EN

1 Extended technical Data

1.1 KACO blueplanet 87.0 TL3 GEN2

AC-Power	
Inverter power nominal	87 kVA
Inverter power maximal	87 kVA
Rated current (In)	132,3 A
Contribution to short circuit current continuous (max output fault current)	132.3 A
Power electronics type	IGBT-MLI (self-commutated)
Rated operating voltage	380 V
cos phi nominal	≈ 1
Grid connection	Three-phase
Impedance bei 165 Hz *	R175 Hz ≈ 47,0 Ω, X175 Hz ≈ 360,0 Ω
Impedance bei 175 Hz *	R165 Hz ≈ 360,0 Ω, X165 Hz ≈ 100,0 Ω
* Scheme in parallel	

Operating behaviour in the event of a short circuit at the inverter output	
Contribution to peak short-circuit current (îp)	212 A
Contribution to the initial short-circuit alternating current (Ik" first single period effective value)	137 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	0,05	0,05	0,05	0,05
Voltage change factor	1,42	1,42	1,42	1,42
Maximum incrush current factor	0,08			
Maximum incrush current factor (transient only)	0,02			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,12	0,11	0,11	0,11
Voltage change factor	1,42	1,42	1,42	1,42
Maximum inrush current factor	0,33			
Maximum inrush current factor (transient only)	0,02			
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	0,80	0,60	0,34	0,13
Voltage change factor	1,42	1,42	1,42	1,42
Maximum inrush current factor	0,94			
Maximum inrush current factor (transient only)	0,04			

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Worst case over all switching operations	0,94
Worst case over all switching operations (transient only)	0,04
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,96	0,94	0,92	0,88
Short term flicker	0,048	0,047	0,046	0,0044
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20			

Injection of DC currents
The inverter has a direct current injection lower than 0,16%, in addition the inverter has a dc current monitoring and trips in case of dc current greater than 1 A in less than 200ms

EUT Operative condition		I_{dc} threshold [mA]	I_{dc} simulated [mA]	Trip time [ma]	Ibcomp L1 [%]	Ibcomp L2 [%]	Ibcomp L3 [%]
OC1	33 % Pn	1000	>1000	200	0,156	0,213	0,068
OC2	66% Pn				-0,063	-0,081	-0,066
OC3	100 % Pn				-0,107	-0,147	-0,016
% rated AC current					0,12	0,16	0,05

Tab. 1: DC-Injection measurement values (bp 125 TL3)

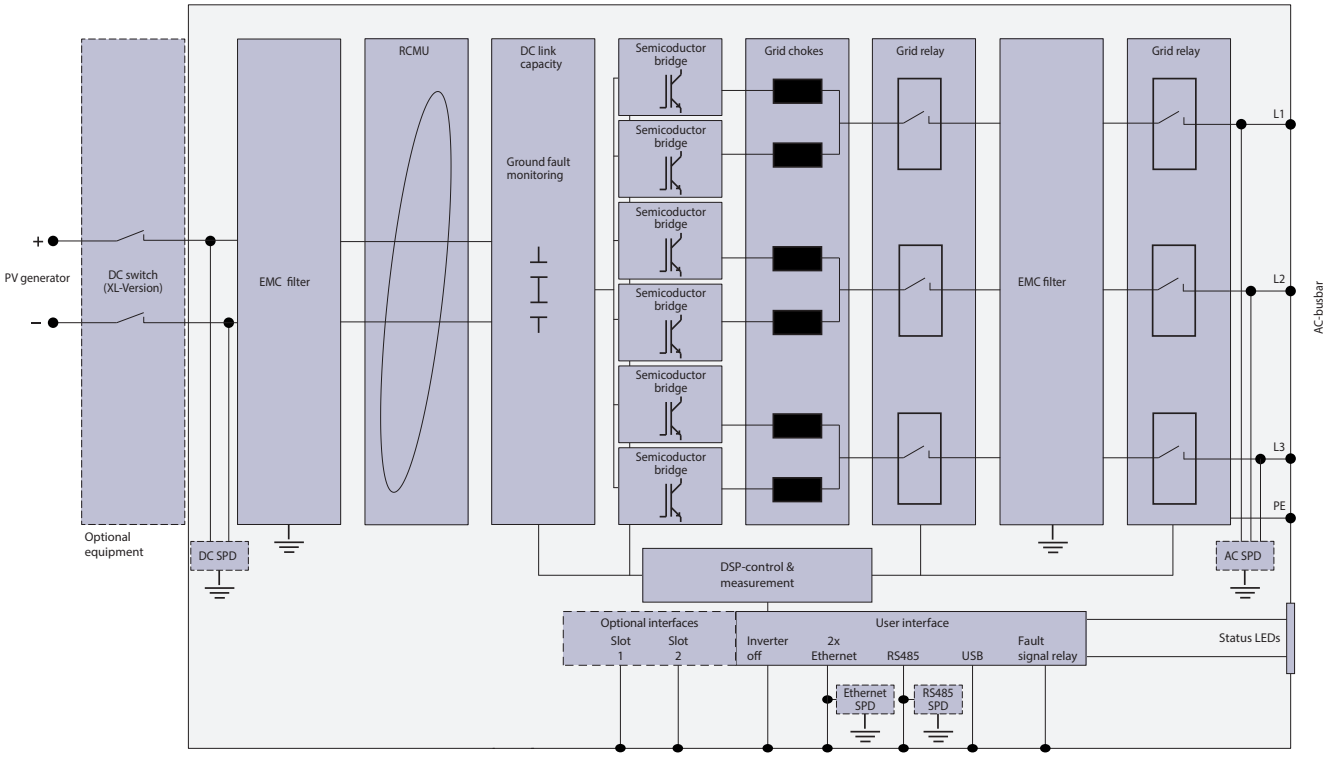


Fig. 1: Block schema blueplanet 87.0-165 TL3

Harmonics	50 Hz	
	[A]	**[% de In]**
1	125,346	94,96
2	0,235	0,18
3	0,086	0,07
4	0,068	0,06
5	0,347	0,32

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Harmonics	50 Hz	
	[A]	**[% de In]**
6	0,049	0,06
7	0,391	0,30
8	0,064	0,06
9	0,048	0,04
10	0,057	0,08
11	0,236	0,18
12	0,07	0,07
13	0,212	0,16
14	0,072	0,07
15	0,053	0,04
16	0,070	0,09
17	0,180	0,14
18	0,054	0,07
19	0,165	0,13
20	0,074	0,06
21	0,055	0,04
22	0,083	0,08
23	0,149	0,11
24	0,058	0,06
25	0,147	0,11
26	0,077	0,06
27	0,054	0,04
28	0,087	0,07
29	0,115	0,09
30	0,059	0,05
31	0,121	0,09
32	0,078	0,06
33	0,054	0,04
34	0,082	0,07
35	0,090	0,07
36	0,057	0,05
37	0,090	0,07
38	0,069	0,05
39	0,049	0,04
40	0,074	0,06
41	0,061	0,05
42	0,049	0,04
43	0,067	0,05
44	0,057	0,04
45	0,041	0,03
46	0,062	0,05
47	0,039	0,03
48	0,038	0,03
49	0,044	0,03
50	0,045	0,03

Tab. 2: Harmonics 50 Hz

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Deratingverhalten

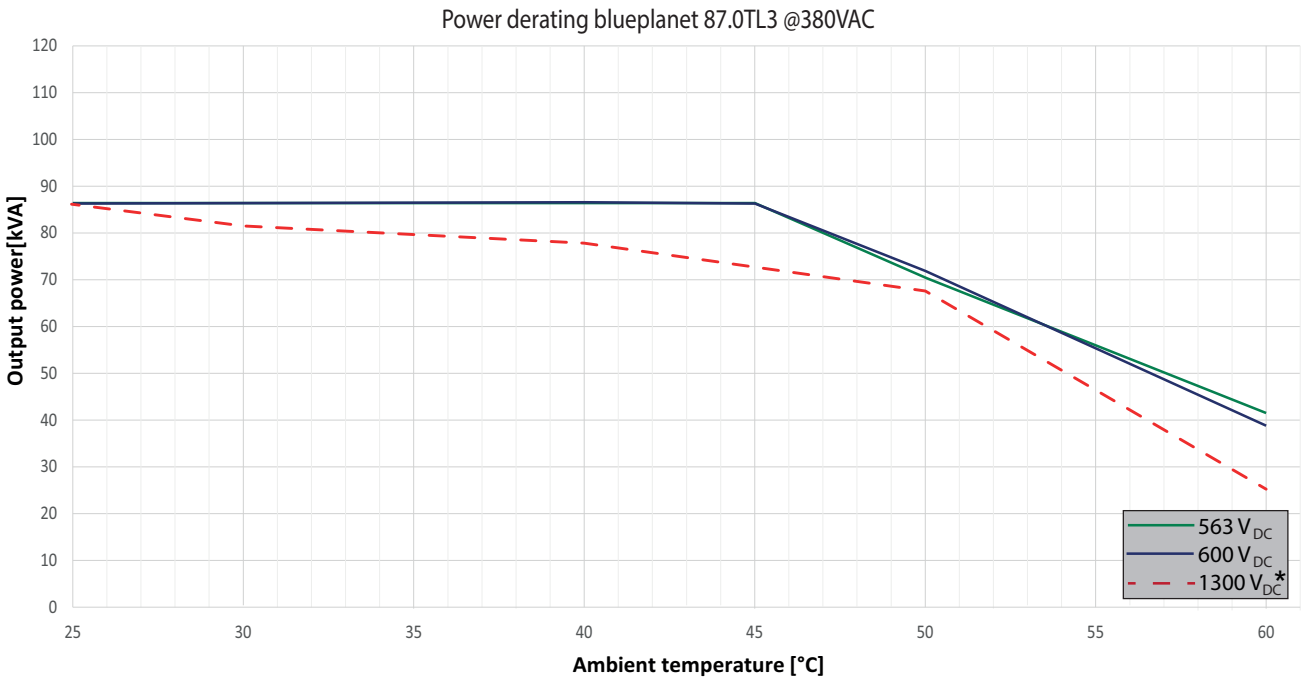


Fig. 2: Power derating blueplanet 87.0 TL3

**) Due to the thermal characteristics of solar modules an operational DC voltage of 1300VDC is not to be expected at higher ambient temperatures in the vast majority of system designs.*

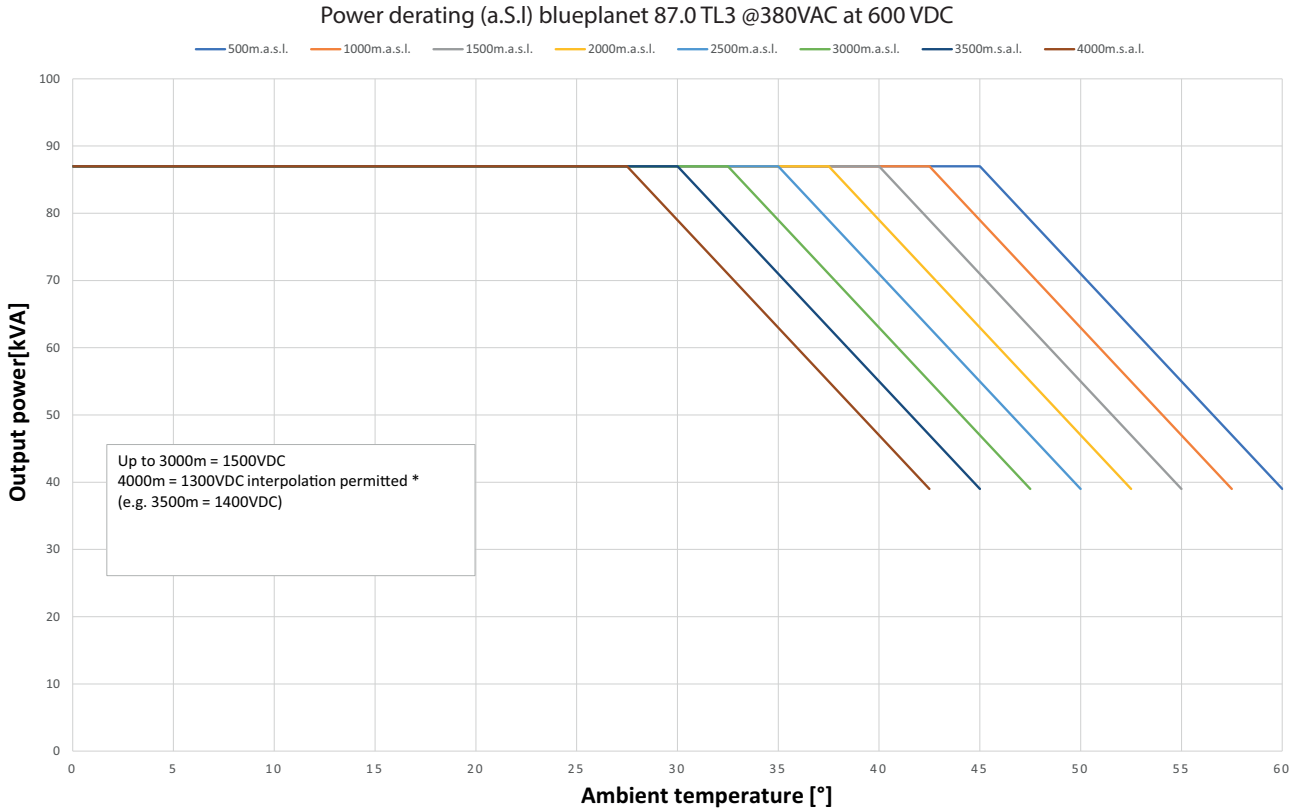


Fig. 3: Power reduction in relation to the height above sea level blueplanet 87.0 TL3

**) The provided values are simulation results and may vary from actual performance data under real operating conditions.*

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Efficiency characteristic

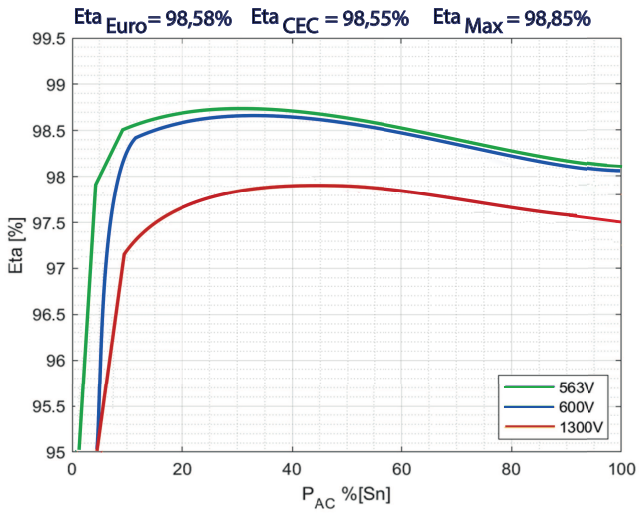


Fig. 4: 2D Diagram blueplanet 87.0TL3

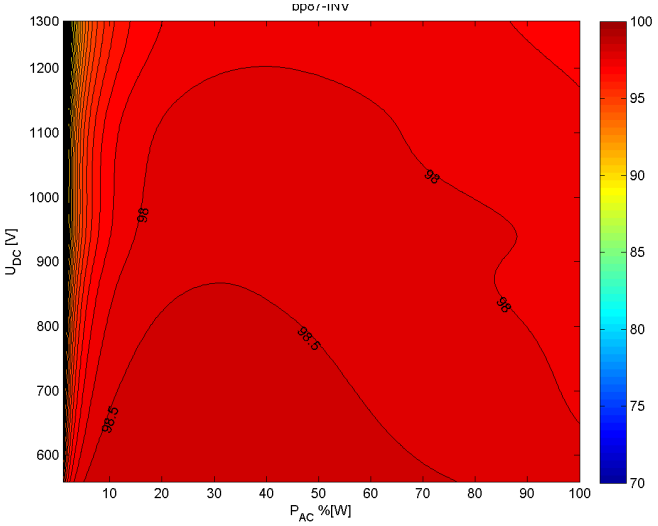


Fig. 5: 3D Diagram blueplanet 87.0TL3

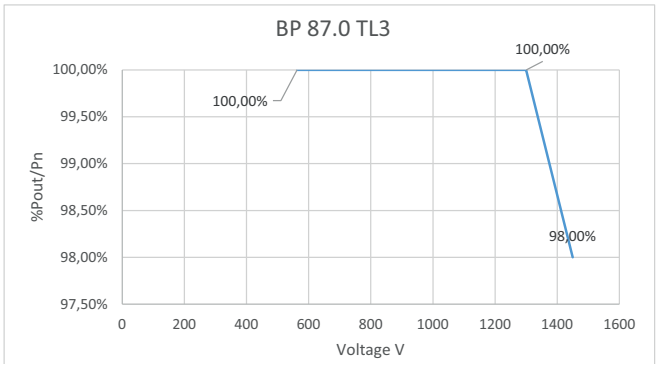


Fig. 6: 2D Diagram %Pout/Pn vs Voltage 87.0 TL3

P-Q Diagram depanding on operating voltage

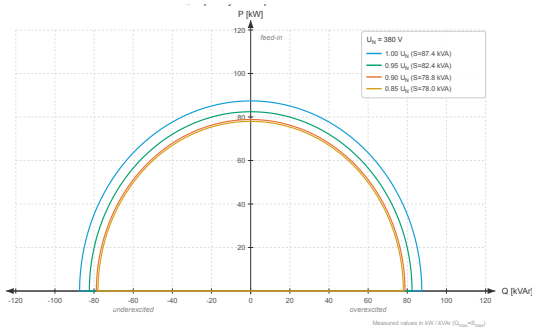


Fig. 7: P-Q operating range for bp 87.0 TL3 (Q_{max}=S_{max})

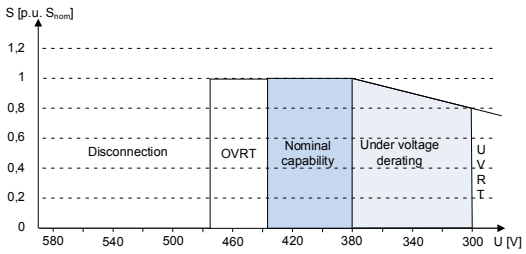


Fig. 8: Apparent power subject to the grid voltage for bp 87.0 TL3

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1.2 KACO blueplanet 92.0 TL3 GEN2

AC-Power	
Inverter power nominal	92 kVA
Inverter power maximal	92 kVA
Rated current (In)	132,3 A
Contribution to short circuit current continuous (max output fault current)	132.3 A
Power electronics type	IGBT-MLI (self-commutated)
Rated operating voltage	400 V
cos phi nominal	≈ 1
Grid connection	Three-phase
Impedance bei 165 Hz *	R175 Hz ≈ 47,0 Ω, X175 Hz ≈ 360,0 Ω
Impedance bei 175 Hz *	R165 Hz ≈ 360,0 Ω, X165 Hz ≈ 100,0 Ω
* Scheme in parallel	

Operating behaviour in the event of a short circuit at the inverter output	
Contribution to peak short-circuit current (îp)	212 A
Contribution to the initial short-circuit alternating current (Ik" first single period effective value)	137 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	0,05	0,05	0,05	0,05
Voltage change factor	1,36	1,36	1,36	1,36
Maximum incrush current factor	0,01			
Maximum incrush current factor (transient only)	0,02			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,22	0,21	0,20	0,19
Voltage change factor	1,36	1,36	1,36	1,36
Maximum inrush current factor	0,30			
Maximum inrush current factor (transient only)	0,02			
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	0,92	0,69	0,38	0,14
Voltage change factor	1,36	1,36	1,36	1,36
Maximum inrush current factor	0,08			
Maximum inrush current factor (transient only)	0,04			
Worst case over all switching operations	0,91			

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Worst case over all switching operations (transient only)	0,04
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	1,00	0,98	0,96	0,94
Short term flicker	0,05	0,049	0,048	0,047
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20			

Injection of DC currents
The inverter has a direct current injection lower than 0,16%, in addition the inverter has a dc current monitoring and trips in case of dc current greater than 1 A in less than 200ms

EUT Operative condition		I_{dc} threshold [mA]	I_{dc} simulated [mA]	Trip time [ma]	Ibcomp L1 [%]	Ibcomp L2 [%]	Ibcomp L3 [%]
OC1	33 % Pn	1000	>1000	200	0,156	0,213	0,068
OC2	66% Pn				-0,063	-0,081	-0,066
OC3	100 % Pn				-0,107	-0,147	-0,016
% rated AC current					0,12	0,16	0,05

Tab. 3: DC-Injection measurement values (bp 125 TL3)

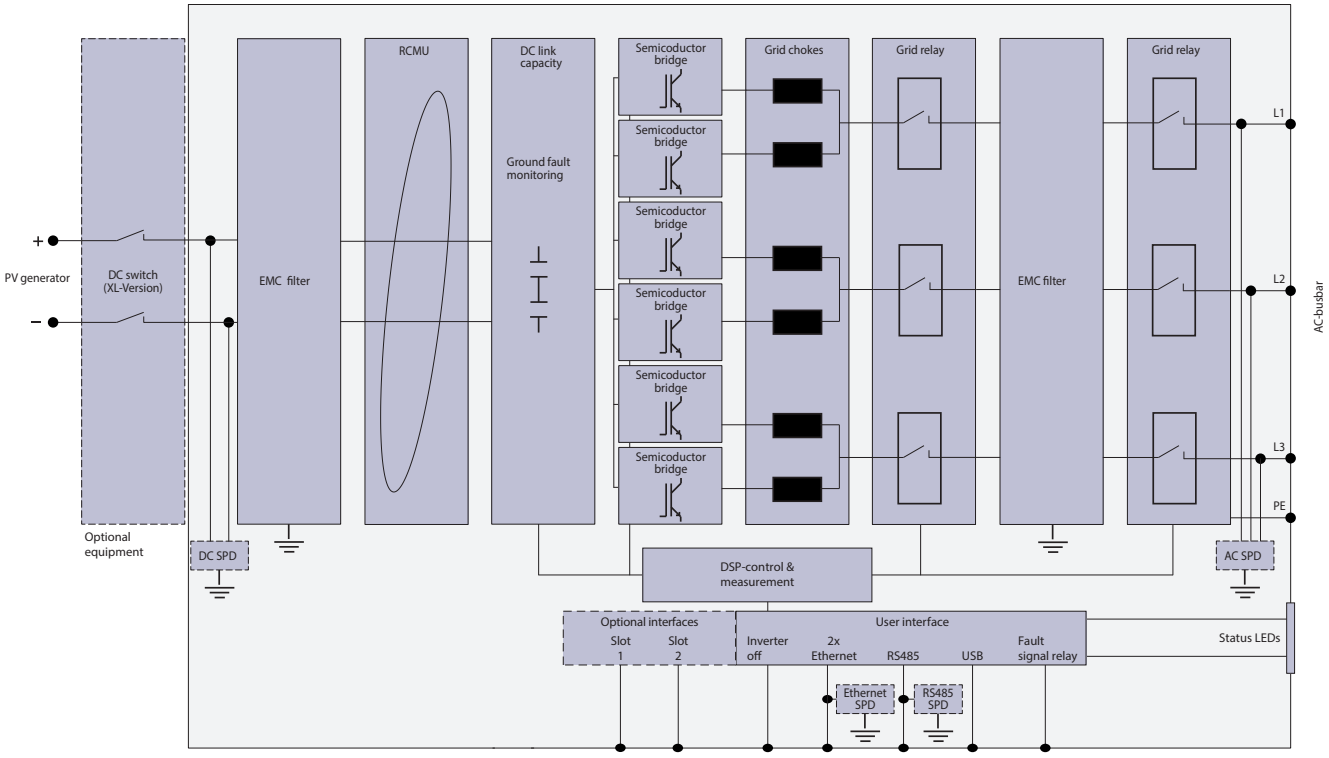


Fig. 9: Block schema blueplanet 87.0-165 TL3

Harmonics	50 Hz	
	[A]	**[% de In]**
1	129,780	98,32
2	0,254	0,19
3	0,092	0,07
4	0,072	0,05
5	0,339	0,33
6	0,064	0,06

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Harmonics	50 Hz	
	[A]	**[% de In]**
7	0,403	0,31
8	0,064	0,05
9	0,046	0,04
10	0,059	0,07
11	0,210	0,17
12	0,052	0,08
13	0,235	0,18
14	0,066	0,06
15	0,046	0,04
16	0,067	0,08
17	0,193	0,15
18	0,061	0,07
19	0,163	0,12
20	0,069	0,06
21	0,043	0,04
22	0,076	0,08
23	0,153	0,12
24	0,061	0,07
25	0,155	0,12
26	0,072	0,06
27	0,045	0,04
28	0,077	0,07
29	0,129	0,10
30	0,061	0,06
31	0,124	0,09
32	0,074	0,06
33	0,042	0,04
34	0,076	0,06
35	0,100	0,08
36	0,059	0,05
37	0,101	0,08
38	0,064	0,05
39	0,043	0,03
40	0,069	0,06
41	0,075	0,06
42	0,048	0,04
43	0,078	0,06
44	0,053	0,04
45	0,038	0,03
46	0,059	0,05
47	0,051	0,04
48	0,040	0,03
49	0,052	0,04
50	0,042	0,03

Tab. 4: Harmonics 50 Hz

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Deratingverhalten

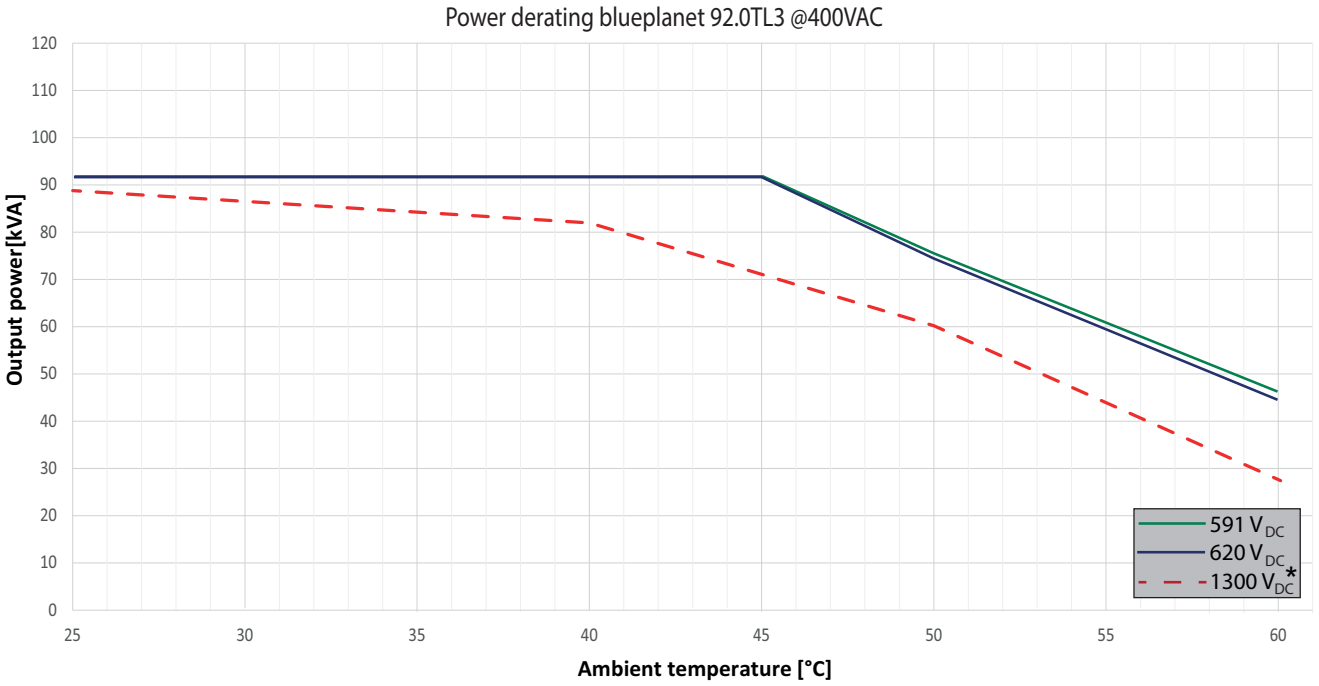


Fig. 10: Power derating blueplanet 92.0 TL3

**) Due to the thermal characteristics of solar modules an operational DC voltage of 1300VDC is not to be expected at higher ambient temperatures in the vast majority of system designs.*

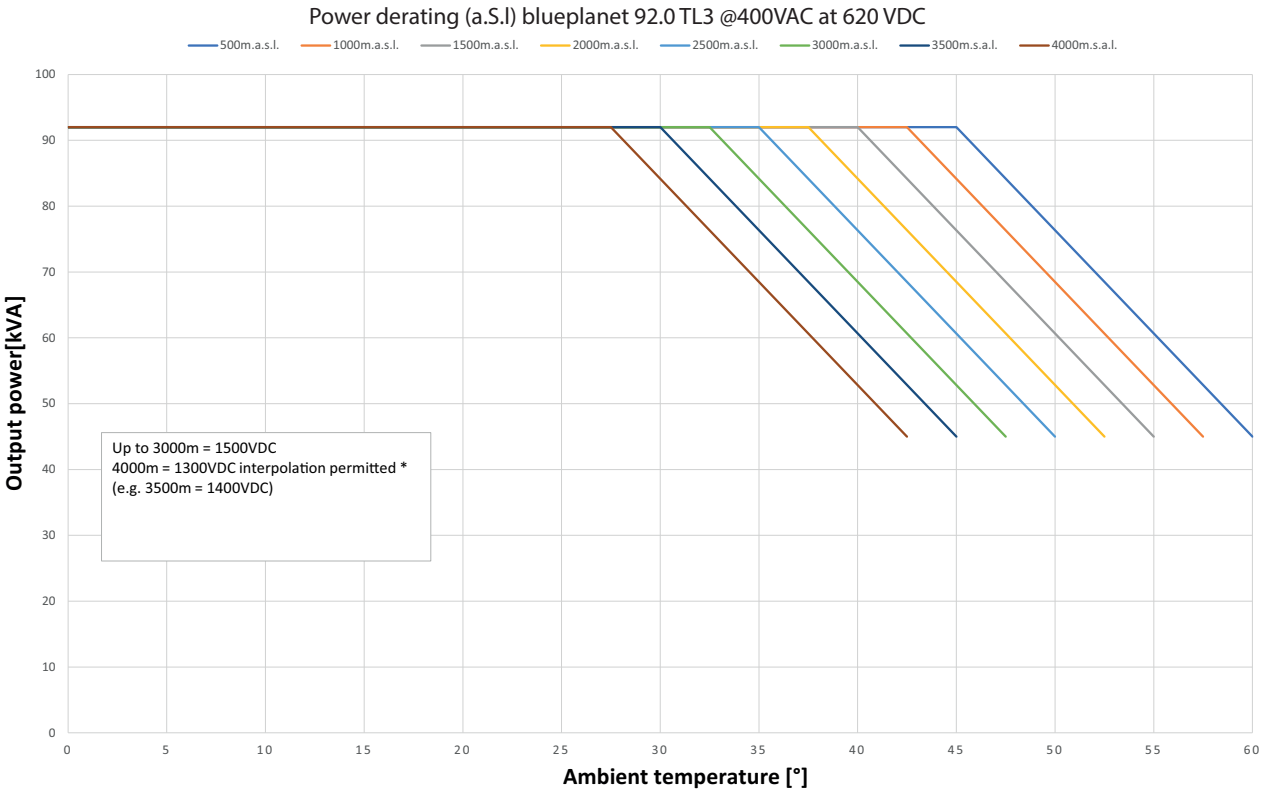


Fig. 11: Power reduction in relation to the height above sea level bleuplanet 92.0 TL3

**) The provided values are simulation results and may vary from actual performance data under real operating conditions.*

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Efficiency characteristic

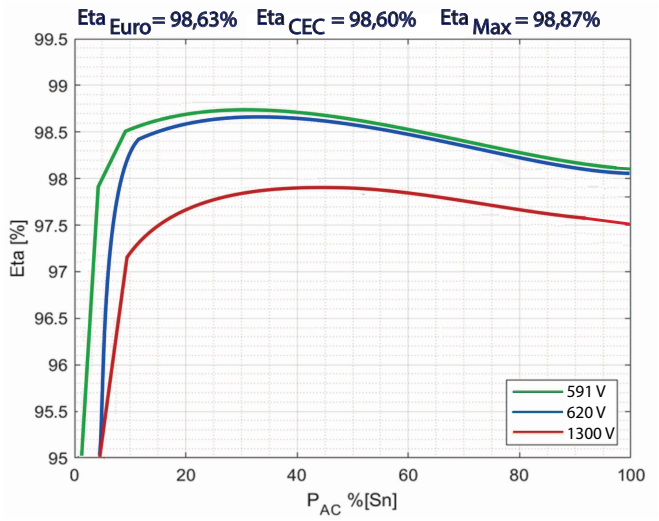


Fig. 12: 2D Diagram blueplanet 92.0 TL3

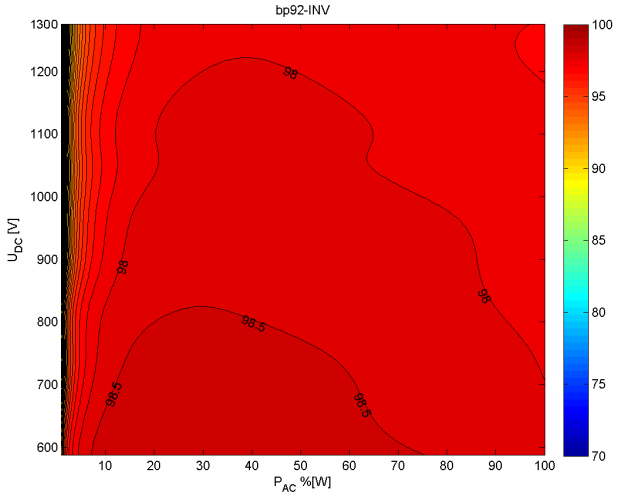


Fig. 13: 3D Diagram blueplanet 92.0TL3

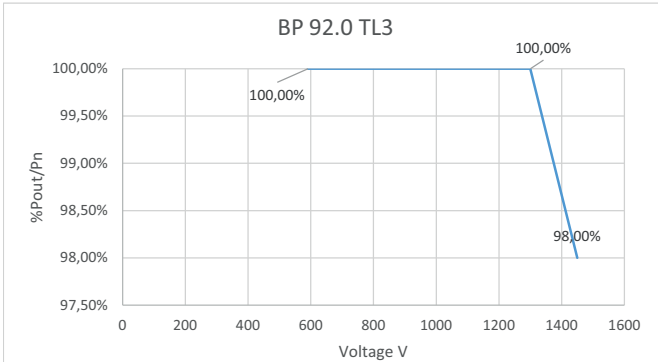


Fig. 14: 2D Diagram %Pout/Pn vs Voltage 92.0 TL3

P-Q Diagram depanding on operating voltage

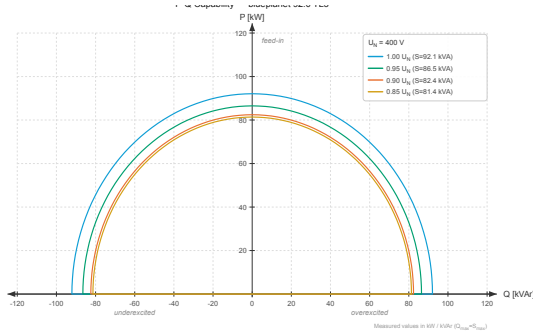


Fig. 15: P-Q operating range for bp 92.0 TL3 (Q_{max}=S_{max})

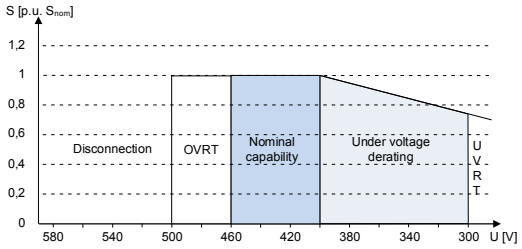


Fig. 16: Apparent power subject to the grid voltage for bp 92.0 TL3

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1.3 KACO blueplanet 105 TL3 GEN2

AC-Power				
Inverter power nominal	99,9 kVA			
Inverter power maximal	105 kVA			
Rated current (In)	152 A			
Contribution to short circuit current continuous (max output fault current)	152 A			
Power electronics type	IGBT-MLI (self-commutated)			
Rated operating voltage	400 V			
cos phi nominal	≈ 1			
Grid connection	Three-phase			
Impedance bei 165 Hz *	$R_{165\ Hz} \approx 360{,}0\ \Omega$, $X_{165\ Hz} \approx 100{,}0\ \Omega$			
Impedance bei 175 Hz *	$R_{175\ Hz} \approx 47{,}0\ \Omega$, $X_{175\ Hz} \approx 360{,}0\ \Omega$			
* Scheme in parallel				

Operating behaviour in the event of a short circuit at the inverter output	
Contribution to peak short-circuit current (îp)	260.8 A
Contribution to the initial short-circuit alternating current (Ik" first single period effective value)	157 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	0,0253	0,0383	0,0467	0,0493
Voltage change factor	0,0050	0,0050	0,0050	0,0050
Maximum inrush current factor	0,100			
Maximum inrush current factor (transient only)	0,020			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,1609	0,1566	0,1497	0,1433
Voltage change factor	0,0397	0,0397	0,0397	0,0397
Maximum inrush current factor	0,379			
Maximum inrush current factor (transient only)	0,020			
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	0,3319	0,2547	0,1526	0,0726
Voltage change factor	0,0788	0,0788	0,0788	0,0788
Maximum inrush current factor	0,000			
Maximum inrush current factor (transient only)	0,000			
Worst case over all switching operations	0, 331			

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Worst case over all switching operations (transient only)	0,040
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,62	0,93	1,13	1,18
Short term flicker	0,33	0,49	0,60	0,63
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20			

Injection of DC currents
The inverter has a direct current injection lower than 0,16%, in addition the inverter has a dc current monitoring and trips in case of dc current greater than 1 A in less than 200ms

EUT Operative condition		I_{dc} threshold [mA]	I_{dc} simulated [mA]	Trip time [ma]	Ibcomp L1 [%]	Ibcomp L2 [%]	Ibcomp L3 [%]
OC1	33 % Pn	1000	>1000	200	0,156	0,213	0,068
OC2	66% Pn				-0,063	-0,081	-0,066
OC3	100 % Pn				-0,107	-0,147	-0,016
% rated AC current					0,12	0,16	0,05

Tab. 5: DC-Injection measurement values (bp 125 TL3)

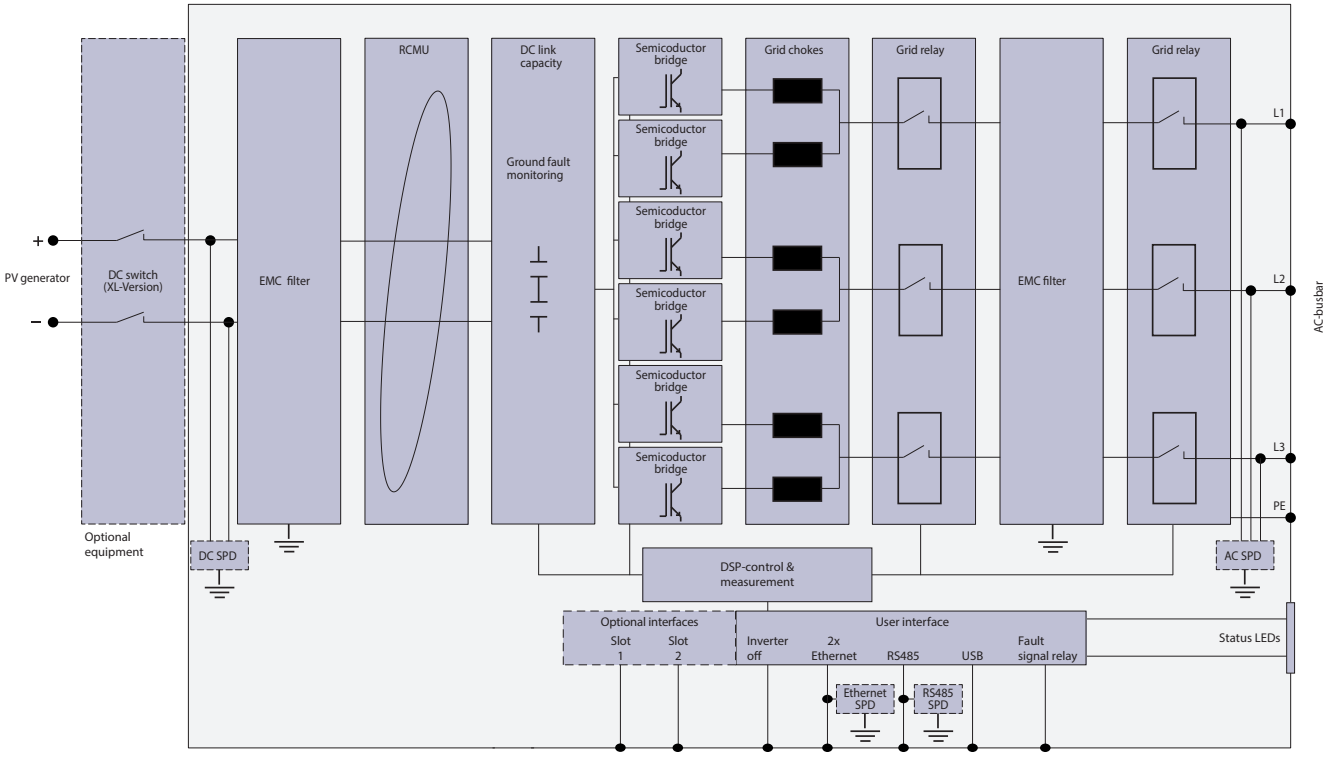


Fig. 17: Block schema blueplanet 87.0-165 TL3

Harmonics	50 Hz	
	[A]	**[% de In]**
1	150,219	98,83
2	0,346	0,23
3	0,112	0,07
4	0,141	0,09
5	0,555	0,37
6	0,114	0,07

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Harmonics	50 Hz	
	[A]	**[% de In]**
7	0,466	0,31
8	0,080	0,05
9	0,074	0,05
10	0,088	0,06
11	0,243	0,16
12	0,123	0,08
13	0,246	0,16
14	0,086	0,06
15	0,091	0,06
16	0,118	0,08
17	0,223	0,15
18	0,120	0,08
19	0,220	0,15
20	0,082	0,05
21	0,080	0,05
22	0,117	0,08
23	0,185	0,12
24	0,096	0,06
25	0,193	0,13
26	0,065	0,04
27	0,078	0,05
28	0,108	0,07
29	0,159	0,10
30	0,076	0,05
31	0,152	0,10
32	0,056	0,04
33	0,065	0,04
34	0,084	0,06
35	0,150	0,10
36	0,056	0,04
37	0,137	0,09
38	0,052	0,03
39	0,055	0,04
40	0,057	0,04
41	0,133	0,09
42	0,053	0,03
43	0,117	0,08
44	0,044	0,03
45	0,032	0,02
46	0,035	0,02
47	0,107	0,07
48	0,054	0,04
49	0,092	0,06
50	0,035	0,02

Tab. 6: Harmonics 50 Hz

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Deratingverhalten

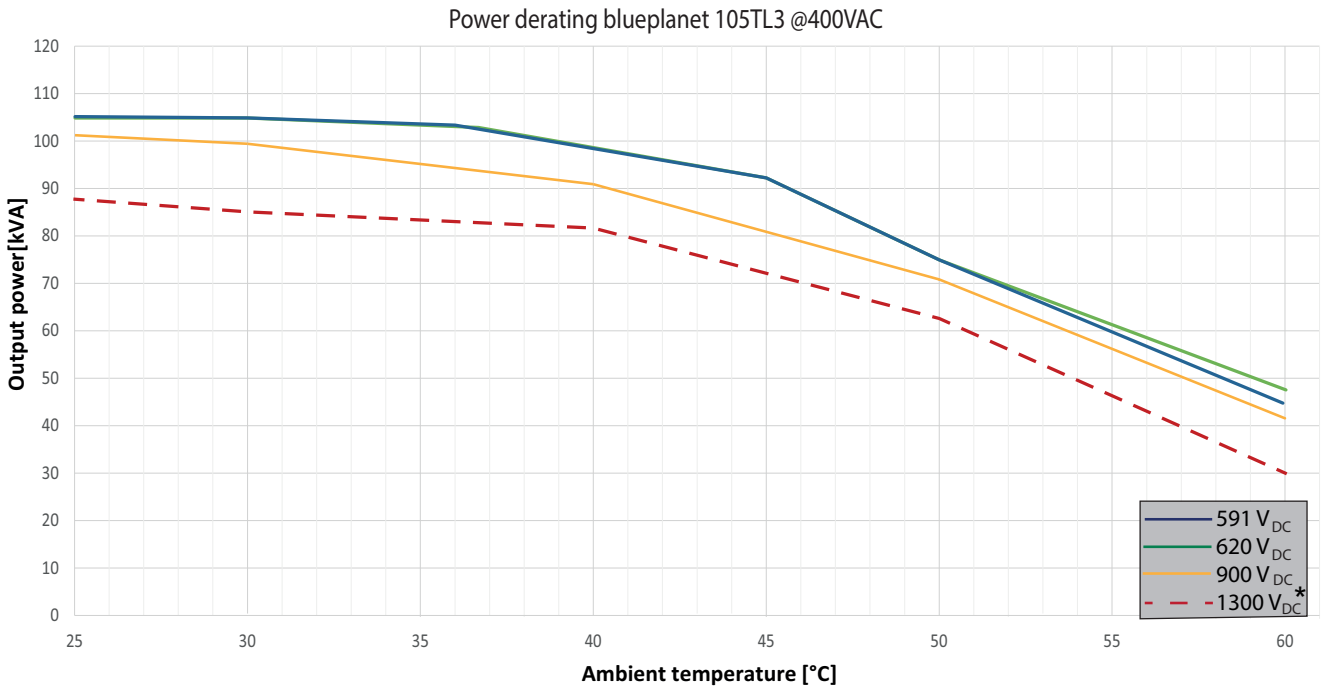


Fig. 18: Power derating blueplanet 105TL3

**) Due to the thermal characteristics of solar modules an operational DC voltage of 1300VDC is not to be expected at higher ambient temperatures in the vast majority of system designs.*

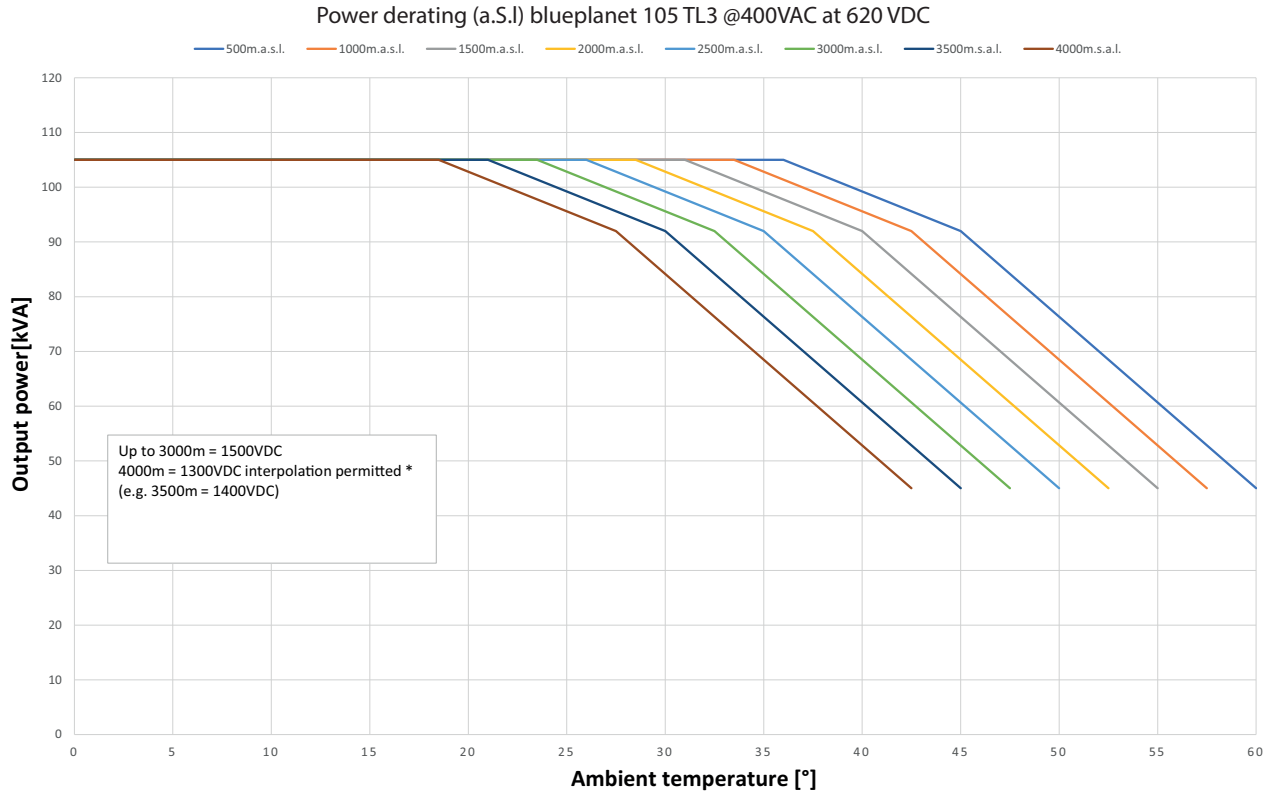


Fig. 19: Power reduction in relation to the height above sea level blueplanet 105TL3

**) The provided values are simulation results and may vary from actual performance data under real operating conditions.*

EN

Efficiency characteristic

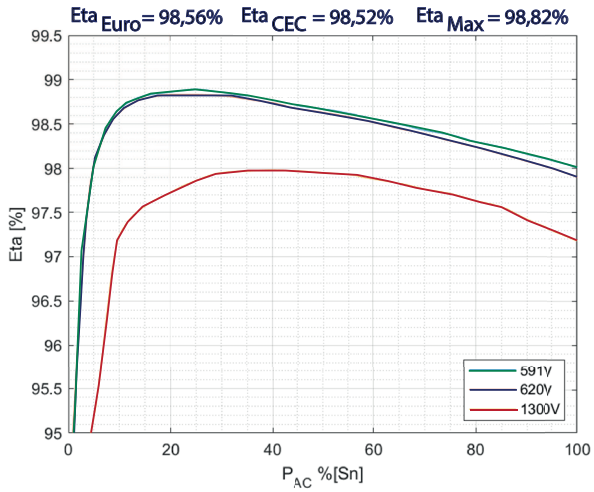


Fig. 20: 2D Diagram blueplanet 105 TL3

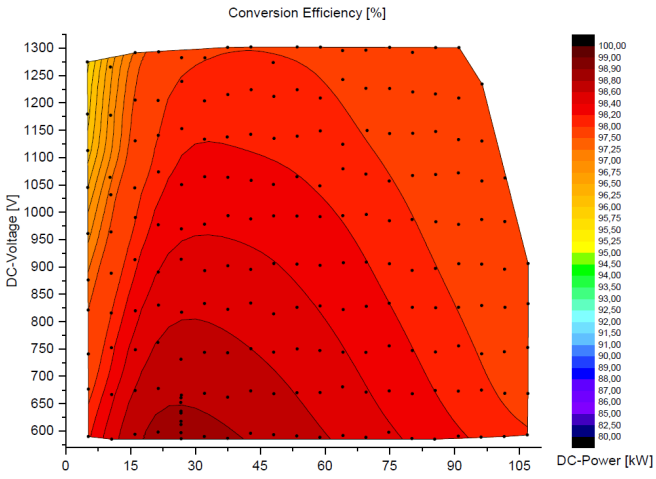


Fig. 21: 3D Diagram blueplanet 105 TL3

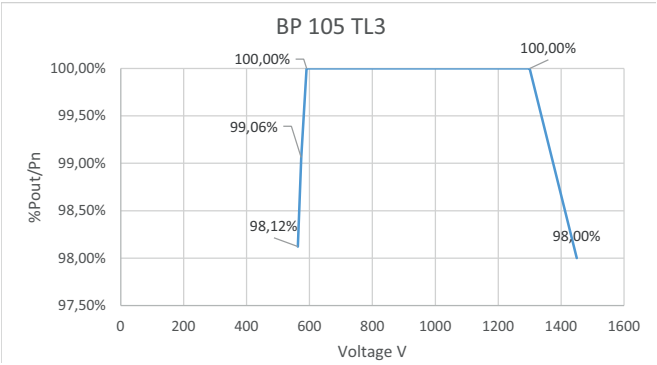


Fig. 22: 2D Diagram %Pout/Pn vs Voltage 105 TL3

P-Q Diagram depanding on operating voltage

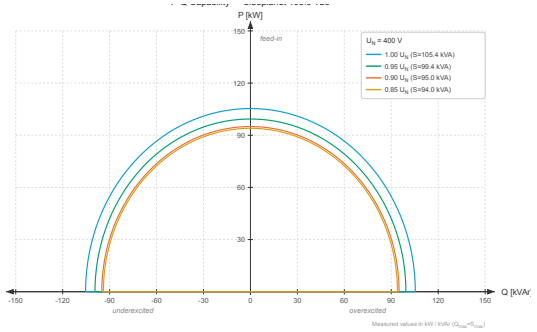


Fig. 23: P-Q operating range for bp 105 TL3 (Q_{max}=S_{max})

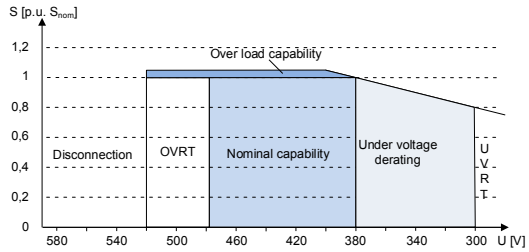


Fig. 24: Apparent power subject to the grid voltage for bp 105 TL3

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1.4 KACO blueplanet 110 TL3

AC-Power				
Inverter power nominal	110 kVA			
Inverter power maximal	110 kVA			
Rated current (In)	132,3 A			
Contribution to short circuit current continuous (max output fault current)	132.3 A			
Power electronics type	IGBT-MLI (self-commutated)			
Rated operating voltage	480 V			
cos phi nominal	≈ 1			
Grid connection	Three-phase			
Impedance bei 165 Hz *	$R_{165\ Hz}$ ≈ 360,0 Ω, $X_{165\ Hz}$ ≈ 100,0 Ω			
Impedance bei 175 Hz *	$R_{175\ Hz}$ ≈ 47,0 Ω, $X_{175\ Hz}$ ≈ 360,0 Ω			
* Scheme in parallel				

Operating behaviour in the event of a short circuit at the inverter output				
Contribution to peak short-circuit current (îp)	212 A			
Contribution to the initial short-circuit alternating current (Ik" first single period effective value)	137 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	0,04	0,03	0,03	0,03
Voltage change factor	0,26	0,23	0,19	0,18
Maximum incrush current factor	0,029			
Maximum incrush current factor (transient only)	0,02			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,05	0,05	0,05	0,05
Voltage change factor	0,97	0,71	0,38	0,24
Maximum inrush current factor	0,028			
Maximum inrush current factor (transient only)	0,02			
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	0,56	0,41	0,33	0,31
Voltage change factor	1,06	0,75	0,42	0,49
Maximum inrush current factor	0,904			
Maximum inrush current factor (transient only)	0,04			
Worst case over all switching operations	0,904			

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Worst case over all switching operations (transient only)	0,04
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	1,12	1,32	1,50	1,57
Short term flicker	0,056	0,066	0,075	0,0785
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20			

Injection of DC currents
The inverter has a direct current injection lower than 0,16%, in addition the inverter has a dc current monitoring and trips in case of dc current greater than 1 A in less than 200ms

EUT Operative condition		I_{dc} threshold [mA]	I_{dc} simulated [mA]	Trip time [ma]	Ibcomp L1 [%]	Ibcomp L2 [%]	Ibcomp L3 [%]
OC1	33 % Pn	1000	>1000	200	0,156	0,213	0,068
OC2	66% Pn				-0,063	-0,081	-0,066
OC3	100 % Pn				-0,107	-0,147	-0,016
% rated AC current					0,12	0,16	0,05

Tab. 7: DC-Injection measurement values (bp 125 TL3)

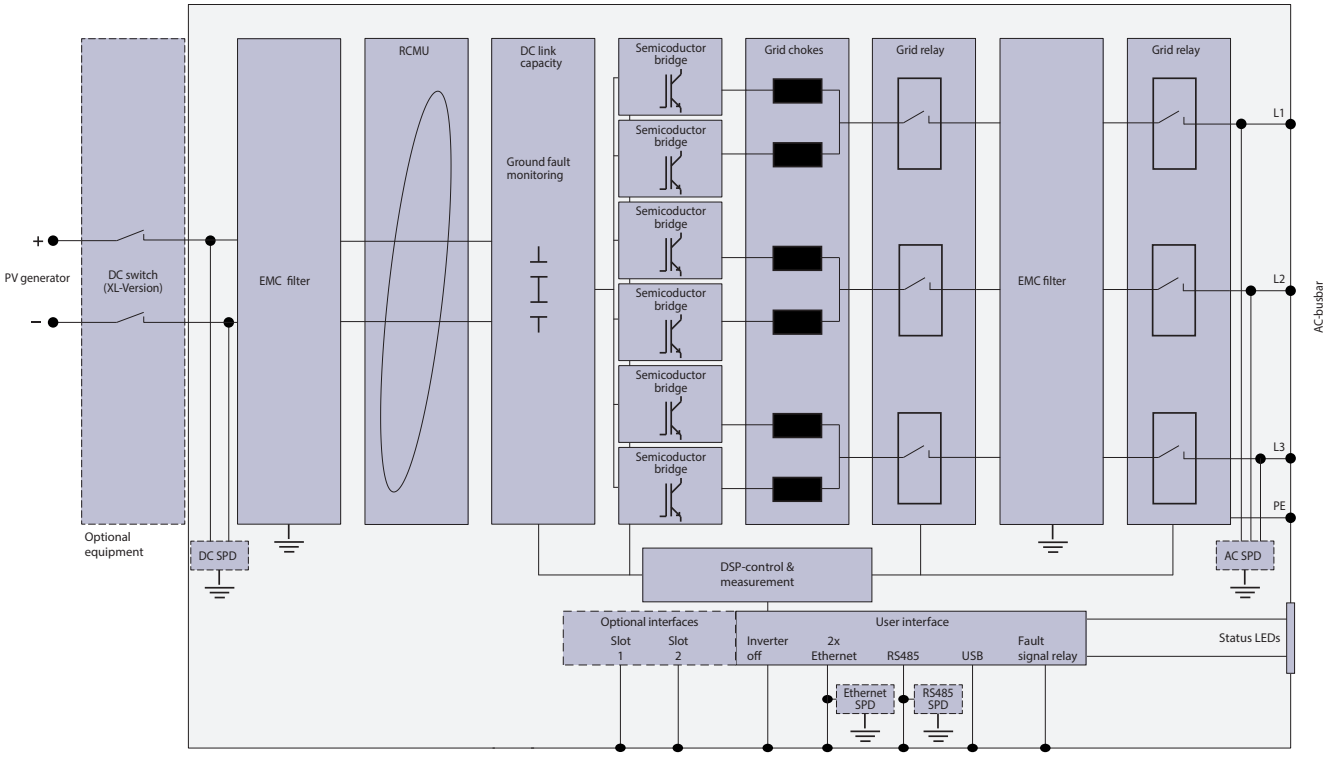


Fig. 25: Block schema blueplanet 87.0-165 TL3

Harmonics	50 Hz		60 Hz	
	[A]	**[% de In]**	**[A]**	**[% de In]**
1	126,433	95,78	118,112	89,28
2	0,260	0,20	0,260	0,20
3	0,125	0,09	0,115	0,09
4	0,072	0,06	0,097	0,07
5	0,370	0,40	0,404	0,59
6	0,097	0,07	0,068	0,07

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Harmonics	50 Hz		60 Hz	
	[A]	**[% de In]**	**[A]**	**[% de In]**
7	0,302	0,35	0,355	0,41
8	0,100	0,08	0,045	0,05
9	0,064	0,05	0,035	0,03
10	0,054	0,06	0,041	0,04
11	0,294	0,23	0,274	0,21
12	0,083	0,09	0,069	0,08
13	0,198	0,17	0,236	0,19
14	0,089	0,07	0,050	0,05
15	0,058	0,04	0,026	0,02
16	0,094	0,07	0,048	0,05
17	0,239	0,18	0,220	0,17
18	0,079	0,08	0,070	0,08
19	0,146	0,14	0,202	0,16
20	0,072	0,06	0,055	0,06
21	0,048	0,04	0,029	0,02
22	0,107	0,08	0,059	0,06
23	0,195	0,15	0,189	0,15
24	0,082	0,08	0,077	0,08
25	0,137	0,11	0,171	0,13
26	0,085	0,06	0,052	0,05
27	0,050	0,04	0,017	0,01
28	0,101	0,08	0,059	0,05
29	0,165	0,13	0,151	0,12
30	0,092	0,07	0,074	0,07
31	0,140	0,11	0,139	0,10
32	0,102	0,08	0,054	0,05
33	0,052	0,04	0,016	0,01
34	0,088	0,07	0,051	0,05
35	0,116	0,09	0,111	0,09
36	0,093	0,07	0,069	0,05
37	0,131	0,10	0,099	0,07
38	0,100	0,08	0,048	0,04
39	0,055	0,04	0,014	0,01
40	0,078	0,06	0,044	0,04
41	0,091	0,07	0,079	0,06
42	0,085	0,06	0,051	0,04
43	0,100	0,08	0,070	0,06
44	0,083	0,06	0,039	0,03
45	0,051	0,04	0,011	0,01
46	0,068	0,05	0,036	0,03
47	0,070	0,05	0,052	0,04
48	0,076	0,06	0,045	0,04
49	0,066	0,05	0,047	0,04
50	0,063	0,05	0,033	0,03

Tab. 8: Harmonics 50 Hz and 60 Hz

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Deratingverhalten

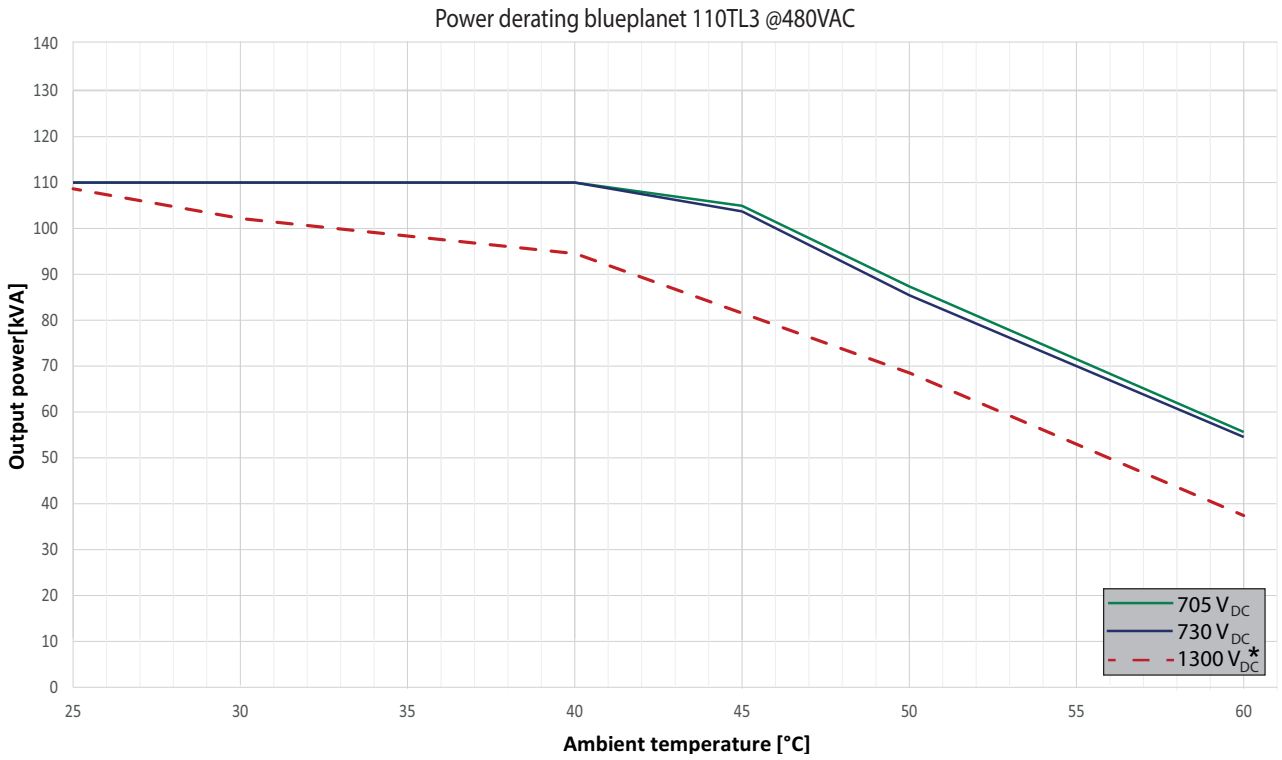


Fig. 26: Power derating blueplanet 110.0 TL3

**) Due to the thermal characteristics of solar modules an operational DC voltage of 1300VDC is not to be expected at higher ambient temperatures in the vast majority of system designs.*

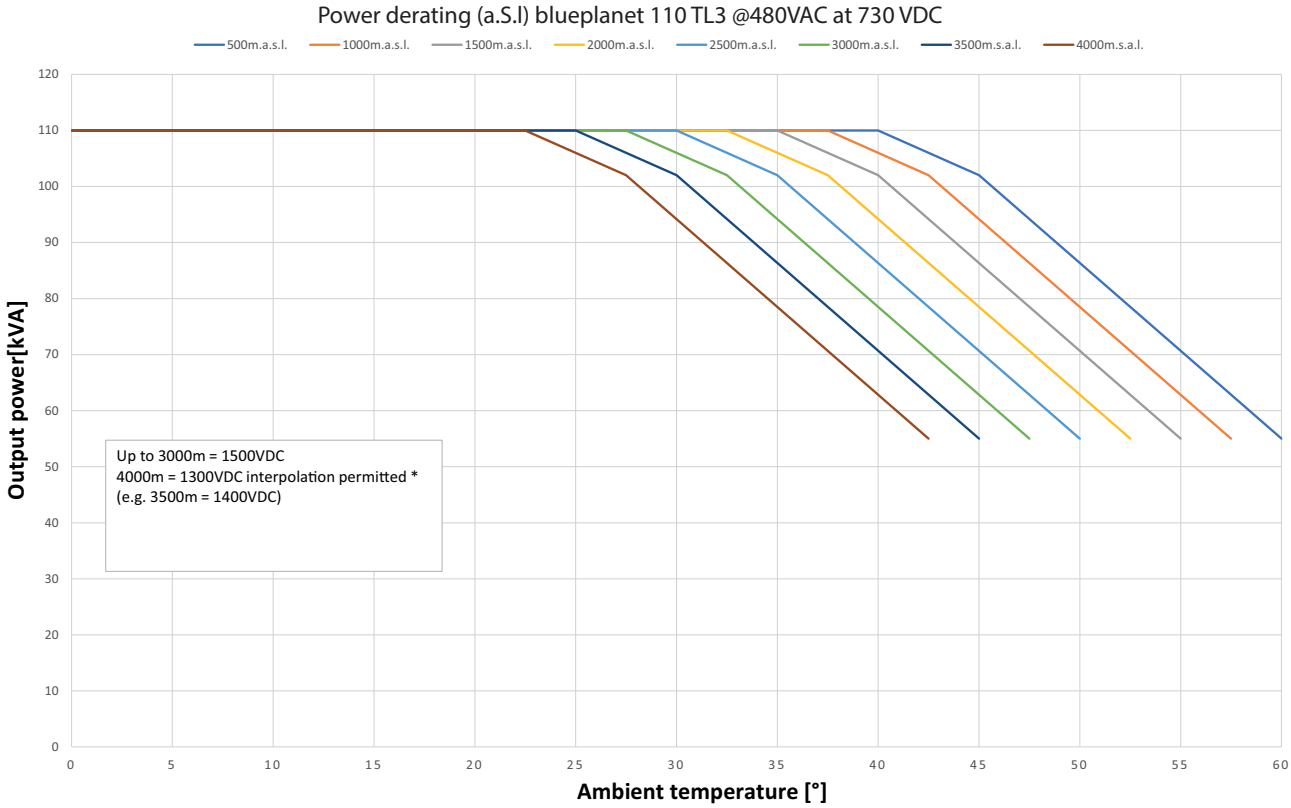


Fig. 27: Power reduction in relation to the height above sea level blueplanet 110.0 TL3

**) The provided values are simulation results and may vary from actual performance data under real operating conditions.*

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Efficiency characteristic

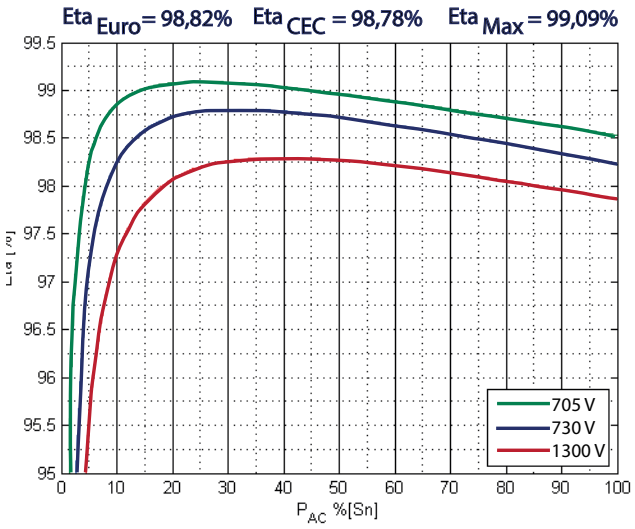


Fig. 28: 2D Diagram blueplanet 110 TL3

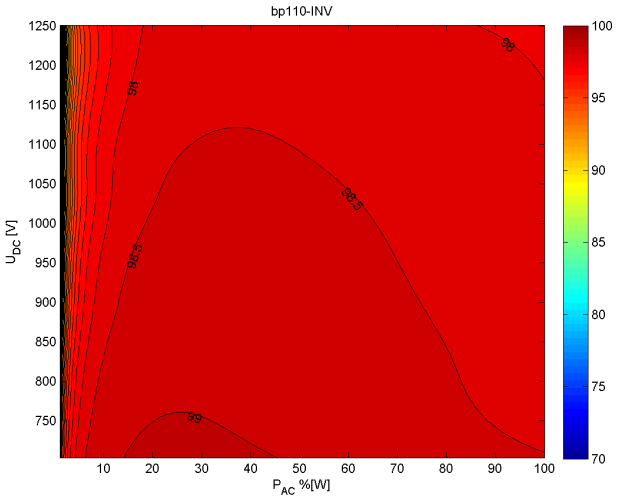


Fig. 29: 3D Diagram blueplanet 110 TL3

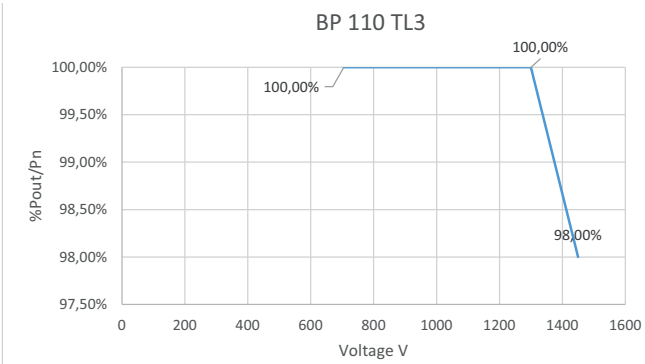


Fig. 30: 2D Diagram %Pout/Pn vs Voltage 110 TL3

P-Q Diagram depanding on operating voltage

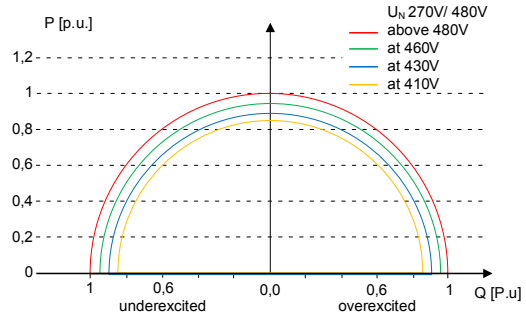


Fig. 31: P-Q operating range for bp 110 TL3 US (Q_{max}=S_{max})

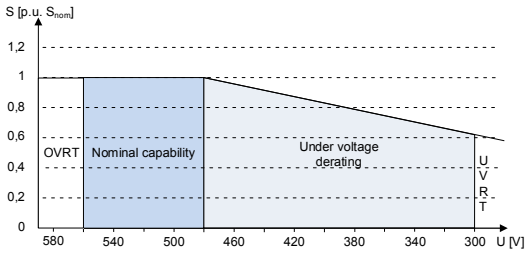


Fig. 32: Apparent power subject to the grid voltage for bp 110 TL3 US

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1.5 KACO blueplanet 125 TL3 US GEN2

AC-Power				
Inverter power nominal	125 kVA			
Inverter power maximal	125 kVA			
Rated current (In)	3 x 150.5 A			
Contribution to short circuit current continuous (max output fault current)	152 A			
Power electronics type	IGBT-MLI (self-commutated)			
Rated operating voltage	480 V (3P+PE)			
cos phi nominal	≈ 1			
Grid connection	Three-phase			
Impedance at 165 Hz *	R175 Hz ≈ 47,0 Ω, X175 Hz ≈ 360,0 Ω			
Impedance at 175 Hz *	R165 Hz ≈ 360,0 Ω, X165 Hz ≈ 100,0 Ω			
* Scheme in parallel				

Operating behaviour in the event of a short circuit at the inverter output	
Contribution to peak short-circuit current (îp)	260.8 A
Contribution to the initial short-circuit alternating current (Ik" first single period effective value)	157 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	0,0187	0,0279	0,0340	0,0358
Voltage change factor	0,0053	0,0053	0,0053	0,0053
Maximum inrush current factor	0,435			
Maximum inrush current factor (transient only)	0,020			
Case of switching operation	Cut-in at 100 % of rated power			
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,1370	0,1318	0,1250	0,1211
Voltage change factor	0,0382	0,0382	0,0382	0,0382
Maximum inrush current factor	0,435			
Maximum inrush current factor (transient only)	0,020			
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	0,3285	0,2505	0,1469	0,0642
Voltage change factor	0,0757	0,0757	0,0757	0,0757
Maximum inrush current factor	0,000			
Maximum inrush current factor (transient only)	0,000			
Worst case over all switching operations	0,328			

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Worst case over all switching operations (transient only)	0,040
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20

Flicker				
Grid impedance angle	30°	50°	70°	85°
Flicker step factor	0,46	0,69	0,84	0,88
Short term flicker	0,21	0,32	0,38	0,40
Note: $S_{k, fic}/S_n$ in the fictitious grid was set to	20			

Injection of DC currents
The inverter has a direct current injection lower than 0,16%, in addition the inverter has a dc current monitoring and trips in case of dc current greater than 1 A in less than 200ms

EUT Operative condition		I_{dc} threshold [mA]	I_{dc} simulated [mA]	Trip time [ma]	Ibcomp L1 [%]	Ibcomp L2 [%]	Ibcomp L3 [%]
OC1	33 % Pn	1000	>1000	200	0,156	0,213	0,068
OC2	66% Pn				-0,063	-0,081	-0,066
OC3	100 % Pn				-0,107	-0,147	-0,016
% rated AC current					0,12	0,16	0,05

Tab. 9: DC-Injection measurement values (bp 125 TL3)

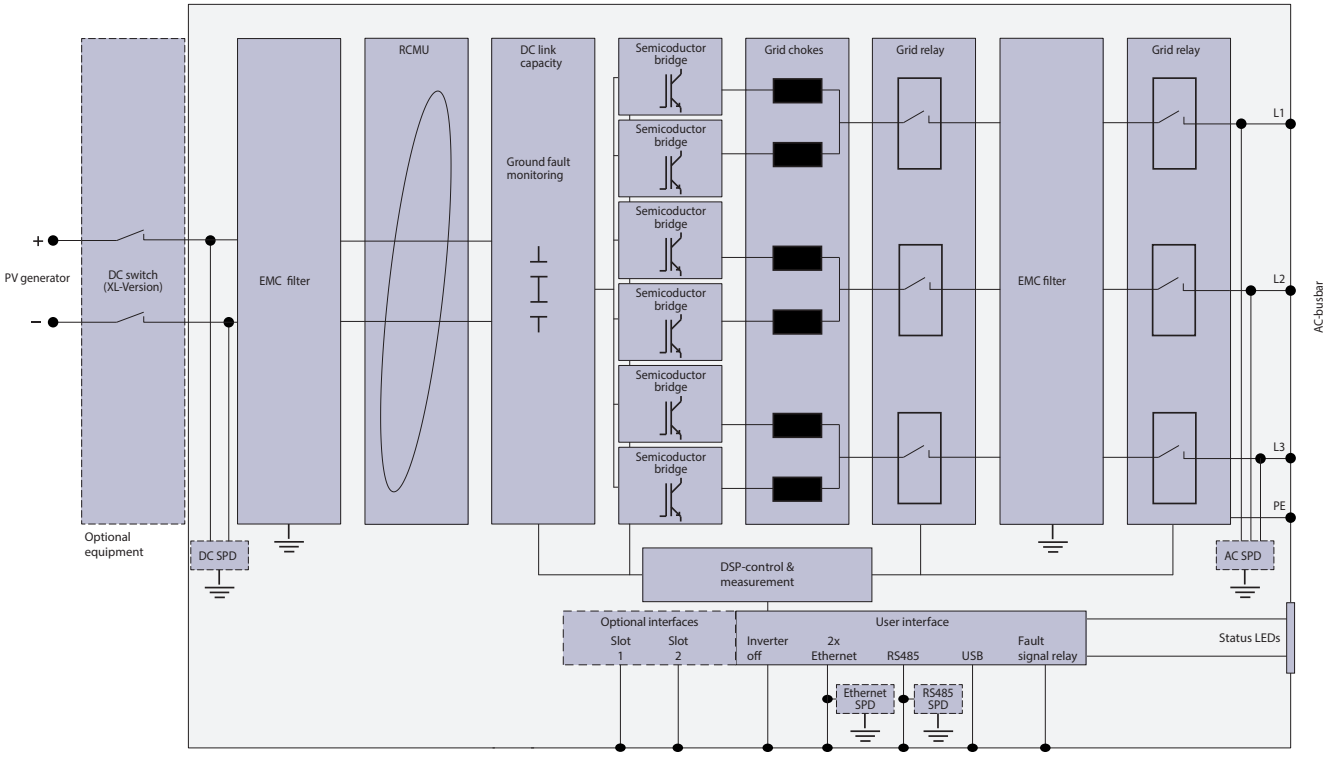


Fig. 33: Block schema blueplanet 87.0-165 TL3

	50 Hz	
	[A]	**[% de In]**
1	146,545	96,41
2	0,216	0,14
3	0,084	0,06
4	0,142	0,09
5	0,628	0,41
6	0,127	0,08

EN

	50 Hz	
	[A]	**[% de In]**
7	0,570	0,37
8	0,087	0,06
9	0,077	0,05
10	0,110	0,07
11	0,277	0,18
12	0,128	0,08
13	0,252	0,17
14	0,084	0,06
15	0,082	0,05
16	0,136	0,09
17	0,231	0,15
18	0,121	0,08
19	0,218	0,14
20	0,070	0,05
21	0,084	0,06
22	0,142	0,09
23	0,186	0,12
24	0,107	0,07
25	0,174	0,11
26	0,062	0,04
27	0,076	0,05
28	0,116	0,08
29	0,173	0,11
30	0,090	0,06
31	0,168	0,11
32	0,058	0,04
33	0,061	0,04
34	0,080	0,05
35	0,161	0,11
36	0,083	0,05
37	0,151	0,10
38	0,056	0,04
39	0,054	0,04
40	0,044	0,03
41	0,144	0,09
42	0,079	0,05
43	0,132	0,09
44	0,050	0,03
45	0,035	0,02
46	0,041	0,03
47	0,106	0,07
48	0,075	0,05
49	0,089	0,06
50	0,051	0,03

Tab. 10: Harmonics 50 Hz

EN

Deratingverhalten

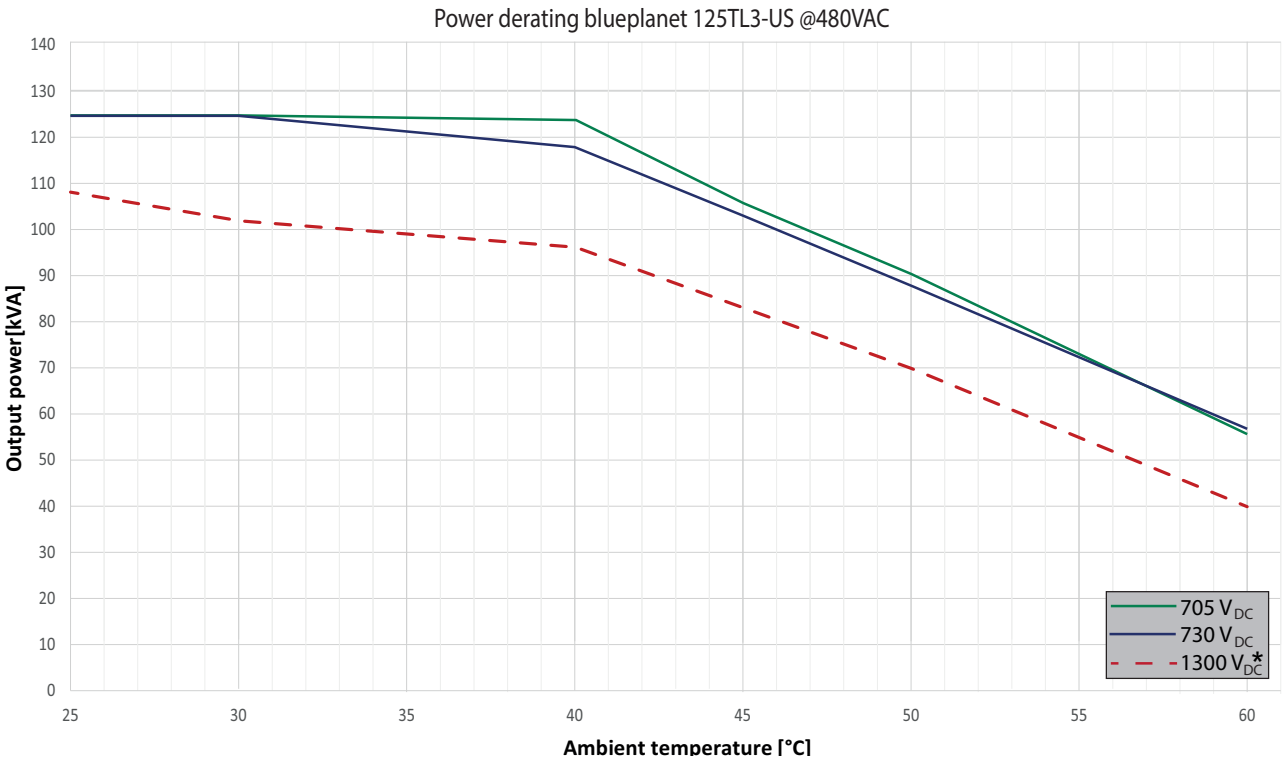


Fig. 34: Power derating blueplanet 125 TL3 US

**) Due to the thermal characteristics of solar modules an operational DC voltage of 1300VDC is not to be expected at higher ambient temperatures in the vast majority of system designs.*

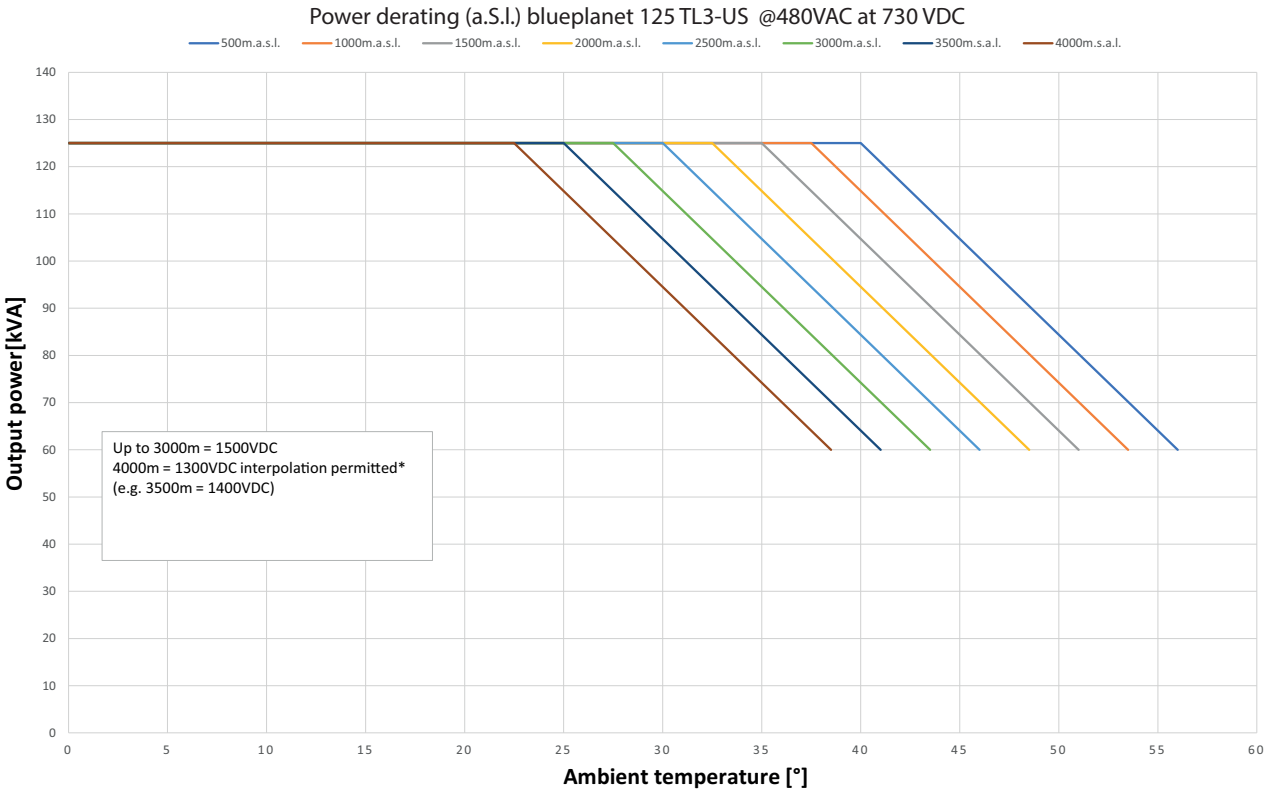


Fig. 35: Power reduction in relation to the height above sea level blueplanet 125 TL3 US

**) The provided values are simulation results and may vary from actual performance data under real operating conditions.*

EN

Efficiency characteristic

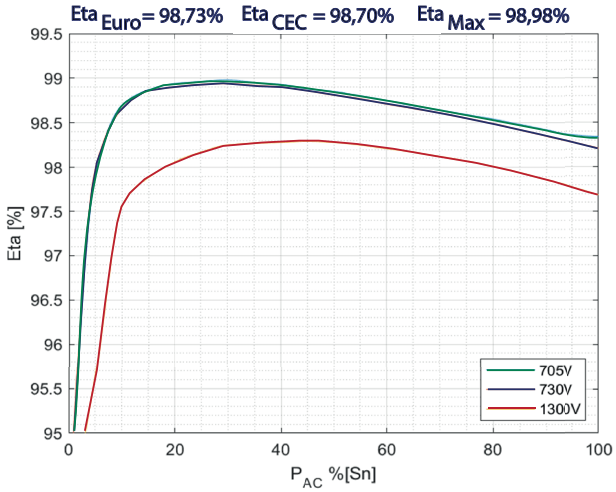


Fig. 36: 2D Diagram blueplanet 125 US

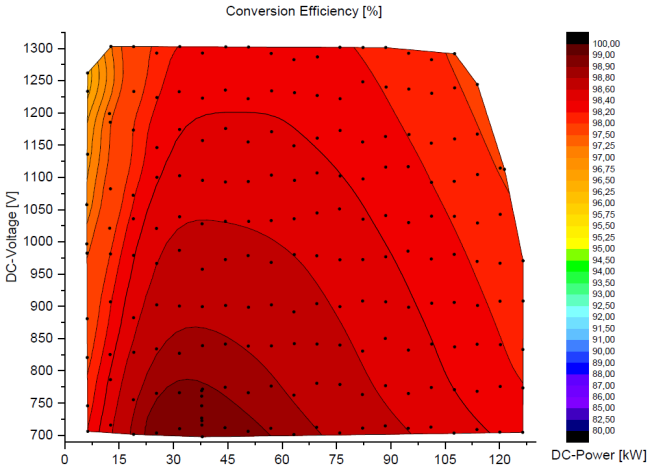


Fig. 37: 3D Diagram blueplanet 125 US

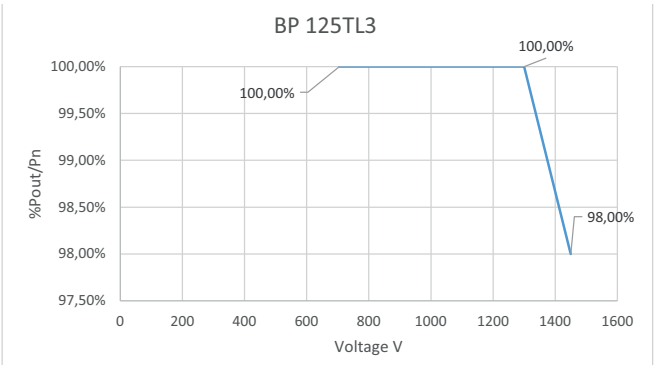


Fig. 38: 2D Diagram %Pout/Pn vs Voltage 125 TL3 US

P-Q Diagram depanding on operating voltage

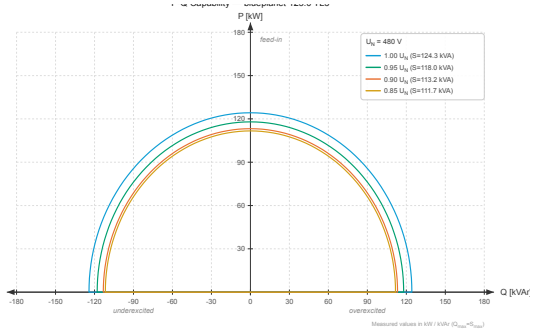


Fig. 39: P-Q operating range for bp 125 TL3 US (Q_{max}=S_{max})

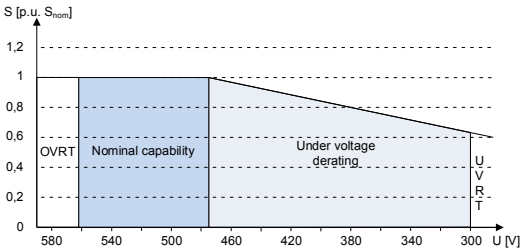


Fig. 40: Apparent power subject to the grid voltage for bp 125 TL3 US

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Werner-von-Siemens-Allee 1 · 74172 Neckarsulm · Germany · Tel. +49 7132 896-0 · info@kaco-newenergy.de · www.kaco-newenergy.de