PARAMETER LIST

Advanced Genset Controller, AGC 200

- Alarm list
- Parameter list

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Contents:

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

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

Notes

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

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.

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.

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.

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

2.1 General information about the alarm list

In the following, these abbreviations are used:

G: Generator
GB: Generator breaker
TB: Tie breaker (for mains unit)
MB: Mains breaker
BTB: Bus tie breaker
BA: Busbar A (BTB unit)
BB: Busbar (BTB unit: Busbar B)
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. An overview list can be seen on the next pages.

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.

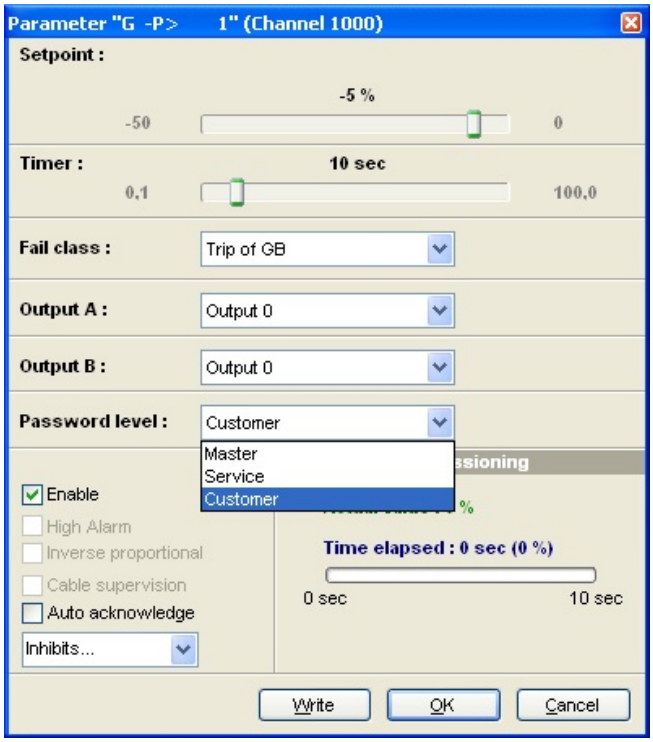
Fail classes are:

Fail class	**DG (diesel generator)**	**Mains unit**	**BTB (bus tie breaker)**
F1	Block	Block	Block
F2	Warning	Warning	Warning
F3	Trip GB	Trip TB	Trip BTB
F4	Trip + stop	Trip MB	N/A
F5	Shutdown	N/A	N/A
F6	Trip MB	N/A	N/A
F7	Safety stop	N/A	N/A
F8	Trip MB/GB	N/A	N/A
F9	Controlled stop	N/A	N/A

Due to the character of the parameters, the individual tables may vary slightly.

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, extra functionality is available. For all the protections, it is possible to make an automatic acknowledgement of the alarm.



2.2 Protection parameters

2.2.1 Reverse power and overcurrent protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1000 Generator reverse power 1							
1001	G –P> 1	Set-point	-200.0% 0.0%	-5.0%		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 –P> 1	Timer	0.1 s 100.0 s	10.0 s			
1003	G –P> 1	Relay output A	Not used Variant dep.	Not used			
1004	G –P> 1	Relay output B	Not used Variant dep.	Not used			
1005	G –P> 1	Enable	OFF ON	ON			
1006	G –P> 1	Fail class	F1…F9	Trip GB (F3)			
1010 Generator reverse power 2							
1011	G –P> 2	Set-point	-200.0% 0.0%	-5.0%		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 –P> 2	Timer	0.1 s 100.0 s	10.0 s			
1013	G –P> 2	Relay output A	Not used Variant dep.	Not used			
1014	G –P> 2	Relay output B	Not used Variant dep.	Not used			
1015	G –P> 2	Enable	OFF ON	ON			
1016	G –P> 2	Fail class	F1…F9	Trip GB (F3)			
1030 Generator overcurrent 1							
1031	G I> 1	Set-point	50.0% 200.0%	115.0%		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 I> 1	Timer	0.1 s 3200.0 s	10.0 s			
1033	G I> 1	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1034	G I> 1	Relay output B	Not used Variant dep.	Not used			
1035	G I> 1	Enable	OFF ON	ON			
1036	G I> 1	Fail class	F1…F9	Warning (F2)			
1040 Generator overcurrent 2							
1041	G I> 2	Set-point	50.0% 200.0%	120.0%		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 I> 2	Timer	0.1 s 3200.0 s	5.0 s			
1043	G I> 2	Relay output A	Not used Variant dep.	Not used			
1044	G I> 2	Relay output B	Not used Variant dep.	Not used			
1045	G I> 2	Enable	OFF ON	ON			
1046	G I> 2	Fail class	F1…F9	Trip GB (F3)			
1050 Generator overcurrent 3							
1051	G I> 3	Set-point	50.0% 200.0%	115.0%		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 I> 3	Timer	0.1 s 3200.0 s	10.0 s			
1053	G I> 3	Relay output A	Not used Variant dep.	Not used			
1054	G I> 3	Relay output B	Not used Variant dep.	Not used			
1055	G I> 3	Enable	OFF ON	ON			
1056	G I> 3	Fail class	F1…F9	Trip GB (F3)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1060 Generator overcurrent 4							
1061	G I> 4	Set-point	50.0% 200.0%	120.0%		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 I> 4	Timer	0.1 s 3200.0 s	5.0 s			
1063	G I> 4	Relay output A	Not used Variant dep.	Not used			
1064	G I> 4	Relay output B	Not used Variant dep.	Not used			
1065	G I> 4	Enable	OFF ON	ON			
1066	G I> 4	Fail class	F1…F9	Trip GB (F3)			
1080 G I> inverse							
1081	G I> inverse Type	Set-point	0 6	IEC Inverse		Designer's Reference Handbook	Option C2 is required. Type selections are: 0. IEC Inverse 1. IEC Very Inverse 2. IEC Extremely Inv. 3. IEEE Moderately Inv. 4. IEEE Very Inverse 5. IEEE Extremely inv. 6. Custom Output B is only available in the utility software.
1082	G I> inverse Limit	Set-point	50% 200%	110%			
1083	G I> inverse TMS	Set-point	0.01 100	1.00			
1084	G I> inverse k	Set-point	0.00 s 32 s	0.14 s			
1085	G I> inverse c	Set-point	0 s 32 s	0 s			
1086	G I> inverse a	Set-point	0.00 32	0.02			
1087	G I> inverse	Output A	Not used Variant dep.	Not used			
1088	G I> inverse	Enable	OFF ON	OFF			
1089	G I> inverse	Fail class	F1…F9	Trip GB (F3)			
	G I> inverse	Output B	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1100 Voltage-dependent overcurrent curve setting							
1101	G Iv > (50%)	Set-point I1	50.0% 200.0%	110.0%		Designer's Reference Handbook	The different percentages in the specific parameters are related to the nom. voltage. 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 setpoint I1 will be used. Setpoints 3 to 6 include Relay output A and B.
1102	G Iv > (60%)	Set-point I2	50.0% 200.0%	125.0%			
1103	G Iv > (70%)	Set-point I3	50.0% 200.0%	140.0%			
1104	G Iv > (80%)	Set-point I4	50.0% 200.0%	155.0%			
1105	G Iv > (90%)	Set-point I5	50.0% 200.0%	170.0%			
1106	G Iv > (100%)	Set-point I6	50.0% 200.0%	200.0%			
1110 Voltage-dependent overcurrent alarm							
1111	G Iv >	Timer	0.1 s 10 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 menus 1101-1106.
1112	G Iv >	Relay output A	Not used Variant dep.	Not used			
1113	G Iv >	Relay output B	Not used Variant dep.	Not used			
1114	G Iv >	Enable	OFF ON	ON			
1115	G Iv >	Fail class	F1…F9	Trip GB (F3)			
1130 Generator fast overcurrent 1							
1131	G I>> 1	Set-point	150.0% 350.0%	150.0%		Designer's Reference Handbook	The alarm settings relate to the nominal current setting. The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1132	G I>> 1	Timer	0.0 s 100.0 s	2.0 s			
1133	G I>> 1	Relay output A	Not used Variant dep.	Not used			
1134	G I>> 1	Relay output B	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1135	G I>> 1	Enable	OFF ON	OFF			
1136	G I>> 1	Fail class	F1…F9	Trip GB (F3)			
1140 Generator fast overcurrent 2							
1141	G I>> 2	Set-point	150.0% 350.0%	200.0%		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 I>> 2	Timer	0.0s 100.0 s	0.5 s			
1143	G I>> 2	Relay output A	Not used Variant dep. Variant dep.	Not used			
1144	G I>> 2	Relay output B	Not used Variant dep. Variant dep.	Not used			
1145	G I>> 2	Enable	OFF ON	OFF			
1146	G I>> 2	Fail class	F1…F9	Trip GB (F3)			

2.2.2 Voltage protections

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1150 Generator overvoltage 1							
1151	G U> 1	Set-point	100.0% 130.0%	103.0%		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 U> 1	Timer	0.1 s 100.0 s	10.0 s			
1153	G U> 1	Relay output A	Not used Variant dep.	Not used			
1154	G U> 1	Relay output B	Not used Variant dep.	Not used			
1155	G U> 1	Enable	OFF ON	OFF			
1156	G U> 1	Fail class	F1…F9	Warning (F2)			
1160 Generator overvoltage 2							
1161	G U> 2	Set-point	100.0% 120.0%	105.0%		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 U> 2	Timer	0.1 s 100.0 s	5.0 s			
1163	G U> 2	Relay output A	Not used Variant dep.	Not used			
1164	G U> 2	Relay output B	Not used Variant dep.	Not used			
1165	G U> 2	Enable	OFF ON	OFF			
1166	G U> 2	Fail class	F1…F9	Warning (F2)			
1170 Generator undervoltage 1							
1171	G U< 1	Set-point	40.0% 100.0%	97%		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 U< 1	Timer	0.1 s 100.0 s	10.0 s			
1173	G U< 1	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1174	G U< 1	Relay output B	Not used Variant dep.	Not used			
1175	G U< 1	Enable	OFF ON	OFF			
1176	G U< 1	Fail class	F1…F9	Warning (F2)			
1180 Generator undervoltage 2							
1181	G U< 2	Set-point	40.0% 100.0%	95.0%		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 U< 2	Timer	0.1 s 100.0 s	5.0 s			
1183	G U< 2	Relay output A	Not used Variant dep.	Not used			
1184	G U< 2	Relay output B	Not used Variant dep.	Not used			
1185	G U< 2	Enable	OFF ON	OFF			
1186	G U< 2	Fail class	F1…F9	Warning (F2)			
1190 Generator undervoltage 3							
1191	G U< 3	Set-point	40.0% 100.0%	95.0%		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 U< 3	Timer	0.1 s 100.0 s	5.0 s			
1193	G U< 3	Relay output A	Not used Variant dep.	Not used			
1194	G U< 3	Relay output B	Not used Variant dep.	Not used			
1195	G U< 3	Enable	OFF ON	OFF			
1196	G U< 3	Fail class	F1...F9	Warning (F2)			

1200 Calculation method							
1201	G/M/ BA voltage trip	Set point	Ph-Ph Ph-N	Ph-Ph		Designer's Reference Handbook	Selection between phase-phase or phase-neutral voltage detection. When phase-phase tripping is selected, the voltage alarms relate to the nominal voltage. When phase-neutral tripping is selected, the voltage alarms relate to the nominal voltage divided by √3.
1202	BB voltage trip	Set point	Ph-Ph Ph-N	Ph-Ph			
1203	Unbalance I	Set point	Ref. to nominal Ref. to average	Ref. to nominal			
1204	Frequency trip type	Set point	L1 L1 and L2 and L3	L1 or L2 or L3			Selection of which phase the controller uses for over-/under-frequency alarms.

2.2.3 Frequency protections

Frequency settings relate to the nominal frequency setting.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1210 Generator overfrequency 1							
1211	G f> 1	Set-point	100.0% 120.0%	103.0%		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. Frequency settings relate to nominal frequency setting.
1212	G f> 1	Timer	0.2 s 100.0 s	10.0 s			
1213	G f> 1	Relay output A	Not used Variant dep.	Not used			
1214	G f> 1	Relay output B	Not used Variant dep.	Not used			
1215	G f> 1	Enable	OFF ON	OFF			
1216	G f> 1	Fail class	F1…F9	Warning (F2)			
1220 Generator overfrequency 2							
1221	G f> 2	Set-point	100.0% 120.0%	105.0%		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 f> 2	Timer	0.2 s 100.0 s	5.0 s			
1223	G f> 2	Relay output A	Not used Variant dep.	Not used			
1224	G f> 2	Relay output B	Not used Variant dep.	Not used			
1225	G f> 2	Enable	OFF ON	OFF			
1226	G f> 2	Fail class	F1…F9	Warning (F2)			
1230 Generator overfrequency 3							
1231	G f> 3	Set-point	100.0% 120.0%	105.0%		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 f> 3	Timer	0.2 s 100.0 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1233	G f> 3	Relay output A	Not used Variant dep.	Not used			
1234	G f> 3	Relay output B	Not used Variant dep.	Not used			
1235	G f> 3	Enable	OFF ON	OFF			
1236	G f> 3	Fail class	F1…F9	Warning (F2)			
1240 Generator underfrequency 1							
1241	G f<1	Set-point	80.0% 100.0%	97.0%		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 f<1	Timer	0.2 s 100.0 s	10.0 s			
1243	G f<1	Relay output A	Not used Variant dep.	Not used			
1244	G f<1	Relay output B	Not used Variant dep.	Not used			
1245	G f<1	Enable	OFF ON	OFF			
1246	G f<1	Fail class	F1…F9	Warning (F2)			
1250 Generator underfrequency 2							
1251	G f<2	Set-point	80.0% 100.0%	95.0%		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 f<2	Timer	0.2 s 100.0 s	5.0 s			
1253	G f<2	Relay output A	Not used Variant dep.	Not used			
1254	G f<2	Relay output B	Not used Variant dep.	Not used			
1255	G f<2	Enable	OFF ON	OFF			
1256	G f<2	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1260 Generator underfrequency 3							
1261	G f<3	Set-point	80.0% 100.0%	95.0%		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 f<3	Timer	0.2 s 100.0 s	5.0 s			
1263	G f<3	Relay output A	Not used Variant dep.	Not used			
1264	G f<3	Relay output B	Not used Variant dep.	Not used			
1265	G f<3	Enable	OFF ON	OFF			
1266	G f<3	Fail class	F1…F9	Warning (F2)			

2.2.4 Busbar voltage protections

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	100.0% 120.0%	103.0%		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	0.0 s 99.99 s	10.0 s			
1273	BB U> 1	Relay output A	Not used Variant dep.	Not used			
1274	BB U> 1	Relay output B	Not used Variant dep.	Not used			
1275	BB U> 1	Enable	OFF ON	OFF			
1276	BB U> 1	Fail class	F1…F9	Warning (F2)			
1280 Busbar overvoltage 2							
1281	BB U> 2	Set-point	100.0% 120.0%	105.0%		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	0.0 s 99.99 s	5.0 s			
1283	BB U> 2	Relay output A	Not used Variant dep.	Not used			
1284	BB U> 2	Relay output B	Not used Variant dep.	Not used			
1285	BB U> 2	Enable	OFF ON	OFF			
1286	BB U> 2	Fail class	F1…F9	Warning (F2)			
1290 Busbar overvoltage 3							
1291	BB U> 3	Set-point	100.0% 120.0%	105.0%		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	0.0 s 99.99 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1293	BB U> 3	Relay output A	Not used Variant dep.	Not used			
1294	BB U> 3	Relay output B	Not used Variant dep.	Not used			
1295	BB U> 3	Enable	OFF ON	OFF			
1296	BB U> 3	Fail class	F1…F9	Warning (F2)			
1300 Busbar undervoltage 1							
1301	BB U< 1	Set-point	40.0% 100.0%	97.0%		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	10.00 s			
1303	BB U< 1	Relay output A	Not used Variant dep.	Not used			
1304	BB U< 1	Relay output B	Not used Variant dep.	Not used			
1305	BB U< 1	Enable	OFF ON	OFF			
1306	BB U< 1	Fail class	F1…F9	Warning (F2)			
1310 Busbar undervoltage 2							
1311	BB U< 2	Set-point	40.0% 100.0%	95.0%		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	5.0 s			
1313	BB U< 2	Relay output A	Not used Variant dep.	Not used			
1314	BB U< 2	Relay output B	Not used Variant dep.	Not used			
1315	BB U< 2	Enable	OFF ON	OFF			
1316	BB U< 2	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1320 Busbar undervoltage 3							
1321	BB U< 3	Set-point	40.0% 100.0%	97.0%		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	10.0 s			
1323	BB U< 3	Relay output A	Not used Variant dep.	Not used			
1324	BB U< 3	Relay output B	Not used Variant dep.	Not used			
1325	BB U< 3	Enable	OFF ON	OFF			
1326	BB U< 3	Fail class	F1…F9	Warning (F2)			
1330 Busbar undervoltage 4							
1331	BB U< 4	Set-point	40.0% 100.0%	95.0%		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	5.0 s			
1333	BB U< 4	Relay output A	Not used Variant dep.	Not used			
1334	BB U< 4	Relay output B	Not used Variant dep.	Not used			
1335	BB U< 4	Enable	OFF ON	OFF			
1336	BB U< 4	Fail class	F1...F9	Warning (F2)			
1340 Busbar voltage trip							
1341	BB volt-age trip	Set-point	Ph-Ph Ph-N	Ph-Ph		Designer's Reference Handbook	Selection between phase-phase or phase-neutral volt-age detection.

2.2.5 Busbar frequency protections

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	100.0% 120.0%	103.0%		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	0.0 s 99.99 s	10.0 s			
1353	BB f> 1	Relay output A	Not used Variant dep.	Not used			
1354	BB f> 1	Relay output B	Not used Variant dep.	Not used			
1355	BB f> 1	Enable	OFF ON	OFF			
1356	BB f> 1	Fail class	F1…F9	Warning (F2)			
1360 Busbar overfrequency 2							
1361	BB f> 2	Set-point	100.0% 120.0%	105.0%		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	5.0 s			
1363	BB f> 2	Relay output A	Not used Variant dep.	Not used			
1364	BB f> 2	Relay output B	Not used Variant dep.	Not used			
1365	BB f> 2	Enable	OFF ON	OFF			
1366	BB f> 2	Fail class	F1…F9	Warning (F2)			
1370 Busbar overfrequency 3							
1371	BB f> 3	Set-point	100.0% 120.0%	105.0%		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	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1373	BB f> 3	Relay output A	Not used Variant dep.	Not used			
1374	BB f> 3	Relay output B	Not used Variant dep.	Not used			
1375	BB f> 3	Enable	OFF ON	OFF			
1376	BB f> 3	Fail class	F1…F9	Warning (F2)			
1380 Busbar underfrequency 1							
1381	BB f< 1	Set-point	80.0% 100.0%	97.0%		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	10.0 s			
1383	BB f< 1	Relay output A	Not used Variant dep.	Not used			
1384	BB f< 1	Relay output B	Not used Variant dep.	Not used			
1385	BB f< 1	Enable	OFF ON	OFF			
1386	BB f< 1	Fail class	F1…F9	Warning (F2)			
1390 Busbar underfrequency 2							
1391	BB f< 2	Set-point	80.0% 100.0%	95.0%		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	5.0 s			
1393	BB f< 2	Relay output A	Not used Variant dep.	Not used			
1394	BB f< 2	Relay output B	Not used Variant dep.	Not used			
1395	BB f< 2	Enable	OFF ON	OFF			
1396	BB f< 2	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1400 Busbar underfrequency 3							
1401	BB f< 3	Set-point	80.0% 100.0%	97.0%		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	10.0 s			
1403	BB f< 3	Relay output A	Not used Variant dep.	Not used			
1404	BB f< 3	Relay output B	Not used Variant dep.	Not used			
1405	BB f< 3	Enable	OFF ON	OFF			
1406	BB f< 3	Fail class	F1…F9	Warning (F2)			
1410 Busbar underfrequency 4							
1411	BB f< 4	Set-point	80.0% 100.0%	95.0%		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	5.0 s			
1413	BB f< 4	Relay output A	Not used Variant dep.	Not used			
1414	BB f< 4	Relay output B	Not used Variant dep.	Not used			
1415	BB f< 4	Enable	OFF ON	OFF			
1416	BB f< 4	Fail class	F1...F9	Warning (F2)			

2.2.6 Mains failure protections

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1420 df/dt (ROCOF)							
1421	df/dt (ROCOF)	Timer	3 periods 20 periods	6 periods		Option A1	The alarm and fail class are activated when the df/dt rate has been continuously above the programmed value during the programmed number of periods (delay).
1422	df/dt (ROCOF)	Set-point	1.5 Hz/s 10.0 Hz/s	5.0 Hz/s			
1423	df/dt (ROCOF)	Relay output A	Not used Variant dep.	Not used			
1424	df/dt (ROCOF)	Relay output B	Not used Variant dep.	Not used			
1425	df/dt (ROCOF)	Enable	OFF ON	OFF			
1426	df/dt (ROCOF)	Fail class	F1…F9	Trip MB (F6)			
1430 Vector jump							
1431	Vector jump	Set-point	1.0 deg. 90.0 deg.	10.0 deg.		Option A1	The alarm and fail class are activated when a vector jump is detected.
1432	Vector jump	Relay output A	Not used Variant dep.	Not used			
1433	Vector jump	Relay output B	Not used Variant dep.	Not used			
1434	Vector jump	Enable	OFF ON	OFF			
1435	Vector jump	Fail class	F1…F9	Trip MB (F6)			
1440 Busbar positive sequence voltage low							
1441	BB pos seq volt	Set-point	10.0% 110.0%	70.0%		Option A4	The alarm and fail class are activated when the symmetrical (positive sequence) voltage has been continuously below the programmed value during the programmed delay.
1442	BB pos seq volt	Timer	1 period 9 periods	2 periods			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1443	BB pos seq volt	Relay output A	Not used Variant dep.	Not used			The timer factory setting is set to 2 periods. This means that the error has to be active in 2 whole periods before the alarm will be tripped. E.g. in a 50 Hz system, the alarm will be activated if the positive sequence is below 70% of U nominal voltage for 40 ms. The alarm will trip the fail class as soon as possible after this delay.
1444	BB pos seq volt	Relay output B	Not used Variant dep.	Not used			
1445	BB pos seq volt	Enable	OFF ON	OFF			
1446	BB pos seq volt	Fail class	F1…F9	Trip MB (F6)			

2.2.7 Overload protections

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1450 Generator overload 1							
1451	P> 1	Set-point	-200.0% 200.0%	100.0%		Designer's Reference Handbook	Settings relate to nominal power. The alarm and fail class are activated when the power has been continuously above the programmed value during the programmed delay.
1452	P> 1	Timer	0.1 s 3200.0 s	10.0 s			
1453	P> 1	Relay output A	Not used Variant dep.	Not used			
1454	P> 1	Relay output B	Not used Variant dep.	Not used			
1455	P> 1	Enable	OFF ON	OFF			
1456	P> 1	Fail class	F1…F9	Warning (F2)			
1460 Generator overload 2							
1461	P> 2	Set-point	-200.0% 200.0%	110.0%		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.
1462	P> 2	Timer	0.1 s 3200.0 s	5.0 s			
1463	P> 2	Relay output A	Not used Variant dep.	Not used			
1464	P> 2	Relay output B	Not used Variant dep.	Not used			
1465	P> 2	Enable	OFF ON	OFF			
1466	P> 2	Fail class	F1…F9	Trip GB (F3)			
1470 Generator overload 3							
1471	P> 3	Set-point	-200.0% 200.0%	100.0%		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.
1472	P> 3	Timer	0.1 s 3200.0 s	10.0 s			
1473	P> 3	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1474	P> 3	Relay output B	Not used Variant dep.	Not used			
1475	P> 3	Enable	OFF ON	OFF			
1476	P> 3	Fail class	F1…F9	Trip GB (F3)			
1480 Generator overload 4							
1481	P> 4	Set-point	-200.0% 200.0%	110.0%		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.
1482	P> 4	Timer	0.1 s 3200.0 s	5.0 s			
1483	P> 4	Relay output A	Not used Variant dep.	Not used			
1484	P> 4	Relay output B	Not used Variant dep.	Not used			
1485	P> 4	Enable	OFF ON	OFF			
1486	P> 4	Fail class	F1…F9	Trip GB (F3)			
1490 Generator overload 5							
1491	P> 5	Set-point	-200.0% 200.0%	100.0%		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.
1492	P> 5	Timer	0.1 s 3200.0 s	10.0 s			
1493	P> 5	Relay output A	Not used Variant dep.	Not used			
1494	P> 5	Relay output B	Not used Variant dep.	Not used			
1495	P> 5	Enable	OFF ON	OFF			
1496	P> 5	Fail class	F1...F9	Trip GB (F3)			

2.2.8 Current unbalance protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1500 Generator unbalanced current							
1501	G unbalance curr.	Set-point	0.0% 100.0%	30.0%		Designer's Reference Handbook	Settings relate to nominal generator 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 curr.	Timer	0.1 s 100.0 s	10.0 s			
1503	G unbalance curr.	Relay output A	Not used Variant dep.	Not used			
1504	G unbalance curr.	Relay output B	Not used Variant dep.	Not used			
1505	G unbalance curr.	Enable	OFF ON	OFF			
1506	G unbalance curr.	Fail class	F1…F9	Trip GB (F3)			

2.2.9 Voltage unbalance protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1510 Generator unbalanced voltage							
1511	G unbalance volt.	Set-point	0.0% 50.0%	10.0%		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 volt.	Timer	0.1 s 100.0 s	10.0 s			
1513	G unbalance volt.	Relay output A	Not used Variant dep.	Not used			
1514	G unbalance volt.	Relay output B	Not used Variant dep.	Not used			
1515	G unbalance volt.	Enable	OFF ON	OFF			
1516	G unbalance volt.	Fail class	F1…F9	Trip GB (F3)			

2.2.10 Reactive power import (loss of excitation) protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1520 Generator reactive power import (loss of excitation)							
1521	G – Q>	Set-point	0.0% 150.0%	50.0%		Designer's Reference Handbook	Settings relate to nominal power setting value. The alarm and fail class are activated when imported VAr has been continuously above the programmed value during the programmed delay.
1522	G – Q>	Timer	0.1 s 100.0 s	10.0 s			
1523	G – Q>	Relay output A	Not used Variant dep.	Not used			
1524	G – Q>	Relay output B	Not used Variant dep.	Not used			
1525	G – Q>	Enable	OFF ON	OFF			
1526	G – Q>	Fail class	F1…F9	Warning (F2)			

2.2.11 Reactive power export (overexcitation) protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1530 Generator reactive power export (overexcitation)							
1531	G Q>	Set-point	0.0% 100.0%	60.0%		Designer's Reference Handbook	Settings relate to nominal power setting value. The alarm and fail class are activated when exported VAr has been continuously above the programmed value during the programmed delay.
1532	G Q>	Timer	0.1 s 100.0 s	10.0 s			
1533	G Q>	Relay output A	Not used Variant dep.	Not used			
1534	G Q>	Relay output B	Not used Variant dep.	Not used			
1535	G Q>	Enable	OFF ON	OFF			
1536	G Q>	Fail class	F1…F9	Warning (F2)			

2.2.12 Negative sequence

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1540 Generator negative sequence current							
1541	G neg seq I	Setpoint	1.0% 100.0%	20.0%		Option C2	Settings relate to nominal current. The alarm and fail class are activated when the negative sequence has been continuously above the programmed value during the programmed delay.
1542	G neg seq I	Timer	0.2 s 100.0 s	0.5 s			
1543	G neg seq I	Relay output A	Not used Variant dep.	Not used			
1544	G neg seq I	Relay output B	Not used Variant dep.	Not used			
1545	G neg seq I	Enable	OFF ON	OFF			
1546	G neg seq I	Fail class	F1…F9	Trip MB (F6)			
1550 Generator negative sequence voltage							
1551	G neg seq U	Setpoint	1.0% 100.0%	5.0%		Option C2	Settings relate to nominal voltage. The alarm and fail class are activated when the negative sequence has been continuously above the programmed value during the programmed delay.
1552	G neg seq U	Timer	0.2 s 100.0 s	0.5 s			
1553	G neg seq U	Relay output A	Not used Variant dep.	Not used			
1554	G neg seq U	Relay output B	Not used Variant dep.	Not used			
1555	G neg seq U	Enable	OFF ON	OFF			
1556	G neg seq U	Fail class	F1…F9	Trip MB (F6)			
1560 Generator negative sequence selection							
1561	G neg seq select	Setpoint	G measurement BB measurement	G measurement		Option C2	Selection between generator or busbar measurement of negative sequence voltage.

2.2.13 Zero sequence

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1570 Generator zero sequence current							
1571	G zero seq I	Set-point	0.0% 100.0%	20.0%		Option C2	Settings relate to nominal current. The alarm and fail class are activated when the zero sequence has been continuously above the programmed value during the programmed delay.
1572	G zero seq I	Timer	0.2 s 100.0 s	0.5 s			
1573	G zero seq I	Relay output A	Not used Variant dep.	Not used			
1574	G zero seq I	Relay output B	Not used Variant dep.	Not used			
1575	G zero seq I	Enable	OFF ON	OFF			
1576	G zero seq I	Fail class	F1…F9	Trip MB (F6)			
1580 Generator zero sequence voltage							
1581	G zero seq U	Set-point	0.0% 100.0%	5.0%		Option C2	Settings relate to nominal voltage. The alarm and fail class are activated when the zero sequence has been continuously above the programmed value during the programmed delay.
1582	G zero seq U	Timer	0.2 s 100.0 s	0.5 s			
1583	G zero seq U	Relay output A	Not used Variant dep.	Not used			
1584	G zero seq U	Relay output B	Not used Variant dep.	Not used			
1585	G zero seq U	Enable	OFF ON	OFF			
1586	G zero seq U	Fail class	F1…F9	Trip MB (F6)			
1590 Generator zero sequence selection							
1591	G zero seq select	Set-point	G measurement BB measurement	G measurement		Option C2	Selection between generator or busbar measurement of zero sequence voltage.

2.2.14 Directional overcurrent protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1600 Generator directional overcurrent 1							
1601	G I> direct 1	Set-point	-200.0% 200.0%	120.0%		Option A5	Settings relate to nominal current. The alarm and fail class are activated when the directional current has been continuously above the programmed value during the programmed delay. The current measurement is positive when current is supplied from the mains to the plant. The current measurement is negative when current is being supplied to the mains.
1602	G I> direct 1	Timer	0.0 s 100.0 s	0.1 s			
1603	G I> direct 1	Relay output A	Not used Variant dep.	Not used			
1604	G I> direct 1	Relay output B	Not used Variant dep.	Not used			
1605	G I> direct 1	Enable	OFF ON	OFF			
1606	G I> direct 1	Fail class	F1…F9	Trip MB (F6)			
1610 Generator directional overcurrent 2							
1611	G I> direct 2	Set-point	-200.0% 200.0%	130.0%		Option A5	Settings relate to nominal current. The alarm and fail class are activated when the directional current has been continuously above the programmed value during the programmed delay. The current measurement is positive when current is supplied from the mains to the plant. The current measurement is negative when current is being supplied to the mains.
1612	G I> direct 2	Timer	0.0 s 100.0 s	0.1 s			
1613	G I> direct 2	Relay output A	Not used Variant dep.	Not used			
1614	G I> direct 2	Relay output B	Not used Variant dep.	Not used			
1615	G I> direct 2	Enable	OFF ON	OFF			
1616	G I> direct 2	Fail class	F1…F9	Trip MB (F6)			

2.2.15 Busbar unbalance voltage

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1620 BB unbalance U							
1621	BB unbalance U	Set-point	0.0% 50.0%	6.0%		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 output A	Not used Variant dep.	Not used			
1624	BB unbalance U	Relay output B	Not used Variant dep.	Not used			
1625	BB unbalance U	Enable	OFF ON	OFF			
1626	BB unbalance U	Fail class	F1…F9	Warning (F2)			

2.2.16 Time-dependent undervoltage

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1630 Time-dependent undervoltage 1 1-3							
1631	Ut < 1	Set-point 1	30.0% 120.0%	30.0%		Option A1	Curve setting for time-dependent undervoltage. Settings relate to nominal generator voltage. The condition has to be true i.e. Ut(1)1≤Ut(2)≤Ut(3)≤Ut(4)≤Ut(5)≤Ut(6). If this is not fulfilled, the worst-case set-point Ut(6) will be used.
1632	Ut < 1	Delay 1	0.00 s 20.00 s	0.15 s			
1633	Ut < 1	Set-point 2	30.0% 120.0%	70.0%			
1634	Ut < 1	Delay 2	0.00 s 20.00 s	0.15 s			
1635	Ut < 1	Set-point 3	30.0% 120.0%	70.0%			
1636	Ut < 1	Delay 3	0.00 s 20.00 s	0.70 s			
1640 Time-dependent undervoltage 1 4-6							
1641	Ut < 1	Set-point 4	30.0% 120.0%	90.0%		Option A1	Curve setting for time-dependent undervoltage. Settings relate to nominal generator voltage. The condition has to be true i.e. Ut(1)1≤Ut(2)≤Ut(3)≤Ut(4)≤Ut(5)≤Ut(6). If this is not fulfilled, the worst-case set-point Ut(6) will be used.
1642	Ut < 1	Delay 4	0.00 s 20.00 s	1.50 s			
1643	Ut < 1	Set-point 5	30.0% 120.0%	90.0%			
1644	Ut < 1	Delay 5	0.00 s 20.00 s	2.00 s			
1645	Ut < 1	Set-point 6	30.0% 120.0%	90.0%			
1646	Ut < 1	Delay 6	0.00 s 20.00 s	3.00 s			
1650 Time-dependent undervoltage 1 activation							
1651	Ut < act 1	Acti-vate	30.0% 120.0%	90%		Option A1	Activate is the voltage value where the function timer starts. Recovery is the value where the function timer is reset to 0 ms. Delay is the delay timer for the reset. The relay outputs will activate immediately when the function timer starts.
1652	Ut < act 1	Recov-ery	30.0% 120.0%	95%			
1653	Ut < act 1	Delay	0.0 s 320.0 s	1.00 s			
1654	Ut < act 1	Relay output A	Not used Variant dep.	Not used			
1655	Ut < act 1	Relay output B	Not used Variant dep.	Not used			
1656	Ut < act 1	Enable	OFF ON	OFF			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1660 Time-dependent undervoltage 1							
1661	Ut < 1	Relay output A	Not used Variant dep.	Not used		Option A1	The alarm and fail class is activated instantaneously when the voltage value is under the programmed value curve.
1662	Ut < 1	Relay output B	Not used Variant dep.	Not used			
1663	Ut < 1	Enable	OFF ON	OFF			
1664	Ut < 1	Fail class	F1…F9	Trip MB (F6)			
1670 Time-dependent undervoltage 2 1-3							
1671	Ut < 2	Set-point 1	30.0% 120.0%	30.0%		Option A1	Curve setting for time-dependent undervoltage. Settings relate to nominal generator voltage. The condition has to be true i.e. Ut(1)1≤Ut(2)≤Ut(3)≤Ut(4)≤Ut(5)≤Ut(6). If this is not fulfilled, the worst-case set-point Ut(6) will be used.
1672	Ut < 2	Delay 1	0.00 s 20.00 s	0.15 s			
1673	Ut < 2	Set-point 2	30.0% 120.0%	70.0%			
1674	Ut < 2	Delay 2	0.00 s 20.00 s	0.15 s			
1675	Ut < 2	Set-point 3	30.0% 120.0%	70.0%			
1676	Ut < 2	Delay 3	0.00 s 20.00 s	0.70 s			
1680 Time-dependent undervoltage 2 4-6							
1681	Ut < 2	Set-point 4	30.0% 120.0%	90.0%		Option A1	Curve setting for time-dependent undervoltage. Settings relate to nominal generator voltage. The condition has to be true i.e. Ut(1)1≤Ut(2)≤Ut(3)≤Ut(4)≤Ut(5)≤Ut(6). If this is not fulfilled, the worst-case set-point Ut(6) will be used.
1682	Ut < 2	Delay 4	0.00 s 20.00 s	1.50 s			
1683	Ut < 2	Set-point 5	30.0% 120.0%	90.0%			
1684	Ut < 2	Delay 5	0.00 s 20.00 s	2.00 s			
1685	Ut < 2	Set-point 6	30.0% 120.0%	90.0%			
1686	Ut < 2	Delay 6	0.00 s 20.00 s	3.00 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1690 Time-dependent undervoltage 2 activation							
1691	Ut < act 2	Acti-vate	30.0% 120.0%	90%		Option A1	Activate is the voltage value where the function timer starts. Recovery is the value where the function timer is reset to 0 ms. Delay is the delay timer for the reset. The relay outputs will activate immediately when the function timer starts.
1692	Ut < act 2	Recov-ery	30.0% 120.0%	95%			
1693	Ut < act 2	Delay	0.0 s 320.0 s	1.00 s			
1694	Ut < act 2	Relay output A	Not used Variant dep.	Not used			
1695	Ut < act 2	Relay output B	Not used Variant dep.	Not used			
1696	Ut < act 2	Enable	OFF ON	OFF			
1700 Time-dependent undervoltage 2							
1701	Ut < 2	Relay output A	Not used Variant dep.	Not used		Option A1	The alarm and fail class is activated instantaneously when the voltage value is under the programmed value curve.
1702	Ut < 2	Relay output B	Not used Variant dep.	Not used			
1703	Ut < 2	Enable	OFF ON	OFF			
1704	Ut < 2	Fail class	F1…F9	Trip GB (F3)			

2.2.17 Generator neutral line inverse overcurrent

No.	Setting		Min. Max	Factory setting	Notes	Ref	Description
1720 G In> inverse							
1721	G In> Inverse	Type	IEC Inverse Custom	IEC Inverse		Designer's Reference Hand	Not available for AGC 212/213/222
1722	G In> Inverse	Limit	2.0% 120.0%	30.0%			
1723	G In> Inverse	TMS	0.1 100.0	1.0			
1724	G In> Inverse	k	0.00 s 32.00 s	0.14 s			
1725	G In> Inverse	c	0.0 s 32.0 s	0.0 s			
1726	G In> Inverse	a	0.00 32.0	0.02			
1727	G In> Inverse	Output A	Not used Variant dep.	Not used			
1728	G In> Inverse	Enable	OFF ON	OFF			
1729	G In> Inverse	Fail class	F1…F9	Trip GB (F3)			

2.2.18 Generator earth current inverse

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1730 G Ie> inverse							
1731	G Ie> Inverse	Type	IEC Inverse Custom	IEC Inverse		Designer's Reference Handbook	Not available for AGC 212/213/222
1732	G Ie> Inverse	Limit	2.0% 120.0%	10.0%			
1733	G Ie> Inverse	TMS	0.1 100.0	1.0			
1734	G Ie> Inverse	k	0.00 s 32.00 s	0.14 s			
1735	G Ie> Inverse	c	0.0 s 32.0 s	0.0 s			
1736	G Ie> Inverse	a	0.00 32.0	0.02			
1737	G Ie> Inverse	Output A	Not used Variant dep.	Not used			
1738	G Ie> Inverse	Enable	OFF ON	OFF			
1739	G Ie> Inverse	Fail class	F1...F9	Trip GB (F3)			

2.2.19 Power-dependent reactive power import

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1740 G P dep Q< 1-3							
1741	G P dep Q< Q1	Setpoint	0% 100%	20%		Designer's Reference Handbook	
1742	G P dep Q< P1	Setpoint	0% 100%	0%			
1743	G P dep Q< Q2	Setpoint	0% 100%	22%			
1744	G P dep Q< P2	Setpoint	0% 100%	7%			
1745	G P dep Q< Q3	Setpoint	0% 100%	27%			
1746	G P dep Q< P3	Setpoint	0% 100%	12%			
1750 G P dep Q< 4-6							
1751	G P dep Q< Q4	Setpoint	0% 100%	18%		Designer's Reference Handbook	
1752	G P dep Q< P4	Setpoint	0% 100%	55%			
1753	G P dep Q< Q5	Setpoint	0% 100%	21%			
1754	G P dep Q< P5	Setpoint	0% 100%	97%			
1755	G P dep Q< Q6	Setpoint	0% 100%	1%			
1756	G P dep Q< P6	Setpoint	0% 100%	100%			
1760 G P dep Q<							
1761	G P dep Q<	Timer	0.1 s 300.0 s	1.0 s		Designer's Reference Handbook	
1762	G P dep Q<	Relay output A	Not used Variant-dep.	Not used			
1763	G P dep Q<	Relay output B	Not used Variant-dep.	Not used			
1764	G P dep Q<	Enable	OFF ON	OFF			
1765	G P dep Q<	Fail class	F1...F9	Trip GB (F3)			

2.2.20 Power-dependent reactive power export

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1770 G P dep Q> 1-3							
1771	G P dep Q> Q1	Setpoint	0% 100%	88%		Designer's Reference Handbook	
1772	G P dep Q> P1	Setpoint	0% 100%	0%			
1773	G P dep Q> Q2	Setpoint	0% 100%	86%			
1774	G P dep Q> P2	Setpoint	0% 100%	24%			
1775	G P dep Q> Q3	Setpoint	0% 100%	77%			
1776	G P dep Q> P3	Setpoint	0% 100%	53%			
1780 G P dep Q> 4-6							
1781	G P dep Q> Q4	Setpoint	0% 100%	60%		Designer's Reference Handbook	
1782	G P dep Q> P4	Setpoint	0% 100%	80%			
1783	G P dep Q> Q5	Setpoint	0% 100%	33%			
1784	G P dep Q> P5	Setpoint	0% 100%	95%			
1785	G P dep Q> Q6	Setpoint	0% 100%	1%			
1786	G P dep Q> P6	Setpoint	0% 100%	100%			
1790 G P dep Q>							
1791	G P dep Q>	Timer	0.1 s 300.0 s	1.0 s		Designer's Reference Handbook	
1792	G P dep Q>	Relay output A	Not used Variant-dep.	Not used			
1793	G P dep Q>	Relay output B	Not used Variant-dep.	Not used			
1794	G P dep Q>	Enable	OFF ON	OFF			
1795	G P dep Q>	Fail class	F1...F9	Trip GB (F3)			

2.2.21 Non-essential load trip (load shedding)

Setting values relate to the nominal setting.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1800 NEL 1 overcurrent							
1801	NEL 1 I>	Setpoint	50.0% 200.0%	100.0%		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>	Setpoint	50.0% 200.0%	100.0%		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>	Setpoint	50.0% 200.0%	100.0%		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<	Setpoint	70.0% 100.0%	95.0%		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			
1835	NEL 1 bus f<	Enable	OFF ON	OFF			
1840 NEL 2 busbar underfrequency							
1841	NEL 2 bus f<	Setpoint	70.0% 100.0%	95.0%		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			
1845	NEL 2 bus f<	Enable	OFF ON	OFF			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1850 NEL 3 busbar underfrequency							
1851	NEL 3 bus f<	Setpoint	70.0% 100.0%	95.0%		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			
1855	NEL 3 bus f<	Enable	OFF ON	OFF			
1860 NEL 1 overload							
1861	NEL 1 P>	Setpoint	10.0% 200.0%	100.0%		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 100.0 s	5.0 s			
1865	NEL 1 P>	Enable	OFF ON	OFF			
1870 NEL 2 overload							
1871	NEL 2 P>	Setpoint	10.0% 200.0%	100.0%		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 100.0 s	8.0 s			
1875	NEL 2 P>	Enable	OFF ON	OFF			
1880 NEL 3 overload							
1881	NEL 3 P>	Setpoint	10.0% 200.0%	100.0%		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 100.0 s	10.0 s			
1885	NEL 3 P>	Enable	OFF ON	OFF			
1890 NEL 1 high overload							
1891	NEL 1 P>>	Setpoint	10.0% 200.0%	110.0%		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 999.9 s	1.0 s			
1895	NEL 1 P>>	Enable	OFF ON	OFF			
1900 NEL 2 high overload							
1901	NEL 2 P>>	Setpoint	10.0% 200.0%	110.0%		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 999.9 s	1.0 s			
1905	NEL 2 P>>	Enable	OFF ON	OFF			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1910 NEL 3 high overload							
1911	NEL 3 P>>	Setpoint	10.0% 200.0%	110.0%		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 999.9 s	1.0 s			
1915	NEL 3 P>>	Enable	OFF ON	OFF			

2.2.22 Undervoltage and reactive power low

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1960 U and Q < 1							
1961	U and Q < 1	Set-point	40.0% 100.0%	85.0%		Option A1	The setting relates to the generator nominal voltage. The condition for trip is that the actual voltage drops below the setting value and the reactive power is ≤ 0 kVAr.
1962	U and Q < 1	Delay	0.1 s 3200.0 s	0.5 s			
1963	U and Q < 1	Relay output A	Not used Variant dep.	Not used			
1964	U and Q < 1	Relay output B	Not used Variant dep.	Not used			
1965	U and Q < 1	Enable	OFF ON	OFF			
1966	U and Q < 1	Fail class	F1…F9	Warning (F2)			
1970 U and Q < 2							
1971	U and Q < 2	Set-point	40.0% 100.0%	85.0%		Option A1	The setting relates to the generator nominal voltage. The condition for trip is that the actual voltage drops below the setting value and the reactive power is ≤ 0 kVAr.
1972	U and Q < 2	Delay	0.1 s 3200.0 s	0.5 s			
1973	U and Q < 2	Relay output A	Not used Variant dep.	Not used			
1974	U and Q < 2	Relay output B	Not used Variant dep.	Not used			
1975	U and Q < 2	Enable	OFF ON	OFF			
1976	U and Q < 2	Fail class	F1…F9	Warning (F2)			
1980 GB/MB external trip							
1981	GB ext. trip	Enable	OFF ON	ON		Designer's Reference Handbook	The generator breaker or the mains breaker has been tripped by an external device.
1982	GB ext. trip	Fail class	F1...F9	Warning (F2)			
1983	MB ext. trip	Enable	OFF ON	ON			
1984	MB ext. trip	Fail class	F1...F9	Warning (F2)			

Minimum current and minimum phi angle

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
1990 U and Q< 1							
1991	I Min. 1	Setpoint	0% 20%	0%		Option A1	Settings relate to U and Q< parameters 1960 and 1970. Condition for "U and Q<" trip is that the current exceeds the I Min. setpoint. Min. Phi angle expands the tripping window.
1992	Angle 1	Setpoint	0° 6°	0°			
1990 U and Q< 2							
1993	I Min. 2	Setpoint	0% 20%	0%		Option A1	Settings relate to U and Q< parameters 1960 and 1970. Condition for "U and Q<" trip is that the current exceeds the I Min. setpoint. Min. Phi angle expands the tripping window.
1994	Angle 2	Setpoint	0° 6°	0°			

2.2.23 Synchronisation and breaker alarms

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2120 Synchronisation window							
2121	Sync window	Set-point	2.0% 20.0%	15.0%		Designer's Reference Handbook	The alarm will activate if the actual voltage deviates from nominal voltage with the set percentage.
2122	Sync window	Timer	0.1 s 2.0 s	0.5 s			
2123	Sync window	Relay output A	Not used Variant dep.	Not used			
2124	Sync window	Relay output B	Not used Variant dep.	Not used			
2125	Sync window	Enable	OFF ON	OFF			
2130 GB/TB/BTB breaker synchronisation failure							
2131	GB/TB/BTB sync failure	Timer	5.0 s 999.0 s	60.0 s		Designer's Reference Handbook	The controller has unsuccessfully tried to synchronise the breaker to the busbar within the time delay.
2132	GB/TB/BTB sync failure	Relay output A	Not used Variant dep.	Not used			
2133	GB/TB/BTB sync failure	Relay output B	Not used Variant dep.	Not used			
2134	GB/TB/BTB sync failure	Enable	OFF ON	ON			
2135	GB/TB/BTB sync failure	Fail class	F1…F9	Block (F1)			
2140 Mains breaker synchronisation failure							
2141	MB sync failure	Timer	5.0 s 999.0 s	60.0 s		Designer's Reference Handbook	The controller has unsuccessfully tried to synchronise the breaker to the busbar within the time delay.
2142	MB sync failure	Relay output A	Not used Variant dep.	Not used			
2143	MB sync failure	Relay output B	Not used Variant dep.	Not used			
2144	MB sync failure	Enable	OFF ON	ON			
2145	MB sync failure	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2150 Phase sequence error							
2151	Phase seq error BB	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	The controller has detected that the rotation direction of the generator phases is opposite direction as the busbar. Compares phase rotation to expected direction at all times, not only during synchronisation.
2152	Phase seq error BB	Relay output B	Not used Variant dep.	Not used			
2153	Phase seq error BB	Fail class	F1…F9	Block (F1)			
2154	Phase rotation	Set-point	L1L2L3 L1L3L2	L1L2L3			
2155	Phase seq error M	Relay output A	Not used Relay 43	Not used			
2156	Phase seq error M	Fail class	Block Trip MB	Block			
2160 GB/TB/BTB open failure							
2161	GB/TB/BTB open fail	Timer	1.0 s 10.0 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 the time delay.
2162	GB/TB/BTB open fail	Relay output A	Not used Variant dep.	Not used			
2163	GB/TB/BTB open fail	Relay output B	Not used Variant dep.	Not used			
2164	GB/TB/BTB open fail	Enable	ON	ON			
2165	GB/TB/BTB open fail	Fail class	F1…F9	Warning (F2)			
2170 GB/TB/BTB breaker close failure							
2171	GB/TB/BTB close fail	Timer	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 the time delay.
2172	GB/TB/BTB close fail	Relay output A	Not used Variant dep.	Not used			
2173	GB/TB/BTB close fail	Relay output B	Not used Variant dep.	Not used			
2174	GB/TB/BTB close fail	Enable	ON	ON			
2175	GB/TB/BTB close fail	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2180 GB/TB/BTB breaker position failure							
2181	GB/TB/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 the time delay.
2182	GB/TB/BTB pos fail	Relay output A	Not used Variant dep.	Not used			
2183	GB/TB/BTB pos fail	Relay output B	Not used Variant dep.	Not used			
2184	GB/TB/BTB pos fail	Enable	ON	ON			
2185	GB/TB/BTB pos fail	Fail class	F1…F9	Warning (F2)			
2200 MB open failure							
2201	MB open fail	Delay	1.0 s 10.0 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 the time delay.
2202	MB open fail	Relay output A	Not used Variant dep.	Not used			
2203	MB open fail	Relay output B	Not used Variant dep.	Not used			
2204	MB open fail	Enable	ON	ON			
2205	MB open fail	Fail class	F1…F9	Warning (F2)			
2210 MB close failure							
2211	MB 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 the time delay.
2212	MB close fail	Relay output A	Not used Variant dep.	Not used			
2213	MB close fail	Relay output B	Not used Variant dep.	Not used			
2214	MB close fail	Enable	ON	ON			
2215	MB close fail	Fail class	F1…F9	Warning (F2)			
2220 MB position failure							
2221	MB 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 the time delay.
2222	MB pos fail	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2223	MB pos fail	Relay output B	Not used Variant dep.	Not used			
2224	MB pos fail	Enable	ON	ON			
2225	MB pos fail	Fail class	F1…F9	Warning (F2)			
2270 Close before excitation failure							
2271	Cl.bef.exc.fail	Delay	0.0 s 999.0 s	5.0 s		Designer's Reference Handbook	This alarm will occur if the generator and breaker are not operating within the limits of the Close Before Excitation. The alarm will open the generator breaker and enable the regulation synchronising the generator in a normal way.
2272	Cl.bef.exc.fail	Relay output A	Not used Variant dep.	Not used			
2273	Cl.bef.exc.fail	Relay output B	Not used Variant dep.	Not used			
2274	Cl.bef.exc.fail	Enable	OFF ON	ON			
2275	Cl.bef.exc.fail	Fail class	F1…F9	Warning (F2)			

2.2.24 Mains synchronisation inhibit

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2280 Mains sync. inhibit settings							
2281	M sync. inh. U	Low limit U	80% 100%	85%		Designer's Reference Handbook	This function is used to inhibit the synchronising of the mains breaker after blackout.
2282	M sync. inh. U	High limit U	100% 120%	110%			
2283	M sync. inh. F	Low limit F	90% 100%	95%			
2284	M sync. inh. F	High limit F	100% 110%	101%			
2285	M sync. inh.	Enable	OFF ON	OFF			
2286	M sync. inh.	Fail class	F1…F9	Trip GB			
2290 Mains sync. inhibit recovery settings							
2291	Delay act. re2	Recovery selection timer	0 s 20 s	3 s		Designer's Reference Handbook	After blackout, the timer in menu 2291 will start to run, and if the mains voltage and frequency are inside the tolerance ranges (menus 2281-2282) before the timer runs out, the short interruption timer (menu 2292) will be started. When the timers have run out, the synchronising of MB will start.
2292	Recovery del. 1	Delay time	0 s 60 s	5 s			
2293	Recovery del. 1	Relay output A	Not used Variant dep.	Not used			
2294	Recovery del. 2	Delay time	0 s 900 s	60 s			
2295	Recovery del. 2	Relay output A	Not used Variant dep.	Not used			

2.2.25 Short circuit limitation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2300 Section P>							
2301	Section P>	MW	0 30000	0		Designer's Reference Handbook	
2302	Section P>	KW	0 999	0			
2303	Section P>	Delay	0.0 999.0	1.0			
2304	Section P>	Output	Not used Variant dep.	Not used			
2305	Section P>	Enable	OFF ON	OFF			
2306	Section P>	Fail class	F1...F9	Warning			
2310 Section P> (Short circuit limitation weight factor)							
2311	Factor	Setpoint	1.0 s 25.5 s	1 s		Designer's Reference Handbook	Weight factor

2.2.26 Regulation alarms

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2560 Governor regulation fail							
2561	Gov. reg fail	Dead band	1.0% 100.0%	30.0%		Designer's Reference Handbook	The alarm is activated if the difference between the measured value and the setpoint is outside the dead band for longer than the time delay.
2562	Gov. reg fail	Timer	10.0 s 300.0 s	60.0 s			
2563	Gov. reg fail	Relay output A	Not used Variant dep.	Not used			
2564	Gov. reg fail	Relay output B	Not used Variant dep.	Not used			
2565	Gov. reg fail	Fail class	F1…F9	Warning (F2)			
2630 Deload error							
2631	Deload error	Timer	0.0 s 60.0 s	10.0 s		Designer's Reference Handbook	The alarm is activated if the generator fails to deload within the time delay.
2632	Deload error	Relay output A	Not used Variant dep.	Not used			
2633	Deload error	Relay output B	Not used Variant dep.	Not used			
2634	Deload error	Enable	OFF ON	ON			
2635	Deload error	Fail class	F1…F9	Warning (F2)			
2680 AVR regulation fail							
2681	AVR reg. failure	Dead band	1.0% 100.0%	30.0%		Designer's Reference Handbook	The alarm is activated if the difference between the measured value and the setpoint is outside the setting "Dead band" for a longer time period than specified in the timer setpoint.
2682	AVR reg. failure	Timer	10.0 s 300.0 s	60.0 s			
2683	AVR reg. failure	Relay output A	Not used Variant dep.	Not used			
2684	AVR reg. failure	Relay output B	Not used Variant dep.	Not used			
2685	AVR reg. failure	Fail class	F1…F9	Warning (F2)			

2.2.27 Digital input 77-90 setup

These parameters are used when a digital input is used as protection input or to activate a limit relay.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3000 Digital input 23							
3001	Dig. input 77	Timer	0.0 s 100.0 s	10.0 s		Designer's Reference Handbook	The input is configurable and can have different functions in different units. Inputs 24-27 are by default used for breaker feedback. These inputs are only available if no MB or TB is present in the application.
3002	Dig. input 77	Relay output A	Not used Variant dep.	Not used			
3003	Dig. input 77	Relay output B	Not used Variant dep.	Not used			
3004	Dig. input 77	Enable	OFF ON	OFF			
3005	Dig. input 77	Fail class	F1…F9	Warning (F2)			
3006	Dig. input 77	High Alarm	OFF ON	ON			

The same settings apply to inputs 78-90, menus 3010 to 3130.

Digital inputs 77-81 are not available for AGC 212/213/222.

2.2.28 Digital input 46-48 setup (multi-functional inputs)

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3400 Digital input 46							
3401	Wire fail 46	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 46 is configured to "binary" in menu 10980).
3402	Dig. input 46	Timer	0.0 s 100.0 s	10.0 s			
3403	Dig. input 46	Relay output A	Not used Variant dep.	Not used			
3404	Dig. input 46	Relay output B	Not used Variant dep.	Not used			
3405	Dig. input 46	Enable	OFF ON	OFF			
3406	Dig. input 46	Fail class	F1…F9	Warning (F2)			
3410 Digital input 47							
3411	Wire fail 47	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 47 is configured to "binary" in menu 10990).
3412	Dig. input 47	Timer	0.0 s 100.0 s	10.0 s			
3413	Dig. input 47	Relay output A	Not used Variant dep.	Not used			
3414	Dig. input 47	Relay output B	Not used Variant dep.	Not used			
3415	Dig. input 47	Enable	OFF ON	OFF			
3416	Dig. input 47	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3420 Digital input 48							
3421	Wire fail 48	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 48 is configured to "binary" in menu 11000).
3422	Dig. input 48	Timer	0.0 s 100.0 s	10.0 s			
3423	Dig. input 48	Relay output A	Not used Variant dep.	Not used			
3424	Dig. input 48	Relay output B	Not used Variant dep.	Not used			
3425	Dig. input 48	Enable	OFF ON	OFF			
3426	Dig. input 48	Fail class	F1…F9	Warning (F2)			

2.2.29 Emergency stop

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3490 Emergency stop							
3491	Emer. stop	Timer	0.0 s 60.0 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 Variant dep.	Not used			
3493	Emer. stop	Relay output B	Not used Variant dep.	Not used			
3494	Emer. stop	Enable	OFF ON	ON			
3495	Emer. stop	Fail class	F1…F9	Shutdown (F5)			

2.2.30 M-Logic alarm 1-5 setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
3570 Mlogic alarm 1							
3570	M-logic alarm 1	Timer	0.0 s 100.0 s	10.0 s		Application Notes, M-Logic	The input is configurable.
3571	M-logic alarm 1	Relay output A	Not used Option-dep.	Not used			
3572	M-logic alarm 1	Relay output B	Not used Option-dep.	Not used			
3573	M-logic alarm 1	Enable	OFF ON	OFF			
3574	M-logic alarm 1	Fail class	F1…F9	Warning (F2)			
3575	M-logic alarm 1	High Alarm	OFF ON	ON			

The same settings apply to alarm inputs 2-5, menus 3580 to 3610.

2.2.31 Multi-input no. 46

The available menus for multi-input no. 46 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 46.1							
4121	4-20 mA 46.1	Set-point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 46 has been configured as 4-20 mA in menu 10980.
4122	4-20 mA 46.1	Timer	0.0 s 999.0 s	120.0 s			
4123	4-20 mA 46.1	Relay output A	Not used Variant dep.	Not used			
4124	4-20 mA 46.1	Relay output B	Not used Variant dep.	Not used			
4125	4-20 mA 46.1	Enable	OFF ON	OFF			
4126	4-20 mA 46.1	Fail class	F1…F9	Warning (F2)			
4130 4-20 mA 46.2							
4131	4-20 mA 46.2	Set-point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 46 has been configured as 4-20 mA in menu 10980.
4132	4-20 mA 46.2	Timer	0.0 s 999.0 s	120.0 s			
4133	4-20 mA 46.2	Relay output A	Not used Variant dep.	Not used			
4134	4-20 mA 46.2	Relay output B	Not used Variant dep.	Not used			
4135	4-20 mA 46.2	Enable	OFF ON	OFF			
4136	4-20 mA 46.2	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4160 Pt100 46.1							
4161	Pt100 46.1	Set-point	-49 482	80		Designer's Reference Handbook	The multi-input 46 has been configured as Pt100 in menu 10980. Pt100 setpoint can be in deg. C or F, dependent on the unit selection (menu 10970). Offset parameter is used for compensation of wire resistance in a 2-wire setup
4162	Pt100 46.1	Timer	0.0 s 999.0 s	5.0 s			
4163	Pt100 46.1	Relay output A	Not used Variant dep.	Not used			
4164	Pt100 46.1	Relay output B	Not used Variant dep.	Not used			
4165	Pt100 46.1	Enable	OFF ON	OFF			
4166	Pt100 46.1	Fail class	F1…F9	Warning (F2)			
4167	Pt100 46.1	Offset	0.0 ohm 5.0 ohm	0 ohm			
4170 Pt100 46.2							
4171	Pt100 46.2	Set-point	-49 482	80		Designer's Reference Handbook	The multi-input 46 has been configured to Pt100 in menu 10980. Pt100 setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4172	Pt100 46.2	Timer	0.0 s 999.0 s	10.0 s			
4173	Pt100 46.2	Relay output A	Not used Variant dep.	Not used			
4174	Pt100 46.2	Relay output B	Not used Variant dep.	Not used			
4175	Pt100 46.2	Enable	OFF ON	OFF			
4176	Pt100 46.2	Fail class	F1…F9	Warning (F2)			
4180 RMI oil 46.1							
4181	RMI oil 46.1	Set-point	0.0 145.0	4.0		Designer's Reference Handbook	The multi-input 46 has been configured to RMI oil pressure in menu 10980.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4182	RMI oil 46.1	Timer	0.0 s 999.0 s	5.0 s			Oil pressure setpoint can be in Bar or PSI, dependent on the unit selection (menu 10970).
4183	RMI oil 46.1	Relay output A	Not used Variant dep.	Not used			
4184	RMI oil 46.1	Relay output B	Not used Variant dep.	Not used			
4185	RMI oil 46.1	Enable	OFF ON	OFF			
4186	RMI oil 46.1	Fail class	F1…F9	Warning (F2)			
4190 RMI oil 46.2							
4191	RMI oil 46.2	Setpoint	0.0 145.0	5.0		Designer's Reference Handbook	The multi-input 46 has been configured to RMI oil pressure in menu 10980. Oil pressure setpoint can be in Bar or PSI, dependent on the unit selection (menu 10970).
4192	RMI oil 46.2	Timer	0.0 s 999.0 s	5.0 s			
4193	RMI oil 46.2	Relay output A	Not used Variant dep.	Not used			
4194	RMI oil 46.2	Relay output B	Not used Variant dep.	Not used			
4195	RMI oil 46.2	Enable	OFF ON	OFF			
4196	RMI oil 46.2	Fail class	F1…F9	Warning (F2)			
4200 RMI water 46.1							
4201	RMI water 46.1	Setpoint	-49 482	100		Designer's Reference Handbook	The multi-input 46 has been configured to RMI water temperature in menu 10980. Water temperature setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4202	RMI water 46.1	Timer	0.0 s 999.0 s	5.0 s			
4203	RMI water 46.1	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4204	RMI water 46.1	Relay output B	Not used Variant dep.	Not used			
4205	RMI water 46.1	Enable	OFF ON	OFF			
4206	RMI water 46.1	Fail class	F1…F9	Warning (F2)			
4210 RMI water 46.2							
4211	RMI water 46.2	Set-point	-49 482	110		Designer's Reference Handbook	The multi-input 46 has been configured to RMI water temperature in menu 10980. Water temperature setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4212	RMI water 46.2	Timer	0.0 s 999.0 s	5.0 s			
4213	RMI water 46.2	Relay output A	Not used Variant dep.	Not used			
4214	RMI water 46.2	Relay output B	Not used Variant dep.	Not used			
4215	RMI water 46.2	Enable	OFF ON	OFF			
4216	RMI water 46.2	Fail class	F1…F9	Warning (F2)			
4220 RMI fuel level 46.1							
4221	RMI fuel 46.1	Set-point	0% 100%	10%		Designer's Reference Handbook	The multi-input 46 has been configured to RMI fuel level in menu 10980.
4222	RMI fuel 46.1	Timer	0.0 s 999.0 s	10.0 s			
4223	RMI fuel 46.1	Relay output A	Not used Variant dep.	Not used			
4224	RMI fuel 46.1	Relay output B	Not used Variant dep.	Not used			
4225	RMI fuel 46.1	Enable	OFF ON	OFF			
4226	RMI fuel 46.1	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4230 RMI fuel level 46.2							
4231	RMI fuel 46.2	Set-point	0% 100%	5%		Designer's Reference Handbook	The multi-input 46 has been configured to RMI fuel level in menu 10980.
4232	RMI fuel 46.2	Timer	0.0 s 999.0 s	10.0 s			
4233	RMI fuel 46.2	Relay output A	Not used Variant dep.	Not used			
4234	RMI fuel 46.2	Relay output B	Not used Variant dep.	Not used			
4235	RMI fuel 46.2	Enable	OFF ON	OFF			
4236	RMI fuel 46.2	Fail class	F1…F9	Warning (F2)			
4240 Wire fail 46							
4241	W. fail 46	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	The wire break fault detection is activated.
4242	W. fail 46	Relay output B	Not used Variant dep.	Not used			
4243	W. fail 46	Enable	OFF ON	OFF			
4244	W. fail 46	Fail class	F1…F9	Warning (F2)			

2.2.32 Multi-input no. 47

The available menus for multi-input no. 47 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 47.1							
4251	4-20 mA 47.1	Set-point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 47 has been configured to 4-20 mA in menu 10990.
4252	4-20 mA 47.1	Timer	0.0 s 999.0 s	120.0 s			
4253	4-20 mA 47.1	Relay output A	Not used Variant dep.	Not used			
4254	4-20 mA 47.1	Relay output B	Not used Variant dep.	Not used			
4255	4-20 mA 47.1	Enable	OFF ON	OFF			
4256	4-20 mA 47.1	Fail class	F1…F9	Warn-ing (F2)			
4260 4-20 mA 47.2							
4261	4-20 mA 47.2	Set-point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 47 has been configured to 4-20 mA in menu 10990.
4262	4-20 mA 47.2	Timer	0.0 s 999.0 s	120.0 s			
4263	4-20 mA 47.2	Relay output A	Not used Variant dep.	Not used			
4264	4-20 mA 47.2	Relay output B	Not used Variant dep.	Not used			
4265	4-20 mA 47.2	Enable	OFF ON	OFF			
4266	4-20 mA 47.2	Fail class	F1…F9	Warn-ing (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4290 Pt100 47.1							
4291	Pt100 47.1	Set-point	-49 482	80		Designer's Reference Handbook	The multi-input 47 has been configured to Pt100 in menu 10990. Pt100 setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4292	Pt100 47.1	Timer	0.0 s 999.0 s	5.0 s			
4293	Pt100 47.1	Relay output A	Not used Option-dep.	Not used			
4294	Pt100 47.1	Relay output B	Not used Option-dep.	Not used			
4295	Pt100 47.1	Enable	OFF ON	OFF			
4296	Pt100 47.1	Fail class	F1…F9	Warn-ing (F2)			
4297	Pt100 47.1	Offset	0.0 ohm 5.0 ohm	0.0 ohm			
4300 Pt100 47.2							
4301	Pt100 47.2	Set-point	-49 482	80		Designer's Reference Handbook	The multi-input 47 has been configured to Pt100 in menu 10990. Pt100 setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4302	Pt100 47.2	Timer	0.0 s 999.0 s	10.0 s			
4303	Pt100 47.2	Relay output A	Not used Variant dep.	Not used			
4304	Pt100 47.2	Relay output B	Not used Variant dep.	Not used			
4305	Pt100 47.2	Enable	OFF ON	OFF			
4306	Pt100 47.2	Fail class	F1…F9	Warn-ing (F2)			
4310 RMI oil 47.1							
4311	RMI oil 47.1	Set-point	0.0 145.0	4.0		Designer's Reference Handbook	The multi-input 47 has been configured to RMI oil pressure in menu 10990.
4312	RMI oil 47.1	Timer	0.0 s 999.0 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4313	RMI oil 47.1	Relay output A	Not used Variant dep.	Not used			Oil pressure setpoint can be in Bar or PSI, dependent on the unit selection (menu 10970).
4314	RMI oil 47.1	Relay output B	Not used Variant dep.	Not used			
4315	RMI oil 47.1	Enable	OFF ON	OFF			
4316	RMI oil 47.1	Fail class	F1…F9	Warn-ing (F2)			
4320 RMI oil 47.2							
4321	RMI oil 47.2	Set-point	0.0 145.0	5.0		Designer's Reference Handbook	The multi-input 47 has been configured to RMI oil pressure in menu 10990. Oil pressure setpoint can be in Bar or PSI, dependent on the unit selection (menu 10970).
4322	RMI oil 47.2	Timer	0.0 s 999.0 s	5.0 s			
4323	RMI oil 47.2	Relay output A	Not used Variant dep.	Not used			
4324	RMI oil 47.2	Relay output B	Not used Variant dep.	Not used			
4325	RMI oil 47.2	Enable	OFF ON	OFF			
4326	RMI oil 47.2	Fail class	F1…F9	Warn-ing (F2)			
4330 RMI water 47.1							
4331	RMI wa-ter 47.1	Set-point	-49 482	100		Designer's Reference Handbook	The multi-input 47 has been configured to RMI water temper-ature in menu 10990. Water temperature setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4332	RMI wa-ter 47.1	Timer	0.0 s 999.0 s	5.0 s			
4333	RMI wa-ter 47.1	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4334	RMI water 47.1	Relay output B	Not used Variant dep.	Not used			
4335	RMI water 47.1	Enable	OFF ON	OFF			
4336	RMI water 47.1	Fail class	F1…F9	Warning (F2)			
4340 RMI water 47.2							
4341	RMI water 47.2	Set-point	-49 482	110		Designer's Reference Handbook	The multi-input 47 has been configured to RMI water temperature in menu 10990. Water temperature setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4342	RMI water 47.2	Timer	0.0 s 999.0 s	5.0 s			
4343	RMI water 47.2	Relay output A	Not used Variant dep.	Not used			
4344	RMI water 47.2	Relay output B	Not used Variant dep.	Not used			
4345	RMI water 47.2	Enable	OFF ON	OFF			
4346	RMI water 47.2	Fail class	F1…F9	Warning (F2)			
4350 RMI fuel level 47.1							
4351	RMI fuel 47.1	Set-point	0% 100%	10%		Designer's Reference Handbook	The multi-input 47 has been configured to RMI fuel level in menu 10990.
4352	RMI fuel 47.1	Timer	0.0 s 999.0 s	10.0 s			
4353	RMI fuel 47.1	Relay output A	Not used Variant dep.	Not used			
4354	RMI fuel 47.1	Relay output B	Not used Variant dep.	Not used			
4535	RMI fuel 47.1	Enable	OFF ON	OFF			
4356	RMI fuel 47.1	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4360 RMI fuel level 47.2							
4361	RMI fuel 47.2	Set-point	0% 100%	5%		Designer's Reference Handbook	The multi-input 47 has been configured to RMI fuel level in menu 10990.
4362	RMI fuel 47.2	Timer	0.0 s 999.0 s	10.0 s			
4363	RMI fuel 47.2	Relay output A	Not used Variant dep.	Not used			
4364	RMI fuel 47.2	Relay output B	Not used Variant dep.	Not used			
4365	RMI fuel 47.2	Enable	OFF ON	OFF			
4366	RMI fuel 47.2	Fail class	F1…F9	Warn-ing (F2)			
4370 Wire fail 47							
4371	W. fail 47	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	The wire break fault detection is activated.
4372	W. fail 47	Relay output B	Not used Variant dep.	Not used			
4373	W. fail 47	Enable	OFF ON	OFF			
4374	W. fail 47	Fail class	F1…F9	Warn-ing (F2)			

2.2.33 Multi-input no. 48

The available menus for multi-input no. 48 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 48.1							
4381	4-20 mA 48.1	Set-point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 48 has been configured to 4-20 mA in menu 11000.
4382	4-20 mA 48.1	Timer	0.0 s 999.0 s	120.0 s			
4383	4-20 mA 48.1	Relay output A	Not used Variant dep.	Not used			
4384	4-20 mA 48.1	Relay output B	Not used Variant dep.	Not used			
4385	4-20 mA 48.1	Enable	OFF ON	OFF			
4386	4-20 mA 48.1	Fail class	F1…F9	Warn-ing (F2)			
4390 4-20 mA 48.2							
4391	4-20 mA 48.2	Set-point	4 mA 20 mA	10 mA		Designer's Reference Handbook	The multi-input 48 has been configured to 4-20 mA in menu 11000.
4392	4-20 mA 48.2	Timer	0.0 s 999.0 s	120.0 s			
4393	4-20 mA 48.2	Relay output A	Not used Variant dep.	Not used			
4394	4-20 mA 48.2	Relay output B	Not used Variant dep.	Not used			
4395	4-20 mA 48.2	Enable	OFF ON	OFF			
4396	4-20 mA 48.2	Fail class	F1…F9	Warn-ing (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4420 Pt100 48.1							
4421	Pt100 48.1	Set-point	-49 482	80		Designer's Reference Handbook	The multi-input 48 has been configured to Pt100 in menu 11000. Pt100 setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4422	Pt100 48.1	Timer	0.0 s 999.0 s	5.0 s			
4423	Pt100 48.1	Relay output A	Not used Variant dep.	Not used			
4424	Pt100 48.1	Relay output B	Not used Variant dep.	Not used			
4425	Pt100 48.1	Enable	OFF ON	OFF			
4426	Pt100 48.1	Fail class	F1…F9	Warning (F2)			
4427	Pt100 48.1	Offset	0.0 ohm 5.0 ohm	0.0 ohm			
4430 Pt100 48.2							
4431	Pt100 48.2	Set-point	-49 482	80		Designer's Reference Handbook	The multi-input 48 has been configured to Pt100 in menu 11000. Pt100 setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4432	Pt100 48.2	Timer	0.0 s 999.0 s	10.0 s			
4433	Pt100 48.2	Relay output A	Not used Variant dep.	Not used			
4434	Pt100 48.2	Relay output B	Not used Variant dep.	Not used			
4435	Pt100 48.2	Enable	OFF ON	OFF			
4436	Pt100 48.2	Fail class	F1…F9	Warning (F2)			
4440 RMI oil 48.1							
4441	RMI oil 48.1	Set-point	0.0 145.0	4.0		Designer's Reference Handbook	The multi-input 48 has been configured to RMI oil pressure in menu 11000.
4442	RMI oil 48.1	Timer	0.0 s 999.0 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4443	RMI oil 48.1	Relay output A	Not used Variant dep.	Not used			Oil pressure setpoint can be in Bar or PSI, dependent on the unit selection (menu 10970).
4444	RMI oil 48.1	Relay output B	Not used Variant dep.	Not used			
4445	RMI oil 48.1	Enable	OFF ON	OFF			
4446	RMI oil 48.1	Fail class	F1…F9	Warn-ing (F2)			
4450 RMI oil 48.2							
4451	RMI oil 48.2	Set-point	0.0 145.0	5.0		Designer's Reference Handbook	The multi-input 48 has been configured to RMI oil pressure in menu 11000. Oil pressure setpoint can be in Bar or PSI, dependent on the unit selection (menu 10970).
4452	RMI oil 48.2	Timer	0.0 s 999.0 s	5.0 s			
4453	RMI oil 48.2	Relay output A	Not used Variant dep.	Not used			
4454	RMI oil 48.2	Relay output B	Not used Variant dep.	Not used			
4455	RMI oil 48.2	Enable	OFF ON	OFF			
4456	RMI oil 48.2	Fail class	F1…F9	Warn-ing (F2)			
4460 RMI water 48.1							
4461	RMI wa-ter 48.1	Set-point	-49 482	100		Designer's Reference Handbook	The multi-input 48 has been configured to RMI water temper-ature in menu 11000. Water temperature setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4462	RMI wa-ter 48.1	Timer	0.0 s 999.0 s	5.0 s			
4463	RMI wa-ter 48.1	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4464	RMI water 48.1	Relay output B	Not used Variant dep.	Not used			
4465	RMI water 48.1	Enable	OFF ON	OFF			
4466	RMI water 48.1	Fail class	F1…F9	Warning (F2)			
4470 RMI water 48.2							
4471	RMI water 48.2	Set-point	-49 482	110		Designer's Reference Handbook	The multi-input 48 has been configured to RMI water temperature in menu 11000. Water temperature setpoint can be in deg. C or F, dependent on the unit selection (menu 10970).
4472	RMI water 48.2	Timer	0.0 s 999.0 s	5.0 s			
4473	RMI water 48.2	Relay output A	Not used Variant dep.	Not used			
4474	RMI water 48.2	Relay output B	Not used Variant dep.	Not used			
4475	RMI water 48.2	Enable	OFF ON	OFF			
4476	RMI water 48.2	Fail class	F1…F9	Warning (F2)			
4480 RMI fuel level 48.1							
4481	RMI fuel 48.1	Set-point	0% 100%	10%		Designer's Reference Handbook	The multi-input 48 has been configured to RMI fuel level in menu 11000.
4482	RMI fuel 48.1	Timer	0.0 s 999.0 s	10.0 s			
4483	RMI fuel 48.1	Relay output A	Not used Variant dep.	Not used			
4484	RMI fuel 48.1	Relay output B	Not used Variant dep.	Not used			
4485	RMI fuel 48.1	Enable	OFF ON	OFF			
4486	RMI fuel 48.1	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4490 RMI fuel level 48.2							
4491	RMI fuel 48.2	Set-point	0% 100%	5%		Designer's Reference Handbook	The multi-input 48 has been configured to RMI fuel level in menu 11000.
4492	RMI fuel 48.2	Timer	0.0 s 999.0 s	10.0 s			
4493	RMI fuel 48.2	Relay output A	Not used Variant dep.	Not used			
4494	RMI fuel 48.2	Relay output B	Not used Variant dep.	Not used			
4495	RMI fuel 48.2	Enable	OFF ON	OFF			
4496	RMI fuel 48.2	Fail class	F1…F9	Warn-ing (F2)			
4500 Wire fail 48							
4501	W. fail 48	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	The wire break fault detection is activated.
4502	W. fail 48	Relay output B	Not used Variant dep.	Not used			
4503	W. fail 48	Enable	OFF ON	OFF			
4504	W. fail 48	Fail class	F1…F9	Warn-ing (F2)			

2.2.34 Speed and running feedback setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4510 Overspeed 1							
4511	Over-speed 1	Set-point	100.0% 150.0%	110.0%		Designer's Reference Handbook	The setpoint in percentage relates to nominal RPM.
4512	Over-speed 1	Timer	0.0 s 100.0 s	5.0 s			
4513	Over-speed 1	Relay output A	Not used Variant dep.	Not used			
4514	Over-speed 1	Relay output B	Not used Variant dep.	Not used			
4515	Over-speed 1	Enable	OFF ON	OFF			
4516	Over-speed 1	Fail class	F1…F9	Warning (F2)			
4520 Overspeed 2							
4521	Over-speed 2	Set-point	100.0% 150.0%	120.0%		Designer's Reference Handbook	The setpoint in percentage relates to nominal RPM.
4522	Over-speed 2	Timer	0.0 s 100.0 s	1.0 s			
4523	Over-speed 2	Relay output A	Not used Variant dep.	Not used			
4524	Over-speed 2	Relay output B	Not used Variant dep.	Not used			
4525	Over-speed 2	Enable	OFF ON	OFF			
4526	Over-speed 2	Fail class	F1…F9	Shut-down (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	Timer	0.0 s 20.0 s	2.0 s			
4533	Crank failure	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4534	Crank failure	Relay output B	Not used Variant dep.	Not used			
4535	Crank failure	Enable	OFF ON	OFF			
4536	Crank failure	Fail class	F1…F9	Warning (F2)			
4540 Running feedback failure							
4541	Run feedb. fail	Timer	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 Variant dep.	Not used			
4543	Run feedb. fail	Relay output B	Not used Variant dep.	Not used			
4544	Run feedb. fail	Enable	OFF ON	ON			
4545	Run feedb. fail	Fail class	F1...F9	Warning (F2)			
4550 Magnetic pick-up wirebreak							
4551	MPU wire-break	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	The wirebreak monitoring is only active when the engine is at standstill.
4552	MPU wire-break	Relay output B	Not used Variant dep.	Not used			
4553	MPU wire-break	Enable	OFF ON	OFF			
4554	MPU wire-break	Fail class	F1...F9	Warning (F2)			
4560 Hz/voltage failure							
4561	Hz/V failure	Timer	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.
562	Hz/V failure	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4563	Hz/V failure	Relay output B	Not used Variant dep.	Not used			
4564	Hz/V failure	Enable	OFF ON	ON			
4565	Hz/V failure	Fail class	F1...F9	Shutdown (F5)			
4570 Start failure							
4571	Start failure	Relay output A	Not used Variant 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 Variant dep.	Not used			
4573	Start failure	Fail class	F1…F9	Block (F1)			
4580 Stop failure							
4581	Stop failure	Timer	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 Variant dep.	Not used			
4583	Stop failure	Relay output B	Not used Variant dep.	Not used			
4584	Stop failure	Enable	OFF ON	ON			
4585	Stop failure	Fail class	F1…F9	Shutdown (F5)			
4590 Underspeed							
4591	Underspeed	Setpoint	50.0% 100.0%	90.0%		Designer's Reference Handbook	The setpoint in percentage relates to nominal RPM.
4592	Underspeed	Timer	0.0 s 100.0 s	5.0 s			
4593	Underspeed	Relay output A	Not used Variant dep.	Not used			
4594	Underspeed	Relay output B	Not used Variant dep.	Not used			
4595	Underspeed	Enable	OFF ON	OFF			
4596	Underspeed	Fail class	F1…F9	Warning (F2)			

2.2.35 Differential measurement

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4600 Delta analog input 1, 2, 3							
4601	Delta ana1InpA	Input	Multi-input 46- EIC	Multi-input 46		Designer's Reference Handbook	Inputs for differential measurements can be chosen as the list below shows: Input: ● Multi-input 46 ● Multi-input 47 ● Multi-input 48 ● Ext. I/O Analog In 1-8 ● EIC il pressure ● EIC cooling water temp ● EIC oil temp ● EIC Ambient temp ● EIC Intercool temp ● EIC fuel temp ● EIC fuel delivery press ● EIC Air filter f1 diff. press. ● EIC Air filter f2 diff. press. ● EIC Fuel pump press ● EIC Fuel filter diff. press ● EIC T. Exhaust left ● EIC T. Exhaust right ● EIC P. Fuel f diff
4602	Delta ana1InpB	Input	Multi-input 46- EIC	Multi-input 46			
4603	Delta ana2InpA	Input	Multi-input 46- EIC	Multi-input 46			
4604	Delta ana2InpB	Input	Multi-input 46- EIC	Multi-input 46			
4605	Delta ana3InpA	Input	Multi-input 46- EIC	Multi-input 46			
4606	Delta ana3InpB	Input	Multi-input 46- EIC	Multi-input 46			
4610 Delta analogue 1.1							
4611	Delta Ana1.1	Set-point	999.1 9999.1	1		Designer's Reference Handbook	Delta analogue alarm setting 1.1
4612	Delta Ana1.1	Timer	0.0 s 999.0 s	5.0 s			
4613	Delta Ana1.1	Relay output A	Not used Variant dep.	Not used			
4614	Delta Ana1.1	Relay output B	Not used Variant dep.	Not used			
4615	Delta Ana1.1	Enable	OFF ON	OFF			
4616	Delta Ana1.1	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4620 Delta analogue 1.2							
4621	Delta Ana1.2	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 1.2
4622	Delta Ana1.2	Timer	0.0 s 999.0 s	5.0 s			
4623	Delta Ana1.2	Relay output A	Not used Variant dep.	Not used			
4624	Delta Ana1.2	Relay output B	Not used Variant dep.	Not used			
4625	Delta Ana1.2	Enable	OFF ON	OFF			
4626	Delta Ana1.2	Fail class	F1…F9	Warning (F2)			
4630 Delta analogue 2.1							
4631	Delta Ana2.1	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 2.1
4632	Delta Ana2.1	Timer	0.0 s 999.0 s	5.0 s			
4633	Delta Ana2.1	Relay output A	Not used Variant dep.	Not used			
4634	Delta Ana2.1	Relay output B	Not used Variant dep.	Not used			
4635	Delta Ana2.1	Enable	OFF ON	OFF			
4636	Delta Ana2.1	Fail class	F1…F9	Warning (F2)			
4640 Delta analogue 2.2							
4641	Delta Ana2.2	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 2.2
4642	Delta Ana2.2	Timer	0.0 s 999.0 s	5.0 s			
4643	Delta Ana2.2	Relay output A	Not used Variant dep.	Not used			
4644	Delta Ana2.2	Relay output B	Not used Variant dep.	Not used			
4645	Delta Ana2.2	Enable	OFF ON	OFF			
4646	Delta Ana2.2	Fail class	F1...F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4650 Delta analogue 3.1							
4651	Delta Ana3.1	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 3.1
4652	Delta Ana3.1	Timer	0.0 s 999.0 s	5.0 s			
4653	Delta Ana3.1	Relay output A	Not used Variant dep.	Not used			
4654	Delta Ana3.1	Relay output B	Not used Variant dep.	Not used			
4655	Delta Ana3.1	Enable	OFF ON	OFF			
4656	Delta Ana3.1	Fail class	F1...F9	Warning (F2)			
4660 Delta analogue 3.2							
4661	Delta Ana3.2	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 3.2
4662	Delta Ana3.2	Timer	0.0 s 999.0 s	5.0 s			
4663	Delta Ana3.2	Relay output A	Not used Variant dep.	Not used			
4664	Delta Ana3.2	Relay output B	Not used Variant dep.	Not used			
4665	Delta Ana3.2	Enable	OFF ON	OFF			
4666	Delta Ana3.2	Fail class	F1...F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4670 Delta analog input 4, 5, 6							
4671	Delta ana4InpA	Input	Multi-input 46- EIC	Multi-in-put 46		Designer's Reference Handbook	Inputs for differential measurements can be chosen as the list below shows: Input: ● Multi-input 46 ● Multi-input 47 ● Multi-input 48 ● Ext. I/O Analog In 1-8 ● EIC il pressure ● EIC cooling water temp ● EIC oil temp ● EIC Ambient temp ● EIC Intercool temp ● EIC fuel temp ● EIC fuel delivery press ● EIC Air filter f1 diff. press. ● EIC Air filter f2 diff. press. ● EIC Fuel supply pump press ● EIC Fuel filter diff. press ● EIC Oil filter diff. press ● EIC T. Exhaust left ● EIC T. Exhaust right ● EIC P. Fuel f diff
4672	Delta ana4InpB	Input	Multi-input 46- EIC	Multi-in-put 46			
4673	Delta ana5InpA	Input	Multi-input 46- EIC	Multi-in-put 46			
4674	Delta ana5 InpB	Input	Multi-input 46- EIC	Multi-in-put 46			
4675	Delta ana6InpA	Input	Multi-input 46- EIC	Multi-in-put 46			
4676	Delta ana6InpB	Input	Multi-input 46- EIC	Multi-in-put 46			
4680 Delta analogue 4.1							
4681	DeltaAna4.1	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm set-ting 4.1
4682	DeltaAna4.1	Timer	0.0 s 999.0 s	5.0 s			
4683	DeltaAna4.1	Relay output A	Not used-Variant dep.	Not used			
4684	DeltaAna4.1	Relay output B	Not used-Variant dep.	Not used			
4685	DeltaAna4.1	Enable	OFF ON	OFF			
4686	DeltaAna4.1	Fail class	F1…F9	Warn-ing(F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4690 Delta analogue 4.2							
4691	DeltaAna4.2	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 4.2
4692	DeltaAna4.2	Timer	0.0 s 999.0 s	5.0 s			
4693	DeltaAna4.2	Relay output A	Not used-Variant dep.	Not used			
4694	DeltaAna4.2	Relay output B	Not used-Variant dep.	Not used			
4695	DeltaAna4.2	Enable	OFF ON	OFF			
4696	DeltaAna4.2	Fail class	F1…F9	Warn-ing(F2)			
4700 Delta analogue 5.1							
4701	DeltaAna5.1	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 5.1
4702	DeltaAna5.1	Timer	0.0 s 999.0 s	5.0 s			
4703	DeltaAna5.1	Relay output A	Not used-Variant dep.	Not used			
4704	DeltaAna5.1	Relay output B	Not used-Variant dep.	Not used			
4705	DeltaAna5.1	Enable	OFF ON	OFF			
4706	DeltaAna5.1	Fail class	F1…F9	Warn-ing(F2)			
4710 Delta analogue 5.2							
4711	DeltaAna5.2	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 5.2
4712	DeltaAna5.2	Timer	0.0 s 999.0 s	5.0 s			
4713	DeltaAna5.2	Relay output A	Not used-Variant dep.	Not used			
4714	DeltaAna5.2	Relay output B	Not used-Variant dep.	Not used			
4715	DeltaAna5.2	Enable	OFF ON	OFF			
4716	DeltaAna5.2	Fail class	F1…F9	Warn-ing(F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4720 Delta analogue 6.1							
4721	DeltaAna6.1	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 6.1
4722	DeltaAna6.1	Timer	0.0 s 999.0 s	5.0 s			
4723	DeltaAna6.1	Relay output A	Not used-Variant dep.	Not used			
4724	DeltaAna6.1	Relay output B	Not used-Variant dep.	Not used			
4725	DeltaAna6.1	Enable	OFF ON	OFF			
4726	DeltaAna6.1	Fail class	F1...F9	Warn-ing(F2)			
4730 Delta analogue 6.2							
4731	DeltaAna6.2	Set-point	-9999.1 9999.1	10		Designer's Reference Handbook	Delta analogue alarm setting 6.2
4732	DeltaAna6.2	Timer	0.0 s 999.0 s	5.0 s			
4733	DeltaAna6.2	Relay output A	Not used-Variant dep.	Not used			
4734	DeltaAna6.2	Relay output B	Not used-Variant dep.	Not used			
4735	DeltaAna6.2	Enable	OFF ON	OFF			
4736	DeltaAna6.2	Fail class	F1...F9	Warn-ing(F2)			

2.2.36 Aux. supply setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
4960 U< auxiliary power supply terminal 1							
4961	U< aux. term. 1	Setpoint	8.0V DC 32.0V DC	18.0V DC		Designer's Reference Handbook	The power supply on terminal 1 and 2 has been continuously below the adjusted setpoint during the programmed delay.
4962	U< aux. term. 1	Timer	0.0 s 999.0 s	1.0 s			
4963	U< aux. term. 1	Relay output A	Not used Variant dep.	Not used			
4964	U< aux. term. 1	Relay output B	Not used Variant dep.	Not used			
4965	U< aux. term. 1	Enable	OFF ON	ON			
4966	U< aux. term. 1	Fail class	F1…F9	Warning (F2)			
4970 U> auxiliary power supply terminal 1							
4971	U> aux. term. 1	Setpoint	12.0V DC 36.0V DC	30.0V DC		Designer's Reference Handbook	The power supply on terminal 1 and 2 has been continuously above the adjusted setpoint during the programmed delay.
4972	U> aux. term. 1	Timer	0.0 s 999.0 s	1.0 s			
4973	U> aux. term. 1	Relay output A	Not used Variant dep.	Not used			
4974	U> aux. term. 1	Relay output B	Not used Variant dep.	Not used			
4975	U> aux. term. 1	Enable	OFF ON	ON			
4976	U> aux. term. 1	Fail class	F1…F9	Warning (F2)			

2.2.37 Stop coil wirebreak and internal communication alarms

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6270 Stop coil wirebreak							
6271	Stop coil wire-break	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	The wirebreak monitoring is only active when the stop coil output is deactivated. Not available for AGC 212/213/222.
6272	Stop coil wire-break	Relay output B	Not used Variant dep.	Not used			
6273	Stop coil wire-break	Enable	OFF ON	OFF			
6274	Stop coil wire-break	Fail class	F1…F9	Warning (F2)			

2.2.38 Engine heater failure

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6330 Engine heater 1							
6331	Engine heater 1	Setpoint	10 deg 250 deg	30 deg		Designer's Reference Handbook	
6332	Engine heater 1	Timer	1.0 s 300.0 s	10.0 s			
6333	Engine heater 1	Relay output A	Not used Variant dep.	Not used			
6334	Engine heater 1	Relay output B	Not used Variant dep.	Not used			
6335	Engine heater 1	Enable	OFF ON	OFF			
6336	Engine heater 1	Fail class	F1…F9	Warning (F2)			

2.2.39 Running detection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6350 Running detection							
6351	Runing detection	Timer	1.0 s 1200.0 s	10.0 s		Designer's Reference Handbook	
6352	Ext. eng. Stop	Timer	1.0 s 1200.0 s	10.0 s			
6353	Ext. eng. Stop	Enable	OFF ON	ON			
6354	Ext. eng. Stop	Fail class	F1…F9	Warning (F2)			

2.2.40 Battery tests

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6410 Battery test							
6411	Battery test	Setpoint	8.0 V 32.0 V	18.0 V		Designer's Reference Handbook	If the battery voltage drops below setpoint during crank test the alarm activates. If configured with "+ Start Sequence", the timer is disabled and the number of start attempts configured in "Start attempts" (channel 6190) is run without activating the run coil. After the sequence, the alarm "Start failure" (channel 4570) is activated.
6412	Battery test	Timer	1 s 300 s	20 s			
6413	Battery test	Type	Power supply Multi-input 46 Multi-input 47 Multi-input 48 - "+ Start Sequence"	Power supply			
6414	Battery test	Relay output A	Not used Variant dep.	Not used			
6415	Battery test	Enable	OFF ON	OFF			
6416	Battery test	Fail class	F1…F9	Warning (F2)			
6420 Auto battery test							
6421	Auto batt test	Enable	On Off	Off		Designer's Reference Handbook	Automatic battery test time setting.
6422	Auto batt test	Day	Monday Sunday	Monday			
6423	Auto batt test	Hours	0 h 23 h	10h			
6424	Auto batt test	Week	1 52	52			
6425	Auto batt test	Relay output A	Not used Variant dep.	Not used			

2.2.41 Max. ventilation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6470 Max vent 1							
6471	Max vent 1	Setpoint	20 deg 250 deg	95 deg		Designer's Reference Handbook	If the cooling fans fail to operate and the coolant temperature exceeds the setting, the alarm will activate.
6472	Max vent 1	Timer	0.0 s 60.0 s	1.0 s			
6473	Max vent 1	Relay output A	Not used Variant dep.	Not used			
6474	Max vent 1	Relay output B	Not used Variant dep.	Not used			
6475	Max vent 1	Enable	OFF ON	OFF			
6476	Max vent 1	Fail class	F1…F9	Warning (F2)			
6480 Max vent 2							
6481	Max vent 2	Setpoint	20 deg 250 deg	98 deg		Designer's Reference Handbook	If the cooling fans fail to operate and the coolant temperature exceeds the setting, the alarm will activate.
6482	Max vent 2	Timer	0.0 s 60.0 s	1.0 s			
6483	Max vent 2	Relay output A	Not used Variant dep.	Not used			
6484	Max vent 2	Relay output B	Not used Variant dep.	Not used			
6485	Max vent 2	Enable	OFF ON	OFF			
6486	Max vent 2	Fail class	F1…F9	Shut-down (F5)			

2.2.42 Switchboard error

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6500 Block switchboard error							
6501	Blk. swbd error	Timer	0.0 s 999.0 s	10.0 s		Designer's Reference Handbook	If the binary input "switchboard error" activates, a stopped generator will be blocked for start. Parameter 6502: OFF: only AMF start is affected ON: All starts are affected.
6502	Blk. swbd error	Enable	OFF ON	OFF			
6503	Blk. swbd error	Relay output A	Not used Variant dep.	Not used			
6504	Blk. swbd error	Relay output B	Not used Variant dep.	Not used			
6505	Blk. swbd error	Enable	OFF ON	OFF			
6506	Blk. swbd error	Fail class	F1…F9	Warning (F2)			
6510 Stop switchboard error							
6511	Stp. swbd error	Timer	0.0 s 999.0 s	1.0 s		Designer's Reference Handbook	If the binary input "switchboard error" activates, the generator will be stopped.
6512	Stp. swbd error	Relay output A	Not used Variant dep.	Not used			
6513	Stp. swbd error	Relay output B	Not used Variant dep.	Not used			
6514	Stp. swbd error	Enable	OFF ON	OFF			
6515	Stp. swbd error	Fail class	F1…F9	Shut-down (F5)			

2.2.43 Not in auto

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6540 Not in auto							
6541	Not in auto	Timer	10.0 s 900.0 s	300.0 s		Designer's Reference Handbook	
6542	Not in auto	Relay output A	Not used Variant dep.	Not used			
6543	Not in auto	Relay output B	Not used Variant dep.	Not used			
6544	Not in auto	Enable	OFF ON	OFF			
6545	Not in auto	Fail class	F1…F9	Warning (F2)			

2.2.44 Oil renewal

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6890 Oil renewal							
6891	Oil renewal	Setpoint	1 h 9999 h	750 h		Designer's Reference Handbook	Setup of oil renewal.
6892	Oil renewal	Relay output A and B	Not used Option-dep.	Not used			
6893	Adj reset value	Reset timer	100 h 10000 h	1000 h			

2.2.45 Busbar overvoltage average protection

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7480 Avg U BB> 1							
7481	Avg U BB> 1	Setpoint	100.0% 120.0%	110.0%		Option A1	Busbar overvoltage alarm based on an average measurement of the voltage of the busbar.
7482	Avg U BB> 1	Timer	0.1 s 3200.0 s	10.0 s			
7483	Avg U BB> 1	Relay output A	Not used Variant dep.	Not used			
7484	Avg U BB> 1	Enable	OFF ON	OFF			
7485	Avg U BB> 1	Fail class	F1...F9	Warning (F2)			
7486	Avg U BB> 1	AVG timer	30.0 s 900.0 s	600.0 s			
7490 Avg U BB> 2							
7491	Avg U BB> 2	Setpoint	100.0% 120.0%	110.0%		Option A1	Busbar overvoltage alarm based on an average measurement of the voltage of the busbar.
7492	Avg U BB> 2	Timer	0.1 s 3200.0 s	10.0 s			
7493	Avg U BB> 2	Relay output A	Not used Variant dep.	Not used			
7494	Avg U BB> 2	Enable	OFF ON	OFF			
7495	Avg U BB> 2	Fail class	F1...F9	Warning (F2)			
7496	Avg U BB> 2	AVG timer	30.0 s 900.0 s	600.0 s			

2.2.46 External communication error

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7520 External communication error							
7521	Ext. comm. error	Timer	1.0 s 100.0 s	10.0 s		Option: Modbus (H2)	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	Not used Variant dep.	Not used			
7523	Ext. comm. error	Relay output B	Not used Variant dep.	Not used			
7524	Ext. comm. error	Enable	OFF ON	OFF			
7525	Ext. comm. error	Fail class	F1…F9	Warning (F2)			
7530 Internal communication ID							
7531	Int. comm. ID	Setpoint	1...16	1		Designer's Reference Handbook	The mode decides the reaction of the power management system in case of different errors on the CAN communication lines. Mode: - Manual - Semi auto - No mode change
7532	Int. comm. ID	CAN fail. mode	Manual No mode change	Manual			
7533	Int. comm. ID	Missing all units	F1…F9	Warning (F2)			
7534	Int. comm. ID	Fatal CAN error	F1…F9	Warning (F2)			
7535	Int. comm. ID	Any DG missing	F1…F9	Warning (F2)			
7536	Int. comm. ID	Any mains missing	F1…F9	Warning (F2)			

2.2.47 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		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	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 output A	Not used Variant dep.	Not used			
7573	EI comm. error	Relay output B	Not used Variant dep.	Not used			
7574	EI comm. error	Enable	OFF ON	OFF			
7575	EI comm. error	Fail class	F1…F9	Warning (F2)			
7576 IOM comm. error							
7576	IOM comm. error	Timer	0.0 s 100.0 s	2.0 s			
7577	IOM comm. error	Enable	OFF ON	OFF			
7578	IOM comm. error	Fail class	F1…F9	Warning (F2)			
7579	IOM comm. error	Relay output A	Not used Variant dep.	Not used			
7580 EIC warning							
7581	EIC warning	Timer	0.0 s 100.0 s	0.0 s		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7582	EIC warning	Relay output A	Not used Variant dep.	Not used			
7583	EIC warning	Relay output B	Not used Variant dep.	Not used			
7584	EIC warning	Enable	OFF ON	OFF			
7585	EIC warning	Fail class	F1…F9	Warning (F2)			
7590 EIC shutdown							
7591	EIC shutdown	Timer	0.0 s 100.0 s	0.0 s		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7592	EIC shutdown	Relay output A	Not used Variant dep.	Not used			
7593	EIC shutdown	Relay output B	Not used Variant dep.	Not used			
7594	EIC shutdown	Enable	OFF ON	OFF			
7595	EIC shutdown	Fail class	F1…F9	Shutdown (F5)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7600 EIC overspeed							
7601	EIC over-speed	Setpoint	100.0% 150.0%	110.0%		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7602	EIC over-speed	Timer	0.0 s 100.0 s	5.0 s			
7603	EIC over-speed	Relay output A	Not used Variant dep.	Not used			
7604	EIC over-speed	Relay output B	Not used Variant dep.	Not used			
7605	EIC over-speed	Enable	OFF ON	OFF			
7606	EIC over-speed	Fail class	F1…F9	Warning (F2)			
7610 EIC coolant temp. 1							
7611	EIC coolant t. 1	Setpoint	-40 deg 410 deg	100 deg		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7612	EIC coolant t. 1	Timer	0.0 s 100.0 s	5.0 s			
7613	EIC coolant t. 1	Relay output A	Not used Variant dep.	Not used			
7614	EIC coolant t. 1	Relay output B	Not used Variant dep.	Not used			
7615	EIC coolant t. 1	Enable	OFF ON	OFF			
7616	EIC coolant t. 1	Fail class	F1…F9	Warning (F2)			
7620 EIC coolant temp. 2							
7621	EIC coolant t. 2	Setpoint	-40 deg 410 deg	110 deg		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7622	EIC coolant t. 2	Timer	0.0 s 100.0 s	5.0 s			
7623	EIC coolant t. 2	Relay output A	Not used Variant dep.	Not used			
7624	EIC coolant t. 2	Relay output B	Not used Variant dep.	Not used			
7625	EIC coolant t. 2	Enable	OFF ON	OFF			
7626	EIC coolant t. 2	Fail class	F1…F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Descrip-tion
7630 EIC oil pressure 1							
7631	EIC oil press. 1	Setpoint	0.0 bar 145.0 bar	2.0 bar		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7632	EIC oil press. 1	Timer	0.0 s 100.0 s	5.0 s			
7633	EIC oil press. 1	Relay output A	Not used Variant dep.	Not used			
7634	EIC oil press. 1	Relay output B	Not used Variant dep.	Not used			
7635	EIC oil press. 1	Enable	OFF ON	OFF			
7636	EIC oil press. 1	Fail class	F1…F9	Warning (F2)			
7640 EIC oil pressure 2							
7641	EIC oil press. 2	Setpoint	0.0 bar 145.0 bar	1.0 bar		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7642	EIC oil press. 2	Timer	0.0 s 100.0 s	5.0 s			
7643	EIC oil press. 2	Relay output A	Not used Variant dep.	Not used			
7644	EIC oil press. 2	Relay output B	Not used Variant dep.	Not used			
7645	EIC oil press. 2	Enable	OFF ON	OFF			
7646	EIC oil press. 2	Fail class	F1…F9	Shutdown (F5)			
7650 EIC oil temp 1							
7651	EIC oil temp. 1	Setpoint	0 deg 410 deg	40 deg		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7652	EIC oil temp. 1	Timer	0.0 s 100.0 s	5.0 s			
7653	EIC oil temp. 1	Relay output A	Not used Variant dep.	Not used			
7654	EIC oil temp. 1	Relay output B	Not used Variant dep.	Not used			
7655	EIC oil temp. 1	Enable	OFF ON	OFF			
7656	EIC oil temp. 1	Fail class	F1…F9	Warning (F2)			
7660 EIC oil temp 2							
7661	EIC oil temp. 2	Setpoint	0 deg 410 deg	50 deg		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7662	EIC oil temp. 2	Timer	0.0 s 100.0 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7663	EIC oil temp. 2	Relay output A	Not used Variant dep.	Not used			
7664	EIC oil temp. 2	Relay output B	Not used Variant dep.	Not used			
7665	EIC oil temp. 2	Enable	OFF ON	OFF			
7666	EIC oil temp. 2	Fail class	F1…F9	Shutdown (F5)			
7670 EIC coolant level 1							
7671	EIC coolant level 1	Setpoint	0% 100%	80%		Designer's Reference Handbook/ Option: option: Cummins Modbus (H6)	
7672	EIC coolant level 1	Timer	0.0 s 100.0 s	5.0 s			
7673	EIC coolant level 1	Relay output A	Not used Variant dep.	Not used			
7674	EIC coolant level 1	Relay output B	Not used Variant dep.	Not used			
7675	EIC coolant level 1	Enable	OFF ON	OFF			
7676	EIC coolant level 1	Fail class	F1...F9	Warning (F2)			
7680 EIC coolant level 2							
7681	EIC coolant level 2	Setpoint	0% 100%	80%		Designer's Reference Handbook/ Option: Cummins Modbus (H6)	
7682	EIC coolant level 2	Timer	0.0 s 100.0 s	5.0 s			
7683	EIC coolant level 2	Relay output A	Not used Variant dep.	Not used			
7684	EIC coolant level 2	Relay output B	Not used Variant dep.	Not used			
7685	EIC coolant level 2	Enable	OFF ON	OFF			
7686	EIC coolant level 2	Fail class	F1...F9	Warning (F2)			

2.2.48 Power management communication error

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7870 Any BTB missing/appl hazard							
7871	Any BTB missing	Fail class	F1…F9	Warning (F2)		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…F9	Warning (F2)			

2.2.49 External IO communication error

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7930 EXT. I/O Comm Error							
7931	CAN1 com error	Timer	2.0 s 600.0 s	20.0 s		Option: External I/O modules (H8)	
7932	CAN1 com error	Relay output A	Not used Variant dep.	Not used			
7933	CAN1 com error	Relay output B	Not used Variant dep.	Not used			
7934	CAN1 com error	Enable	OFF ON	ON			
7935	CAN1 com error	Fail class	F1…F9	Warning (F2)			

2.2.50 External I/O alarm setup

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

2.2.51 Analogue inputs

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
12000 Ext. Ain 1.1							
	Ext. Ain 1.1	Setpoint	-3100 3100	10			
	Ext. Ain 1.1	Timer	0.1 s 600.0 s	10.0 s			
	Ext. Ain 1.1	Fail class	F1…F9	Warning (F2)			
	Ext. Ain 1.1	Relay output A	Not used Variant dep.	Not used			
	Ext. Ain 1.1	Relay output B	Not used Variant dep.	Not used			
	Ext. Ain 1.1	Enable	OFF ON	OFF			
12010 Ext. Ain 1.2							
	Ext. Ain 1.2	Setpoint	-3100 3100	10			
	Ext. Ain 1.2	Timer	0.1 s 600.0 s	10.0 s			
	Ext. Ain 1.2	Fail class	F1…F9	Warning (F2)			
	Ext. Ain 1.2	Relay output A	Not used Variant dep.	Not used			
	Ext. Ain 1.2	Relay output B	Not used Variant dep.	Not used			
	Ext. Ain 1.2	Enable	OFF ON	OFF			

The same settings apply to external analogue inputs 2-8, menus 12030-12220.

2.2.52 Digital inputs

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
12540 Ext. dig. in 1							
	Ext. dig. in 1	Timer	1.0 s 600.0 s	10.0 s			
	Ext. dig. in 1	Fail class	F1…F9	Warning (F2)			
	Ext. dig. in 1	Relay output A	Not used Variant dep.	Not used			
	Ext. dig. in 1	Relay output B	Not used Variant dep.	Not used			
	Ext. dig. in 1	Enable	OFF ON	OFF			
	Ext. dig. in 1	N/X	N/O N/C	N/O			

The same settings apply to external digital inputs 2-16, menus 12550-12690.

3 Parameter list

3.1 General information about the parameter list

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

3.2 Parameter lists

3.2.1 Synchronisation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2000 Sync type							
2001	Sync. type	Type	OFF ON	OFF		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.). OFF = dynamic sync, ON = static sync.
2020 Dynamic synchronisation							
2021	Dynamic sync	dfMax	0.0 Hz 0.5 Hz	0.3 Hz		Designer's Reference Handbook	Menu 2020 is only applicable if "Dynamic sync." is chosen in menu 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/BTB/ TB	40 ms 300 ms	50 ms			
2025	Dynamic sync	Sync t. MB	40 ms 300 ms	50 ms			
2030 Static synchronisation							
2031	Static sync	dfMax	0.00 Hz 0.50 Hz	0.10 Hz		Designer's Reference Handbook	Menu 2030 is only applicable if "Static sync" is chosen in menu 2001.
2032	Static sync	dUMax	1% 10%	5%			
2033	Static sync	Close window	0.1 deg 20.0 deg	10.0 deg			
2034	Static sync	Timer	0.1 s 99.0 s	1.0 s			
2035	Static sync	GB sync. type	Breaker Infinite sync.	Breaker			
2036	Static sync	MB sync. type	Breaker Infinite sync.	Breaker			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2040 Frequency synchronisation control analogue							
2041	f sync	f Kp	0.00 60.00	2.50		Option E1, E2, EF2, EF4, EF5	PID controller for dynamic sync. This menu is only applicable if “Analogue” or “PWM” or “EIC” is selected in menu 2780.
2042	f sync	f Ti	0.00 s 60.00 s	1.50 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 menu is only applicable if “Relay” is selected in menu 2780.
2060 Phase sync control analogue							
2061	Phase sync	Phase Kp	0.00 60.00	0.50		Designer’s Reference Handbook	PID controller for static sync. This menu is only applicable if “Analogue” or “PWM” or “EIC” is selected in menu 2780.
2062	Phase sync	Phase Ti	0.00 s 60.00 s	3.00 s			
2063	Phase sync	Phase Td	0.00 s 2.00 s	0.00 s			
2070 Phase sync. control relay							
2071	Phase	Kp	0 100	10		Designer’s Reference Handbook	This menu is only applicable if “Relay” is selected in menu 2780.
2110 Synchronisation blackout							
2111	Sync blackout	dfMax	0.0 Hz 5.0 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% 20%	5%			
2240 Separate synchronisation relay							
2241	Sep sync relay	Relay output A	Not used Variant dep.	Not used		Designer’s Reference Handbook	The output activates during synchronisation and thereby a separate synchronising unit can be activated.
2242	Sep sync relay	Relay output B	Not used Variant dep.	Not used			
2250 Close before excitation							
2251	Close breaker RPM	Setpoint	0 rpm 4000 rpm	400 rpm		Designer’s Reference Handbook	If set ON the function will close the breaker at the selected speed. The relay output is used for the excitation ON signal. Remember to set the selected relay in “Limit” mode.
2252	CBE breakout limit	Timer	0.1 s 999.0 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2253	Close bef. exc.	Relay output A	Not used Variant dep.	Not used			
2254	Close bef. exc.	Enable	OFF ON	OFF			
2260 Breaker sequence							
2261	Breaker seq.	Break	Close GB Close GB +TB	Close GB		Designer's Reference Handbook	The sequence is used for the closed before excitation function. The excitation will be activated at the selected speed in menu 2263.
2262	Breaker seq.	Timer	0.0 s 999.0 s	5.0 s			
2263	Excitation start level	Rpm OK	0 rpm 4000 rpm	1450 rpm			
2264	Voltage discharge	Timer	1.0 s 20.0 s	5.0 s			

3.2.2 Regulation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2510 Frequency control analogue							
2511	f control	f Kp	0.00 60.00	2.50		Designer's Reference Handbook	PID controller for frequency control. This menu is only applicable if "Analogue" is selected in menu 2781. The droop settings will be applied on top of the regulation output.
2512	f control	f Ti	0.00 s 60.00 s	1.50 s			
2513	f control	f Td	0.00 s 2.00 s	0.00 s			
2514	f droop	Droop setting	0% 10%	0%			
2530 Power control analogue							
2531	P control	P Kp	0.00 60.00	2.50		Designer's Reference Handbook	PID controller for power control. This menu is only applicable if "Analogue" is selected in menu 2781.
2532	P control	P Ti	0.00 s 60.00 s	1.50 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	2.50		Designer's Reference Handbook	PID controller for load sharing control. This menu is only applicable if "Analogue" is selected in menu 2781.
2542	P LS control	P LS Ti	0.00 s 60.00 s	1.50 s			
2543	P LS control	P LS Td	0.00 s 2.00 s	0.00 s			
2544	P LS weight	P LS P weight	0% 100%	10%			
2550 Analogue governor offset							
2551	Analogue GOV	Offset	0% 100%	50%		Designer's Reference Handbook	PID controller for power control. This menu is only applicable if "Analogue" is selected in menu 2781.
2552	Analogue GOV	Offset	0% 100%	50%			
2553	Analogue GOV	Offset	0% 100%	50%			
2554	Analogue GOV	Offset	0% 100%	50%			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2570 Frequency control relay output							
2571	f control relay	Dead band	0.2% 10.0%	1.0%		Designer's Reference Handbook	This menu is only applicable if "Relay" is selected in menu 2781. The droop settings will be applied on top of the regulation output.
2572	f control relay	Kp	0 100	10			
2573	f droop relay	Droop setting	0% 10%	0%			
2580 Power control relay output							
2581	P control relay	Dead band	0.2% 10.0%	2.0%		Designer's Reference Handbook	This menu is only applicable if "Relay" is selected in menu 2781.
2582	P control relay	Kp	0 100	10			
2590 Load sharing control relay output							
2591	LS ctrl. relay	f dead band	0.2% 10.0%	1.0%		Designer's Reference Handbook	This menu is only applicable if "Relay" is selected in menu 2781.
2592	LS ctrl. relay	LS Kp	0 100	10			
2593	LS ctrl. relay	P dead band	0.2% 10.0%	2.0%			
2594	LS ctrl. relay	P weight	0.0% 100.0%	10.0%			
2600 Relay control							
2601	Relay control	GOV ON time	10 ms 6500 ms	500 ms		Designer's Reference Handbook	This menu is only applicable if "Relay" is selected in menu 2781. NOTE: In the PC utility software, settings 2603/2604 are found under menu 2602. Output A is increase and output B is decrease.
2602	Relay control	GOV period time	50 ms 32500 ms	2500 ms			
2603	Relay control	Relay output A (Increase relay)	Not used Variant dep.	Not used			
2604	Relay control	Relay output B (Decrease relay)	Not used Variant dep.	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 preheat the engine before commencing load taking.
2612	Power ramp up	Delay point	1% 100%	10%			
2613	Power ramp up	Delay time	0 s 9900 s	10 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2614	Power ramp up	Island ramp	OFF ON	OFF			If the delay function is not needed, set this time to 0. Power % settings relate to nominal generator power.
2615	Power ramp up	Steps	0 100	1			
2616	Power ramp up 2	Speed	0.1%/s 20.0%/s	0.1%/s			Can be activated by ch. 2624 or M-Logic.
2620 Power ramp down							
2621	Power ramp down	Speed	0.1%/s 20.0%/s	3.3%/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%			
2623	Power ramp down 2	Speed	0.1%/s 20.0%/s	0.1%/s			Slope of ramp 2, when ramping down. (Not used for deload).
2624	Auto ramp select	Enable	OFF ON	ON			ON: Ramp 2 is used with freq.- dependent P droop. OFF: Ramp 2 is enabled via M-Logic.
2640 Voltage control analogue							
2641	U control	U Kp	0.00 60.00	2.50		Designer's Reference Handbook	PID controller for voltage control. This menu is only applicable if analogue output is selected in menu 2782. The droop setting will be applied on top of the regulation output.
2642	U control	U Ti	0.00 s 60.00 s	1.50 s			
2643	U control	U Td	0.00 s 2.00 s	0.00 s			
2644	U droop	Droop setting	0% 10%	0%			
2650 Reactive power control analogue							
2651	Q control	Q Kp	0.00 60.00	2.50		Designer's Reference Handbook	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 applicable if analogue output is selected in menu 2782.
2652	Q control	Q Ti	0.00 s 60.00 s	1.50 s			
2653	Q control	Q Td	0.00 s 2.00 s	0.00 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2660 Reactive power load sharing control analogue							
2661	Q load sh. ctrl	Q LS Kp	0.00 60.00	2.50		Designer's Reference Handbook	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 applicable if analogue output is selected in menu 2782.
2662	Q load sh. ctrl	Q LS Ti	0.00 s 60.00 s	1.50 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	0% 100%	50%		Designer's Reference Handbook	Setting 2671 sets the offset of the analogue output when starting the generator. This menu is only applicable if analogue output is selected in menu 2782.
2672	Analogue AVR	Offset	0% 100%	50%			
2673	Analogue AVR	Offset	0% 100%	50%			
2674	Analogue AVR	Offset	0% 100%	50%			
2690 Voltage control relay							
2691	U control	U dead band	0.0% 10.0%	2.0%		Designer's Reference Handbook	PI controller for voltage control. This menu is only applicable if "Relay" is selected in menu 2782.
2692	U control	U Kp	0 100	10			
2693	U droop relay	Droop setting	0% 10%	0%			
2700 Reactive power control relay							
2701	Q control	Q dead band	0.0% 10.0%	2.0%		Designer's Reference Handbook	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 applicable if "Relay" is selected in menu 2782.
2702	Q control	Q Kp	0 100	10			
2710 Reactive power load sharing control relay							
2711	Q load sh. ctrl	U dead band	0.0% 10.0%	1.0%		Designer's Reference Handbook	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 applicable if "Relay" is selected in menu 2782.
2712	Q load sh. ctrl	U Kp	0 100	10			
2713	Q load sh. ctrl	Q dead band	0.0% 10.0%	2.0%			
2714	Q load sh. ctrl	Q weight	0.0% 100.0%	10.0%			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2720 Relay control setup (AVR)							
2721	Relay control	AVR ON time t_N	10 ms 3000 ms	100 ms		Designer's Reference Handbook	Relay outputs for voltage/ VAr/power factor control. This menu is only applicable if "Relay" is selected in menu 2782.
2722	Relay control	AVR per time t_P	50 ms 15000 ms	500 ms			
2723	Relay control	Relay output A (U in-crease)	Not used Variant dep.	Not used			
2724	Relay control	Relay output B (U de-crease)	Not used Variant dep.	Not used			
2740 Delay regulation							
2741	Delay reg.	Timer	0 s 9900 s	3 s		Designer's Reference Handbook	Delay of activating regulation after running feedback has been detected. This delay can be used to minimise regulation overshoot.
2742	Delay reg.	Relay output A	Not used Variant dep.	Not used			
2743	Delay reg.	Relay output B	Not used Variant dep.	Not used			
2744	Delay reg.	Enable	OFF ON	OFF			
2760 Overlap							
2761	Overlap	Setpoint	OFF ON	OFF		Designer's Reference Handbook	If set ON the generator and mains breaker will never both be closed for a longer time period than the selected.
2762	Overlap	Timer	0.10 s 99.90 s	0.30 s			
2770 EIC speed control							
2771	Scania control	Droop	0.0% 25.0%	0.0%		Designer's Reference Handbook	Setting of speed control via engine communication interface. The settings are only applicable if "Scania" is selected in menu 7561.
2772	Scania control	RPM	User 1500 RPM 1800 RPM Low idle	User			
2773	Cum-mins Gain	Kp	0.00 10.00	5.00			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2780 Regulator output							
2781	Reg. output	GOV	Relay EIC	EIC		Designer's Reference Handbook	Selection of the speed output: Relay, engine interface communication. Inverse output can be set.
2782	Reg. output	AVR	Relay EIC	EIC		Designer's Reference Handbook	Generator voltage control based on relay or IOM 200 output signals. For IOM 200 select EIC. Inverse output can be set.
2783	Man. step GOV	Timer	0.1-10 s	5 s		Designer's Reference Handbook	Length of manual step per pulse. Output is set through M-Logic.
2784	Man. step AVR	Timer	0.1-10 s	5 s		Designer's Reference Handbook	
2790 EIC Speed Demand Sw							
2791	EIC Speed Demand Sw.	LOC Normal	**Analogue CAN** Up/Down ECU **Up/Down CAN** Analogue ECU **Analogue ECU rel.** Frequency	Analogue CAN		Designer's Reference Handbook	Selection of used method of speed control for normal and emergency operation in either local or remote modes of the ECU8 Select Analogue CAN for J1939 control from the AGC Select Up/Down ECU for relay control from the AGC Select Analogue ECU relative for analogue control from the AGC (IOM module) Only MTU J1939 Smart Connect.
2792	EIC Speed Demand Sw.	LOC Emerg.	**Analogue CAN** Up/Down ECU **Up/Down CAN** Analogue ECU **Analogue ECU rel** Frequency	Analogue CAN			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
2793	EIC Speed Demand Sw.	REM Normal	**Ana-logue CAN** Up/Down ECU **Up/Down CAN** Analogue ECU **Ana-logue ECU rel.** Frequen-cy	Ana-logue CAN			
2794	EIC Speed Demand Sw.	REM Emerg.	**Ana-logue CAN** Up/Down ECU **Up/Down CAN** Analogue ECU **Ana-logue ECU rel.** Frequen-cy	Ana-logue CAN			
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. Menu 2953 specifies what mode to return to after base load is completed.
2952	Base load	Enable	OFF ON	OFF			
2953	Base load	Return mode	Semi-Au-to mode Auto mode	Auto mode			
2960 Warm up ramp							
2960	Warm up type	Setpoint	Variant-dep.	Multi input 46		Designer's Reference Handbook	When the function input is activated, it ramps to the SP from "Power ramp up" (channel 2612) and disables the "Power ramp up" function. When the input is set low again, it ramps beyond the limitation.
2961	Warm up thresh.	Setpoint	0 deg. 482 deg.	0 deg.			
2962	Warm up type	Enable	OFF ON	OFF			

3.2.3 Digital output setup

Digital outputs 23, 26 and 28-34 are not available for AGC 212/213/222.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5000 Relay 16							
5001	Relay 16	Function	Alarm relay ND Alarm relay NE	Horn Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5002	Relay 16	OFF delay	0.0 s 999.9 s	5.0 s			
5010 Relay 18							
5011	Relay 18	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5012	Relay 18	OFF delay	0.0 s 999.9 s	5.0 s			
5020 Relay 20							
5021	Relay 20	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5022	Relay 20	OFF delay	0.0 s 999.9 s	5.0 s			
5030 Relay 23							
5031	Relay 23	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5032	Relay 23	OFF delay	0.0 s 999.9 s	5.0 s			
5040 Relay 26							
5041	Relay 26	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Option G4 and G5	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5042	Relay 26	OFF delay	0.0 s 999.9 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5050 Relay 27							
5051	Relay 27	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5052	Relay 27	OFF delay	0.0 s 999.9 s	5.0 s			
5060 Relay 28							
5061	Relay 28	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5062	Relay 28	OFF delay	0.0 s 999.9 s	5.0 s			
5070 Relay 30							
5071	Relay 30	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5072	Relay 30	OFF delay	0.0 s 999.9 s	5.0 s			
5080 Relay 32							
5081	Relay 32	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5082	Relay 32	OFF delay	0.0 s 999.9 s	5.0 s			
5090 Relay 34							
5091	Relay 34	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5092	Relay 34	OFF delay	0.0 s 999.9 s	5.0 s			
5100 Relay 36							
5101	Relay 36	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5102	Relay 36	OFF delay	0.0 s 999.9 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5110 Relay 39							
5111	Relay 39	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5112	Relay 39	OFF delay	0.0 s 999.9 s	5.0 s			
5120 Relay 41							
5121	Relay 41	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5122	Relay 41	OFF delay	0.0 s 999.9 s	5.0 s			
5130 Relay 43							
5131	Relay 43	Function	Alarm relay ND Alarm relay NE	Alarm Alarm relay ND		Designer's Reference Handbook	Function selections: - Alarm relay ND - Limit relay - Horn relay - Alarm relay NE
5132	Relay 43	OFF delay	0.0 s 999.9 s	5.0 s			

3.2.4 Transducer outputs

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5820 P output 1							
5821	P output 1	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	Setpoint selections for all transducer outputs: - Disabled - 0-20 mA - 4-20 mA - 0-10 V - -10-0-10 V
5822	P output 1	Transducer B	Disabled Variant dep.	Disabled			
5823	P output 1	Setpoint	Disabled -10-0-10 V	Disabled			
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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5832	P output 2	Transducer B	Disabled Variant dep.	Disabled			
5833	P output 2	Setpoint	Disabled -10-0-10 V	Disabled			
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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5842	P output 3	Transducer B	Disabled Variant dep.	Disabled			
5843	P output 3	Setpoint	Disabled -10-0-10 V	Disabled			
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							
5851	S output	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5852	S output	Transducer B	Disabled Variant dep.	Disabled			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5853	S output	Setpoint	Disabled -10-0-10 V	Disabled			
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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5862	Q output	Transducer B	Disabled Variant dep.	Disabled			
5863	Q output	Setpoint	Disabled -10-0-10 V	Disabled			
5864	Q output	Max. value	0 kVAr 16000 kVAr	400 kVAr			
5865	Q output	Min. value	8000 kVA 16000 kVA	0 kVAr			
5870 PF output							
5871	PF output	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	Positive value means inductive. Negative value means capacitive.
5872	PF output	Transducer B	Disabled Variant dep.	Disabled			
5873	PF output	Setpoint	Disabled -10-0-10 V	Disabled			
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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5882	F output	Transducer B	Disabled Variant dep.	Disabled			
5883	F output	Setpoint	Disabled -10-0-10 V	Disabled			
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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	The voltage output represents L1-L2 voltage.
5892	U output	Transducer B	Disabled Variant dep.	Disabled			
5893	U output	Setpoint	Disabled -10-0-10 V	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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	The current output represents L1 current.
5902	I output	Transducer B	Disabled Variant dep.	Disabled			
5903	I output	Setpoint	Disabled -10-0-10 V	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	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	The voltage output represents L1-L2 voltage.
5912	U BB output	Transducer B	Disabled Variant dep.	Disabled			
5913	U BB output	Setpoint	Disabled -10-0-10 V	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							
5921	F BB output	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5922	F BB output	Transducer B	Disabled Variant dep.	Disabled			
5923	F BB output	Setpoint	Disabled -10-0-10 V	Disabled			
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			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5930 Multi-input 46							
5931	Multi-input 46	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5932	Multi-input 46	Transducer B	Disabled Variant dep.	Disabled			
5933	Multi-input 46	Setpoint	Disabled -10-0-10 V	Disabled			
5934	Multi-input 46	Max. value	0 28000	500			
5935	Multi-input 46	Min. value	0 28000	0			
5940 Multi-input 47							
5941	Multi-input 47	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5942	Multi-input 47	Transducer B	Disabled Variant dep.	Disabled			
5943	Multi-input 47	Setpoint	Disabled -10-0-10 V	Disabled			
5944	Multi-input 47	Max. value	0 28000	500			
5945	Multi-input 47	Min. value	0 28000	0			
5950 Multi-input 48							
5951	Multi-input 48	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5952	Multi-input 48	Transducer B	Disabled Variant dep.	Disabled			
5953	Multi-input 48	Setpoint	Disabled -10-0-10 V	Disabled			
5954	Multi-input 48	Max. value	0 28000	500			
5955	Multi-input 48	Min. value	0 28000	0			
5960 P total consumed							
5961	P total consumed	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5962	P total consumed	Transducer B	Disabled Variant dep.	Disabled			
5963	P total consumed	Setpoint	Disabled -10-0-10 V	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			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
5970 P total available							
5971	P total available	Transducer A	Disabled Variant dep.	Disabled		Designer's Reference Handbook	
5972	P total available	Transducer B	Disabled Variant dep.	Disabled			
5973	P total available	Setpoint	Disabled -10-0-10 V	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			

3.2.5 System

These menus include parameters for the system setup.

3.2.6 General setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6000 Nominal settings 1							
6001	Nom. set-settings 1	Fre-quency	48.0 Hz 62.0 Hz	50.0 Hz		Designer's Reference Handbook	The selection of nominal settings to be used is set in menu 6006. A binary input or selection in M-logic can also be used. Menu 6007 is not available for AGC 212/213/222. Voltage and power range depends on scaling setting in menu 9030.
6002	Nom. set-settings 1	Power	1 kW 900 kW	480 kW			
6003	Nom. set-settings 1	Current	0 A 9000 A	867 A			
6004	Nom. set-settings 1	Voltage	10 V 160 kV	400 V			
6005	Nom. set-settings 1	RPM	100 RPM 4000 RPM	1500 RPM			
6006	Nom. set-settings 1	Setting	1-4	1			
6007	Nom. set-settings 1	Current E/N/M	0 A 9000 A	867 A			
6010 Nominal settings 2							
6011	Nom. set-tings 2	Fre-quency	48.0 Hz 62.0 Hz	50.0 Hz		Designer's Reference Handbook	Menu 6016 is not available for AGC 212/213/222. Voltage and power range depends on scaling setting in menu 9030.
6012	Nom. set-tings 2	Power	1 kW 900 kW	230 W			
6013	Nom. set-tings 2	Current	0 A 9000 A	345 A			
6014	Nom. set-tings 2	Voltage	10 V 160 kV	480 V			
6015	Nom. set-tings 2	RPM	100 RPM 4000 RPM	1500 RPM			
6016	Nom. set-tings 2	Current E/N/M	0 A 9000 A	867 A			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6020 Nominal settings 3							
6021	Nom. settings 3	Frequency	48.0 Hz 62.0 Hz	60.0 Hz		Designer's Reference Handbook	Menu 6026 is not available for AGC 212/213/222. Voltage and power range depends on scaling setting in menu 9030.
6022	Nom. settings 3	Power	1 kW 900 kW	230 W			
6023	Nom. settings 3	Current	0 A 9000 A	345 A			
6024	Nom. settings 3	Voltage	10 V 160 kV	480 V			
6025	Nom. settings 3	RPM	100 RPM 4000 RPM	1800 RPM			
6026	Nom. settings 3	Current E/N/M	0 A 9000 A	867 A			
6030 Nominal settings 4							
6031	Nom. settings 4	Frequency	48.0 Hz 62.0 Hz	60.0 Hz		Designer's Reference Handbook	Menu 6036 is not available for AGC 212/213/222. Voltage and power range depends on scaling setting in menu 9030.
6032	Nom. settings 4	Power	1 kW 900 kW	230 W			
6033	Nom. settings 4	Current	0 A 9000 A	345 A			
6034	Nom. settings 4	Voltage	10 V 160 kV	480 V			
6035	Nom. settings 4	RPM	100 RPM 4000 RPM	1800 RPM			
6036	Nom. settings 4	Current E/N/M	0 A 9000 A	867 A			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6040 Generator A transformer							
6041	G transformer	U primary	10 V 160 kV	400 V		Designer's Reference Handbook	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value. Menu 6045 and 6046 are not available for AGC 212/213/222. Generator transformer primary voltage range depends on scaling setting in menu 9030.
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	1A			
6045	E/N/M transformer	I primary	5 A 9000 A	1000 A			
6046	E/N/M transformer	I secondary	1 A 5 A	1 A			
6050 Busbar settings							
6051	BB setting 1	U primary	10 V 160 kV	400 V		Designer's Reference Handbook	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value. BB primary voltage range depends on scaling setting in menu 9030.
6052	BB setting 1	U secondary	100 V 690 V	400 V			
6053	BB setting 1	Nominal U 1	100 V 160 kV	400 V			
6054	Enable nom. settings	Bus nom. set	Parameter set 1 Parameter set 2 BB Unom = G Unom	Parameter set 1			
6060 Busbar settings 2							
6061	BB setting 2	U primary	10 V 160 kV	400 V		Designer's Reference Handbook	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value. BB primary voltage range depends on scaling setting in menu 9030
6062	BB setting 2	U secondary	100 V 690 V	400 V			
6063	BB setting 2	Nominal U 2	10 V 160 kV	400 V			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6070 Genset mode							
6071	Genset mode		Island Power management	Power management		Designer's Reference Handbook	Selections are: -Island -Auto Mains Failure -Peak Shaving -Fixed power -Mains power export -Load takeover -Power management
6080 Language							
6081	Language		English Language 11	English		Designer's Reference Handbook	The master language is English. Additionally, 11 different languages can be configured with the PC utility software.

3.2.7 Counters and timers

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6090 Date and time							
6091	Date and time	Year	2001 2100	2008		Designer's Reference Handbook	Used to set up the clock in the unit. Only available from the display.
6092	Date and time	Month	1 12	1			
6093	Date and time	Date	1 31	1			
6094	Date and time	Week day	1 7	1			
6095	Date and time	Hour	0 23	3			
6096	Date and time	Minute	0 59	5			
6100 Counters							
6101	Counters	Running hours	0 hrs 999 hrs	0 hrs		Designer's Reference Handbook	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 999 th. hrs	0 th. hrs			
6103	Counters	GB/TB/ BTB operations	0 20000	0			
6104	Counters	MB operations	0 20000	0			
6105	Counters	Reset kWh	OFF ON	OFF			
6106	Counters	Start attempts	0 20000	0			
6110 Service timer 1							
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...F9	F2 (Warning)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6115	Service timer 1	Output A	Not used Variant dep.	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...F9	F2 (Warning)			
6125	Service timer 2	Relay output A	Not used Variant dep.	Not used			
6126	Service timer 2	Reset	OFF ON	OFF			

3.2.8 Alarm horn

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6130 Alarm horn							
6131	Alarm horn	ON time	0.0 s 990.0 s	20.0 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.

3.2.9 Run coil

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6150 Run coil							
6151	Run coil delay	Timer	0.0 s 600.0 s	1.0 s		Designer’s Reference Handbook	Pulse: Reset for each start attempt. Continuous: High throughout all start attempts.
6152	Run coil type	Setpoint	Pulse Continuous	Pulse			

3.2.10 Running, start and stop

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6160 Run status							
6161	Run status	Timer	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". 6165 defines from which frequency level running should be detected, if frequency is selected in menu 6172.
6162	Run status	Relay output A	Not used Variant dep.	Not used			
6163	Run status	Relay output B	Not used Variant dep.	Not used			
6164	Run status	Enable	OFF ON	OFF			
6165	Run status	Freq. level	20.0-35.0 Hz	32.0 Hz			
6170 Running detection							
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: - Binary input - MPU input - Frequency - EIC (engine communication) - Multi-input (46, 47 or 48) (Multi-inputs can only be used for oil pressure). If menu 6175 is set to 0.0, the oil pressure running detection is OFF.
6172	Running detect.	Type	Binary input Multi-input 48	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 150.0 bar	0.0 bar			
6180 Starter							
6181	Starter	Start prepare	0.0 s 600.0 s	5.0 s		Designer's Reference Handbook	Menu 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 600.0 s	5.0 s			
6184	Starter	Start OFF time	1.0 s 99.0 s	5.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6185	Starter	Input type	Multi-input 46 Multi-input 48	Multi-input 46			
6186	Starter	Setpoint	0.0 bar 300.0 bar	0.0 bar			
6190 Start attempts							
6191	Std. attempts	Setpoint	1 100	3		Designer's Reference Handbook	Number of start attempts before "start failure alarm".
6192	Double attempts	Setpoint	0 10	0		Designer's Reference Handbook	Number of start attempts before redirecting start signal.
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 s 9900 s	240 s			
6203	Shutdown override	Enable	OFF ON	OFF			
6204	Shutdown override	Relay output A	Not used Variant dep.	Not used			
6205	Shutdown override	Relay output B	Not used Variant dep.	Not used			
6210 Stop							
6211	Stop	Cooling down	0.0 s 9900.0 s	240.0 s		Designer's Reference Handbook	The extended stop timer starts when the running feedback disappears. It is not possible to start the engine during the delay time.
6212	Stop	Extended stop	0.0 s 300.0 s	5.0 s			
6213	Stop	TYPE	Multi-input 46 EIC	Multi-input 46			
6214	Stop	Setpoint	0 deg. 482 deg.	0 deg.			
6220 Hz/V OK							
6221	HZ/V OK	Timer	0.0 s 99.0 s	5.0 s		Designer's Reference Handbook	The voltage and frequency have to be continuously within the limits during the delay timer before the breaker can be closed.

3.2.11 Breaker control

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6230 Gen/Mains/Tie/Bus tie breaker control							
6231	GB/MB/TB/ BTB control	Close delay	0.0 s 30.0 s	2.0 s		Designer's Reference Handbook	Menu 6232 is for compact breakers (need to charge spring before closing).
6232	GB/MB/TB/ BTB control	Load time	0.0 s 30.0 s	0.0 s			

3.2.12 Power derate

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6240 Power derate 1							
6241	Power derate	Input	Multi-input 46 EIC	Multi-input 46		Designer's Reference Handbook	The derate function lowers the max. power of the generator set based on e.g. water temperature. Input: - Multi-input 46 - Multi-input 47 - Multi-input 48 - M-Logic - EIC
6242	Power derate	Start derate	0 units 20000 units	16 units			
6243	Power derate	Derate slope	0.1 %/unit 100.0 %/ unit	5.0 %/ unit			
6244	Power derate	Proportional	OFF ON	OFF			
6245	Power derate	Enable	OFF ON	OFF			
6246	Power derate	Limit	0.0% 100.0%	80.0%			
6250 Power derate 2							
6251	Power derate	Input	Multi-input 46 EIC	Multi-input 46		Designer's Reference Handbook	The derate function lowers the max. power of the generator set based on e.g. water temperature. Input: - Multi-input 46 - Multi-input 47 - Multi-input 48 - M-Logic - EIC
6252	Power derate	Start derate	0 units 20000 units	16 units			
6253	Power derate	Derate slope	0.1 %/unit 100.0 %/ unit	5.0 %/ unit			
6254	Power derate	Proportional	OFF ON	OFF			
6255	Power derate	Enable	OFF ON	OFF			
6256	Power derate	Limit	0.0% 100.0%	80.0%			

6260 Power derate 3							
6261	Power derate	Input	Multi-input 46 EIC	Multi-input 46		Designer's Reference Handbook	The derate function lowers the max. power of the generator set based on e.g. water temperature. Input: - Multi-input 46 - Multi-input 47 - Multi-input 48 - M-Logic - EIC
6262	Power derate	Start derate	0 units 20000 units	16 units			
6263	Power derate	Derate slope	0.1 %/unit 100.0 %/unit	5.0 %/unit			
6264	Power derate	Proportional	OFF ON	OFF			
6265	Power derate	Enable	OFF ON	OFF			
6266	Power derate	Limit	0.0% 100.0%	80.0%			

3.2.13 Idle start

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6290 Idle running							
6291	Idle start	Start timer	0.0 sec. 59940.0 sec.	18000 sec.		Designer's Reference Handbook	
6292	Idle start	Enable start	OFF ON	OFF			
6293	Idle stop	Stop timer	0.0 sec. 59940.0 sec.	18000 sec.			
6294	Idle stop	Enable stop	OFF ON	OFF			
6295	Idle active	Relay output A	Not used Variant dep.	Not used			
6296	Idle active	Enable	OFF ON	OFF			

3.2.14 Engine heater

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6320 Engine heater							
6321	Engine heater	Setpoint	20 deg. 250 deg.	40 deg.		Designer's Reference Handbook	Heater function for standstill. Type: - Multi-input 46 - Multi-input 47 - Multi-input 48 - EIC
6322	Engine heater	Relay output A	Not used Variant dep.	Not used			
6323	Engine heater	Type	Multi-input 46 EIC	Multi-input 46			
6324	Engine heater	Hysteresis	1 deg. 70 deg.	3 deg.			
6325	Engine heater	Enable	OFF ON	OFF			

3.2.15 Analogue load sharing lines output

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6380 Load share out							
6381	Load share out	Setpoint	1.0 V 5.0 V	4.0 V		Analogue load sharing with IOM 200	Adjustment of the analogue load sharing line max. value.
6390	Load share type	Setpoint	Adjustable Cummins PCC	Adjustable		Analogue load sharing with IOM 200	Selection of the analogue loadshare type.

3.2.16 Master clock

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6400 Master clock							
6401	Master clock	Start hour	0 h 23 h	8 h		Designer's Reference Handbook	Compensation for frequency variation related clock time in the system.
6402	Master clock	Stop hour	0 h 23 h	8 h			
6403	Master clock	Difference	1 s 999 s	20 s			
6404	Master clock	Compensation	0.1 Hz 1.0 Hz	0.1 Hz			
6405	Master clock	Enable	OFF ON	OFF			

3.2.17 Cooling ventilation

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6460 Max. ventilation							
6461	Max. ventilation	Setpoint	20 deg. 250 deg.	90 deg.		Designer's Reference Handbook	Ventilation fan control.
6462	Max. ventilation	Relay output A	Not used Variant dep.	Not used			
6463	Max. ventilation	Hysteresis	1 deg. 70 deg.	5 deg.			
6464	Max. ventilation	Enable	OFF ON	OFF			

3.2.18 Summer/winter time

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6490 Summer/winter time							
6491	Sum/win time	Enable	OFF ON	OFF		Designer's Reference Handbook	The summer/winter time change follows the mainland Europe rules.

3.2.19 Start/stop next generator

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6520 Start next generator							
6521	Start next generator	Set-point	50 % 100 %	80 %			Start signal to the next generator. Set the selected relay to "Limit" mode. This function is not related to the power management system. Priority selection is done manually with this function.
6522	Start next generator	Timer	0.0 s 100.0 s	10.0 s			
6523	Start next generator	Output	Not used Variant-dep.	Not used			
6524	Start next generator	Enable	OFF ON	OFF			
6530 Stop next generator							
6531	Stop next generator	Set-point	0 % 100 %	20 %			Stop signal to the next generator. Set the selected relay to "Limit" mode. This function is not related to the power management system. Priority selection is done manually with this function.
6532	Stop next generator	Timer	0.0 s 100.0 s	30.0 s			
6533	Stop next generator	Output	Not used Variant-dep.	Not used			
6534	Stop next generator	Enable	OFF ON	OFF			

3.2.20 Fuel transfer pump logic

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6550 Fuel pump logic							
6551	Fuel pump logic	Set-point start	0% 100%	20%		Designer's Reference Handbook	Type: - Multi-input 46 - Multi-input 47 - Multi-input 48 - Ext. Ana. In 1-8 - Auto detection Note: When using RMI for fuel pump logic, select "Auto detection". Note: In parameter 6553 it is also possible to enable/disable fuel fill check alarm from the PC utility software.
6552	Fuel pump logic	Set-point stop	0% 100%	80%			
6553	Fuel pump logic	Fill check time	0.1 s 999.9 s	60.0 s			
6554	Fuel pump logic	Relay output A	Not used Variant dep.	Not used			
6555	Fuel pump logic	Set-point	Multi-input 46 Auto detection	Multi-input 46			
6556	Fuel pump logic	Fail class	F1…F9	Warning (F2)			
6557	Fuel pump logic	Fuel fill slope	1% 10%	2%			

3.2.21 Fan logic

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6560 Fan input settings							
6561	Fan input	Type	-Multi-input 46 -Ext analog input 8	Multi-input 46		Designer's Reference Handbook	Selection of fan input: - **Multi input** 46, 47, 48 - **EIC** Water/oil temp Water temp Oil temp Ambient temp Inter cool temp Fuel temp - **Ext analog input** 1-8 (option H8)
6562	Fan prio update	Priority	0 h 200 h	0 h			
6563	1st prio fan	Setpoint start	20 deg 250 deg	70 deg			
6564	1st pr. fan	Hysteresis	0 deg 50 deg	10 deg			
6565	2nd prio fan	Setpoint start	20 deg 250 deg	90 deg			
6566	2nd pr. fan	Hysteresis	0 deg 50 deg	10 deg			
6570 3rd prio fan							
6571	3rd prio fan	Setpoint start	20 deg 250 deg	110 deg		Designer's Reference Handbook	Selection of fan input: - **Multi input** 46,47,48 - **EIC** Water/oil temp Water temp Oil temp Ambient temp Inter cool temp Fuel temp - **Ext analog input**1-8 (Option H8)
6572	3rd pr. fan	Hysteresis	0 deg 50 deg	10 deg			
6573	4th prio fan	Setpoint start	20 deg 250 deg	130 deg			
6574	4th pr. fan	Hysteresis	0 deg 50 deg	10 deg			
6580 Fan output							
6581	Fan A output	Relay output A	Not used Variant dep.	Not used		Designer's Reference Handbook	Selection of relays for activating fans
6582	Fan B output	Relay output B	Not used Variant dep.	Not used			
6583	Fan C output	Relay output C	Not used Variant dep.	Not used			
6584	Fan D output	Relay output D	Not used Variant dep.	Not used			
6585	Fan run. hour reset	Reset	OFF ON	OFF			
6586	Fan start delay	Timer	0.0 s 30.0 s	10.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6590 Fan A failure							
6591	Fan A failure	Timer	0.1 s 300.0 s	10.0 s		Designer's Reference Handbook	
6592	Fan A failure	Output A	Not used Variant dep.	Not used			
6593	Fan A failure	Output B	Not used Variant dep.	Not used			
6594	Fan A failure	Enable	OFF ON	OFF			
6595	Fan A failure	Fail class	F1...F9	Warning (F2)			
6600 Fan B failure							
6601	Fan B failure	Timer	0.1 s 300.0 s	10.0 s		Designer's Reference Handbook	
6602	Fan B failure	Output A	Not used Variant dep.	Not used			
6603	Fan B failure	Output B	Not used Variant dep.	Not used			
6604	Fan B failure	Enable	OFF ON	OFF			
6605	Fan B failure	Fail class	F1...F9	Warning (F2)			
6610 Fan C failure							
6611	Fan C failure	Timer	0.1 s 300.0 s	10.0 s		Designer's Reference Handbook	
6612	Fan C failure	Output A	Not used Variant dep.	Not used			
6613	Fan C failure	Output B	Not used Variant dep.	Not used			
6614	Fan C failure	Enable	OFF ON	OFF			
6615	Fan C failure	Fail class	F1...F9	Warning (F2)			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6620 Fan D failure							
6621	Fan D failure	Timer	0.1 s 300.0 s	10.0 s		Designer's Reference Handbook	
6622	Fan D failure	Output A	Not used Variant dep.	Not used			
6623	Fan D failure	Output B	Not used Variant dep.	Not used			
6624	Fan D failure	Enable	OFF ON	OFF			
6625	Fan D failure	Fail class	F1...F9	Warning (F2)			

3.2.22 Diagnostics

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6700 Diagnostics							
6701	Diagnostics	Timer	0 s 30 s	30		Designer's Reference Handbook	Activates diagnostics mode to read ECU data without starting engine.
6702	Diagnostics	Enable	OFF ON	OFF			

3.2.23 I thermal demand

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6840 I thermal demand							
6841	I thermal demand	Timer	0 min 20 min	8 min		Designer's Reference Handbook	Setup of I thermal period.
6842	I thermal demand	Enable	OFF ON	OFF			Enabled is used for reset.
6843	I thermal demand	Enable	OFF ON	OFF			

3.2.24 Pulse counter

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6850 Pulse counter 1							
6851	Pulse counter 1	Setpoint	0 1000	1		Designer's Reference Handbook	Setup of pulse counter.
6852	Pulse counter 1	Unit	Unit/Pulse Pulse/Unit	Unit/Pulse			
6853	Pulse counter 1	Decimals	No decimals One decimal Two decimals Three decimals	No decimals			
6860 Pulse counter 2							
6861	Pulse counter 2	Setpoint	0 1000	1		Designer's Reference Handbook	Setup of pulse counter.
6862	Pulse counter 2	Unit	Unit/Pulse Pulse/Unit	Unit/Pulse			
6863	Pulse counter 2	Decimals	No decimals One decimal Two decimals Three decimals	No decimals			

3.2.25 Alarm jump

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6900 Alarm jump							
6901	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).

3.2.26 Command timers

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6960 Command timer 1							
6961	Start timer 1 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	OFF		Designer's Reference Handbook	Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU
6962	Start timer 1 hours	Set-point	0 23	10			
6963	Start timer 1 minutes	Set-point	0 59	0			
6964	Stop timer 1 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	MO-TU-WE-TH-FR-SA-SU			Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU
6965	Stop timer 1 hours	Set-point	0 23	10			
6966	Stop timer 1 minutes	Set-point	0 59	0			
6970 Command timer 2							
6971	Start timer 2 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	OFF		Designer's Reference Handbook	Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6972	Start timer 2 hours	Set-point	0 23	10			
6973	Start timer 2 minutes	Set-point	0 59	0			
6974	Stop timer 2 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	MO-TU-WE-TH-FR-SA-SU			Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU
6975	Stop timer 2 hours	Set-point	0 23	10			
6976	Stop timer 2 minutes	Set-point	0 59	0			
6980 Command timer 3							
6981	Start timer 3 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	OFF		Designer's Reference Handbook	Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU
6982	Start timer 3 hours	Set-point	0 23	10			
6983	Start timer 3 minutes	Set-point	0 59	0			
6984	Stop timer 3 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	MO-TU-WE-TH-FR-SA-SU			Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
6985	Stop timer 3 hours	Set-point	0 23	10			
6986	Stop timer 3 minutes	Set-point	0 59	0			
6990 Command timer 4							
6991	Start timer 4 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	OFF		Designer's Reference Handbook	Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU
6992	Start timer 4 hours	Set-point	0 23	10			
6993	Start timer 4 minutes	Set-point	0 59	0			
6994	Stop timer 4 days	Set-point	OFF MO-TU-WE-TH-FR-SA-SU	MO-TU-WE-TH-FR-SA-SU			Selections are: MO TU WE TH FR SA SU MO-TU-WE-TH MO-TU-WE-TH-FR SA-SU MO-TU-WE-TH-FR-SA-SU
6995	Stop timer 4 hours	Set-point	0 23	10			
6996	Stop timer 4 minutes	Set-point	0 59	0			

3.2.27 Mains setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7000 Mains power							
7001	Mains power	Day	-20000 kW 20000 kW	750 kW		Designer's Reference Handbook	Day/night time setting for peak shaving/mains power export. The 4th CT uses the CT input on terminals 59-60. Menu 7000 is not available for AGC 222/242. Menu 7006 is the scaling of peak shaving and MPE reference. Only AGC 245/246.
7002	Mains power	Night	-20000 kW 20000 kW	1000 kW			
7003	Mains power	Transducer max	0 kW 20000 kW	0 kW			
7004	Mains power	Transducer min	-20000 kW 0 kW	0 kW			
7005	Mains power	Transducer input	Multi-input 46 (transducer) 4th CT power meas. (23x, 24x) 3-ph power meas. (245, 246)	Input 46 (21x) 4th CT power meas. (23x, 24x)			
7006	Mains power	Scaling	1kW:1kW 1kW:10kW 1kW: 100kW 1kW: 1000kW	1kW: 1kW			
7010 Daytime period							
7011	Daytime period	Start hour	0 h 23 h	8 h		Designer's Reference Handbook	Daytime period setting for peak shaving/mains power export. The period outside the daytime period is defined as the night period.
7012	Daytime period	Start minute	0 min 59 min	0 min			
7013	Daytime period	Stop hour	0 h 23 h	16 h			
7014	Daytime period	Stop period	0 min 59 min	0 min			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7020 Start generator							
7021	Start generator	Setpoint	5% 100%	80%		Designer's Reference Handbook	The setpoint refers to the menu 7000 mains power setting.
7022	Start generator	Timer	0.0 s 990.0 s	10.0 s			
7023	Start generator	Minimum load	0% 100%	5%			
7030 Stop generator							
7031	Stop generator	Setpoint	0% 80%	60%		Designer's Reference Handbook	The setpoint refers to the menu 7000 mains power setting.
7032	Stop generator	Timer	0.0 s 990.0 s	30.0 s			

3.2.28 Test

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7040 Test running							
7041	Test	Setpoint	1% 100%	80%		Designer's Reference Handbook	Available test types: - Simple (engine run only) - Load (parallel to mains) - Full (disconnects mains)
7042	Test	Test time	0.0 sec. 59940.0 sec.	300.0 sec.			
7043	Test	Return mode	Semi-auto mode Auto mode	Auto mode			
7044	Test	Test type	Simple test Full test	Simple test			

3.2.29 Controller settings

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7050 Fixed power settings							
7051	Fixed power settings	Power	0% 100%	100%		Designer's Reference Handbook	Fixed power parallel with mains settings.
7052	Fixed power settings	Power factor	0.60 1.00	0.90			
7053	Fixed power settings	Power factor	Inductive Capacitive	Inductive			

3.2.30 Mains failure

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7060 U Mains Failure							
7061	U Mains failure	Fail. delay	0.5 s 990.0 s	5.0 s		Designer's Reference Handbook	Menus 7063 and 7064 relate to nominal settings. Menu 7066 refers to the mean value of the measured voltage.
7062	U Mains failure	Mains OK delay	2 s 9900 s	60 s			
7063	U Mains failure	U<	30% 100%	90%			
7064	U Mains failure	U>	100% 120%	110%			
7065	U Mains failure	Mains fail. control	Start eng. Open MB when eng. ready	Start eng. + open MB			
7066	U Mains failure	U unbalance	2% 100%	100%			
7070 f Mains Failure							
7071	f Mains failure	Fail. delay	0.5 s 990.0 s	5.0 s		Designer's Reference Handbook	Menus 7073 and 7074 relate to nominal settings.
7072	f Mains failure	Mains OK delay	2 s 9900 s	60 s			
7073	f Mains failure	f<	80.0% 100.0%	95.0%			
7074	f Mains failure	f>	100.0% 120.0%	105.0%			
7080 MB control							
7081	MB control	Mode shift	OFF ON	OFF		Designer's Reference Handbook	Mode shift allows switching to AMF mode.
7082	MB control	MB close delay	0.0 s 30.0 s	0.5 s			
7083	MB control	Back sync.	OFF ON	OFF			
7084	MB control	Sync to mains	OFF ON	ON			
7085	MB control	Load time	0.0 s 30.0 s	0.0 s			
7090 Mains failure hysteresis							
7091	Mains fail. hyst.	Low volt. hyst.	0% 70%	0%		Designer's Reference Handbook	Hysteresis for when mains is healthy again.
7092	Mains fail. hyst.	High volt. hyst.	0% 20%	0%			
7093	Mains fail. hyst.	Low freq. hyst.	0.0% 20.0%	0.0%			
7094	Mains fail. hyst.	High freq. hyst.	0.0% 20.0%	0.0%			

3.2.31 Frequency dependent power droop

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7120 y1(x1) fdep. P droop							
7121	y1(x1) deadb. low	Dead band low	0.00% 99.99%	0.4%		Designer's Reference Handbook	Menu 7120 settings refer to nominal frequency.Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7122	y1(x1) deadb. high	Dead band high	0.00% 99.99%	0.5%			
7123	y1(x1) hyste low	Slope low	0.00% 99.99%	0.5%			
7124	y1(x1) hyste high	Slope high	0.00%/Hz 99.99%/ Hz	0.5%			
7130 P(x1) f dep. P droop							
7131	P(x1) output min	Minimum change	0 kW 20000 kW	200 kW		Designer's Reference Handbook	Settings 7131/7132 are the minimum and maximum limits the droop function can have. Settings 7133/7134 are power change in % of set value over % change in power, measured from the dead band setting. Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7132	P(x1) output max	Maximum change	0 kW 20000 kW	480 kW			
7133	P(x1) slope low	P slope (x1)	-20000 kW 20000 kW	50 kW			
7134	P(x1) slope high	P slope (x1)	-20000 kW 20000 kW	-50 kW			

3.2.32 Droop curve set Y1/X1

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7140 Droop curve 1							
7141	Droop curve y1 set	Set y1	Power	Power		Designer's Reference Handbook	Settings 7141 and 7142 are prepared for future use; there are no selectable parameters now. Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7142	Droop curve x1 set	Set x1	Frequency	Frequency			
7143	Droop curve	Enable	OFF ON	OFF			

3.2.33 Voltage-dependent PF/kVAr droop

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7150 y2(x2) V dep. PF/kVAr droop							
7151	Y2(x2) deadb. low	Dead band low	0.00% 99.99%	2.00%		Designer's Reference Handbook	Settings 7151/7152 refer to nominal voltage. Settings 7153/7154 are reactive power change in % of set value over % change in voltage, measured from the dead band setting. Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7152	Y2(x2) deadb. high	Dead band high	0.00% 99.99%	2.00%			
7153	Y2(x2) hyste low	Slope low	0.00% 99.99%	2.1%			
7154	Y2(x2) hyste high	Slope high	0.00%/Hz 99.99%/ Hz	2.1%			
7160 Q(x2) V dep. PF7kVAr droop							
7161	Q(x2) output min	Minimum change	-20000 kVAr 20000 kVAr	200 kVAr		Designer's Reference Handbook	Settings 7161/7162 are the minimum and maximum limits the droop function can have. Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7162	Q(x2) output max	Maximum change	-200000 kVAr 20000 kVAr	480 kVAr			
7163	Q(x2) slope low	P slope (x2)	-20000 kVAr 20000 kVAr	50 kVAr			
7164	Q(x2) slope high	P slope (x2)	-20000 kVAr 20000 kVAr	-50 kVAr			
7170 PF(x2) V dep. PF/kVAr droop							
7171	PF(x2) output min.	Minimum change	0.6 1	0.8		Designer's Reference Handbook	Setting 7174 is used to decide if it is accepted to go from inductive to capacitive value (7176 = ON). Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7172	PF(x2) output typ min.	C/I range	Inductive Capacitive	Inductive			
7173	PF(x2) output max.	P slope (x2)	0.6 1	1			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7174	PF(x2) output typ max.	C/I range	Inductive Capacitive	Inductive			
7175	PF(x2) slope low	PF slope (x2)	-1.000 1.000	-0.005			
7176	PF(x2) slope high	PF slope (x2)	-1.000 1.000	0.005			

3.2.34 Droop curve set Y2/X2

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7180 Droop curve 2							
7181	Droop curve Y2 set	Set Y2	CosPhi(X2) Q(X2)	CosPhi(X2)		Designer's Reference Handbook	Y2: Selection between power factor or reactive power setting. X2: Selection between setting relating to mains voltage or generator power. Consult the Designer's Reference Handbook for a graphical overview of the setup of the droop curve.
7182	Droop curve X2 set	Set X2	U P	U			
7183	Droop curve	Enable	OFF ON	OFF			

3.2.35 Power offset

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7220 Power offset							
7221	Power offset 1	Setpoint	-20000 kW 20000 kW	0 kW		Designer's Reference Handbook	Setup of power offset.
7222	Power offset 1	Enable	OFF ON	OFF			
7223	Power offset 2	Setpoint	-20000 kW 20000 kW	0 kW			
7224	Power offset 2	Enable	OFF ON	OFF			
7225	Power offset 3	Setpoint	-20000 kW 20000 kW	0 kW			
7226	Power offset 3	Enable	OFF ON	OFF			

3.2.36 Cos phi offset

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7240 Cosphi offset							
7241	Cosphi offset 1	Setpoint	-0.8 0.8	0		Designer's Reference Handbook	Setup of cosphi offset.
7242	Cosphi offset 1	Enable	OFF ON	OFF			
7243	Cosphi offset 2	Setpoint	-0.8 0.8	0			
7244	Cosphi offset 2	Enable	OFF ON	OFF			
7245	Cosphi offset 3	Setpoint	-0.8 0.8	0			
7246	Cosphi offset 3	Enable	OFF ON	OFF			

3.2.37 4th CT protection

No.	Setting		Min. Max.	Factory setting	Ref.	Description
7440 4th CT reverse power protection level 1						
7441	4th CT -P> 1	Setpoint	-200 0%	-5%	Designer's Reference Handbook	
7442	4th CT -P> 1	Timer	0.1 100 s	10 s		
7443	4th CT -P> 1	Relay output A	Not used Variant-dependent	Not used		
7444	4th CT -P> 1	Relay output B	Not used Variant-dependent	Not used		
7445	4th CT -P> 1	Enable	OFF ON	OFF		
7446	4th CT -P> 1	Fail class	F1…F9	F2		
7450 4th CT reverse power protection level 2						
7451	4th CT -P> 2	Setpoint	-200 0%	-5%	Designer's Reference Handbook	
7452	4th CT -P> 2	Timer	0.1 100 s	10 s		
7453	4th CT -P> 2	Relay output A	Not used Variant-dependent	Not used		
7454	4th CT -P> 2	Relay output B	Not used Variant-dependent	Not used		
7455	4th CT -P> 2	Enable	OFF ON	OFF		
7456	4th CT -P> 2	Fail class	F1…F9	F2		
7460 4th CT Overload protection level 1						
7461	4th CT P> 1	Setpoint	-200 200%	100%	Designer's Reference Handbook	
7462	4th CT P> 1	Timer	0.1 3200 s	10 s		
7463	4th CT P> 1	Relay output A	Not used Variant-dependent	Not used		
7464	4th CT P> 1	Relay output B	Not used Variant-dependent	Not used		
7465	4th CT P> 1	Enable	OFF ON	OFF		
7466	4th CT P> 1	Fail class	F1…F9	F2		

No.	Setting		Min. Max.	Factory setting	Ref.	Description
7470 4th CT Overload protection level 2						
7471	4th CT P> 2	Setpoint	-200 200%	110%	Designer's Reference Handbook	
7472	4th CT P> 2	Timer	0.1 3200 s	10 s		
7473	4th CT P> 2	Relay output A	Not used Variant-dependent	Not used		
7474	4th CT P> 2	Relay output B	Not used Variant-dependent	Not used		
7475	4th CT P> 2	Enable	OFF ON	OFF		
7476	4th CT P> 2	Fail class	F1…F9	F2		

3.2.38 External communication

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7500 Communication control							
7501	Comm. control	Power	OFF ON	OFF		Option H2 Modbus	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	Cosphi	OFF ON	OFF			
7505	Comm. control	Reactive power	OFF ON	OFF			
7510 External communication							
7511	Ext. communication	ID	1 247	1		Option H2 Modbus	The mode ASCII is used for modem communication (ASCII: 7 data bit, RTU: 8 data bit).
7512	Ext. communication	Baud rate	9600 19200	9600			
7513	Ext. communication	Bias	OFF ON	OFF			

3.2.39 Power management internal communication (AGC 24x only)

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	

3.2.40 Engine interface communication

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7560 Engine I/F							
7561	Engine I/F	Engine type	OFF DDEC EMR JDEC Iveco Perkins Caterpillar Volvo Penta Volvo Penta EMS 2 Scania EMS Scania EMS 2 MDEC 2000/4000 M. 302 MDEC 2000/4000 M. 303 MTU ADEC Cummins Generic J1939 IOM-220/230 MTU J1939 Smart Connect	OFF		Designer's Reference Handbook	Please choose MDEC 2000/4000 M.303 when M.201 or M.304 is required. Menu 7562 is only applicable 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 20 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 to "ON". Menu 7565: "Caterpillar CDVR" will not work if MTU protocols are selected in menu 7561.
7562	CAN-open ID	Node ID	0 16	6			
7563	EIC Controls	Enable	OFF ON	ON			
7564	EIC Auto view	Enable	OFF ON	OFF			
7565	EIC AVR control	AVR type	OFF CAT CDVR	OFF			
7566	TSC 1 SA	Source address	-1 255	-1			

3.2.41 Digital AVR parameters (option T2)

No.	Description	Min. value Max. value	Default value	Comment
2262	Soft-start timer for CBE	0.0 s 999.0 s	5.0 s	This setting determines the slope of the soft-start during a CBE start.
6004	Generator nominal voltage – nominal set 1	100 V 160 kV	400 V	The nominal voltage for the generator. Nominal set 1.
6014	Generator nominal voltage – nominal set 2	100 V 160 kV	480 V	The nominal voltage for the generator. Nominal set 2.
6024	Generator nominal voltage – nominal set 3	100 V 160 kV	480 V	The nominal voltage for the generator. Nominal set 3.
6034	Generator nominal voltage – nominal set 4	100 V 160 kV	480 V	The nominal voltage for the generator. Nominal set 4.
6041	Generator voltage transformer primary side	100 V 160 kV	400 V	The nominal voltage for the voltage transformer's primary side. Placed on the generator side of the breaker.
6042	Generator voltage transformer secondary side	100 V 160 kV	400 V	The nominal voltage for the voltage transformer's secondary side. Placed on the generator side of the breaker.
6051	Busbar voltage transformer primary side – busbar nominal set 1	100 V 160 kV	400 V	The nominal voltage for the voltage transformer's primary side. Placed on the busbar side of the breaker. Busbar nominal set 1.
6052	Busbar voltage transformer secondary side – busbar nominal set 1	100 V 690 V	400 V	The nominal voltage for the voltage transformer's secondary side. Placed on the busbar side of the breaker. Busbar nominal set 1.
6061	Busbar voltage transformer primary side – busbar nominal set 2	100 V 25 kV	400 V	The nominal voltage for the voltage transformer's primary side. Placed on the busbar side of the breaker. Busbar nominal set 1.
6062	Busbar voltage transformer secondary side – busbar nominal set 2	100 V 690 V	400 V	The nominal voltage for the voltage transformer's secondary side. Placed on the busbar side of the breaker. Busbar nominal set 1.
7564	EIC Auto view	OFF ON	OFF	Enables a Multi-line 2 unit to display readings from the digital AVR. If a reading is not available, the unit will display N.A. When this setting has been set to ON, the setting will be set to OFF afterwards. This is only a pulse that has been sent, but the Multi-line 2 unit will still display the readings, if any readings are available
7565	Digital AVR	OFF DEIF DVC	OFF	Selects the CAN bus protocol for interfacing between a digital AVR and a Multi-line 2 unit

No.	Description	Min. value Max. value	Default value	Comment
7741	DAVR generator primary voltage	100 V 25 kV	400 V	Decides the primary side of a voltage transformer for the DVC. (This is the transformer side that is in contact with the generator voltage).
7742	DAVR generator secondary voltage	100 V 690 V	400 V	Decides the secondary side of a voltage transformer for the DVC. (This is the transformer side that is in contact with the DVC).
7743	DAVR busbar primary voltage	100 V 25 kV	400 V	Decides the primary side of a voltage transformer for the DVC. (This is the transformer side that is in contact with the busbar).
7744	DAVR busbar secondary voltage	100 V 690 V	400 V	Decides the secondary side of a voltage transformer to the busbar. (This is the transformer side that is in contact with the DVC).
7745	DAVR enable	OFF ON	OFF	When set to ON, the DVC expects voltage measurements on the busbar.
7751	PWM threshold	0.00 % 100.00 %	10.00 %	Decides the output of the start-on threshold function. A higher number will give a steeper slope on the start-on threshold function.
7752	Activation threshold	0.00 % 100.00 %	35.00 %	Decides the upper limit of the start-on threshold function. When this limit has been reached, the soft-start function will take action. The percentage is of nominal voltage.
7753	Soft-start ramp	0.1 s 120.0 s	2.0 s	This parameter decides the slope of the soft-start function.
7761	DAVR warning	OFF ON	OFF	Enables the Multi-line 2 to receive warnings from the DVC.
7762	DAVR warning fail class	Warning Trip GB	Warning	Decides the fail class if a warning is sent from the DVC.
7763	DAVR trip	OFF ON	OFF	Enables the Multi-line 2 to receive trip alarms from the DVC.
7764	DAVR trip fail class	Warning Trip GB	Warning	Decides the fail class if a trip alarm is sent from the DVC.
7771	Knee set point percent of nominal frequency	70.0 % 100.0 %	96.0 %	Enables the Multi-line 2 to receive warnings from the DVC.
7772	U/F slope	1.0 3.0	1.0	Decides the slope for the U/F. A higher value will make the slope steeper.
7773	Soft voltage recovery adjustment	0.1 s/10 Hz 30.0 s/10 Hz	2.0 s/10 Hz	Decides how fast the voltage should recover from a load impact. It is required to have the Load Acceptance Module activated to use this. A lower value will make a steeper slope.

No.	Description	Min. value Max. value	Default value	Comment
7774	Soft voltage recovery	OFF ON	OFF	Enables the soft voltage recovery.
7775	Adjustment of Load Acceptance Module	70 % 100 %	90 %	Decides how much the voltage is allowed to drop instantaneously, when a load impact is applied. A lower value allows a bigger voltage drop.
7776	Load Acceptance Module	OFF ON	OFF	Enables the Load Acceptance Module.
7781	Q droop compensation	0.0 % 10.0 %	2.0 %	Decides the slope of the Q droop compensation. A higher value allows more droop.
7782	U droop compensation	0.0 % 10.0 %	2.0 %	Decides the slope of the U droop compensation. A higher value allows more droop.
7783	Droop compensation type	Off Q load droop	Q load droop	Only one of the droop types can be enabled.
7791	I excitation reference for Dry Alternator mode	0.0 A 20.0 A	1.5 A	Decides the excitation current in Dry Alternator mode.
7792	I excitation reference for Close Before Excitation	0.0 A 0.5 A	0.0 A	Decides how much excitation is allowed in a Close Before Excitation sequence. This is during the remanence phase
7793	Transformer excitation current limit	0.0 % 300.0 %	100.0 %	Current maximum during transformer excitation sequence. The value is percentage of nominal current.
7794	Induction motor starting current limit	0.0 % 300.0 %	100.0 %	Current maximum during an induction motor starting sequence. The value is percentage of nominal current.
7795	I stator limitation function enable	OFF Magnetisation	OFF	Makes it possible to have the stator current limitation functions disabled, only induction motor starting, or both induction motors starting and transformer excitation.
7801	PID factor	1 100	20	Makes it possible to make the AVR regulation faster or slower.
7803	Write all settings to DVC	OFF ON	OFF	When set to ON, the Multi-line 2 unit will send all the relevant parameters to the DVC.
7804	DAVR bias range	1.0 % 30.0 %	10.0 %	This setting control defines the outer limits for the regulation. 10 % on a 400 V generator means that voltage can be regulated from 360 to 440 V.
7805	DAVR controls	OFF ON	ON	Decides who has the control. When set to ON, the DVC is allowed to change regulator mode, and the DVC will not receive any parameters from the Multi-line 2 unit.

No.	Description	Min. value Max. value	Default value	Comment
7806	DAVR bias analogue range	4 to 20 mA 0 to +10 V	+/-10 V	If the DVC uses analogue bias for regulation, this defines the type of analogue interfacing for the DVC. The analogue input on the DVC is hardcoded to be at terminal AI1.
7811	PT100_1 threshold	50 °C 200 °C	160 °C	Determines the maximum temperature of the winding in phase 1 of the alternator.
7812	PT100_2 threshold	50 °C 200 °C	160 °C	Determines the maximum temperature of the winding in phase 2 of the alternator.
7813	PT100_3 threshold	50 °C 200 °C	160 °C	Determines the maximum temperature of the winding in phase 3 of the alternator.
7821	Voltage loss detection enable	OFF ON	OFF	Enables the voltage loss protection.
7822	Excitation current protection	OFF ON	OFF	Enables the excitation current protection.
7823	Over-voltage protection	OFF ON	OFF	Enables the over-voltage protection.
7824	Diode fault	OFF ON	OFF	Enables the diode fault protection.
7825	Shutdown diodes	OFF ON	OFF	Enables the shutdown diodes function.
7831	DAVR communication error timer	0.0 s 100.0 s	0.0 s	A timer for an alarm for communication error to the DVC.
7832	DAVR communication error output A	Not used Relay 43	Not used	If the DAVR communication fails, it is possible to activate a relay.
7833	DAVR communication error output B	Not used Relay 43	Not used	If the DAVR communication fails, it is possible to activate a relay.
7834	DAVR communication error alarm enable	OFF ON	OFF	Enables/disables the alarm for communication error between the DVC and the Multi-line 2 unit.
7835	DAVR communication error alarm fail class	Warning Trip GB	Warning	Decides what the Multi-line 2 unit should do, if the DAVR communication alarm occurs.

3.2.42 CAN port setup

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
7841	CAN A		PMS primary		Installation instrucions	Selection of CAN protocol
7842	CAN B		PMS secondary			
7843	CAN C		H5 EIC			

3.2.43 CAN share failure

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7860 CAN share failure							
7861	CAN share failure	Timer	0.1 s 100.0 s	1.0S		Designer's Reference Handbook	These parameters are used to check the integrity of the CAN share lines. If there is a failure on the CAN share lines an alarm will occur when the timer (parameter 7861) expires. A related alarm for CAN share failure is also located in M-Logic alarms.
7862	CAN share failure	Relay output A	Not used Option dep.	Not used			
7863	CAN share failure	Relay output B	Not used Option dep.	Not used			
7864	CAN share failure	Enable	OFF ON	OFF			
7865	CAN share failure	Fail Class	F1...F9	Trip GB (F3)			

3.2.44 CAN share fail mode

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7866 CAN share fail mode							
7866	CAN share mode	Fall back mode	Manual No mode change	No mode change		Designer's Reference Handbook	Mode change in case of failure. The options are: Manual, semi-auto or No mode change when a failure occurs on the CAN share line.

3.2.45 External I/O communication setup

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
7890 CIO Configuration							
7891	CIO enable		ON OFF	OFF			Enabling CIO communication.
7970 Ext. I/O Comm. setup							
7971	Ext. I/O Comm. setup	Baud rate	50k 250k	125k			After changing type, the parameter list in the PC USW must be uploaded again.
7972	Ext. I/O Comm. setup	ID	10 64	10			
7973	Ext. I/O Comm. setup	Reset	OFF ON	OFF			

3.2.46 Power management setup (AGC 242/244/245/246 only)

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8000 Load-dependent start							
8001	Load dep. start	P set-point	1 kW 20000 kW	100 kW		Designer's Reference Handbook	
8002	Load dep. start	S set-point	1 kVA 20000 kVA	100 kVA			
8003	Load dep. start	% set-point	1% 100%	90%			
8004	Load dep. start	Timer	0.0 s 990.0 s	10.0 s			
8005	Load-dep. start	Min. load	0 kW 20000 kW	20 kW			
8010 Load-dependent stop							
8011	Load dep. stop	P set-point	1 kW 20000 kW	200 kW		Designer's Reference Handbook	Menu 8015 set to "ON" will block the load-dependent stop if a heavy consumer is connected.
8012	Load dep. stop	S set-point	1 kVA 20000 kVA	200 kVA			
8013	Load dep. stop	% set-point	1% 100%	70%			
8014	Load dep. stop	Timer	5.0 s 990.0 s	30.0 s			
8015	Load dep. stop	Select	Blocked ON Blocked OFF	Blocked ON			
8020 PM config							
8021	PM config	Enable	Remote Local	Remote		Designer's Reference Handbook	Remotely and locally decide if the start/stop command of the plant is given Remote (digital input) or Local (from the display). Update is used to define if the change of a running mode will affect all units connected on the power management CAN line or only the local unit where the running mode is changed.
8022	PM config	Update	Update local Update all	Update all			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8030 Priority selection							
8031	Priority select.	Priority	Manual abs. Running hours rel.	Manual abs.		Designer's Reference Handbook	Priorities available: ● Manual absolute ● Running hours absolute ● Fuel optimisation ● Manual relative ● Running hours relative
8080 Priority (1-5)							
8081	Priority 1	ID	1 32	1		Designer's Reference Handbook	Menu 8086 is only applicable 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 32	2			
8083	Priority 3	ID	1 32	3			
8084	Priority 4	ID	1 32	4			
8085	Priority 5	ID	1 32	5			
8086	Transmit new priority	Enable	ON OFF	OFF			
8090 Priority (6-11)							
8091	Priority 6	ID	1 32	6		Designer's Reference Handbook	
8092	Priority 7	ID	1 32	7			
8093	Priority 8	ID	1 32	8			
8094	Priority 9	ID	1 32	9			
8095	Priority 10	ID	1 32	10			
8096	Priority 11	ID	1 32	11			
8100 Priority (12-16)							
8101	Priority 12	ID	1 32	12		Designer's Reference Handbook	
8102	Priority 13	ID	1 32	13			
8103	Priority 14	ID	1 32	14			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8104	Priority 15	ID	1 32	15			
8105	Priority 16	ID	1 32	16			
8106	Priority 17	ID	1 32	17			
8110 Running hours							
8111	Running hours	Priority Update	1 hrs 20000 hrs	175 hrs		Designer's Reference Handbook	If menu 8113 is set "ON", the relative running hour counters in the unit will be reset to 0 hours.
8112	Running hours	Type	Absolute Relative	Absolute			
8113	Running hours	Reset	OFF ON	OFF			
8120 Ground relay							
8121	Ground relay	Output A	Not used Variant dep.	Not used		Designer's Reference Handbook	Selection of relay output for start point grounding. (8121 and 8122). 8123 is used to enable the ground relay feature. The timer setting is for how long a ground relay feedback failure is accepted
8122	Ground relay	Output B	Not used Variant dep.	Not used			
8123	Ground relay	Enable	OFF ON	OFF			
8124	Ground relay	Timer	1 s 5 s	1 s			
8125	Ground relay	Fail-class	F1...F9	Trip GB (F3)			
8130 Ground relay position							
8131	Gnd Open fail	Timer	1 s 5 s	1 s		Designer's Reference Handbook	Alarms related to the position of the ground failure breaker.
8132	Gnd Open fail	Fail-class	F1…F9	Trip GB(F3)			
8133	Gnd Close fail	Timer	1 s 5 s	1 s			
8134	Gnd Close fail	Fail-class	F1…F9	Block(F1)			
8135	Gnd pos fail	Timer	1 s 5 s	1 s			
8136	Gnd pos fail	Fail-class	F1…F9	Trip GB(F3)			
8140 Stop non-connected DGs							
8141	Stop non-con. DGs	Timer	10.0 s 600.0 s	60.0 s		Designer's Reference Handbook	Stop timer for non-connected gensets.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8170 Fuel optimise							
8171	Fuel optimise	Setpoint	30% 100%	80%		Designer's Reference Handbook	
8172	Fuel optimise	Swap setpoint	10 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			
8180 Mains config.							
8181	Mb failure start	Enable	OFF ON	OFF		Designer's Reference Handbook	Only available in AGC 245/246 units. Auto switch selections: -OFF -Static section -Dynamic section -All sections
8182	Parallel	Enable	OFF ON	OFF			
8183	No break transfer	Enable	OFF ON	OFF			
8184	Auto switch	Select	OFF All sections	OFF			
8185	Run type	Select	Run all mains Run one mains	Run one mains			
8186	Run type	ID to run	17 32	17			
8190 Tie breaker							
8191	Tie breaker	TB open point	0 kW 20000 kW	50 kW		Designer's Reference Handbook	Only available in AGC 246 unit.
8192	Tie breaker	Power Capacity	1 kW 20000 kW	50 kW			
8193	Tie breaker	P. cap. Overrule	5.0 s 999.9 s	30.0 s			
8194	Tie breaker	P cap. Overrule	OFF ON	OFF			
8195	Tie breaker	Load time	0.0 s 30.0 s	0.0 s			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8200 Heavy consumer 1							
8201	Heavy consumer 1	Req. value	10 kVA 9999 kVA	500 kVA		Designer's Reference Handbook	Only available in AGC 242 units.
8202	Heavy consumer 1	Nom. power	10 kW 9999 kW	400 kW			
8203	Heavy consumer 1	Load type	Fixed load Variable load	Fixed load			
8210 Heavy consumer 2							
8211	Heavy consumer 2	Req. value	10 kVA 9999 kVA	500 kVA		Designer's Reference Handbook	Only available in AGC 242 units.
8212	Heavy consumer 2	Nom. power	10 kW 9999 kW	400 kW			
8213	Heavy consumer 2	Load type	Fixed load Variable load	Fixed load			
8220 Available power 1							
8221	Avail. power 1	Setpoint	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	The setting can be used for conditional connection of load groups. The relay(s) used must be set to "Limit" mode.
8222	Avail. power 1	Timer	1.0 s 999.9 s	10.0 s			
8223	Avail. power 1	Relay output A	Not used Variant dep.	Not used			
8224	Avail. power 1	Relay output B	Not used Variant dep.	Not used			
8225	Avail. power 1	Enable	OFF ON	OFF			
8230 Available power 2							
8231	Avail. power 2	Setpoint	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	The setting can be used for conditional connection of load groups. The relay(s) used must be set to "Limit" mode.
8232	Avail. power 2	Timer	2.0 s 999.9 s	10.0 s			
8233	Avail. power 2	Relay output A	Not used Variant dep.	Not used			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8234	Avail. power 2	Relay output B	Not used Variant dep.	Not used			
8235	Avail. power 2	Enable	OFF ON	OFF			
8240 Available power 3							
8241	Avail. power 3	Setpoint	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	The setting can be used for conditional connection of load groups. The relay(s) used must be set to "Limit" mode.
8242	Avail. power 3	Timer	3.0 s 999.9 s	10.0 s			
8243	Avail. power 3	Relay output A	Not used Variant dep.	Not used			
8244	Avail. power 3	Relay output B	Not used Variant dep.	Not used			
8245	Avail. power 3	Enable	OFF ON	OFF			
8250 Available power 4							
8251	Avail. power 4	Setpoint	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	The setting can be used for conditional connection of load groups. The relay(s) used must be set to "Limit" mode.
8252	Avail. power 4	Timer	4.0 s 999.9 s	10.0 s			
8253	Avail. power 4	Relay output A	Not used Variant dep.	Not used			
8254	Avail. power 4	Relay output B	Not used Variant dep.	Not used			
8255	Avail. power 4	Enable	OFF ON	OFF			
8260 Available power 5							
8261	Avail. power 5	Setpoint	10 kW 20000 kW	1000 kW		Designer's Reference Handbook	The setting can be used for conditional connection of load groups. The relay(s) used must be set to "Limit" mode.
8262	Avail. power 5	Timer	5.0 s 999.9 s	10.0 s			
8263	Avail. power 5	Relay output A	Not used Variant dep.	Not used			
8264	Avail. power 5	Relay output B	Not used Variant dep.	Not used			
8265	Avail. power 5	Enable	OFF ON	OFF			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8270 TB power							
8271	TB power	Transducer max.	0 kW 20000 kW	0 kW		Designer's Reference Handbook	AGC 246 only: If the TB needs to be deloaded before opening, the CT no. 4 must be used for the measurement of TB power.
8272	TB power	Transducer min.	-20000 kW 0 kW	0 kW			
8273	TB power meas	Type	Multi-input 47 4th CT	Multi-input 47			
8274	Deload TB	Enable	OFF ON	OFF			
8280 Asymmetric load sharing							
8281	Asymmetric LS	Setpoint	1% 100%	80%		Designer's Reference Handbook	Please refer to the option G4/G5/G8 manual.
8282	Asymmetric LS	Enable	OFF ON	OFF			
8300 Load-dependent start 2							
8301	Start lim. P	P setpoint	1 kW 20000 kW	100 kW		Designer's Reference Handbook	
8302	Start lim. S	S setpoint	1 kVA 20000 kVA	100 kVA			
8303	Start lim. %	% setpoint	1 % 100 %	90 %			
8304	Timer		0.0 s 990.0 s	10.0 s			
8310 Load-dependent stop 2							
8311	Stop lim. P	P setpoint	1 kW 20000 kW	200 kW		Designer's Reference Handbook	
8312	Stop lim. S	S setpoint	1 kVA 20000 kVA	200 kVA			
8313	Stop lim. %	% setpoint	1 % 100 %	70 %			
8314	Timer		0.0 s 990.0 s	30.0 s			
8880 Load-dependent start/ stop calc.							
8881	Start/stop calc.	S1	kW kVA	kW		Designer's Reference Handbook	These settings are used to decide how the load-dependent start and stop commands in the power management system should be calculated.
8882	Start/stop calc.	S2	Value Percentage	Value			

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
8920 Secured mode							
8921	Secured mode	Sec	Secured mode OFF Secured mode ON	Secured mode OFF		Designer's Reference Handbook	Multi-start setpoint 1 and 2: - Auto calculation - 1 DG - 2 DG - 3 DG - 4 DG - 5 DG - 6 DG - 7 DG - 8 DG - 9 DG - 10 DG - 11 DG - 12 DG - 13 DG - 14 DG - 15 DG - 16 DG Minimum number of running DGs: 1-16 DGs. Multi-start configuration: Selects between setpoint 1 and 2.
8922	Multi-start setpoint 1	Setpoint 1	Auto calculation Start 16 DG	Auto calculation			
8923	Multi-start setpoint 1	Run 1	Minimum number run. 1-16	1			
8924	Multi-start config.	Select	Multi-start set 1 Multi-start set 2	Multi-start set 1			
8925	Multi-start setpoint 2	Setpoint 2	Auto calculation Start 16 DG	Start 16 DG			
8926	Multi-start setpoint 2	Run 2	Minimum number run. 1-16	1			
8930 Heavy consumer 1 variable load							
8931	HC 1 VAR load	Type	Multi-input 46 Multi-input 48	Multi-input 46		Designer's Reference Handbook	Type: - Multi-input 46 - Multi-input 47 - Multi-input 48 The function is only available in DG units.
8932	HC 1 VAR load	Setpoint min.	0 mA 10 mA	0 mA			
8933	HC 1 VAR load	Setpoint max.	10 mA 20 mA	20 mA			
8940 Heavy consumer 2 variable load							
8941	HC 2 VAR load	Type	Multi-input 46 Multi-input 48	Multi-input 47		Designer's Reference Handbook	Type: - Multi-input 46 - Multi-input 47 - Multi-input 48 The function is only available in DG units.
8942	HC 2 VAR load	Setpoint min.	0 mA 10 mA	0 mA			
8943	HC 2 VAR load	Setpoint max.	10 mA 20 mA	20 mA			

3.2.47 Tools menus

A number of menus can only be entered using the Tools menu. The Tools menu is found by pressing the button.

The following tools can be found here:

Status binary input:	Shows binary input status.
Status relay output:	Shows relay output status.
Status analogue input:	Shows analogue input values.
Status timers:	Shows remaining alarm delay time.
Jump menu:	Shows setting by selection (direct access to all settings).
Display lines:	Shows the display lines that can be selected and used in the 20 display views.
Ethernet setup:	Setup of Ethernet (option N) address.

3.2.48 Jump menu

The following menus can only be accessed using the Jump menu selection.

3.2.49 9000 Software version

Information about the application software version downloaded to the unit. Please check this before contacting DEIF regarding service and support matters.

3.2.50 9030 Scaling

No.	Setting		Min. Max.	Factory setting	Ref.	Description
9030 Scaling of voltage reference						
9031	Scaling	Setting	10-2500 V 0.4 kV-75 kV	100 V-25000 V	Designer's Reference Handbook	This parameter is used to scale the voltage reference. Selections: 10-2500 V 100-25000 V 10 kV-160 kV 0.4 kV-75 kV

3.2.51 9110 Password

No.	Setting		Min. Max.	Factory setting	Ref.	Description
9110 Password						
9111	Customer password	Setting	0 32000	2000	Designer's Reference Handbook	It is recommended to change the password levels of the user, service and master passwords if access to parameter settings is to be restricted.
9112	Service password	Setting	0 32000	2001		
9113	Master password	Setting	0 32000	2002		

3.2.52 9130 AC config.

This menu is used to choose the AC configuration.

No.	Setting		Min. Max.	Factory setting	Description
9130 AC config.					
9130	AC config.	Setup	3 phase L1L2L3 1 phase L1	3 phase L1L2L3	Selections: - 3 phase L1L2L3 - 2 phase L1L3 - 2 phase L1L2 - 1 phase L1

Phase angles:
L1L2L3: 120 degrees with neutral.
L1L3: 180 degrees (split phase, neutral in the centre).
L1L2: 120 degrees with neutral.
L1: Single phase with phase-neutral.

3.2.53 9140 Angle compensation BB/G

This menu is used to compensate the transformer phase angle when the generator and busbar measurements are made on each side of a transformer.

No.	Setting		Min. Max.	Factory setting	Ref.	Description
9140 Angle comp. BB/G						
9141	Angle comp. BB/ G	Angle	-45.0 deg. 45.0 deg.	0.0 deg.	Designer's Reference Handbook	

When changing the setting, be sure to test before carrying out actual synchronisation. This setting shifts the closing point of the breaker.

3.2.54 9150 Display control

No.	Setting		Min. Max.	Factory setting	Ref.	Description
9150 Display control						
9151	Display control	Contrast level	10 -10	0	Designer's Reference Handbook	With this setting, it is possible to adjust the contrast of the display. Display contrast is not included in a batch read because this setting is individual for each unit.

3.2.55 9160 Standard plant

No.	Setting	Min. Max.	Factory setting	Ref.	Description
9160 Standard plant					
9161	Application	Appl. 1 Appl. 2	Appl. 1	Designer's Reference Handbook	The 4 different applications available make it possible to shift between different plant types.

3.2.56 Internal CAN protocol

Menu 9171 is used to make it possible to interface to AGC units using application SW version 3.20.x or earlier. Menus 9172 and 9173 are used to speed up power management telegrams between controllers.

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
9170 Internal CAN protocol						
9171	Application	Protocol 1 Protocol 2	Protocol 2		Option G4, G5 and G8	
9172	Int. CAN units	<=15 units <=40 units	<=40 units			
9173	Int. CAN Baud	125 kbit 250 kbit	250 kbit			

3.2.57 9180 Quick setup (AGC mains)

This menu makes it possible to set up the power management application without using the "Application configuration" tool in the PC utility software.

No.	Setting		Min. Max.	Factory setting	Notes	Ref.	Description
9180 Quick setup							
9181	Quick setup	Mode	OFF Setup stand-alone Setup plant	OFF			When using this menu, it will not be possible to design applications with AGC 200 bus tie units.
9182	Quick setup	CAN	OFF CAN A CAN B CAN A+B	CAN A			
9183	Quick setup	MB	Pulse No MB Continuous Compact	Pulse			
9184	Quick setup	GB	Pulse Continuous Compact	Pulse			
9185	Quick setup	Mains	Mains present No mains present	Mains present			
9186	Quick setup	Plant type	Standard Single DG	Standard			

3.2.58 9190 Application broadcast

This menu makes it possible to broadcast an application between all AGC 200 units connected on the CAN A or CAN B line.

No.	Setting		Min. Max.	Factory set-ting	Notes	Ref.	Descrip-tion
9190 Application broadcast							
9191	Application broadcast	Enable	OFF Broadcast Broadcast + activate	OFF			
9192	Application broadcast	Application	Application 1 Application 2 Application 3 Application 4	Application 1			

3.2.59 Passwords

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

3.2.60 Resistance Measurement Input (RMI) 46

RMI 46 settings are only accessible in the utility software.

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
10460 RMI 46 type						
10460	RMI 46 type	Sensor type 1 Configurable VDO	Sensor type 1		Designer's Reference Handbook	Selections are: -Sensor type 1 -Sensor type 2 -Sensor type 3 -Configurable
10470 RMI 46 input setpoint 1						
10470	RMI 46 inp. setp. 1	0 Ohm 2500 Ohm	10 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10480 RMI 46 output setpoint 1						
10480	RMI 46 outp. setp. 1	-49 482	40		Designer's Reference Handbook	Configurable RMI curve.
10490 RMI 46 input setpoint 2						
10490	RMI 46 inp. setp. 2	0 Ohm 2500 Ohm	44.9 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10500 RMI 46 output setpoint 2						
10500	RMI 46 outp. setp. 2	-49 482	50		Designer's Reference Handbook	Configurable RMI curve.
10510 RMI 46 input setpoint 3						
10510	RMI 46 inp. setp. 3	0 Ohm 2500 Ohm	81 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10520 RMI 46 output setpoint 3						
10520	RMI 46 outp. setp. 3	-49 482	60		Designer's Reference Handbook	Configurable RMI curve.
10530 RMI 46 input setpoint 4						
10530	RMI 46 inp. setp. 4	0 Ohm 2500 Ohm	134.7 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10540 RMI 46 output setpoint 4						
10540	RMI 46 outp. setp. 4	-49 482	80		Designer's Reference Handbook	Configurable RMI curve.
10550 RMI 46 input setpoint 5						
10550	RMI 46 inp. setp. 5	0 Ohm 1800 Ohm	184 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10560 RMI 46 output setpoint 5						
10560	RMI 46 outp. setp. 5	-49 482	100		Designer's Reference Handbook	Configurable RMI curve.

No.	Setting	Min. Max.	Factory setting	Notes	Ref.	Description
10570 RMI 46 input setpoint 6						
10570	RMI 46 inp. setp. 6	0 Ohm 2500 Ohm	200 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10580 RMI 46 output setpoint 6						
10580	RMI 46 outp. setp. 6	-49 482	110		Designer's Reference Handbook	Configurable RMI curve.
10590 RMI 46 input setpoint 7						
10590	RMI 46 inp. setp. 7	0 Ohm 2500 Ohm	210 Ohm		Designer's Reference Handbook	Configurable RMI curve.
10600 RMI 46 output setpoint 7						
10600	RMI 46 outp. setp. 7	-49 482	115		Designer's Reference Handbook	Configurable RMI curve.
10610 RMI 46 input setpoint 8						
10610	RMI 46 inp. setp. 8	0 Ohm 2500 Ohm	220 Ohm		Designer's Reference Handbook	Configurable VDO curve.
10620 RMI 46 output setpoint 8						
10620	RMI 46 outp. setp. 8	-49 482	120		Designer's Reference Handbook	Configurable RMI curve.

3.2.61 RMI 47

RMI 47 settings are only accessible in the utility software.

Menus 10630-10790 equal the settings for RMI 46 (10460-10620).

3.2.62 RMI 48

RMI 48 settings are only accessible in the utility software.

Menus 10800-10960 equal the settings for RMI 46 (10460-10620).

3.2.63 Multi-input 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 46						
10980	Multi-inp. conf. 46	4-20 mA Binary	Pt100			Selections are 4-20 mA Pt100 RMI oil pressure RMI water temp RMI fuel level Binary
10990 Multi-input configuration 47						
10990	Multi-inp. conf. 47	4-20 mA Binary	Pt100			Selections are: 4-20 mA Pt100 RMI oil pressure RMI water temp RMI fuel level Binary
11000 Multi-input configurable 48						
11000	Multi-inp. conf. 48	4-20 mA Binary	Pt100			Selections are: 4-20 mA Pt100 RMI oil pressure RMI water temp RMI fuel level Binary

No.	Setting	Min. Max.	Factory set-ting	Notes	Ref.	Description
11010 Analogue unit input 46						
11010	Analogue unit input 46	None 1/1 Ohm 1/10	mA 1/1			Selections are: - None 1/1 - None 1/10 - None 1/100 - mA 1/1 - mA 1/10 - mA 1/100 - psi 1/1 - psi 1/10 - psi 1/100 - bar 1/1 - bar 1/10 - bar 1/100 - mbar 1/1 - C 1/1 - C 1/10 - F 1/1 - F 1/10 - Deg 1/1 - Deg 1/10 - degC 1/1 - degC 1/10 - degF 1/1 - degF 1/10 - Perc 1/1 - Perc 1/10 - Perc 1/100 - Perc/s 1/1 - Perc/s 1/10 - Perc/s 1/100 - V 1/1 - V 1/10 - V 1/100 - kV 1/1 - kV 1/10 - kV 1/100 - A 1/1 - Hz 1/1 - Hz 1/10 - Hz 1/100 - kW 1/1 - kW 1/10 - kVA 1/1 - kVA 1/10 - kvar 1/1 - kvar 1/10 - MW 1/10 - MW 1/100

No.	Setting	Min. Max.	Factory set-ting	Notes	Ref.	Description
						- MVA 1/10 - MVA 1/100 - Mvar 1/10 - Mvar 1/100 - PF 1/100 - rpm 1/1 - rpm 1/10 - ohm 1/1 - ohm 1/10
11020 Analogue unit input 47						
11020	Analogue unit input 47	None 1/1 Ohm 1/10	mA 1/1			Selections are the same as menu 11010.
11030 Analogue unit input 48						
11030	Analogue unit input 48	None 1/1 Ohm 1/10	mA 1/1			Selections are the same as menu 11010.

3.2.64 External digital outputs

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

The same settings apply to menus 12800-12940.

3.2.65 External module status

No.	Setting	Min. Max.	Notes	Ref.	Description
12950	Ext module 0 STATUS	-32768 32767		Option: External I/O modules (H8)	This is a number read in the external module and displayed in the USW only. Please refer to option H8 description for details.

The same settings apply to menus 12951-12983 (external modules 1 to 33).