

1 Extended technical Data

1.1 KACO blueplanet hybrid 6.0 NH3 M2

AC-Power				
Inverter power nominal	6 kVA			
Inverter power maximal	6,6 kVA			
Rated current (In)	8,7 A (400V)			
Short circuit current (Ik'' First cycle RMS value)	9,6 A			
Short circuit current continuous (max output fault current)	9,6 A			
Power electronics type	IGBT-MLI (self-commutated)			
Rated operating voltage	220V / 380V [3/N/PE], 230V / 400V [3/N/PE], 240V / 415V [3/N/PE]			
cos phi nominal	≈ 0,8			
Grid connection	Three-phase			
Operating behaviour in the event of a short circuit at the inverter output				
Maximum peak current (Ip)	20,0 A			
Maximum peak current (Ik'')	8,0 A			
Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,125	0,062	0,064	0,114
Short term flicker	0,112	0,055	0,057	0,102
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to				

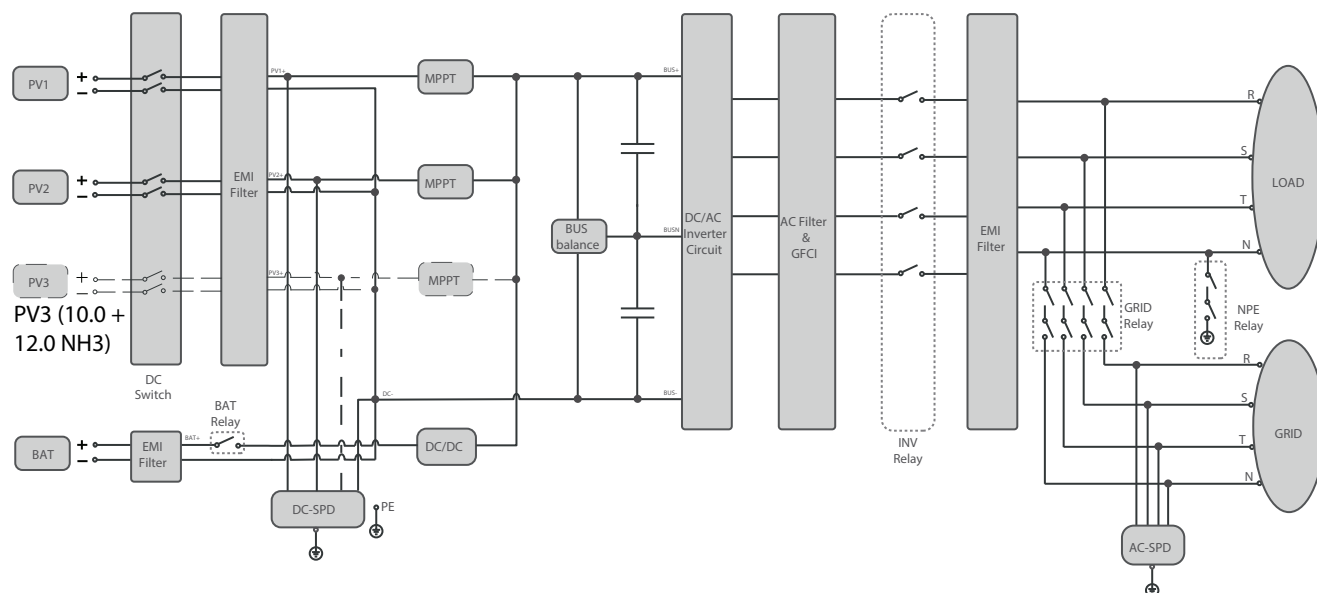


Fig. 1: Block schema blueplanet 6.0 – 12.0 NH3

Harmonics 50 Hz	[A]	[% In]
1	8,773	100,89
2	0,076	0,87
3	0,026	0,30
4	0,010	0,11
5	0,028	0,32
6	0,006	0,07
7	0,021	0,25
8	0,013	0,14
9	0,026	0,29
10	0,017	0,19
11	0,107	1,23
12	0,005	0,06
13	0,140	1,62
14	0,011	0,13
15	0,018	0,21
16	0,016	0,19
17	0,042	0,48
18	0,004	0,04
19	0,061	0,70
20	0,008	0,09
21	0,012	0,14
22	0,012	0,14
23	0,014	0,16
24	0,002	0,03
25	0,007	0,08
26	0,004	0,05
27	0,006	0,07
28	0,007	0,08
29	0,008	0,09
30	0,001	0,02
31	0,020	0,23
32	0,003	0,03
33	0,003	0,03
34	0,005	0,06
35	0,010	0,11
36	0,001	0,01
37	0,017	0,20
38	0,003	0,04
39	0,002	0,02
40	0,004	0,05
41	0,010	0,11
42	0,001	0,01
43	0,012	0,13
44	0,003	0,04
45	0,003	0,03
46	0,004	0,04

Harmonics 50 Hz	[A]	[% I _n]
47	0,008	0,09
48	0,001	0,01
49	0,010	0,11
50	0,003	0,03

Tab. 1: Harmonics 50 Hz blueplanet hybrid 6.0 NH3 M2

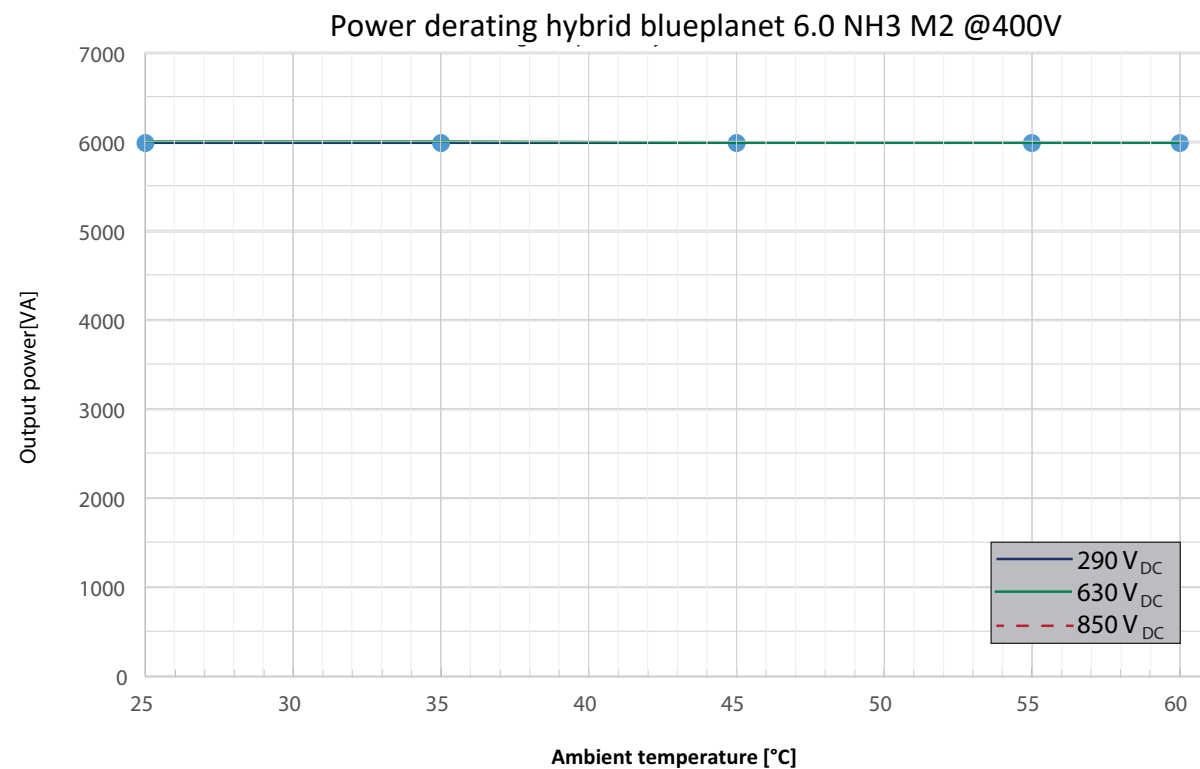


Fig. 2: Power derating blueplanet hybrid 6.0 NH3 M2

Efficiency characteristic

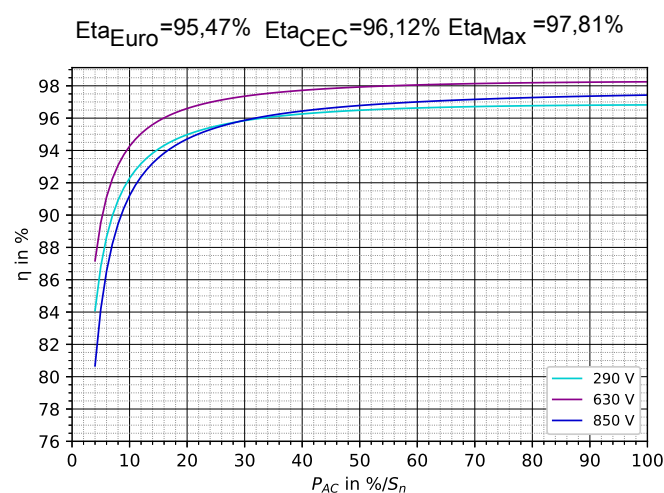


Fig. 3: 2D Diagram blueplanet 6.0 NH3 M2

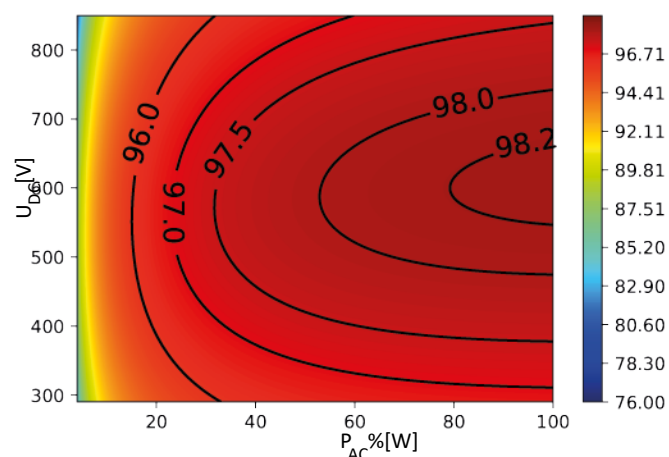


Fig. 4: 3D diagram blueplanet 6.0 NH3 M2

1.2 KACO blueplanet hybrid 8.0 NH3 M3

AC-Power	
Inverter power nominal	8 kVA
Inverter power maximal	8,8 kVA
Rated current (I _n)	11,6 A (400V)
Short circuit current (I _k '' First cycle RMS value)	12,8 A
Short circuit current continuous (max output fault current)	12,8 A
Power electronics type	IGBT-MLI (self-commutated)
Rated operating voltage	220V / 380V [3/N/PE], 230V / 400V [3/N/PE], 240V / 415V [3/N/PE]
cos phi nominal	≈ 0,8
Grid connection	Three-phase
Operating behaviour in the event of a short circuit at the inverter output	
Maximum peak current (I _p)	20,0 A
Maximum peak current (I _k '')	8,0 A
Flicker	
Grid impedance angle	30° 50° 70° 85°
Flicker step factor	0,120 0,056 0,054 0,104
Short term flicker	0,107 0,050 0,048 0,093
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	

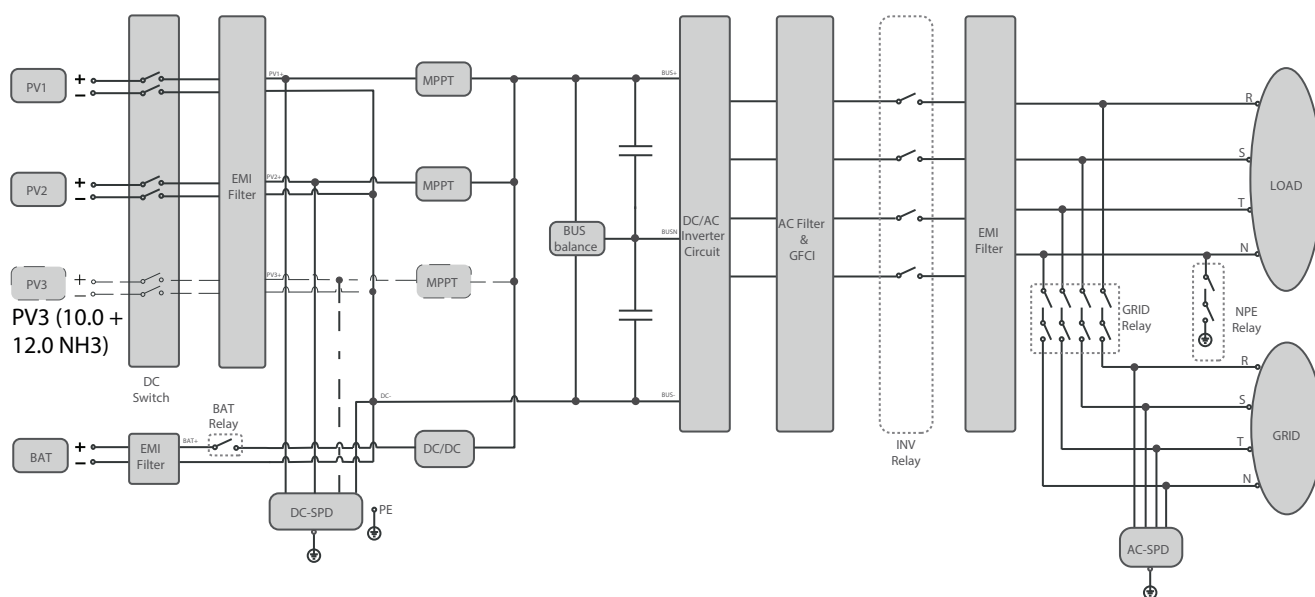


Fig. 5: Block schema blueplanet 6.0 – 12.0 NH3

Harmonics 50 Hz	[A]	[% In]
1	11,539	99,52
2	0,089	0,77
3	0,037	0,31
4	0,009	0,08
5	0,031	0,27
6	0,005	0,04
7	0,024	0,21
8	0,011	0,10
9	0,026	0,23
10	0,015	0,13
11	0,121	1,04
12	0,005	0,04
13	0,164	1,41
14	0,012	0,10
15	0,022	0,19
16	0,017	0,15
17	0,057	0,49
18	0,004	0,03
19	0,093	0,80
20	0,010	0,09
21	0,019	0,16
22	0,016	0,14
23	0,026	0,22
24	0,003	0,02
25	0,037	0,32
26	0,007	0,06
27	0,012	0,10
28	0,011	0,10
29	0,014	0,12
30	0,002	0,02
31	0,011	0,10
32	0,005	0,04
33	0,006	0,05
34	0,006	0,05
35	0,009	0,08
36	0,002	0,01
37	0,017	0,14
38	0,003	0,03
39	0,004	0,03
40	0,003	0,03
41	0,010	0,08
42	0,001	0,01
43	0,013	0,11
44	0,002	0,02
45	0,003	0,02
46	0,003	0,02

Harmonics 50 Hz	[A]	[% I _n]
47	0,010	0,09
48	0,001	0,01
49	0,011	0,10
50	0,002	0,02

Tab. 2: Harmonics 50 Hz blueplanet hybrid 8.0 NH3 M3

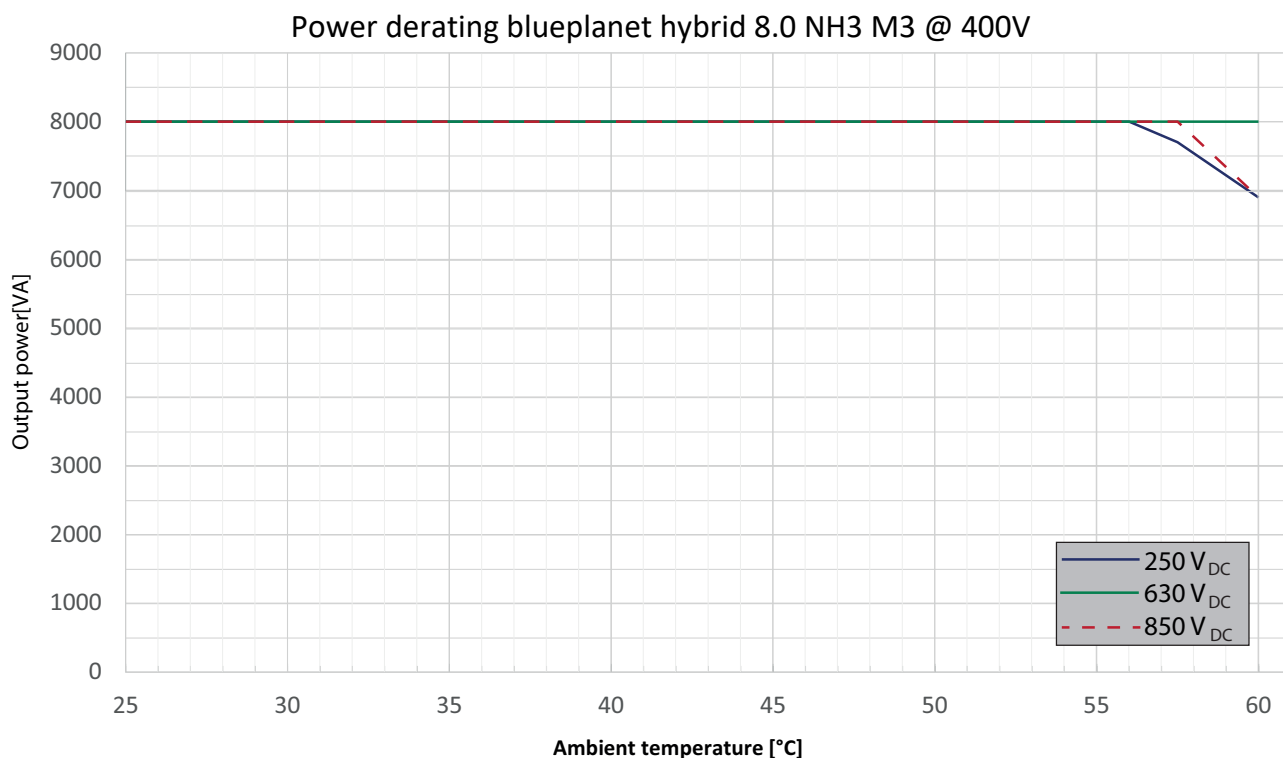


Fig. 6: Power derating blueplanet hybrid 8.0 NH3 M3

Efficiency characteristic

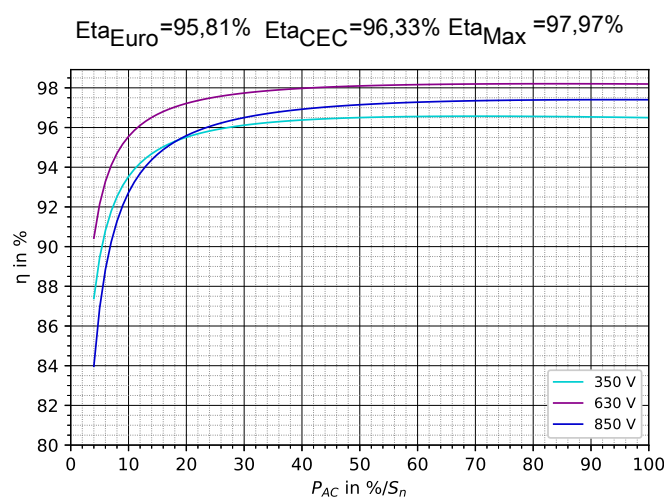


Fig. 7: 2D Diagram blueplanet 8.0 NH3 M3

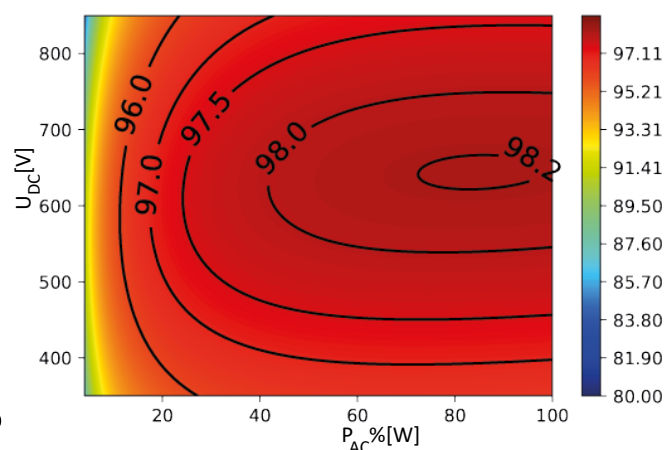


Fig. 8: 3D diagram blueplanet 8.0 NH3 M3

1.3 KACO blueplanet hybrid 10.0 NH3 M3

AC-Power	
Inverter power nominal	10 kVA
Inverter power maximal	10 kVA
Rated current (I _n)	14,5 A (400V)
Short circuit current (I _k '' First cycle RMS value)	16,0 A
Short circuit current continuous (max output fault current)	16,0 A
Power electronics type	IGBT-MLI (self-commutated)
Rated operating voltage	220V / 380V [3/N/PE], 230V / 400V [3/N/PE], 240V / 415V [3/N/PE]
cos phi nominal	≈ 0,8
Grid connection	Three-phase
Operating behaviour in the event of a short circuit at the inverter output	
Maximum peak current (I _p)	20,0 A
Maximum peak current (I _k '')	8,0 A
Flicker	
Grid impedance angle	30° 50° 70° 85°
Flicker step factor	0,012 0,011 0,011 0,011
Short term flicker	0,010 0,010 0,010 0,010
Note: S _{k, fic} /S _n in the fictitious grid was set to	

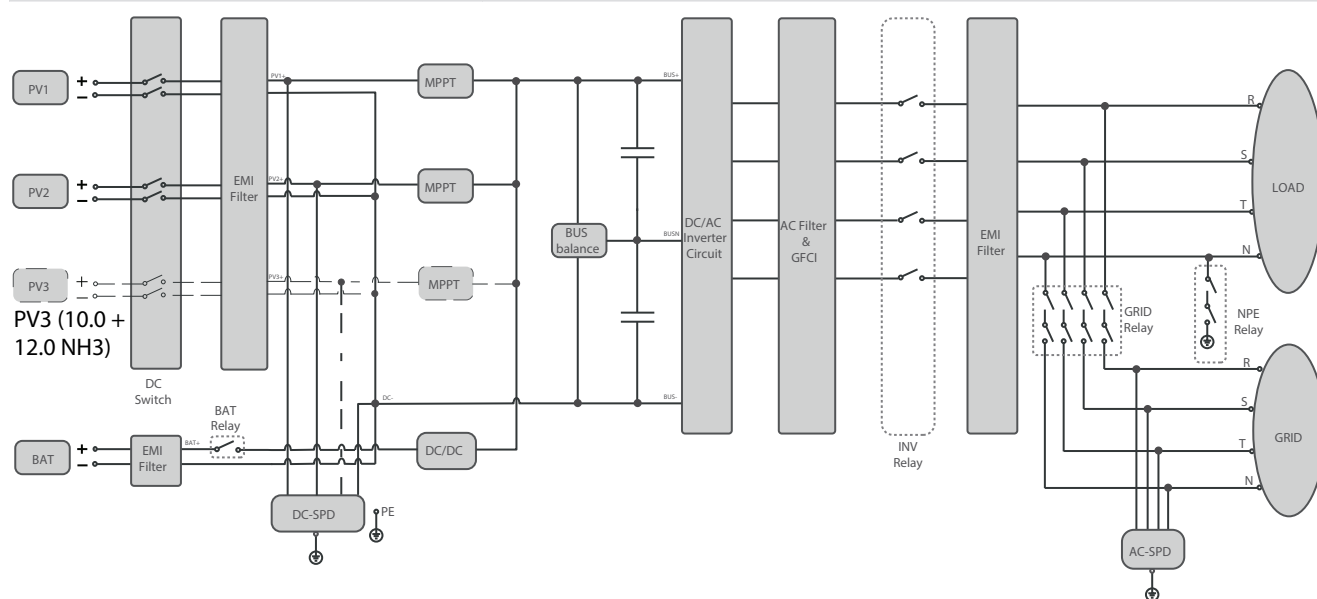


Fig. 9: Block schema blueplanet 6.0 – 12.0 NH3

Harmonics 50 Hz	[A]	[% In]
1	14,456	99,74
2	0,116	0,80
3	0,041	0,28
4	0,010	0,07
5	0,033	0,23
6	0,005	0,03
7	0,025	0,17
8	0,011	0,07
9	0,029	0,20
10	0,015	0,11
11	0,129	0,89
12	0,005	0,03
13	0,173	1,19
14	0,012	0,08
15	0,026	0,18
16	0,018	0,13
17	0,069	0,48
18	0,004	0,03
19	0,114	0,79
20	0,011	0,08
21	0,023	0,16
22	0,020	0,13
23	0,036	0,25
24	0,003	0,02
25	0,066	0,45
26	0,009	0,06
27	0,017	0,12
28	0,017	0,12
29	0,021	0,15
30	0,003	0,02
31	0,017	0,12
32	0,007	0,05
33	0,010	0,07
34	0,009	0,07
35	0,011	0,08
36	0,003	0,02
37	0,013	0,09
38	0,005	0,04
39	0,006	0,04
40	0,005	0,04
41	0,010	0,07
42	0,002	0,01
43	0,014	0,09
44	0,004	0,02
45	0,004	0,03
46	0,003	0,02

Harmonics 50 Hz	[A]	[% In]
47	0,009	0,06
48	0,002	0,01
49	0,011	0,08
50	0,002	0,02

Tab. 3: Harmonics 50 Hz blueplanet hybrid 10.0 NH3 M3

Power derating blueplanet hybrid 10.0 NH3 M3 @ 400V

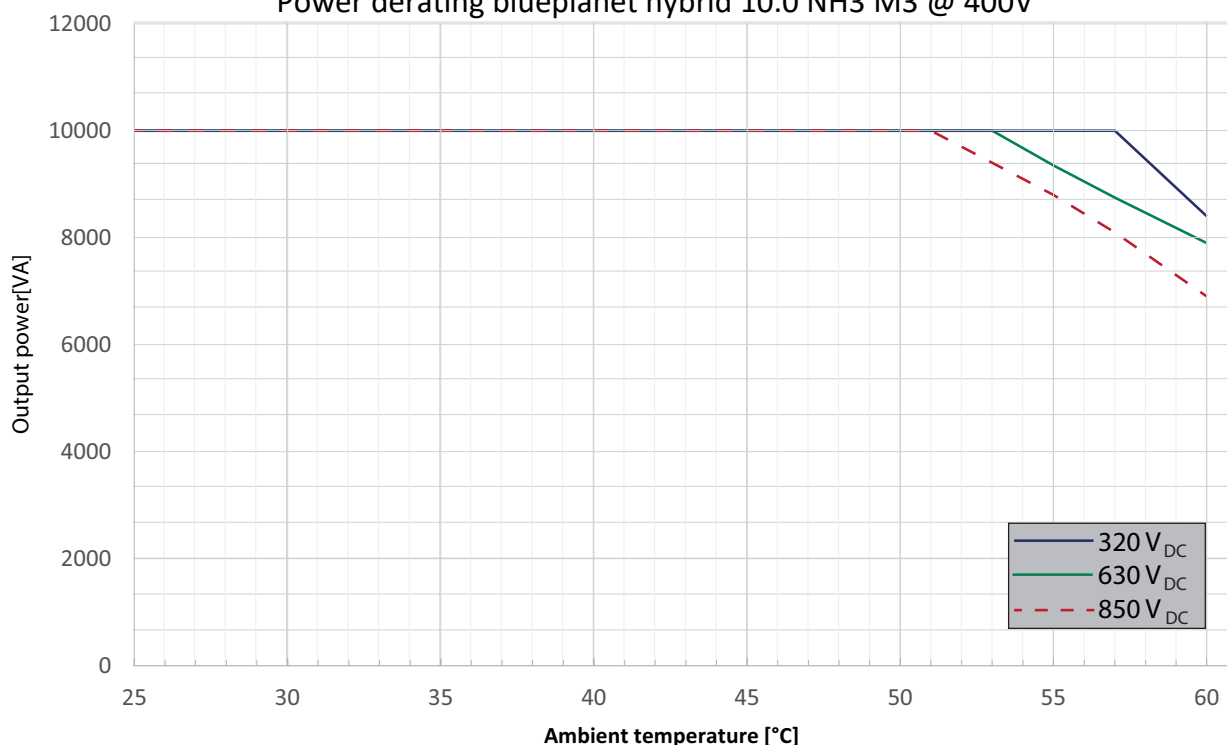


Fig. 10: Power derating blueplanet hybrid 10.0 NH3 M3

Efficiency characteristic

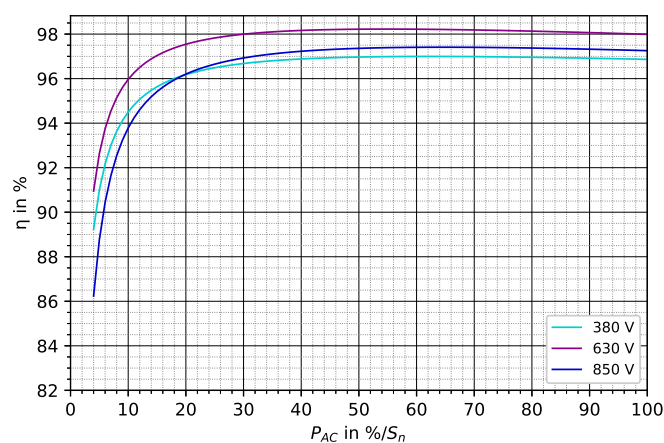
 $\eta_{\text{Euro}} = 96,46\%$ $\eta_{\text{CEC}} = 96,66\%$ $\eta_{\text{Max}} = 98,11\%$


Fig. 11: 2D Diagram blueplanet 10.0 NH3 M3

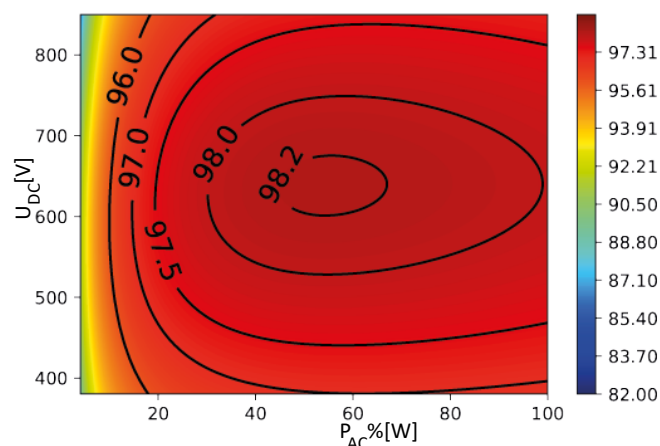


Fig. 12: 3D diagram 10.0 NH3 M3

1.4 KACO blueplanet hybrid 12.0 NH3 M3

AC-Power	
Inverter power nominal	12 kVA
Inverter power maximal	13,2 kVA
Rated current (I _n)	17,4 A (400V)
Short circuit current (I _k '' First cycle RMS value)	19,2 A
Short circuit current continuous (max output fault current)	19,2 A
Power electronics type	IGBT-MLI (self-commutated)
Rated operating voltage	220V / 380V [3/N/PE], 230V / 400V [3/N/PE], 240V / 415V [3/N/PE]
cos phi nominal	≈ 0,8
Grid connection	Three-phase
Operating behaviour in the event of a short circuit at the inverter output	
Maximum peak current (I _p)	20,0 A
Maximum peak current (I _k '')	8,0 A
Flicker	
Grid impedance angle	30° 50° 70° 85°
Flicker step factor	0,037 0,035 0,035 0,034
Short term flicker	0,033 0,031 0,032 0,030
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	

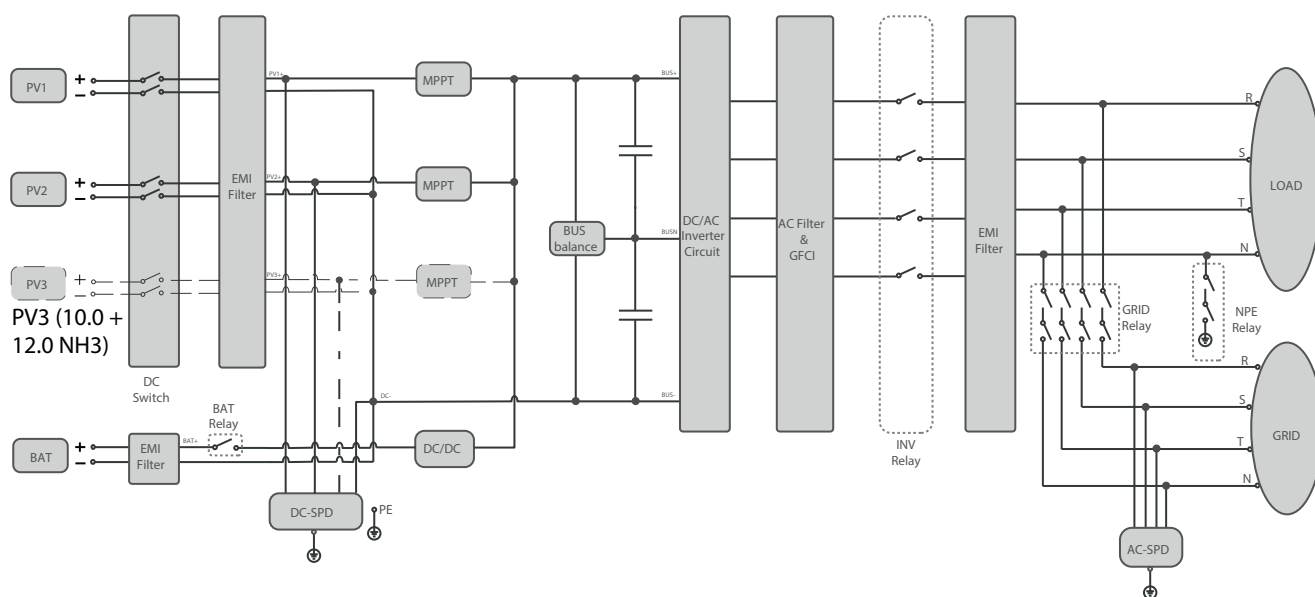


Fig. 13: Block schema blueplanet 6.0 – 12.0 NH3

Harmonics 50 Hz	[A]	[% In]
1	17,347	99,74
2	0,139	0,80
3	0,039	0,22
4	0,085	0,49
5	0,049	0,28
6	0,008	0,04
7	0,045	0,26
8	0,040	0,23
9	0,031	0,18
10	0,020	0,12
11	0,202	1,16
12	0,010	0,06
13	0,087	0,50
14	0,027	0,15
15	0,033	0,19
16	0,026	0,15
17	0,082	0,47
18	0,017	0,10
19	0,101	0,58
20	0,018	0,10
21	0,025	0,14
22	0,060	0,35
23	0,031	0,18
24	0,014	0,08
25	0,088	0,51
26	0,015	0,09
27	0,033	0,19
28	0,058	0,34
29	0,059	0,34
30	0,020	0,11
31	0,039	0,22
32	0,036	0,21
33	0,043	0,25
34	0,036	0,21
35	0,019	0,11
36	0,010	0,05
37	0,039	0,22
38	0,012	0,07
39	0,017	0,10
40	0,024	0,14
41	0,013	0,07
42	0,019	0,11
43	0,025	0,14
44	0,013	0,08
45	0,006	0,03
46	0,024	0,14

Harmonics 50 Hz	[A]	[% In]
47	0,021	0,12
48	0,017	0,10
49	0,004	0,02
50	0,021	0,12

Tab. 4: Harmonics 50 Hz blueplanet hybrid 12.0 NH3 M3

Power derating blueplanet hybrid 12.0 NH3 M3 @ 400V

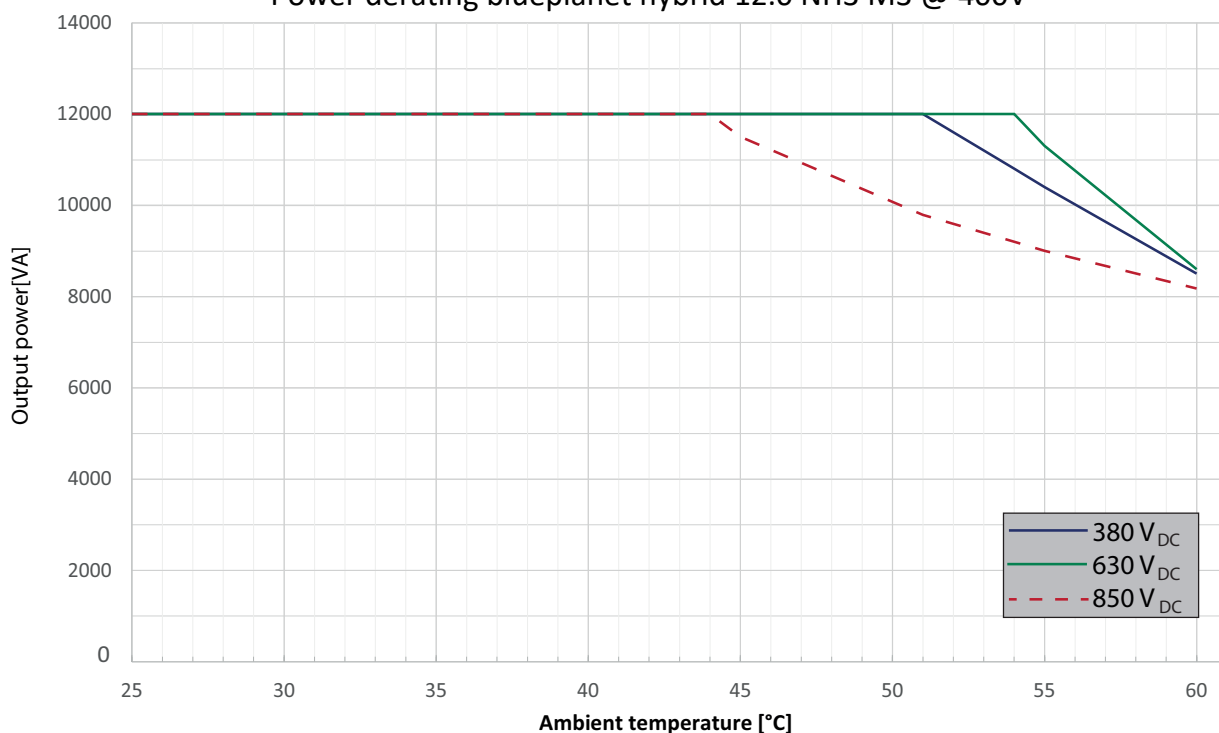


Fig. 14: Power derating blueplanet hybrid 12.0 NH3 M3

Efficiency characteristic

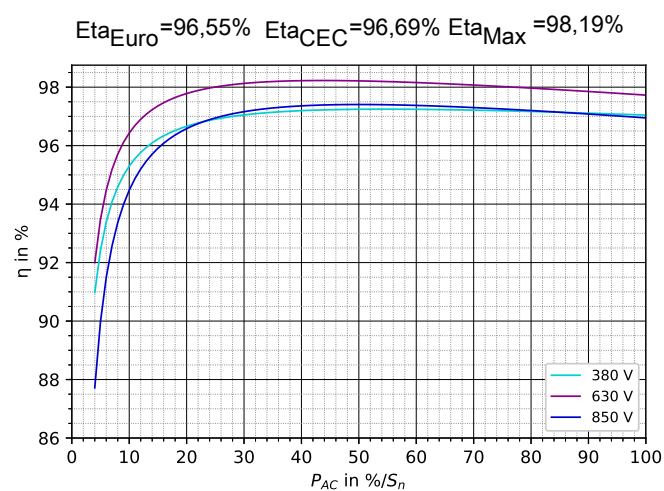


Fig. 15: 2D Diagram blueplanet 12.0 NH3 M3

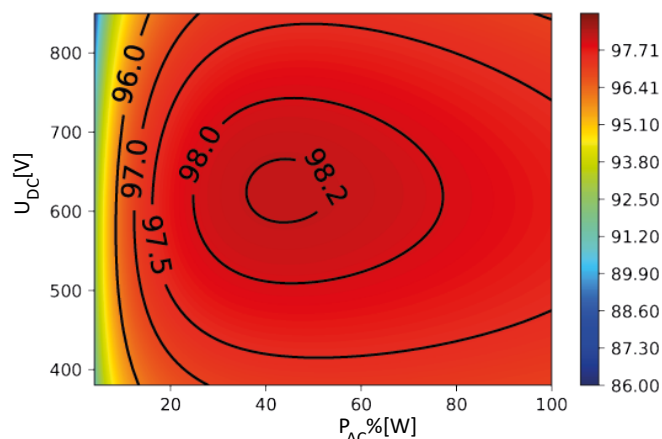


Fig. 16: 3D diagram 12.0 NH3 M3

