

K A C O



new energy.

blueplanet.  
powerful solutions.





## Contents

3	blueplanet 3.0 – 5.0 TL1
7	blueplanet 3.0 – 10.0 TL3
11	blueplanet 15.0 + 20.0 TL3
13	blueplanet 29.0 TL3 LV
15	blueplanet 50.0 TL3
17	blueplanet 125 TL3
19	Powador 39.0 – 72.0 TL3
21	Powador-protect
25	blueplanet Mini-Argus 50.0
27	blueplanet Argus
29	blueplanet 50.0 TL3 ROnly
31	blueplanet gridsave 50.0 TL3-S

# blueplanet 3.0 – 5.0 TL1

Transformerless, single-phase string inverters.



## Small system? Big convenience. Highest yields!

2 MPP trackers, wide MPP range

Convenient AC and DC cabling thanks to plug-in connectors

Data logger with web server

Graphical display, intuitive menu navigation

Lightweight

Straightforward monitoring

## Technical Data

DC input data	3.0 TL1 M1	3.0 TL1	3.5 TL1
Max. recommended PV generator	3 600 W	3 600 W	4 150 W
MPP range	280 – 510 V	140 – 510 V	165 – 510 V
Operating range	125 – 550 V	125 – 550 V	125 – 550 V
Rated DC voltage / start voltage	379 V / 150 V	379 V / 150 V	379 V / 150 V
Max. no-load voltage	600 V	600 V	600 V
Max. input current	11 A	2 x 11 A	2 x 11 A
Max. short circuit current $I_{sc\ max}$	13.2 A	2 x 13.2 A	2 x 13.2 A
Number of MPP tracker	1	2	2
Connection per tracker	1	1	1
Max. input power per tracker	3100 W	3100 W	3600 W
AC output data			
Rated output	3 000 VA	3 000 VA	3 450 VA
Max. power	3 000 VA	3 000 VA	3 450 VA
Line voltage	230 V (1 / N / PE)	230 V (1 / N / PE)	230 V (1 / N / PE)
Voltage range (Ph-N)	166 – 276 V	166 – 276 V	166 – 276 V
Rated frequency (range)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)
Rated current	13.0 A	13.0 A	15.0 A
Max. current	14.5 A	14.5 A	16.6 A
Reactive power / cos phi	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.
Max. total harmonic distortion	1.42 %	1.42 %	0.79 %
Number of grid phases	1	1	1
General data			
Max. efficiency	97.2 %	97.2 %	97.2 %
Europ. efficiency	96.2 %	96.5 %	96.5 %
Standby consumption	3 W	3 W	3 W
Circuitry topology	transformerless	transformerless	transformerless
Mechanical data			
Display	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs
Control units	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Interfaces	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI
Fault signalling relay	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
DC connection	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)
AC connection	AC plug	AC plug	AC plug
Ambient temperature	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>
Humidity	0 – 95 %	0 – 95 %	0 – 95 %
Max. installation elevation (above)	2 000 m	2 000 m	2 000 m
Min. distance from coast	2 000 m	2 000 m	2 000 m
Cooling	convection cooling	convection cooling	convection cooling
Protection class	IP54 / NEMA 3R	IP54 / NEMA 3R	IP54 / NEMA 3R
Noise emission	< 35 db (A)	< 35 db (A)	< 35 db (A)
H x W x D	560 x 367 x 227 mm	560 x 367 x 227 mm	560 x 367 x 227 mm
Weight	15 kg	15 kg	16.5 kg
Certifications			
Safety	IEC 62109-1 / -2, EN 61000-6-1 / -2 / -3, EN 61000-3-2 / -3 / -11 / -12		
Grid connection rule	overview see homepage / download area		

3.7 TL1	4.0 TL1	4.6 TL1	5.0 TL1
4 400 W	4 800 W	5 500 W	6 000 W
170 – 510 V	185 – 510 V	215 – 510 V	235 – 510 V
125 – 550 V	125 – 550 V	125 – 550 V	125 – 550 V
379 V / 150 V	379 V / 150 V	379 V / 150 V	379 V / 150 V
600 V	600 V	600 V	600 V
2 x 11 A	2 x 11 A	2 x 11 A	2 x 11 A
2 x 13.2 A	2 x 13.2 A	2 x 13.2 A	2 x 13.2 A
2	2	2	2
1	1	1	1
3800 W	4100 W	4700 W	5140 W
3 680 VA	4 000 VA	4 600 VA	5 000 VA
3 680 VA	4 000 VA	4 600 VA	5 000 VA
230 V (1 / N / PE)	230 V (1 / N / PE)	230 V (1 / N / PE)	230 V (1 / N / PE)
166 – 276 V	166 – 276 V	166 – 276 V	166 – 276 V
50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)
16.0 A	17.4 A	20.0 A	21.7 A
17.7 A	19.5 A	22.0 A	22.0 A
0 – 95 % Smax / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.
0.79 %	0.79 %	0.79 %	0.79 %
1	1	1	1
97.2 %	97.2 %	97.2 %	97.2 %
96.5 %	96.6 %	96.6 %	96.6 %
3 W	3 W	3 W	3 W
transformerless	transformerless	transformerless	transformerless
graphical display + LEDs	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs
4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI
potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)
AC plug	AC plug	AC plug	AC plug
-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>
0 – 95 %	0 – 95 %	0 – 95 %	0 – 95 %
2 000 m	2 000 m	2 000 m	2 000 m
2 000 m	2 000 m	2 000 m	2 000 m
convection cooling	convection cooling	convection cooling	convection cooling
IP54 / NEMA 3R	IP54 / NEMA 3R	IP54 / NEMA 3R	IP54 / NEMA 3R
< 35 db (A)	< 35 db (A)	< 35 db (A)	< 35 db (A)
560 x 367 x 227 mm	560 x 367 x 227 mm	560 x 367 x 227 mm	560 x 367 x 227 mm
18 kg	18 kg	18 kg	18 kg

IEC 62109-1 / -2, EN 61000-6-1 / -2 / -3, EN 61000-3-2 / -3 / -11 / -12

overview see homepage / download area

Feed in starts at less than 550 V DC

<sup>1)</sup> Power derating at high ambient temperatures



# blueplanet 3.0 – 10.0 TL3

Transformerless, three-phase string inverters.



7

## The inverters for the private energy revolution.

Rapid amortization of residential and small commercial PV arrays

High flexibility for unconventional system designs

Simple installation and commissioning, also outdoors

Data logger with web server for continuous system monitoring

Optimised for the targeted self-consumption of solar power

## Technical Data

DC input data	3.0 TL3	4.0 TL3	5.0 TL3
Max. recommended PV generator power	3 600 W	4 800 W	6 000 W
MPP range	200 – 800 V	200 – 800 V	240 – 800 V
Operating range	200 – 950 V	200 – 950 V	200 – 950 V
Rated DC voltage / start voltage	653 V / 250 V	653 V / 250 V	653 V / 250 V
Max. no-load voltage	1 000 V	1 000 V	1 000 V
Max. input current	2 x 11 A	2 x 11 A	2 x 11 A
Max. short circuit current $I_{sc\ max}$	2 x 16 A	2 x 16 A	2 x 16 A
Number of MPP tracker	2	2	2
Connection per tracker	1	1	1
Max. input power per tracker	3 200 W	4 200 W	5 200 W
AC output data			
Rated output	3 000 VA	4 000 VA	5 000 VA
Max. power	3 000 VA	4 000 VA	5 000 VA
Line voltage	240 V / 415 V (3 / N / PE)	240 V / 415 V (3 / N / PE)	240 V / 415 V (3 / N / PE)
	230 V / 400 V (3 / N / PE)	230 V / 400 V (3 / N / PE)	230 V / 400 V (3 / N / PE)
	220 V / 380 V (3 / N / PE)	220 V / 380 V (3 / N / PE)	220 V / 380 V (3 / N / PE)
Voltage range (Ph-Ph)	305 – 480 V	305 – 480 V	305 – 480 V
Rated frequency (range)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)
Rated current	3 x 4.20 A @ 415 V	3 x 5.60 A @ 415 V	3 x 7.00 A @ 415 V
	3 x 4.35 A @ 400 V	3 x 5.80 A @ 400 V	3 x 7.25 A @ 400 V
	3 x 4.60 A @ 380 V	3 x 6.10 A @ 380 V	3 x 7.60 A @ 380 V
Max. current	3 x 4.8 A	3 x 6.4 A	3 x 8.0 A
Reactive power / cos phi	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.
Max. total harmonic distortion (THD)	0.36 %	0.32 %	0.31 %
Number of grid phases	3	3	3
General data			
Max. efficiency	98.1 %	98.2 %	98.3 %
Europ. efficiency	96.6 %	97.1 %	97.4 %
Standby consumption	3 W	3 W	3 W
Circuitry topology	transformerless	transformerless	transformerless
Mechanical data			
Display	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs
Control units	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Interfaces	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI
Fault signalling relay	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
DC connection	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)
AC connection	AC plug	AC plug	AC plug
Ambient temperature	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>
Humidity	0 – 100 %	0 – 100 %	0 – 100 %
Max. installation elevation (above MSL)	2 000 m	2 000 m	2 000 m
Min. distance from coast	2 000 m	2 000 m	2 000 m
Cooling	temperature controlled fan	temperature controlled fan	temperature controlled fan
Protection class	IP65	IP65	IP65
Noise emission	< 53 db (A)	< 53 db (A)	< 53 db (A)
H x W x D	522 x 363 x 246 mm	522 x 363 x 246 mm	522 x 363 x 246 mm
Weight	30 kg	30 kg	30 kg
Certifications			
Safety	EN 62109-1 / -2, EN 61000-6-2 / -3, EN 61000-3-2 / -3		
Grid connection rule	overview see homepage / download area		



6.5 TL3	7.5 TL3	8.6 TL3	9.0 TL3	10.0 TL3
7 800 W	9 000 W	10 300 W	10 800 W	12 000 W
310 – 800 V	350 – 800 V	403 – 800 V	420 – 800 V	470 – 800 V
200 – 950 V	200 – 950 V	200 – 950 V	200 – 950 V	200 – 950 V
653 V / 250 V	653 V / 250 V	653 V / 250 V	653 V / 250 V	653 V / 250 V
1 000 V	1 000 V	1 000 V	1 000 V	1 000 V
2 x 11 A	2 x 11 A	2 x 11 A	2 x 11 A	2 x 11 A
2 x 16 A	2 x 16 A	2 x 16 A	2 x 16 A	2 x 16 A
2	2	2	2	2
1	1	1	1	1
6 700 W	7 700 W	8 800 W	8 800 W	8 800 W
6 500 VA	7 500 VA	8 600 VA	9 000 VA	10 000 VA
6 500 VA	7 500 VA	8 600 VA	9 000 VA	10 000 VA
240 V / 415 V (3 / N / PE)	240 V / 415 V (3 / N / PE)	240 V / 415 V (3 / N / PE)	240 V / 415 V (3 / N / PE)	240 V / 415 V (3 / N / PE)
230 V / 400 V (3 / N / PE)	230 V / 400 V (3 / N / PE)	230 V / 400 V (3 / N / PE)	230 V / 400 V (3 / N / PE)	230 V / 400 V (3 / N / PE)
220 V / 380 V (3 / N / PE)	220 V / 380 V (3 / N / PE)	220 V / 380 V (3 / N / PE)	220 V / 380 V (3 / N / PE)	220 V / 380 V (3 / N / PE)
305 – 480 V	305 – 480 V	305 – 480 V	305 – 480 V	305 – 480 V
50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)
3 x 9.10 A @ 415 V	3 x 10.50 A @ 415 V	3 x 12.00 A @ 415 V	3 x 12.60 A @ 415 V	3 x 14.95 A @ 415 V
3 x 9.50 A @ 400 V	3 x 10.90 A @ 400 V	3 x 12.50 A @ 400 V	3 x 13.00 A @ 400 V	3 x 14.50 A @ 400 V
3 x 9.90 A @ 380 V	3 x 11.40 A @ 380 V	3 x 13.10 A @ 380 V	3 x 13.70 A @ 380 V	3 x 15.20 A @ 380 V
3 x 10.5 A	3 x 12.0 A	3 x 13.2 A	3 x 14.0 A	3 x 15.5 A
0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.	0 – 95 % Snom / 0.30 ind. – 0.30 cap.
0.29 %	0.3 %	0.3 %	0.3 %	0.27 %
3	3	3	3	3
98.3 %	98.3 %	98.3 %	98.3 %	98.5 %
97.6 %	97.7 %	97.9 %	97.9 %	98.3 %
3 W	3 W	3 W	3 W	3 W
transformerless	transformerless	transformerless	transformerless	transformerless
graphical display + LEDs	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs
4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI
potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)	DC plugs (SUNCLIX)
AC plug	AC plug	AC plug	AC plug	AC plug
-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>
0 – 100 %	0 – 100 %	0 – 100 %	0 – 100 %	0 – 100 %
2 000 m	2 000 m	2 000 m	2 000 m	2 000 m
2 000 m	2 000 m	2 000 m	2 000 m	2 000 m
temperature controlled fan	temperature controlled fan	temperature controlled fan	temperature controlled fan	temperature controlled fan
IP65	IP65	IP65	IP65	IP65
< 53 db (A)	< 53 db (A)	< 53 db (A)	< 53 db (A)	< 53 db (A)
522 x 363 x 246 mm	522 x 363 x 246 mm	522 x 363 x 246 mm	522 x 363 x 246 mm	522 x 363 x 246 mm
30 kg	30 kg	30 kg	30 kg	30 kg

EN 62109-1 / -2, EN 61000-6-2 / -3, EN 61000-3-2 / -3

overview see homepage / download

<sup>1)</sup> Power derating at high ambient temperatures



# blueplanet 15.0 + 20.0 TL3

Transformerless, three-phase string inverters.



## The all-rounders among inverters.

High flexibility for demanding system designs and string configurations

Manifold safety functions

Installation-friendly connection area, user-friendly operation

Numerous standard interfaces for extensive communication options

Internal storage of log data, no separate data logger required

OD+ version against salt corrosion in coastal areas

## Technical Data

DC input data	15.0 TL3	20.0 TL3
Max. recommended PV generator	18 000 W	24 000 W
MPP range	420 – 800 V	515 – 800 V
Operating range	200 – 950 V	200 – 950 V
Rated DC voltage / start voltage	673 / 250 V	673 / 250 V
Max. no-load voltage	1 000 V	1 000 V
Max. input current	2 x 20 A	2 x 20 A
Max. short circuit current $I_{sc\ max}$	2 x 32 A	2 x 32 A
Number of MPP tracker	2	2
Connection per tracker	2	2
Max. input power per tracker	15 000 W	15 000 W
AC output data		
Rated output	15 000 VA	20 000 VA
Max. power	15 600 VA	20 800 VA
Line voltage	240 V / 415 V (3 / N / PE) 230 V / 400 V (3 / N / PE) 220 V / 380 V (3 / N / PE)	277 V / 480 V (3 / N / PE) 240 V / 415 V (3 / N / PE) 230 V / 400 V (3 / N / PE) 220 V / 380 V (3 / N / PE)
Voltage range (Ph-Ph)	305 – 480 V	305 – 480 V
Rated frequency (range)	50 Hz / 60 Hz (42 – 68 Hz)	50 Hz / 60 Hz (42 – 68 Hz)
Rated current	3 x 20.9 A @ 415 V 3 x 21.7 A @ 400 V 3 x 22.8 A @ 380 V	3 x 24.1 A @ 480 V 3 x 27.9 A @ 415 V 3 x 28.9 A @ 400 V 3 x 30.4 A @ 380 V
Max. current	3 x 23.0 A	3 x 31.0 A
Reactive power / cos phi	0 – 100 % Snom / 0.30 ind. – 0.30 cap.	0 – 100 % Snom / 0.30 ind. – 0.30 cap.
Max. total harmonic distortion (THD)	0.7 %	0.5 %
Number of grid phases	3	3
General data		
Max. efficiency	98.0 %	98.4 %
Europ. efficiency	97.6 %	98.1 %
CEC efficiency	97.6 %	98.1 %
Standby consumption	1.5 W	1.5 W
Circuitry topology	transformerless	transformerless
Mechanical data		
Display	graphical display + LEDs	graphical display + LEDs
Control units	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Interfaces	Ethernet, USB, RS485, optional: 4-DI	Ethernet, USB, RS485, optional: 4-DI
Fault signalling relay	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
DC connection	DC plugs (MC4)	DC plugs (MC4)
AC connection	spring-loaded terminal, max. 16 mm <sup>2</sup>	spring-loaded terminal, max. 16 mm <sup>2</sup>
Ambient temperature	-25 °C – +60 °C <sup>1)</sup>	-25 °C – +60 °C <sup>1)</sup>
Humidity	0 – 95 %	0 – 95 %
Max. installation elevation (above MSL)	2 000 m	2 000 m
Min. distance from coast	2 000 m / 500 m (OD+ version)	2 000 m / 500 m (OD+ version)
Cooling	temperature controlled fan	temperature controlled fan
Protection class	IP65	IP65
Noise emission	< 52 db (A)	< 53 db (A)
H x W x D	690 x 420 x 200 mm	690 x 420 x 200 mm
Weight	48 kg	48 kg
Certifications		
Safety	EN 62109-1 / -2, EN 61000-6-1 / -2 / -3, EN 61000-3-2 / -3 / -11 / -12	
Grid connection rule	overview see homepage / download area	

<sup>1)</sup> Power derating at high ambient temperatures

Versions	15.0 TL3	20.0 TL3
DC switch	✓	✓
DC surge protection	○	○
OD+	★	★

standard = ✓ upgradeable = ○ optional = ★

# blueplanet 29.0 TL3 LV

Transformerless, three-phase string inverter.



13

## Up with economy, down with costs.

Input voltage up to 1100 V for flexibility and safety in the DC design

Large cable cross-sections possible for copper and aluminium cables

Compact and lightweight for wall mounting

Cost-saving DC and AC input configurations

Wide MPP range for flexible string design

Adjustable cos phi from 0.3 ind. to 0.3 cap. for special reactive power requirements

Up to 150 % inverter oversizing possible

Made in Germany

## Technical Data

<b>DC input data</b>		<b>29.0 TL3 LV</b>
Max. recommended PV generator power		43 500 W
MPP range		360 – 900 V
Operating range		360 – 1050 V
Rated DC voltage / start voltage		410 V / 460 V
Max. no-load voltage		1 100 V
Max. input current		85 A
Max. short circuit current $I_{sc\ max}$		190 A
Number of MPP tracker		1
Connection per tracker		S / B / M : 1; XL: 6
<b>AC output data</b>		
Rated output		29 000 VA @ 138 V / 240 V 29 000 VA @ 127 V / 220 V 27 500 VA @ 120 V / 208 V
Max. power		30 100 VA
Line voltage		138 V / 240 V (3 / N / PE; 3 / PEN) 127 V / 220 V (3 / N / PE; 3 / PEN) 120 V / 208 V (3 / N / PE; 3 / PEN)
Voltage range (Ph-Ph)		166 - 346 V
Rated frequency (range)		50 Hz / 60 Hz (42 - 68 Hz)
Rated current		3 x 69.8 A @ 240 V 3 x 76.1 A @ 220 V 3 x 76.5 A @ 208 V
Max. current		3 x 76.5 A
Reactive power / cos phi		0 – 100 % Snom / 0.30 ind. – 0.30 cap.
Max. total harmonic distortion (THD)		1.6 %
Number of grid phases		3
<b>General data</b>		
Max. efficiency		97.3 %
Europ. efficiency		96.9 %
CEC efficiency		97.0 %
Standby consumption		2.5 W
Circuitry topology		transformerless
<b>Mechanical data</b>		
Display		graphical display + LEDs
Control units		4-way navigation + 2 buttons
Interfaces		Ethernet, USB, RS485, optional: 4-DI
Fault signalling relay		potential-free NOC max. 30 V / 1 A
DC connection		S / B / M: max.120 mm <sup>2</sup> cable plug, Cu / Al XL: DC plugs (SUNCLIX)
AC connection		screw terminals, max. 95 mm <sup>2</sup> , Cu / Al
Ambient temperature		-20 °C – +60 °C <sup>1)</sup>
Humidity		0 – 100%
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		2 000 m / 500 m (OD+ version)
Cooling		temperature controlled fan
Protection class		IP65
Noise emission		< 61 db(A)
H x W x D		760 x 500 x 425 mm
Weight		70 kg (S), 71 kg (B / M), 73 kg (XL)
<b>Certifications</b>		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

<sup>1)</sup> Power derating at high ambient temperatures

<b>Versions</b>	<b>S</b>	<b>B</b>	<b>M</b>	<b>XL</b>
Number of DC inputs	1	1	1	6
DC switch	-	✓	✓	✓
String protection PV+	-	-	-	✓
DC surge protection	-	-	○	Type 1 + 2
AC surge protection	-	-	○	○
OD+	★	★	★	★

standard = ✓ upgradeable = ○ optional = ★

# blueplanet 50.0 TL3

Transformerless, three-phase string inverter.



15

## The inverter you can count on.

Compact wall-mounted unit for decentralised megawatt projects

Tailored for economical use in solar parks

Special properties for extreme climatic conditions

Farsighted technical features for future requirements

Installation-friendly connection area, user-friendly operation

Integrated section switches for cost-effective grid and plant protection with Powador-protect

## Technical Data

<b>DC input data</b>		<b>50.0 TL3</b>
Max. recommended PV generator power		70 000 W
MPP range		580 <sup>1)</sup> – 900 V
Operating range		580 <sup>1)</sup> – 1 050 V
Rated DC voltage / start voltage		600 V / 670 V
Max. no-load voltage		1 100 V
Max. input current		90 A
Max. short circuit current $I_{sc\ max}$		190 A
Number of MPP tracker		1
Connection per tracker		S / B / M: 1; XL: 10
<b>AC output data</b>		
Rated output		50 000 VA
Max. power		52 000 VA
Line voltage		240 V / 415 V (3 / N / PE; 3 / PEN) 230 V / 400 V (3 / N / PE; 3 / PEN) 220 V / 380 V (3 / N / PE; 3 / PEN)
Voltage range (Ph-Ph)		305 – 480 V
Rated frequency (range)		50 Hz / 60 Hz (42 – 68 Hz)
Rated current		3 x 69.6 A @ 415 V 3 x 72.2 A @ 400 V 3 x 76.0 A @ 380 V
Max. current		3 x 76.5 A
Reactive power / cos phi		0 - 100 % $S_{nom}$ / 0.30 ind. - 0.30 cap.
Max. total harmonic distortion (THD)		1.6 %
Number of grid phases		3
<b>General data</b>		
Max. efficiency		98.5 %
Europ. efficiency		98.1 %
CEC efficiency		98.0 %
Standby consumption		2.5 W
Circuitry topology		transformerless
<b>Mechanical data</b>		
Display		graphical display + LEDs
Control units		4-way navigation + 2 buttons
Interfaces		Ethernet, USB, RS485, optional: 4-DI
Fault signalling relay		potential-free NOC max. 30 V / 1 A
DC connection		S / B / M: max. 120 mm <sup>2</sup> cable plug, Cu / Al XL: DC plugs (SUNCLIX)
AC connection		screw terminals, max. 95 mm <sup>2</sup> , Cu / Al
Ambient temperature		-20 °C – +60 °C <sup>2)</sup>
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		2 000 m / 500 m (OD+ version)
Cooling		temperature controlled fan
Protection class		IP65
Noise emission		< 61 db (A)
H x W x D		760 x 500 x 425 mm
Weight		70 kg (S), 71 kg (B / M), 73 kg (XL)
<b>Certifications</b>		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

<sup>1)</sup> 560 V @ 220 V / 380 V; 610 V @ 240 V / 415 V

<sup>2)</sup> Power derating at high ambient temperatures

<b>Versions</b>	<b>S</b>	<b>B</b>	<b>M</b>	<b>XL</b>	<b>XLF</b>
Number of DC inputs	1	1	1	10	10
DC switch	-	✓	✓	✓	✓
String protection PV+	-	-	-	✓	✓
String protection PV -	-	-	-	○	○
DC surge protection	-	-	○	Type 1 + 2	Type 1 + 2
AC surge protection	-	-	○	○	○
OD+	★	★	★	★	★

standard = ✓ upgradeable = ○ optional = ★



# blueplanet 125 TL3

Transformerless, three-phase string inverter.



17

## The trendsetter among inverters.

Optimized for solar power plants  
with 1500 volt modules

Extensive grid management  
functions

Special properties for extreme  
climatic conditions

Farsighted technical features for  
future requirements

Lean commissioning and  
maintenance via remote services

## Technical Data

<b>DC input data</b>		125 TL3	PRELIMINARY
Max. recommended PV generator power		187 500 W	
MPP range		875 – 1 300 V	
Operating range		875 – 1 450 V	
Rated DC voltage / start voltage		900 V / 1 000 V	
Max. no-load voltage		1 500 V	
Max. input current		160 A	
Max. short circuit current $I_{sc\ max}$		300 A	
Number of MPP tracker		1	
Connection per tracker		2	
<b>AC output data</b>			
Rated output		125 000 VA	
Max. power		137 500 VA	
Line voltage		600 V (3P+PE)	
Voltage range (Ph-Ph)		480 – 760 V	
Rated frequency (range)		50 Hz / 60 Hz (45 – 65 Hz)	
Rated current		3 x 120.3 A	
Max. current		3 x 132.3 A	
Reactive power / cos phi		0 – 100 % Som / 0.3 ind. – 0.30 cap.	
Max. total harmonic distortion (THD)		≤ 3 %	
Number of grid phases		3	
<b>General data</b>			
Max. efficiency		99,1 %	
Europ. efficiency		98,9 %	
CEC efficiency		98,9 %	
Standby consumption		< 10 W	
Circuitry topology		transformerless	
<b>Mechanical data</b>			
Display		LEDs	
Control units		webserver, supports mobile devices	
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (Modbus RTU, Sunspec, KACO-protocol) USB, optional: 4-DI, WIFI	
Fault signalling relay		potential-free NOC max. 30 V / 1 A	
DC connection		cable lug, max. 240 mm <sup>2</sup> (0.372 in <sup>2</sup> ) Cu or Al	
AC connection		cable lug, max. 240 mm <sup>2</sup> (0.372 in <sup>2</sup> ) Cu or Al	
Ambient temperature		-25 °C – +60 °C <sup>1)</sup>	
Humidity		0 – 100 %	
Max. installation elevation (above MSL)		3 000 m	
Min. distance from coast		2 000 m / 500 m (OD+ version)	
Cooling		temperature controlled fan	
Protection class		IP66 / NEMA 4X	
Noise emission		< 69 db (A)	
H x W x D		719 x 699 x 450 mm	
Weight		< 80 kg	
<b>Certifications</b>			
Safety		UL62109-1, UL1741, CSA-C22.2 No. 62109-1, CSA-C22.2 No. 62109-2, CSA-C22.2 No. 107.1 IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12	
Grid connection rule		overview see homepage / download area	

<sup>1)</sup> Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	2	2
DC switch	-	✓
DC surge protection	○	Type 1 + 2
AC surge protection	○	○
RS485 interface surge protection	○	○
Ethernet interface surge protection	○	○
OD+	★	★

standard = ✓ upgradeable = ○ optional = ★

# Powador 39.0 – 72.0 TL3

Transformerless, three-phase string inverters.



19

## Efficient. Flexible. Proven.

3 MPP trackers and wide MPP range for flexibility in system planning and dealing with shadowing

Versions with overvoltage protection, 12 string inputs and fuse protection for the DC inputs

Graphical display, multilingual menu and pre-configured country settings for easy operation

System monitoring via integrated data logger with web server

## Technical Data

DC input data	39.0 TL3 M1	39.0 TL3
Max. recommended PV generator power	39 000 W	39 000 W
MPP range	340 – 800 V	340 – 800 V
Operating range	200 – 950 V	200 – 950 V
Rated DC voltage / start voltage	600 V / 250 V	600 V / 250 V
Max. no-load voltage	1 000 V	1 000 V
Max. input current	102 A	3 x 34 A
Max. short circuit current $I_{sc\ max}$	122,4 A	3 x 40,8 A
Number of MPP tracker	1	3
Connection per tracker	1	1 (M) / 4 (XL)
Max. input power per tracker	34 300 W	20 000 W
AC output data		
Rated output	33 300 VA	33 300 VA
Max. power	34 600 VA	34 600 VA
Line voltage	240 V / 415 V (3 / N / PE) 230 V / 400 V (3 / N / PE) 220 V / 380 V (3 / N / PE)	240 V / 415 V (3 / N / PE) 230 V / 400 V (3 / N / PE) 220 V / 380 V (3 / N / PE)
Voltage range (Ph-Ph)	304 – 480 V	304 – 480 V
Rated frequency (range)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)
Rated current	3 x 46,4 A @ 415 V 3 x 48,1 A @ 400 V 3 x 50,6 A @ 380 V	3 x 46,4 A @ 415 V 3 x 48,1 A @ 400 V 3 x 50,6 A @ 380 V
Max. current	3 x 51,1 A	3 x 51,1 A
Reactive power / cos phi	0 – 100% $S_{nom}$ / 0.30 ind. – 0.30 cap.	0 – 100% $S_{nom}$ / 0.30 ind. – 0.30 cap.
Max. total harmonic distortion (THD)	3%	3%
Number of grid phases	3	3
General data		
Max. efficiency	98.0 %	98.0 %
Europ. efficiency	97.8 %	97.8 %
Standby consumption	1.5 W	1.5 W
Circuitry topology	transformerless	transformerless
Mechanical data		
Display	graphical display + LEDs	graphical display + LEDs
Control units	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Interfaces	Ethernet, USB, RS485	Ethernet, USB, RS485
Fault signalling relay	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
DC connection	max. 70 mm <sup>2</sup> cable plug, Cu / Al	M: screw- / spring-loaded terminals max. 35 mm <sup>2</sup> XL: screw- / spring-type terminals max. 10 mm <sup>2</sup>
AC connection	screw terminals max 50 mm <sup>2</sup>	screw terminals max 50 mm <sup>2</sup>
Ambient temperature	-20 °C – +60 °C <sup>1)</sup>	-20 °C – +60 °C <sup>1)</sup>
Humidity	0 – 95 %	0 – 95 %
Max. installation elevation (above MSL)	2 000 m	2 000 m
Min. distance from coast	2 000 m	2 000 m
Cooling	temperature controlled fan	temperature controlled fan
Protection class	IP54	IP54
Noise emission	< 58 db (A)	< 58 db (A)
H x W x D	1 360 x 840 x 355 mm	1 360 x 840 x 355 mm
Weight	151 kg	151 kg
Certifications		
Safety	EN 62109-1 / -2, EN 61000-6-1 / -2 / -3, EN 61000-3-11 / -12	
Grid connection rule	overview see homepage / download area	

60.0 TL3	48.0 TL3 Park	72.0 TL3 Park
60 000 W	48 000 W	72 000 W
480 – 850 V	410 – 800 V	580 – 850 V
200 – 950 V	200 – 950 V	200 – 950 V
600 V / 250 V	790 V / 250 V	790 V / 250 V
1 000 V	1 000 V	1 000 V
3 x 36 A	3 x 34 A	3 x 36 A
3 x 45 A	3 x 40,8 A	3 x 45 A
3	3	3
1 (M) / 4 (XL)	1 (M) / 4 (XL)	1 (M) / 5 (XL)
20 000 W	20 000 W	24 000 W
50 000 VA	40 000 VA	60 000 VA
52 000 VA	41 600 VA	62 400 VA
240 V / 415 V (3 / N / PE)		
230 V / 400 V (3 / N / PE)	277 V / 480 V (3 / N / PE)	277 V / 480 V (3 / N / PE)
220 V / 380 V (3 / N / PE)		
304 – 480 V	330 – 528 V	330 – 528 V
50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)	50 Hz / 60 Hz (45 – 65 Hz)
3 x 69,6 A @ 415 V		
3 x 72,2 A @ 400 V	3 x 48,2 A	3 x 72,2 A
3 x 76,0 A @ 380 V		
3 x 76,5 A	3 x 51,1 A	3 x 76,5 A
0–100% Snom/0.30 ind. – 0.30 cap.	0–100% Snom/0.30 ind. – 0.30 cap.	0–100% Snom/0.30 ind. – 0.30 cap.
3%	3%	3%
3	3	3
97.8%	98.0%	98.0%
97.5%	97.9%	97.8%
1.5 W	1.5 W	1.5 W
transformerless	transformerless	transformerless
graphical display + LEDs	graphical display + LEDs	graphical display + LEDs
4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Ethernet, USB, RS485	Ethernet, USB, RS485	Ethernet, USB, RS485
potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A	potential-free NOC max. 30 V / 1 A
M: screw- / spring-loaded terminals max. 35 mm <sup>2</sup>	M: screw- / spring-loaded terminals max. 35 mm <sup>2</sup>	M: screw- / spring-loaded terminals max. 35 mm <sup>2</sup>
XL: screw- / spring-type terminals max. 10 mm <sup>2</sup>	XL: screw- / spring-type terminals max. 10 mm <sup>2</sup>	XL: screw- / spring-type terminals max. 10 mm <sup>2</sup>
screw terminals max 50 mm <sup>2</sup>	screw terminals max 50 mm <sup>2</sup>	screw terminals max 50 mm <sup>2</sup>
-20 °C – +60 °C <sup>1)</sup>	-20 °C – +60 °C <sup>1)</sup>	-20 °C – +60 °C <sup>1)</sup>
0 – 95%	0 – 95%	0 – 95%
2 000 m	2 000 m	2 000 m
2 000 m	2 000 m	2 000 m
temperature controlled fan	temperature controlled fan	temperature controlled fan
IP54	IP54	IP54
< 58 db (A)	< 58 db (A)	< 58 db (A)
1 360 x 840 x 355 mm	1 360 x 840 x 355 mm	1 360 x 840 x 355 mm
173 kg	151 kg	173 kg

EN 62109-1 / -2, EN 61000-6-1 / -2 / -3, EN 61000-3-11 / -12

overview see homepage / download area

<sup>1)</sup> Power derating at high ambient temperatures

Versionen	M	XL	XLF
Number of DC inputs	3 x 1	3 x 4 3 x 5 <sup>2)</sup>	3 x 4 3 x 5 <sup>2)</sup>
DC-switch	✓	✓	✓
String protection PV+	-	✓	✓
String protection PV -	-	○	✓
DC surge protection	-	Type 1 + 2	Type 1 + 2

Standard = ✓ upgradeable = ○ optional = ★

<sup>2)</sup> Park-versions



# Powador-protect

Grid management.



23

## Measuring. Controlling. Protecting.

Grid and system protection

Triggering of the inverter's integrated section switches, no additional AC-side costs

Individual voltage and frequency adjustment

Minimum amount of cabling required in the meter cabinet and the sub-distribution

A ripple control receiver connection is integrated

Easy incorporation into the feed-in management without additional costs

## Technical Data

Functions	Powador-protect
Monitoring Voltage 3*Ph-N	yes
Monitoring Voltage 3*Ph-Ph	yes
Monitoring of 3-phase frequency	yes
Monitoring of digital signals for remote-controlled power reduction of PV systems	yes
2 output relays to control interface switches	yes
Separated control of the output relays as a protection / backup protection concept	yes
Control of internal interface switches of compatible KACO new energy inverters	yes
Independently adjustable grid parameters for reconnection following tripping	yes
Electrical data	
Power supply	100 - 264 V AC
Rated voltage	230 V AC
Rated frequency	50 Hz / 60 Hz
Max. power consumption	2.5 W
Measurement	
Voltage	0 - 300 V
Frequency	40 – 70 Hz
Frequency measurement tolerance	< 0,1 Hz
Voltage measurement tolerance	< 1 % U <sub>n</sub>
Actuation of external tie circuit-breaker	
Max. AC current	2.0 A
Max. AC voltage	250 V
Max. DC current	8.0 A
Max. DC voltage	30 V
Mechanical data	
Display	LCD 2 x 16 characters, LEDs
Control units	2 control buttons, 1 test button
Connection power supply	screw terminals, max. 4mm <sup>2</sup>
Connection measurement	screw terminals, max. 4 mm <sup>2</sup>
Connection external switches	screw terminals, max. 4 mm <sup>2</sup>
Connection inverter	screw terminals, max. 4 mm <sup>2</sup>
Ambient temperature	-20 °C – +70 °C
Max. installation elevation (above MSL)	2 000 m
Protection class	IP20
H x W x D	89.5 x 107 x 63 mm
Weight	310 g
Certifications	
Safety	EN 61010-1, EN 61000-6-2, EN 61326-1, EN 61000-3-2 /-3
Certificates of conformity	VDE-AR-N 4105, BDEW guideline, G59/3, CEI O-21



# blueplanet Mini-Argus 50.0

DC-Combiner.



25

## Make short work of long cables.

Generator junction box for the  
blueplanet 50.0 TL3 inverter

String fuse plus and minus

String monitoring (optional)

Surge protection SPD I + II,  
DC switch 160 A

Designed for DC system voltage  
of 1 100 V

IP65 protection rating

Direct connection of DC strings

Norm DIN VDE 0100-712

## Technical Data

<b>DC input data</b>		<b>Mini-Argus 50.0</b>
Max. no-load voltage		1 100 V
Max. input current		100 A
Max. short circuit current $I_{sc\ max}$		160 A
Number of DC connections		10 / 12
<b>Mechanical data</b>		
DC connection (input)		screw terminal, max. 16 mm <sup>2</sup>
DC connection (output)		cable lug, max. 120 mm <sup>2</sup> Cu or Al
Ambient temperature		-25 °C – + 50 °C
Humidity		0 – 95 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		2 000 m
Protection class		IP65 / II
H x W x D		745 x 535 x 300 mm
Weight		24 kg
<b>Certifications</b>		
Safety		CE

<b>Versions</b>	<b>Mini-Argus 50.0 - 10</b>	<b>Mini-Argus 50.0 - 12</b>
Number of DC inputs	10	12
DC switch	✓	✓
String protection PV+	✓	✓
String protection PV -	✓	✓
DC surge protection	Type 1 + 2	Type 1 + 2

standard = ✓ upgradeable = ○ optional = ★

# blueplanet Argus

DC-Combiner.



27

## Make short work of long cables.

Designed for a DC system voltage  
of 1 500 V

String monitoring (XL version)

Protection rating IP66

Norms: EN 61439-1, EN 61439-2

Surge protection SPD I + II

24 DC inputs

## Technical Data

DC input data	Argus
Max. no-load voltage	1 500 V
Max. input current	200 A
Max. short circuit current $I_{sc\ max}$	250 A
Number of DC connections	20 / 24
String monitoring (optional)	
Start voltage	300 V
Measurement range current	0 - 25 A
Current measurement tolerance	< 1.5 % $I_{max}$
Measurement range voltage	0 - 1550 V
Voltage measurement tolerance	< 1%
Interfaces	RS 485 (Modbus RTU, Sunspec) DI (Monitoring DC surge protection) DI (Monitoring DC switch position on / off)
Control units	2x rotary switch for RS485 address 0-99 (2x 0-9), 1x rotary switch for RS485 termination resistor (120 Ohm) 1x rotary switch for RS485 baud rate
Number measuring channels	20
Standby consumption	0 W
General data	
DC connection (input)	DC plugs (Sunclix)
DC connection (output)	cable lug, max. 240 mm <sup>2</sup> (0.372 in <sup>2</sup> ) Cu or Al
Ambient temperature	-25 °C – +60 °C
Humidity	0 - 100 %
Max. installation elevation (above MSL)	3 000 m
Min. distance from coast	2 000 m
Protection class	IP66 / NEMA 4X
H x W x D	725 x 995 x 253 mm
Weight	34 kg
Certifications	
Safety	CE, EN 61439-1, EN 61439-2, UL-ready

Versions	L-20	XL-20	L-24	XL-24
Number of DC inputs	20	20	24	24
DC switch	✓	✓	✓	✓
String protection PV+	✓	✓	✓	✓
String protection PV -	✓	✓	✓	✓
DC surge protection	Type 1 + 2	Type 1 + 2	Type 1 + 2	Type 1 + 2
String monitoring	-	✓	-	✓
Monitoring DC surge protection	-	✓	-	✓
Monitoring DC switch position (on / off)	-	✓	-	✓

standard = ✓ upgradeable = ○ optional = ★

# blueplanet 50.0 TL3 RPonly

Reactive power inverter.



## Phase shifter.

Provision of reactive power at any time as required

For new and existing plants

Alternative to conventional, larger compensation systems

AC-coupled

Outdoor housing for wall mounting

Conforms to EN 62109-1

## Technical Data

<b>AC output data</b>		<b>50.0 TL3 ROnly</b>
Rated reactive power		50 000 var
Max. reactive power		52 000 var
Line voltage		240 V / 415 V (3 / N / PE) 230 V / 400 V (3 / N / PE) 220 V / 380 V (3 / N / PE)
Voltage range (Ph-Ph)		305 – 480 V
Rated frequency (range)		50 Hz / 60 Hz (42 - 68 Hz)
Rated current		3 x 69.6 @ 415 V 3 x 72.2 @ 400 V 3 x 76.0 @ 380 V
Max. current		3 x 76.5 A
Reactive power / cos phi		0 – 100 % Smax / 0
Max. total harmonic distortion (THD)		1.6 %
Number of grid phases		3
<b>General data</b>		
Max. efficiency		98.5 %
Europ. efficiency		98.1 %
Standby consumption		2.5 W
Circuitry topology		transformerless
<b>Mechanical data</b>		
Display		graphical display + LEDs
Control units		4-way navigation + 2 buttons
Interfaces		Ethernet, USB, RS485, optional: 4-DI
Fault signalling relay		potential-free NOC max. 30 V / 1 A
AC connection		screw terminals, max. 95 mm <sup>2</sup> , Cu / Al
Ambient temperature		-20 °C – +60 °C <sup>1)</sup>
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		2 000 m / 500 m (OD+ version)
Cooling		temperature controlled fan
Protection class		IP65
Noise emission		61 db (A)
H x W x D		760 x 500 x 425 mm
Weight		73 kg
<b>Certifications</b>		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

<sup>1)</sup> Power derating at high ambient temperatures

# blueplanet gridsave 50.0 TL3-S

Bidirectional battery inverter.



31

## The heart of your battery storage

High system availability due to several inverters connected to one battery

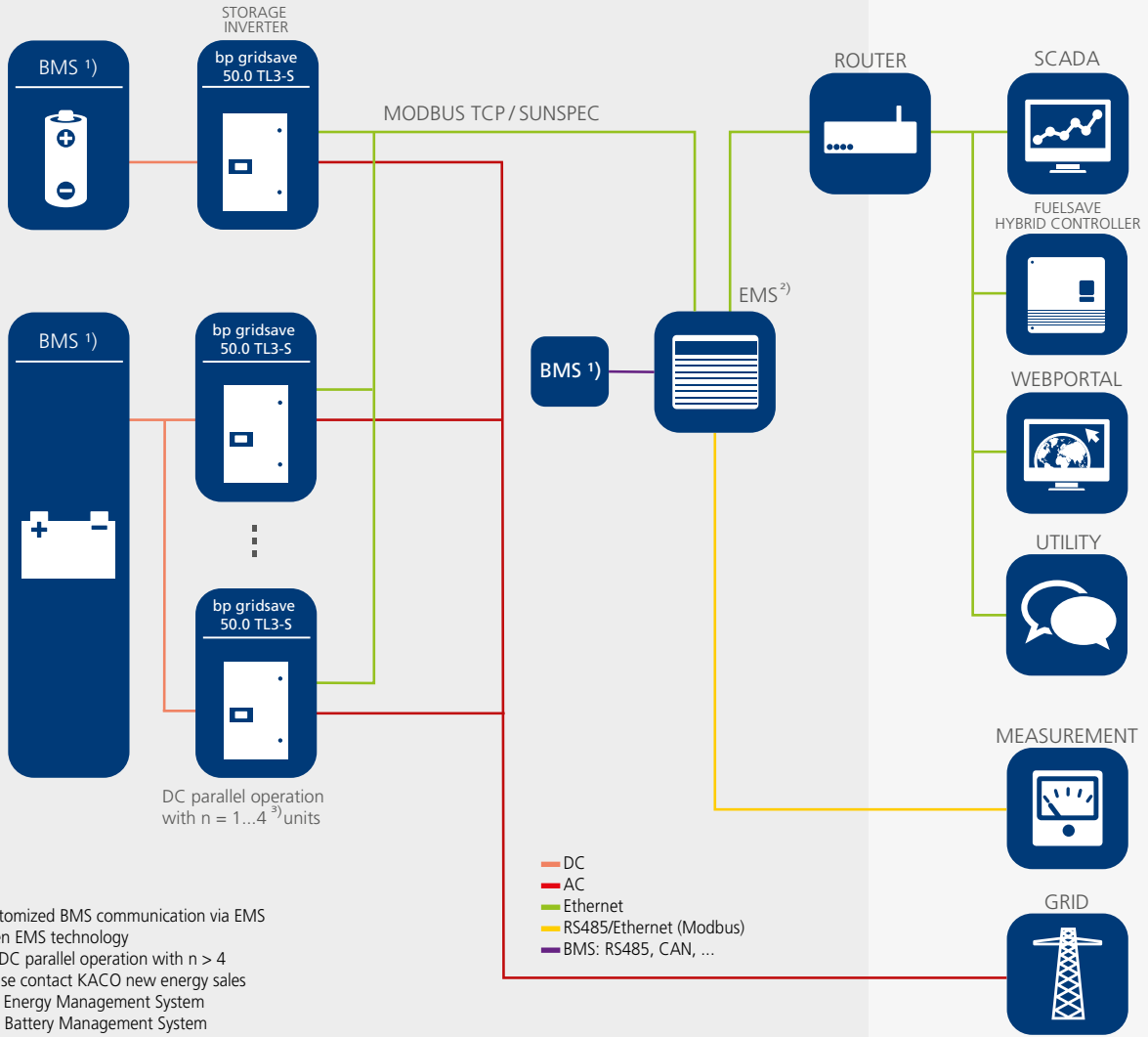
Reactive power capable

Scalable, AC-coupled, for different battery types

High efficiency, also in the partial load range

Easy to control through open communication standard

# OPEN STORAGE SYSTEM



- 1) Customized BMS communication via EMS
  - 2) Open EMS technology
  - 3) For DC parallel operation with  $n > 4$   
please contact KACO new energy sales
- EMS = Energy Management System  
BMS = Battery Management System



## Technical Data

DC input data		gridsave 50.0 TL3-S	PRELIMINARY
Rated DC voltage		765 V	
Operating range		576 V <sup>1)</sup> – 910 V	
Min. start voltage		662 V <sup>2)</sup>	
Max. DC voltage		915 V	
Max. input current		90 A	
Max. short circuit current $I_{sc\ max}$		150 A	
Number of DC inputs		1	
AC output data			
Rated output		50 000 VA	
Max. power		52 000 VA	
Line voltage		230 V / 400 V (3 / N / PE; 3 / PEN) 220 V / 380 V (3 / N / PE; 3 / PEN)	
Voltage range (Ph-Ph)		342 – 440 V	
Rated frequency (range)		50 Hz / 60 Hz (42 – 68 Hz)	
Rated current		3 x 72.2 A @ 400 V 3 x 76.0 A @ 380 V	
Max. current		3 x 76.5 A	
Reactive power / cos phi		0 – 100 % $S_{max}$ / 0.30 ind. – 0.30 cap. <sup>3)</sup>	
Max. total harmonic distortion (THD)		1.6 %	
Number of grid phases		3	
General data			
Max. efficiency		98.5 %	
Operation mode		on-grid (charge / discharge)	
DC parallel operation		up to 4 gridsave 50.0 TL3-S <sup>4)</sup>	
Communication		TCP / IP, Modbus TCP based on Sunspec	
Standby consumption		3 W	
Protective functions		overvoltage, overcurrent, overload, overheating, undervoltage	
Circuitry topology		transformerless	
Mechanical data			
Display		graphical display + LEDs	
Control units		4-way navigation + 2 buttons	
Interfaces		Ethernet, USB	
Fault signalling relay		potential-free NOC max. 30 V / 1 A	
DC connection		cable lug, max. 70 mm <sup>2</sup> Cu or Al	
AC connection		screw terminal, max. 95 mm <sup>2</sup> Co or Al	
Ambient temperature		-20 °C – +60 °C <sup>5)</sup>	
Humidity		0 – 100 %	
Max. installation elevation (above MSL)		3 000 m	
Min. distance from coast		2 000 m / 500 m (OD+ version)	
Cooling		temperature controlled fan	
Protection class		IP65	
Noise emission		< 61 db (A)	
H x W x D		760 x 500 x 425 mm	
Weight		75 kg	
Certifications			
Safety		EN 62109-1/-2, EN 62477-1, EN 61000-6-1/-2, CISPR 11, EN 55011	
Grid connection rule		overview see homepage / download area	

Grid voltage  $U_{ACr}$ , min. battery voltage  $U_{DCmin}$  and min. starting voltage  $U_{DCstartmin}$  are dependent of each other

<sup>1)</sup>550 V @ 220 V; 576 V @ 230 V | <sup>2)</sup>633 V @ 220 V; 662 V @ 230 V

<sup>3)</sup>For cos phi < 0.30 (inductive, capacitive) direct Q-setpoint is required

<sup>4)</sup>For DC parallel operation > 4 please contact KACO new energy sales

<sup>5)</sup>Power derating at high and low ambient temperatures

Versions	B	M	L	XL
Pre-charge	-	-	✓	✓
DC fuse	-	✓	✓	✓
DC load relay +	-	-	✓	✓
DC load relay -	-	-	-	✓
OD+	★	★	★	★

standard = ✓ upgradeable = ○ optional = ★





## Publication details

### Publisher and editor

KACO new energy GmbH  
www.kaco-newenergy.com

### Photos

KACO new energy GmbH, Tritec AG,  
Fotolia, MaxSolar GmbH Traunstein

The text and figures reflect the current technical state at the time of printing. Subject to technical changes. Errors and omissions excepted.

© Copyright 2018 for the whole content by KACO new energy GmbH. All rights reserved. Reprint or reproduction of any kind with written permission of KACO new energy GmbH only.

1<sup>st</sup> Edition 06/2018

KACO new energy GmbH  
Carl-Zeiss-Str. 1  
74172 Neckarsulm, Germany

Tel. +49 7132 3818 333  
Fax +49 7132 3818 777  
[www.kaco-newenergy.com](http://www.kaco-newenergy.com)

Follow us

