EN

1 Extended technical Data

1.1 KACO blueplanet 50.0 TL3

AC-Power				
Inverter power nominal	50.0 kVA [@220V]; 50.0 kVA [@230V]; 50.0 kVA [@240V]			
Inverter power maximal	52.0 kVA			
Rated current (In)	3x 69.6 A [@415V]; 3x 72.2 A [@400V]; 3x 76.0 A [@380V]			
Short circuit current (Ik'' First cycle RMS value)	77.93 A			
Short circuit current continuous (max output fault current)	96.7 A			
Power electronics type	IGBT-MLI (self-commutated)			
Rated operating voltage	240 / 415 V [3/N/PE]; 230 / 400 V [3/N/PE]; 220 / 380 V [3/N/PE]			
cos phi nominal	≈ 1			
Grid connection	Three-phase			
Impedance at 165 Hz *	$R_{165\ Hz} \approx 378{,}8\ \Omega$, $X_{165\ Hz} \approx 103{,}1\ \Omega$, $Z_{165\ Hz} \approx 392{,}6ej15{,}2°\ \Omega$			
Impedance at 175 Hz *	$R_{165\ Hz} \approx 49{,}0\ \Omega$, $X_{165\ Hz} \approx 359{,}7\ \Omega$, $Z_{165\ Hz} \approx 363{,}0ej82{,}2°\ \Omega$			
* Scheme in parallel				

Operating behaviour in the event of a short circuit at the inverter output				
Maximum peak current (Ip)	136,11 A			
Maximum peak current (Ik")	77,93 A			

Power quality characteristics				
Max. number of switching operations, N_{10}	10			
Max. number of switching operations, N_{120}	120			
Case of switching operation	Cut-in at 10 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,0123	0,0120	0,0113	0,0114
Voltage change factor	0,0076	0,0076	0,0076	0,0076
Maximum incrush current factor	5,99			
Maximum incrush current factor (transient only)	3,48			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,0649	0,0649	0,0679	0,0706
Voltage change factor	0,0510	0,0510	0,0510	0,0510
Maximum inrush current factor	6,38			
Maximum inrush current factor (transient only)	3,46			

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Case of switching operation	Service disconnection at rated power			
Description of the service disconnection procedure	Disconnection by the DC-switch			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,1412	0,1385	0,1074	0,0620
Voltage change factor	0,1105	0,1105	0,1105	0,1105
Maximum inrush current factor	Not available			
Maximum inrush current factor (transient only)	Not available			
Worst case over all switching operations	0			
Worst case over all switching operations (transient only)	0			
Note: $S_{k,\,fic}/S_n$ in the fictitious grid was set to	10			

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,04	0,04	0,04	0,04
Short term flicker	0,12	0,12	0,12	0,12
Note: $S_{k,\,fic}/S_n$ in the fictitious grid was set to	10			

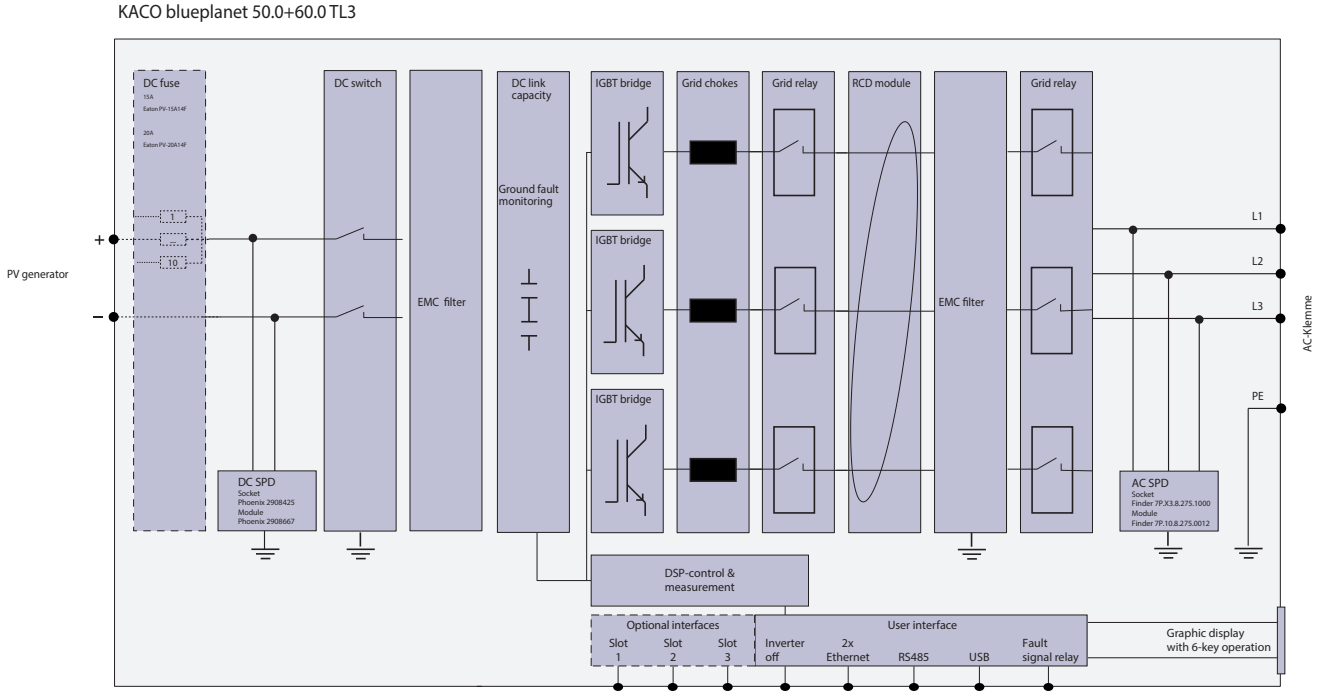

Fig. 1: Block schema blueplanet 50.0 TL3 + 60.0 TL3

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	[A]	[% de In]
1	71,201	98,34
2	0,277	0,38
3	0,070	0,09
4	0,051	0,07
5	0,341	0,47
6	0,021	0,03
7	0,209	0,28
8	0,016	0,02
9	0,066	0,09
10	0,013	0,01
11	0,119	0,16
12	0,013	0,01
13	0,091	0,12
14	0,013	0,01
15	0,026	0,03
16	0,013	0,01
17	0,065	0,09
18	0,011	0,01
19	0,065	0,09
20	0,010	0,01
21	0,021	0,02
22	0,009	0,01
23	0,054	0,07
24	0,007	0,01
25	0,058	0,08
26	0,007	0,01
27	0,019	0,02
28	0,006	0,00
29	0,055	0,07
30	0,005	0,00
31	0,056	0,07
32	0,005	0,00
33	0,017	0,02
34	0,005	0,00
35	0,051	0,07
36	0,005	0,00
37	0,055	0,07
38	0,005	0,00
39	0,017	0,02
40	0,004	0,00
41	0,051	0,07
42	0,004	0,00
43	0,051	0,07
44	0,005	0,00
45	0,017	0,02
46	0,004	0,00

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	[A]	[% de In]
47	0,048	0,06
48	0,004	0,00
49	0,047	0,06
50	0,005	0,00

Tab. 1: Harmonics 50 Hz

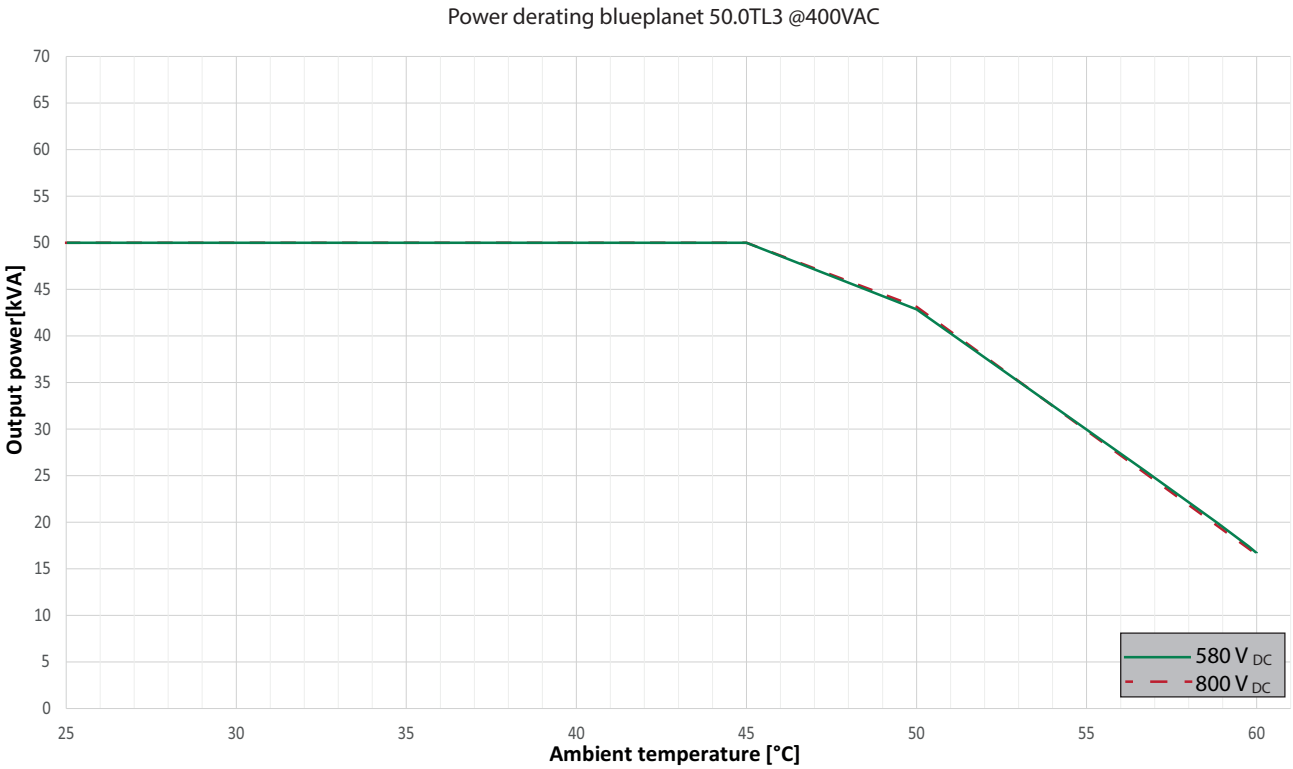

Fig. 2: Power derating blueplanet 50.0 TL3

Efficiency characteristic

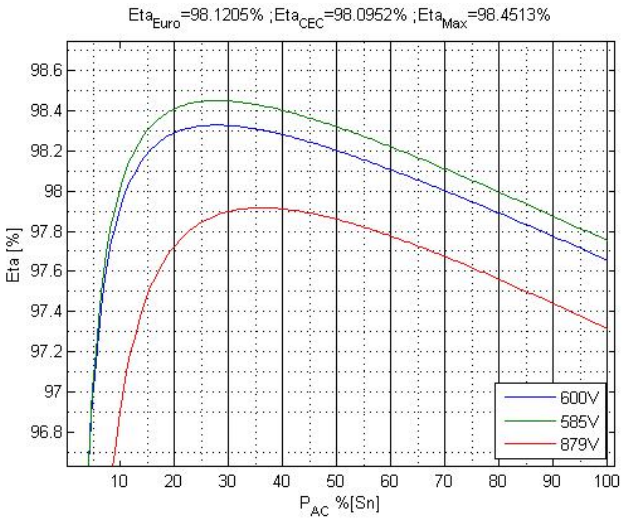

Fig. 3: 2D Diagram blueplanet 50.0 TL3

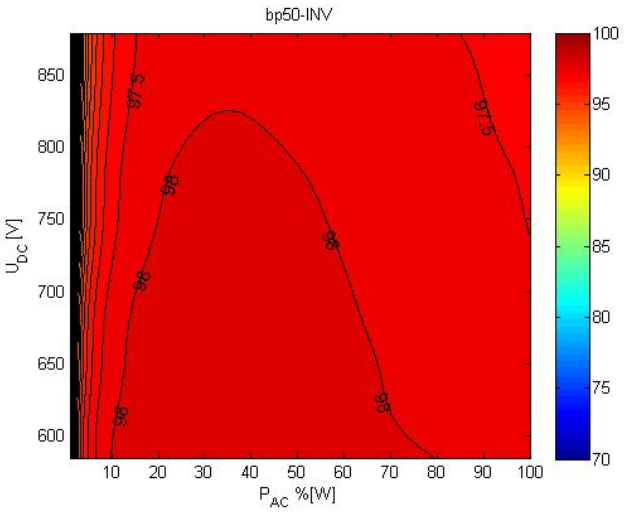

Fig. 4: 3D Diagram blueplanet 50.0 TL3

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1.2 KACO blueplanet 60.0 TL3

AC-Power				
Inverter power nominal	60 kVA			
Inverter power maximal	60 kVA			
Rated current (In)	86,7 A			
Short circuit current (Ik'' First cycle RMS value)	97,2 A			
Short circuit current continuous (max output fault current)	95,8 A			
Power electronics type	IGBT-MLI (self-commutated)			
Rated operating voltage	240 / 415 V 230 / 400 V 220 / 380 V			
cos phi nominal	≈ 1			
Grid connection	Three-phase			
Impedance at 165 Hz *	$R_{165\ Hz} \approx 378{,}8\ \Omega$, $X_{165\ Hz} \approx 103{,}1\ \Omega$, $Z_{165\ Hz} \approx 392{,}6ej15{,}2°\ \Omega$			
Impedance at 175 Hz *	$R_{175\ Hz} \approx 49{,}0\ \Omega$, $X_{175\ Hz} \approx 359{,}7\ \Omega$, $Z_{175\ Hz} \approx 363{,}0ej82{,}2°\ \Omega$			
* Scheme in parallel				

Operating behaviour in the event of a short circuit at the inverter output				
Maximum peak current (Ip)	147 A			
Maximum peak current (Ik")	97,2 A			

Power quality characteristics				
Max. number of switching operations, N_{10}	10			
Max. number of switching operations, N_{120}	120			
Case of switching operation	Cut-in at 10 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,0123	0,0120	0,0113	0,0114
Voltage change factor	0,0076	0,0076	0,0076	0,0076
Maximum incrush current factor	5,99			
Maximum incrush current factor (transient only)	3,48			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,0649	0,0649	0,0679	0,0706
Voltage change factor	0,0510	0,0510	0,0510	0,0510
Maximum inrush current factor	6,38			
Maximum inrush current factor (transient only)	3,46			

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Case of switching operation	Service disconnection at rated power			
Description of the service disconnection procedure	Disconnection by the DC-switch			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,1412	0,1385	0,1074	0,0620
Voltage change factor	0,1105	0,1105	0,1105	0,1105
Maximum inrush current factor	Not available			
Maximum inrush current factor (transient only)	Not available			
Worst case over all switching operations	0			
Worst case over all switching operations (transient only)	0			
Note: $S_{k,\,fic}/S_n$ in the fictitious grid was set to	10			

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,04	0,04	0,04	0,04
Short term flicker	0,11	0,12	0,12	0,12
Note: $S_{k,\,fic}/S_n$ in the fictitious grid was set to	10			

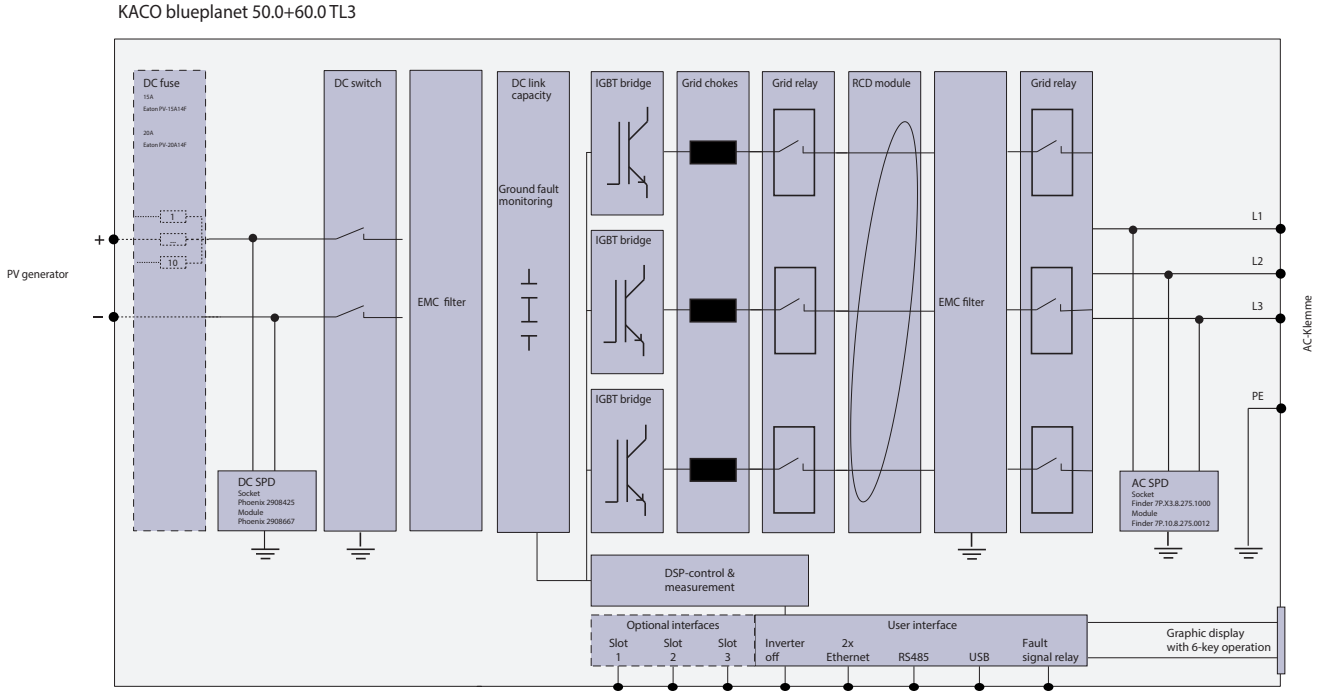

Fig. 5: Block schema blueplanet 50.0 TL3 + 60.0 TL3

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	[A]	[% de In]
1	85,719	98,87
2	0,167	0,19
3	0,128	0,15
4	0,097	0,11
5	0,153	0,18
6	0,044	0,05
7	0,107	0,12
8	0,046	0,05
9	0,040	0,05
10	0,044	0,05
11	0,109	0,13
12	0,037	0,04
13	0,082	0,09
14	0,034	0,04
15	0,035	0,04
16	0,046	0,05
17	0,077	0,09
18	0,039	0,05
19	0,059	0,07
20	0,036	0,04
21	0,035	0,04
22	0,046	0,05
23	0,053	0,06
24	0,038	0,04
25	0,045	0,05
26	0,034	0,04
27	0,037	0,04
28	0,041	0,05
29	0,041	0,05
30	0,034	0,04
31	0,041	0,05
32	0,032	0,04
33	0,035	0,04
34	0,032	0,04
35	0,036	0,04
36	0,027	0,03
37	0,043	0,05
38	0,031	0,04
39	0,034	0,04
40	0,027	0,03
41	0,045	0,05
42	0,029	0,03
43	0,045	0,05
44	0,032	0,04
45	0,032	0,04
46	0,028	0,03

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	[A]	[% de In]
47	0,048	0,05
48	0,031	0,04
49	0,048	0,06
50	0,033	0,04

Tab. 2: Harmonics 50 Hz

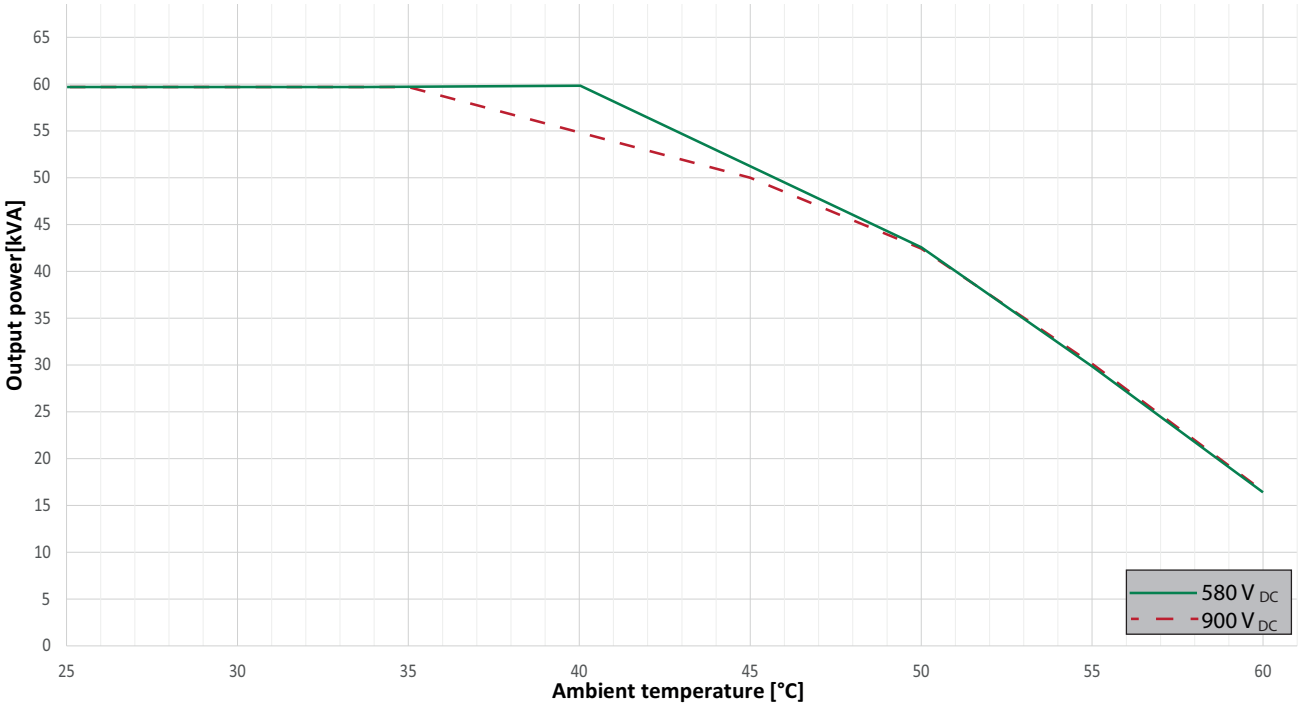

Fig. 6: Power derating blueplanet 60.0TL3

Efficiency characteristic

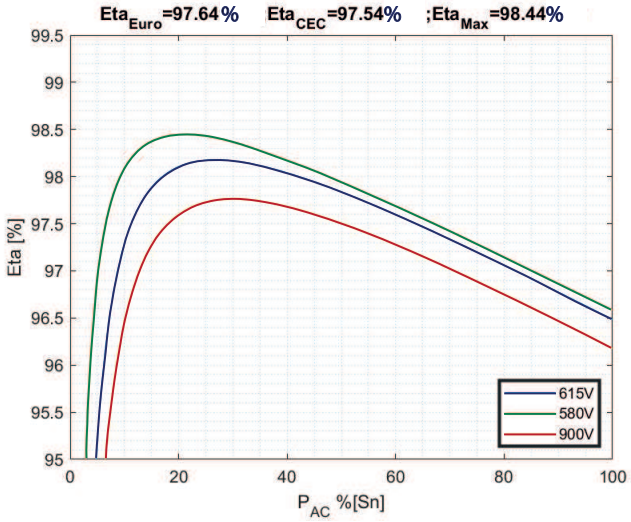

Fig. 7: 2D Diagram blueplanet 60.0TL3

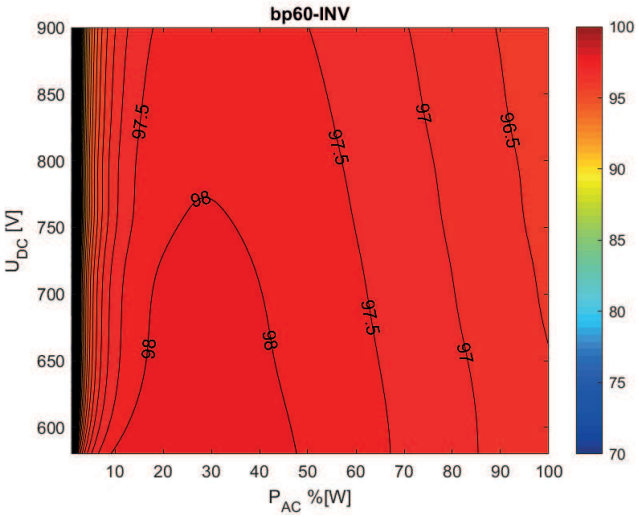

Fig. 8: 3D Diagram blueplanet 60.0TL3

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