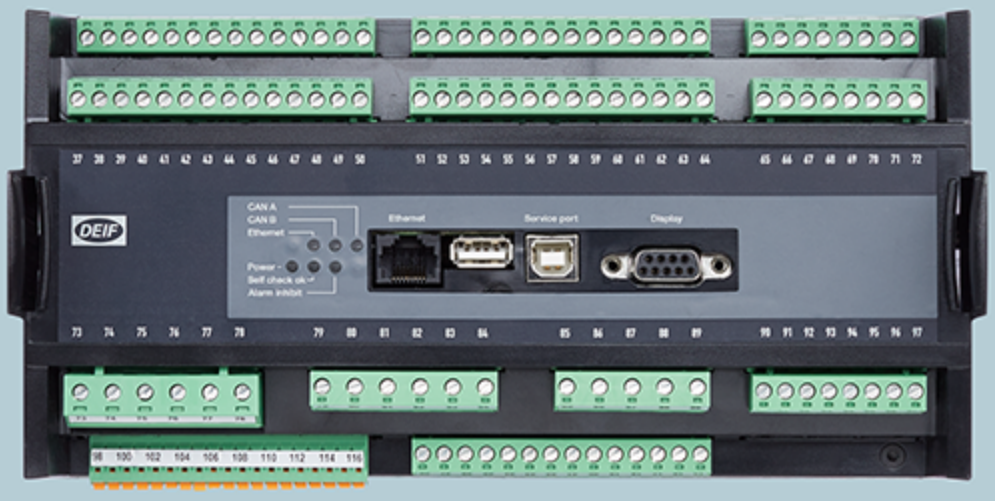
PARAMETER LIST

AGC-4



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1. General information

2. Alarm list

1. General information

1.1 Warnings, legal information and safety

1.1.1 Warnings and notes

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

Warnings

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

Notes

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

1.1.2 Legal information and disclaimer

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

INFO
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 Factory settings

The Multi-line 2 unit is delivered from the factory with default settings. These are not necessarily correct for the engine/generator set. Check all the settings before running the engine/generator set.

1.2 About the Parameter list

1.2.1 Purpose of the Parameter list

The parameter list is a reference document. It includes the AGC-4 alarms and parameters. If your controller does not include the relevant option, the option-dependent parameters may not be accessible.

Parameters with numbers up to 9999 can generally be configured using the DU-2 display unit, TDU 107 or the utility software. Some of the JUMP menu parameters (9000 to 9250) can only be configured using the display unit.

Parameters with numbers above 10000 can only be configured from the TDU 107 or the utility software.

The utility software includes settings that do not have parameter numbers. These are described briefly under Utility software settings.

For some of the parameters, the AGC-4 **Designer's reference handbook** and/or **Option** documents contain more information.

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.

2. Alarm list

2.1 General information about the alarm list

2.1.1 Alarm list features and options

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 an alarm list, with the alarm options.

Each alarm can include the following parameters:

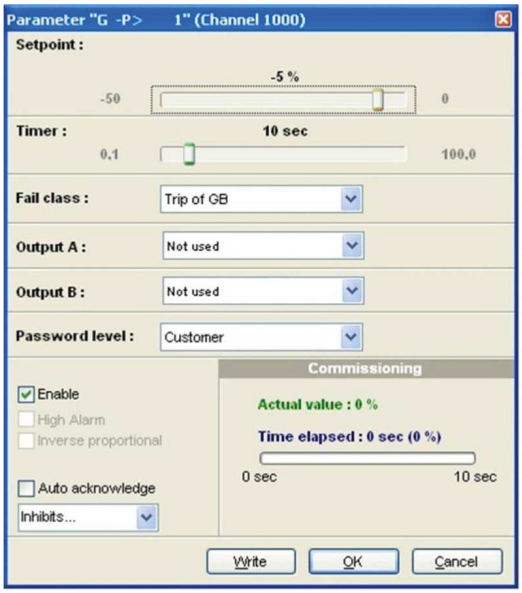
- Set point: The alarm set point. This is often a percentage of the nominal value.
- Delay: The timer setting is the time that must expire from the set point is reached until the alarm is activated.
- Relay output A: A relay can be activated by output A.
- Relay output B: A relay can be activated by output B.
- An alarm is activated if no relay output, A or B, is selected. Do not select Limits/Limit relay if you want an alarm to be raised together with a relay output A or B.
- Enable: The alarm can be activated or deactivated.
- Fail class: When the alarm occurs the unit will react depending on the selected fail class.

The 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

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

The utility software includes some alarm functions that are not available from the display unit. For example, it is possible to select automatic acknowledgement of the alarm.


Parameter "G -P> 1" (Channel 1000)
Setpoint :
-5 %
-50
0
Timer :
10 sec
0,1
100,0
Fail class :
Trip of GB
Output A :
Not used
Output B :
Not used
Password level :
Customer
Commissioning
Enable
High Alarm
Inverse proportional
Auto acknowledge
Inhibits...
Actual value : 0 %
Time elapsed : 0 sec (0 %)
0 sec
10 sec
Write
OK
Cancel

2.2 Protection parameters

2.2.1 Reverse power protections

1000 Reverse power 1

No.	Setting		Range	Factory setting	Description
1001	-P>1	Set point	-200.0 to 0.0 %	-5.0 %	The alarm and fail class are activated when the reverse power has been continuously above the programmed value during the programmed delay.
1002	-P>1	Timer	0.1 to 100.0 s	5.0 s	
1003	-P>1	Relay output A	Not used (option dependent)	Not used	
1004	-P>1	Relay output B	Not used (option dependent)	Not used	
1005	-P>1	Enable	OFF ON	ON	
1006	-P>1	Fail class	F1 to F9	F3 (Trip GB)	

1010 Reverse power 2

No.	Setting		Range	Factory setting	Description
1011	-P>2	Set point	-200.0 to 0.0 %	-5.0 %	The alarm and fail class are activated when the reverse power has been continuously above the programmed value during the programmed delay.
1012	-P>2	Timer	0.1 to 100.0 s	10.0 s	
1013	-P>2	Relay output A	Not used (option dependent)	Not used	
1014	-P>2	Relay output B	Not used (option dependent)	Not used	
1015	-P>2	Enable	OFF ON	ON	
1016	-P>2	Fail class	F1 to F9	F3 (Trip GB)	

2.2.2 Over-current protections

1030 Over-current 1

No.	Setting		Range	Factory setting	Description
1031	I>1	Set point	50.0 to 200.0 %	115.0 %	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1032	I>1	Timer	0.1 to 3200.0 s	10.0 s	
1033	I>1	Relay output A	Not used (option dependent)	Not used	
1034	I>1	Relay output B	Not used (option dependent)	Not used	
1035	I>1	Enable	OFF ON	ON	
1036	I>1	Fail class	F1 to F9	F2 (Warning)	

1040 Over-current 2

No.	Setting		Range	Factory setting	Description
1041	I>2	Set point	50.0 to 200.0 %	120.0 %	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1042	I>2	Timer	0.1 to 3200.0 s	5.0 s	
1043	I>2	Relay output A	Not used (option dependent)	Not used	
1044	I>2	Relay output B	Not used (option dependent)	Not used	
1045	I>2	Enable	OFF ON	ON	
1046	I>2	Fail class	F1 to F9	F3 (Trip GB)	

1050 Over-current 3

No.	Setting		Range	Factory setting	Description
1051	I>3	Set point	50.0 to 200.0 %	115.0 %	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1052	I>3	Timer	0.1 to 3200.0 s	10.0 s	
1053	I>3	Relay output A	Not used (option dependent)	Not used	
1054	I>3	Relay output B	Not used (option dependent)	Not used	
1055	I>3	Enable	OFF ON	ON	
1056	I>3	Fail class	F1 to F9	F3 (Trip GB)	

1060 Over-current 4

No.	Setting		Range	Factory setting	Description
1061	I>4	Set point	50.0 to 200.0 %	120.0 %	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1062	I>4	Timer	0.1 to 3200.0 s	5.0 s	
1063	I>4	Relay output A	Not used (option dependent)	Not used	
1064	I>4	Relay output B	Not used (option dependent)	Not used	
1065	I>4	Enable	OFF ON	ON	
1066	I>4	Fail class	F1 to F9	F3 (Trip GB)	

1080 G I> inverse

No.	Setting		Range	Factory setting	Description
1081	G I> inv. Type	Set point	0 to 6	IEC Inverse	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
1082	G I> inv. Limit	Set point	50 to 200 %	110 %	
1083	G I> inv. TMS	Set point	0.01 to 100.00	1.00	
1084	G I> inv. k	Set point	0.00 to 32 s	0.14 s	
1085	G I> inv. c	Set point	0.00 to 32 s	0 s	
1086	G I> inv. a	Set point	0.00 to 32 s	0.02 s	
1091	G I> inv. OA	Output A	Not used (variant dependent)	Not used	
1092	G I> inv. OB	Output B	Not used (variant dependent)	Not used	
1093	G I> inv.	Enable	OFF ON	OFF	
1094	G I> inv.	Fail class	F1 to F9	F3 (Trip GB)	

1100 Voltage dependent over-current curve setting

No.	Setting		Range	Factory setting	Description
1101	G Iv > (50%)	Set point I1	50.0 to 200.0 %	110.0 %	The different percentages in the specific parameters are related to the nominal voltage. Settings relate to nominal generator current. The condition has to be true, for example I1<I2<I3<I4<I5<I6. If this is not fulfilled, the worst-case set point I1 will be used. Set points 3 to 6 include Relay output A and B.
1102	G Iv > (60%)	Set point I2	50.0 to 200.0 %	125.0 %	
1103	G Iv > (70%)	Set point I3	50.0 to 200.0 %	140.0 %	
1104	G Iv > (80%)	Set point I4	50.0 to 200.0 %	155.0 %	
1105	G Iv > (90%)	Set point I5	50.0 to 200.0 %	170.0 %	
1106	G Iv > (100%)	Set point I6	50.0 to 200.0 %	200 %	

1110 Voltage dependent over-current alarm

No.	Setting		Range	Factory setting	Description
1110	G Iv>	Set point	50.0 to 200.0 %	110.0 %	The alarm and fail class are activated when the over-current has been continuously above the programmed value during the programmed delay. The set point value is calculated automatically by the values in menus 1101 to 1106.
1111	G Iv>	Timer	0.1 to 300.0 s	1.0 s	
1112	G Iv>	Relay output A	Not used (option dependent)	Not used	
1113	G Iv>	Relay output B	Not used (option dependent)	Not used	
1114	G Iv>	Enable	OFF ON	ON	
1115	G Iv>	Fail class	F1 to F9	F3 (Trip GB)	

1130 Fast over-current 1

No.	Setting		Range	Factory setting	Description
1131	I>> 1	Set point	150.0 to 350.0 %	150.0 %	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	I>> 1	Timer	0.0 to 100.0 s	2.0 s	
1133	I>> 1	Relay output A	Not used (option dependent)	Not used	
1134	I>> 1	Relay output B	Not used (option dependent)	Not used	
1135	I>> 1	Enable	OFF ON	OFF	
1136	I>> 1	Fail class	F1 to F9	F3 (Trip GB)	

1140 Fast over-current 2

No.	Setting		Range	Factory setting	Description
1141	I>> 2	Set point	150.0 to 350.0 %	200.0 %	The alarm and fail class are activated when the current has been continuously above the programmed value during the programmed delay.
1142	I>> 2	Timer	0.0 to 100.0 s	0.5 s	
1143	I>> 2	Relay output A	Not used (option dependent)	Not used	
1144	I>> 2	Relay output B	Not used (option dependent)	Not used	
1145	I>> 2	Enable	OFF ON	OFF	
1146	I>> 2	Fail class	F1 to F9	F3 (Trip GB)	

2.2.3 Voltage protections

1150 G/M/BA over-voltage 1

No.	Setting		Range	Factory setting	Description
1151	G/M/BA U> 1	Set point	100.0 to 120.0 %	103.0 %	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1152	G/M/BA U> 1	Timer	0.1 to 100.0 s	10.0 s	
1153	G/M/BA U> 1	Relay output A	Not used (option dependent)	Not used	
1154	G/M/BA U> 1	Relay output B	Not used (option dependent)	Not used	
1155	G/M/BA U> 1	Enable	OFF ON	OFF	
1156	G/M/BA U> 1	Fail class	F1 to F9	F2 (Warning)	

1160 G/M/BA over-voltage 2

No.	Setting		Range	Factory setting	Description
1161	G/M/BA U> 2	Set point	100.0 to 120.0 %	105.0 %	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1162	G/M/BA U> 2	Timer	0.1 to 100.0 s	5.0 s	
1163	G/M/BA U> 2	Relay output A	Not used (option dependent)	Not used	
1164	G/M/BA U> 2	Relay output B	Not used (option dependent)	Not used	
1165	G/M/BA U> 2	Enable	OFF ON	OFF	
1166	G/M/BA U> 2	Fail class	F1 to F9	F2 (Warning)	

1170 G/M/BA under-voltage 1

No.	Setting		Range	Factory setting	Description
1171	G/M/BA U< 1	Set point	40.0 to 100.0 %	97.0 %	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1172	G/M/BA U< 1	Timer	0.1 to 100.0 s	10.0 s	
1173	G/M/BA U< 1	Relay output A	Not used (option dependent)	Not used	
1174	G/M/BA U< 1	Relay output B	Not used (option dependent)	Not used	
1175	G/M/BA U< 1	Enable	OFF ON	OFF	
1176	G/M/BA U< 1	Fail class	F1 to F9	F2 (Warning)	

1180 G/M/BA under-voltage 2

No.	Setting		Range	Factory setting	Description
1181	G/M/BA U< 2	Set point	40.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1182	G/M/BA U< 2	Timer	0.1 to 100.0 s	5.0 s	
1183	G/M/BA U< 2	Relay output A	Not used (option dependent)	Not used	
1184	G/M/BA U< 2	Relay output B	Not used (option dependent)	Not used	
1185	G/M/BA U< 2	Enable	OFF ON	OFF	
1186	G/M/BA U< 2	Fail class	F1 to F9	F2 (Warning)	

1190 G/M/BA under-voltage 3

No.	Setting		Range	Factory setting	Description
1191	G/M/BA U< 3	Set point	40.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1192	G/M/BA U< 3	Timer	0.1 to 100.0 s	5.0 s	
1193	G/M/BA U< 3	Relay output A	Not used (option dependent)	Not used	
1194	G/M/BA U< 3	Relay output B	Not used (option dependent)	Not used	
1195	G/M/BA U< 3	Enable	OFF ON	OFF	
1196	G/M/BA U< 3	Fail class	F1 to F9	F2 (Warning)	

1200 Calculation method

No.	Setting		Range	Factory setting	Description
1201	G/M/BA voltage trip	Set point	Ph-Ph Ph-N Ph-Ph OR Ph-N	Ph-Ph	Select 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 OR Ph-N	Ph-Ph	
1203	Unbalance I	Set point	Ref. to nominal Ref. to average	Ref. to nominal	
1204	Frequency trip	Type	L1 L2 L3 L1 or L2 or L3 L1 and L2 and L3	L1 or L2 or L3	Selection of the phase the controller uses for over-/under-frequency alarms.
1205	df/dt algorithm	Type	Standard df/dt G99 df/dt	Standard df/dt	G99 df/dt is only possible with option A10.

2.2.4 Frequency protections

Frequency settings relate to the nominal frequency setting.

1210 G/M/BA over-frequency 1

No.	Setting		Range	Factory setting	Description
1211	G/M/BA f> 1	Set point	100.0 to 120.0 %	103.0 %	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1212	G/M/BA f> 1	Timer	0.2 to 100.0 s	10.0 s	
1213	G/M/BA f> 1	Relay output A	Not used (option dependent)	Not used	
1214	G/M/BA f> 1	Relay output B	Not used (option dependent)	Not used	
1215	G/M/BA f> 1	Enable	OFF ON	OFF	
1216	G/M/BA f> 1	Fail class	F1 to F9	F2 (Warning)	

1220 G/M/BA over-frequency 2

No.	Setting		Range	Factory setting	Description
1221	G/M/BA f> 2	Set point	100.0 to 120.0 %	105.0 %	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1222	G/M/BA f> 2	Timer	0.2 to 100.0 s	5.0 s	
1223	G/M/BA f> 2	Relay output A	Not used (option dependent)	Not used	
1224	G/M/BA f> 2	Relay output B	Not used (option dependent)	Not used	
1225	G/M/BA f> 2	Enable	OFF ON	OFF	
1226	G/M/BA f> 2	Fail class	F1 to F9	F2 (Warning)	

1230 G/M/BA over-frequency 3

No.	Setting		Range	Factory setting	Description
1231	G/M/BA f> 3	Set point	100.0 to 120.0 %	105.0 %	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1232	G/M/BA f> 3	Timer	0.2 to 100.0 s	5.0 s	
1233	G/M/BA f> 3	Relay output A	Not used (option dependent)	Not used	
1234	G/M/BA f> 3	Relay output B	Not used (option dependent)	Not used	
1235	G/M/BA f> 3	Enable	OFF ON	OFF	
1236	G/M/BA f> 3	Fail class	F1 to F9	F2 (Warning)	

1240 G/M/BA under-frequency 1

No.	Setting		Range	Factory setting	Description
1241	G/M/BA f< 1	Set point	80.0 to 100.0 %	97.0 %	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1242	G/M/BA f< 1	Timer	0.2 to 100.0 s	10.0 s	
1243	G/M/BA f< 1	Relay output A	Not used (option dependent)	Not used	
1244	G/M/BA f< 1	Relay output B	Not used (option dependent)	Not used	
1245	G/M/BA f< 1	Enable	OFF ON	OFF	
1246	G/M/BA f< 1	Fail class	F1 to F9	F2 (Warning)	

1250 G/M/BA under-frequency 2

No.	Setting		Range	Factory setting	Description
1251	G/M/BA f< 2	Set point	80.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1252	G/M/BA f< 2	Timer	0.2 to 100.0 s	5.0 s	
1253	G/M/BA f< 2	Relay output A	Not used (option dependent)	Not used	
1254	G/M/BA f< 2	Relay output B	Not used (option dependent)	Not used	
1255	G/M/BA f< 2	Enable	OFF ON	OFF	
1256	G/M/BA f< 2	Fail class	F1 to F9	F2 (Warning)	

1260 G/M/BA under-frequency 3

No.	Setting		Range	Factory setting	Description
1261	G/M/BA f< 3	Set point	80.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1262	G/M/BA f< 3	Timer	0.2 to 100.0 s	5.0 s	
1263	G/M/BA f< 3	Relay output A	Not used (option dependent)	Not used	
1264	G/M/BA f< 3	Relay output B	Not used (option dependent)	Not used	
1265	G/M/BA f< 3	Enable	OFF ON	OFF	
1266	G/M/BA f< 3	Fail class	F1 to F9	F2 (Warning)	

2.2.5 Busbar voltage protections

Voltage settings relate to the nominal voltage setting.

1270 Busbar over-voltage 1

No.	Setting		Range	Factory setting	Description
1271	BB U> 1	Set point	100.0 to 130.0 %	103.0 %	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 to 99.99 s	10.0 s	
1273	BB U> 1	Relay output A	Not used (option dependent)	Not used	
1274	BB U> 1	Relay output B	Not used (option dependent)	Not used	
1275	BB U> 1	Enable	OFF ON	OFF	
1276	BB U> 1	Fail class	F1 to F9	F2 (Warning)	

1280 Busbar over-voltage 2

No.	Setting		Range	Factory setting	Description
1281	BB U> 2	Set point	100.0 to 130.0 %	105.0 %	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 to 99.99 s	5.0 s	
1283	BB U> 2	Relay output A	Not used (option dependent)	Not used	
1284	BB U> 2	Relay output B	Not used (option dependent)	Not used	
1285	BB U> 2	Enable	OFF ON	OFF	
1286	BB U> 2	Fail class	F1 to F9	F2 (Warning)	

1290 Busbar over-voltage 3

No.	Setting		Range	Factory setting	Description
1291	BB U> 3	Set point	100.0 to 130.0 %	105.0 %	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay. With option A10: Timer maximum is 2000.0 s.
1292	BB U> 3	Timer	0.0 to 99.99 s	5.0 s	
1293	BB U> 3	Relay output A	Not used (option dependent)	Not used	
1294	BB U> 3	Relay output B	Not used (option dependent)	Not used	
1295	BB U> 3	Enable	OFF ON	OFF	
1296	BB U> 3	Fail class	F1 to F9	F2 (Warning)	

1940 Busbar over-voltage 4

No.	Setting		Range	Factory setting	Description
1941	BB U> 4	Set point	100.0 to 130.0 %	105.0 %	The alarm and fail class are activated when the voltage has been continuously above the programmed value during the programmed delay.
1942	BB U> 4	Timer	1500 to 6000 s	5600 s	
1943	BB U> 4	Relay output A	Not used (option dependent)	Not used	
1944	BB U> 4	Relay output B	Not used (option dependent)	Not used	
1945	BB U> 4	Enable	OFF ON	OFF	
1946	BB U> 4	Fail class	F1 to F9	F2 (Warning)	

1300 Busbar under-voltage 1

No.	Setting		Range	Factory setting	Description
1301	BB U< 1	Set point	40.0 to 100.0 %	97.0 %	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	0.0 to 99.99 s	10.0 s	
1303	BB U< 1	Relay output A	Not used (option dependent)	Not used	
1304	BB U< 1	Relay output B	Not used (option dependent)	Not used	
1305	BB U< 1	Enable	OFF ON	OFF	
1306	BB U< 1	Fail class	F1 to F9	F2 (Warning)	

1310 Busbar under-voltage 2

No.	Setting		Range	Factory setting	Description
1311	BB U< 2	Set point	40.0 to 100.0 %	95.0 %	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	0.0 to 99.99 s	5.0 s	
1313	BB U< 2	Relay output A	Not used (option dependent)	Not used	
1314	BB U< 2	Relay output B	Not used (option dependent)	Not used	
1315	BB U< 2	Enable	OFF ON	OFF	
1316	BB U< 2	Fail class	F1 to F9	F2 (Warning)	

1320 Busbar under-voltage 3

No.	Setting		Range	Factory setting	Description
1321	BB U< 3	Set point	40.0 to 100.0 %	97.0 %	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay. With option A10: Timer maximum is 2000.0 s.
1322	BB U< 3	Timer	0.0 to 99.99 s	10.0 s	
1323	BB U< 3	Relay output A	Not used (option dependent)	Not used	
1324	BB U< 3	Relay output B	Not used (option dependent)	Not used	
1325	BB U< 3	Enable	OFF ON	OFF	
1326	BB U< 3	Fail class	F1 to F9	F2 (Warning)	

1330 Busbar under-voltage 4

No.	Setting		Range	Factory setting	Description
1331	BB U< 4	Set point	40.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay. With option A10: Timer maximum is 2000.0 s.
1332	BB U< 4	Timer	0.0 to 99.99 s	5.0 s	
1333	BB U< 4	Relay output A	Not used (option dependent)	Not used	
1334	BB U< 4	Relay output B	Not used (option dependent)	Not used	
1335	BB U< 4	Enable	OFF ON	OFF	
1336	BB U< 4	Fail class	F1 to F9	F2 (Warning)	

1950 Busbar under-voltage 5

No.	Setting		Range	Factory setting	Description
1951	BB U< 5	Set point	40.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the voltage has been continuously under the programmed value during the programmed delay.
1952	BB U< 5	Timer	1500 to 6000 s	5600 s	
1953	BB U< 5	Relay output A	Not used (option dependent)	Not used	
1954	BB U< 5	Relay output B	Not used (option dependent)	Not used	
1955	BB U< 5	Enable	OFF ON	OFF	
1956	BB U< 5	Fail class	F1 to F9	F2 (Warning)	

2.2.6 Busbar frequency protections

Frequency settings relate to the nominal frequency setting.

1350 Busbar over-frequency 1

No.	Setting		Range	Factory setting	Description
1351	BB f> 1	Set point	100.0 to 120.0 %	103.0 %	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 to 99.99 s	10.0 s	
1353	BB f> 1	Relay output A	Not used (option dependent)	Not used	
1354	BB f> 1	Relay output B	Not used (option dependent)	Not used	
1355	BB f> 1	Enable	OFF ON	OFF	
1356	BB f> 1	Fail class	F1 to F9	F2 (Warning)	

1360 Busbar over-frequency 2

No.	Setting		Range	Factory setting	Description
1361	BB f> 2	Set point	100.0 to 120.0 %	105.0 %	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	0.0 to 99.99 s	5.0 s	
1363	BB f> 2	Relay output A	Not used (option dependent)	Not used	
1364	BB f> 2	Relay output B	Not used (option dependent)	Not used	
1365	BB f> 2	Enable	OFF ON	OFF	
1366	BB f> 2	Fail class	F1 to F9	F2 (Warning)	

1370 Busbar over-frequency 3

No.	Setting		Range	Factory setting	Description
1371	BB f> 3	Set point	100.0 to 120.0 %	105.0 %	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay. With option A10: Timer maximum is 2000.0 s.
1372	BB f> 3	Timer	0.0 to 99.99 s	5.0 s	
1373	BB f> 3	Relay output A	Not used (option dependent)	Not used	
1374	BB f> 3	Relay output B	Not used (option dependent)	Not used	
1375	BB f> 3	Enable	OFF ON	OFF	
1376	BB f> 3	Fail class	F1 to F9	F2 (Warning)	

1380 Busbar under-frequency 1

No.	Setting		Range	Factory setting	Description
1381	BB f< 1	Set point	80.0 to 100.0 %	97.0 %	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	0.0 to 99.99 s	10.0 s	
1383	BB f< 1	Relay output A	Not used (option dependent)	Not used	
1384	BB f< 1	Relay output B	Not used (option dependent)	Not used	
1385	BB f< 1	Enable	OFF ON	OFF	
1386	BB f< 1	Fail class	F1 to F9	F2 (Warning)	

1390 Busbar under-frequency 2

No.	Setting		Range	Factory setting	Description
1391	BB f< 2	Set point	80.0 to 100.0 %	95.0 %	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	0.0 to 99.99 s	5.0 s	
1393	BB f< 2	Relay output A	Not used (option dependent)	Not used	
1394	BB f< 2	Relay output B	Not used (option dependent)	Not used	
1395	BB f< 2	Enable	OFF ON	OFF	
1396	BB f< 2	Fail class	F1 to F9	F2 (Warning)	

1400 Busbar under-frequency 3

No.	Setting		Range	Factory setting	Description
1401	BB f< 3	Set point	80.0 to 100.0 %	97.0 %	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay. With option A10: Timer maximum is 2000.0 s.
1402	BB f< 3	Timer	0.0 to 99.99 s	10.0 s	
1403	BB f< 3	Relay output A	Not used (option dependent)	Not used	
1404	BB f< 3	Relay output B	Not used (option dependent)	Not used	
1405	BB f< 3	Enable	OFF ON	OFF	
1406	BB f< 3	Fail class	F1 to F9	F2 (Warning)	

1410 Busbar under-frequency 4

No.	Setting		Range	Factory setting	Description
1411	BB f< 4	Set point	80.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay. With option A10: Timer maximum is 2000.0 s.
1412	BB f< 4	Timer	0.0 to 99.99 s	5.0 s	
1413	BB f< 4	Relay output A	Not used (option dependent)	Not used	
1414	BB f< 4	Relay output B	Not used (option dependent)	Not used	
1415	BB f< 4	Enable	OFF ON	OFF	
1416	BB f< 4	Fail class	F1 to F9	F2 (Warning)	

1920 Busbar over-frequency 4

No.	Setting		Range	Factory setting	Description
1921	BB f> 4	Set point	100.0 to 120.0 %	102.0 %	The alarm and fail class are activated when the frequency has been continuously above the programmed value during the programmed delay.
1922	BB f> 4	Timer	1500 to 6000 s	5600 s	
1923	BB f> 4	Relay output A	Not used (option dependent)	Not used	
1924	BB f> 4	Relay output B	Not used (option dependent)	Not used	
1925	BB f> 4	Enable	OFF ON	OFF	
1926	BB f> 4	Fail class	F1 to F9	F2 (Warning)	

1930 Busbar under-frequency 5

No.	Setting		Range	Factory setting	Description
1931	BB f< 5	Set point	80.0 to 100.0 %	95.0 %	The alarm and fail class are activated when the frequency has been continuously under the programmed value during the programmed delay.
1932	BB f< 5	Timer	1500 to 6000 s	5600 s	
1933	BB f< 5	Relay output A	Not used (option dependent)	Not used	
1934	BB f< 5	Relay output B	Not used (option dependent)	Not used	
1935	BB f< 5	Enable	OFF ON	OFF	
1936	BB f< 5	Fail class	F1 to F9	F2 (Warning)	

2.2.7 Mains failure protections

1420 df/dt (ROCOF) (with option A1)

No.	Setting		Range	Factory setting	Description
1421	df/dt (ROCOF)	Set point	1.5 to 10.0 Hz/s	5.0 Hz/s	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)	Periods	3 to 20 periods	6 periods	
1423	df/dt (ROCOF)	Relay output A	Not used (option dependent)	Not used	
1424	df/dt (ROCOF)	Relay output B	Not used (option dependent)	Not used	
1425	df/dt (ROCOF)	Enable	OFF ON	OFF	
1426	df/dt (ROCOF)	Fail class	F1 to F9	F6 (Trip MB)	

1420 df/dt (ROCOF) (with options A1 and A10)

No.	Setting		Range	Factory setting	Description
1421	df/dt (ROCOF)	Set point	1.0 to 10.0 Hz/s	5.0 Hz/s	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). If parameter 1205 is set as “G99 df/dt”, then this menu is hidden and 1670 is used instead.
1422	df/dt (ROCOF)	Periods	3 to 20 periods	6 periods	
1423	df/dt (ROCOF)	Timer	0.00 to 3.00 s	0.00 s	
1424	df/dt (ROCOF)	Relay output A	Not used (option dependent)	Not used	
1425	df/dt (ROCOF)	Enable	OFF ON	OFF	
1426	df/dt (ROCOF)	Fail class	F1 to F9	F6 (Trip MB)	

1430 Vector jump (with option A1)

No.	Setting		Range	Factory setting	Description
1431	Vector jump	Set point	1.0 to 90.0 °	10.0 °	The alarm and fail class are activated when a vector jump is detected.
1432	Vector jump	Relay output A	Not used (option dependent)	Not used	
1433	Vector jump	Relay output B	Not used (option dependent)	Not used	
1434	Vector jump	Enable	OFF ON	OFF	
1435	Vector jump	Vector jump	F1 to F9	F6 (Trip MB)	

1440 Busbar positive sequence voltage low (with option A4)

No.	Setting		Range	Factory setting	Description
1441	BB pos seq voltage	Set point	10.0 to 110.0 %	70.0 %	The alarm and fail class are activated when the symmetrical (positive sequence) voltage has been continuously below the programmed value during the programmed delay. The timer factory setting is 2 periods. This means that the error has to be active in 2 whole periods before the alarm will be tripped. For example, 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.
1442	BB pos seq voltage	Timer	1 to 9 periods	2 periods	
1443	BB pos seq voltage	Relay output A	Not used (option dependent)	Not used	
1444	BB pos seq voltage	Relay output B	Not used (option dependent)	Not used	
1445	BB pos seq voltage	Enable	OFF ON	OFF	
1446	BB pos seq voltage	Fail class	F1 to F9	F6 (Trip MB)	

1670 G99 df/dt (ROCOF) (with options A1 and A10)

No.	Setting		Range	Factory setting	Description
1671	df/dt (ROCOF)	Set point	0.2 to 10.0 Hz/s	5.0 Hz/s	These parameters for G99 df/dt variant are only accessible with option A10. 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). If parameter 1205 is set as “Standard df/dt”, then this menu is hidden and 1420 is used instead.
1672	df/dt (ROCOF)	Periods	4 to 20 periods	6 periods	
1673	df/dt (ROCOF)	Timer	0.00 to 2.00 s	0.00 s	
1674	df/dt (ROCOF)	Relay output A	Not used (option dependent)	Not used	
1675	df/dt (ROCOF)	Enable	OFF ON	OFF	
1676	df/dt (ROCOF)	Fail class	F1 to F9	F6 (Trip MB)	

2.2.8 Overload protections

1450 Overload 1

No.	Setting		Range	Factory setting	Description
1451	P> 1	Set point	-200.0 to 200.0 %	100.0 %	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 to 3200.0 s	10.0 s	
1453	P> 1	Relay output A	Not used (option dependent)	Not used	
1454	P> 1	Relay output B	Not used (option dependent)	Not used	
1455	P> 1	Enable	OFF ON	OFF	
1456	P> 1	Fail class	F1 to F9	F2 (Warning)	

1460 Overload 2

No.	Setting		Range	Factory setting	Description
1461	P> 2	Set point	-200.0 to 200.0 %	110.0 %	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 to 3200.0 s	5.0 s	
1463	P> 2	Relay output A	Not used (option dependent)	Not used	
1464	P> 2	Relay output B	Not used (option dependent)	Not used	
1465	P> 2	Enable	OFF ON	OFF	
1466	P> 2	Fail class	F1 to F9	F3 (Trip GB)	

1470 Overload 3

No.	Setting		Range	Factory setting	Description
1471	P> 3	Set point	-200.0 to 200.0 %	100.0 %	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 to 3200.0 s	10.0 s	
1473	P> 3	Relay output A	Not used (option dependent)	Not used	
1474	P> 3	Relay output B	Not used (option dependent)	Not used	
1475	P> 3	Enable	OFF ON	OFF	
1476	P> 3	Fail class	F1 to F9	F3 (Trip GB)	

1480 Overload 4

No.	Setting		Range	Factory setting	Description
1481	P> 4	Set point	-200.0 to 200.0 %	110.0 %	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 to 3200.0 s	5.0 s	
1483	P> 4	Relay output A	Not used (option dependent)	Not used	
1484	P> 4	Relay output B	Not used (option dependent)	Not used	
1485	P> 4	Enable	OFF ON	OFF	
1486	P> 4	Fail class	F1 to F9	F3 (Trip GB)	

1490 Overload 5

No.	Setting		Range	Factory setting	Description
1491	P> 5	Set point	-200.0 to 200.0 %	100.0 %	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 to 3200.0 s	10.0 s	
1493	P> 5	Relay output A	Not used (option dependent)	Not used	
1494	P> 5	Relay output B	Not used (option dependent)	Not used	
1495	P> 5	Enable	OFF ON	OFF	
1496	P> 5	Fail class	F1 to F9	F3 (Trip GB)	

2.2.9 Current unbalance protection

1500 unbalanced current 1

No.	Setting		Range	Factory setting	Description
1501	Unbalance current 1	Set point	0.0 to 100.0 %	30.0 %	Settings relate to nominal or average generator current, dependent on the settings in parameter 1203. 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	Unbalance current 1	Timer	0.1 to 100.0 s	10.0 s	
1503	Unbalance current 1	Relay output A	Not used (option dependent)	Not used	
1504	Unbalance current 1	Relay output B	Not used (option dependent)	Not used	
1505	Unbalance current 1	Enable	OFF ON	OFF	
1506	Unbalance current 1	Fail class	F1 to F9	F3 (Trip GB)	

1710 unbalanced current 2

No.	Setting		Range	Factory setting	Description
1711	Unbalance current 2	Set point	0.0 to 50.0 %	10.0 %	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.
1712	Unbalance current 2	Timer	0.1 to 100.0 s	10.0 s	
1713	Unbalance current 2	Relay output A	Not used (option dependent)	Not used	
1714	Unbalance current 2	Relay output B	Not used (option dependent)	Not used	
1715	Unbalance current 2	Enable	OFF ON	OFF	
1716	Unbalance current 2	Fail class	F1 to F9	F3 (Trip GB)	

2.2.10 Voltage unbalance protections

1510 unbalanced voltage

No.	Setting		Range	Factory setting	Description
1511	Unbalance voltage	Set point	0.0 to 50.0 %	10.0 %	Settings relate to nominal generator voltage. The alarm and fail class are activated when the difference between the max. reading and the min. reading of the 3 measured voltages has been continuously above the programmed value during the programmed delay.
1512	Unbalance voltage	Timer	0.1 to 100.0 s	10.0 s	
1513	Unbalance voltage	Relay output A	Not used (option dependent)	Not used	
1514	Unbalance voltage	Relay output B	Not used (option dependent)	Not used	
1515	Unbalance voltage	Enable	OFF ON	OFF	
1516	Unbalance voltage	Fail class	F1 to F9	F3 (Trip GB)	

2.2.11 Reactive power import (loss of excitation) protection

1520 Reactive power import (loss of excitation)

No.	Setting		Range	Factory setting	Description
1521	–Q>	Set point	0.0 to 150.0 %	50.0 %	Settings relate to nominal power. The alarm and fail class are activated when imported var has been continuously above the programmed value during the programmed delay.
1522	–Q>	Timer	0.1 to 100.0 s	10.0 s	
1523	–Q>	Relay output A	Not used (option dependent)	Not used	
1524	–Q>	Relay output B	Not used (option dependent)	Not used	
1525	–Q>	Enable	OFF ON	OFF	
1526	–Q>	Fail class	F1 to F9	F2 (Warning)	

2.2.12 Reactive power export (over-excitation) protection

1530 Reactive power export (over-excitation)

No.	Setting		Range	Factory setting	Description
1531	Q>	Set point	0.0 to 100.0 %	60.0 %	Settings relate to nominal power. The alarm and fail class are activated when exported var has been continuously above the programmed value during the programmed delay.
1532	Q>	Timer	0.1 to 100.0 s	10.0 s	
1533	Q>	Relay output A	Not used (option dependent)	Not used	
1534	Q>	Relay output B	Not used (option dependent)	Not used	
1535	Q>	Enable	OFF ON	OFF	
1536	Q>	Fail class	F1 to F9	F2 (Warning)	

2.2.13 Negative sequence

1540 Negative sequence current (with option C2)

No.	Setting		Range	Factory setting	Description
1541	Negative seq. I	Set point	1.0 to 100.0 %	20.0 %	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	Negative seq. I	Timer	0.2 to 100.0 s	0.5 s	
1543	Negative seq. I	Relay output A	Not used (option dependent)	Not used	
1544	Negative seq. I	Relay output B	Not used (option dependent)	Not used	
1545	Negative seq. I	Enable	OFF ON	OFF	
1546	Negative seq. I	Fail class	F1 to F9	F6 (Trip MB)	

1550 G/M/BA negative sequence voltage (with option C2)

No.	Setting		Range	Factory setting	Description
1551	G/M/BA neg. seq. U	Set point	1.0 to 100.0 %	5.0 %	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/M/BA neg. seq. U	Timer	0.2 to 100.0 s	0.5 s	
1553	G/M/BA neg. seq. U	Relay output A	Not used (option dependent)	Not used	
1554	G/M/BA neg. seq. U	Relay output B	Not used (option dependent)	Not used	
1555	G/M/BA neg. seq. U	Enable	OFF ON	OFF	
1556	G/M/BA neg. seq. U	Fail class	F1 to F9	F6 (Trip MB)	

1560 Negative sequence selection (with option C2)

No.	Setting		Range	Factory setting	Description
1561	Negative seq. select	Set point	G/M/BA measurement BB measurement	G/M/BA measurement	Selection between generator or busbar measurement of negative sequence voltage.

2.2.14 Zero sequence

1570 Zero sequence current (with option C2)

No.	Setting		Range	Factory setting	Description
1571	Zero seq. I	Set point	0.0 to 100.0 %	20.0 %	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	Zero seq. I	Timer	0.2 to 100.0 s	0.5 s	
1573	Zero seq. I	Relay output A	Not used (option dependent)	Not used	
1574	Zero seq. I	Relay output B	Not used (option dependent)	Not used	
1575	Zero seq. I	Enable	OFF ON	OFF	
1576	Zero seq. I	Fail class	F1 to F9	F6 (Trip MB)	

1580 G/M/BA zero sequence voltage (with option C2)

No.	Setting		Range	Factory setting	Description
1571	G/M/BAzero seq. U	Set point	0.0 to 100.0 %	5.0 %	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.
1572	G/M/BAzero seq. U	Timer	0.2 to 100.0 s	0.5 s	
1573	G/M/BAzero seq. U	Relay output A	Not used (option dependent)	Not used	
1574	G/M/BAzero seq. U	Relay output B	Not used (option dependent)	Not used	
1575	G/M/BAzero seq. U	Enable	OFF ON	OFF	
1576	G/M/BAzero seq. U	Fail class	F1 to F9	F6 (Trip MB)	

1590 Zero sequence selection (with option C2)

No.	Setting		Range	Factory setting	Description
1591	Zero seq. select	Set point	G/M/BA measurement BB measurement	G/M/BA measurement	Selection between generator or busbar measurement of zero sequence voltage.

2.2.15 Directional over-current protections

1600 Directional over-current 1 (with option A5)

No.	Setting		Range	Factory setting	Description
1601	I> direct 1	Set point	-200.0 to 200.0 %	120.0 %	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	I> direct 1	Timer	0.0 to 100.0 s	0.1 s	
1603	I> direct 1	Relay output A	Not used (option dependent)	Not used	
1604	I> direct 1	Relay output B	Not used (option dependent)	Not used	
1605	I> direct 1	Enable	OFF ON	OFF	
1606	I> direct 1	Fail class	F1 to F9	F6 (Trip MB)	

1610 Directional over-current 2 (with option A5)

No.	Setting		Range	Factory setting	Description
1611	I> direct 2	Set point	-200.0 to 200.0 %	130.0 %	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	I> direct 2	Timer	0.0 to 100.0 s	0.1 s	
1613	I> direct 2	Relay output A	Not used (option dependent)	Not used	
1614	I> direct 2	Relay output B	Not used (option dependent)	Not used	
1615	I> direct 2	Enable	OFF ON	OFF	
1616	I> direct 2	Fail class	F1 to F9	F6 (Trip MB)	

2.2.16 Busbar unbalance voltage

1620 BB unbalance U

No.	Setting		Range	Factory setting	Description
1621	BB unbalance U	Set point	0.0 to 50.0 %	6.0 %	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 to 100.0 s	10.0 s	
1623	BB unbalance U	Relay output A	Not used (option dependent)	Not used	
1624	BB unbalance U	Relay output B	Not used (option dependent)	Not used	
1625	BB unbalance U	Enable	OFF ON	OFF	
1626	BB unbalance U	Fail class	F1 to F9	F2 (Warning)	

2.2.17 HVRT

1630 HVRT (with option A10)

No.	Setting		Range	Factory setting	Description
1631	HVRT Activate 1	Activate	30.0 to 130.0 %	110.0 %	Configuration of HVRT curve is done with the Utility Software in “Advanced Protection”.
1632	HVRT Recovery 1	Set Point	30.0 to 130.0 %	105.0 %	
		Timer	0.0 to 320.0 s	1 s	
1634	HVRT Activate 1	Relay output A	Not used (variant dependent)	Not used	
		Relay output B	Not used (variant dependent)	Not used	
		Enable	OFF ON	OFF	
		Inhibits		Not parallel	

1640 HVRT 1 (with option A10)

No.	Setting		Range	Factory setting	Description
1642	HVRT 1	Relay output A	Not used (variant dependent)	Not used	Configuration of HVRT curve is done with the Utility Software in “Advanced Protection”.
1643	HVRT 1	Relay output B	Not used (variant dependent)	Not used	
1644	HVRT 1	Enable	OFF ON	OFF	
1645	HVRT 1	Fail class	F1 to F9	F6 (Trip MB)	

2.2.18 Time-dependent under-voltage (LVRT)

Parameter groups 1630 and 1640 are outdated. Configure the LVRT curve in the Utility Software (under Advanced Protection).

1650 Time-dependent under-voltage 1 activation (with option A1)

No.	Setting		Range	Factory setting	Description
1651	Ut< act 1	Activate	30.0 to 120.0 %	90.0 %	Activate is the voltage value where the function timer starts. Reset 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. Configuration of LVRT curve is done with the Utility Software in “Advanced Protection”.
1652	Ut< act 1	Recovery	30.0 to 120.0 %	95.0 %	
1653	Ut< act 1	Delay	0.0 to 320.0 s	1.0 s	
1654	Ut< act 1	Relay output A	Not used (option dependent)	Not used	
1655	Ut< act 1	Relay output B	Not used (option dependent)	Not used	
1656	Ut< act 1	Enable	OFF ON	OFF	

1660 Time-dependent under-voltage 1 (with option A1)

No.	Setting		Range	Factory setting	Description
1661	Ut< 1	Relay output A	Not used (option dependent)	Not used	The alarm and fail class is activated instantaneously when the voltage value is under the programmed value curve. Configuration of LVRT curve is done with the Utility Software in “Advanced Protection”.
1662	Ut< 1	Relay output B	Not used (option dependent)	Not used	
1663	Ut< 1	Enable	OFF ON	OFF	
1664	Ut< 1	Fail class	F1 to F9	F6 (Trip MB)	

INFO
Parameter groups 1670 and 1680 are outdated. Configure the LVRT curve in the Utility Software (under Advanced Protection).

1690 Time-dependent under-voltage 2 activation (with option A1)

No.	Setting		Range	Factory setting	Description
1691	Ut< act 2	Activate	30.0 to 120.0 %	90.0 %	Activate is the voltage value where the function timer starts. Reset 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. Configuration of LVRT curve is done with the Utility Software in “Advanced Protection”.
1692	Ut< act 2	Recovery	30.0 to 120.0 s	95.0 %	
1693	Ut< act 2	Delay	0.0 to 320.0 s	1.0 s	
1694	Ut< act 2	Relay output A	Not used (option dependent)	Not used	
1695	Ut< act 2	Relay output B	Not used (option dependent)	Not used	
1696	Ut< act 2	Enable	OFF ON	OFF	

1700 Time-dependent under-voltage 2 (with option A1)

No.	Setting		Range	Factory setting	Description
1701	Ut< 2	Relay output A	Not used (option dependent)	Not used	The alarm and fail class is activated instantaneously when the voltage value is under the programmed value curve. Configuration of LVRT curve is done with the Utility Software in “Advanced Protection”.
1702	Ut< 2	Relay output B	Not used (option dependent)	Not used	
1703	Ut< 2	Enable	OFF ON	OFF	
1704	Ut< 2	Fail class	F1 to F9	F6 (Trip MB)	

2.2.19 Power-dependent reactive power import

INFO
Parameter groups 1740 and 1750 are outdated. Configure the power-dependent reactive power import curve in the Utility Software (under Advanced Protection).

1760 G P dep Q< (requires option C2)

No.	Setting		Range	Factory setting	Description
1761	G P dep Q<	Timer	0.1 to 300.0 s	1.0 s	Configuration of capability curve is done with the Utility Software in “Advanced Protection”.
1762	G P dep Q<	Relay output A	Not used (variant dependent)	Not used	
1763	G P dep Q<	Relay output B	Not used (variant dependent)	Not used	
1764	G P dep Q<	Enable	OFF ON	OFF	
1765	G P dep Q<	Fail class	F1 to F9	F3 (Trip GB)	

2.2.20 Power-dependent reactive power export

INFO
Parameter groups 1770 and 1780 are outdated. Configure the power-dependent reactive power export curve in the Utility Software (under Advanced Protection).

1790 G P dep Q> (requires option C2)

No.	Setting		Range	Factory setting	Description
1791	G P dep Q>	Timer	0.1 to 300.0 s	1.0 s	Configuration of capability curve is done with the Utility Software in “Advanced Protection”.
1792	G P dep Q>	Relay output A	Not used (variant dependent)	Not used	
1793	G P dep Q>	Relay output B	Not used (variant dependent)	Not used	
1794	G P dep Q>	Enable	OFF ON	OFF	
1795	G P dep Q>	Fail class	F1 to F9	F3 (Trip GB)	

2.2.21 Non-essential load trip (load shedding)

INFO
Setting values relate to the nominal settings.

1800 NEL 1 over-current

No.	Setting		Range	Factory setting	Description
1801	NEL 1 I>	Set point	50.0 to 200.0 %	100.0 %	Trip of non-essential load due to over-current. This function activates NEL group 1.
1802	NEL 1 I>	Timer	0.1 to 100.0 s	5.0 s	
1803	NEL 1 I>	Enable	OFF ON	OFF	

1810 NEL 2 over-current

No.	Setting		Range	Factory setting	Description
1811	NEL 2 I>	Set point	50.0 to 200.0 %	100.0 %	Trip of non-essential load due to over-current. This function activates NEL group 2.
1812	NEL 2 I>	Timer	0.1 to 100.0 s	8.0 s	
1813	NEL 2 I>	Enable	OFF ON	OFF	

1820 NEL 3 over-current

No.	Setting		Range	Factory setting	Description
1821	NEL 3 I>	Set point	50.0 to 200.0 %	100.0 %	Trip of non-essential load due to over-current. This function activates NEL group 3.
1822	NEL 3 I>	Timer	0.1 to 100.0 s	10.0 s	
1823	NEL 3 I>	Enable	OFF ON	OFF	

1830 NEL 1 busbar under-frequency

No.	Setting		Range	Factory setting	Description
1831	NEL 1 bus f<	Set point	70.0 to 100.0 %	95.0 %	Trip of non-essential load due to low frequency. This function activates NEL group 1.
1832	NEL 1 bus f<	Timer	0.1 to 100.0 s	5.0 s	
1833	NEL 1 bus f<	Enable	OFF ON	OFF	

1840 NEL 2 busbar under-frequency

No.	Setting		Range	Factory setting	Description
1841	NEL 2 bus f<	Set point	70.0 to 100.0 %	95.0 %	Trip of non-essential load due to low frequency. This function activates NEL group 2.
1842	NEL 2 bus f<	Timer	0.1 to 100.0 s	8.0 s	
1843	NEL 2 bus f<	Enable	OFF ON	OFF	

1850 NEL 3 busbar under-frequency

No.	Setting		Range	Factory setting	Description
1851	NEL 3 bus f<	Set point	70.0 to 100.0 %	95.0 %	Trip of non-essential load due to low frequency. This function activates NEL group 3.
1852	NEL 3 bus f<	Timer	0.1 to 100.0 s	10.0 s	
1853	NEL 3 bus f<	Enable	OFF ON	OFF	

1860 NEL 1 overload

No.	Setting		Range	Factory setting	Description
1861	NEL 1 P>	Set point	10.0 to 200.0 %	100.0 %	Trip of non-essential load due to overload. This function activates NEL group 1.
1862	NEL 1 P>	Timer	0.1 to 100.0 s	5.0 s	
1863	NEL 1 P>	Enable	OFF ON	OFF	

1870 NEL 2 overload

No.	Setting		Range	Factory setting	Description
1871	NEL 2 P>	Set point	10.0 to 200.0 %	100.0 %	Trip of non-essential load due to overload. This function activates NEL group 2.
1872	NEL 2 P>	Timer	0.1 to 100.0 s	8.0 s	
1873	NEL 2 P>	Enable	OFF ON	OFF	

1880 NEL 3 overload

No.	Setting		Range	Factory setting	Description
1881	NEL 3 P>	Set point	10.0 to 200.0 %	100.0 %	Trip of non-essential load due to overload. This function activates NEL group 3.
1882	NEL 3 P>	Timer	0.1 to 100.0 s	10.0 s	
1883	NEL 3 P>	Enable	OFF ON	OFF	

1890 NEL 1 high overload

No.	Setting		Range	Factory setting	Description
1891	NEL 1 P>>	Set point	10.0 to 200.0 %	110.0 %	Trip of non-essential load due to high overload. This function activates NEL group 1.
1892	NEL 1 P>>	Timer	0.1 to 999.9 s	1.0 s	
1893	NEL 1 P>>	Enable	OFF ON	OFF	

1900 NEL 2 high overload

No.	Setting		Range	Factory setting	Description
1901	NEL 2 P>>	Set point	10.0 to 200.0 %	110.0 %	Trip of non-essential load due to high overload. This function activates NEL group 2.
1902	NEL 2 P>>	Timer	0.1 to 999.9 s	1.0 s	
1903	NEL 2 P>>	Enable	OFF ON	OFF	

1910 NEL 3 high overload

No.	Setting		Range	Factory setting	Description
1911	NEL 3 P>>	Set point	10.0 to 200.0 %	110.0 %	Trip of non-essential load due to high overload. This function activates NEL group 3.
1912	NEL 3 P>>	Timer	0.1 to 999.9 s	1.0 s	
1913	NEL 3 P>>	Enable	OFF ON	OFF	

2.2.22 Under-voltage and reactive power low

1960 U and Q < 1 (with option A1)

No.	Setting		Range	Factory setting	Description
1961	U and Q < 1	Set point	40.0 to 100.0 %	85.0 %	The setting relates to the genera- tor 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	Timer	0.1 to 3200.0 s	0.5 s	
1963	U and Q < 1	Relay output A	Not used (option dependent)	Not used	
1964	U and Q < 1	Relay output B	Not used (option dependent)	Not used	
1965	U and Q < 1	Enable	OFF ON	OFF	
1966	U and Q < 1	Fail class	F1 to F9	F2 (Warning)	

1970 U and Q < 2 (with option A1)

No.	Setting		Range	Factory setting	Description
1971	U and Q < 2	Set point	40.0 to 100.0 %	85.0 %	The setting relates to the genera- tor 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	Timer	0.1 to 3200.0 s	0.5 s	
1973	U and Q < 2	Relay output A	Not used (option dependent)	Not used	
1974	U and Q < 2	Relay output B	Not used (option dependent)	Not used	
1975	U and Q < 2	Enable	OFF ON	OFF	
1976	U and Q < 2	Fail class	F1 to F9	F2 (Warning)	

1980 GB/MB external trip

No.	Setting		Range	Factory setting	Description
1981	GB ext. trip	Enable	OFF ON	ON	The generator breaker or the mains breaker has been tripped by an external device.
1982	GB ext. trip	Fail class	F1 to F9	F2 (Warning)	
1983	MB ext. trip	Enable	OFF ON	ON	
1984	MB ext. trip	Fail class	F1 to F9	F2 (Warning)	

1990 Minimum current and minimum Phi angle (with option A1)

No.	Setting		Range	Factory setting	Description
1991	U and Q< 1: I Min. 1	Set point	0 to 20 %	0 %	Settings relate to U and Q< parameters 1960 and 1970. Condition for "U and Q<" trip is that the current exceeds the I Min. set point. Min. Phi angle expands the tripping window.
1992	U and Q< 1: Angle 1	Set point	0 to 6 °	0 °	
1993	U and Q< 2: I Min. 2	Set point	0 to 20 %	0 %	
1994	U and Q< 2: Angle 2	Set point	0 to 6 °	0 °	

2.3 Control parameters: Synchronisation

2.3.1 Synchronisation and breaker alarms

2120 Synchronisation window

No.	Setting		Range	Factory setting	Description
2121	Sync. window	Set point	2.0 to 20.0 %	15.0 %	The alarm will activate if the actual voltage deviates from nominal voltage with the set percentage.
2122	Sync. window	Timer	0.1 to 2.0 s	0.5 s	
2123	Sync. window	Relay output A	Not used (option dependent)	Not used	
2124	Sync. window	Relay output B	Not used (option dependent)	Not used	
2125	Sync. window	Enable	OFF ON	OFF	

2130 GB/TB/BTB breaker synchronisation failure

No.	Setting		Range	Factory setting	Description
2131	GB/TB/BTB sync. failure	Timer	5.0 to 999.9 s	60.0 s	The controller has unsuccessfully tried to synchronise the breaker to the busbar within the delay time.
2132	GB/TB/BTB sync. failure	Relay output A	Not used (option dependent)	Not used	
2133	GB/TB/BTB sync. failure	Relay output B	Not used (option dependent)	Not used	
2134	GB/TB/BTB sync. failure	Enable	OFF ON	OFF	
2135	GB/TB/BTB sync. failure	Fail class	F1 to F9	F1 (Block)	

2140 Mains breaker synchronisation failure

No.	Setting		Range	Factory setting	Description
2141	MB sync. failure	Timer	5.0 to 999.9 s	60.0 s	The controller has unsuccessfully tried to synchronise the breaker to the busbar within the delay time.
2142	MB sync. failure	Relay output A	Not used (option dependent)	Not used	
2143	MB sync. failure	Relay output B	Not used (option dependent)	Not used	
2144	MB sync. failure	Enable	OFF ON	ON	
2145	MB sync. failure	Fail class	F1 to F9	F2 (Warning)	

2150 Phase sequence error DG/Mains/Busbar A

No.	Setting		Range	Factory setting	Description
2151	Phase seq. error	Relay output A	Not used (option dependent)	Not used	The controller has detected that the rotation direction is the opposite of the selected direction. Compares phase rotation to expected direction at all times, not only during synchronisation.
2152	Phase seq. error	Relay output B	Not used (option dependent)	Not used	
2153	Phase seq. error	Fail class	F1 to F9	F1 (Block)	
2154	Phase seq. error	Set point	L1L2L3 L1L3L2	L1L2L3	

2155 Phase sequence error BB/Busbar B

No.	Setting		Range	Factory setting	Description
2155	Phase seq. error	Relay output A	Not used (option dependent)	Not used	The controller has detected that the rotation direction is the opposite of the selected direction. Compares phase rotation to expected direction at all times, not only during synchronisation.
2156	Phase seq. error	Fail class	F1 to F9	F1 (Block)	

2160 GB/TB/BTB open failure

No.	Setting		Range	Factory setting	Description
2161	GB/TB/BTB open fail	Timer	1.0 to 10.0 s	2.0 s	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 delay time.
2162	GB/TB/BTB open fail	Relay output A	Not used (option dependent)	Not used	
2163	GB/TB/BTB open fail	Relay output B	Not used (option dependent)	Not used	
2164	GB/TB/BTB open fail	Enable	OFF ON	ON	
2165	GB/TB/BTB open fail	Fail class	F1 to F9	F2 (Warning)	

2170 GB/TB/BTB close failure

No.	Setting		Range	Factory setting	Description
2171	GB/TB/BTB close fail	Timer	1.0 to 5.0 s	2.0 s	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 delay time.
2172	GB/TB/BTB close fail	Relay output A	Not used (option dependent)	Not used	
2173	GB/TB/BTB close fail	Relay output B	Not used (option dependent)	Not used	
2174	GB/TB/BTB close fail	Enable	OFF ON	ON	
2175	GB/TB/BTB close fail	Fail class	F1 to F9	F2 (Warning)	

2180 GB/TB/BTB position failure

No.	Setting		Range	Factory setting	Description
2181	GB/TB/BTB pos. fail	Timer	1.0 to 5.0 s	1.0 s	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 (option dependent)	Not used	
2183	GB/TB/BTB pos. fail	Relay output B	Not used (option dependent)	Not used	
2184	GB/TB/BTB pos. fail	Enable	OFF ON	ON	
2185	GB/TB/BTB pos. fail	Fail class	F1 to F9	F2 (Warning)	

2200 MB open failure

No.	Setting		Range	Factory setting	Description
2201	MB open fail	Timer	1.0 to 10.0 s	2.0 s	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 delay time.
2202	MB open fail	Relay output A	Not used (option dependent)	Not used	
2203	MB open fail	Relay output B	Not used (option dependent)	Not used	
2204	MB open fail	Enable	ON	ON	
2205	MB open fail	Fail class	F1 to F9	F2 (Warning)	

2210 MB close failure

No.	Setting		Range	Factory setting	Description
2211	MB close fail	Timer	1.0 to 5.0 s	2.0 s	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 delay time.
2212	MB close fail	Relay output A	Not used (option dependent)	Not used	
2213	MB close fail	Relay output B	Not used (option dependent)	Not used	
2214	MB close fail	Enable	ON	ON	
2215	MB close fail	Fail class	F1 to F9	F2 (Warning)	

2220 MB position failure

No.	Setting		Range	Factory setting	Description
2221	MB pos. fail	Timer	1.0 to 5.0 s	1.0 s	This alarm will occur if the breaker feedbacks for ON and OFF are both missing or active for more than the delay time.
2222	MB pos. fail	Relay output A	Not used (option dependent)	Not used	
2223	MB pos. fail	Relay output B	Not used (option dependent)	Not used	
2224	MB pos. fail	Enable	ON	ON	
2225	MB pos. fail	Fail class	F1 to F9	F2 (Warning)	

2270 Close before excitation failure

No.	Setting		Range	Factory setting	Description
2271	Close before exc. fail	Timer	0.0 to 999.0 s	5.0 s	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	Close before exc. fail	Relay output A	Not used (option dependent)	Not used	
2273	Close before exc. fail	Relay output B	Not used (option dependent)	Not used	
2274	Close before exc. fail	Enable	OFF ON	ON	
2275	Close before exc. fail	Fail class	F1 to F9	F2 (Warning)	

2.3.2 Mains sync. inhibit

2280 Mains sync. inhibit settings

No.	Setting		Range	Factory setting	Description
2281	Mains sync. inh. U	Low limit U	80 to 100 %	85 %	This function is used to inhibit the synchronising of the mains breaker after blackout.
2282	Mains sync. inh. U	High limit U	100 to 120 %	110 %	
2283	Mains sync. inh. F	Low limit F	90 to 100 %	95 %	
2284	Mains sync. inh. F	High limit F	100 to 110 %	101 %	
2285	Mains sync. inh.	Enable	OFF ON	OFF	
2286	Mains sync. inh.	Fail class	F1 to F9	F3 (Trip GB)	

2290 Mains sync. inhibit recovery settings

No.	Setting		Range	Factory setting	Description
2291	Delay act. re2	Recovery sel. timer	0 to 20 s	3 s	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 delay 1	Delay time	0 to 60 s	5 s	
2293	Recovery delay 1	Relay output A	Not used (option dependent)	Not used	
2294	Recovery delay 2	Delay time	0 to 2000 s	600 s	
2295	Recovery delay 2	Relay output A	Not used (option dependent)	Not used	

2320 Busbar blocked

No.	Setting		Range	Factory setting	Description
2321	Busbar blocked	Timer	1 to 5 s	1 s	See **Option G4, G5 and G8** for details.
2322	Busbar blocked	Relay output A	Not used (option dependent)	Not used	
2323	Busbar blocked	Relay output B	Not used (option dependent)	Not used	
2324	Busbar blocked	Enable	Off, On	On	
2325	Busbar blocked	Fail class	F1 to F9	F2 (Warning)	

2.4 Control parameters: Regulation

2.4.1 Regulation alarms

2300 Section P> (with option T1)

No.	Setting		Range	Factory setting	Description
2301	Section P>	MW	0 to 30000 MW	0 MW	Short-circuit limitation: Used to limit the power on the busbar in a power management system. Set point in menus 2301 and 2302 are used as limit value for max. allowed power in the system. These values are all common set point in the power management system.
2302	Section P>	kW	0 to 999 kW	0 kW	
2303	Section P>	Delay	0 to 999 s	1 s	
2304	Section P>	Relay output A	Not used (option dependent)	Not used	
2305	Section P>	Enable	OFF ON	OFF	
2306	Section P>	Fail class	F1 to F9	F2 (Warning)	

2310 Section P> (with option T1)

No.	Setting		Range	Factory setting	Description
2311	Section P>	Factor	1.0 to 25.5	1.0	This value is used as a weighing factor for the P_{NOM} value kW of each transformer or generator in the power management system (in case of two equally sized).

2560 Governor regulation failure

No.	Setting		Range	Factory setting	Description
2561	Gov. reg fail	Deadband	1.0 to 100.0 %	30.0 %	The alarm is activated if the difference between the measured value and the set point is outside the deadband for longer than the delay time.
2562	Gov. reg fail	Timer	10.0 to 300.0 s	60.0 s	
2563	Gov. reg fail	Relay output A	Not used (option dependent)	Not used	
2564	Gov. reg fail	Relay output B	Not used (option dependent)	Not used	
2565	Gov. reg fail	Fail class	F1 to F9	F2 (Warning)	

2630 De-load error

No.	Setting		Range	Factory setting	Description
2631	De-load error	Timer	0.0 to 60.0 s	10.0 s	The alarm is activated if the generator fails to de-load within the delay time.
2632	De-load error	Relay output A	Not used (option dependent)	Not used	
2633	De-load error	Relay output B	Not used (option dependent)	Not used	
2634	De-load error	Enable	OFF ON	ON	
2635	De-load error	Fail class	F1 to F9	F2 (Warning)	

2680 AVR regulation failure (with option D1)

No.	Setting		Range	Factory setting	Description
2681	AVR reg fail	Set point	1.0 to 100.0 %	30.0 %	The alarm is activated if the difference between the measured value and the set point is outside the deadband for longer than the delay time.
2682	AVR reg fail	Timer	10.0 to 300.0 s	60.0 s	
2683	AVR reg fail	Relay output A	Not used (option dependent)	Not used	
2684	AVR reg fail	Relay output B	Not used (option dependent)	Not used	
2685	AVR reg fail	Fail class	F1 to F9	F2 (Warning)	

2.5 Input/output parameters: Binary input setup

2.5.1 Digital input 23-27 setup

3000 Digital input 23

No.	Setting		Range	Factory setting	Description
3001	Dig input 23	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3002	Dig input 23	Relay output A	Not used (option dependent)	Not used	
3003	Dig input 23	Relay output B	Not used (option dependent)	Not used	
3004	Dig input 23	Enable	OFF ON	OFF	
3005	Dig input 23	Fail class	F1 to F9	F2 (Warning)	
3006	Dig input 23	High alarm	OFF ON	ON	

3010 Digital input 24

No.	Setting		Range	Factory setting	Description
3011	Dig input 24	Timer	0.0 to 100.0 s	10.0 s	The input is configurable. Input 24 is by default used for breaker feedback (only available if no MB is present in the application).
3012	Dig input 24	Relay output A	Not used (option dependent)	Not used	
3013	Dig input 24	Relay output B	Not used (option dependent)	Not used	
3014	Dig input 24	Enable	OFF ON	OFF	
3015	Dig input 24	Fail class	F1 to F9	F2 (Warning)	
3016	Dig input 24	High alarm	OFF ON	ON	

3020 Digital input 25

No.	Setting		Range	Factory setting	Description
3021	Dig input 25	Timer	0.0 to 100.0 s	10.0 s	The input is configurable. Input 25 is by default used for breaker feedback (only available if no MB is present in the application).
3022	Dig input 25	Relay output A	Not used (option dependent)	Not used	
3023	Dig input 25	Relay output B	Not used (option dependent)	Not used	
3024	Dig input 25	Enable	OFF ON	OFF	
3025	Dig input 25	Fail class	F1 to F9	F2 (Warning)	
3026	Dig input 25	High alarm	OFF ON	ON	

3030 Digital input 26

No.	Setting		Range	Factory setting	Description
3031	Dig input 26	Timer	0.0 to 100.0 s	10.0 s	The input is configurable. Input 26 is by default used for breaker feedback (only available in an AGC-4 Mains controller if no TB is present in the application).
3032	Dig input 26	Relay output A	Not used (option dependent)	Not used	
3033	Dig input 26	Relay output B	Not used (option dependent)	Not used	
3034	Dig input 26	Enable	OFF ON	OFF	
3035	Dig input 26	Fail class	F1 to F9	F2 (Warning)	
3036	Dig input 26	High alarm	OFF ON	ON	

3040 Digital input 27

No.	Setting		Range	Factory setting	Description
3041	Dig input 27	Timer	0.0 to 100.0 s	10.0 s	The input is configurable. Input 27 is by default used for breaker feedback (only available in an AGC-4 Mains controller if no TB is present in the application).
3042	Dig input 27	Relay output A	Not used (option dependent)	Not used	
3043	Dig input 27	Relay output B	Not used (option dependent)	Not used	
3044	Dig input 27	Enable	OFF ON	OFF	
3045	Dig input 27	Fail class	F1 to F9	F2 (Warning)	
3046	Dig input 27	High alarm	OFF ON	ON	

2.5.2 Digital input 43-55 setup (requires option M12)

3130 Digital input 43 (requires option M12)

No.	Setting		Range	Factory setting	Description
3131	Dig input 43	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3132	Dig input 43	Relay output A	Not used (option dependent)	Not used	
3133	Dig input 43	Relay output B	Not used (option dependent)	Not used	
3134	Dig input 43	Enable	OFF ON	OFF	
3135	Dig input 43	Fail class	F1 to F9	F2 (Warning)	
3136	Dig input 43	High alarm	OFF ON	ON	

3140 Digital input 44 (requires option M12)

No.	Setting		Range	Factory setting	Description
3141	Dig input 44	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3142	Dig input 44	Relay output A	Not used (option dependent)	Not used	
3143	Dig input 44	Relay output B	Not used (option dependent)	Not used	
3144	Dig input 44	Enable	OFF ON	OFF	
3145	Dig input 44	Fail class	F1 to F9	F2 (Warning)	
3146	Dig input 44	High alarm	OFF ON	ON	

3150 Digital input 45 (requires option M12)

No.	Setting		Range	Factory setting	Description
3151	Dig input 45	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3152	Dig input 45	Relay output A	Not used (option dependent)	Not used	
3153	Dig input 45	Relay output B	Not used (option dependent)	Not used	
3154	Dig input 45	Enable	OFF ON	OFF	
3155	Dig input 45	Fail class	F1 to F9	F2 (Warning)	
3156	Dig input 45	High alarm	OFF ON	ON	

3160 Digital input 46 (requires option M12)

No.	Setting		Range	Factory setting	Description
3161	Dig input 46	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3162	Dig input 46	Relay output A	Not used (option dependent)	Not used	
3163	Dig input 46	Relay output B	Not used (option dependent)	Not used	
3164	Dig input 46	Enable	OFF ON	OFF	
3165	Dig input 46	Fail class	F1 to F9	F2 (Warning)	
3166	Dig input 46	High alarm	OFF ON	ON	

3170 Digital input 47 (requires option M12)

No.	Setting		Range	Factory setting	Description
3171	Dig input 47	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3172	Dig input 47	Relay output A	Not used (option dependent)	Not used	
3173	Dig input 47	Relay output B	Not used (option dependent)	Not used	
3174	Dig input 47	Enable	OFF ON	OFF	
3175	Dig input 47	Fail class	F1 to F9	F2 (Warning)	
3176	Dig input 47	High alarm	OFF ON	ON	

3180 Digital input 48 (requires option M12)

No.	Setting		Range	Factory setting	Description
3181	Dig input 48	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3182	Dig input 48	Relay output A	Not used (option dependent)	Not used	
3183	Dig input 48	Relay output B	Not used (option dependent)	Not used	
3184	Dig input 48	Enable	OFF ON	OFF	
3185	Dig input 48	Fail class	F1 to F9	F2 (Warning)	
3186	Dig input 48	High alarm	OFF ON	ON	

3190 Digital input 49 (requires option M12)

No.	Setting		Range	Factory setting	Description
3191	Dig input 49	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3192	Dig input 49	Relay output A	Not used (option dependent)	Not used	
3193	Dig input 49	Relay output B	Not used (option dependent)	Not used	
3194	Dig input 49	Enable	OFF ON	OFF	
3195	Dig input 49	Fail class	F1 to F9	F2 (Warning)	
3196	Dig input 49	High alarm	OFF ON	ON	

3200 Digital input 50 (requires option M12)

No.	Setting		Range	Factory setting	Description
3201	Dig input 50	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3202	Dig input 50	Relay output A	Not used (option dependent)	Not used	
3203	Dig input 50	Relay output B	Not used (option dependent)	Not used	
3204	Dig input 50	Enable	OFF ON	OFF	
3205	Dig input 50	Fail class	F1 to F9	F2 (Warning)	
3206	Dig input 50	High alarm	OFF ON	ON	

3210 Digital input 51 (requires option M12)

No.	Setting		Range	Factory setting	Description
3211	Dig input 51	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3212	Dig input 51	Relay output A	Not used (option dependent)	Not used	
3213	Dig input 51	Relay output B	Not used (option dependent)	Not used	
3214	Dig input 51	Enable	OFF ON	OFF	
3215	Dig input 51	Fail class	F1 to F9	F2 (Warning)	
3216	Dig input 51	High alarm	OFF ON	ON	

3220 Digital input 52 (requires option M12)

No.	Setting		Range	Factory setting	Description
3221	Dig input 52	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3222	Dig input 52	Relay output A	Not used (option dependent)	Not used	
3223	Dig input 52	Relay output B	Not used (option dependent)	Not used	
3224	Dig input 52	Enable	OFF ON	OFF	
3225	Dig input 52	Fail class	F1 to F9	F2 (Warning)	
3226	Dig input 52	High alarm	OFF ON	ON	

3230 Digital input 53 (requires option M12)

No.	Setting		Range	Factory setting	Description
3231	Dig input 53	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3232	Dig input 53	Relay output A	Not used (option dependent)	Not used	
3233	Dig input 53	Relay output B	Not used (option dependent)	Not used	
3234	Dig input 53	Enable	OFF ON	OFF	
3235	Dig input 53	Fail class	F1 to F9	F2 (Warning)	
3236	Dig input 53	High alarm	OFF ON	ON	

3240 Digital input 54 (requires option M12)

No.	Setting		Range	Factory setting	Description
3241	Dig input 54	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3242	Dig input 54	Relay output A	Not used (option dependent)	Not used	
3243	Dig input 54	Relay output B	Not used (option dependent)	Not used	
3244	Dig input 54	Enable	OFF ON	OFF	
3245	Dig input 54	Fail class	F1 to F9	F2 (Warning)	
3246	Dig input 54	High alarm	OFF ON	ON	

3250 Digital input 55 (requires option M12)

No.	Setting		Range	Factory setting	Description
3251	Dig input 55	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3252	Dig input 55	Relay output A	Not used (option dependent)	Not used	
3253	Dig input 55	Relay output B	Not used (option dependent)	Not used	
3254	Dig input 55	Enable	OFF ON	OFF	
3255	Dig input 55	Fail class	F1 to F9	F2 (Warning)	
3256	Dig input 55	High alarm	OFF ON	ON	

2.5.3 Digital input 91-97 setup (requires option M13.6)

3330 Digital input 91 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3331	Dig input 91	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3332	Dig input 91	Relay output A	Not used (option dependent)	Not used	
3333	Dig input 91	Relay output B	Not used (option dependent)	Not used	
3334	Dig input 91	Enable	OFF ON	OFF	
3335	Dig input 91	Fail class	F1 to F9	F2 (Warning)	
3336	Dig input 91	High alarm	OFF ON	ON	

3340 Digital input 92 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3341	Dig input 92	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3342	Dig input 92	Relay output A	Not used (option dependent)	Not used	
3343	Dig input 92	Relay output B	Not used (option dependent)	Not used	
3344	Dig input 92	Enable	OFF ON	OFF	
3345	Dig input 92	Fail class	F1 to F9	F2 (Warning)	
3346	Dig input 92	High alarm	OFF ON	ON	

3350 Digital input 93 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3351	Dig input 93	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3352	Dig input 93	Relay output A	Not used (option dependent)	Not used	
3353	Dig input 93	Relay output B	Not used (option dependent)	Not used	
3354	Dig input 93	Enable	OFF ON	OFF	
3355	Dig input 93	Fail class	F1 to F9	F2 (Warning)	
3356	Dig input 93	High alarm	OFF ON	ON	

3360 Digital input 94 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3361	Dig input 94	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3362	Dig input 94	Relay output A	Not used (option dependent)	Not used	
3363	Dig input 94	Relay output B	Not used (option dependent)	Not used	
3364	Dig input 94	Enable	OFF ON	OFF	
3365	Dig input 94	Fail class	F1 to F9	F2 (Warning)	
3366	Dig input 94	High alarm	OFF ON	ON	

3370 Digital input 95 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3371	Dig input 95	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3372	Dig input 95	Relay output A	Not used (option dependent)	Not used	
3373	Dig input 95	Relay output B	Not used (option dependent)	Not used	
3374	Dig input 95	Enable	OFF ON	OFF	
3375	Dig input 95	Fail class	F1 to F9	F2 (Warning)	
3376	Dig input 95	High alarm	OFF ON	ON	

3380 Digital input 96 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3381	Dig input 96	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3382	Dig input 96	Relay output A	Not used (option dependent)	Not used	
3383	Dig input 96	Relay output B	Not used (option dependent)	Not used	
3384	Dig input 96	Enable	OFF ON	OFF	
3385	Dig input 96	Fail class	F1 to F9	F2 (Warning)	
3386	Dig input 96	High alarm	OFF ON	ON	

3390 Digital input 97 (requires option M13.6)

No.	Setting		Range	Factory setting	Description
3391	Dig input 97	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3392	Dig input 97	Relay output A	Not used (option dependent)	Not used	
3393	Dig input 97	Relay output B	Not used (option dependent)	Not used	
3394	Dig input 97	Enable	OFF ON	OFF	
3395	Dig input 97	Fail class	F1 to F9	F2 (Warning)	
3396	Dig input 97	High alarm	OFF ON	ON	

2.5.4 Digital input 102-108 setup

3400 Digital input 102

No.	Setting		Range	Factory setting	Description
3401	Wire fail 102	Enable	OFF ON	OFF	The input is configurable (only available if multi-input 102 is configured to "binary" in menu 10980).
3402	Dig input 102	Timer	0.0 to 100.0 s	10.0 s	
3403	Dig input 102	Relay output A	Not used (option dependent)	Not used	
3404	Dig input 102	Relay output B	Not used (option dependent)	Not used	
3405	Dig input 102	Enable	OFF ON	OFF	
3406	Dig input 102	Fail class	F1 to F9	F2 (Warning)	

3410 Digital input 105

No.	Setting		Range	Factory setting	Description
3411	Wire fail 105	Enable	OFF ON	OFF	The input is configurable (only available if multi-input 105 is configured to "binary" in menu 10990).
3412	Dig input 105	Timer	0.0 to 100.0 s	10.0 s	
3413	Dig input 105	Relay output A	Not used (option dependent)	Not used	
3414	Dig input 105	Relay output B	Not used (option dependent)	Not used	
3415	Dig input 105	Enable	OFF ON	OFF	
3416	Dig input 105	Fail class	F1 to F9	F2 (Warning)	

3420 Digital input 108

No.	Setting		Range	Factory setting	Description
3421	Wire fail 108	Enable	OFF ON	OFF	The input is configurable (only available if multi-input 108 is configured to "binary" in menu 11000).
3422	Dig input 108	Timer	0.0 to 100.0 s	10.0 s	
3423	Dig input 108	Relay output A	Not used (option dependent)	Not used	
3424	Dig input 108	Relay output B	Not used (option dependent)	Not used	
3425	Dig input 108	Enable	OFF ON	OFF	
3426	Dig input 108	Fail class	F1 to F9	F2 (Warning)	

2.5.5 Digital input 112-117 setup

3430 Digital input 112

No.	Setting		Range	Factory setting	Description
3431	Dig input 112	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3432	Dig input 112	Relay output A	Not used (option dependent)	Not used	
3433	Dig input 112	Relay output B	Not used (option dependent)	Not used	
3434	Dig input 112	Enable	OFF ON	OFF	
3435	Dig input 112	Fail class	F1 to F9	F2 (Warning)	
3436	Dig input 112	High alarm	OFF ON	ON	

3440 Digital input 113

No.	Setting		Range	Factory setting	Description
3441	Dig input 113	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3442	Dig input 113	Relay output A	Not used (option dependent)	Not used	
3443	Dig input 113	Relay output B	Not used (option dependent)	Not used	
3444	Dig input 113	Enable	OFF ON	OFF	
3445	Dig input 113	Fail class	F1 to F9	F2 (Warning)	
3446	Dig input 113	High alarm	OFF ON	ON	

3450 Digital input 114

No.	Setting		Range	Factory setting	Description
3451	Dig input 114	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3452	Dig input 114	Relay output A	Not used (option dependent)	Not used	
3453	Dig input 114	Relay output B	Not used (option dependent)	Not used	
3454	Dig input 114	Enable	OFF ON	OFF	
3455	Dig input 114	Fail class	F1 to F9	F2 (Warning)	
3456	Dig input 114	High alarm	OFF ON	ON	

3460 Digital input 115

No.	Setting		Range	Factory setting	Description
3461	Dig input 115	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3462	Dig input 115	Relay output A	Not used (option dependent)	Not used	
3463	Dig input 115	Relay output B	Not used (option dependent)	Not used	
3464	Dig input 115	Enable	OFF ON	OFF	
3465	Dig input 115	Fail class	F1 to F9	F2 (Warning)	
3466	Dig input 115	High alarm	OFF ON	ON	

3470 Digital input 116

No.	Setting		Range	Factory setting	Description
3471	Dig input 116	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3472	Dig input 116	Relay output A	Not used (option dependent)	Not used	
3473	Dig input 116	Relay output B	Not used (option dependent)	Not used	
3474	Dig input 116	Enable	OFF ON	OFF	
3475	Dig input 116	Fail class	F1 to F9	F2 (Warning)	
3476	Dig input 116	High alarm	OFF ON	ON	

3480 Digital input 117

No.	Setting		Range	Factory setting	Description
3481	Dig input 117	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3482	Dig input 117	Relay output A	Not used (option dependent)	Not used	
3483	Dig input 117	Relay output B	Not used (option dependent)	Not used	
3484	Dig input 117	Enable	OFF ON	OFF	
3485	Dig input 117	Fail class	F1 to F9	F2 (Warning)	
3486	Dig input 117	High alarm	OFF ON	ON	

2.5.6 Emergency stop

3490 Emergency stop

No.	Setting		Range	Factory setting	Description
3491	Emer. stop	Timer	0.0 to 60.0 s	0.0 s	Emergency stop input is intended for a normally closed contact.
3492	Emer. stop	Relay output A	Not used (option dependent)	Not used	
3493	Emer. stop	Relay output B	Not used (option dependent)	Not used	
3494	Emer. stop	Enable	OFF ON	ON	
3495	Emer. stop	Fail class	F1 to F9	F5 (Shutdown)	

2.5.7 Digital input 127-133 setup (requires option M13.8)

3500 Digital input 127 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3501	Dig input 127	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3502	Dig input 127	Relay output A	Not used (option dependent)	Not used	
3503	Dig input 127	Relay output B	Not used (option dependent)	Not used	
3504	Dig input 127	Enable	OFF ON	OFF	
3505	Dig input 127	Fail class	F1 to F9	F2 (Warning)	
3506	Dig input 127	High alarm	OFF ON	ON	

3510 Digital input 128 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3511	Dig input 128	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3512	Dig input 128	Relay output A	Not used (option dependent)	Not used	
3513	Dig input 128	Relay output B	Not used (option dependent)	Not used	
3514	Dig input 128	Enable	OFF ON	OFF	
3515	Dig input 128	Fail class	F1 to F9	F2 (Warning)	
3516	Dig input 128	High alarm	OFF ON	ON	

3520 Digital input 129 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3521	Dig input 129	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3522	Dig input 129	Relay output A	Not used (option dependent)	Not used	
3523	Dig input 129	Relay output B	Not used (option dependent)	Not used	
3524	Dig input 129	Enable	OFF ON	OFF	
3525	Dig input 129	Fail class	F1 to F9	F2 (Warning)	
3526	Dig input 129	High alarm	OFF ON	ON	

3530 Digital input 130 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3531	Dig input 130	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3532	Dig input 130	Relay output A	Not used (option dependent)	Not used	
3533	Dig input 130	Relay output B	Not used (option dependent)	Not used	
3534	Dig input 130	Enable	OFF ON	OFF	
3535	Dig input 130	Fail class	F1 to F9	F2 (Warning)	
3536	Dig input 130	High alarm	OFF ON	ON	

3540 Digital input 131 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3541	Dig input 131	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3542	Dig input 131	Relay output A	Not used (option dependent)	Not used	
3543	Dig input 131	Relay output B	Not used (option dependent)	Not used	
3544	Dig input 131	Enable	OFF ON	OFF	
3545	Dig input 131	Fail class	F1 to F9	F2 (Warning)	
3546	Dig input 131	High alarm	OFF ON	ON	

3550 Digital input 132 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3551	Dig input 132	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3552	Dig input 132	Relay output A	Not used (option dependent)	Not used	
3553	Dig input 132	Relay output B	Not used (option dependent)	Not used	
3554	Dig input 132	Enable	OFF ON	OFF	
3555	Dig input 132	Fail class	F1 to F9	F2 (Warning)	
3556	Dig input 132	High alarm	OFF ON	ON	

3560 Digital input 133 (requires option M13.8)

No.	Setting		Range	Factory setting	Description
3561	Dig input 133	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3562	Dig input 133	Relay output A	Not used (option dependent)	Not used	
3563	Dig input 133	Relay output B	Not used (option dependent)	Not used	
3564	Dig input 133	Enable	OFF ON	OFF	
3565	Dig input 133	Fail class	F1 to F9	F2 (Warning)	
3566	Dig input 133	High alarm	OFF ON	ON	

2.5.8 M-Logic alarm 1-5 setup

3570 M-Logic alarm 1

No.	Setting		Range	Factory setting	Description
3570	M-Logic alarm 1	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3571	M-Logic alarm 1	Relay output A	Not used (option dependent)	Not used	
3572	M-Logic alarm 1	Relay output B	Not used (option dependent)	Not used	
3573	M-Logic alarm 1	Enable	OFF ON	OFF	
3574	M-Logic alarm 1	Fail class	F1 to F9	F2 (Warning)	
3575	M-Logic alarm 1	High alarm	OFF ON	ON	

3580 M-Logic alarm 2

No.	Setting		Range	Factory setting	Description
3580	M-Logic alarm 2	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3581	M-Logic alarm 2	Relay output A	Not used (option dependent)	Not used	
3582	M-Logic alarm 2	Relay output B	Not used (option dependent)	Not used	
3583	M-Logic alarm 2	Enable	OFF ON	OFF	
3584	M-Logic alarm 2	Fail class	F1 to F9	F2 (Warning)	
3585	M-Logic alarm 2	High alarm	OFF ON	ON	

3590 M-Logic alarm 3

No.	Setting		Range	Factory setting	Description
3590	M-Logic alarm 3	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3591	M-Logic alarm 3	Relay output A	Not used (option dependent)	Not used	
3592	M-Logic alarm 3	Relay output B	Not used (option dependent)	Not used	
3593	M-Logic alarm 3	Enable	OFF ON	OFF	
3594	M-Logic alarm 3	Fail class	F1 to F9	F2 (Warning)	
3595	M-Logic alarm 3	High alarm	OFF ON	ON	

3600 M-Logic alarm 4

No.	Setting		Range	Factory setting	Description
3600	M-Logic alarm 4	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3601	M-Logic alarm 4	Relay output A	Not used (option dependent)	Not used	
3602	M-Logic alarm 4	Relay output B	Not used (option dependent)	Not used	
3603	M-Logic alarm 4	Enable	OFF ON	OFF	
3604	M-Logic alarm 4	Fail class	F1 to F9	F2 (Warning)	
3605	M-Logic alarm 4	High alarm	OFF ON	ON	

3610 M-Logic alarm 5

No.	Setting		Range	Factory setting	Description
3610	M-Logic alarm 5	Timer	0.0 to 100.0 s	10.0 s	The input is configurable.
3611	M-Logic alarm 5	Relay output A	Not used (option dependent)	Not used	
3612	M-Logic alarm 5	Relay output B	Not used (option dependent)	Not used	
3613	M-Logic alarm 5	Enable	OFF ON	OFF	
3614	M-Logic alarm 5	Fail class	F1 to F9	F2 (Warning)	
3615	M-Logic alarm 5	High alarm	OFF ON	ON	

2.6 Input/output parameters: Analogue input setup

2.6.1 Analogue input setup (requires option M15.6)

4000 4-20 mA 91.1 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4001	4-20 mA 91.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4002	4-20 mA 91.1	Timer	0.0 to 600.0 s	120.0 s	
4003	4-20 mA 91.1	Relay output A	Not used (option dependent)	Not used	
4004	4-20 mA 91.1	Relay output B	Not used (option dependent)	Not used	
4005	4-20 mA 91.1	Enable	OFF ON	OFF	
4006	4-20 mA 91.1	Fail class	F1 to F9	F2 (Warning)	

4010 4-20 mA 91.2 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4011	4-20 mA 91.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4012	4-20 mA 91.2	Timer	0.0 to 600.0 s	120.0 s	
4013	4-20 mA 91.2	Relay output A	Not used (option dependent)	Not used	
4014	4-20 mA 91.2	Relay output B	Not used (option dependent)	Not used	
4015	4-20 mA 91.2	Enable	OFF ON	OFF	
4016	4-20 mA 91.2	Fail class	F1 to F9	F2 (Warning)	

4020 Wire fail 4-20 mA 91 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4021	Wire fail ana 91	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.6: 4 x 4-20 mA inputs.
4022	Wire fail ana 91	Relay output B	Not used (option dependent)	Not used	
4023	Wire fail ana 91	Enable	OFF ON	OFF	
4024	Wire fail ana 91	Fail class	F1 to F9	F2 (Warning)	

4030 4-20 mA 93.1 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4031	4-20 mA 93.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4032	4-20 mA 93.1	Timer	0.0 to 600.0 s	120.0 s	
4033	4-20 mA 93.1	Relay output A	Not used (option dependent)	Not used	
4034	4-20 mA 93.1	Relay output B	Not used (option dependent)	Not used	
4035	4-20 mA 93.1	Enable	OFF ON	OFF	
4036	4-20 mA 93.1	Fail class	F1 to F9	F2 (Warning)	

4040 4-20 mA 93.2 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4041	4-20 mA 93.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4042	4-20 mA 93.2	Timer	0.0 to 600.0 s	120.0 s	
4043	4-20 mA 93.2	Relay output A	Not used (option dependent)	Not used	
4044	4-20 mA 93.2	Relay output B	Not used (option dependent)	Not used	
4045	4-20 mA 93.2	Enable	OFF ON	OFF	
4046	4-20 mA 93.2	Fail class	F1 to F9	F2 (Warning)	

4050 Wire fail 4-20 mA 93 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4051	Wire fail ana 93	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.6: 4 x 4-20 mA inputs.
4052	Wire fail ana 93	Relay output B	Not used (option dependent)	Not used	
4053	Wire fail ana 93	Enable	OFF ON	OFF	
4054	Wire fail ana 93	Fail class	F1 to F9	F2 (Warning)	

4060 4-20 mA 95.1 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4061	4-20 mA 95.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4062	4-20 mA 95.1	Timer	0.0 to 600.0 s	120.0 s	
4063	4-20 mA 95.1	Relay output A	Not used (option dependent)	Not used	
4064	4-20 mA 95.1	Relay output B	Not used (option dependent)	Not used	
4065	4-20 mA 95.1	Enable	OFF ON	OFF	
4066	4-20 mA 95.1	Fail class	F1 to F9	F2 (Warning)	

4070 4-20 mA 95.2 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4071	4-20 mA 95.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4072	4-20 mA 95.2	Timer	0.0 to 600.0 s	120.0 s	
4073	4-20 mA 95.2	Relay output A	Not used (option dependent)	Not used	
4074	4-20 mA 95.2	Relay output B	Not used (option dependent)	Not used	
4075	4-20 mA 95.2	Enable	OFF ON	OFF	
4076	4-20 mA 95.2	Fail class	F1 to F9	F2 (Warning)	

4080 Wire fail 4-20 mA 95 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4081	Wire fail ana 95	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.6: 4 x 4-20 mA inputs.
4082	Wire fail ana 95	Relay output B	Not used (option dependent)	Not used	
4083	Wire fail ana 95	Enable	OFF ON	OFF	
4084	Wire fail ana 95	Fail class	F1 to F9	F2 (Warning)	

4090 4-20 mA 97.1 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4091	4-20 mA 97.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4092	4-20 mA 97.1	Timer	0.0 to 600.0 s	120.0 s	
4093	4-20 mA 97.1	Relay output A	Not used (option dependent)	Not used	
4094	4-20 mA 97.1	Relay output B	Not used (option dependent)	Not used	
4095	4-20 mA 97.1	Enable	OFF ON	OFF	
4096	4-20 mA 97.1	Fail class	F1 to F9	F2 (Warning)	

4100 4-20 mA 97.2 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4101	4-20 mA 97.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.6: 4 x 4-20 mA inputs.
4102	4-20 mA 97.2	Timer	0.0 to 600.0 s	120.0 s	
4103	4-20 mA 97.2	Relay output A	Not used (option dependent)	Not used	
4104	4-20 mA 97.2	Relay output B	Not used (option dependent)	Not used	
4105	4-20 mA 97.2	Enable	OFF ON	OFF	
4106	4-20 mA 97.2	Fail class	F1 to F9	F2 (Warning)	

4110 Wire fail 4-20 mA 97 (requires option M15.6)

No.	Setting		Range	Factory setting	Description
4111	Wire fail ana 97	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.6: 4 x 4-20 mA inputs.
4112	Wire fail ana 97	Relay output B	Not used (option dependent)	Not used	
4113	Wire fail ana 97	Enable	OFF ON	OFF	
4114	Wire fail ana 97	Fail class	F1 to F9	F2 (Warning)	

2.6.2 Analogue input setup (requires option M15.8)

4800 4-20 mA 127.1 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4801	4-20 mA 127.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4802	4-20 mA 127.1	Timer	0.0 to 600.0 s	120.0 s	
4803	4-20 mA 127.1	Relay output A	Not used (option dependent)	Not used	
4804	4-20 mA 127.1	Relay output B	Not used (option dependent)	Not used	
4805	4-20 mA 127.1	Enable	OFF ON	OFF	
4806	4-20 mA 127.1	Fail class	F1 to F9	F2 (Warning)	

4810 4-20 mA 127.2 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4811	4-20 mA 127.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4812	4-20 mA 127.2	Timer	0.0 to 600.0 s	120.0 s	
4813	4-20 mA 127.2	Relay output A	Not used (option dependent)	Not used	
4814	4-20 mA 127.2	Relay output B	Not used (option dependent)	Not used	
4815	4-20 mA 127.2	Enable	OFF ON	OFF	
4816	4-20 mA 127.2	Fail class	F1 to F9	F2 (Warning)	

4820 Wire fail 4-20 mA 127 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4821	Wire fail ana 127	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.8: 4 x 4-20 mA inputs.
4822	Wire fail ana 127	Relay output B	Not used (option dependent)	Not used	
4823	Wire fail ana 127	Enable	OFF ON	OFF	
4824	Wire fail ana 127	Fail class	F1 to F9	F2 (Warning)	

4830 4-20 mA 129.1 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4831	4-20 mA 129.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4832	4-20 mA 129.1	Timer	0.0 to 600.0 s	120.0 s	
4833	4-20 mA 129.1	Relay output A	Not used (option dependent)	Not used	
4834	4-20 mA 129.1	Relay output B	Not used (option dependent)	Not used	
4835	4-20 mA 129.1	Enable	OFF ON	OFF	
4836	4-20 mA 129.1	Fail class	F1 to F9	F2 (Warning)	

4840 4-20 mA 129.2 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4841	4-20 mA 129.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4842	4-20 mA 129.2	Timer	0.0 to 600.0 s	120.0 s	
4843	4-20 mA 129.2	Relay output A	Not used (option dependent)	Not used	
4844	4-20 mA 129.2	Relay output B	Not used (option dependent)	Not used	
4845	4-20 mA 129.2	Enable	OFF ON	OFF	
4846	4-20 mA 129.2	Fail class	F1 to F9	F2 (Warning)	

4850 Wire fail 4-20 mA 129 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4851	Wire fail ana 129	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.8: 4 x 4-20 mA inputs.
4852	Wire fail ana 129	Relay output B	Not used (option dependent)	Not used	
4853	Wire fail ana 129	Enable	OFF ON	OFF	
4854	Wire fail ana 129	Fail class	F1 to F9	F2 (Warning)	

4860 4-20 mA 131.1 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4861	4-20 mA 131.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4862	4-20 mA 131.1	Timer	0.0 to 600.0 s	120.0 s	
4863	4-20 mA 131.1	Relay output A	Not used (option dependent)	Not used	
4864	4-20 mA 131.1	Relay output B	Not used (option dependent)	Not used	
4865	4-20 mA 131.1	Enable	OFF ON	OFF	
4866	4-20 mA 131.1	Fail class	F1 to F9	F2 (Warning)	

4870 4-20 mA 131.2 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4871	4-20 mA 131.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4872	4-20 mA 131.2	Timer	0.0 to 600.0 s	120.0 s	
4873	4-20 mA 131.2	Relay output A	Not used (option dependent)	Not used	
4874	4-20 mA 131.2	Relay output B	Not used (option dependent)	Not used	
4875	4-20 mA 131.2	Enable	OFF ON	OFF	
4876	4-20 mA 131.2	Fail class	F1 to F9	F2 (Warning)	

4880 Wire fail 4-20 mA 131 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4881	Wire fail ana 131	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.8: 4 x 4-20 mA inputs.
4882	Wire fail ana 131	Relay output B	Not used (option dependent)	Not used	
4883	Wire fail ana 131	Enable	OFF ON	OFF	
4884	Wire fail ana 131	Fail class	F1 to F9	F2 (Warning)	

4890 4-20 mA 133.1 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4891	4-20 mA 133.1	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4892	4-20 mA 133.1	Timer	0.0 to 600.0 s	120.0 s	
4893	4-20 mA 133.1	Relay output A	Not used (option dependent)	Not used	
4894	4-20 mA 133.1	Relay output B	Not used (option dependent)	Not used	
4895	4-20 mA 133.1	Enable	OFF ON	OFF	
4896	4-20 mA 133.1	Fail class	F1 to F9	F2 (Warning)	

4900 4-20 mA 133.2 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4901	4-20 mA 133.2	Set point	4 to 20 mA	10 mA	Configurable analogue input. Option M15.8: 4 x 4-20 mA inputs.
4902	4-20 mA 133.2	Timer	0.0 to 600.0 s	120.0 s	
4903	4-20 mA 133.2	Relay output A	Not used (option dependent)	Not used	
4904	4-20 mA 133.2	Relay output B	Not used (option dependent)	Not used	
4905	4-20 mA 133.2	Enable	OFF ON	OFF	
4906	4-20 mA 133.2	Fail class	F1 to F9	F2 (Warning)	

4910 Wire fail 4-20 mA 133 (requires option M15.8)

No.	Setting		Range	Factory setting	Description
4911	Wire fail ana 133	Relay output A	Not used (option dependent)	Not used	The wire fault will detect if the current drops below 2 mA or exceeds 22 mA. In both cases the alarm will be activated. Option M15.8: 4 x 4-20 mA inputs.
4912	Wire fail ana 133	Relay output B	Not used (option dependent)	Not used	
4913	Wire fail ana 133	Enable	OFF ON	OFF	
4914	Wire fail ana 133	Fail class	F1 to F9	F2 (Warning)	

2.6.3 Analogue input setup (requires option M16.6)

4000 4-20 mA 91.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4001	4-20 mA 91.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11120.
4002	4-20 mA 91.1	Timer	0.0 to 600.0 s	120.0 s	
4003	4-20 mA 91.1	Relay output A	Not used (option dependent)	Not used	
4004	4-20 mA 91.1	Relay output B	Not used (option dependent)	Not used	
4005	4-20 mA 91.1	Enable	OFF ON	OFF	
4006	4-20 mA 91.1	Fail class	F1 to F9	F2 (Warning)	

4000 V DC 91.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4001	V DC 91.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11120.
4002	V DC 91.1	Timer	0.0 to 600.0 s	120.0 s	
4003	V DC 91.1	Relay output A	Not used (option dependent)	Not used	
4004	V DC 91.1	Relay output B	Not used (option dependent)	Not used	
4005	V DC 91.1	Enable	OFF ON	OFF	
4006	V DC 91.1	Fail class	F1 to F9	F2 (Warning)	

4000 Pt100 91.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4001	Pt100 91.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11120.
4002	Pt100 91.1	Timer	0.0 to 600.0 s	120.0 s	
4003	Pt100 91.1	Relay output A	Not used (option dependent)	Not used	
4004	Pt100 91.1	Relay output B	Not used (option dependent)	Not used	
4005	Pt100 91.1	Enable	OFF ON	OFF	
4006	Pt100 91.1	Fail class	F1 to F9	F2 (Warning)	

4010 4-20 mA 91.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4011	4-20 mA 91.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11120.
4012	4-20 mA 91.2	Timer	0.0 to 600.0 s	120.0 s	
4013	4-20 mA 91.2	Relay output A	Not used (option dependent)	Not used	
4014	4-20 mA 91.2	Relay output B	Not used (option dependent)	Not used	
4015	4-20 mA 91.2	Enable	OFF ON	OFF	
4016	4-20 mA 91.2	Fail class	F1 to F9	F2 (Warning)	

4010 V DC 91.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4011	V DC 91.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11120.
4012	V DC 91.2	Timer	0.0 to 600.0 s	120.0 s	
4013	V DC 91.2	Relay output A	Not used (option dependent)	Not used	
4014	V DC 91.2	Relay output B	Not used (option dependent)	Not used	
4015	V DC 91.2	Enable	OFF ON	OFF	
4016	V DC 91.2	Fail class	F1 to F9	F2 (Warning)	

4010 Pt100 91.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4011	Pt100 91.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11120.
4012	Pt100 91.2	Timer	0.0 to 600.0 s	120.0 s	
4013	Pt100 91.2	Relay output A	Not used (option dependent)	Not used	
4014	Pt100 91.2	Relay output B	Not used (option dependent)	Not used	
4015	Pt100 91.2	Enable	OFF ON	OFF	
4016	Pt100 91.2	Fail class	F1 to F9	F2 (Warning)	

4020 Wire fail 91 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4021	Wire fail ana 91	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4022	Wire fail ana 91	Relay output B	Not used (option dependent)	Not used	
4023	Wire fail ana 91	Enable	OFF ON	OFF	
4024	Wire fail ana 91	Fail class	F1 to F9	F2 (Warning)	

4030 4-20 mA 93.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4031	4-20 mA 93.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11130.
4032	4-20 mA 93.1	Timer	0.0 to 600.0 s	120.0 s	
4033	4-20 mA 93.1	Relay output A	Not used (option dependent)	Not used	
4034	4-20 mA 93.1	Relay output B	Not used (option dependent)	Not used	
4035	4-20 mA 93.1	Enable	OFF ON	OFF	
4036	4-20 mA 93.1	Fail class	F1 to F9	F2 (Warning)	

4030 V DC 93.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4031	V DC 93.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11130.
4032	V DC 93.1	Timer	0.0 to 600.0 s	120.0 s	
4033	V DC 93.1	Relay output A	Not used (option dependent)	Not used	
4034	V DC 93.1	Relay output B	Not used (option dependent)	Not used	
4035	V DC 93.1	Enable	OFF ON	OFF	
4036	V DC 93.1	Fail class	F1 to F9	F2 (Warning)	

4030 Pt100 93.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4031	Pt100 93.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11130.
4032	Pt100 93.1	Timer	0.0 to 600.0 s	120.0 s	
4033	Pt100 93.1	Relay output A	Not used (option dependent)	Not used	
4034	Pt100 93.1	Relay output B	Not used (option dependent)	Not used	
4035	Pt100 93.1	Enable	OFF ON	OFF	
4036	Pt100 93.1	Fail class	F1 to F9	F2 (Warning)	

4040 4-20 mA 93.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4041	4-20 mA 93.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11130.
4042	4-20 mA 93.2	Timer	0.0 to 600.0 s	120.0 s	
4043	4-20 mA 93.2	Relay output A	Not used (option dependent)	Not used	
4044	4-20 mA 93.2	Relay output B	Not used (option dependent)	Not used	
4045	4-20 mA 93.2	Enable	OFF ON	OFF	
4046	4-20 mA 93.2	Fail class	F1 to F9	F2 (Warning)	

4040 V DC 93.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4041	V DC 93.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11130.
4042	V DC 93.2	Timer	0.0 to 600.0 s	120.0 s	
4043	V DC 93.2	Relay output A	Not used (option dependent)	Not used	
4044	V DC 93.2	Relay output B	Not used (option dependent)	Not used	
4045	V DC 93.2	Enable	OFF ON	OFF	
4046	V DC 93.2	Fail class	F1 to F9	F2 (Warning)	

4040 Pt100 93.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4041	Pt100 93.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11130.
4042	Pt100 93.2	Timer	0.0 to 600.0 s	120.0 s	
4043	Pt100 93.2	Relay output A	Not used (option dependent)	Not used	
4044	Pt100 93.2	Relay output B	Not used (option dependent)	Not used	
4045	Pt100 93.2	Enable	OFF ON	OFF	
4046	Pt100 93.2	Fail class	F1 to F9	F2 (Warning)	

4050 Wire fail 93 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4051	Wire fail ana 93	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4052	Wire fail ana 93	Relay output B	Not used (option dependent)	Not used	
4053	Wire fail ana 93	Enable	OFF ON	OFF	
4054	Wire fail ana 93	Fail class	F1 to F9	F2 (Warning)	

4060 4-20 mA 95.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4061	4-20 mA 95.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11140.
4062	4-20 mA 95.1	Timer	0.0 to 600.0 s	120.0 s	
4063	4-20 mA 95.1	Relay output A	Not used (option dependent)	Not used	
4044	4-20 mA 95.1	Relay output B	Not used (option dependent)	Not used	
4065	4-20 mA 95.1	Enable	OFF ON	OFF	
4066	4-20 mA 95.1	Fail class	F1 to F9	F2 (Warning)	

4060 V DC 95.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4061	V DC 95.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11140.
4062	V DC 95.1	Timer	0.0 to 600.0 s	120.0 s	
4063	V DC 95.1	Relay output A	Not used (option dependent)	Not used	
4064	V DC 95.1	Relay output B	Not used (option dependent)	Not used	
4065	V DC 95.1	Enable	OFF ON	OFF	
4066	V DC 95.1	Fail class	F1 to F9	F2 (Warning)	

4060 Pt100 95.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4061	Pt100 95.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11140.
4062	Pt100 95.1	Timer	0.0 to 600.0 s	120.0 s	
4063	Pt100 95.1	Relay output A	Not used (option dependent)	Not used	
4064	Pt100 95.1	Relay output B	Not used (option dependent)	Not used	
4065	Pt100 95.1	Enable	OFF ON	OFF	
4066	Pt100 95.1	Fail class	F1 to F9	F2 (Warning)	

4070 4-20 mA 95.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4071	4-20 mA 95.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11140.
4072	4-20 mA 95.2	Timer	0.0 to 600.0 s	120.0 s	
4073	4-20 mA 95.2	Relay output A	Not used (option dependent)	Not used	
4074	4-20 mA 95.2	Relay output B	Not used (option dependent)	Not used	
4075	4-20 mA 95.2	Enable	OFF ON	OFF	
4076	4-20 mA 95.2	Fail class	F1 to F9	F2 (Warning)	

4070 V DC 95.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4071	V DC 95.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11140.
4072	V DC 95.2	Timer	0.0 to 600.0 s	120.0 s	
4073	V DC 95.2	Relay output A	Not used (option dependent)	Not used	
4074	V DC 95.2	Relay output B	Not used (option dependent)	Not used	
4075	V DC 95.2	Enable	OFF ON	OFF	
4076	V DC 95.2	Fail class	F1 to F9	F2 (Warning)	

4070 Pt100 95.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4071	Pt100 95.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11140.
4072	Pt100 95.2	Timer	0.0 to 600.0 s	120.0 s	
4073	Pt100 95.2	Relay output A	Not used (option dependent)	Not used	
4074	Pt100 95.2	Relay output B	Not used (option dependent)	Not used	
4075	Pt100 95.2	Enable	OFF ON	OFF	
4076	Pt100 95.2	Fail class	F1 to F9	F2 (Warning)	

4080 Wire fail 95 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4081	Wire fail ana 95	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4082	Wire fail ana 95	Relay output B	Not used (option dependent)	Not used	
4083	Wire fail ana 95	Enable	OFF ON	OFF	
4084	Wire fail ana 95	Fail class	F1 to F9	F2 (Warning)	

4090 4-20 mA 97.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4091	4-20 mA 97.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11150.
4092	4-20 mA 97.1	Timer	0.0 to 600.0 s	120.0 s	
4093	4-20 mA 97.1	Relay output A	Not used (option dependent)	Not used	
4094	4-20 mA 97.1	Relay output B	Not used (option dependent)	Not used	
4095	4-20 mA 97.1	Enable	OFF ON	OFF	
4096	4-20 mA 97.1	Fail class	F1 to F9	F2 (Warning)	

4090 V DC 97.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4091	V DC 97.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11150.
4092	V DC 97.1	Timer	0.0 to 600.0 s	120.0 s	
4093	V DC 97.1	Relay output A	Not used (option dependent)	Not used	
4094	V DC 97.1	Relay output B	Not used (option dependent)	Not used	
4095	V DC 97.1	Enable	OFF ON	OFF	
4096	V DC 97.1	Fail class	F1 to F9	F2 (Warning)	

4090 Pt100 97.1 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4091	Pt100 97.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11150.
4092	Pt100 97.1	Timer	0.0 to 600.0 s	120.0 s	
4093	Pt100 97.1	Relay output A	Not used (option dependent)	Not used	
4094	Pt100 97.1	Relay output B	Not used (option dependent)	Not used	
4095	Pt100 97.1	Enable	OFF ON	OFF	
4096	Pt100 97.1	Fail class	F1 to F9	F2 (Warning)	

4100 4-20 mA 97.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4101	4-20 mA 97.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11150.
4102	4-20 mA 97.2	Timer	0.0 to 600.0 s	120.0 s	
4103	4-20 mA 97.2	Relay output A	Not used (option dependent)	Not used	
4104	4-20 mA 97.2	Relay output B	Not used (option dependent)	Not used	
4105	4-20 mA 97.2	Enable	OFF ON	OFF	
4106	4-20 mA 97.2	Fail class	F1 to F9	F2 (Warning)	

4100 V DC 97.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4101	V DC 97.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11150.
4102	V DC 97.2	Timer	0.0 to 600.0 s	120.0 s	
4103	V DC 97.2	Relay output A	Not used (option dependent)	Not used	
4104	V DC 97.2	Relay output B	Not used (option dependent)	Not used	
4105	V DC 97.2	Enable	OFF ON	OFF	
4106	V DC 97.2	Fail class	F1 to F9	F2 (Warning)	

4100 Pt100 97.2 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4101	Pt100 97.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.6: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11150.
4102	Pt100 97.2	Timer	0.0 to 600.0 s	120.0 s	
4103	Pt100 97.2	Relay output A	Not used (option dependent)	Not used	
4104	Pt100 97.2	Relay output B	Not used (option dependent)	Not used	
4105	Pt100 97.2	Enable	OFF ON	OFF	
4106	Pt100 97.2	Fail class	F1 to F9	F2 (Warning)	

4110 Wire fail 97 (requires option M16.6)

No.	Setting		Range	Factory setting	Description
4111	Wire fail ana 97	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4112	Wire fail ana 97	Relay output B	Not used (option dependent)	Not used	
4113	Wire fail ana 97	Enable	OFF ON	OFF	
4114	Wire fail ana 97	Fail class	F1 to F9	F2 (Warning)	

2.6.4 Analogue input setup (requires option M16.8)

4800 4-20 mA 127.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4801	4-20 mA 127.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11160.
4802	4-20 mA 127.1	Timer	0.0 to 600.0 s	120.0 s	
4803	4-20 mA 127.1	Relay output A	Not used (option dependent)	Not used	
4804	4-20 mA 127.1	Relay output B	Not used (option dependent)	Not used	
4805	4-20 mA 127.1	Enable	OFF ON	OFF	
4806	4-20 mA 127.1	Fail class	F1 to F9	F2 (Warning)	

4800 V DC 127.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4801	V DC 127.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11160.
4802	V DC 127.1	Timer	0.0 to 600.0 s	120.0 s	
4803	V DC 127.1	Relay output A	Not used (option dependent)	Not used	
4804	V DC 127.1	Relay output B	Not used (option dependent)	Not used	
4805	V DC 127.1	Enable	OFF ON	OFF	
4806	V DC 127.1	Fail class	F1 to F9	F2 (Warning)	

4800 Pt100 127.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4801	Pt100 127.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11160.
4802	Pt100 127.1	Timer	0.0 to 600.0 s	120.0 s	
4803	Pt100 127.1	Relay output A	Not used (option dependent)	Not used	
4804	Pt100 127.1	Relay output B	Not used (option dependent)	Not used	
4805	Pt100 127.1	Enable	OFF ON	OFF	
4806	Pt100 127.1	Fail class	F1 to F9	F2 (Warning)	

4810 4-20 mA 127.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4811	4-20 mA 127.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11160.
4812	4-20 mA 127.2	Timer	0.0 to 600.0 s	120.0 s	
4813	4-20 mA 127.2	Relay output A	Not used (option dependent)	Not used	
4814	4-20 mA 127.2	Relay output B	Not used (option dependent)	Not used	
4815	4-20 mA 127.2	Enable	OFF ON	OFF	
4816	4-20 mA 127.2	Fail class	F1 to F9	F2 (Warning)	

4810 V DC 127.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4811	V DC 127.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11160.
4812	V DC 127.2	Timer	0.0 to 600.0 s	120.0 s	
4813	V DC 127.2	Relay output A	Not used (option dependent)	Not used	
4814	V DC 127.2	Relay output B	Not used (option dependent)	Not used	
4815	V DC 127.2	Enable	OFF ON	OFF	
4816	V DC 127.2	Fail class	F1 to F9	F2 (Warning)	

4810 Pt100 127.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4811	Pt100 127.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11160.
4812	Pt100 127.2	Timer	0.0 to 600.0 s	120.0 s	
4813	Pt100 127.2	Relay output A	Not used (option dependent)	Not used	
4814	Pt100 127.2	Relay output B	Not used (option dependent)	Not used	
4815	Pt100 127.2	Enable	OFF ON	OFF	
4816	Pt100 127.2	Fail class	F1 to F9	F2 (Warning)	

4820 Wire fail 127 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4821	Wire fail ana 127	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4822	Wire fail ana 127	Relay output B	Not used (option dependent)	Not used	
4823	Wire fail ana 127	Enable	OFF ON	OFF	
4824	Wire fail ana 127	Fail class	F1 to F9	F2 (Warning)	

4830 4-20 mA 129.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4831	4-20 mA 129.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11170.
4832	4-20 mA 129.1	Timer	0.0 to 600.0 s	120.0 s	
4833	4-20 mA 129.1	Relay output A	Not used (option dependent)	Not used	
4834	4-20 mA 129.1	Relay output B	Not used (option dependent)	Not used	
4835	4-20 mA 129.1	Enable	OFF ON	OFF	
4836	4-20 mA 129.1	Fail class	F1 to F9	F2 (Warning)	

4830 V DC 129.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4831	V DC 129.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11170.
4832	V DC 129.1	Timer	0.0 to 600.0 s	120.0 s	
4833	V DC 129.1	Relay output A	Not used (option dependent)	Not used	
4834	V DC 129.1	Relay output B	Not used (option dependent)	Not used	
4835	V DC 129.1	Enable	OFF ON	OFF	
4836	V DC 129.1	Fail class	F1 to F9	F2 (Warning)	

4830 Pt100 129.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4831	Pt100 129.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11170.
4832	Pt100 129.1	Timer	0.0 to 600.0 s	120.0 s	
4833	Pt100 129.1	Relay output A	Not used (option dependent)	Not used	
4834	Pt100 129.1	Relay output B	Not used (option dependent)	Not used	
4835	Pt100 129.1	Enable	OFF ON	OFF	
4836	Pt100 129.1	Fail class	F1 to F9	F2 (Warning)	

4840 4-20 mA 129.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4841	4-20 mA 129.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11170.
4842	4-20 mA 129.2	Timer	0.0 to 600.0 s	120.0 s	
4843	4-20 mA 129.2	Relay output A	Not used (option dependent)	Not used	
4844	4-20 mA 129.2	Relay output B	Not used (option dependent)	Not used	
4845	4-20 mA 129.2	Enable	OFF ON	OFF	
4846	4-20 mA 129.2	Fail class	F1 to F9	F2 (Warning)	

4840 V DC 129.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4841	V DC 129.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11170.
4842	V DC 129.2	Timer	0.0 to 600.0 s	120.0 s	
4843	V DC 129.2	Relay output A	Not used (option dependent)	Not used	
4844	V DC 129.2	Relay output B	Not used (option dependent)	Not used	
4845	V DC 129.2	Enable	OFF ON	OFF	
4846	V DC 129.2	Fail class	F1 to F9	F2 (Warning)	

4840 Pt100 129.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4841	Pt100 129.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11170.
4842	Pt100 129.2	Timer	0.0 to 600.0 s	120.0 s	
4843	Pt100 129.2	Relay output A	Not used (option dependent)	Not used	
4844	Pt100 129.2	Relay output B	Not used (option dependent)	Not used	
4845	Pt100 129.2	Enable	OFF ON	OFF	
4846	Pt100 129.2	Fail class	F1 to F9	F2 (Warning)	

4850 Wire fail 129 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4851	Wire fail ana 129	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4852	Wire fail ana 129	Relay output B	Not used (option dependent)	Not used	
4853	Wire fail ana 129	Enable	OFF ON	OFF	
4854	Wire fail ana 129	Fail class	F1 to F9	F2 (Warning)	

4860 4-20 mA 131.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4861	4-20 mA 131.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11180.
4862	4-20 mA 131.1	Timer	0.0 to 600.0 s	120.0 s	
4863	4-20 mA 131.1	Relay output A	Not used (option dependent)	Not used	
4864	4-20 mA 131.1	Relay output B	Not used (option dependent)	Not used	
4865	4-20 mA 131.1	Enable	OFF ON	OFF	
4866	4-20 mA 131.1	Fail class	F1 to F9	F2 (Warning)	

4860 V DC 131.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4861	V DC 131.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11180.
4862	V DC 131.1	Timer	0.0 to 600.0 s	120.0 s	
4863	V DC 131.1	Relay output A	Not used (option dependent)	Not used	
4864	V DC 131.1	Relay output B	Not used (option dependent)	Not used	
4865	V DC 131.1	Enable	OFF ON	OFF	
4866	V DC 131.1	Fail class	F1 to F9	F2 (Warning)	

4860 Pt100 131.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4861	Pt100 131.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11180.
4862	Pt100 131.1	Timer	0.0 to 600.0 s	120.0 s	
4863	Pt100 131.1	Relay output A	Not used (option dependent)	Not used	
4864	Pt100 131.1	Relay output B	Not used (option dependent)	Not used	
4865	Pt100 131.1	Enable	OFF ON	OFF	
4866	Pt100 131.1	Fail class	F1 to F9	F2 (Warning)	

4870 4-20 mA 131.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4871	4-20 mA 131.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11180.
4872	4-20 mA 131.2	Timer	0.0 to 600.0 s	120.0 s	
4873	4-20 mA 131.2	Relay output A	Not used (option dependent)	Not used	
4874	4-20 mA 131.2	Relay output B	Not used (option dependent)	Not used	
4875	4-20 mA 131.2	Enable	OFF ON	OFF	
4876	4-20 mA 131.2	Fail class	F1 to F9	F2 (Warning)	

4870 V DC 131.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4871	V DC 131.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11180.
4872	V DC 131.2	Timer	0.0 to 600.0 s	120.0 s	
4873	V DC 131.2	Relay output A	Not used (option dependent)	Not used	
4874	V DC 131.2	Relay output B	Not used (option dependent)	Not used	
4875	V DC 131.2	Enable	OFF ON	OFF	
4876	V DC 131.2	Fail class	F1 to F9	F2 (Warning)	

4870 Pt100 131.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4871	Pt100 131.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11180.
4872	Pt100 131.2	Timer	0.0 to 600.0 s	120.0 s	
4873	Pt100 131.2	Relay output A	Not used (option dependent)	Not used	
4874	Pt100 131.2	Relay output B	Not used (option dependent)	Not used	
4875	Pt100 131.2	Enable	OFF ON	OFF	
4876	Pt100 131.2	Fail class	F1 to F9	F2 (Warning)	

4890 Wire fail 131 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4881	Wire fail ana 131	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4882	Wire fail ana 131	Relay output B	Not used (option dependent)	Not used	
4883	Wire fail ana 131	Enable	OFF ON	OFF	
4884	Wire fail ana 131	Fail class	F1 to F9	F2 (Warning)	

4890 4-20 mA 133.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4891	4-20 mA 133.1	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11190.
4892	4-20 mA 133.1	Timer	0.0 to 600.0 s	120.0 s	
4893	4-20 mA 133.1	Relay output A	Not used (option dependent)	Not used	
4894	4-20 mA 133.1	Relay output B	Not used (option dependent)	Not used	
4895	4-20 mA 133.1	Enable	OFF ON	OFF	
4896	4-20 mA 133.1	Fail class	F1 to F9	F2 (Warning)	

4890 V DC 133.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4891	V DC 133.1	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11190.
4892	V DC 133.1	Timer	0.0 to 600.0 s	120.0 s	
4893	V DC 133.1	Relay output A	Not used (option dependent)	Not used	
4894	V DC 133.1	Relay output B	Not used (option dependent)	Not used	
4895	V DC 133.1	Enable	OFF ON	OFF	
4896	V DC 133.1	Fail class	F1 to F9	F2 (Warning)	

4890 Pt100 133.1 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4891	Pt100 133.1	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11190.
4892	Pt100 133.1	Timer	0.0 to 600.0 s	120.0 s	
4893	Pt100 133.1	Relay output A	Not used (option dependent)	Not used	
4894	Pt100 133.1	Relay output B	Not used (option dependent)	Not used	
4895	Pt100 133.1	Enable	OFF ON	OFF	
4896	Pt100 133.1	Fail class	F1 to F9	F2 (Warning)	

4900 4-20 mA 133.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4901	4-20 mA 133.2	Set point	4 to 20 mA	10 mA	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 4-20 mA is selected in parameter 11190.
4902	4-20 mA 133.2	Timer	0.0 to 600.0 s	120.0 s	
4903	4-20 mA 133.2	Relay output A	Not used (option dependent)	Not used	
4904	4-20 mA 133.2	Relay output B	Not used (option dependent)	Not used	
4905	4-20 mA 133.2	Enable	OFF ON	OFF	
4906	4-20 mA 133.2	Fail class	F1 to F9	F2 (Warning)	

4900 V DC 133.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4901	V DC 133.2	Set point	0 to 5 V	2 V	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when 0-5 V is selected in parameter 11190.
4902	V DC 133.2	Timer	0.0 to 600.0 s	120.0 s	
4903	V DC 133.2	Relay output A	Not used (option dependent)	Not used	
4904	V DC 133.2	Relay output B	Not used (option dependent)	Not used	
4905	V DC 133.2	Enable	OFF ON	OFF	
4906	V DC 133.2	Fail class	F1 to F9	F2 (Warning)	

4900 Pt100 133.2 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4901	Pt100 133.2	Set point	-49 to 482 °C	80 °C	Three different input types are available with Option M16.8: • 4-20 mA • 0-5 V • Pt100 The value shown in this parameter group is available when Pt100 is selected in parameter 11190.
4902	Pt100 133.2	Timer	0.0 to 600.0 s	120.0 s	
4903	Pt100 133.2	Relay output A	Not used (option dependent)	Not used	
4904	Pt100 133.2	Relay output B	Not used (option dependent)	Not used	
4905	Pt100 133.2	Enable	OFF ON	OFF	
4906	Pt100 133.2	Fail class	F1 to F9	F2 (Warning)	

4910 Wire fail 133 (requires option M16.8)

No.	Setting		Range	Factory setting	Description
4911	Wire fail ana 133	Relay output A	Not used (option dependent)	Not used	For function description of wire fail, see the Option M16 manual.
4912	Wire fail ana 133	Relay output B	Not used (option dependent)	Not used	
4913	Wire fail ana 133	Enable	OFF ON	OFF	
4914	Wire fail ana 133	Fail class	F1 to F9	F2 (Warning)	

2.7 Multi-functional analogue input setup

2.7.1 Multi-input no. 102

4120 4-20 mA 102.1

No.	Setting		Range	Factory setting	Description
4121	4-20 mA 102.1	Set point	4 to 20 mA	10 mA	The multi-input 102 has been configured as 4-20 mA in menu 10980.
4122	4-20 mA 102.1	Timer	0.0 to 999.0 s	120.0 s	
4123	4-20 mA 102.1	Relay output A	Not used (option dependent)	Not used	
4124	4-20 mA 102.1	Relay output B	Not used (option dependent)	Not used	
4125	4-20 mA 102.1	Enable	OFF ON	OFF	
4126	4-20 mA 102.1	Fail class	F1 to F9	F2 (Warning)	

4130 4-20 mA 102.2

No.	Setting		Range	Factory setting	Description
4131	4-20 mA 102.2	Set point	4 to 20 mA	10 mA	The multi-input 102 has been configured as 4-20 mA in menu 10980.
4132	4-20 mA 102.2	Timer	0.0 to 999.0 s	120.0 s	
4133	4-20 mA 102.2	Relay output A	Not used (option dependent)	Not used	
4134	4-20 mA 102.2	Relay output B	Not used (option dependent)	Not used	
4135	4-20 mA 102.2	Enable	OFF ON	OFF	
4136	4-20 mA 102.2	Fail class	F1 to F9	F2 (Warning)	

4140 V DC 102.1

No.	Setting		Range	Factory setting	Description
4141	V DC 102.1	Set point	0.0 to 40.0 V	20 V	The multi-input 102 has been configured as DC in menu 10980.
4142	V DC 102.1	Timer	0.2 to 999.0 s	10.0 s	
4143	V DC 102.1	Relay output A	Not used (option dependent)	Not used	
4144	V DC 102.1	Relay output B	Not used (option dependent)	Not used	
4145	V DC 102.1	Enable	OFF ON	OFF	
4146	V DC 102.1	Fail class	F1 to F9	F2 (Warning)	

4150 V DC 102.2

No.	Setting		Range	Factory setting	Description
4151	V DC 102.2	Set point	0.0 to 40.0 V	20 V	The multi-input 102 has been configured as DC in menu 10980.
4152	V DC 102.2	Timer	0.2 to 999.0 s	10.0 s	
4153	V DC 102.2	Relay output A	Not used (option dependent)	Not used	
4154	V DC 102.2	Relay output B	Not used (option dependent)	Not used	
4155	V DC 102.2	Enable	OFF ON	OFF	
4156	V DC 102.2	Fail class	F1 to F9	F2 (Warning)	

4160 Pt100 102.1

No.	Setting		Range	Factory setting	Description
4161	Pt100 102.1	Set point	-49 to 482 °C	80 °C	The multi-input 102 has been configured as Pt100 in menu 10980. Select C or F unit in menu 10970.
4162	Pt100 102.1	Timer	0.0 to 999.0 s	5.0 s	
4163	Pt100 102.1	Relay output A	Not used (option dependent)	Not used	
4164	Pt100 102.1	Relay output B	Not used (option dependent)	Not used	
4165	Pt100 102.1	Enable	OFF ON	OFF	
4166	Pt100 102.1	Fail class	F1 to F9	F2 (Warning)	

4170 Pt100 102.2

No.	Setting		Range	Factory setting	Description
4171	Pt100 102.2	Set point	-49 to 482 °C	80 °C	The multi-input 102 has been configured as Pt100 in menu 10980. Select C or F unit in menu 10970.
4172	Pt100 102.2	Timer	0.0 to 999.0 s	10.0 s	
4173	Pt100 102.2	Relay output A	Not used (option dependent)	Not used	
4174	Pt100 102.2	Relay output B	Not used (option dependent)	Not used	
4175	Pt100 102.2	Enable	OFF ON	OFF	
4176	Pt100 102.2	Fail class	F1 to F9	F2 (Warning)	

4180 RMI oil 102.1

No.	Setting		Range	Factory setting	Description
4181	RMI oil 102.1	Set point	0.0 to 145.0 bar	4.0 bar	The multi-input 102 has been configured as RMI oil pressure in menu 10980. Select bar or PSI unit in menu 10970.
4182	RMI oil 102.1	Timer	0.0 to 999.0 s	5.0 s	
4183	RMI oil 102.1	Relay output A	Not used (option dependent)	Not used	
4184	RMI oil 102.1	Relay output B	Not used (option dependent)	Not used	
4185	RMI oil 102.1	Enable	OFF ON	OFF	
4186	RMI oil 102.1	Fail class	F1 to F9	F2 (Warning)	

4190 RMI oil 102.2

No.	Setting		Range	Factory setting	Description
4191	RMI oil 102.2	Set point	0.0 to 145.0 bar	5.0 bar	The multi-input 102 has been configured as RMI oil pressure in menu 10980. Select bar or PSI unit in menu 10970.
4192	RMI oil 102.2	Timer	0.0 to 999.0 s	5.0 s	
4193	RMI oil 102.2	Relay output A	Not used (option dependent)	Not used	
4194	RMI oil 102.2	Relay output B	Not used (option dependent)	Not used	
4195	RMI oil 102.2	Enable	OFF ON	OFF	
4196	RMI oil 102.2	Fail class	F1 to F9	F2 (Warning)	

4200 RMI water 102.1

No.	Setting		Range	Factory setting	Description
4201	RMI water 102.1	Set point	-49 to 482 °C	100 °C	The multi-input 102 has been configured as RMI water pressure in menu 10980. Select C or F unit in menu 10970.
4202	RMI water 102.1	Timer	0.0 to 999.0 s	5.0 s	
4203	RMI water 102.1	Relay output A	Not used (option dependent)	Not used	
4204	RMI water 102.1	Relay output B	Not used (option dependent)	Not used	
4205	RMI water 102.1	Enable	OFF ON	OFF	
4206	RMI water 102.1	Fail class	F1 to F9	F2 (Warning)	

4210 RMI water 102.2

No.	Setting		Range	Factory setting	Description
4211	RMI water 102.2	Set point	-49 to 482 °C	110 °C	The multi-input 102 has been configured as RMI water pressure in menu 10980. Select C or F unit in menu 10970.
4212	RMI water 102.2	Timer	0.0 to 999.0 s	5.0 s	
4213	RMI water 102.2	Relay output A	Not used (option dependent)	Not used	
4214	RMI water 102.2	Relay output B	Not used (option dependent)	Not used	
4215	RMI water 102.2	Enable	OFF ON	OFF	
4216	RMI water 102.2	Fail class	F1 to F9	F2 (Warning)	

4220 RMI fuel level 102.1

No.	Setting		Range	Factory setting	Description
4221	RMI fuel 102.1	Set point	0 to 100 %	10 %	The multi-input 102 has been configured as RMI fuel level in menu 10980.
4222	RMI fuel 102.1	Timer	0.0 to 999.0 s	10.0 s	
4223	RMI fuel 102.1	Relay output A	Not used (option dependent)	Not used	
4224	RMI fuel 102.1	Relay output B	Not used (option dependent)	Not used	
4225	RMI fuel 102.1	Enable	OFF ON	OFF	
4226	RMI fuel 102.1	Fail class	F1 to F9	F2 (Warning)	

4230 RMI fuel level 102.2

No.	Setting		Range	Factory setting	Description
4231	RMI fuel 102.2	Set point	0 to 100 %	5 %	The multi-input 102 has been configured as RMI fuel level in menu 10980.
4232	RMI fuel 102.2	Timer	0.0 to 999.0 s	10.0 s	
4233	RMI fuel 102.2	Relay output A	Not used (option dependent)	Not used	
4234	RMI fuel 102.2	Relay output B	Not used (option dependent)	Not used	
4235	RMI fuel 102.2	Enable	OFF ON	OFF	
4236	RMI fuel 102.2	Fail class	F1 to F9	F2 (Warning)	

4240 Wire fail 102

No.	Setting		Range	Factory setting	Description
4241	Wire fail 102	Relay output A	Not used (option dependent)	Not used	The wire break fault detection is activated.
4242	Wire fail 102	Relay output B	Not used (option dependent)	Not used	
4243	Wire fail 102	Enable	OFF ON	OFF	
4244	Wire fail 102	Fail class	F1 to F9	F2 (Warning)	

2.7.2 Multi-input no. 105

4250 4-20 mA 105.1

No.	Setting		Range	Factory setting	Description
4251	4-20 mA 105.1	Set point	4 to 20 mA	10 mA	The multi-input 105 has been configured as 4-20 mA in menu 10990.
4252	4-20 mA 105.1	Timer	0.0 to 999.0 s	120.0 s	
4253	4-20 mA 105.1	Relay output A	Not used (option dependent)	Not used	
4254	4-20 mA 105.1	Relay output B	Not used (option dependent)	Not used	
4255	4-20 mA 105.1	Enable	OFF ON	OFF	
4256	4-20 mA 105.1	Fail class	F1 to F9	F2 (Warning)	

4260 4-20 mA 105.2

No.	Setting		Range	Factory setting	Description
4261	4-20 mA 105.2	Set point	4 to 20 mA	10 mA	The multi-input 105 has been configured as 4-20 mA in menu 10990.
4262	4-20 mA 105.2	Timer	0.0 to 999.0 s	120.0 s	
4263	4-20 mA 105.2	Relay output A	Not used (option dependent)	Not used	
4264	4-20 mA 105.2	Relay output B	Not used (option dependent)	Not used	
4265	4-20 mA 105.2	Enable	OFF ON	OFF	
4266	4-20 mA 105.2	Fail class	F1 to F9	F2 (Warning)	

4270 V DC 105.1

No.	Setting		Range	Factory setting	Description
4271	V DC 105.1	Set point	0.0 to 40.0 V	20 V	The multi-input 105 has been configured as DC in menu 10990.
4272	V DC 105.1	Timer	0.2 to 999.0 s	10.0 s	
4273	V DC 105.1	Relay output A	Not used (option dependent)	Not used	
4274	V DC 105.1	Relay output B	Not used (option dependent)	Not used	
4275	V DC 105.1	Enable	OFF ON	OFF	
4276	V DC 105.1	Fail class	F1 to F9	F2 (Warning)	

4280 V DC 105.2

No.	Setting		Range	Factory setting	Description
4281	V DC 105.2	Set point	0.0 to 40.0 V	20 V	The multi-input 105 has been configured as DC in menu 10990.
4282	V DC 105.2	Timer	0.2 to 999.0 s	10.0 s	
4283	V DC 105.2	Relay output A	Not used (option dependent)	Not used	
4284	V DC 105.2	Relay output B	Not used (option dependent)	Not used	
4285	V DC 105.2	Enable	OFF ON	OFF	
4286	V DC 105.2	Fail class	F1 to F9	F2 (Warning)	

4290 Pt100 105.1

No.	Setting		Range	Factory setting	Description
4291	Pt100 105.1	Set point	-49 to 482 °C	80 °C	The multi-input 105 has been configured as Pt100 in menu 10990. Select C or F unit in menu 10970.
4292	Pt100 105.1	Timer	0.0 to 999.0 s	5.0 s	
4293	Pt100 105.1	Relay output A	Not used (option dependent)	Not used	
4294	Pt100 105.1	Relay output B	Not used (option dependent)	Not used	
4295	Pt100 105.1	Enable	OFF ON	OFF	
4296	Pt100 105.1	Fail class	F1 to F9	F2 (Warning)	

4300 Pt100 105.2

No.	Setting		Range	Factory setting	Description
4301	Pt100 105.2	Set point	-49 to 482 °C	80 °C	The multi-input 105 has been configured as Pt100 in menu 10990. Select C or F unit in menu 10970.
4302	Pt100 105.2	Timer	0.0 to 999.0 s	10.0 s	
4303	Pt100 105.2	Relay output A	Not used (option dependent)	Not used	
4304	Pt100 105.2	Relay output B	Not used (option dependent)	Not used	
4305	Pt100 105.2	Enable	OFF ON	OFF	
4306	Pt100 105.2	Fail class	F1 to F9	F2 (Warning)	

4310 RMI oil 105.1

No.	Setting		Range	Factory setting	Description
4311	RMI oil 105.1	Set point	0.0 to 145.0 bar	4.0 bar	The multi-input 105 has been configured as RMI oil pressure in menu 10990. Select bar or PSI unit in menu 10970.
4312	RMI oil 105.1	Timer	0.0 to 999.0 s	5.0 s	
4313	RMI oil 105.1	Relay output A	Not used (option dependent)	Not used	
4314	RMI oil 105.1	Relay output B	Not used (option dependent)	Not used	
4315	RMI oil 105.1	Enable	OFF ON	OFF	
4316	RMI oil 105.1	Fail class	F1 to F9	F2 (Warning)	

4320 RMI oil 105.2

No.	Setting		Range	Factory setting	Description
4321	RMI oil 105.2	Set point	0.0 to 145.0 bar	5.0 bar	The multi-input 105 has been configured as RMI oil pressure in menu 10990. Select bar or PSI unit in menu 10970.
4322	RMI oil 105.2	Timer	0.0 to 999.0 s	5.0 s	
4323	RMI oil 105.2	Relay output A	Not used (option dependent)	Not used	
4324	RMI oil 105.2	Relay output B	Not used (option dependent)	Not used	
4325	RMI oil 105.2	Enable	OFF ON	OFF	
4326	RMI oil 1052	Fail class	F1 to F9	F2 (Warning)	

4330 RMI water 105.1

No.	Setting		Range	Factory setting	Description
4331	RMI water 105.1	Set point	-49 to 482 °C	100 °C	The multi-input 105 has been configured as RMI water pressure in menu 10990. Select C or F unit in menu 10970.
4332	RMI water 105.1	Timer	0.0 to 999.0 s	5.0 s	
4333	RMI water 105.1	Relay output A	Not used (option dependent)	Not used	
4334	RMI water 105.1	Relay output B	Not used (option dependent)	Not used	
4335	RMI water 105.1	Enable	OFF ON	OFF	
4336	RMI water 105.1	Fail class	F1 to F9	F2 (Warning)	

4340 RMI water 105.2

No.	Setting		Range	Factory setting	Description
4341	RMI water 105.2	Set point	-49 to 482 °C	110 °C	The multi-input 105 has been configured as RMI water pressure in menu 10990. Select C or F unit in menu 10970.
4342	RMI water 105.2	Timer	0.0 to 999.0 s	5.0 s	
4343	RMI water 105.2	Relay output A	Not used (option dependent)	Not used	
4344	RMI water 105.2	Relay output B	Not used (option dependent)	Not used	
4345	RMI water 105.2	Enable	OFF ON	OFF	
4346	RMI water 105.2	Fail class	F1 to F9	F2 (Warning)	

4350 RMI fuel level 105.1

No.	Setting		Range	Factory setting	Description
4351	RMI fuel 105.1	Set point	0 to 100 %	10 %	The multi-input 105 has been configured as RMI fuel level in menu 10990.
4352	RMI fuel 105.1	Timer	0.0 to 999.0 s	10.0 s	
4353	RMI fuel 105.1	Relay output A	Not used (option dependent)	Not used	
4354	RMI fuel 105.1	Relay output B	Not used (option dependent)	Not used	
4355	RMI fuel 105.1	Enable	OFF ON	OFF	
4356	RMI fuel 105.1	Fail class	F1 to F9	F2 (Warning)	

4360 RMI fuel level 105.2

No.	Setting		Range	Factory setting	Description
4361	RMI fuel 105.2	Set point	0 to 100 %	5 %	The multi-input 105 has been configured as RMI fuel level in menu 10990.
4362	RMI fuel 105.2	Timer	0.0 to 999.0 s	10.0 s	
4363	RMI fuel 105.2	Relay output A	Not used (option dependent)	Not used	
4364	RMI fuel 105.2	Relay output B	Not used (option dependent)	Not used	
4365	RMI fuel 105.2	Enable	OFF ON	OFF	
4366	RMI fuel 105.2	Fail class	F1 to F9	F2 (Warning)	

4370 Wire fail 105

No.	Setting		Range	Factory setting	Description
4371	Wire fail 105	Relay output A	Not used (option dependent)	Not used	The wire break fault detection is activated.
4372	Wire fail 105	Relay output B	Not used (option dependent)	Not used	
4373	Wire fail 105	Enable	OFF ON	OFF	
4374	Wire fail 105	Fail class	F1 to F9	F2 (Warning)	

2.7.3 Multi-input no. 108

4380 4-20 mA 108.1

No.	Setting		Range	Factory setting	Description
4381	4-20 mA 108.1	Set point	4 to 20 mA	10 mA	The multi-input 102 has been configured as 4-20 mA in menu 11000.
4382	4-20 mA 108.1	Timer	0.0 to 999.0 s	120.0 s	
4383	4-20 mA 108.1	Relay output A	Not used (option dependent)	Not used	
4384	4-20 mA 108.1	Relay output B	Not used (option dependent)	Not used	
4385	4-20 mA 108.1	Enable	OFF ON	OFF	
4386	4-20 mA 108.1	Fail class	F1 to F9	F2 (Warning)	

4390 4-20 mA 108.2

No.	Setting		Range	Factory setting	Description
4391	4-20 mA 108.2	Set point	4 to 20 mA	10 mA	The multi-input 108 has been configured as 4-20 mA in menu 11000.
4392	4-20 mA 108.2	Timer	0.0 to 999.0 s	120.0 s	
4393	4-20 mA 108.2	Relay output A	Not used (option dependent)	Not used	
4394	4-20 mA 108.2	Relay output B	Not used (option dependent)	Not used	
4395	4-20 mA 108.2	Enable	OFF ON	OFF	
4396	4-20 mA 108.2	Fail class	F1 to F9	F2 (Warning)	

4400 V DC 108.1

No.	Setting		Range	Factory setting	Description
4401	V DC 108.1	Set point	0.0 to 40.0 V	20 V	The multi-input 108 has been configured as DC in menu 11000.
4402	V DC 108.1	Timer	0.2 to 999.0 s	10.0 s	
4403	V DC 108.1	Relay output A	Not used (option dependent)	Not used	
4404	V DC 108.1	Relay output B	Not used (option dependent)	Not used	
4405	V DC 108.1	Enable	OFF ON	OFF	
4406	V DC 108.1	Fail class	F1 to F9	F2 (Warning)	

4410 V DC 108.2

No.	Setting		Range	Factory setting	Description
4411	V DC 108.2	Set point	0.0 to 40.0 V	20 V	The multi-input 108 has been configured as DC in menu 11000.
4412	V DC 108.2	Timer	0.2 to 999.0 s	10.0 s	
4413	V DC 108.2	Relay output A	Not used (option dependent)	Not used	
4414	V DC 108.2	Relay output B	Not used (option dependent)	Not used	
4415	V DC 108.2	Enable	OFF ON	OFF	
4416	V DC 108.2	Fail class	F1 to F9	F2 (Warning)	

4420 Pt100 108.1

No.	Setting		Range	Factory setting	Description
4421	Pt100 108.1	Set point	-49 to 482 °C	80 °C	The multi-input 108 has been configured as Pt100 in menu 11000. Select C or F unit in menu 10970.
4422	Pt100 108.1	Timer	0.0 to 999.0 s	5.0 s	
4423	Pt100 108.1	Relay output A	Not used (option dependent)	Not used	
4424	Pt100 108.1	Relay output B	Not used (option dependent)	Not used	
4425	Pt100 108.1	Enable	OFF ON	OFF	
4426	Pt100 108.1	Fail class	F1 to F9	F2 (Warning)	

4430 Pt100 108.2

No.	Setting		Range	Factory setting	Description
4431	Pt100 108.2	Set point	-49 to 482 °C	80 °C	The multi-input 108 has been configured as Pt100 in menu 11000. Select C or F unit in menu 10970.
4432	Pt100 108.2	Timer	0.0 to 999.0 s	10.0 s	
4433	Pt100 108.2	Relay output A	Not used (option dependent)	Not used	
4434	Pt100 108.2	Relay output B	Not used (option dependent)	Not used	
4435	Pt100 108.2	Enable	OFF ON	OFF	
4436	Pt100 108.2	Fail class	F1 to F9	F2 (Warning)	

4440 RMI oil 108.1

No.	Setting		Range	Factory setting	Description
4441	RMI oil 108.1	Set point	0.0 to 145.0 bar	4.0 bar	The multi-input 108 has been configured as RMI oil pressure in menu 11000. Select bar or PSI unit in menu 10970.
4442	RMI oil 108.1	Timer	0.0 to 999.0 s	5.0 s	
4443	RMI oil 108.1	Relay output A	Not used (option dependent)	Not used	
4444	RMI oil 108.1	Relay output B	Not used (option dependent)	Not used	
4445	RMI oil 108.1	Enable	OFF ON	OFF	
4446	RMI oil 108.1	Fail class	F1 to F9	F2 (Warning)	

4450 RMI oil 108.2

No.	Setting		Range	Factory setting	Description
4451	RMI oil 108.2	Set point	0.0 to 145.0 bar	5.0 bar	The multi-input 108 has been configured as RMI oil pressure in menu 11000. Select bar or PSI unit in menu 10970.
4452	RMI oil 108.2	Timer	0.0 to 999.0 s	5.0 s	
4453	RMI oil 108.2	Relay output A	Not used (option dependent)	Not used	
4454	RMI oil 108.2	Relay output B	Not used (option dependent)	Not used	
4455	RMI oil 108.2	Enable	OFF ON	OFF	
4456	RMI oil 108.2	Fail class	F1 to F9	F2 (Warning)	

4460 RMI water 108.1

No.	Setting		Range	Factory setting	Description
4461	RMI water 108.1	Set point	-49 to 482 °C	100 °C	The multi-input 108 has been configured as RMI water pressure in menu 11000. Select C or F unit in menu 10970.
4462	RMI water 108.1	Timer	0.0 to 999.0 s	5.0 s	
4463	RMI water 108.1	Relay output A	Not used (option dependent)	Not used	
4464	RMI water 108.1	Relay output B	Not used (option dependent)	Not used	
4465	RMI water 108.1	Enable	OFF ON	OFF	
4466	RMI water 108.1	Fail class	F1 to F9	F2 (Warning)	

4470 RMI water 108.2

No.	Setting		Range	Factory setting	Description
4471	RMI water 108.2	Set point	-49 to 482 °C	110 °C	The multi-input 108 has been configured as RMI water pressure in menu 11000. Select C or F unit in menu 10970.
4472	RMI water 108.2	Timer	0.0 to 999.0 s	5.0 s	
4473	RMI water 108.2	Relay output A	Not used (option dependent)	Not used	
4474	RMI water 108.2	Relay output B	Not used (option dependent)	Not used	
4475	RMI water 108.2	Enable	OFF ON	OFF	
4476	RMI water 108.2	Fail class	F1 to F9	F2 (Warning)	

4480 RMI fuel level 108.1

No.	Setting		Range	Factory setting	Description
4481	RMI fuel 108.1	Set point	0 to 100 %	10 %	The multi-input 108 has been configured as RMI fuel level in menu 11000.
4482	RMI fuel 108.1	Timer	0.0 to 999.0 s	10.0 s	
4483	RMI fuel 108.1	Relay output A	Not used (option dependent)	Not used	
4484	RMI fuel 108.1	Relay output B	Not used (option dependent)	Not used	
4485	RMI fuel 108.1	Enable	OFF ON	OFF	
4486	RMI fuel 108.1	Fail class	F1 to F9	F2 (Warning)	

4490 RMI fuel level 108.2

No.	Setting		Range	Factory setting	Description
4491	RMI fuel 108.2	Set point	0 to 100 %	5 %	The multi-input 108 has been configured as RMI fuel level in menu 11000.
4492	RMI fuel 108.2	Timer	0.0 to 999.0 s	10.0 s	
4493	RMI fuel 108.2	Relay output A	Not used (option dependent)	Not used	
4494	RMI fuel 108.2	Relay output B	Not used (option dependent)	Not used	
4495	RMI fuel 108.2	Enable	OFF ON	OFF	
4496	RMI fuel 108.2	Fail class	F1 to F9	F2 (Warning)	

4500 Wire fail 108

No.	Setting		Range	Factory setting	Description
4501	Wire fail 108	Relay output A	Not used (option dependent)	Not used	The wire break fault detection is activated.
4502	Wire fail 108	Relay output B	Not used (option dependent)	Not used	
4503	Wire fail 108	Enable	OFF ON	OFF	
4504	Wire fail 108	Fail class	F1 to F9	F2 (Warning)	

2.7.4 Speed and running feedback setup

4510 Overspeed 1

No.	Setting		Range	Factory setting	Description
4511	Overspeed 1	Set point	100 to 150 %	110 %	The set point in percentage relates to nominal RPM.
4512	Overspeed 1	Timer	0.0 to 100.0 s	5.0 s	
4513	Overspeed 1	Relay output A	Not used (option dependent)	Not used	
4514	Overspeed 1	Relay output B	Not used (option dependent)	Not used	
4515	Overspeed 1	Enable	OFF ON	OFF	
4516	Overspeed 1	Fail class	F1 to F9	F2 (Warning)	

4520 Overspeed 2

No.	Setting		Range	Factory setting	Description
4521	Overspeed 2	Set point	100 to 150 %	120 %	The set point in percentage relates to nominal RPM.
4522	Overspeed 2	Timer	0.0 to 100.0 s	1.0 s	
4523	Overspeed 2	Relay output A	Not used (option dependent)	Not used	
4524	Overspeed 2	Relay output B	Not used (option dependent)	Not used	
4525	Overspeed 2	Enable	OFF ON	OFF	
4526	Overspeed 2	Fail class	F1 to F9	F5 (Shutdown)	

4530 Crank failure

No.	Setting		Range	Factory setting	Description
4531	Crank failure	Set point	1 to 400 RPM	50 RPM	If MPU is chosen as the primary running feedback, this alarm will be raised if the specified RPM is not reached before the delay time has expired.
4532	Crank failure	Timer	0.0 to 20.0 s	2.0 s	
4533	Crank failure	Relay output A	Not used (option dependent)	Not used	
4534	Crank failure	Relay output B	Not used (option dependent)	Not used	
4535	Crank failure	Enable	OFF ON	OFF	
4536	Crank failure	Fail class	F1 to F9	F2 (Warning)	

4540 Running feedback failure

No.	Setting		Range	Factory setting	Description
4541	Running feedback failure	Timer	0.0 to 20.0 s	2.0 s	If running is detected on the frequency (secondary), but the primary running feedback (for example, a digital input) has not detected running, this alarm will be raised after the adjusted delay time.
4542	Running feedback failure	Relay output A	Not used (option dependent)	Not used	
4543	Running feedback failure	Relay output B	Not used (option dependent)	Not used	
4544	Running feedback failure	Enable	OFF ON	ON	
4545	Running feedback failure	Fail class	F1 to F9	F2 (Warning)	

4550 Magnetic pick-up wire break

No.	Setting		Range	Factory setting	Description
4551	MPU wire break	Relay output A	Not used (option dependent)	Not used	The wire break monitoring is only active when the engine is at stand still.
4552	MPU wire break	Relay output B	Not used (option dependent)	Not used	
4553	MPU wire break	Enable	OFF ON	OFF	
4554	MPU wire break	Fail class	F1 to F9	F2 (Warning)	

4560 Hz/voltage failure

No.	Setting		Range	Factory setting	Description
4561	Hz/V failure	Timer	1.0 to 99.0 s	30.0 s	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. Limits are placed in menu 2110 (Sync. blackout).
4562	Hz/V failure	Relay output A	Not used (option dependent)	Not used	
4563	Hz/V failure	Relay output B	Not used (option dependent)	Not used	
4564	Hz/V failure	Enable	OFF ON	ON	
4565	Hz/V failure	Fail class	F1 to F9	F5 (Shutdown)	

4570 Start failure

No.	Setting		Range	Factory setting	Description
4571	Start failure	Relay output A	Not used (option dependent)	Not used	The start failure alarm occurs if the genset has not started after the number of start attempts.
4572	Start failure	Relay output B	Not used (option dependent)	Not used	
4573	Start failure	Fail class	F1 to F9	F1 (Block)	

4580 Stop failure

No.	Setting		Range	Factory setting	Description
4581	Stop failure	Timer	10.0 to 120.0 s	30.0 s	A stop failure alarm will appear if the primary running feedback or the generator voltage and frequency are still present after the delay time has expired.
4582	Stop failure	Relay output A	Not used (option dependent)	Not used	
4583	Stop failure	Relay output B	Not used (option dependent)	Not used	
4584	Stop failure	Enable	OFF ON	ON	
4585	Stop failure	Fail class	F1 to F9	F5 (Shutdown)	

4590 Underspeed 1

No.	Setting		Range	Factory setting	Description
4591	Underspeed 1	Set point	50 to 100 %	90 %	The set point in percentage relates to nominal RPM.
4592	Underspeed 1	Timer	0.0 to 100.0 s	5.0 s	
4593	Underspeed 1	Relay output A	Not used (option dependent)	Not used	
4594	Underspeed 1	Relay output B	Not used (option dependent)	Not used	
4595	Underspeed 1	Enable	OFF ON	OFF	
4596	Underspeed 1	Fail class	F1 to F9	F2 (Warning)	

2.7.5 Differential measurement

Input type

No.	Setting	Range	Factory setting	Description
4601	Delta Ana1 Input A	Multi-input 102 Multi-input 105 Multi-input 108 CIO 308 • For example: 1.08, 1.11, 1.14, 1.17, 1.20, 1.23, 1.26, 1.29 EIC oil pressure (SPN 100) EIC cooling water temp. (SPN 110) EIC oil temp. (SPN 175) EIC ambient temp. (SPN 171) EIC intercool temp. (SPN 52) EIC fuel temp. (SPN 174) EIC fuel delivery press (SPN 94) EIC air filter f1 diff. press. (SPN 107) EIC air filter f2 diff. press. (SPN 2809) EIC fuel supply pump press. (SPN 1381) EIC fuel filter diff. press. SS (SPN 1382) EIC oil filter diff. press. (SPN 99) EIC T. exhaust left (SPN 2434) EIC T. exhaust right (SPN 2433) EIC Fuel filter diff. pres. (SPN 95) EIC Percent Load At Current Speed (SPN 92) EIC T. Winding Highest EIC T. Winding Lowest EIC T. Winding 1 to 3 EIC DEF Level (SPN 1761) EIC DEF Temp. (SPN 3031) External inputs (option H8) • Ext. I/O analog In 1 to 8 Analogue input (M15.X or M16.X) • 127, 129, 131, 133	Multi-input 102	Inputs for differential measurements.
4602	Delta Ana1 Input B			
4603	Delta Ana2 Input A			
4604	Delta Ana2 Input B			
4605	Delta Ana3 Input A			
4606	Delta Ana3 Input B			
4671	Delta Ana4 Input A			
4672	Delta Ana4 Input B			
4673	Delta Ana5 Input A			
4674	Delta Ana5 Input B			
4675	Delta Ana6 Input A			
4676	Delta Ana6 Input B			
4741	Delta Ana7 Input A			
4742	Delta Ana7 Input B			
4743	Delta Ana8 Input A			
4744	Delta Ana8 Input B			
4745	Delta Ana9 Input A			
4746	Delta Ana9 Input B			

4610 Delta analogue 1.1

No.	Setting		Range	Factory setting	Description
4611	Delta Ana1.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 1.1.
4612	Delta Ana1.1	Timer	0.0 s to 999.0 s	5.0 s	
4613	Delta Ana1.1	Relay output A	Not used (option dependent)	Not used	
4614	Delta Ana1.1	Relay output B	Not used (option dependent)	Not used	
4615	Delta Ana1.1	Enable	OFF ON	OFF	
4616	Delta Ana1.1	Fail class	F1 to F9	F2 (Warning)	

4620 Delta analogue 1.2

No.	Setting		Range	Factory setting	Description
4621	Delta Ana1.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 1.2.
4622	Delta Ana1.2	Timer	0.0 s to 999.0 s	5.0 s	
4623	Delta Ana1.2	Relay output A	Not used (option dependent)	Not used	
4624	Delta Ana1.2	Relay output B	Not used (option dependent)	Not used	
4625	Delta Ana1.2	Enable	OFF ON	OFF	
4626	Delta Ana1.2	Fail class	F1 to F9	F2 (Warning)	

4630 Delta analogue 2.1

No.	Setting		Range	Factory setting	Description
4631	Delta Ana2.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 2.1.
4632	Delta Ana2.1	Timer	0.0 s to 999.0 s	5.0 s	
4633	Delta Ana2.1	Relay output A	Not used (option dependent)	Not used	
4634	Delta Ana2.1	Relay output B	Not used (option dependent)	Not used	
4635	Delta Ana2.1	Enable	OFF ON	OFF	
4636	Delta Ana2.1	Fail class	F1 to F9	F2 (Warning)	

4640 Delta analogue 2.2

No.	Setting		Range	Factory setting	Description
4641	Delta Ana2.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 2.2.
4642	Delta Ana2.2	Timer	0.0 s to 999.0 s	5.0 s	
4643	Delta Ana2.2	Relay output A	Not used (option dependent)	Not used	
4644	Delta Ana2.2	Relay output B	Not used (option dependent)	Not used	
4645	Delta Ana2.2	Enable	OFF ON	OFF	
4646	Delta Ana2.2	Fail class	F1 to F9	F2 (Warning)	

4650 Delta analogue 3.1

No.	Setting		Range	Factory setting	Description
4651	Delta Ana3.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 3.1.
4652	Delta Ana3.1	Timer	0.0 s to 999.0 s	5.0 s	
4653	Delta Ana3.1	Relay output A	Not used (option dependent)	Not used	
4654	Delta Ana3.1	Relay output B	Not used (option dependent)	Not used	
4655	Delta Ana3.1	Enable	OFF ON	OFF	
4656	Delta Ana3.1	Fail class	F1 to F9	F2 (Warning)	

4660 Delta analogue 3.2

No.	Setting		Range	Factory setting	Description
4661	Delta Ana3.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 3.2.
4662	Delta Ana3.2	Timer	0.0 s to 999.0 s	5.0 s	
4663	Delta Ana3.2	Relay output A	Not used (option dependent)	Not used	
4664	Delta Ana3.2	Relay output B	Not used (option dependent)	Not used	
4665	Delta Ana3.2	Enable	OFF ON	OFF	
4666	Delta Ana3.2	Fail class	F1 to F9	F2 (Warning)	

4680 Delta analogue 4.1

No.	Setting		Range	Factory setting	Description
4681	Delta Ana4.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 4.1.
4682	Delta Ana4.1	Timer	0.0 s to 999.0 s	5.0 s	
4683	Delta Ana4.1	Relay output A	Not used (option dependent)	Not used	
4684	Delta Ana4.1	Relay output B	Not used (option dependent)	Not used	
4685	Delta Ana4.1	Enable	OFF ON	OFF	
4686	Delta Ana4.1	Fail class	F1 to F9	F2 (Warning)	

4690 Delta analogue 4.2

No.	Setting		Range	Factory setting	Description
4691	Delta Ana4.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 4.2.
4692	Delta Ana4.2	Timer	0.0 s to 999.0 s	5.0 s	
4693	Delta Ana4.2	Relay output A	Not used (option dependent)	Not used	
4694	Delta Ana4.2	Relay output B	Not used (option dependent)	Not used	
4695	Delta Ana4.2	Enable	OFF ON	OFF	
4696	Delta Ana4.2	Fail class	F1 to F9	F2 (Warning)	

4700 Delta analogue 5.1

No.	Setting		Range	Factory setting	Description
4701	Delta Ana5.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 5.1.
4702	Delta Ana5.1	Timer	0.0 s to 999.0 s	5.0 s	
4703	Delta Ana5.1	Relay output A	Not used (option dependent)	Not used	
4704	Delta Ana5.1	Relay output B	Not used (option dependent)	Not used	
4705	Delta Ana5.1	Enable	OFF ON	OFF	
4706	Delta Ana5.1	Fail class	F1 to F9	F2 (Warning)	

4710 Delta analogue 5.2

No.	Setting		Range	Factory setting	Description
4711	Delta Ana5.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 5.2.
4712	Delta Ana5.2	Timer	0.0 s to 999.0 s	5.0 s	
4713	Delta Ana5.2	Relay output A	Not used (option dependent)	Not used	
4714	Delta Ana5.2	Relay output B	Not used (option dependent)	Not used	
4715	Delta Ana5.2	Enable	OFF ON	OFF	
4716	Delta Ana5.2	Fail class	F1 to F9	F2 (Warning)	

4720 Delta analogue 6.1

No.	Setting		Range	Factory setting	Description
4721	Delta Ana6.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 6.1.
4722	Delta Ana6.1	Timer	0.0 s to 999.0 s	5.0 s	
4723	Delta Ana6.1	Relay output A	Not used (option dependent)	Not used	
4724	Delta Ana6.1	Relay output B	Not used (option dependent)	Not used	
4725	Delta Ana6.1	Enable	OFF ON	OFF	
4726	Delta Ana6.1	Fail class	F1 to F9	F2 (Warning)	

4730 Delta analogue 6.2

No.	Setting		Range	Factory setting	Description
4731	Delta Ana6.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 6.2.
4732	Delta Ana6.2	Timer	0.0 s to 999.0 s	5.0 s	
4733	Delta Ana6.2	Relay output A	Not used (option dependent)	Not used	
4734	Delta Ana6.2	Relay output B	Not used (option dependent)	Not used	
4735	Delta Ana6.2	Enable	OFF ON	OFF	
4736	Delta Ana6.2	Fail class	F1 to F9	F2 (Warning)	

4750 Delta analogue 7.1

No.	Setting		Range	Factory setting	Description
4751	Delta Ana7.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 7.1.
4752	Delta Ana7.1	Timer	0.0 s to 999.0 s	5.0 s	
4753	Delta Ana7.1	Relay output A	Not used (option dependent)	Not used	
4754	Delta Ana7.1	Relay output B	Not used (option dependent)	Not used	
4755	Delta Ana7.1	Enable	OFF ON	OFF	
4756	Delta Ana7.1	Fail class	F1 to F9	F2 (Warning)	

4760 Delta analogue 7.2

No.	Setting		Range	Factory setting	Description
4761	Delta Ana7.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 7.2.
4762	Delta Ana7.2	Timer	0.0 s to 999.0 s	5.0 s	
4763	Delta Ana7.2	Relay output A	Not used (option dependent)	Not used	
4764	Delta Ana7.2	Relay output B	Not used (option dependent)	Not used	
4765	Delta Ana7.2	Enable	OFF ON	OFF	
4766	Delta Ana7.2	Fail class	F1 to F9	F2 (Warning)	

4770 Delta analogue 8.1

No.	Setting		Range	Factory setting	Description
4771	Delta Ana8.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 8.1.
4772	Delta Ana8.1	Timer	0.0 s to 999.0 s	5.0 s	
4773	Delta Ana8.1	Relay output A	Not used (option dependent)	Not used	
4774	Delta Ana8.1	Relay output B	Not used (option dependent)	Not used	
4775	Delta Ana8.1	Enable	OFF ON	OFF	
4776	Delta Ana8.1	Fail class	F1 to F9	F2 (Warning)	

4780 Delta analogue 8.2

No.	Setting		Range	Factory setting	Description
4781	Delta Ana8.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 8.2.
4782	Delta Ana8.2	Timer	0.0 s to 999.0 s	5.0 s	
4783	Delta Ana8.2	Relay output A	Not used (option dependent)	Not used	
4784	Delta Ana8.2	Relay output B	Not used (option dependent)	Not used	
4785	Delta Ana8.2	Enable	OFF ON	OFF	
4786	Delta Ana8.2	Fail class	F1 to F9	F2 (Warning)	

4790 Delta analogue 9.1

No.	Setting		Range	Factory setting	Description
4791	Delta Ana9.1	Set point	-9999 to 9999	10	Delta analogue alarm setting 9.1.
4792	Delta Ana9.1	Timer	0.0 s to 999.0 s	5.0 s	
4793	Delta Ana9.1	Relay output A	Not used (option dependent)	Not used	
4794	Delta Ana9.1	Relay output B	Not used (option dependent)	Not used	
4795	Delta Ana9.1	Enable	OFF ON	OFF	
4796	Delta Ana9.1	Fail class	F1 to F9	F2 (Warning)	

4800 Delta analogue 9.2

No.	Setting		Range	Factory setting	Description
4801	Delta Ana9.2	Set point	-9999 to 9999	10	Delta analogue alarm setting 9.2.
4802	Delta Ana9.2	Timer	0.0 s to 999.0 s	5.0 s	
4803	Delta Ana9.2	Relay output A	Not used (option dependent)	Not used	
4804	Delta Ana9.2	Relay output B	Not used (option dependent)	Not used	
4805	Delta Ana9.2	Enable	OFF ON	OFF	
4806	Delta Ana9.2	Fail class	F1 to F9	F2 (Warning)	

2.7.6 Aux. supply setup

4960 U< auxiliary power supply terminal 1

No.	Setting		Range	Factory setting	Description
4961	U< aux. term. 1	Set point	8.0 to 32.0 V DC	18.0 V DC	The power supply on terminal 1 and 2 has continuously been below the adjusted set point during the programmed delay time.
4962	U< aux. term. 1	Timer	0.0 s to 999.0 s	1.0 s	
4963	U< aux. term. 1	Relay output A	Not used (option dependent)	Not used	
4964	U< aux. term. 1	Relay output B	Not used (option dependent)	Not used	
4965	U< aux. term. 1	Enable	OFF ON	ON	
4966	U< aux. term. 1	Fail class	F1 to F9	F2 (Warning)	

4970 U> auxiliary power supply terminal 1

No.	Setting		Range	Factory setting	Description
4971	U> aux. term. 1	Set point	12.0 to 36.0 V DC	30.0 V DC	The power supply on terminal 1 and 2 has continuously been above the adjusted set point during the programmed delay time.
4972	U> aux. term. 1	Timer	0.0 s to 999.0 s	1.0 s	
4973	U> aux. term. 1	Relay output A	Not used (option dependent)	Not used	
4974	U> aux. term. 1	Relay output B	Not used (option dependent)	Not used	
4975	U> aux. term. 1	Enable	OFF ON	ON	
4976	U> aux. term. 1	Fail class	F1 to F9	F2 (Warning)	

4980 U< auxiliary power supply terminal 98

No.	Setting		Range	Factory setting	Description
4981	U< aux. term. 98	Set point	8.0 to 32.0 V DC	18.0 V DC	The power supply on terminal 98 and 99 has continuously been below the adjusted set point during the programmed delay time.
4982	U< aux. term. 98	Timer	0.0 s to 999.0 s	1.0 s	
4983	U< aux. term. 98	Relay output A	Not used (option dependent)	Not used	
4984	U< aux. term. 98	Relay output B	Not used (option dependent)	Not used	
4985	U< aux. term. 98	Enable	OFF ON	ON	
4986	U< aux. term. 98	Fail class	F1 to F9	F2 (Warning)	

4990 U> auxiliary power supply terminal 98

No.	Setting		Range	Factory setting	Description
4991	U> aux. term. 98	Set point	8.0 to 32.0 V DC	30.0 V DC	The power supply on terminal 98 and 99 has continuously been above the adjusted set point during the programmed delay time.
4992	U> aux. term. 98	Timer	0.0 s to 999.0 s	1.0 s	
4993	U> aux. term. 98	Relay output A	Not used (option dependent)	Not used	
4994	U> aux. term. 98	Relay output B	Not used (option dependent)	Not used	
4995	U> aux. term. 98	Enable	OFF ON	ON	
4996	U> aux. term. 98	Fail class	F1 to F9	F2 (Warning)	

2.8 System parameters: General setup

2.8.1 Stop coil wirebreak and internal communication alarms

6270 Stop coil wire break

No.	Setting		Range	Factory setting	Description
6271	Stop coil wire break	Relay output A	Not used (option dependent)	Not used	The wire break monitoring is only active when the stop coil output is deactivated.
6272	Stop coil wire break	Relay output B	Not used (option dependent)	Not used	
6273	Stop coil wire break	Enable	OFF ON	OFF	
6274	Stop coil wire break	Fail class	F1 to F9	F2 (Warning)	

6280 Internal communication fail

No.	Setting		Range	Factory setting	Description
6281	Int. comm. fail	Relay output A	Not used (option dependent)	Not used	This is the alarm for communication fail between the main processor and the engine interface processor. The alarm will also occur if there is no supply on terminal 98-99 for option M4.
6282	Int. comm. fail	Relay output B	Not used (option dependent)	Not used	
6283	Int. comm. fail	Fail class	F1 to F9	F2 (Warning)	

2.8.2 Engine heater failure

6330 Engine heater 1

No.	Setting		Range	Factory setting	Description
6331	Engine heater 1	Set point	10 to 250 °	30 °	-
6332	Engine heater 1	Timer	1.0 s to 300.0 s	10.0 s	
6333	Engine heater 1	Relay output A	Not used (option dependent)	Not used	
6334	Engine heater 1	Relay output B	Not used (option dependent)	Not used	
6335	Engine heater 1	Enable	OFF ON	OFF	
6336	Engine heater 1	Fail class	F1 to F9	F2 (Warning)	

2.8.3 Running detection

6350 Running detection

No.	Setting		Range	Factory setting	Description
6351	Running detection	Timer	1.0 s to 1200.0 s	10.0 s	-
6352	Ext. engine Stop	Timer	1.0 s to 1200.0 s	10.0 s	
6353	Ext. engine Stop	Enable	OFF ON	ON	
6354	Ext. engine Stop	Fail class	F1 to F9	F2 (Warning)	

2.8.4 Battery tests

6410 Battery test

No.	Setting		Range	Factory setting	Description
6411	Battery test	Set point	8.0 to 32.0 V	18.0 V	If the battery voltage drops below set point during crank test the alarm activates. If the type is configured with + *Start Sequence*, the timer is disabled and the number of start attempts configured in *Start attempts* (parameter 6190) is run without activating the run coil. After the sequence, the alarm *Start failure* (parameter 4570) is activated.
6412	Battery test	Timer	1.0 to 300.0 s	20.0 s	
6413	Battery test	Type	Power supply Multi-input 102 Multi-input105 Multi-input 108 Power supply 98/99 (+ *Start Sequence*)	Power supply	
6414	Battery test	Relay output A	Not used (option dependent)	Not used	
6415	Battery test	Enable	OFF ON	OFF	
6416	Battery test	Fail class	F1 to F9	F2 (Warning)	

6420 Auto battery test

No.	Setting		Range	Factory setting	Description
6421	Auto battery test	Enable	OFF ON	OFF	Automatic battery test time setting.
6422	Auto battery test	Day	Monday to Sunday	Monday	
6423	Auto battery test	Hours	0 to 23 h	10 h	
6424	Auto battery test	Week	1 to 52	52	
6425	Auto battery test	Relay output A	Not used (option dependent)	Not used	

6430 Battery asymmetry

No.	Setting		Range	Factory setting	Description
6431	Battery asymmetry	T1	Power supply Multi-input 102 Multi-input 105 Multi-input 108 Power supply 98/99	Multi-input 105	Battery asymmetry input selections.
6432	Battery asymmetry	RF1		Power supply	
6433	Battery asymmetry	T2		Multi-input 108	
6434	Battery asymmetry	RF2		Multi-input 102	

6440 Battery asymmetry 1

No.	Setting		Range	Factory setting	Description
6441	Battery asymmetry 1	Set point	0.1 to 15.0 V	1.0 V	If the battery voltage asymmetry between the single batteries exceeds the setting, the alarm will activate.
6442	Battery asymmetry 1	Timer	0.0 to 10.0 s	1.0 s	
6443	Battery asymmetry 1	Relay output A	Not used (option-dependent)	Not used	
6444	Battery asymmetry 1	Relay output B	Not used (option dependent)	Not used	
6445	Battery asymmetry 1	Enable	OFF ON	OFF	

6450 Battery asymmetry 2

No.	Setting		Range	Factory setting	Description
6451	Battery asymmetry 2	Set point	0.1 to 15.0 V	1.0 V	If the battery voltage asymmetry between the single batteries exceeds the setting, the alarm will activate.
6452	Battery asymmetry 2	Timer	0.0 to 10.0 s	1.0 s	
6453	Battery asymmetry 2	Relay output A	Not used (option-dependent)	Not used	
6454	Battery asymmetry 2	Relay output B	Not used (option dependent)	Not used	
6455	Battery asymmetry 2	Enable	OFF ON	OFF	

2.8.5 Max. ventilation

6470 Max. ventilation 1

No.	Setting		Range	Factory setting	Description
6471	Max. vent. 1	Set point	20 to 250 °C	95 °C	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 to 60.0 s	1.0 s	
6473	Max. vent. 1	Relay output A	Not used (option dependent)	Not used	
6474	Max. vent. 1	Relay output B	Not used (option dependent)	Not used	
6475	Max. vent. 1	Enable	OFF ON	OFF	
6476	Max. vent. 1	Fail class	F1 to F9	F2 (Warning)	

6480 Max. ventilation 2

No.	Setting		Range	Factory setting	Description
6481	Max. vent. 2	Set point	20 to 250 °C	98 °C	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 to 60.0 s	1.0 s	
6483	Max. vent. 2	Relay output A	Not used (option dependent)	Not used	
6484	Max. vent. 2	Relay output B	Not used (option dependent)	Not used	
6485	Max. vent. 2	Enable	OFF ON	OFF	
6486	Max. vent. 2	Fail class	F1 to F9	F5 (Shutdown)	

2.8.6 Switchboard error: Block and Stop

6500 Block switchboard error

No.	Setting		Range	Factory setting	Description
6501	Blk. swbd error	Timer	0.0 to 999.0 s	10.0 s	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	Parallel	OFF ON	OFF	
6503	Blk. swbd error	Relay output A	Not used (option dependent)	Not used	
6504	Blk. swbd error	Relay output B	Not used (option dependent)	Not used	
6505	Blk. swbd error	Enable	OFF ON	OFF	
6506	Blk. swbd error	Fail class	F1 to F9	F2 (Warning)	

6510 Stop switchboard error

No.	Setting		Range	Factory setting	Description
6511	Stp. swbd error	Timer	0.0 to 999.0 s	1.0 s	If the binary input *switchboard error* activates, the generator will be stopped.
6512	Stp. swbd error	Relay output A	Not used (option dependent)	Not used	
6513	Stp. swbd error	Relay output B	Not used (option dependent)	Not used	
6514	Stp. swbd error	Enable	OFF ON	OFF	
6515	Stp. swbd error	Fail class	F1 to F9	F5 (Shutdown)	

2.8.7 Switchboard error: Not in auto

6540 Not in auto

No.	Setting		Range	Factory setting	Description
6541	Not in auto	Timer	10.0 to 900.0 s	300.0 s	
6542	Not in auto	Relay output A	Not used (option dependent)	Not used	
6543	Not in auto	Relay output B	Not used (option dependent)	Not used	
6544	Not in auto	Enable	OFF ON	OFF	
6545	Not in auto	Fail class	F1 to F9	F2 (Warning)	

2.8.8 Oil renewal

6890 Oil renewal

No.	Setting		Range	Factory setting	Description
6891	Oil renewal	Set point	1 to 999 h	750 h	Setup of oil renewal.
6892	Oil renewal	Relay output A	Not used (option dependent)	Not used	
6893	Adj. reset value	Password level	Basic Customer Service	Basic	

2.8.9 Avg U BB (with option A1)

7480 Avg U BB> 1 (with option A1)

No.	Setting		Range	Factory setting	Description
7481	Avg U BB> 1	Set point	100.0 to 120.0 %	110.0 %	Busbar over-voltage alarm based on average measurement of the voltage of the busbar.
7482	Avg U BB> 1	Timer	0.1 to 3200.0 s	10 s	
7483	Avg U BB> 1	Relay output A	Not used (option dependent)	Not used	
7484	Avg U BB> 1	Enable	OFF ON	OFF	
7485	Avg U BB> 1	Fail class	F1 to F9	F2 (Warning)	
7486	Avg U BB> 1	AVG timer	30.0 to 900.0 s	600.0 s	

7490 Avg U BB> 2 (with option A1)

No.	Setting		Range	Factory setting	Description
7491	Avg U BB> 2	Set point	100.0 to 120.0 %	110.0 %	Busbar over-voltage alarm based on average measurement of the voltage of the busbar.
7492	Avg U BB> 2	Timer	0.1 to 3200.0 s	10 s	
7493	Avg U BB> 2	Relay output A	Not used (option dependent)	Not used	
7494	Avg U BB> 2	Enable	OFF ON	OFF	
7495	Avg U BB> 2	Fail class	F1 to F9	F2 (Warning)	
7496	Avg U BB> 2	AVG timer	30.0 to 900.0 s	600.0 s	

2.9 System parameters: Communication

2.9.1 External communication error

7520 External communication error (with option H2 or H3)

No.	Setting		Range	Factory setting	Description
7521	Ext. comm. error	Delay	1.0 to 100.0 s	10.0 s	Supervision of the external communication line. The alarm will occur when there has been no communication during the delay time.
7522	Ext. comm. error	Relay output A	Not used (option dependent)	Not used	
7523	Ext. comm. error	Relay output B	Not used (option dependent)	Not used	
7524	Ext. comm. error	Enable	OFF ON	OFF	
7525	Ext. comm. error	Fail class	F1 to F9	F2 (Warning)	

7530 Internal communication ID

No.	Setting		Range	Factory setting	Description
7532	Int. comm. ID	CAN fail. mode	Manual Semi auto No mode change	Manual	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
7533	Int. comm. ID	Missing all units	F1 to F9	F2 (Warning)	
7534	Int. comm. ID	Fatal CAN error	F1 to F9	F2 (Warning)	
7535	Int. comm. ID	Any DG missing	F1 to F9	F2 (Warning)	
7536	Int. comm. ID	Any mains missing	F1 to F9	F2 (Warning)	

2.9.2 Engine interface communication alarms

7570 EI comm. error (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7571	EI comm. error	Timer	0.0 to 100.0 s	0.0 s	Supervision of the EIC communication line. The alarm will occur when there has been no communication during the delay time.
7572	EI comm. error	Relay output A	Not used (option dependent)	Not used	
7573	EI comm. error	Relay output B	Not used (option dependent)	Not used	
7574	EI comm. error	Enable	OFF ON	ON	
7575	EI comm. error	Fail class	F1 to F9	F2 (Warning)	

7580 EIC warning (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7581	EIC warning	Timer	0.0 to 100.0 s	0.0 s	
7582	EIC warning	Relay output A	Not used (option dependent)	Not used	
7583	EIC warning	Relay output B	Not used (option dependent)	Not used	
7584	EIC warning	Enable	OFF ON	ON	
7585	EIC warning	Fail class	F1 to F9	F2 (Warning)	

7590 EIC shutdown (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7591	EIC shutdown	Timer	0.0 to 100.0 s	0.0 s	
7592	EIC shutdown	Relay output A	Not used (option dependent)	Not used	
7593	EIC shutdown	Relay output B	Not used (option dependent)	Not used	
7594	EIC shutdown	Enable	OFF ON	OFF	
7595	EIC shutdown	Fail class	F1 to F9	F5 (Shutdown)	

7600 EIC overspeed (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7601	EIC over-speed	Set point	100.0 to 150.0 %	110.0 %	
7602	EIC over-speed	Timer	0.0 to 100.0 s	5.0 s	
7603	EIC over-speed	Relay output A	Not used (option dependent)	Not used	
7604	EIC over-speed	Relay output B	Not used (option dependent)	Not used	
7605	EIC over-speed	Enable	OFF ON	OFF	
7606	EIC over-speed	Fail class	F1 to F9	F2 (Warning)	

7610 EIC coolant temperature 1 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7611	EIC coolant t. 1	Set point	-40 to 410 °C	100 °C	
7612	EIC coolant t. 1	Timer	0.0 to 100.0 s	5.0 s	
7613	EIC coolant t. 1	Relay output A	Not used (option dependent)	Not used	
7614	EIC coolant t. 1	Relay output B	Not used (option dependent)	Not used	
7615	EIC coolant t. 1	Enable	OFF ON	OFF	
7616	EIC coolant t. 1	Fail class	F1 to F9	F2 (Warning)	

7620 EIC coolant temperature 2 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7621	EIC coolant t. 2	Set point	-40 to 410 °C	110 °C	
7622	EIC coolant t. 2	Timer	0.0 to 100.0 s	5.0 s	
7623	EIC coolant t. 2	Relay output A	Not used (option dependent)	Not used	
7624	EIC coolant t. 2	Relay output B	Not used (option dependent)	Not used	
7625	EIC coolant t. 2	Enable	OFF ON	OFF	
7626	EIC coolant t. 2	Fail class	F1 to F9	F2 (Warning)	

7630 EIC oil pressure 1 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7631	EIC oil press. 1	Set point	0.0 to 145.0 bar	2.0 bar	
7632	EIC oil press. 1	Timer	0.0 to 100.0 s	5.0 s	
7633	EIC oil press. 1	Relay output A	Not used (option dependent)	Not used	
7634	EIC oil press. 1	Relay output B	Not used (option dependent)	Not used	
7635	EIC oil press. 1	Enable	OFF ON	OFF	
7636	EIC oil press. 1	Fail class	F1 to F9	F2 (Warning)	

7640 EIC oil pressure 2 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7641	EIC oil press. 2	Set point	0.0 to 145.0 bar	1.0 bar	
7642	EIC oil press. 2	Timer	0.0 to 100.0 s	5.0 s	
7643	EIC oil press. 2	Relay output A	Not used (option dependent)	Not used	
7644	EIC oil press. 2	Relay output B	Not used (option dependent)	Not used	
7645	EIC oil press. 2	Enable	OFF ON	OFF	
7646	EIC oil press. 2	Fail class	F1 to F9	F5 (Shutdown)	

7650 EIC oil temp. 1 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7651	EIC oil temp. 1	Set point	0 to 410 °C	40 °C	
7652	EIC oil temp. 1	Timer	0.0 to 100.0 s	5.0 s	
7653	EIC oil temp. 1	Relay output A	Not used (option dependent)	Not used	
7654	EIC oil temp. 1	Relay output B	Not used (option dependent)	Not used	
7655	EIC oil temp. 1	Enable	OFF ON	OFF	
7656	EIC oil temp. 1	Fail class	F1 to F9	F2 (Warning)	

7660 EIC oil temp. 2 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7661	EIC oil temp. 2	Set point	0 to 410 °C	50 °C	
7662	EIC oil temp. 2	Timer	0.0 to 100.0 s	5.0 s	
7663	EIC oil temp. 2	Relay output A	Not used (option dependent)	Not used	
7664	EIC oil temp. 2	Relay output B	Not used (option dependent)	Not used	
7665	EIC oil temp. 2	Enable	OFF ON	OFF	
7666	EIC oil temp. 2	Fail class	F1 to F9	F5 (Shutdown)	

7670 EIC coolant level 1 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7671	EIC coolant level 1	Set point	0 to 100 %	20 %	
7672	EIC coolant level 1	Timer	0.0 to 100.0 s	5.0 s	
7673	EIC coolant level 1	Relay output A	Not used (option dependent)	Not used	
7674	EIC coolant level 1	Relay output B	Not used (option dependent)	Not used	
7675	EIC coolant level 1	Enable	OFF ON	OFF	
7676	EIC coolant level 1	Fail class	F1 to F9	F2 (Warning)	

7680 EIC coolant level 2 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7681	EIC coolant level 2	Set point	0 to 100 %	10 %	
7682	EIC coolant level 2	Timer	0.0 to 100.0 s	5.0 s	
7683	EIC coolant level 2	Relay output A	Not used (option dependent)	Not used	
7684	EIC coolant level 2	Relay output B	Not used (option dependent)	Not used	
7685	EIC coolant level 2	Enable	OFF ON	OFF	
7686	EIC coolant level 2	Fail class	F1 to F9	F5 (Shutdown)	

7690 EIC Cyl dif. 1 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7691	EIC Cyl dif. 1	Set point	0 to 9999 °	100	
7692	EIC Cyl dif. 1	Timer	0.0 to 100.0 s	5.0 s	
7693	EIC Cyl dif. 1	Relay output A	Not used (option dependent)	Not used	
7694	EIC Cyl dif. 1	Relay output B	Not used (option dependent)	Not used	
7695	EIC Cyl dif. 1	Enable	OFF ON	OFF	
7696	EIC Cyl dif. 1	Fail class	F1 to F9	F2 (Warning)	

7700 EIC Cyl dif. 2 (with option H5, H7, H12, or option H6)

No.	Setting		Range	Factory setting	Description
7701	EIC Cyl dif. 2	Set point	0 to 9999 °	110 °	
7702	EIC Cyl dif. 2	Timer	0.0 to 100.0 s	5.0 s	
7703	EIC Cyl dif. 2	Relay output A	Not used (option dependent)	Not used	
7704	EIC Cyl dif. 2	Relay output B	Not used (option dependent)	Not used	
7705	EIC Cyl dif. 2	Enable	OFF ON	OFF	
7706	EIC Cyl dif. 2	Fail class	F1 to F9	F2 (Warning)	

2.9.3 Power management communication error

7870 Any BTB missing/appl. hazard

No.	Setting		Range	Factory setting	Description
7871	Any BTB missing	Fail class	F1 to F9	F2 (Warning)	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	OFF ON	ON	
7873	Appl. hazard	Fail class	F1 to F9	F2 (Warning)	

2.9.4 Internal CAN communication error

7930 CAN1 communication error

No.	Setting		Range	Factory setting	Description
7931	CAN1 com error	Timer	10.0 to 600.0 s	10.0 s	Option: • External I/O modules (H8.2) Note: If both options H8.x are present, an error on any of these will activate the alarm.
7932	CAN1 com error	Relay output A	Not used (option dependent)	Not used	
7933	CAN1 com error	Relay output B	Not used (option dependent)	Not used	
7934	CAN1 com error	Enable	OFF ON	ON	
7935	CAN1 com error	Fail class	F1 to F9	F2 (Warning)	

7940 CAN2 communication error

No.	Setting		Range	Factory setting	Description
7941	CAN2 com error	Timer	10.0 to 600.0 s	10.0 s	Option: • External I/O modules (H8.2) Note: If both options H8.x are present, an error on any of these will activate the alarm.
7942	CAN2 com error	Relay output A	Not used (option dependent)	Not used	
7943	CAN2 com error	Relay output B	Not used (option dependent)	Not used	
7944	CAN2 com error	Enable	OFF ON	ON	
7945	CAN2 com error	Fail class	F1 to F9	F2 (Warning)	

2.10 External I/O parameters

2.10.1 External I/O alarm setup

Alarms based on external I/O modules can only be configured with the PC utility software.

2.10.2 Analogue inputs (requires option H8.x)

12000 Ext. Ain 1.1

No.	Setting		Range	Factory setting	Description
	Ext. Analogue input 1.1	Set point	0 to 10	10	
	Ext. Analogue input 1.1	Timer	0.0 to 600.0 s	10.0 s	
	Ext. Analogue input 1.1	Relay output A	Not used (option dependent)	Not used	
	Ext. Analogue input 1.1	Relay output B	Not used (option dependent)	Not used	
	Ext. Analogue input 1.1	Enable	OFF ON	OFF	
	Ext. Analogue input 1.1	Fail class	F1 to F9	F2 (Warning)	

12010 Ext. Ain 1.1

No.	Setting		Range	Factory setting	Description
	Ext. Analogue input 1.2	Set point	0 to 10	10	
	Ext. Analogue input 1.2	Timer	0.0 to 600.0 s	10.0 s	
	Ext. Analogue input 1.2	Relay output A	Not used (option dependent)	Not used	
	Ext. Analogue input 1.2	Relay output B	Not used (option dependent)	Not used	
	Ext. Analogue input 1.2	Enable	OFF ON	OFF	
	Ext. Analogue input 1.2	Fail class	F1 to F9	F2 (Warning)	

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

2.10.3 External analogue input scale (requires option H8.x)

12230 4-20 mA Ext in 1 scale (requires option H8.x)

No.	Setting		Range	Factory setting	Description
	4-20 mA Ext in 1 scale	Set point	No decimal One decimal Two decimals	One decimal	Set *Enable* to *ON* and write the new set point to automatically scale the associated min., max. and value.
	4-20 mA Ext in 1 scale	Enable	OFF ON	OFF	

2.10.4 Digital inputs (requires option H8.x)

12540 Ext. dig. in 1 (requires option H8.x)

No.	Setting		Range	Factory setting	Description
	Ext. dig. in 1	Timer	0.0 to 100.0 s	10.0 s	
	Ext. dig. in 1	Relay output A	Not used (option dependent)	Not used	
	Ext. dig. in 1	Relay output B	Not used (option dependent)	Not used	
	Ext. dig. in 1	Enable	OFF ON	OFF	
	Ext. dig. in 1	High alarm	OFF ON	ON	
	Ext. dig. in 1	Fail class	F1 to F9	F2 (Warning)	

INFO
The same settings apply to all external digital inputs. That is, they also apply to digital inputs 2 to 16, in menus 12550 to 12690.

3. System parameters

3.1 General setup

3.1.1 Nominal settings

6000 Nominal settings 1

No.	Setting		Range	Factory setting	Description
6001	Nom. settings 1	Frequency	48.0 to 62.0 Hz	50.0 Hz	The nominal settings to be used is set in parameter 6006. A binary input or selection in M-logic can also be used. *Voltage and power range and default depend on the scaling set in parameter 9030.
6002	Nom. settings 1	Power	1 to 900,000 kW*	480 kW*	
6003	Nom. settings 1	Current	0 to 9000 A	867 A	
6004	Nom. settings 1	Voltage	10 to 250,000 V*	400 V*	
6005	Nom. settings 1	RPM	100 to 4000 RPM	1500 RPM	
6006	Nom. settings 1	Setting	1 to 4	1	

6010 Nominal settings 2

No.	Setting		Range	Factory setting	Description
6011	Nom. settings 2	Frequency	48.0 to 62.0 Hz	50.0 Hz	*Voltage and power range and default depend on the scaling set in parameter 9030.
6012	Nom. settings 2	Power	1 to 900,000 kW*	230 kW*	
6013	Nom. settings 2	Current	0 to 9000 A	345 A	
6014	Nom. settings 2	Voltage	10 to 250,000 V*	480 V*	
6015	Nom. settings 2	RPM	100 to 4000 RPM	1500 RPM	

6020 Nominal settings 3

No.	Setting		Range	Factory setting	Description
6021	Nom. settings 3	Frequency	48.0 to 62.0 Hz	60.0 Hz	*Voltage and power range and default depend on the scaling set in parameter 9030.
6022	Nom. settings 3	Power	1 to 900,000 kW*	230 kW*	
6023	Nom. settings 3	Current	0 to 9000 A	345 A	
6024	Nom. settings 3	Voltage	10 to 250,000 V*	480 V*	
6025	Nom. settings 3	RPM	100 to 4000 RPM	1800 RPM	

6030 Nominal settings 4

No.	Setting		Range	Factory setting	Description
6031	Nom. settings 4	Frequency	48.0 to 62.0 Hz	60.0 Hz	*Voltage and power range and default depend on the scaling set in parameter 9030.
6032	Nom. settings 4	Power	1 to 900,000 kW*	230 kW*	
6033	Nom. settings 4	Current	0 to 9000 A	345 A	
6034	Nom. settings 4	Voltage	10 to 250,000 V*	480 V*	
6035	Nom. settings 4	RPM	100 to 4000 RPM	1800 RPM	

6040 Gen/Mains/busbar A transformer

No.	Setting		Range	Factory setting	Description
6041	G/M/BA transformer	U primary	10 to 250,000 V*	400 V*	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value. *Gen/mains/busbar primary voltage range and default depend on the scaling set in parameter 9030.
6042	G/M/BA transformer	U secondary	100 to 690 V	400 V	
6043	G/M/BA transformer	I primary	5 to 9000 A	1000 A	
6044	G/M/BA transformer	I secondary	1 to 5 A	5 A	

6050 Busbar settings 1

No.	Setting		Range	Factory setting	Description
6051	BB setting 1	U primary	10 to 250,000 V*	400 V*	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value. *BB primary and nominal voltage range and default depend on the scaling set in parameter 9030.
6052	BB setting 1	U secondary	100 to 690 V	400 V	
6053	BB setting 1	Nominal U 1	10 to 250,000 V*	400 V*	
6054	BB setting 1	Bus nom. set	Param set 1 Param set 2	Param set 1	

6060 Busbar settings 2

No.	Setting		Range	Factory setting	Description
6061	BB setting 2	U primary	10 to 250,000 V*	400 V*	If no voltage transformer is present, the primary and secondary side values are set to generator nominal value. *BB primary and nominal voltage range and default depend on the scaling set in parameter 9030.
6062	BB setting 2	U secondary	100 to 690 V	400 V	
6063	BB setting 2	Nominal U 2	10 to 250,000 V*	400 V*	

3.1.2 Breaker control

6230 Gen/Mains/Tie/Bus tie breaker control

No.	Setting		Range	Factory setting	Description
6231	GB/MB/TB/ BTB control	Close delay	0.0 to 30.0 s	2.0 s	
6232	GB/MB/TB/ BTB control	Load time	0.0 to 30.0 s	0.0 s	Parameter 6232 is for compact breakers (need to charge spring before closing).

3.1.3 Date and time

6090 Date and time

No.	Setting		Range	Factory setting	Description
6091	Date and time	Year	2001 to 2100	2008	Used to set up the clock in the unit. Only available from the display.
6092	Date and time	Month	1 to 12	1	
6093	Date and time	Date	1 to 31	1	
6094	Date and time	Week day	1 to 7	1	
6095	Date and time	Hour	0 to 23	3	
6096	Date and time	Minute	0 to 59	5	

3.1.4 Master clock

6400 Master clock

No.	Setting		Range	Factory setting	Description
6401	Master clock	Start hour	0 to 23 h	8 h	Compensation for frequency variation related clock time in the system.
6402	Master clock	Stop hour	0 to 23 h	8 h	
6403	Master clock	Difference	1 to 999 s	20 s	
6404	Master clock	Compensation	0.1 to 1.0 Hz	0.1 Hz	
6405	Master clock	Enable	OFF ON	OFF	

3.1.5 Summer/winter time

6490 Summer/winter time

No.	Setting		Range	Factory setting	Description
6491	Sum/win time	Enable	OFF ON	OFF	The summer/winter time changes follow mainland Europe rules.

3.1.6 Counters

6100 Counters

No.	Setting		Range	Factory setting	Description
6101	Counters	Running hour	0 to 999 hrs	0 hrs	Parameter 6105 resets the kWh counter to 0. After reset, the parameter automatically changes to OFF.
6102	Counters	Running, th. hours	0 to 999 th. hrs	0 th. hrs	
6103	Counters	GB/TB/BTB operations	0 to 20000	0	
6104	Counters	MB operations	0 to 20000	0	
6105	Counters	kWh	OFF ON	OFF	
6106	Counters	Start attempts	0 to 20000	0	

3.1.7 Pulse counter

6850 Pulse counter 1

No.	Setting		Range	Factory setting	Description
6851	Pulse counter 1	Set point	0 to 1000	1	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

No.	Setting		Range	Factory setting	Description
6861	Pulse counter 2	Set point	0 to 1000	1	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	

3.1.8 Timers

6110 Service timer 1

No.	Setting		Range	Factory setting	Description
6111	Service timer 1	Enable	OFF ON	ON	The timer is reset by setting parameter 6116 to ON. After reset, the parameter automatically changes to OFF.
6112	Service timer 1	Running hours	0 to 9000 hrs	500 hrs	
6113	Service timer 1	Days	1 to 1000 days	365 days	
6114	Service timer 1	Fail class	F1 to F9	F2 (Warning)	
6115	Service timer 1	Output A	Not used (option dependent)	Not used	
6116	Service timer 1	Reset	OFF ON	OFF	

6120 Service timer 2

No.	Setting		Range	Factory setting	Description
6121	Service timer 2	Enable	OFF ON	ON	The timer is reset by setting parameter 6126 to ON. After reset, the parameter automatically changes to OFF.
6122	Service timer 2	Running hours	0 to 9000 hrs	500 hrs	
6123	Service timer 2	Days	1 to 1000 days	365 days	
6124	Service timer 2	Fail class	F1 to F9	F2 (Warning)	
6125	Service timer 2	Output A	Not used (option dependent)	Not used	
6126	Service timer 2	Reset	OFF ON	OFF	

6300 Service timer 3

No.	Setting		Range	Factory setting	Description
6301	Service timer 3	Enable	OFF ON	ON	The timer is reset by setting parameter 6306 to ON. After reset, the parameter automatically changes to OFF.
6302	Service timer 3	Running hours	0 to 9000 hrs	500 hrs	
6303	Service timer 3	Days	1 to 1000 days	365 days	
6304	Service timer 3	Fail class	F1 to F9	F2 (Warning)	
6305	Service timer 3	Output A	Not used (option dependent)	Not used	
6306	Service timer 3	Reset	OFF ON	OFF	

6310 Service timer 4

No.	Setting		Range	Factory setting	Description
6311	Service timer 4	Enable	OFF ON	ON	The timer is reset by setting parameter 6316 to ON. After reset, the parameter automatically changes to OFF.
6312	Service timer 4	Running hours	0 to 9000 hrs	500 hrs	
6313	Service timer 4	Days	1 to 1000 days	365 days	
6314	Service timer 4	Fail class	F1 to F9	F2 (Warning)	
6315	Service timer 4	Output A	Not used (option dependent)	Not used	
6316	Service timer 4	Reset	OFF ON	OFF	

3.1.9 Command timers

6960 Command start/stop timer 1

No.	Setting		Range	Factory setting	Description
6961	Start timer 1 days	Set point	OFF 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	OFF	Start/stop timers can be used in M-Logic.
6962	Start timer 1 hour	Set point	0 to 23 h	10 h	
6963	Start timer 1 min	Set point	0 to 59 min	0 min	
6964	Stop timer 1 days	Set point	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	MO-TU-WE-TH-FR- SA-SU	
6965	Stop timer 1 hour	Set point	0 to 23 h	10 h	
6966	Stop timer 1 min	Set point	0 to 59 min	0 min	

6970 Command start/stop timer 2

No.	Setting		Range	Factory setting	Description
6971	Start timer 2 days	Set point	OFF 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	OFF	Start/stop timers can be used in M-Logic.
6972	Start timer 2 hour	Set point	0 to 23 h	10 h	
6973	Start timer 2 min	Set point	0 to 59 min	0 min	
6974	Stop timer 2 days	Set point	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	MO-TU-WE-TH-FR- SA-SU	
6975	Stop timer 2 hour	Set point	0 to 23 h	10 h	
6976	Stop timer 2 min	Set point	0 to 59 min	0 min	

6980 Command start/stop timer 3

No.	Setting		Range	Factory setting	Description
6981	Start timer 3 days	Set point	OFF 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	OFF	Start/stop timers can be used in M-Logic.
6982	Start timer 3 hour	Set point	0 to 23 h	10 h	
6983	Start timer 3 min	Set point	0 to 59 min	0 min	
6984	Stop timer 3 days	Set point	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	MO-TU-WE-TH-FR- SA-SU	
6985	Stop timer 3 hour	Set point	0 to 23 h	10 h	
6986	Stop timer 3 min	Set point	0 to 59 min	0 min	

6990 Command start/stop timer 4

No.	Setting		Range	Factory setting	Description
6991	Start timer 4 days	Set point	OFF 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	OFF	Start/stop timers can be used in M-Logic.
6992	Start timer 4 hour	Set point	0 to 23 h	10 h	
6993	Start timer 4 min	Set point	0 to 59 min	0 min	
6994	Stop timer 4 days	Set point	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	MO-TU-WE-TH-FR- SA-SU	
6995	Stop timer 4 hour	Set point	0 to 23 h	10 h	
6996	Stop timer 4 min	Set point	0 to 59 min	0 min	

3.1.10 Language

6080 Language

No.	Setting	Selection	Factory setting	Description
6081	Language	English Language 1 to 11	English	The master language is English. 11 additional languages can be configured with the PC utility software.
6082	LED colours	LED colour scheme 1 LED colour scheme 2	LED colour scheme 1	LED colour scheme 1 is standard. LED colour scheme 2 corresponds to US medium voltage colour scheme. The LED colour schemes are only available on the display unit (DU-2).

3.1.11 Alarm horn

6130 Alarm horn

No.	Setting		Range	Factory setting	Description
6131	Alarm horn	ON time	0.0 to 990.0 s	20.0 s	If the setting is adjusted to 0 s, the horn relay will be activated continuously until the alarm is acknowledged.

3.1.12 Alarm jump

6900 Alarm jump

No.	Setting		Range	Factory setting	Description
6901	Alarm jump	Enable	OFF ON	ON	If an alarm appears: • ON: Jump to alarm list view on the display • OFF: stay at present display view.

3.1.13 Diagnostics

6700 Diagnostics

No.	Setting		Range	Factory setting	Description
6701	Diagnostics	Timer	0 to 30 s	30 s	Activates diagnostics mode to read ECU data without starting the engine.
6702	Diagnostics	Enable	OFF ON	OFF	

3.1.14 I thermal demand

6840 I thermal demand

No.	Setting		Range	Factory setting	Description
6841	I thermal demand	Timer	0 to 20 min.	8 min.	Setup of I thermal period.
6842	I thermal demand	Enable	OFF ON	OFF	Enabled is used for reset.
6843	I max. demand	Enable	OFF ON	OFF	Reset I max. demand.

3.2 Genset setup

3.2.1 Genset mode

6070 Genset mode (Genset controller only)

No.	Setting	Range	Factory setting	Description
6071	Genset mode	Island Auto Mains Failure Peak shaving Fixed power Mains power export Load take over Power management (requires option G5) Remote maintenance Dry alternator (requires option T2) Ventilation (requires option T2)		This parameter can also be set from the utility software, *Application supervision, Plant settings*.

3.2.2 Test

7040 Test (Genset controller)

No.	Setting		Range	Factory setting	Description
7041	Test	Set point	1 to 100 %	80 %	Simple test: Engine run only. Load test: Parallel to mains. Full test: Disconnects mains.
7042	Test	Test time	0 to 999 min	5 min	
7043	Test	Return mode	Semi-auto mode Auto mode No mode change Manual	Auto mode	
7044	Test	Test type	Simple test Load test Full test	Simple test	

3.2.3 Run coil setup

6150 Run coil setup

No.	Setting		Range	Factory setting	Description
6151	Run coil setup	ON time	0.0 to 600.0 s	1.0 s	
6152	Run coil setup	Type	Pulse Continuous	Pulse	Pulse: Reset for each start attempt. Continuous: High throughout all start attempts.

3.2.4 Running, start and stop

6160 Run status

No.	Setting		Range	Factory setting	Description
6161	Run status	Timer	0.0 to 300.0 s	5.0 s	If a relay output is used, the relay must be set to *Limit*.
6162	Run status	Relay output A	Not used (option dependent)	Not used	
6163	Run status	Relay output B	Not used (option dependent)	Not used	
6164	Run status	Enable	OFF ON	OFF	

6170 Running detection

No.	Setting		Range	Factory setting	Description
6171	Running detect.	No. of teeth	0 to 500 teeth	0 teeth	If parameter 6171 is set to 0, the magnetic pickup input is not active.
6172	Running detect.	Type	Binary input MPU input Frequency EIC rpm Multi input 102 Multi input 105 Multi input 108	Frequency	
6173	Running detect.	Running RPM	0 to 4000 RPM	1000 RPM	
6174	Running detect.	Remove starter	1 to 2000 RPM	400 RPM	
6175	Running detect.	Pressure level	0.0 to 150.0 bar	0.0 bar	If parameter 6175 is set to 0.0, the oil pressure running detection is OFF.

6180 Starter

No.	Setting		Range	Factory setting	Description
6181	Starter	Start prepare	0.0 to 600.0 s	5.0 s	
6182	Starter	Ext. prepare	0.0 to 600.0 s	0.0 s	
6183	Starter	Start ON time	1.0 to 180.0 s	5.0 s	
6184	Starter	Start OFF time	1.0 to 99.0 s	5.0 s	
6185	Starter	Input type	Multi-input 102 Multi-input 105 Multi-input 108	Multi-input 102	The parameters 6185 and 6186 relate to using multi-inputs as running feedback. The units for parameter 6186 depend on the measurement (for example, temperature or pressure) chosen in 6185.
6186	Start threshold		0.0 to 300.0	0.0	

6190 Start attempts

No.	Setting		Range	Factory setting	Description
6191	Start attempts	Set point	1 to 10	3	Number of start attempts.
6192	Double attempts	Set point	0 to 10	2	See *Double starter* in the **Designer's reference handbook**.

6200 Shutdown override

No.	Setting		Range	Factory setting	Description
6201	Shutdown override	Attempts	1 to 10	7	Shutdown override turns all shutdowns into warnings. Only exception is overspeed and emergency stop.
6202	Shutdown override	Cooling down	0.0 to 9900.0 s	240.0 s	
6203	Shutdown override	Enable	Off ON	OFF	

6210 Stop

No.	Setting		Range	Factory setting	Description
6211	Stop	Cooling down	0.0 to 9900.0 s	240.0 s	The extended stop timer starts when the running feedback disappears. During the delay time it is not possible to start the engine.
6212	Stop	Extended stop	1.0 to 99.0 s	5.0 s	
6213	Stop	Type	Multi-input 102 EIC	Multi-input 102	
6214	Stop	Set point	0 to 482 °	0°	

6220 Hz/V OK

No.	Setting		Range	Factory setting	Description
6221	Hz/V OK	Timer	1.0 to 99.0 s	5.0 s	The voltage and frequency have to be continuously within the limits during the delay timer, before the breaker can be closed.

3.2.5 Idle start

6290 Idle running

No.	Setting		Range	Factory setting	Description
6291	Idle start	Start timer	0.0 to 59940.0 s	18000.0 s	
6292	Idle start	Enable start	OFF ON	OFF	
6293	Idle stop	Stop timer	0.0 to 59940.0 s	18000.0 s	
6294	Idle stop	Enable stop	OFF ON	OFF	

No.	Setting		Range	Factory setting	Description
6295	Idle active	Relay output A	Not used (option dependent)	Not used	To invert the output relay (6295), change *High alarm* (6297) to **OFF**.
6296	Idle active	Enable	OFF ON	OFF	
6297	Idle active	High alarm	ON OFF	ON	

3.2.6 Analogue load sharing lines output

6380 Load share out (requires option G3)

No.	Setting		Range	Factory setting	Description
6381	Load share out	Set point	1.0 to 5.0 V	4.0 V	Adjustment of the analogue load sharing line max. value.

6390 Load share type (requires option G3)

No.	Setting		Range	Factory setting	Description
6391	Load share type	Set point	Adjustable Selco T4800 Cummins PCC Woodward SPM-D11	Adjustable	Selection between adjustable load sharing line max. value (parameter 6381) or adaptation to the selected load sharing line.

3.2.7 Power derate

6240 Power derate 1

No.	Setting		Range	Factory setting	Description
6241	Power derate 1	Input	Multi-input, M-Logic, EIC or CIO	Multi-input 102	The derate function lowers the max. power of the generator set based on the input. Input: • Multi-input 102/105/108 • M-logic • EIC Cooling water temp. (SPN 110) • EIC Oil temp. (SPN 175) • EIC Ambient temp. (SPN 171) • EIC Intercool temp. (SPN 52) • EIC Fuel temp. (SPN 174) • EIC Derate request (SPN 3644) • CIO 308 1.08/1.11/1.14/1.17/1.20/1.23/1.26/1.29
6242	Power derate 1	Start derate	0 to 20000 units	16 units	
6243	Power derate 1	Derate slope	0.1 to 100.0 %/unit	5.0 %/unit	
6244	Power derate 1	Proportional	OFF ON	OFF	
6245	Power derate 1	Enable	OFF ON	OFF	
6246	Power derate 1	Limit	0.0 to 100.0 %	80.0 %	

6250 Power derate 2

No.	Setting		Range	Factory setting	Description
6251	Power derate 2	Input	Multi-input, M-Logic, EIC or CIO	Multi-input 102	The derate function lowers the max. power of the generator set based on the input. Input: • Multi-input 102/105/108 • M-logic • EIC Cooling water temp. (SPN 110) • EIC Oil temp. (SPN 175) • EIC Ambient temp. (SPN 171) • EIC Intercool temp. (SPN 52) • EIC Fuel temp. (SPN 174) • EIC Derate request (SPN 3644) • CIO 308 1.08/1.11/1.14/1.17/1.20/1.23/1.26/1.29
6252	Power derate 2	Start derate	0 to 20000 units	16 units	
6253	Power derate 2	Derate slope	0.1 to 100.0 %/unit	5.0 %/unit	
6254	Power derate 2	Proportional	OFF ON	OFF	
6255	Power derate 2	Enable	OFF ON	OFF	
6256	Power derate 2	Limit	0.0 to 100.0 %	80.0 %	

6260 Power derate 3

No.	Setting		Range	Factory setting	Description
6261	Power derate 3	Input	Multi-input, M-Logic, EIC or CIO	Multi-input 102	The derate function lowers the max. power of the generator set based on the input. Input: • Multi-input 102/105/108 • M-logic • EIC Cooling water temp. (SPN 110) • EIC Oil temp. (SPN 175) • EIC Ambient temp. (SPN 171) • EIC Intercool temp. (SPN 52) • EIC Fuel temp. (SPN 174) • EIC Derate request (SPN 3644) • CIO 308 1.08/1.11/1.14/1.17/1.20/1.23/1.26/1.29
6262	Power derate 3	Start derate	0 to 20000 units	16 units	
6263	Power derate 3	Derate slope	0.1 to 100.0 %/unit	5.0 %/unit	
6264	Power derate 3	Proportional	OFF ON	OFF	
6265	Power derate 3	Enable	OFF ON	OFF	
6266	Power derate 3	Limit	0.0 to 100.0 %	80.0 %	

3.2.8 Cooling ventilation

6460 Max. ventilation

No.	Setting		Range	Factory setting	Description
6461	Max. ventilation	Set point	20 to 250 °	90 °	Ventilation fan control.
6462	Max. ventilation	Relay output A	Not used (option dependent)	Not used	
6463	Max. ventilation	Hysteresis	1 to 70 °	5 °	
6464	Max. ventilation	Enable	OFF ON	OFF	

3.2.9 Fan logic

6560 Fan input settings

No.	Setting		Range	Factory setting	Description
6561	Fan input	Type	See description	Multi-input 102	Selection of fan input: • Multi-input 102 • Multi-input 105 • Multi-input 108 • EIC ◦ Water/oil temp. ◦ Water temp. ◦ Oil temp. ◦ Ambient temp. ◦ Inter cool temp. ◦ Fuel temp. • Ext. analog input: 1 to 8 (requires option H8) • CIO (There is a range of values for this.)
6562	Fan prio update	Priority	0 to 200 h	0 h	
6563	1st prio fan	Set point start	20 to 250 °	70 °	
6564	1st pr. fan	Hysteresis	0 to 50 °	10 °	
6565	2nd prio fan	Set point start	20 to 250 °	80 °	
6566	2nd pr. fan	Hysteresis	0 to 50 °	10 °	

6570 3rd prio fan

No.	Setting		Range	Factory setting	Description
6571	3rd prio fan	Set point start	20 to 250 °	90 °	
6572	3rd prio fan	Hysteresis	0 to 50 °	10 °	
6573	4th prio fan	Set point start	20 to 250 °	100 °	
6574	4th prio fan	Hysteresis	0 to 50 °	10 °	

6580 Fan outputs

No.	Setting		Range	Factory setting	Description
6581	Fan A output	Relay output A	Not used (option dependent)	Not used	Selection of relays for activating fans.
6582	Fan B output	Relay output B	Not used (option dependent)	Not used	
6583	Fan C output	Relay output C	Not used (option dependent)	Not used	
6584	Fan D output	Relay output D	Not used (option dependent)	Not used	
6585	Fan run. hour reset	Reset	OFF ON	OFF	
6586	Fan start delay	Timer	0.0 to 30.0 s	10.0 s	

6590 Fan A failure

No.	Setting		Range	Factory setting	Description
6591	Fan A failure	Timer	0.1 to 300.0 s	10.0 s	
6592	Fan A failure	Output A	Not used (option dependent)	Not used	
6593	Fan A failure	Output B	Not used (option dependent)	Not used	
6594	Fan A failure	Enable	OFF ON	OFF	
6595	Fan A failure	Fail class	F1 to F9	F2 (Warning)	

6600 Fan B failure

No.	Setting		Range	Factory setting	Description
6601	Fan B failure	Timer	0.1 to 300.0 s	10.0 s	
6602	Fan B failure	Output A	Not used (option dependent)	Not used	
6603	Fan B failure	Output B	Not used (option dependent)	Not used	
6604	Fan B failure	Enable	OFF ON	OFF	
6605	Fan B failure	Fail class	F1 to F9	F2 (Warning)	

6610 Fan C failure

No.	Setting		Range	Factory setting	Description
6611	Fan C failure	Timer	0.1 to 300.0 s	10.0 s	
6612	Fan C failure	Output A	Not used (option dependent)	Not used	
6613	Fan C failure	Output B	Not used (option dependent)	Not used	
6614	Fan C failure	Enable	OFF ON	OFF	
6615	Fan C failure	Fail class	F1 to F9	F2 (Warning)	

6620 Fan D failure

No.	Setting		Range	Factory setting	Description
6621	Fan D failure	Timer	0.1 to 300.0 s	10.0 s	
6622	Fan D failure	Output A	Not used (option dependent)	Not used	
6623	Fan D failure	Output B	Not used (option dependent)	Not used	
6624	Fan D failure	Enable	OFF ON	OFF	
6625	Fan D failure	Fail class	F1 to F9	F2 (Warning)	

3.2.10 Engine heater

6320 Engine heater

No.	Setting		Range	Factory setting	Description
6321	Engine heater	Set point	20 to 250 °	40 °	Heater function for standstill.
6322	Engine heater	Relay output A	Not used (option dependent)	Not used	
6323	Engine heater	Type	Multi-input 102 Multi-input 105 Multi-input 108 EIC* CIO*	Multi-input 102	
6324	Engine heater	Hysteresis	1 to 70 °	3 °	
6325	Engine heater	Enable	OFF ON	OFF	

*Note: There is a range of values for each of these.

3.2.11 Fuel transfer pump logic

6550 Fuel pump logic

No.	Setting		Range	Factory setting	Description
6551	Fuel pump logic	Set point start	0 to 100 %	20 %	Note: When using RMI for fuel pump logic, choose *Auto detection*.
6552	Fuel pump logic	Set point stop	0 to 100 %	80 %	
6553	Fuel pump logic	Fill check time	0.1 to 300.0 s	60.0 s	
6554	Fuel pump logic	Relay output A	Not used (option dependent)	Not used	
6555	Fuel pump logic	Set point	Multi-input 102 Multi-input 105 Multi-input 108 Ext. ana. In 1-8 CIO* Auto detection	Multi-input 102	
6556	Fuel pump logic	Fail class	F1 to F9	F2 (Warning)	

*Note: There is a range of values for this.

3.2.12 Tank capacity

6910 Tank capacity

No.	Setting		Range	Factory setting	Description
6911	Tank capacity		0 to 9999 L	1250 L	Set the capacity of the day tank. The controller uses this value and the fuel level to calculate the fuel volume. The fuel volume is shown in the utility software in **Application supervision**, *Genset data, General*.

3.2.13 Digital AVR parameters

For DVC 550, the parameters are included in the **DVC 550 Designer's handbook**.

The digital AVR is affected by nominal parameters 6004, 6014, 6024, 6034, 6041, 6042, 6051, 6052, 6061 and 6062. For more information, see Nominal settings.

No.	Setting	Range	Factory setting	Description
2262	Soft-start timer for CBE	0.0 to 999.0 s	5.0 s	This setting determines the slope of the soft-start during a CBE start.
7564	EIC Auto view	OFF ON	OFF	Enables AGC-4 to display readings from the digital AVR. If a

No.	Setting	Range	Factory setting	Description
				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 AGC-4 will still display the readings, if any readings are available.
7565	Digital AVR	OFF Caterpillar CDVR Leroy Somer D510C DEIF DVC 310 DEIF DVC 550 NIDEC D550	OFF	Selects the CAN bus protocol for interfacing between a digital AVR and AGC-4. Parameter 7565 "Caterpillar CDVR" will not work if MTU protocols are selected in parameter 7561.
7741	DAVR primary voltage	400 to 32000 V	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 secondary voltage	50 to 600 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 digital AVR).
7743	DAVR busbar primary voltage	400 to 32000 V	400 V	Decides the primary side of a voltage transformer to the busbar. (This is the transformer side that is in contact with the busbar).
7744	DAVR busbar secondary voltage	50 to 600 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 digital AVR).
7745	DAVR VT enable	OFF ON	OFF	When set to ON, the digital AVR expects voltage measurements on the busbar.
7746	DAVR AC config	0: Use AGC-4 AC setting 1: 2-phase (W-U) 2: 2-phase (V-W) 3: 3-phase (U-V-W)	0	Phase selection for the DAVR. See the **DVC 550 Designer's handbook** for more information.
7751	PWM threshold	0.00 to 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 to 100.00 %	35.00 %	Decides the upper limit of the start-on threshold function. When this limit has been reached, the

No.	Setting	Range	Factory setting	Description
				soft-start function will take action. The percentage is of nominal voltage.
7753	Soft-start ramp	0.1 to 120.0 s	2.0 s	Decides the slope of the soft-start function.
7761	DAVR warning	OFF ON	OFF	Enables the AGC-4 to receive warnings from the digital AVR.
7762	DAVR warning fail class	Warning Trip GB	Warning	Decides the fail class if a warning is sent from the digital AVR.
7763	DAVR trip	OFF ON	OFF	Enables the AGC-4 to receive trip alarms from the digital AVR.
7764	DAVR trip fail class	Warning Trip GB	Warning	Decides the fail class if a trip alarm is sent from the digital AVR.
7771	Knee set point percent of nominal frequency	70.0 to 100.0 %	96.0 %	Sets the knee set point, from which the digital AVR will lower the voltage set point.
7772	U/F slope	1.0 to 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 to 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.
7774	Soft voltage recovery	OFF ON	OFF	Enables the soft voltage recovery.
7775	Adjustment of Load Acceptance Module	70 to 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 to 10.0 %	2.0 %	Decides the slope of the Q droop compensation. A higher value allows more droop.
7782	U droop compensation	0.0 to 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 U line droop	Q load droop	Only one of the droop types can be enabled.
7791	I excitation reference for Dry Alternator mode	0.0 to 20.0 A	1.5 A	Decides the excitation current in Dry Alternator mode.
7792	I excitation reference for Close Before Excitation	0.0 to 0.5 A	0.0 A	Decides how much excitation is allowed in a Close Before

No.	Setting	Range	Factory setting	Description
				Excitation sequence. This is during the remanence phase.
7793	Magentization: Transformer excitation current limit	0.0 to 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 to 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 Magnetization Inductive motor	OFF	Makes it possible to have the stator current limitation functions disabled, only induction motor starting, or both induction motor starting and transformer excitation.
7801	PID factor	1 to 200	20	Makes it possible to make the AVR regulation faster or slower.
7803	Write all settings	OFF ON	OFF	When set to ON, AGC-4 will send all the relevant parameters to the digital AVR.
7804	DAVR bias range	1.0 to 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 digital AVR is controlled by AGC-4. • When set to OFF, the digital AVR can be controlled by EasyReg, and the digital AVR will not receive any parameters from AGC-4.
7806	DAVR bias analogue range	4 to 20 mA Pot 0 to 10 V	0 to 10 V	If the digital AVR uses analogue bias for regulation, this defines the type of analogue interfacing for the digital AVR. The analogue input on the digital AVR is hard coded to be at terminal AI1.
7811	PT100_1 threshold	50 to 200 °C	160 °C	Determines the maximum temperature of the winding in phase 1 of the alternator.
7812	PT100_2 threshold	50 to 200 °C	160 °C	Determines the maximum temperature of the winding in phase 2 of the alternator.
7813	PT100_3 threshold	50 to 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.

No.	Setting	Range	Factory setting	Description
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 to 100.0 s	0.0 s	A timer for an alarm for communication error to the digital AVR.
7832	DAVR communication error output A	Not used Relay 63	Not used	If the DAVR communication fails, it is possible to activate a relay.
7833	DAVR communication error output B	Not used Relay 63	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 digital AVR and AGC-4.
7835	DAVR communication error alarm fail class	Warning Trip GB	Warning	Decides what AGC-4 should do, if the DAVR communication alarm occurs.

3.3 Engine interface communication

3.3.1 Engine interface communication

7560 Engine I/F

No.	Setting	Range	Factory setting	Description
7561	Engine I/F	OFF Cummins QSX15 Cummins QSK23/45/60/78 Cummins QST30	OFF	Requires option H6. The setting affects the displayed data, but not the Modbus data (option H2).
		OFF DDEC EMR JDEC Iveco Perkins Caterpillar Volvo Penta Volvo Penta EMS2 Scania EMS Scania EMS 2 MDEC 2000/4000 M.302 MDEC 2000/4000 M.303 MTU ADEC Cummins Generic J1939 MTU J1939 Smart Connect PSI/Power Solutions Isuzu Kohler Volvo Penta EMS2.4 Scania EMS2 S8	OFF	J1939/ MTU ADEC/ MTU MDEC require option H5. MTU MDEC requires option H5 or H13. Please choose MDEC2000/4000 M.303 when M.201 or M.304 is required.
7562	EIC SA/ADEC ID	0 to 255	0	Engine ECU speed control source address.
7563	EIC Controls	OFF ON	ON	Parameter 7563 is for enabling the EIC commands transmission.
7564	EIC Auto view	OFF ON	OFF	When parameter 7564 is set to ON, up to 19 extra views (of 3 lines) are added to the 15 original V1 views (of 3 lines). These extra views display all the present engine communication values broadcast on this CAN communication when this function is set to ON.
7566	TSC1 SA	-1 to 255	-1	EIC speed/Torque control source address. If -1, the pre-programmed source address is used.
15090	EIC Start/Stop	OFF ON	OFF	When ON, this parameter has the same effect as activating the M-Logic *EIC Start/Stop enable* command. See **Option H5 H7 H12 H13** for more information.

3.3.2 Cab Message 1 source address

15030 CM1 (requires option H5)

No.	Setting		Range	Factory setting	Description
15030	Source address	Set point	-1 to 255	-1	If set as -1, the default for the selected protocol will be used. See **Option H5 H7 H12 H13** for more information.

3.3.3 Generator Control 1 source address

15040 GC1 (requires option H5)

No.	Setting		Range	Factory setting	Description
15040	Source address	Set point	-1 to 255	-1	If set as -1, the default for the selected protocol will be used. See **Option H5 H7 H12 H13** for more information.

3.3.4 EIC derate

7550 EIC derate

No.	Setting		Range	Factory setting	Description
7551	EIC derate	Enable	Off, On	Off	See the **Designer's reference handbook** for more information.

3.3.5 Caterpillar/Perkins

15060 EIC Relative Humidity (requires option H5)

No.	Setting		Range	Factory setting	Description
15061	EIC Relative Humidity	Set point	-100 to 100 %	50 %	See **Option H5 H7 H12 H13** for more information.
15062	EIC Relative Humidity	Timer	0 to 100 s	5 s	

3.3.6 Isuzu

15000 Shutdown during escape mode (requires option H5)

No.	Setting		Range	Factory setting	Description
15001	Escape mode engine shutdown	Set point for time threshold	1 to 25 min.	5 min.	See **Option H5 H7 H12 H13** for more information.
15002	Escape mode engine shutdown	Enable	OFF ON	OFF	

3.3.7 JCB

15020 JCB specific (requires option H5)

No.	Setting		Range	Factory setting	Description
15021	LiveLink selection	Set point	OFF JCB LiveLink	OFF	See **Option H5 H7 H12 H13** for more information.

3.3.8 Kohler

15010 ECU reset (requires option H5)

No.	Setting		Range	Factory setting	Description
15011	Reset time	Timer	0.0 to 300.0 s	5.0 s	See **Option H5 H7 H12 H13** for more information.
15012	Reset relay	Relay output A	Not used Option dependent	Not used	
15013	Reset relay	Relay output B	Not used Option dependent	Not used	
15014		Enable	OFF ON	OFF	

3.4 Mains setup

3.4.1 Mains setup

6070 Plant mode (Mains controller only)

No.	Setting	Range	Factory setting	Description
6071	Plant mode	Auto Mains Failure Peak shaving Fixed power Mains power export Load take over		This parameter can also be set from the utility software, *Application supervision, Plant settings*.

7000 Mains power

No.	Setting		Range	Factory setting	Description
7001	Mains power	Day	-20000 to 20000 kW	750 kW	Peak shaving/mains power export modes, set values in the AGC-4 Mains controller. Parameter 7001/7002 must be a positive value for mains power export or peak shaving mode. Parameter 7001/7002 must be a negative value for mains power import. Use menu 7260 to set up the transducer.
7002	Mains power	Night	-20000 to 20000 kW	1000 kW	
7003	Mains power	Scale	1 kW : 1 kW 1 kW : 10 kW 1 kW : 100 kW 1 kW : 1000 kW	1 kW : 1 kW	

7003 Mains power scaling

If you need a mains power set point of 100 MW, this does not fit in the range available in 7001. Configure the set point in 7001 as 10000 kW (10 MW), and use 1 kW : 10 kW in 7003.

7010 Daytime period

No.	Setting		Range	Factory setting	Description
7011	Daytime period	Start hour	0 to 23 h	8 h	Peak shaving/mains power export modes. The period outside the daytime period is defined as the night period.
7012	Daytime period	Start minute	0 to 59 min	0 min	
7013	Daytime period	Stop hour	0 to 23 h	16 h	
7014	Daytime period	Stop minute	0 to 59 min	0 min	

7020 Start generator

No.	Setting		Range	Factory setting	Description
7021	Start generator	Set point	5 to 100 %	80 %	Peak shaving/mains power export modes. The set point refers to parameter 7000 Mains power setting.
7022	Start generator	Timer	0.0 to 990.0 s	10.0 s	
7023	Start generator	Minimum load	0 to 100 %	5 %	

7030 Stop generator

No.	Setting		Range	Factory setting	Description
7031	Stop generator	Set point	0 to 80 %	60 %	Peak shaving/mains power export modes. The set point refers to parameter 7000 Mains power setting.
7032	Stop generator	Timer	0.0 to 990.0 s	30.0 s	

3.4.2 Test

7040 Test (Mains controller)

No.	Setting		Range	Factory setting	Description
7041	Test	Set point	1 to 20 000 kW	500 kW	Simple test: Engine run only. Load test: Parallel to mains. Full test: Disconnects mains.
7042	Test	Test time	0 to 999 min	5 min	
7043	Test	Return mode	Semi-auto mode Auto mode No mode change	Auto mode	
7044	Test	Test type	Simple test Load test Full test	Simple test	

3.4.3 Controller settings

7050 Fixed power settings (Genset controller)

No.	Setting		Range	Factory setting	Description
7051	Fixed power settings	Power	0 to 100 %	100 %	Fixed power parallel with mains settings. Visibility of these parameters depends on the genset mode selected in parameter 6070. For information on how parameter 7055 works, see Option A10.
7052	Fixed power settings	Cos phi	0.10 to 1.00 s	0.90	
7053	Fixed power settings	Cos phi	Inductive Capacitive	Inductive	
7054	Q control settings	Fixed Q set point	-100 to 100 %	0 %	
7055	Q control settings	Type	OFF Superior Fixed Q	OFF	

7050 Fixed power settings (Mains controller)

No.	Setting		Range	Factory setting	Description
7051	Fixed power settings	Power	0 to 20000 kW	500 kW	Fixed power parallel with mains settings. Visibility of these parameters depends on the mode selected in parameter 6070. For information on how parameter 7055 works, see Option A10.
7052	Fixed power settings	Cos phi	0.10 to 1.00 s	0.90	
7053	Fixed power settings	Cos phi	Inductive Capacitive	Inductive	
7054	Cos phi reference	Cos phi	OFF Fixed for DG(s) Fixed for imp/exp	OFF	
7055	Fixed power settings	Reference	1 kW : 1 kW 10 kW : 10 kW 100 kW : 100 kW 1000 kW : 1000 kW	1 kW : 1 kW	

3.4.4 Mains failure

7060 U Mains Failure

No.	Setting		Range	Factory setting	Description
7061	U Mains Failure	Failure delay	0.5 to 990.0 s	5.0 s	Parameters 7063 and 7064 relate to the nominal settings. Parameter 7066 refers to the mean value of the measured voltage.
7062	U Mains Failure	Mains OK delay	2 to 9900 s	60 s	
7063	U Mains Failure	U<	30 to 100 % of nominal voltage	90 %	
7064	U Mains Failure	U>	100 to 130 % of nominal voltage	110 %	
7065	U Mains Failure	Mains failure control	Start engine + open MB Start engine	Start engine + open MB	
7066	U Mains Failure	U unbalance	2 to 100 %	100 %	

7070 f Mains Failure

No.	Setting		Range	Factory setting	Description
7071	f Mains Failure	Failure delay	0.5 to 990.0 s	5.0 s	Parameters 7073 and 7074 relate to the nominal settings.
7072	f Mains Failure	Mains OK delay	2 to 9900 s	60 s	
7073	f Mains Failure	f<	80.0 to 100.0 % of nominal frequency	95.0 %	
7074	f Mains Failure	f>	100.0 to 120.0 % of nominal frequency	105.0 %	

7080 MB control

No.	Setting		Range	Factory setting	Description
7081	MB control	Mode shift	OFF ON	OFF	Mode shift allows switching to AMF mode.
7082	MB control	MB close delay	0.0 to 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 to 30.0 s	0.0 s	

7090 Mains failure hysteresis

No.	Setting		Range	Factory setting	Description
7091	Mains fail. hysteresis	Low volt. hysteresis	0 to 70 %	0 %	Hysteresis for when mains is healthy again.
7092	Mains fail. hysteresis	High volt. hysteresis	0 to 20 %	0 %	
7093	Mains fail. hysteresis	Low freq. hysteresis	0.0 to 20.0 %	0.0 %	
7094	Mains fail. hysteresis	High freq. hysteresis	0.0 to 20.0 %	0.0 %	

3.4.5 Y1(X1) droop curve

The parameter groups 7120, 7130 and 7140 are outdated.

Configure the Y1(X1) droop curve in the Utility Software (under Advanced Protection).

3.4.6 Y2(X2) droop curve

The parameter groups 7150, 7160, 7170 and 7180 are outdated.

Configure the Y2(X2) droop curve in the Utility Software (under Advanced Protection).

3.4.7 Power offset

7220 Power offset

No.	Setting		Range	Factory setting	Description
7221	Power offset 1	Set point	-20,000 to 20,000 kW	0 kW	Setup of power offset.
7222	Power offset 1	Enable	OFF ON	OFF	
7223	Power offset 2	Set point	-20,000 to 20,000 kW	0 kW	
7224	Power offset 2	Enable	OFF ON	OFF	
7225	Power offset 3	Set point	-20,000 to 20,000 kW	0 kW	
7226	Power offset 3	Enable	OFF ON	OFF	

3.4.8 Cos phi offset

7240 Cos phi offset

No.	Setting		Range	Factory setting	Description
7241	Cos phi offset 1	Set point	-0.8 to 0.8	0	Setup of cos phi offset.
7242	Cos phi offset 1	Enable	OFF ON	OFF	
7243	Cos phi offset 2	Set point	-0.8 to 0.8	0	
7244	Cos phi offset 2	Enable	OFF ON	OFF	
7245	Cos phi offset 3	Set point	-0.8 to 0.8	0	
7246	Cos phi offset 3	Enable	OFF ON	OFF	

3.4.9 Mains ATS function

7250 Mains ATS

No.	Setting		Range	Factory setting	Description
7251	Mains ATS	Set point	0 1	0	Setup of Mains ATS Function. 0 = ON; 1 = OFF.
7252	Mains ATS	Timer	0 to 30 s	0.5 s	

3.4.10 Mains transducers

INFO
Scaling (parameter 9030) affects the range and defaults for the following parameters*. The values below are based on **100V-25000V**.

7260 Mains power transducer

No.	Setting		Range	Factory setting	Description
7261	Mains power	Transducer max.	0 to 20 000 kW*	0 kW	Equal to max. transducer output.
7262	Mains power	Transducer min.	-20 000 to 0 kW*	0 kW	Equal to min. transducer output.
7263	Mains power	Ana. input	Multi-input 102 (transducer) 3ph CT power meas CIO 308 1.14 (transducer)	Multi-input 102 (transducer)	M-Logic *Output, Command, Mains P measurement for droop reference* activates the selection in 7263 as reference for grid support droop, else the 3-phase internal measurement is used as droop reference.

7270 Mains reactive power transducer

No.	Setting		Range	Factory setting	Description
7271	Mains reactive power	Transducer max.	-20 000 to 20 000 kvar*	0 kvar	Equal to max. transducer output.
7272	Mains reactive power	Transducer min.	-20 000 to 20 000 kvar*	0 kvar	Equal to min. transducer output.
7273	Mains reactive power	Ana. input	Multi-input 102 CIO 308 1.17	Multi-input 102	M-Logic *Output, Command, Mains Q measurement for droop reference* activates the selection in 7273 as reference for grid support droop, else the 3-phase internal measurement is used as droop reference.

7280 Mains voltage transducer

No.	Setting		Range	Factory setting	Description
7281	Mains voltage	Transducer max.	0 to 25 000 V*	0 V	Equal to max. transducer output.
7282	Mains voltage	Transducer min.	0 to 25 000 V*	0 V	Equal to min. transducer output.
7283	Mains voltage	Ana. input	Multi-input 102 CIO 308 1.20	Multi-input 102	M-Logic *Output, Command, Mains U measurement for droop reference* activates the selection in 7283 as reference for grid support droop, else the 3-phase internal measurement is used as droop reference.
7284	Mains voltage	Ext. nominal voltage	100 to 25000 V*	400 V*	

3.5 Power management setup

3.5.1 Power management general setup

8020 PM config (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8021	PM config	Enable	Remote Local	Remote	Remote and local 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 controllers 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	
8023	Easy Connect	Enable	OFF ON	OFF	

8110 Running hours (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8111	Running hours	Priority update	1 to 20.000 hrs	175 hrs	If parameter 8113 is ON, the trip counter in the controller is reset to 0 hours.
8112	Running hours	Type	Total Trip Load profiled	Total	See **Option G4 G5 G8 Power management** for more information.
8113	Running hours	Trip counter	OFF ON	OFF	

8140 Stop non-connected DGs (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8141	Stop non-con. DGs	Delay	10.0 to 600.0 s	60.0 s	Stop timer for non-connected gensets.

8180 Mains config. (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8181	MB failure start	Enable	OFF ON	OFF	Only available in AGC-4 mains.
8182	Parallel	Enable	OFF ON	OFF	
8183	No break transfer	Enable	OFF ON	OFF	
8184	Auto switch	Select	OFF Static section Dynamic section All sections	OFF	
8185	Run type	Select	Run all mains Run one mains	Run one mains	
8186	Run type	ID to run	17 to 32	17	

8190 Tie breaker (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8191	Tie breaker	TB open point	0 to 20,000 kW	50 kW	Only available in AGC-4 mains.
8192	Tie breaker	Power capacity	1 to 20,000 kW	50 kW	
8193	Tie breaker	P. cap. overrule	5.0 to 999.9 s	30.0 s	
8194	Tie breaker	P. cap. overrule	OFF ON	OFF	
8195	Tie breaker	Load time	0.0 to 30.0 s	0.0 s	

INFO
Parameter groups 8200, 8210, 8930 and 8940 are outdated. Use an ALC-4 to control heavy consumers.

8270 TB power (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8271	TB power	Transducer max.	10 to 20,000 kW	0 kW	Only available in AGC-4 mains.
8272	TB power	Transducer min.	-20,000 kW to 0 kW	0 kW	
8273	Deload TB BSync	Enable	OFF ON	OFF	If the tie breaker needs to be deloaded before opening, a power transducer must be connected to multi-input 105.

8280 Asymmetric load sharing (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8281	Asymmetric LS	Set point	1 to 100 %	80 %	For more information refer to the option G4/G5 manual.
8282	Asymmetric LS	Enable	OFF ON	OFF	

8290 Detection of BB measurement failure (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8291	BB meas failure	Timer	5.0 to 999.9 s	10.0 s	If multiple DG controllers are connected to measure on the same BB, and the BB measurement on the next prioritised DG is not available, this alarm will exclude the specific DG and start the DG with next priority.
8292	BB meas failure	Relay output A	Not used (option dependent)	Not used	
8293	BB meas failure	Relay output B	Not used (option dependent)	Not used	
8294	BB meas failure	Enable	OFF ON	ON	
8295	BB meas failure	Fail class	F1 to F4	F4 (Trip + stop)	

8921 N+X setup (previously secured mode) (requires option G4, G5 or G8)

No.	Setting	Range	Factory setting	Description
8921	N + X setup	N + X OFF N + 1 extra DG ... N + 8 extra DGs	N + X OFF	Select how much spinning reserve to connect. For more information, see **Option G4 G5 and G8 Power management**.

8920 Multi-start (requires option G4, G5 or G8)

No.	Setting	Range	Factory setting	Description
8922	Multi-start set 1	Auto calculation Start 1 DG ... Start 32 DG	Auto calculation	Select the multi-start set points. For more information, see **Option G4 G5 and G8 Power management**.
8923	Min. run set 1	0 to 32	1	
8924	Multi-start conf	Multi-start set 1 Multi-start set 2	Multi-start set 1	
8925	Multi-start set point 2	Auto calculation Start 1 DG ... Start 32 DG	Start 16 DG	
8926	Min. run set 2	0 to 32	1	

8990 BTB closed ring (requires option G4 or G5)

No.	Setting		Range	Factory setting	Description
8991	Closed ring	Set point	OFF ON	OFF	This parameter determines whether it is allowed to close all BTBs in a ring bus at the same time.

3.5.2 Available power

8220 Available power 1 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8221	Avail. power 1	Set point	10 to 20,000 kW	1000 kW	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 to 999.9 s	10.0 s	
8223	Avail. power 1	Relay output A	Not used (option dependent)	Not used	
8224	Avail. power 1	Relay output B	Not used (option dependent)	Not used	
8225	Avail. power 1	Enable	OFF ON	OFF	

8230 Available power 2 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8231	Avail. power 2	Set point	10 to 20,000 kW	1000 kW	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 to 999.9 s	10.0 s	
8233	Avail. power 2	Relay output A	Not used (option dependent)	Not used	
8234	Avail. power 2	Relay output B	Not used (option dependent)	Not used	
8235	Avail. power 2	Enable	OFF ON	OFF	

8240 Available power 3 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8241	Avail. power 3	Set point	10 to 20,000 kW	1000 kW	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 to 999.9 s	10.0 s	
8243	Avail. power 3	Relay output A	Not used (option dependent)	Not used	
8244	Avail. power 3	Relay output B	Not used (option dependent)	Not used	
8245	Avail. power 3	Enable	OFF ON	OFF	

8250 Available power 4 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8251	Avail. power 4	Set point	10 to 20,000 kW	1000 kW	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 to 999.9 s	10.0 s	
8253	Avail. power 4	Relay output A	Not used (option dependent)	Not used	
8254	Avail. power 4	Relay output B	Not used (option dependent)	Not used	
8255	Avail. power 4	Enable	OFF ON	OFF	

8260 Available power 5 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8261	Avail. power 5	Set point	10 to 20,000 kW	1000 kW	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 to 999.9 s	10.0 s	
8263	Avail. power 5	Relay output A	Not used (option dependent)	Not used	
8264	Avail. power 5	Relay output B	Not used (option dependent)	Not used	
8265	Avail. power 5	Enable	OFF ON	OFF	

3.5.3 Load-dependent start and stop

8000 Load-dependent start (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8001	Load dep. start	P set point	1 to 20,000 kW	100 kW	*Load-dependent start minimum load range and default depend on the scaling set in parameter 9030.
8002	Load dep. start	S set point	1 to 20,000 kVA	100 kVA	
8003	Load dep. start	% set point	1 to 100 %	90 %	
8004	Load dep. start	Timer	0.0 to 990.0 s	10.0 s	
8005	Load dep. start	Min. load	0 to 20,000 kW*	20 kW*	

8010 Load-dependent stop (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8011	Load dep. stop	P set point	1 to 20,000 kW	200 kW	Parameter 8015 set to ON will block the load dependent stop if a heavy consumer (from a controller running older software) is connected.
8012	Load dep. stop	S set point	1 to 20,000 kVA	200 kVA	
8013	Load dep. stop	% set point	1 to 100 %	70 %	
8014	Load dep. stop	Timer	0.0 to 990.0 s	30.0 s	
8015	Load dep. stop	Select	Blocked OFF Blocked ON	Blocked ON	

8300 Settings for load-dependent start (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8301	Ld. start limit P 2	Set point	1 to 20,000 kW	100 kW	
8302	Ld. start limit S 2	Set point	1 to 20,000 KVA	100 kVA	
8303	Ld. start limit % 2	Set point	1 to 100 %	90 %	
8304	Ld. start timer 2	Timer	0 to 990 s	10 s	
8305	Ld. start timer 2	Set point	OFF ON	OFF	

8310 Settings for load-dependent stop (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8311	Ld. stop limit P 2	Set point	1 to 20,000 kW	200 kW	
8312	Ld. stop limit S 2	Set point	1 to 20,000 KVA	200 kVA	
8313	Ld. stop limit % 2	Set point	1 to 100 %	70 %	
8314	Ld. stop timer 2	Timer	0 to 990 s	30 s	
8315	Ld. stop timer 2	Set point	OFF ON	OFF	

8880 Load-dependent start/stop calculation (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8881	Start/stop calc.	S1	kW kVA	kW	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	

INFO
Parameter group 8170 is outdated. Use the load-dependent start-stop timers for fuel optimisation.

3.5.4 Priority selection

8030 Priority selection (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8031	Priority select.	Priority	Manual abs. Running hours abs. Fuel optimisation Manual rel. Running hours rel. Fuel optimization + Running hours	Manual abs.	Setup of priorities.

8080 Priority 1 to 5 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8081	Priority 1	ID	1 to 32	1	Parameter 8086 is only applicable if *Manual* is selected in parameter 8031. Parameter 8086 resets itself to OFF automatically once the new settings have been transmitted.
8082	Priority 2	ID	1 to 32	2	
8083	Priority 3	ID	1 to 32	3	
8084	Priority 4	ID	1 to 32	4	
8085	Priority 5	ID	1 to 32	5	
8086	Transmit new priority	Enable	OFF Manual update Running hour update	OFF	

8090 Priority 6 to 11 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8091	Priority 6	ID	1 to 32	6	
8092	Priority 7	ID	1 to 32	7	
8093	Priority 8	ID	1 to 32	8	
8094	Priority 9	ID	1 to 32	9	
8095	Priority 10	ID	1 to 32	10	
8096	Priority 11	ID	1 to 32	11	

8100 Priority 12 to 17 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8101	Priority 12	ID	1 to 32	12	
8102	Priority 13	ID	1 to 32	13	
8103	Priority 14	ID	1 to 32	14	
8104	Priority 15	ID	1 to 32	15	
8105	Priority 16	ID	1 to 32	16	
8106	Priority 17	ID	1 to 32	17	

8320 Priority 18 to 23 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8321	Priority 18	ID	1 to 32	18	
8322	Priority 19	ID	1 to 32	19	
8323	Priority 20	ID	1 to 32	20	
8324	Priority 21	ID	1 to 32	21	
8325	Priority 22	ID	1 to 32	22	
8326	Priority 23	ID	1 to 32	23	

8330 Priority 24 to 29 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8331	Priority 24	ID	1 to 32	24	
8332	Priority 25	ID	1 to 32	25	
8333	Priority 26	ID	1 to 32	26	
8334	Priority 27	ID	1 to 32	27	
8335	Priority 28	ID	1 to 32	28	
8336	Priority 29	ID	1 to 32	29	

8340 Priority 30 to 32 (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8341	Priority 30	ID	1 to 32	30	
8342	Priority 31	ID	1 to 32	31	
8343	Priority 32	ID	1 to 32	32	

3.5.5 Internal CAN protocol

The parameters in menu 9170 are described under the jump menus (Internal CAN protocol).

3.5.6 Power management internal communication

7530 Internal communication ID

No.	Setting		Range	Factory setting	Description
7531	Int. comm. ID	ID	1 to 32	1	

3.5.7 Ground relay

8120 Ground relay (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8121	Ground relay	Output A	Not used (option dependent)	Not used	Selection of relay output for start point grounding (parameters 8121 and 8122). Parameter 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 (option dependent)	Not used	
8123	Ground relay	Enable	OFF ON	OFF	
8124	Ground relay	Timer	1 to 30 s	1 s	
8125	Ground relay	Fail class	F1 to F9	F3 (Trip GB)	
8126	Ground relay	Type	Continuous Pulse	Continuous	

8130 Ground relay position (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8131	Gnd open fail	Timer	1 to 30 s	1 s	Alarms related to the position of the ground failure breaker.
8132	Gnd open fail	Fail class	F1 to F9	F3 (Trip GB)	
8133	Gnd close fail	Timer	1 to 30 s	1 s	
8134	Gnd close fail	Fail class	1 to 30 s	F1 (Block)	
8135	Gnd pos fail	Timer	1 to 30 s	1 s	
8136	Gnd pos fail	Fail class	F1 to F9	F3 (Trip GB)	

8150 Ground relay control settings (requires option G4, G5 or G8)

No.	Setting		Range	Factory setting	Description
8151	Gnd close condition	Configuration	Hz/V OK RPM MPU level RPM EIC level Start active	Hz/V OK	Configuration for closing and opening of the ground relay.
8152	Gnd open condition	Configuration	After cooldown After extended stop	After cooldown	
8153	Gnd close RPM	Configuration	0 to 4000 RPM	1000 RPM	

3.6 External communication setup

3.6.1 CAN port setup

7840 CAN select

No.	Setting	Range	Factory setting	Description
7841	CAN A	0, 2, 3, 6	PMS Primary	0. Off 1. External I/O 2. PMS Primary* 3. EIC 6. PMS Secondary* 11. Ext. modules DEIF *Requires option G4, G5 or G8.
7842	CAN B	0, 2, 3, 6	PMS Secondary	
7843	CAN C	0, 1, 3, 11	Off	
7844	CAN D	0, 1, 3, 11	Off	
7845	CAN E	0, 1, 3, 11	EIC	
7846	CAN F	0, 1, 3, 11	Off	

3.6.2 Modbus/Profibus communication

7500 Communication control (requires option H2 or H3)

No.	Setting		Range	Factory setting	Description
7501	Comm. control	Power	OFF ON	OFF	These settings must be ON if commands are to be sent via Modbus communication. When enabled, the Modbus values 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	Cos phi	OFF ON	OFF	
7505	Comm. control	Reactive power	OFF ON	OFF	

7510 External communication (requires option H2 or H3)

No.	Setting		Range	Factory setting	Description
7511	Ext. communication	ID	1 to 247	1	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	Mode	RTU ASCII	RTU	

3.6.3 External I/O communication setup

7890 CIO configuration

No.	Setting	Range	Factory setting	Description
7891	CIO enable	OFF ON	OFF	Enabling CIO communication.

7950 KL320x config (requires option H8)

No.	Setting		Range	Factory setting	Description
7951	KL320x config	Module 1	Pt100 (2 or 3 wire) Pt1000 (2 or 3 wire) 10-3200 Ω (2 wire) 10-1200 Ω (2 wire)	Pt100 (2 or 3 wire)	Selection for analogue modules. The selections for KL 3202/3204 cannot be changed. After changing module type, the parameter list in the PC USW must be uploaded again.
7952	KL320x config	Module 2			
7953	KL320x config	Module 3			
7954	KL320x config	Module 4			

7970 CAN 1 (requires option H8.2)

No.	Setting		Range	Factory setting	Description
7971	CAN 1	Type	OFF Beckhoff comm.	OFF	This menu is only active if option H8.2 is activated. After changing type, the parameter list in the PC USW must be uploaded again. Menu 7974 is for reestablishing communication after a fault/ disconnection.
7972	CAN 1	Baud	50k Baud 125k Baud 250k Baud	125k Baud	
7973	CAN 1	ID	10 to 64	10	
7974	CAN 1	Reset	OFF ON	OFF	

7980 CAN 2 (requires option H8.8)

No.	Setting		Range	Factory setting	Description
7981	CAN 2	Type	OFF Beckhoff comm.	OFF	This menu is only active if option H8.8 is activated. After changing type, the parameter list in the PC USW must be uploaded again. Menu 7984 is for reestablishing communication after a fault/ disconnection.
7982	CAN 2	Baud	50k Baud 125k Baud 250k Baud	125k Baud	
7983	CAN 2	ID	10 to 64	10	
7984	CAN 2	Reset	OFF ON	OFF	

3.7 RMI inputs

3.7.1 RMI 102

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

10460 RMI 1 type

No.	Setting		Range	Factory setting	Description
10460	RMI type 1	Type	Sensor type 1 Sensor type 2 Sensor type 3 Configurable RMI	Sensor type 1	

10470 to 10620 Configurable RMI 102 curve

No.	Setting		Range	Factory setting	Description
10470	RMI 1 input set point 1	Set point	0 to 1800 Ω	10 Ω	
10480	RMI 1 output set point 1	Set point	-49 to 482	40	
10490	RMI 1 input set point 2	Set point	0 to 1800 Ω	44.9 Ω	
10500	RMI 1 output set point 2	Set point	-49 to 482	50	
10510	RMI 1 input set point 3	Set point	0 to 1800 Ω	81 Ω	
10520	RMI 1 output set point 3	Set point	-49 to 482	60	
10530	RMI 1 input set point 4	Set point	0 to 1800 Ω	134.7 Ω	
10540	RMI 1 output set point 4	Set point	-49 to 482	80	
10550	RMI 1 input set point 5	Set point	0 to 1800 Ω	184 Ω	
10560	RMI 1 output set point 5	Set point	-49 to 482	100	
10570	RMI 1 input set point 6	Set point	0 to 1800 Ω	200 Ω	
10580	RMI 1 output set point 6	Set point	-49 to 482	110	
10590	RMI 1 input set point 7	Set point	0 to 1800 Ω	210 Ω	
10600	RMI 1 output set point 7	Set point	-49 to 482	115	
10610	RMI 1 input set point 8	Set point	0 to 1800 Ω	220 Ω	
10620	RMI 1 output set point 8	Set point	-49 to 482	120	

3.7.2 RMI 105

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

10630 RMI 1 type

No.	Setting		Range	Factory setting	Description
10630	RMI type 1	Type	Sensor type 1 Sensor type 2 Sensor type 3 Configurable RMI	Sensor type 1	

10640 to 10790 Configurable RMI 105 curve

No.	Setting		Range	Factory setting	Description
10640	RMI 1 input set point 1	Set point	0 to 1800 Ω	10 Ω	
10650	RMI 1 output set point 1	Set point	-49 to 482	40	
10660	RMI 1 input set point 2	Set point	0 to 1800 Ω	44.9 Ω	
10670	RMI 1 output set point 2	Set point	-49 to 482	50	
10680	RMI 1 input set point 3	Set point	0 to 1800 Ω	81 Ω	
10690	RMI 1 output set point 3	Set point	-49 to 482	60	
10700	RMI 1 input set point 4	Set point	0 to 1800 Ω	134.7 Ω	
10710	RMI 1 output set point 4	Set point	-49 to 482	80	
10720	RMI 1 input set point 5	Set point	0 to 1800 Ω	184 Ω	
10730	RMI 1 output set point 5	Set point	-49 to 482	100	
10740	RMI 1 input set point 6	Set point	0 to 1800 Ω	200 Ω	
10750	RMI 1 output set point 6	Set point	-49 to 482	110	
10760	RMI 1 input set point 7	Set point	0 to 1800 Ω	210 Ω	
10770	RMI 1 output set point 7	Set point	-49 to 482	115	
10780	RMI 1 input set point 8	Set point	0 to 1800 Ω	220 Ω	
10790	RMI 1 output set point 8	Set point	-49 to 482	120	

3.7.3 RMI 108

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

10800 RMI 1 type

No.	Setting		Range	Factory setting	Description
10800	RMI type 1	Type	Sensor type 1 Sensor type 2 Sensor type 3 Configurable RMI	Sensor type 1	

10810 to 10960 Configurable RMI 108 curve

No.	Setting		Range	Factory setting	Description
10810	RMI 1 input set point 1	Set point	0 to 1800 Ω	10 Ω	
10820	RMI 1 output set point 1	Set point	-49 to 482	40	
10830	RMI 1 input set point 2	Set point	0 to 1800 Ω	44.9 Ω	
10840	RMI 1 output set point 2	Set point	-49 to 482	50	
10850	RMI 1 input set point 3	Set point	0 to 1800 Ω	81 Ω	
10860	RMI 1 output set point 3	Set point	-49 to 482	60	
10870	RMI 1 input set point 4	Set point	0 to 1800 Ω	134.7 Ω	
10880	RMI 1 output set point 4	Set point	-49 to 482	80	
10890	RMI 1 input set point 5	Set point	0 to 1800 Ω	184 Ω	
10900	RMI 1 output set point 5	Set point	-49 to 482	100	
10910	RMI 1 input set point 6	Set point	0 to 1800 Ω	200 Ω	
10920	RMI 1 output set point 6	Set point	-49 to 482	110	
10930	RMI 1 input set point 7	Set point	0 to 1800 Ω	210 Ω	
10940	RMI 1 output set point 7	Set point	-49 to 482	115	
10950	RMI 1 input set point 8	Set point	0 to 1800 Ω	220 Ω	
10960	RMI 1 output set point 8	Set point	-49 to 482	120	

3.7.4 Multi-input selections 102, 105, 108

10970 Engineering units

No.	Setting	Range	Factory setting	Description
10970	Engineering units	Bar/Celsius Psi/Fahrenheit	Bar/Celsius	

10980 Multi-input configuration 102

No.	Setting	Range	Factory setting	Description
10980	Multi-input configuration 102	4 to 20 mA 0 to 40 V DC Pt100 Pt1000 RMI oil pressure RMI water temp RMI fuel level Binary	0 to 40 V DC	

10990 Multi-input configuration 105

No.	Setting	Range	Factory setting	Description
10990	Multi-input configuration 105	4 to 20 mA 0 to 40 V DC Pt100 Pt1000 RMI oil pressure RMI water temp RMI fuel level Binary	0 to 40 V DC	

11000 Multi-input configuration 108

No.	Setting	Range	Factory setting	Description
11000	Multi-input configuration 108	4 to 20 mA 0 to 40 V DC Pt100 Pt1000 RMI oil pressure RMI water temp RMI fuel level Binary	0 to 40 V DC	

3.7.5 Multi-input selections, option M16.6

11120 Multi-input configuration 91 (requires option M16.6)

No.	Setting	Range	Factory setting	Description
11120	Multi-input configuration 91	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

11130 Multi-input configuration 93 (requires option M16.6)

No.	Setting	Range	Factory setting	Description
11130	Multi-input configuration 93	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

11140 Multi-input configuration 95 (requires option M16.6)

No.	Setting	Range	Factory setting	Description
11140	Multi-input configuration 95	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

11150 Multi-input configuration 97 (requires option M16.6)

No.	Setting	Range	Factory setting	Description
11150	Multi-input configuration 97	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

3.7.6 Multi-input selections, option M16.8

11160 Multi-input configuration 127 (requires option M16.8)

No.	Setting	Range	Factory setting	Description
11160	Multi-input configuration 127	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

11170 Multi-input configuration 129 (requires option M16.8)

No.	Setting	Range	Factory setting	Description
11170	Multi-input configuration 129	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

11180 Multi-input configuration 131 (requires option M16.8)

No.	Setting	Range	Factory setting	Description
11180	Multi-input configuration 131	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

11190 Multi-input configuration 133 (requires option M16.8)

No.	Setting	Range	Factory setting	Description
11190	Multi-input configuration 133	4 to 20 mA 0 to 5 V DC Pt100	0 to 5 V DC	

3.7.7 4-20 mA input scaling

11010 4 to 20 mA input scale 102

No.	Setting		Range	Factory setting	Description
11010	4-20 mA input scale 102	Set point	No decimals Two decimals	No decimals	Selecting *Enable* and writing the new set point will scale the associated min., max. and value automatically.
		Enable	OFF ON	OFF	

INFO
The same settings applies to menus 11020-11110.

3.7.8 Parameter ID

11200 Parameter ID

No.	Setting		Range	Factory setting	Description
11201	Parameter ID	Set point	*Insert text*	*Insert text*	Setup of parameter ID.
11202	Parameter ID	Password level	Basic Customer Service	Customer	

3.8 External digital outputs

3.8.1 External digital outputs (requires option H8)

12790 Ext. dig. out 1 (requires option H8)

No.	Setting		Range	Factory setting	Description
12790	Ext. dig. out 1	Function	Alarm relay ND Limit Alarm relay NE	Alarm relay ND	
		OFF delay	0.0 to 999.9 s	5.0 s	

INFO
The same settings applies to menus 12800 to 12940.

3.8.2 External module status

12950 External module status (requires option H8)

No.	Setting	Range	Factory setting	Description
12950	Ext. module 0 STATUS	- 32768 to 32767		This is a number read in the external module and displayed in the USW only. Please refer to option H8 description for details.

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

3.8.3 Supervision

The following menus define the data used for the *Supervision* page in the utility software.

13000 Fuel consumption

No.	Setting		Range	Factory setting	Description
13000	F. cons. 0 % load	Set point	0 to 3000 l/h	2 l/h	
13001	F. cons. 50 % load	Set point	0 to 3000 l/h	114.8 l/h	
13002	F. cons. optimum load	Set point	0 to 3000 l/h	168.7 l/h	
13003	F. cons. 100 % load	Set point	0 to 3000 l/h	228.5 l/h	
13004	Optimum load	Set point	51 to 99 %	75 %	
13005	Fuel rate expected	Enable	OFF ON	OFF	Parameter 13005 activates display of the expected fuel rate in the utility software Supervision page.

13010 Oil pressure, coolant temp, fuel level input

No.	Setting		Range	Factory setting	Description
13010	Oil pressure input	Set point	Multi-in 102 Multi-input 105 Multi-input 108 Auto detection EIC oil pressure	Auto detection	
13011	Cool water input	Set point	Multi-in 102 Multi-input 105 Multi-input 108 Auto detection EIC oil pressure	Auto detection	
13012	Fuel level input	Set point	Multi-in 102 Multi-input 105 Multi-input 108 Auto detection EIC oil pressure	Auto detection	

3.8.4 AC average

The following menus define the data used for the *AC average* page in the utility software. Note that these menus are only available in the utility software.

14000 Average generator over-voltage L-L 1

No.	Setting		Range	Factory setting	Description
14001	Avg. G U> L-L 1	Set point	100.0 to 120.0 %	103.0 %	
14002	Avg. G U> L-L 1	Timer	0.1 to 100.0 s	10.0 s	
14003	Avg. G U> L-L 1	Relay output A	Not used Option dependent	Not used	
14004	Avg. G U> L-L 1	Relay output B	Not used Option dependent	Not used	
14005	Avg. G U> L-L 1	Enable	OFF ON	OFF	
14006	Avg. G U> L-L 1	Fail class	F1 to F9	F2 (Warning)	

14010 Average generator over-voltage L-L 2

No.	Setting		Range	Factory setting	Description
14011	Avg. G U> L-L 2	Set point	100.0 to 120.0 %	105.0 %	
14012	Avg. G U> L-L 2	Timer	0.1 to 100.0 s	5.0 s	
14013	Avg. G U> L-L 2	Relay output A	Not used Option dependent	Not used	
14014	Avg. G U> L-L 2	Relay output B	Not used Option dependent	Not used	

No.	Setting		Range	Factory setting	Description
14015	Avg. G U> L-L 2	Enable	OFF ON	OFF	
14016	Avg. G U> L-L 2	Fail class	F1 to F9	F2 (Warning)	

14020 Average generator under-voltage L-L 1

No.	Setting		Range	Factory setting	Description
14021	Avg. G U< L-L 1	Set point	100.0 to 120.0 %	97.0 %	
14022	Avg. G U< L-L 1	Timer	0.1 to 100.0 s	10.0 s	
14023	Avg. G U< L-L 1	Relay output A	Not used Option dependent	Not used	
14024	Avg. G U< L-L 1	Relay output B	Not used Option dependent	Not used	
14025	Avg. G U< L-L 1	Enable	OFF ON	OFF	
14026	Avg. G U< L-L 1	Fail class	F1 to F9	F2 (Warning)	

14030 Average generator under-voltage L-L 2

No.	Setting		Range	Factory setting	Description
14031	Avg. G U< L-L 2	Set point	100.0 to 120.0 %	95.0 %	
14032	Avg. G U< L-L 2	Timer	0.1 to 100.0 s	5.0 s	
14033	Avg. G U< L-L 2	Relay output A	Not used Option dependent	Not used	
14034	Avg. G U< L-L 2	Relay output B	Not used Option dependent	Not used	
14035	Avg. G U< L-L 2	Enable	OFF ON	OFF	
14036	Avg. G U< L-L 2	Fail class	F1 to F9	F2 (Warning)	

14040 Average generator over-voltage L-N 1

No.	Setting		Range	Factory setting	Description
14041	Avg. G U> L-N 1	Set point	100.0 to 120.0 %	103.0 %	
14042	Avg. G U> L-N 1	Timer	0.1 to 100.0 s	10.0 s	
14043	Avg. G U> L-N 1	Relay output A	Not used Option dependent	Not used	

No.	Setting		Range	Factory setting	Description
14044	Avg. G U> L-N 1	Relay output B	Not used Option dependent	Not used	
14045	Avg. G U> L-N 1	Enable	OFF ON	OFF	
14046	Avg. G U> L-N 1	Fail class	F1 to F9	F2 (Warning)	

14050 Average generator over-voltage L-N 2

No.	Setting		Range	Factory setting	Description
14051	Avg. G U> L-N 2	Set point	100.0 to 120.0 %	105.0 %	
14052	Avg. G U> L-N 2	Timer	0.1 to 100.0 s	5.0 s	
14053	Avg. G U> L-N 2	Relay output A	Not used Option dependent	Not used	
14054	Avg. G U> L-N 2	Relay output B	Not used Option dependent	Not used	
14055	Avg. G U> L-N 2	Enable	OFF ON	OFF	
14056	Avg. G U> L-N 2	Fail class	F1 to F9	F2 (Warning)	

14060 Average generator under-voltage L-N 1

No.	Setting		Range	Factory setting	Description
14061	Avg. G U< L-N 1	Set point	100.0 to 120.0 %	97.0 %	
14062	Avg. G U< L-N 1	Timer	0.1 to 100.0 s	10.0 s	
14063	Avg. G U< L-N 1	Relay output A	Not used Option dependent	Not used	
14064	Avg. G U< L-N 1	Relay output B	Not used Option dependent	Not used	
14065	Avg. G U< L-N 1	Enable	OFF ON	OFF	
14066	Avg. G U< L-N 1	Fail class	F1 to F9	F2 (Warning)	

14070 Average generator under-voltage L-N 2

No.	Setting		Range	Factory setting	Description
14071	Avg. G U< L-N 2	Set point	100.0 to 120.0 %	95.0 %	
14072	Avg. G U< L-N 2	Timer	0.1 to 100.0 s	5.0 s	

No.	Setting		Range	Factory setting	Description
14073	Avg. G U< L-N 2	Relay output A	Not used Option dependent	Not used	
14074	Avg. G U< L-N 2	Relay output B	Not used Option dependent	Not used	
14075	Avg. G U< L-N 2	Enable	OFF ON	OFF	
14076	Avg. G U< L-N 2	Fail class	F1 to F9	F2 (Warning)	

14080 Average generator over-frequency 1

No.	Setting		Range	Factory setting	Description
14081	Avg. G f> 1	Set point	100.0 to 120.0 %	103.0 %	
14082	Avg. G f> 1	Timer	0.1 to 100.0 s	10.0 s	
14083	Avg. G f> 1	Relay output A	Not used Option dependent	Not used	
14084	Avg. G f> 1	Relay output B	Not used Option dependent	Not used	
14085	Avg. G f> 1	Enable	OFF ON	OFF	
14086	Avg. G f> 1	Fail class	F1 to F9	F2 (Warning)	

14090 Average generator over-frequency 2

No.	Setting		Range	Factory setting	Description
14091	Avg. G f> 2	Set point	100.0 to 120.0 %	105.0 %	
14092	Avg. G f> 2	Timer	0.1 to 100.0 s	5.0 s	
14093	Avg. G f> 2	Relay output A	Not used Option dependent	Not used	
14094	Avg. G f> 2	Relay output B	Not used Option dependent	Not used	
14095	Avg. G f> 2	Enable	OFF ON	OFF	
14096	Avg. G f> 2	Fail class	F1 to F9	F2 (Warning)	

14100 Average generator under-frequency 1

No.	Setting		Range	Factory setting	Description
14101	Avg. G f< 1	Set point	100.0 to 120.0 %	97.0 %	
14102	Avg. G f< 1	Timer	0.1 to 100.0 s	10.0 s	
14103	Avg. G f< 1	Relay output A	Not used Option dependent	Not used	
14104	Avg. G f< 1	Relay output B	Not used Option dependent	Not used	
14105	Avg. G f< 1	Enable	OFF	OFF	

No.	Setting		Range	Factory setting	Description
			ON		
14106	Avg. G f< 1	Fail class	F1 to F9	F2 (Warning)	

14110 Average generator under-frequency 2

No.	Setting		Range	Factory setting	Description
14111	Avg. G f< 2	Set point	100.0 to 120.0 %	95.0 %	
14112	Avg. G f< 2	Timer	0.1 to 100.0 s	5.0 s	
14113	Avg. G f< 2	Relay output A	Not used Option dependent	Not used	
14114	Avg. G f< 2	Relay output B	Not used Option dependent	Not used	
14115	Avg. G f< 2	Enable	OFF ON	OFF	
14116	Avg. G f< 2	Fail class	F1 to F9	F2 (Warning)	

14120 Average over-current 1

No.	Setting		Range	Factory setting	Description
14121	Avg. I> 1	Set point	50.0 to 200.0 %	115.0 %	
14122	Avg. I> 1	Timer	0.1 to 3200.0 s	10.0 s	
14123	Avg. I> 1	Relay output A	Not used Option dependent	Not used	
14124	Avg. I> 1	Relay output B	Not used Option dependent	Not used	
14125	Avg. I> 1	Enable	OFF ON	OFF	
14126	Avg. I> 1	Fail class	F1 to F9	F2 (Warning)	

14130 Average over-current 2

No.	Setting		Range	Factory setting	Description
14131	Avg. I> 2	Set point	50.0 to 200.0 %	120.0 %	
14132	Avg. I> 2	Timer	0.1 to 3200.0 s	5.0 s	
14133	Avg. I> 2	Relay output A	Not used Option dependent	Not used	
14134	Avg. I> 2	Relay output B	Not used Option dependent	Not used	
14135	Avg. I> 2	Enable	OFF ON	OFF	
14136	Avg. I> 2	Fail class	F1 to F9	F2 (Warning)	

3.9 Jump menus

A number of menus can only be entered by using the Jump menu.

3.9.1 Software version

Check the application software version in the unit before contacting DEIF regarding service and support matters. This menu also shows the clock and the date in the unit.

Option N: *W1* displays the IP address and Subnet mask, and *W2* displays the Gateway address and software image version.

9000 Software version

Parameter	Description	Notes
9000	Shows the software version of the unit. Also shows the date and clock in the unit.	
9001	Shows the revision of the software in the unit.	
9002	Shows the IP address and the subnet mask.	Requires option N
9003	Shows the gateway and the image version of the option N.	Requires option N

3.9.2 Display character test

Menu 9010 shows a test print of the character set in the display.

3.9.3 Service port

The service port (9020) can be set up to use the ASCII communication. The ASCII communication is used when the utility software is connected through a modem.

Selection "0" must be used for cable connection between AGC-4 and a PC. Selection "1" must be used for modem connection between the AGC-4 and a PC.

3.9.4 Scaling

This parameter can also be configured from the utility software.

9030 Scaling of voltage reference

No.	Setting		Range	Factory setting	Description
9030	Scaling	Setting	10 to 2500 V 100 to 25000 V 10 to 250 kV 0.4 to 75 kV	100 to 25000 V	This parameter is used to scale the voltage reference.

CAUTION
Changing parameter 9030 affects a number of other parameters (for example, voltages, power, output ranges).

3.9.5 M4 software version

Information about the software version in the engine interface printed circuit board placed in slot 7.

9070 M4 software version

No.	Description
9070	Shows the M4 software version.
9071	Shows the M4 protocol version.
9072	Shows the M4 software revision.
9073	Shows the internal protocol version.

3.9.6 Device type

9100 Device type

No.	Setting		Range	Factory setting	Description
9100	Device	Type	DG controller Mains controller* BTB controller** Genset Grp. Tie controller*** Plant controller***	DG controller	This setting is only accessible using the JUMP button on the display.

*Note: A mains controller requires option G5.

**Note: A BTB controller requires option G4 or G5.

***Note: Requires option G7.

CAUTION
The AGC returns to the factory settings when the selection in parameter 9100 is changed.

3.9.7 Password

These parameters can also be configured from the utility software.

911x Password

No.	Setting		Range	Factory setting	Description
9116	Customer Password	Setting	0 to 32000	2000	It is recommended to change the password levels of the user, service and master password if access to parameter settings must be restricted.
9117	Service Password	Setting	0 to 32000	2001	
9118	Master Password	Setting	0 to 32000	2002	

3.9.8 Service menu

This menu shows the different timer values, the digital in- and outputs, and the status of the different lines in M-Logic.

9120 Service menu

No.	Description
9121	Shows the values of differential timers.
9123	Shows the status of the digital inputs of the unit.

No.	Description
9124	Shows the status of the outputs of the unit.
9125	Shows the status of the different lines in M-Logic.

3.9.9 AC configuration

This menu is used to choose the AC configuration. These parameters can also be configured from the utility software.

9130 AC config.

No.	Setting		Range	Factory setting	Description
9130	AC config.	Setting	3 phase L1L2L3 2 phase L1L3 2 phase L1L2 1 phase L1	3 phase L1L2L3	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.

3.9.10 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. These parameters can also be configured from the utility software.

9140 Angle comp. BB/G

No.	Setting		Range	Factory setting	Description
9140	Angle comp. BB/ G 1	Angle	-179.0 to 179.0 °	0.0	
9142	Angle comp. BB/ G 2	Angle	-179.0 to 179.0 °	0.0	

3.9.11 Backlight dimmer

In this menu, it is possible to change the dim of the backlight in the display.

9150 Backlight dim

No.	Setting	Description
9150		Sets the light intensity for the display.

3.9.12 Application drawing

This menu is used to change between different applications. In the bottom right corner, it is shown which application is active. When placed on active application, it will say ACT in bottom right corner of the display, otherwise INACT if not placed on active application.

9160 User-defined application

No.	Setting		Range	Factory setting	Description
9160	Application	Setting	A1 A2 A3 A4	A1	The four different applications available make it possible to shift between different plant types.

3.9.13 Internal CAN protocol

Menu 9170 is used to make it possible to interface to AGC units using application SW version 3.20.x or earlier. Menus 9171 and 9172 are used to speed up power management telegrams between controllers.

9170 Internal CAN protocol (requires option G4, G5 or G8)

No.	Setting	Range	Factory setting	Description
9170	Application	Protocol 1 Protocol 2	Protocol 2	
9171	Int. CAN units	<=15 units <=40 units	<=40 units	
9172	Int. CAN Baud	125 kbit 250 kbit	250 kbit	

3.9.14 Quick setup

This menu makes it possible to set up the power management application without using the Application Configuration tool in the PC utility software. These parameters can also be configured from the utility software.

9180 Quick setup (AGC diesel generator)

No.	Setting		Range	Factory setting	Description
9181	Quick setup	Mode	OFF Setup stand-alone Setup plant	OFF	When using this menu, it is not possible to design applications with AGC bus tie breaker controllers.
9182	Quick setup	CAN	OFF CAN PM Primary CAN PM Secondary CAN PM PRI + SEC	CAN PM Primary	
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	

9180 Quick setup (AGC mains)

No.	Setting		Range	Factory setting	Description
9181	Quick setup	Mode	OFF Setup stand-alone Setup plant	OFF	When using this menu, it is not possible to design applications with AGC bus tie breaker controllers.
9182	Quick setup	CAN	OFF CAN PM Primary CAN PM Secondary CAN PM PRI + SEC	CAN PM Primary	
9183	Quick setup	MB	Pulse No breaker EXT/ATS Continuous Compact	Pulse	
9184	Quick setup	TB	Pulse No breaker Continuous Compact	Pulse	
9185	Quick setup	NX	Normally open Normally closed	Normally open	

3.9.15 Application broadcast

This menu makes it possible to broadcast an application between all AGC units connected on the CAN A or CAN B line. These parameters can also be configured from the utility software.

9190 Application broadcast

No.	Setting		Range	Factory setting	Description
9191	Application broadcast	Enable	Off Broadcast Broadcast+Activate	Off	
9192	Application broadcast	Application	Application 1 Application 2 Application 3 Application 4	Application 1	

3.9.16 Memory backup

This menu makes it possible to back-up the memory before changing the internal battery. See the **Designer's reference handbook** for more information.

9230 Memory backup

No.	Setting	Description
9231	Backup memory	This function stores the memory.
9232	Restore memory	This function restores the memory.

NOTE The controller will reboot after loading of an image.

3.9.17 Data logging

This menu is to set up logging of the configurable Modbus area (up to 500 registers). The logged registers begin from 000 up to the parameter in 9251. The logs are saved on root of the WebARM in folder /mnt/misc/log. An FTP-client is needed to access the files. Up to 7 files with a maximum size of 1MB store the log using a FIFO-principle. Logged values are hexadecimal.

9250 Data logging (requires option N)

No.	Setting		Range	Factory setting	Description
9251	Data logging	Number of registers	0 to 500 lines	0 lines	Logging is active when 9251 is not 0.
9252	Data logging	Sample rate	2 to 3600 s	60 s	

3.10 Utility software

3.10.1 GSM settings

INFO
GSM settings are only accessible in the utility software.

10320 GSM Pin code

No.	Setting		Range	Factory setting	Description
10320	GSM Pin code	Function	0 to 9999	1933	

10330 Telephone no. 1

No.	Setting		Range	Factory setting	Description
10330	Telephone no. 1	Function	0 to 99999999999	12345678903	

INFO
Telephone numbers 2-5 are available in menus 10340-10373.

4. Control parameters

4.1 Synchronisation

2000 Sync. type

No.	Setting		Range	Factory setting	Description
2001	Static sync	Enable	Off, On	Off	Static sync aims at a frequency difference of 0 Hz. Dynamic sync aims at a frequency difference (mid-point between 2021 dfMax. and 2022 dfMin.). OFF = dynamic sync ON = static sync

2020 Dynamic sync.

No.	Setting		Range	Factory setting	Description
2021	Dynamic sync.	dfMax	0.0 to 0.5 Hz	0.3 Hz	These parameters are only applicable if *Dynamic sync.* is chosen, that is, parameter 2001 is *Off*.
2022	Dynamic sync.	dfMin	-0.5 to 0.3 Hz	0.0 Hz	
2023	Dynamic sync.	dUMax	2 to 10 %	5 %	
2024	Dynamic sync.	dUMin	-10 to 0 %	-5 %	
2025	Dynamic sync.	Sync. to GB/BTB/ TB	40 to 300 ms	50 ms	
2026	Dynamic sync.	Sync. to MB	40 to 300 ms	50 ms	

2030 Static sync.

No.	Setting		Range	Factory setting	Description
2031	Static sync.	dfMax	0.0 to 0.5 Hz	0.1 Hz	These parameters are only applicable if *Dynamic sync.* is chosen in parameter 2001.
2032	Static sync.	dUMax	1 to 10 %	5 %	
2033	Static sync.	Close window	0.1 to 20.0 °	10 °	
2034	Static sync.	Timer	0.1 to 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	

2040 Frequency synchronisation control analogue (requires option E1, E2, EF2, EF4, EF5)

No.	Setting		Range	Factory setting	Description
2041	f sync.	f Kp	0.00 to 60.00	2.50	PID controller for dynamic sync. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2780.
2042	f sync.	f Ti	0.00 to 60.00 s	1.50 s	
2043	f sync.	f Td	0.00 to 2.00 s	0.00 s	

2050 Frequency synchronisation control relay

No.	Setting		Range	Factory setting	Description
2051	f sync.	Kp	0 to 100	10	This parameter is only applicable if *Relay* is selected in parameter 2780.

2060 Phase sync. analogue

No.	Setting		Range	Factory setting	Description
2061	Phase sync.	Phase Kp	0.00 to 60.00	0.50	PID controller for static sync. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2780.
2062	Phase sync.	Phase Ti	0.00 to 60.00 s	3.00 s	
2063	Phase sync.	Phase Td	0.00 to 2.00 s	0.00 s	

2070 Phase control relay

No.	Setting		Range	Factory setting	Description
2071	Phase	Kp	0 to 100	10	This parameter is only applicable if *Relay* is selected in parameter 2780.

2110 Synchronisation blackout

No.	Setting		Range	Factory setting	Description
2111	Sync. blackout	dF min.	0.0 to 5.0 Hz	3.0 Hz	Accepted limits for black closing of the breaker (or start of synchronisation) in each direction of nominal frequency and voltage.
2112	Sync. blackout	dF max.	0.0 to 5.0 Hz	3.0 Hz	
2113	Sync. blackout	dU min.	2 to 20 %	5 %	
2114	Sync. blackout	dU max.	2 to 20 %	5 %	

2240 Separate synchronisation relay

No.	Setting		Range	Factory setting	Description
2241	Sep. sync. relay	Relay output A	Not used (option dependent)	Not used	The output activates during synchronisation and thereby a separate synchronising unit can be activated.
2242	Sep. sync. relay	Relay output B	Not used (option dependent)	Not used	

2250 Close before excitation

No.	Setting		Range	Factory setting	Description
2251	Close bef. exc.	Set point	0 to 4000 RPM	400 RPM	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	Close bef. exc.	Timer	0.0 to 999.0 s	5.0 s	
2253	Close bef. exc.	Relay output A	Not used (option dependent)	Not used	
2254	Close bef. exc.	Enable	OFF ON	OFF	

2260 Breaker sequence

No.	Setting		Range	Factory setting	Description
2261	Breaker seq.	Break	Close GB Close GB + TB	Close GB	The sequence is used for the Closed before excitation function. The excitation will be activated at the selected speed in parameter 2263.
2262	Breaker seq.	Timer	0.0 to 999.0 s	5.0 s	
2263	Breaker seq.	RPM OK	0 to 4000 RPM	1450 RPM	
2264	Volt. discharge	Timer	1.0 to 20.0 s	5.0 s	
2265	Volt. rerun lvl	Set point	30 to 100 %	30 %	
2266	ExcCtr cooldown	Set point	Excitation follow U busbar Excitation constant ON Excitation constant OFF	Excitation follow U busbar	

4.2 Regulation

2510 Frequency control analogue

No.	Setting		Range	Factory setting	Description
2511	f control	f Kp	0.00 to 60.00	2.50	PID controller for frequency control. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2781. The droop setting will be applied on top of the regulation output.
2512	f control	f Ti	0.00 to 60.00 s	1.50 s	
2513	f control	f Td	0.00 to 2.00 s	0.00 s	
2514	f control	Droop setting	0 to 10 %	0 %	

2530 Power control analogue

No.	Setting		Range	Factory setting	Description
2531	P control	P Kp	0.00 to 60.00	2.50	PID controller for power control. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2781.
2532	P control	P Ti	0.00 to 60.00 s	1.50 s	
2533	P control	P Td	0.00 to 2.00 s	0.00 s	

2540 Power load sharing control analogue

No.	Setting		Range	Factory setting	Description
2541	P LS control	P LS Kp	0.00 to 60.00	2.50	PID controller for load sharing control. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2781.
2542	P LS control	P LS Ti	0.00 to 60.00 s	1.50 s	
2543	P LS control	P LS Td	0.00 to 2.00 s	0.00 s	

2550 Analogue governor offset

No.	Setting		Range	Factory setting	Description
2551	Analogue GOV	Offset	0 to 100 %	50 %	PID controller for frequency control. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2781.
2552	Analogue GOV	Offset	0 to 100 %	50 %	
2553	Analogue GOV	Offset	0 to 100 %	50 %	
2554	Analogue GOV	Offset	0 to 100 %	50 %	

2570 Frequency control relay output

No.	Setting		Range	Factory setting	Description
2571	f control relay	Dead band	0.2 to 10.0 %	1.0 %	These parameters are only applicable if *Relay* is selected in parameter 2781. The droop setting will be applied on top of the regulation output.
2572	f control relay	Kp	0 to 100	10	
2573	f droop relay	Droop setting	0 to 10 %	0 %	

2580 Power control relay output

No.	Setting		Range	Factory setting	Description
2581	P control relay	Dead band	0.2 to 10.0 %	2.0 %	These parameters are only applicable if *Relay* is selected in parameter 2781.
2582	P control relay	Kp	0 to 100	10	

2590 Load sharing control relay output

No.	Setting		Range	Factory setting	Description
2591	LS ctrl. relay	f dead band	0.2 to 10.0 %	1.0 %	These parameters are only applicable if *Relay* is selected in parameter 2781.
2592	LS ctrl. relay	LS Kp	0 to 100	10	
2593	LS ctrl. relay	P dead band	0.2 to 10.0 %	2.0 %	
2594	LS ctrl. relay	P weight	0.0 to 100.0 %	10.0 %	

2600 Relay control

No.	Setting		Range	Factory setting	Description
2601	Relay control	GOV ON time	10 to 6500 ms	500 ms	These parameters are only applicable if *Relay* is selected in parameter 2781. NOTE: In the PC utility software, settings 2603/2604 are found under menu 2602.
2602	Relay control	GOV period time	50 to 32500 ms	2500 ms	
2603	Relay control	Relay output A (Increase relay)	Not used (option dependent)	Not used	
2604	Relay control	Relay output B (De-crease relay)	Not used (option dependent)	Not used	

2610 Power ramp up

No.	Setting		Range	Factory setting	Description
2611	Power ramp up	Speed	0.1 to 20.0 %/s	2.0 %/s	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. If the delay function is not needed, set this time to 0. Power % settings relate to nominal generator power.
2612	Power ramp up	Delay point	1 to 100 %	10 %	
2613	Power ramp up	Delay time	0 to 9900 s	10 s	
2614	Island ramp	Enable	OFF ON	OFF	
2615	Power ramp up	Steps	0 to 100	1	
2616	Power ramp up 2	Speed	0.1 to 20.0 %/s	0.1 %/s	Can be activated by parameter 2624 or M-Logic. With option A10: Ramp 3 and 4 are available in menu 2800.

2620 Power ramp down

No.	Setting		Range	Factory setting	Description
2621	Power ramp down	Speed	0.1 to 20.0 %/s	3.3 %/s	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 to 20 %	5 %	
2623	Power ramp down 2	Speed	0.1 to 20.0 %/s	0.1 %/s	Slope of Ramp 2, when ramping down (not used for deload). With option A10: Ramp 3 and 4 are available in menu 2800.
2614	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 (requires option D1)

No.	Setting		Range	Factory setting	Description
2641	U control	U Kp	0.00 to 60.00	2.50	PID controller for voltage control. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2783. The droop setting will be applied on top of the regulation output.
2642	U control	U Ti	0.00 to 60.00 s	1.50 s	
2643	U control	U Td	0.00 to 2.00 s	0.00 s	
2644	U droop	Droop setting	0 to 10 %	0 %	

2650 Reactive power control analogue (requires option D1)

No.	Setting		Range	Factory setting	Description
2651	Q control	Q Kp	0.00 to 60.00	2.50	PID controller for reactive power control. The reactive power control is used for power factor as well as reactive power control. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2783.
2652	Q control	Q Ti	0.00 to 60.00 s	1.50 s	
2653	Q control	Q Td	0.00 to 2.00 s	0.00 s	

2660 Reactive power load sharing control analogue (requires option D1)

No.	Setting		Range	Factory setting	Description
2661	Q load share ctrl	Q LS Kp	0.00 to 60.00	2.50	The VAr (Q) load sharing is based on a mix of voltage and VAr control. Parameter 2664 is setting the impact of the VAr controller over the voltage controller. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2783.
2662	Q load share ctrl	Q LS Ti	0.00 to 60.00 s	1.50 s	
2663	Q load share ctrl	Q LS Td	0.00 to 2.00 s	0.00 s	
2664	Q load share ctrl	Q weight	0.0 to 100.0 %	10.0 %	

2670 Analogue AVR output offset (requires option D1)

No.	Setting		Range	Factory setting	Description
2671	Analogue AVR	Offset	0 to 100 %	50.0 %	Sets the offset of the analogue output when starting the generator. These parameters are only applicable if *Analogue* or *EIC* is selected in parameter 2783.
2672	Analogue AVR	Offset	0 to 100 %	50.0 %	
2673	Analogue AVR	Offset	0 to 100 %	50.0 %	
2674	Analogue AVR	Offset	0 to 100 %	50.0 %	

2690 Voltage control relay (requires option D1)

No.	Setting		Range	Factory setting	Description
2691	U control	U dead band	0.0 to 10.0 %	2.0 %	PI controller for voltage control. These parameters are only applicable if *Relay* is selected in parameter 2783. The droop setting will be applied on top of the regulation output.
2692	U control	U Kp	0 to 100	10	
2693	U droop relay	Droop setting	0 to 10 %	0 %	

2700 Reactive power control relay (requires option D1)

No.	Setting		Range	Factory setting	Description
2701	Q control	Q dead band	0.0 to 10.0 %	2.0 %	PI controller for reactive power control. The reactive power control is used for power factor as well as reactive power control. These parameters are only applicable if *Relay* is selected in parameter 2783.
2702	Q control	Q Kp	0 to 100	10	

2710 Reactive power load sharing control relay (requires option D1)

No.	Setting		Range	Factory setting	Description
2711	Q load share ctrl	U dead band	0.0 to 10.0 %	1.0 %	The VAr (Q) load sharing is based on a mix of voltage and VAr control. Parameter 2664 is setting the impact of the VAr controller over the voltage controller. These parameters are only applicable if *Relay* is selected in parameter 2783.
2712	Q load share ctrl	U Kp	0 to 100	10	
2713	Q load share ctrl	Q dead band	0.0 to 10.0 %	2.0 %	
2714	Q load share ctrl	Q weight	0.0 to 100.0 %	10.0 %	

2720 Relay control setup (AVR) (requires option D1)

No.	Setting		Range	Factory setting	Description
2721	Relay control	AVR ON time t_N	10 to 3000 ms	100 ms	Relay outputs for voltage/ VAr/ power factor control. These parameters are only applicable if *Relay* is selected in parameter 2783.
2722	Relay control	AVR period time t_P	50 to 15000 ms	500 ms	
2723	Relay control	Relay output A (U increase)	Not used (option dependent)	Not used	
2724	Relay control	Relay output B (U decrease)	Not used (option dependent)	Not used	

2740 Delay regulation

No.	Setting		Range	Factory setting	Description
2741	Delay reg.	Timer	0 to 9900 s	3 s	Delay of activating regulation after running feedback has been detected.
2742	Delay reg.	Relay output A	Not used (option dependent)	Not used	
2743	Delay reg.	Relay output B	Not used (option dependent)	Not used	
2744	Delay reg.	Enable	OFF ON	OFF	

2760 Overlap

No.	Setting		Range	Factory setting	Description
2761	Overlap	Set point	OFF ON	OFF	If ON, the generator and mains breaker will never both be closed for a longer time period than the selected.
2722	Overlap	Timer	0.10 to 99.90 s	0.30 s	

2770 EIC speed control (requires option H5, H7 or H13)

No.	Setting		Range	Factory setting	Description
2771	Scania control	Droop	0.0 to 25.0 %	0.0 %	Setting of speed control via engine communication interface. The settings are only applicable if *Scania* is selected in parameter 7561.
2772	Scania control	RPM	User 1500 RPM 1800 RPM Low idle	User	
2773	Cummins gain	Kp	0.00 to 10.00	5.00	Setting of speed control via engine communication interface. The settings are only applicable if *Cummins* is selected in parameter 7561.

2780 Regulator output

No.	Setting		Range	Factory setting	Description
2781	Reg. output	GOV	Relay EIC Analogue	Relay	Selection of the speed output: Relay, analogue or engine interface communication. Analogue and EIC are option dependent. If *Inverse proportional* is selected, the analogue output is high when less power is needed, and low when more power is needed. Inverse proportional does not affect relay and EIC.
2782	Man. step	GOV	0.1 to 10.0 s	5.0 s	This timer is used to define how long the governor up/ down pulse should be, by activating an AOP button or a digital input.
2783	Reg. output	AVR	Relay EIC Analogue	Relay	Requires option D1. Generator voltage control based on relay, analogue or EIC output signals. EIC requires J1939 (option H5, H7, H12). Analogue selection is

No.	Setting		Range	Factory setting	Description
					only available with option E1, E2, EF2, EF4 or F2.
2784	Man. step	AVR	0.1 to 10.0 s	5.0 s	This timer is used to define how long the AVR up/down pulse should be, by activating an AOP button or a digital input.

2790 EIC speed demand switch (requires option H5)

No.	Setting		Range	Factory setting	Description
2791	EIC speed dem. sw.	Local norm sw.	Analogue CAN Up/Down ECU Up/Down CAN Analogue ECU Analogue ECU relative Frequency	Analogue CAN	EIC speed demand switch setup: local normal switch position. See the *Options H5, H7, H12 and H13 CANbus engine interface communication* manual for more information.
2792	EIC speed dem. sw.	Local emerg. sw.	Analogue CAN Up/Down ECU Up/Down CAN Analogue ECU Analogue ECU relative Frequency	Analogue CAN	
2793	EIC speed dem. sw.	Remote norm sw.	Analogue CAN Up/Down ECU Up/Down CAN Analogue ECU Analogue ECU relative Frequency	Analogue CAN	
2794	EIC speed dem. sw.	Remote Emerg. sw.	Analogue CAN Up/Down ECU Up/Down CAN Analogue ECU Analogue ECU relative Frequency	Analogue CAN	

2800 Power ramp 3 and 4 (requires option A10)

No.	Setting		Range	Factory setting	Description
2801	Power ramp up 3	Ramp up slope	0.1 to 20.0 %	0.1 %	
2802	Power ramp down 3	Ramp down slope	0.1 to 20.0 %	0.1 %	
2803	Power ramp up 4	Ramp up slope	0.1 to 20.0 %	0.1 %	
2804	Power ramp down 4	Ramp down slope	0.1 to 20.0 %	0.1 %	

2810 AVR limiting

No.	Setting		Range	Factory setting	Description
2811	AVR limiting	Limit type	OFF Droop curve Capability curve Q	Droop curve	Capability curve limiting requires option C2.
2812	AVR limiting	Set point	20 to 100 %	95 %	The limiting set point is for Capability curve limiting (which requires option C2).

2820 Reactive power ramp

No.	Setting		Range	Factory setting	Description
2821	Q ramp to setp.	Ramp up slope	0.1 to 20.0 %/s	2 %/s	Activation of this will allow the reactive power to be ramped up and down, to stabilise the system.
2822	Q ramp to zero	Ramp down slope	0.1 to 20.0 %/s	2 %/s	
2823	Q ramp	Enable	OFF ON	OFF	

2950 Base load

No.	Setting		Range	Factory setting	Description
2951	Base load	Power set	10.0 to 120.0 %	90 %	Setting and enabling of base load running (base load is only possible in semi auto mode).
2952	Base load	Enable	OFF ON	OFF	
2953	Base load	Return mode	Semi-auto mode Auto mode	Auto mode	The return mode after base load is completed is specified in parameter 2953.

2960 Warm up ramp

No.	Setting		Range	Factory setting	Description
2960	Warm up type	Set point	Option dependent	Multi-input 102	When the function input is activated, it ramps to the set point from *Power ramp up* (parameter 2612) and disables the Power ramp up function. When the input is set low again, it ramps beyond the limitation.
2961	Warm up thresh.	Set point	0 to 482 °	0 °	
2962	Warm up type	Enable	OFF ON	OFF	

7290 Frequency offset

No.	Setting	Range	Factory setting	Description
7291	f offset Tmax	0 to 2.5 Hz	0 Hz	For testing, a frequency offset can be created for stand-alone genset regulation, using a 4 to 20 mA signal.
7292	f offset Tmin	-2.5 to 0 Hz	0 Hz	
7293	f offset meas	Multi input 102 (transducer) Multi input 105 (transducer) Multi input 108 (transducer)	Multi input 102 (transducer)	

4.3 Output setup

4.3.1 Digital output setup

5000 Relay 05

No.	Setting		Range	Factory setting	Description
5001	Relay 05	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Horn relay	
5002	Relay 05	OFF delay	0.0 to 999.9 s	5.0 s	

5010 Relay 08

No.	Setting		Range	Factory setting	Description
5011	Relay 08	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Only available if no mains breaker is controlled by the AGC-4.
5012	Relay 08	OFF delay	0.0 to 999.9 s	5.0 s	

5020 Relay 11

No.	Setting		Range	Factory setting	Description
5021	Relay 11	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Only available if no mains breaker is controlled by the AGC-4.
5022	Relay 11	OFF delay	0.0 to 999.9 s	5.0 s	

5030 Relay 14

No.	Setting		Range	Factory setting	Description
5031	Relay 14	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Only available if no mains breaker is controlled by the AGC-4.
5032	Relay 14	OFF delay	0.0 to 999.9 s	5.0 s	

5040 Relay 17

No.	Setting		Range	Factory setting	Description
5041	Relay 17	Function	Alarm relay ND Limit relay Horn relay Siren relay	Alarm relay ND	Only available if no mains breaker is controlled by the AGC-4.

No.	Setting		Range	Factory setting	Description
			Alarm relay NE		
5042	Relay 17	OFF delay	0.0 to 999.9 s	5.0 s	

5050 Relay 20

No.	Setting		Range	Factory setting	Description
5051	Relay 20	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Only available if *Relay* is selected in parameter 5271.
5052	Relay 20	OFF delay	0.0 to 999.9 s	5.0 s	

5060 Relay 21

No.	Setting		Range	Factory setting	Description
5061	Relay 21	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Only available if *Relay* is selected in parameter 5272.
5062	Relay 21	OFF delay	0.0 to 999.9 s	5.0 s	

5070 Relay 29 (requires option M14.2)

No.	Setting		Range	Factory setting	Description
5071	Relay 29	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5072	Relay 29	OFF delay	0.0 to 999.9 s	5.0 s	

5080 Relay 31 (requires option M14.2)

No.	Setting		Range	Factory setting	Description
5081	Relay 31	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5082	Relay 31	OFF delay	0.0 to 999.9 s	5.0 s	

5090 Relay 33 (requires option M14.2)

No.	Setting		Range	Factory setting	Description
5091	Relay 33	Function	Alarm relay ND Limit relay	Alarm relay ND	

No.	Setting		Range	Factory setting	Description
			Horn relay Siren relay Alarm relay NE		
5092	Relay 33	OFF delay	0.0 to 999.9 s	5.0 s	

5100 Relay 35 (requires option M14.2)

No.	Setting		Range	Factory setting	Description
5101	Relay 35	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5102	Relay 35	OFF delay	0.0 to 999.9 s	5.0 s	

5110 Relay 57 (requires option M12)

No.	Setting		Range	Factory setting	Description
5111	Relay 57	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5112	Relay 57	OFF delay	0.0 to 999.9 s	5.0 s	

5120 Relay 59 (requires option M12)

No.	Setting		Range	Factory setting	Description
5121	Relay 59	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5122	Relay 59	OFF delay	0.0 to 999.9 s	5.0 s	

5130 Relay 61 (requires option M12)

No.	Setting		Range	Factory setting	Description
5131	Relay 61	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5132	Relay 61	OFF delay	0.0 to 999.9 s	5.0 s	

5140 Relay 63 (requires option M12)

No.	Setting		Range	Factory setting	Description
5141	Relay 63	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	
5142	Relay 63	OFF delay	0.0 to 999.9 s	5.0 s	

5150 Relay 65

No.	Setting		Range	Factory setting	Description
5151	Relay 65	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Used for GOV UP command if *Relay* is selected in parameter 2781.
5152	Relay 65	OFF delay	0.0 to 999.9 s	5.0 s	

5160 Relay 67

No.	Setting		Range	Factory setting	Description
5161	Relay 67	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Used for GOV DOWN command if *Relay* is selected in parameter 2781.
5162	Relay 67	OFF delay	0.0 to 999.9 s	5.0 s	

5170 Relay 69

No.	Setting		Range	Factory setting	Description
5171	Relay 69	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Used for AVR UP command if *Relay* is selected in parameter 2783.
5172	Relay 69	OFF delay	0.0 to 999.9 s	5.0 s	

5180 Relay 71

No.	Setting		Range	Factory setting	Description
5181	Relay 71	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Used for AVR DOWN command if *Relay* is selected in parameter 2783.
5182	Relay 71	OFF delay	0.0 to 999.9 s	5.0 s	

5190 Relay 90 (requires option M14.6)

No.	Setting		Range	Factory setting	Description
5191	Relay 90	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.6: 4 x relay output, slot 6.
5192	Relay 90	OFF delay	0.0 to 999.9 s	5.0 s	

5200 Relay 92 (requires option M14.6)

No.	Setting		Range	Factory setting	Description
5201	Relay 92	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.6: 4 x relay output, slot 6.
5202	Relay 92	OFF delay	0.0 to 999.9 s	5.0 s	

5210 Relay 94 (requires option M14.6)

No.	Setting		Range	Factory setting	Description
5211	Relay 94	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.6: 4 x relay output, slot 6.
5212	Relay 94	OFF delay	0.0 to 999.9 s	5.0 s	

5220 Relay 96 (requires option M14.6)

No.	Setting		Range	Factory setting	Description
5221	Relay 96	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.6: 4 x relay output, slot 6.
5222	Relay 96	OFF delay	0.0 to 999.9 s	5.0 s	

5230 Relay 126 (requires option M14.8)

No.	Setting		Range	Factory setting	Description
5231	Relay 126	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.8: 4 x relay output, slot 8.
5232	Relay 126	OFF delay	0.0 to 999.9 s	5.0 s	

5240 Relay 128 (requires option M14.8)

No.	Setting		Range	Factory setting	Description
5241	Relay 128	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.8: 4 x relay output, slot 8.
5242	Relay 128	OFF delay	0.0 to 999.9 s	5.0 s	

5250 Relay 130 (requires option M14.8)

No.	Setting		Range	Factory setting	Description
5251	Relay 130	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.8: 4 x relay output, slot 8.
5252	Relay 130	OFF delay	0.0 to 999.9 s	5.0 s	

5260 Relay 132 (requires option M14.8)

No.	Setting		Range	Factory setting	Description
5261	Relay 132	Function	Alarm relay ND Limit relay Horn relay Siren relay Alarm relay NE	Alarm relay ND	Option M14.8: 4 x relay output, slot 8.
5262	Relay 132	OFF delay	0.0 to 999.9 s	5.0 s	

5270 Transistor output setup

No.	Setting		Range	Factory setting	Description
5271	Transistor 20	T20	kWh pulse Relay	kWh pulse	The transistor outputs on terminals 21 and 22 can be configured as relay outputs or pulse signals. If *Relay* is selected, the relays 20 and 21 will be available. If *Relay* is selected, external relays are needed due to limited current output, max. 10 mA.
5272	Transistor 21	T21	kvarh pulse Relay	kvarh pulse	

4.4 Analogue output

4.4.1 Regulation reference output

5690 P ref output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5691	P ref output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Power range and default depend on the scaling set in parameter 9030.
5692	P ref output	Transducer B	Disabled Option dependent	Disabled	
5693	P ref output	Set point	See description	Disabled	
5694	P ref output	Max. value	0 to 20,000 kW*	500 kW*	
5695	P ref output	Min. value	-9999 to 20,000 kW*	0 kW	

5700 Q ref output (requires option E2, F1 or EF2 combined with A10)

No.	Setting		Range	Factory setting	Description
5701	Q ref output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Reactive power range and default depend on the scaling set in parameter 9030.
5702	Q ref output	Transducer B	Disabled Option dependent	Disabled	
5703	Q ref output	Set point	See description	Disabled	
5704	Q ref output	Max. value	0 to 16,000 kvar*	400 kvar*	
5705	Q ref output	Min. value	-8000 to 16,000 kW*	0 kvar	

5710 Cos phi ref output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5711	Cos phi ref output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V
5712	Cos phi ref output	Transducer B	Disabled Option dependent	Disabled	
5713	Cos phi ref output	Set point	See description	Disabled	
5714	Cos phi ref output	Max. value	0.50 to 0.99 cos phi	0.80 cos phi	
5715	Cos phi ref output	Min. value	-0.99 to -0.50 cos phi	-0.80 cos phi	

4.4.2 Analogue output limits

5720 PWM 68 limits (requires option EF5)

No.	Setting		Range	Factory setting	Description
5721	PWM 68 limits	Min.	0 to 50 %	10 %	For Caterpillar engines.
5722	PWM 68 limits	Max.	50 to 100 %	90 %	

5780 AOut 66 limits (requires option E1/E2)

No.	Setting		Range	Factory setting	Description
5781	AOut 66 limits	Min.	-25 to 10 mA	-20 mA	Option: 2 x analogue outputs (E1/E2). Min. range and factory setting value are option dependent.
5782	AOut 66 limits	Max.	10 to 25 mA	20 mA	

5790 AOut 71 limits (requires option E1/E2)

No.	Setting		Range	Factory setting	Description
5791	AOut 71 limits	Min.	-25 to 10 mA	-20 mA	Option: 2 x analogue outputs (E1/E2). Min. range and factory setting value are option dependent.
5792	AOut 71 limits	Max.	10 to 25 mA	20 mA	

5800 AOut 91 limits (requires option F1)

No.	Setting		Range	Factory setting	Description
5801	AOut 91 limits	Min.	0 to 10 mA	0 mA	Option: 2 x analogue outputs (F1). Min. range and factory setting value are option dependent.
5802	AOut 91 limits	Max.	10 to 20 mA	20 mA	

5810 AOut 95 limits (requires option F1)

No.	Setting		Range	Factory setting	Description
5811	AOut 95 limits	Min.	0 to 10 mA	0 mA	Option: 2 x analogue outputs (F1). Min. range and factory setting value are option dependent.
5812	AOut 95 limits	Max.	10 to 20 mA	20 mA	

4.5 Transducer outputs

5820 P output 1 (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5821	P output 1	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Power range and default depend on the scaling set in parameter 9030.
5822	P output 1	Transducer B	Disabled Option dependent	Disabled	
5823	P output 1	Set point	See description	Disabled	
5824	P output 1	Max. value	0 to 20,000 kW*	500 kW*	
5825	P output 1	Min. value	-9999 to 20,000 kW*	0 kW	

5830 P output 2 (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5831	P output 2	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Power range and default depend on the scaling set in parameter 9030.
5832	P output 2	Transducer B	Disabled Option dependent	Disabled	
5833	P output 2	Set point	See description	Disabled	
5834	P output 2	Max. value	0 to 20,000 kW*	500 kW*	
5835	P output 2	Min. value	-9999 to 20,000 kW*	0 kW	

5840 P output 3 (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5841	P output 3	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Power range and default depend on the scaling set in parameter 9030.
5842	P output 3	Transducer B	Disabled Option dependent	Disabled	
5843	P output 3	Set point	See description	Disabled	
5844	P output 3	Max. value	0 to 20,000 kW*	500 kW*	
5845	P output 3	Min. value	-9999 to 20,000 kW*	0 kW	

5850 S output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5851	S output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Apparent power range and default depend on the scaling set in parameter 9030.
5852	S output	Transducer B	Disabled Option dependent	Disabled	
5853	S output	Set point	See description	Disabled	
5854	S output	Max. value	0 to 20,000 kVA*	600 kVA*	
5855	S output	Min. value	-9999 to 20,000 kVA*	0 kVA	

5860 Q output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5861	Q output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Reactive power range and default depend on the scaling set in parameter 9030.
5862	Q output	Transducer B	Disabled Option dependent	Disabled	
5863	Q output	Set point	See description	Disabled	
5864	Q output	Max. value	0 to 16,000 kVAr*	400 kVAr*	
5865	Q output	Min. value	8000 to 16,000 kVAr*	0 kVAr	

5870 PF output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5871	PF output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V PF output: • Positive value = inductive. • Negative value = capacitive.
5872	PF output	Transducer B	Disabled Option dependent	Disabled	
5873	PF output	Set point	See description	Disabled	
5874	PF output	Max. value	0.50 to 0.99	0.80	
5875	PF output	Min. value	-0.99 to -0.50	-0.80	

5880 f output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5881	f output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V
5882	f output	Transducer B	Disabled Option dependent	Disabled	
5883	f output	Set point	See description	Disabled	
5884	f output	Max. value	0.0 to 70.0 Hz	55.0 Hz	
5885	f output	Min. value	0.0 to 70.0 Hz	45.0 Hz	

5890 U output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5891	U output	Transducer A	Disabled Option dependent	Disabled	The voltage output represents L1-L2 voltage. Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Voltage range and default depend on the scaling set in parameter 9030.
5892	U output	Transducer B	Disabled Option dependent	Disabled	
5893	U output	Set point	See description	Disabled	
5894	U output	Max. value	0 to 28,000 V*	500 V*	
5895	U output	Min. value	0 to 28,000 V*	0 V	

5900 I output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5901	I output	Transducer A	Disabled Option dependent	Disabled	The current output represents L1 current. Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V
5902	I output	Transducer B	Disabled Option dependent	Disabled	
5903	I output	Set point	See description	Disabled	
5904	I output	Max. value	0 to 9000 A	1000 A	
5905	I output	Min. value	0 to 9000 A	0 A	

5910 U BB output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5911	U BB output	Transducer A	Disabled Option dependent	Disabled	The voltage output represents L1-L2 voltage. Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Voltage range and default depend on the scaling set in parameter 9030.
5912	U BB output	Transducer B	Disabled Option dependent	Disabled	
5913	U BB output	Set point	See description	Disabled	
5914	U BB output	Max. value	0 to 28,000 V*	500 V*	
5915	U BB output	Min. value	0 to 28,000 V*	0 V	

5920 f BB output (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5921	f BB output	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V
5922	f BB output	Transducer B	Disabled Option dependent	Disabled	
5923	f BB output	Set point	See description	Disabled	
5924	f BB output	Max. value	0.0 to 70.0 Hz	55.0 Hz	
5925	f BB output	Min. value	0.0 to 70.0 Hz	45.0 Hz	

5930 Multi-input 102 (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5931	Multi-input 102	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Voltage range and default depend on the scaling set in parameter 9030.
5932	Multi-input 102	Transducer B	Disabled Option dependent	Disabled	
5933	Multi-input 102	Set point	See description	Disabled	
5934	Multi-input 102	Max. value	0 to 28,000 V*	500 V*	
5935	Multi-input 102	Min. value	0 to 28,000 V*	0 V	

5940 Multi-input 105 (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5941	Multi-input 105	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Voltage range and default depend on the scaling set in parameter 9030.
5942	Multi-input 105	Transducer B	Disabled Option dependent	Disabled	
5943	Multi-input 105	Set point	See description	Disabled	
5944	Multi-input 105	Max. value	0 to 28,000 V*	500 V*	
5945	Multi-input 105	Min. value	0 to 28,000 V*	0 V	

5950 Multi-input 108 (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5951	Multi-input 108	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Voltage range and default depend on the scaling set in parameter 9030.
5952	Multi-input 108	Transducer B	Disabled Option dependent	Disabled	
5953	Multi-input 108	Set point	See description	Disabled	
5954	Multi-input 108	Max. value	0 to 28,000 V*	500 V*	
5955	Multi-input 108	Min. value	0 to 28,000 V*	0 V	

5960 P total consumed (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5961	P total consumed	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Power range and default depend on the scaling set in parameter 9030.
5962	P total consumed	Transducer B	Disabled Option dependent	Disabled	
5963	P total consumed	Set point	See description	Disabled	
5964	P total consumed	Max. value	0 to 20,000 kW*	500 kW*	
5965	P total consumed	Min. value	-9999 to 20,000 kW*	0 kW	

5970 P total available (requires option E2, F1 or EF2)

No.	Setting		Range	Factory setting	Description
5971	P total available	Transducer A	Disabled Option dependent	Disabled	Set point: • Disabled • 0-20 mA • 4-20 mA • 0-10 V • -10-0-10 V *Power range and default depend on the scaling set in parameter 9030.
5972	P total available	Transducer B	Disabled Option dependent	Disabled	
5973	P total available	Set point	See description	Disabled	
5974	P total available	Max. value	0 to 20,000 kW*	500 kW*	
5975	P total available	Min. value	-9999 to 20,000 kW*	0 kW	

4.6 Analogue regulator output setup

4.6.1 Regulator output selection

These parameters are used to select which analogue output to use for governor/AVR (option D1) control.

5980 Governor output (requires option E1/EF)

No.	Setting		Range	Factory setting	Description
5981	Governor output	Transducer A	Disabled Transducer 66 Transducer 71	Disabled	

5990 AVR output (requires option E1/EF and D1)

No.	Setting		Range	Factory setting	Description
5991	AVR output	Transducer A	Disabled Transducer 66 Transducer 71	Disabled	

5. Utility software settings

The utility software includes settings that do not have parameter numbers. This chapter gives a brief overview of these settings.

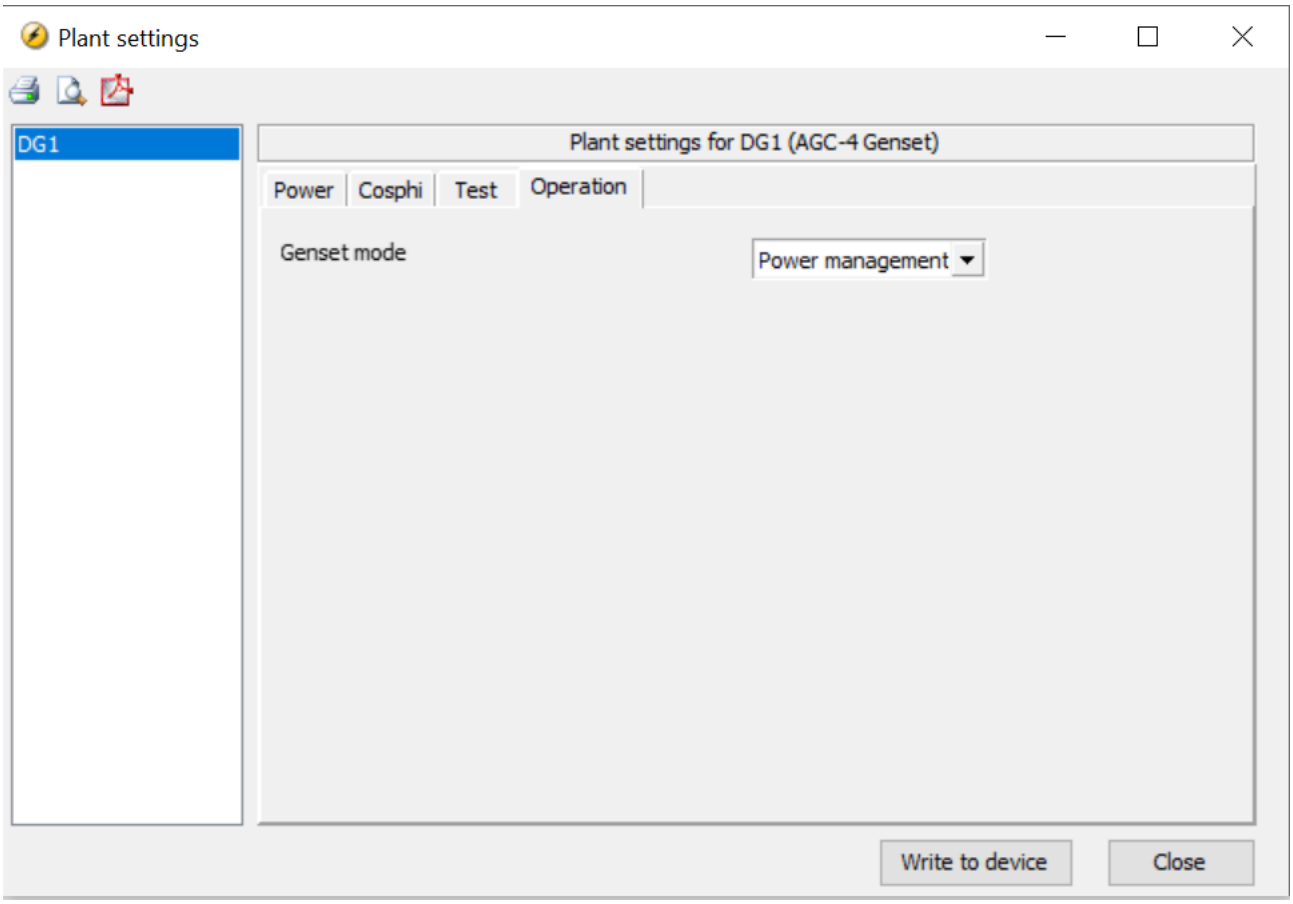
5.1 Application supervision

Access the **Application supervision** page from the left menu. You can change some parameters from here.

5.1.1 Plant settings

In **Application supervision**, access the plant settings from the icon on the top bar: . In the *Plant settings* box you can change the values of some parameters.

Figure 5.1 Example of Plant settings box



Changing the *Genset mode* in the example changes parameter 6070. Similarly, changing parameter 6070 changes the selection shown in *Plant settings*.

5.2 Advanced protection

Access the **Advanced protection** page from the left menu. **Advanced protection** includes:

Capability curve

This includes the following outdated parameters: 1741, 7142, 7143, 1744, 1745, 1746, 1751, 1752, 1753, 1754, 1755, 1756, 1766, 1771, 1772, 1773, 1774, 1775, 1776, 1781, 1782, 1783, 1784, 1785, 1786, 1796.

You can also configure the capability curve from the TDU 107.

More information
See **Option C2, Generator add-on protection package** and **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

FRT setup

More information
See **Option A1, Mains protection package** and **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

LVRT 1

This includes the following outdated parameters: 1631, 1632, 1633, 1634, 1635, 1636, 1641, 1642, 1643, 1644, 1645, 1646.

More information
See **Option A1, Mains protection package** and **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

LVRT 2

This includes the following outdated parameters: 1671, 1672, 1673, 1674, 1675, 1676, 1681, 1682, 1683, 1684, 1685, 1686.

More information
See **Option A1, Mains protection package** and **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

HVRT 1

More information
See **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

Droop curve 1

This includes the following outdated parameters: 7121, 7122, 7123, 7124, 7131, 7132, 7133, 7134, 7141, 7142, 7143.

More information
See **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

Droop curve 2

This includes the following outdated parameters: 7151, 7152, 7153, 7154, 7161, 7162, 7163, 7164, 7171, 7172, 7173, 7174, 7175, 7176, 7181, 7182, 7183.

More information
See **Option D1, Voltage, var, or cos phi regulation**, **Option C2, Generator add-on protection package** and **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

var(Q) grid support

This includes the following outdated parameters: 7151, 7152, 7153, 7154, 7161, 7162, 7163, 7164, 7171, 7172, 7173, 7174, 7175, 7176, 7181, 7182, 7183.

More information
See **Option A10, VDE AR-N 4110/4105 and G99 grid protection**.

5.3 PID settings

Access the PID settings from the icon on the top bar: PID. These PID settings are for the customisable general purpose PID controllers.

More information
See **General purpose PID** in the **Designer's reference handbook**.

INFO
The governor and AVR regulation PID control is not included here. This is configured using parameters.

5.4 CIO settings

Access the CIO settings from the icon on the top bar: 

More information
See **Communication** in the relevant **CIO Installation and commissioning guide**.

5.5 RRCR settings

Access the RRCR settings from the icon on the top bar: 

More information
See **Additional functions, RRCR external set point control** in the **Designer's reference handbook**.

5.6 Counters

Access the counters from the icon on the top bar: 

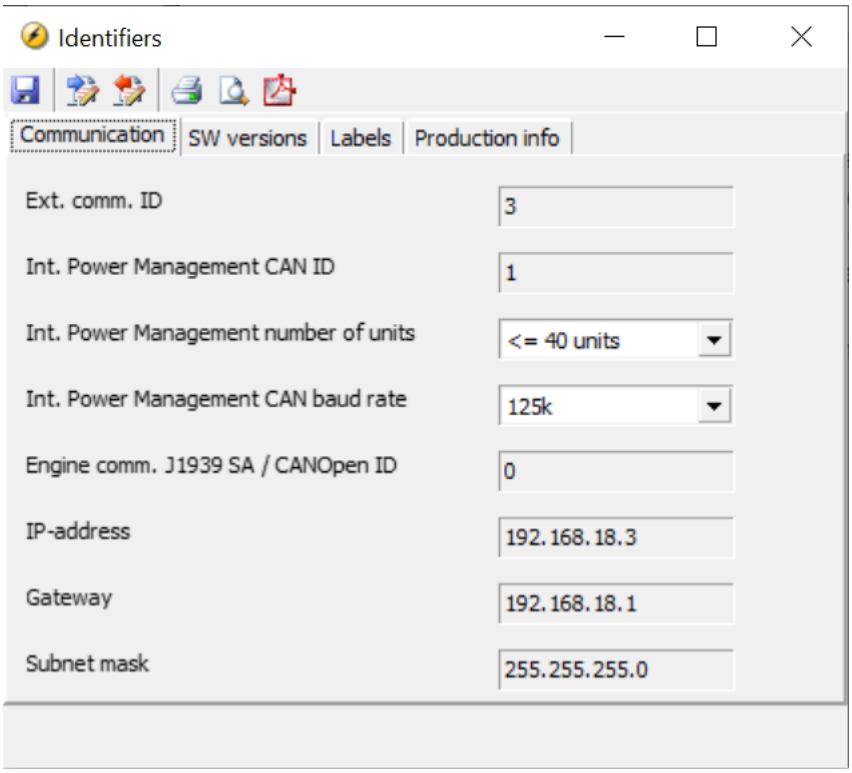
More information
See **Additional functions, Counters** in the **Designer's reference handbook**.

5.7 Identifiers

Access the identifiers settings from the icon on the top bar:  .

In the *Identifiers* box you can change the values of some parameters.

Figure 5.2 Example of Identifiers box



Changing *Int. Power Management number of units* in the example changes parameter 9171. Similarly, changing parameter 9171 changes the selection shown in *Identifiers*.

The *Identifiers* box is also used to configure the controller identifiers for Option T1.

More information
See **Application supervision** in **Option T1, Critical power**.