9000 A	0 A			
5910 U BB output							
5911	U BB output	Output A	R0 Option-dep.	R0 (none)		Option: Analogue outputs (E2 or F1 or EF2)	The voltage output represents L1-L2 voltage.
5912	U BB output	Output B	R0 Option-dep.	R0 (none)			
5913	U BB output	Type	Disabled 0-20 mA 4-20 mA	Disabled			
5914	U BB output	Max. value	0 V 28000 V	500 V			
5915	U BB output	Min. value	0 V 28000 V	0 V			
5920 f BB output							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5921	F BB output	Output A	R0 Option-dep.	R0 (none)			
5922	F BB output	Output B	R0 Option-dep.	R0 (none)			
5923	F BB output	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5924	F BB output	Max. value	0.0 Hz 70.0 Hz	55.0 Hz			
5925	F BB output	Min. value	0.0 Hz 70.0 Hz	45.0 Hz			
5930 Multi-input 102							
5931	Multi-input 102	Output A	R0 Option-dep.	R0 (none)			
5932	Multi-input 102	Output B	R0 Option-dep.	R0 (none)			
5933	Multi-input 102	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5934	Multi-input 102	Max. value	0 28000	500			
5935	Multi-input 102	Min. value	0 28000	0			
5940 Multi-input 105							
5941	Multi-input 105	Output A	R0 Option-dep.	R0 (none)			
5942	Multi-input 105	Output B	R0 Option-dep.	R0 (none)			
5943	Multi-input 105	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5944	Multi-input 105	Max. value	0 28000	500			
5945	Multi-input 105	Min. value	0 28000	0			
5950 Multi-input 108							
5951	Multi-input 108	Output A	R0 Option-dep.	R0 (none)			
5952	Multi-input 108	Output B	R0 Option-dep.	R0 (none)			
5953	Multi-input 108	Type	Disabled 0-20 mA 4-20 mA	Disabled		Option: Analogue outputs (E2 or F1 or EF2)	
5954	Multi-input 108	Max. value	0 28000	500			
5955	Multi-input 108	Min. value	0 28000	0			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5960 P total consumed							
5961	P total consumed	Output A	R0 Option-dep.	R0 (none)		Option: Analogue outputs (E2 or F1 or EF2)	
5962	P total consumed	Output B	R0 Option-dep.	R0 (none)			
5963	P total consumed	Type	Disabled 0-20 mA 4-20 mA	Disabled			
5964	P total consumed	Max. value	0 kW 20000 kW	500 kW			
5965	P total consumed	Min. value	-9999 kW 20000 kW	0 kW			
5970 P total available							
5971	P total available	Output A	R0 Option-dep.	R0 (none)		Option: Analogue outputs (E2 or F1 or EF2)	
5972	P total available	Output B	R0 Option-dep.	R0 (none)			
5973	P total available	Type	Disabled 0-20 mA 4-20 mA	Disabled			
5974	P total available	Max. value	0 kW 20000 kW	500 kW			
5975	P total available	Min. value	-9999 kW 20000 kW	0 kW			

3.8 Regulator output selection

3.8.1 Regulator output selection

INFO
These menus are used to select which analogue output to use for governor/ AVR (option D) control.

No.	Setting		Available settings	Factory setting	Notes	Ref.	Description
5980 Governor output							
5981	Governor output	Output A	Disabled AO66 AO71	Option-dependent		Option: Analogue governor output (E1/EF)	
5990 AVR output							
5991	AVR output	Output A	Disabled AO66 AO71	Option-dependent		Option: Analogue AVR output (E1/EF and D1)	

3.9 System

3.9.1 System

INFO
These menus include parameters for the system setup.

3.9.2 General setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6000 Nominal settings 1							
6001	Nom. settings	Frequency	48.0 Hz 62.0 Hz	50.0 Hz		Designer's Reference Handbook	
6002	Nom. settings	Power	10 kW 20000 kW	1000 kW			
6003	Nom. settings	Current	0 A 9000 A	1804 A			
6004	Nom. settings	Voltage	100 V 25000 V	400 V			
6005	Nom. settings	RPM	100 RPM 4000 RPM	1500 RPM			
6006	Nom. settings	Set	1 4	1			
6010 Nominal settings 2							
6011	Nom. settings 2	Frequency	48.0 Hz 62.0 Hz	50.0 Hz		Designer's Reference Handbook	
6012	Nom. settings 2	Power	10 kW 20000 kW	500 kW			
6013	Nom. settings 2	Current	0 A 9000 A	902 A			
6014	Nom. settings 2	Voltage	100 V 25000 V	400 V			
6015	Nom. settings 2	RPM	100 RPM 4000 RPM	1500 RPM			
6040 Generator transformer							
6041	G transformer	U primary	100 V 25000 V	400 V		Designer's Reference Handbook	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value.
6042	G transformer	U secondary	100 V 690 V	400 V			
6043	G transformer	I primary	5 A 9000 A	1000 A			
6044	G transformer	I secondary	1 A 5 A	5 A			
6050 Busbar transformer							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6051	BB transformer	U primary	100 V 25000 V	400 V		Designer's Reference Handbook	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value.
6052	BB transformer	U secondary	100 V 690 V	400 V			
6080 Language							
6081	Language		English Language 1-11	English		Designer's Reference Handbook	The master language is English. Additionally, 11 different languages can be configured with the PC utility software.
6090 Date and time							
6091	Date and time	Year	2001 2100	Depends on version		Designer's Reference Handbook	The date and time can be synchronised with the present date and time using the PC utility software.
6092	Date and time	Month	1 12	Depends on version			
6093	Date and time	Day	1 31	Depends on version			
6094	Date and time	Weekday	1 7	Depends on version			
6095	Date and time	Hour	0 23	Depends on version			
6096	Date and time	Minute	0 59	Depends on version			
6100 Counters							
6101	Counters	Running hour	0 hr 999 hr	0 hr		Designer's Reference Handbook	Setting 6104: Emergency generator only. Setting 6105 resets the kWh counter to 0. It automatically reverts to OFF after being set ON.
6102	Counters	Running, th. hours	0 th. hrs 99 th. hrs	0 th. hrs			
6103	Counters	GB operations	0 20000	0			
6104	Counters	BTB operations	0 20000	0			
6105	Counters	kWh	OFF ON	OFF			
6106	Counters	Start attempts					
6110 Service timer 1							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6111	Service timer 1	Enable	OFF ON	ON		Designer's Reference Handbook	The timer is reset by enabling menu 6116. The menu automatically goes OFF.
6112	Service timer 1	Running hours	0 hrs 9000 hrs	500 hrs			
6113	Service timer 1	Days	1 days 1000 days	365 days			
6114	Service timer 1	Fail class	F1…F7	F2 (warning)			
6115	Service timer 1	Output A	Not used Option-dependent	Not used			
6116	Service timer 1	Reset	OFF ON	OFF			
6120 Service timer 2							
6121	Service timer 2	Enable	OFF ON	ON		Designer's Reference Handbook	The timer is reset by enabling menu 6126. The menu automatically goes OFF.
6122	Service timer 2	Running hours	0 hrs 9000 hrs	500 hrs			
6123	Service timer 2	Days	1 days 1000 days	365 days			
6124	Service timer 2	Fail class	F1…F7	F2 (warning)			
6125	Service timer 2	Relay output A	Not used Option-dependent	Not used			
6126	Service timer 2	Reset	OFF ON	OFF			
6130 Alarm horn							
6131	Alarm horn	ON time	0.0 s 990.0 s	0.0 s		Designer's Reference Handbook	If the setting is adjusted to 0 s, the horn relay will be activated continuously until the alarm is acknowledged.
6160 Run status							
6161	Run status	Delay	0.0 s 300.0 s	5.0 s		Designer's Reference Handbook	If a relay output is used, the relay in question must be set to 'limit'.
6162	Run status	Relay output A	Not used Option-dependent	Not used			
6163	Run status	Relay output B	Not used Option-dependent	Not used			
6164	Run status	Enable	OFF ON	OFF			
6170 Running detection							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6171	Running detect.	No. of teeth	0 teeth 500 teeth	0 teeth		Designer's Reference Handbook	If menu 6171 is set to 0, the magnetic pickup input is not active. Available running detection types: - Digital input - Magnetic pickup - Frequency - EIC (engine communication) - Multi-input (oil pressure) If menu 6175 is set to 0.0, the oil pressure running detection is OFF.
6172	Running detect.	Type	Digital in Multi-input	Frequency			
6173	Running detect.	Running RPM	0 RPM 4000 RPM	1000 RPM			
6174	Running detect.	Remove starter	1 RPM 2000 RPM	400 RPM			
6175	Running detect.	Pressure level	0.0 bar 15.0 bar	0.0 bar			
6180 Starter							
6181	Starter	Start prepare	0.0 s 600.0 s	5.0 s		Designer's Reference Handbook	Menus 6185 and 6186 relate to using oil pressure as running feedback. If menu 6186 is set to 0.0, the oil pressure running feedback is disregarded.
6182	Starter	Ext. prepare	0.0 s 600.0 s	0.0 s			
6183	Starter	Start ON time	1.0 s 180.0 s	5.0 s			
6184	Starter	Start OFF time	1.0 s 99.0 s	5.0 s			
6185	Starter	Input type	Multi-input 102 Multi-input 108	Multi-input 102			
6186	Starter	Set point	0.0 bar 300.0 bar	0.0 bar			
6190 Start attempts							
6191	Start attempts	Set point	1 10	3		Designer's Reference Handbook	Number of start attempts.
6200 Shutdown override							
6201	Shutdown override	Attempts	1 10	7		Designer's Reference Handbook	Shutdown override turns all shutdowns into warnings. Only exception is overspeed and emergency stop.
6202	Shutdown override	Cooling down	0.0 s 9900.0 s	240.0 s			
6203	Shutdown override	Enable	OFF ON	OFF			
6210 STOP							
6211	STOP	Cooling down	1.0 s 9900.0 s	240.0 s		Designer's Reference Handbook	The extended stop timer starts when the running feedback disappears. During the delay time it is not possible to start the engine. Menus 6213 and 6214 are used for temperature-dependent cooling down.
6212	STOP	Extended stop	2.0 s 3200.0 s	5.0 s			
6213	STOP	Type	Multi-input 102 M-Logic	Multi-input 102			
6214	STOP	Set point	0 dec. 482 dec.	0 dec.			
6220 Hz/V OK							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6221	HZ/V OK	Delay	1.0 s 99.0 s	5.0 s		Designer's Reference Handbook	The voltage and frequency have to be continuously within the limits before the breaker can be closed.
6230 Generator breaker control							
6231	GB control	Close delay	0.0 s 30.0 s	2.0 s		Designer's Reference Handbook	Menu 6212 is for compact breakers (need to charge spring before closing).
6232	GB control	Load time	0.0 s 30.0 s	0.0 s			
6380 Load share out							
6381	Load share out	Set point	1 V 5 V	4 V		Option G3 Analogue load sharing	Adjustment of the analogue load sharing line max. value.
6390 Load share type							
6391	Load share type	Set point	Adjustable Selco T4800			Option G3 Analogue load sharing	Selection between selectable load sharing line max. value (setting 6381) or adaptation to Selco T4800 load sharing line.
6910 Switchboard return mode							
6911	SWBD ret. mode	Mode	No mode change/ Semi auto mode/ Auto	No mode change			

3.10 EDG setup

3.10.1 EDG setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7040 Test							
7041	Test	Set point	1 % 100 %	80 %			
7042	Test	Delay	0.0 min. 999.0 min.	5.0 min.			
7043	Return mode		Semi-auto Auto	Auto			
7044	Test type		Simple Load Full	Simple			

3.11 External communication

3.11.1 External communication

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7500 Communication control							
7501	Comm. control	Power	OFF ON	OFF		Option: Modbus (H2) or Profibus (H3)	These settings must be ON if commands are to be sent over the Modbus communication. This will overrule external and internal settings. Voltage, power factor and reactive power control requires AVR control (option D1).
7502	Comm. control	Frequency	OFF ON	OFF			
7503	Comm. control	Voltage	OFF ON	OFF			
7504	Comm. control	PF	OFF ON	OFF			
7505	Comm. control	Reactive power	OFF ON	OFF			
7510 External communication							
7511	Ext. communication	ID	1 247	1		Option: Modbus (H2) or Profibus (H3)	The mode ASCII is used for modem communication (ASCII: 7 data bit, RTU: 8 data bit)
7512	Ext. communication	Baud rate	9600 19200	9600		Option: Modbus (H2)	
7513	Ext. communication	Mode	RTU ASCII	RTU		Option: Modbus (H2)	

3.12 Internal communication

3.12.1 Internal communication

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7530 Internal communication ID							
7531	Int. comm. ID	ID	1 16	1		Designer’s Reference Handbook	

3.13 Engine interface communication

3.13.1 Engine interface communication

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7560 Engine I/F							
7561	Engine I/F	Engine type	OFF QSX15 QSK23/45/60/78 QST30	OFF		Option: Cummins Modbus (H6)	The setting affects the displayed data, but not the Modbus data (option H2).

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7561	Engine I/F	Engine type	OFF DDEC EMR JDEC Iveco Perkins Caterpillar Volvo Penta EMS Volvo Penta EMS 2 Scania EMS Scania EMS S6 MDEC 2000/4000 M.302 MDEC 2000/4000 M.303 MTU ADEC Cummins Generic J1939	OFF		Option: J1939/ MTU ADEC/ MTU MDEC (H5) J1939 (H7)	MTU MDEC is only available in option H5. Please choose MDEC 2000/4000 M.303, when M.201 or M.304 is required. Menu 7562 is only available when MTU ADEC is selected as engine type. Menu 7563 is for enabling the EIC commands transmission. Menu 7564: When set to “on”, up to 19 extra views (of 3 lines) are added to the 15 original V1 views (of 3 lines). These extra views are displaying all the present engine com. values broadcasted on this CAN communication when this function is set on “on”.
7562	CANopen ID	Node ID	1 128	6			
7563	EIC controls	Enable	On Off	On			
7564	EIC Auto view	Enable	On Off	Off			

3.14 External I/O communication setup

3.14.1 External I/O communication setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7950 KL320x config 7950							
7951	KL320x config	Module 1	Pt100 (2/3-wire) 10-1200 Ω (2-wire)			Option: External I/O modules (H8)	Selection for analogue modules. The selections for KL 3202/3204 cannot be changed. After changing module type, the parameter list in the PC USW must be uploaded again.
7952	KL320x config	Module 2					
7953	KL320x config	Module 3					
7954	KL320x config	Module 4					
7970 CAN I/F H8.2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7971	CAN I/F H8.2	Type	OFF AOP-2 Beckhoff	OFF		Option: External I/O modules (H8)	This menu is only activated if option H8.6 is activated. After changing type, the parameter list in the PC USW must be uploaded again. Menu 7974 is for reestablishing communication after a fault/disconnection.
7972	CAN I/F H8.2	Baud	50 k 125 k 250 k	125 k			
7973	CAN I/F H8.2	ID	1 to 64	1			
7974	CAN I/F H8.2	Reset	NO YES	NO			
7980 CAN I/F H8.8							
7981	CAN I/F H8.8	Type	OFF AOP-2 Beckhoff	OFF		Option: External I/O modules (H8)	This menu is only activated if option H8.8 is activated. After changing type, the parameter list in the PC USW must be uploaded again. Menu 7984 is for reestablishing communication after a fault/disconnection.
7982	CAN I/F H8.8	Baud	50 k 125 k 250 k	125 k			
7983	CAN I/F H8.8	ID	1 to 64	1			
7984	CAN I/F H8.8	Reset	NO YES	NO			

3.15 Power management setup

3.15.1 Power management setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8000 Load-dependent start							
8001	Load-dep. start	Start Lim P	1 kW 20000 kW	100 kW		Designer's Reference Handbook	Dependent on the settings 8881 and 8882, the load-dependent start set point will be calculated either as kW/kVA or as percentage/value.
8002	Load-dep. start	Start Lim S	1 kVA 20000 kVA	100 kVA			
8003	Load-dep. start	Start lim %	1 % 100 %	90 %			
8004	Load-dep. start	Delay	0.0 s 990.0 s	10.0 s			
8010 Load-dependent stop							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8011	Load-dep. stop	Stop Lim P	1 kW 20000 kW	200 kW		Designer's Reference Handbook	Dependent on the settings 8881 and 8882, the load- dependent stop set point will be calculated either as kW/kVA or as percentage/value.
8012	Load-dep. stop	Stop Lim S	1 kVA 20000 kVA	200 kVA			
8013	Load-dep. stop	Stop Lim %	1 % 100 %	70 %			
8014	Load-dep. stop	Delay	5.0 s 990.0 s	30.0 s			
8015	Load-dep. stop	Blocked with HC	OFF ON	OFF			
8030 Priority selection							
8031	Priority select.	Priority	Manual Fuel optimisation	Manual		Designer's Reference Handbook	Priorities available: - Manual - Delayed prio. shift - Dynamic - Running hours - Fuel optimisation
8080 Priority (1-5)							
8081	Priority 1	ID	1 16	1		Designer's Reference Handbook	Menu 8086 is only available if "Manual" is selected in menu 8031. Menu 8086 resets itself to OFF automatically once the new settings have been transmitted.
8082	Priority 2	ID	1 16	2			
8083	Priority 3	ID	1 16	3			
8084	Priority 4	ID	1 16	4			
8085	Priority 5	ID	1 16	5			
8086	Transmit new priority	Tx	OFF ON	OFF			
8090 Priority (6-11)							
8091	Priority 6	ID	1 16	6		Designer's Reference Handbook	Menu 8086 is only available if "Manual" is selected in menu 8031. Menu 8086 resets itself to OFF automatically once the new settings have been transmitted.
8092	Priority 7	ID	1 16	7			
8093	Priority 8	ID	1 16	8			
8094	Priority 9	ID	1 16	9			
8095	Priority 10	ID	1 16	10			
8096	Priority 11	ID	1 16	11			
8100 Priority (12-16)							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8101	Priority 12	ID	1 16	12		Designer's Reference Handbook	Menu 8086 is only available if "Manual" is selected in menu 8031. Menu 8086 resets itself to OFF automatically once the new settings have been transmitted.
8102	Priority 13	ID	1 16	13			
8103	Priority 14	ID	1 16	14			
8104	Priority 15	ID	1 16	15			
8105	Priority 16	ID	1 16	16			
8110 Running hours							
8111	Running hours	Set timer	1 hrs 20000 hrs	175 hrs		Designer's Reference Handbook	The priority selection 8031 has been selected as running hours.
8112	Running hours	Type	Absolute Relative	Absolute			
8113	Running hours	Reset	OFF ON	OFF			
8140 Stop non-connected DG/EDG							
8141	Stop non-con. DG/ EDG	Delay	0.0 s 600.0 s	60.0 s		Designer's Reference Handbook	The timer starts running when the unit is set to AUTO operation and the breaker is open while the engine is running. The engine will stop when the timer has expired.
8170 Fuel Optimise							
8171	Fuel optimise	Set point	30 % 100 %	80 %		Designer's Reference Handbook	The priority selection 8031 has been selected as fuel optimisation.
8172	Fuel optimise	Swap set point	50 kW 20000 kW	200 kW			
8173	Fuel optimise	Delay	0.0 s 999.0 s	10.0 s			
8174	Fuel optimise	Hours	1 hrs 20000 hrs	175 hrs			
8175	Fuel optimise	Enable hour	OFF ON	OFF			
8200 Heavy consumer 1							
8201	HC 1	Req. value	0 kVA 9999 kVA	500 kVA		Designer's Reference Handbook	Settings for Heavy Consumer no. 1. Variable load can only be selected in connection with an analogue input. The selection of this is made in setting 8931.
8202	HC 1	Nom. power	2 kW 9999 kW	400 kW			
8203	HC 1	Load type	Fixed load Variable load	Fixed load			
8204	HC 1	Delay	0.0 s 60.0 s	0.0 s			
8210 Heavy consumer 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8211	HC 2	Req. value	0 kVA 9999 kVA	500 kVA		Designer's Reference Handbook	Settings for Heavy Consumer no. 2. Variable load can only be selected in connection with an analogue input. The selection of this is made in setting 8941.
8212	HC 2	Nom. power	2 kW 9999 kW	400 kW			
8213	HC 2	Load type	Fixed load Variable load	Fixed load			
8214	HC 2	Delay	0.0 s 60.0 s	0.0 s			
8220 Available power 1							
8221	Avail. Power 1	Set point	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	This function is used for load management. A relay can be activated when a specific amount of power is available on the busbar.
8222	Avail. Power 1	Delay	1.0 s 999.9 s	10.0 s			
8223	Avail. Power 1	Output A	Not used Option-dependent	Not used			
8224	Avail. Power 1	Output B	Not used Option-dependent	Not used			
8225	Avail. Power 1	Enable	OFF ON	OFF			
8230 Available power 2							
8231	Avail. Power 2	Set point	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	This function is used for load management. A relay can be activated when a specific amount of power is available on the busbar.
8232	Avail. Power 2	Delay	2.0 s 999.9 s	10.0 s			
8233	Avail. Power 2	Output A	Not used Option-dependent	Not used			
8234	Avail. Power 2	Output B	Not used Option-dependent	Not used			
8235	Avail. Power 2	Enable	OFF ON	OFF			
8270 SGB/SCB/BTB Power							
8271	SGB/SCB/ BTB Power	Tmax	0 kW 20000 kW	0 kW		Designer's Reference Handbook	If a power transducer is used for measurement of the power flow across: SGB: Shaft generator breaker. SCB: Shore connection breaker. BTB: Bus tie breaker. Multi-input 102 has to be used (4-20 mA).
8272	SGB/SCB/ BTB Power	Tmin	-20000 kW 0 kW	0 kW			
8300 Load-dependent start 2							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8301	Load-dep. start 2	Start Lim P	1 kW 20000 kW	100 kW		Designer's Reference Handbook	Dependent on the settings 8881 and 8882, the load-dependent start set point will be calculated either as kW/kVA or as percentage/value.
8302	Load-dep. start 2	Start Lim S	1 kVA 20000 kVA	100 kVA			
8303	Load-dep. start 2	Start Lim %	1 % 100 %	90 %			
8304	Load-dep. start 2	Delay	0.0 s 990.0 s	10.0 s			
8310 Load-dependent stop 2							
8311	Load-dep. stop 2	Stop Lim P	1 kW 20000 kW	200 kW		Designer's Reference Handbook	Dependent on the settings 8881 and 8882, the load-dependent stop set point will be calculated either as kW/kVA or as percentage/value.
8312	Load-dep. stop 2	Stop Lim S	1 kVA 20000 kVA	200 kVA			
8313	Load-dep. stop 2	Stop Lim %	1 % 100 %	70 %			
8314	Load-dep. stop 2	Delay	5.0 s 990.0 s	30.0 s			
8315	Load-dep. stop 2	Blocked with HC	OFF ON	OFF			
8320 Heavy consumer 3							
8321	HC 3	Req. value	0 kVA 9999 kVA	500 kVA		Designer's Reference Handbook	Settings for Heavy Consumer no. 3. Variable load can only be selected in connection with an analogue input. The selection of this is made in setting 8381.
8322	HC 3	Nom. power	2 kW 9999 kW	400 kW			
8323	HC 3	Load type	Fixed load Variable load	Fixed load			
8324	HC 3	Delay	0.0 s 60.0 s	0.0 s			
8330 Heavy consumer 4							
8331	HC 4	Req. value	0 kVA 9999 kVA	500 kVA		Designer's Reference Handbook	Settings for Heavy Consumer no. 4. Variable load can only be selected in connection with an analogue input. The selection of this is made in setting 8391.
8332	HC 4	Nom. power	2 kW 9999 kW	400 kW			
8333	HC 4	Load type	Fixed load Variable load	Fixed load			
8334	HC 4	Delay	0.0 s 60.0 s	0.0 s			
8340 HC 1 Res. alarm							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8341	HC 1	Delay	10.0 s 600.0 s	180.0 s		Designer's Reference Handbook	
8342	HC 1	Output A	Not used Option-dependent	Not used			
8343	HC 1	Output B	Not used Option-dependent	Not used			
8344	HC 1	Enable	OFF ON	OFF			
8350 HC 2 Res. alarm							
8351	HC 2	Delay	10.0 s 600.0 s	180.0 s		Designer's Reference Handbook	
8352	HC 2	Output A	Not used Option-dependent	Not used			
8353	HC 2	Output B	Not used Option-dependent	Not used			
8354	HC 2	Enable	OFF ON	OFF			
8360 HC 3 Res. alarm							
8361	HC 3	Delay	10.0 s 600.0 s	180.0 s		Designer's Reference Handbook	
8362	HC 3	Output A	Not used Option-dependent	Not used			
8363	HC 3	Output B	Not used Option-dependent	Not used			
8364	HC 3	Enable	OFF ON	OFF			
8370 HC 4 Res. alarm							
8371	HC 4	Delay	10.0 s 600.0 s	180.0 s		Designer's Reference Handbook	
8372	HC 4	Output A	Not used Option-dependent	Not used			
8373	HC 4	Output B	Not used Option-dependent	Not used			
8374	HC 4	Enable	OFF ON	OFF			
8880 Load-dependent start/stop							
8881	Ld. start/ stop	S1	kW kVA	kW		Designer's Reference Handbook	Selection of the base for the load-dependent start/stop.
8882	Ld. start/ stop	S2	Percentage Value	Percentage			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8890 Blackout function							
8891	Blackout func.	Auto close	OFF ON	OFF		Designer's Reference Handbook	Only for SG (shaft), SC (shore) and BTB (bus tie breaker) unit.
8892	Blackout func.	I>> Start	OFF ON, 1 attempt	OFF		Designer's Reference Handbook	Setting 8893 possibilities: - No mode change - Semi-auto - Auto 8895 for EDG only.
8893	Blackout func.	Mode	No mode change AUTO	No mode change			
8894	Blackout func.	DG start num.	1 16	1			
8895	Blackout func.	EDG start delay	0.1 s 999.9 s	15.0 s			
8920 Secured mode							
8921	Secured mode	Enable	OFF ON	OFF		Designer's Reference Handbook	The secured mode will start one more generator than required by the load situation. The minimum number of running DGs allows defining a minimum amount of connected DGs in AUTO operation, independent of the load situation.
8922	Min. no. DG run	Setting 1	1 16	1			
8923	Min. no. DG run	Setting 2	1 16	1			
8924	Min. no. DG run	Setting 3	1 16	1			
8925	Min. no. DG run set.	Min. no. run. set.	OFF set. 3	OFF			
8930 HC 1 variable load							
8931	HC 1 var load	Input	Analogue 102 Option-dependent	Analogue 102		Designer's Reference Handbook	This setting only appears if "Variable load" is selected in setting 8203
8934	HC 1 var load	Min Limit	0 mA 10 mA	0 mA			
8935	HC 1 var load	Max Limit	10 mA 20 mA	20 mA			
8940 HC 2 variable load							
8941	HC 2 var load	Input	Analogue 102 Option-dependent	Analogue 102		Designer's Reference Handbook	This setting only appears if "Variable load" is selected in setting 8213
8944	HC 2 var load	Min Limit	0 mA 10 mA	0 mA			
8945	HC 2 var load	Max Limit	10 mA 20 mA	20 mA			
8950 Max. no. DG run							

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8951	Max. no. DG run	Setting 1	1 16	16		Designer's Reference Handbook	The maximum number of running DGs allows defining a maximum amount of connected DGs in AUTO operation, independent of the load situation.
8952	Max. no. DG run	Setting 2	1 16	16			
8953	Max. no. DG run	Setting 3	1 16	16			
8954	Max. no. DG run	Max. no. run. set.	OFF set. 3	OFF			
8960 Shore pos. on sync.							
8961	Sh. pos on sync	Enable	OFF ON	OFF		Designer's Reference Handbook	If the shore connection breaker position ON feedback is enabled for synchronisation, it is allowed to synchronise the diesel generator to the shore, otherwise the synchronisation of the diesel generator is blocked.

3.16 Jump menus

3.16.1 Jump menus

A number of menus can only be entered using the jump menu:

3.16.2 9000 Software version

Information about the actual software downloaded to the unit. Check this before contacting DEIF regarding service and support matters.

3.16.3 9020 Service port

The service port can be set up to use the ASCII communication. The ASCII communication is used when the utility software is connected through a modem.

INFO
Selection '0' must be used for cable connection between the PPM and the PC.

Selection '1' must be used for modem connection between the PPM and the PC.

3.16.4 9070 M4 SW version

Information about the software version in the engine I/F PCB placed in slot #8.

3.16.5 9100 Device type

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
9100 Application							
9100	Application	Application	G unit BTB unit	G unit		Designer's Reference Handbook	This setting is only accessible using the 'JUMP' button on the display. Available selections: - G unit (diesel generator) - SG unit (shaft generator) - SC unit (shore connection) - EG unit (emergency generator) - BTB unit (bus tie breaker)

DANGER!
The unit will return to factory settings if the parameter is changed.

3.16.6 911x Password

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
911x Password							
9116	User password	Setting	0 32000	2000		Designer's Reference Handbook	It is recommended to change the password levels of the user, service and master password, if access to parameter settings must be restricted.
9117	Service password	YYYYY setting	0 32000	2001			
9118	Master password	XXXXX setting	0 32000	2002			

3.16.7 9120 Service menu

The service menu can only be entered using the 'JUMP' push-button. This menu is used in service situations.

In the alarm selection you can see all the alarm timers and their remaining time if they are counting.

The input and output selections show the present status of the inputs and outputs, for example mode inputs, relay outputs and load sharing lines.

No.	Setting		Description
9120 Service menu			
9121	Service menu	Timers	Shows remaining alarm delay time
9122		N/A	
9123		Digital inputs	Shows digital input status
9124		Digital outputs	Shows digital output status
9125		Miscellaneous	Shows miscellaneous information

3.16.8 9130 AC configuration

This menu is used to choose between the different AC measurement systems.

No.	Setting		Description
9130 AC config			
9130	AC config	Setting	3 phase L1L2L3 (1)

3.16.9 9150 Backlight dimmer

The backlight intensity of the display unit can be adjusted by using this parameter.

No.	Setting		Description
9150 Backlight dimmer			
9150	Backlight dim Press UP or DOWN		Sets the light intensity for the display

3.16.10 9160 Application setup

Four different user-defined applications can be saved in each PPM-3 unit.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
9160 User-defined application							
9160	Application	Setting	Appl 1 (1) Appl 4 (4)	Appl. 1 (1)		Designer's Reference Handbook	The 4 different applications available make it possible to shift between different plant types.

3.16.11 9190 Application broadcast

By using this setting, an application, which is available in one unit, can be transmitted to all other PPM-3 units connected to the internal CAN bus line.

No.	Setting		Min. Max.	Factory setting	Notes	Description
9190 Appl. Broadcast						
9190	Appl. Broadcast	ENABLE	Off Broadcast + Activate	Off		To broadcast an application to other PPM-3 units, the application number to be transmitted must be selected. Afterwards, the enable function can be chosen to either broadcast or broadcast and activate the application.
		APPL.	Application 1 Application 4	Appl. 1		

3.17 GSM settings

3.17.1 GSM settings

INFO
GSM settings are only accessible in the utility software.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
10320 GSM Pin code							
	GSM Pin code	Function	0 9999	1933		Designer’s Reference Handbook	
10330 Telephone no. 1							
10330	Telephone 1	Function	0 99999999999	12345678903		Designer’s Reference Handbook	

INFO
Telephone nos. 2-5 settings 10340-10370 are equal to setting 10330.

3.18 Passwords

3.18.1 Passwords

INFO
Password settings are only accessible in the utility software.

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
10390 Password language page						
10390	Passw. Lang. page	None Customer	None		Designer’s Reference Handbook	Selections are: - None - Master - Service - Customer
10400 Password log page						
10400	Passw. Log page	None Customer	None		Designer’s Reference Handbook	Selections are: - None - Master - Service - Customer
10410 Password control page						
10410	Passw. Control page	None Customer	None		Designer’s Reference Handbook	Selections are: - None - Master - Service - Customer

3.19 RMI 102

3.19.1 RMI 102

INFO
RMI 102 settings are only accessible in the utility software.

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
10460 RMI 1 type						
10460	RMI 1 type	Sensor type 1 Configurable	Sensor type 1		Designer’s Reference Handbook	Selections are: - Sensor type 1 - Sensor type 2 - Sensor type 3 - Configurable
10470 RMI 1 Input setpoint 1						
10470	RMI 1 inp. Setp. 1	0 Ohm 480 Ohm	10 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10480 RMI 1 Output setpoint 1						
10480	RMI 1 outp. Setp. 1	-49 482	40		Designer’s Reference Handbook	Configurable RMI curve
10490 RMI 1 Input setpoint 2						
10490	RMI 1 inp. Setp. 2	0 Ohm 480 Ohm	44.9 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10500 RMI 1 Output setpoint 2						
10500	RMI 1 outp. Setp. 2	-49 482	50		Designer’s Reference Handbook	Configurable RMI curve
10510 RMI 1 Input setpoint 3						
10510	RMI 1 inp. Setp. 3	0 Ohm 480 Ohm	81 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10520 RMI 1 Output setpoint 3						
10520	RMI 1 outp. Setp. 3	-49 482	60		Designer’s Reference Handbook	Configurable RMI curve
10530 RMI 1 Input setpoint 4						
10530	RMI 1 inp. Setp. 4	0 Ohm 480 Ohm	134.7 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10540 RMI 1 Output setpoint 4						
10540	RMI 1 outp. Setp. 4	-49 482	80		Designer’s Reference Handbook	Configurable RMI curve
10550 RMI 1 Input setpoint 5						
10550	RMI 1 inp. Setp. 5	0 Ohm 480 Ohm	184 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10560 RMI 1 Output setpoint 5						
10560	RMI 1 outp. Setp. 5	-49 482	100		Designer’s Reference Handbook	Configurable RMI curve
10570 RMI 1 Input setpoint 6						
10570	RMI 1 inp. Setp. 6	0 Ohm 480 Ohm	200 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10580 RMI 1 Output setpoint 6						
10580	RMI 1 outp. Setp. 6	-49 482	110		Designer’s Reference Handbook	Configurable RMI curve
10590 RMI 1 Input setpoint 7						
10590	RMI 1 inp. Setp. 7	0 Ohm 480 Ohm	210 Ohm		Designer’s Reference Handbook	Configurable RMI curve

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
10600 RMI 1 Output setpoint 7						
10600	RMI 1 outp. Setp. 7	-49 482	115		Designer’s Reference Handbook	Configurable RMI curve
10610 RMI 1 Input setpoint 8						
10610	RMI 1 inp. Setp. 8	0 Ohm 480 Ohm	220 Ohm		Designer’s Reference Handbook	Configurable RMI curve
10620 RMI 1 Output setpoint 8						
10620	RMI 1 outp. Setp. 8	-49 482	120		Designer’s Reference Handbook	Configurable RMI curve

3.20 RMI 105

3.20.1 RMI 105

INFO
RMI 105 settings are only accessible in the utility software.

INFO
Settings 10630-10790 equal the settings for RMI 102 (10460-10620).

3.21 RMI 108

3.21.1 RMI 108

INFO
RMI 108 settings are only accessible in the utility software.

INFO
Settings 10800-10960 equal the settings for RMI 102 (10460-10620).

3.22 Multi-inputs selections

3.22.1 Multi-inputs selections

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
10970 Engineering units						
10970	Engineering units	Bar/Celsius Psi/Fahrenheit	Bar/Celsius			
10980 Multi-input configuration 102						
10980	Multi-inp. conf. 102	4-20 mA Binary	0-40 V DC			Possible selections: 4-20 mA 0-40 V DC Pt100 Pt1000 RMI oil pressure

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
						RMI water temp. RMI fuel level Binary
10990 Multi-input configuration 105						
10990	Multi-inp. conf. 105	4-20 mA Binary	0-40 V DC			Possible selections: 4-20 mA 0-40 V DC Pt100 Pt1000 RMI oil pressure RMI water temp. RMI fuel level Binary
11000 Multi-input configuration 108						
11000	Multi-inp. conf. 108	4-20 mA Binary	0-40 V DC			Possible selections: 4-20 mA 0-40 V DC Pt100 Pt1000 RMI oil pressure RMI water temp. RMI fuel level Binary

3.23 External digital outputs

3.23.1 External digital outputs

INFO
External digital output settings are only accessible in the utility software.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
12790 Ext. dig. out 1							
12790	Ext. dig. out 1	Function	Alarm Siren Horn Limit	Alarm		Option: External I/O modules (H8)	
	Ext. dig. out 1	OFF delay	0.0 s 999.9 s	5.0 s			

INFO
The same applies to settings 12800-12940.

3.24 External module status

3.24.1 External module status

INFO
External module status is only accessible in the utility software.

No.	Setting	Min. Max.	Notes	Ref.	Description
12950	Ext module 0 STATUS	-32768 +32768		Option: External I/O modules (H8)	This is a number read in the external module and displayed in the USW only. See the description of option H8 for details.

INFO
The same applies to settings 12951-12983 (external modules 1 to 33).