

K A C O



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blueplanet.
powerful solutions.





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Publication details

Publisher and editor

KACO new energy GmbH
www.kaco-newenergy.com

Photos

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

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

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3rd Edition 05/2019

blueplanet 3.0 – 10.0 TL3

Transformerless, three-phase string inverters.



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 ¹⁾	-25 °C – +60 °C ¹⁾	-25 °C – +60 °C ¹⁾
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 ¹⁾	-25 °C – +60 °C ¹⁾	-25 °C – +60 °C ¹⁾	-25 °C – +60 °C ¹⁾	-25 °C – +60 °C ¹⁾
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

¹⁾ Power derating at high ambient temperatures



blueplanet 15.0 + 20.0 TL3

Transformerless, three-phase string inverters.



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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 ²	spring-loaded terminal, max. 16 mm ²
Ambient temperature	-25 °C – +60 °C ¹⁾	-25 °C – +60 °C ¹⁾
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)	500 m
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	

¹⁾ Power derating at high ambient temperatures

Versions	15.0 TL3	20.0 TL3
DC switch	✓	✓
DC surge protection	○	○

standard = ✓ upgradeable = ○

blueplanet 29.0 TL3 LV

Transformerless, three-phase string inverter.



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

DC input data		29.0 TL3 LV
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
AC output data		
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
General data		
Max. efficiency		97.3 %
Europ. efficiency		96.9 %
CEC efficiency		97.0 %
Standby consumption		2.5 W
Circuitry topology		transformerless
Mechanical data		
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 ² cable plug, Cu / Al XL: DC plugs (SUNCLIX)
AC connection		screw terminals, max. 95 mm ² , Cu / Al
Ambient temperature		-20 °C – +60 °C ¹⁾
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)
Certifications		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

¹⁾ Power derating at high ambient temperatures

Versions	S	B	M	XL
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.



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

DC input data		50.0 TL3
Max. recommended PV generator power		70 000 W
MPP range		580 ¹⁾ – 900 V
Operating range		580 ¹⁾ – 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
AC output data		
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
General data		
Max. efficiency		98.5 %
Europ. efficiency		98.1 %
CEC efficiency		98.0 %
Standby consumption		2.5 W
Circuitry topology		transformerless
Mechanical data		
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 ² cable plug, Cu / Al XL: DC plugs (SUNCLIX)
AC connection		screw terminals, max. 95 mm ² , Cu / Al
Ambient temperature		-20 °C – +60 °C ²⁾
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)
Certifications		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

¹⁾ 560 V @ 220 V / 380 V; 610 V @ 240 V / 415 V
²⁾ Power derating at high ambient temperatures

Versions	S	B	M	XL	XLF
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 87.0 TL3

Transformerless, three-phase string inverter.



The trendsetter among inverters.

Suitable for use with 1000 Volt and 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

DC input data		87.0 TL3
Max. recommended PV generator power		130 500 W
MPP range		563 – 1 300 V
Operating range		563 – 1 450 V
Rated DC voltage / start voltage		600 V / 645 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		1 - 2
AC output data		
Rated output		87 000 VA
Max. power		87 000 VA
Line voltage		380 V (3P+PE)
Voltage range (Ph-Ph)		300 – 580 V
Rated frequency (range)		50 Hz / 60 Hz (45 – 65 Hz)
Rated current		3 x 132,3 A
Max. current		3 x 132,3 A
Reactive power / cos phi		0 – 100 % Snom / 0,30 ind. – 0,30 cap.
Max. total harmonic distortion (THD)		≤ 3 %
Number of grid phases		3
General data		
Max. efficiency		99.0 %
Europ. efficiency		98.6 %
CEC efficiency		98.6 %
Standby consumption		5 W
Circuitry topology		transformerless
Mechanical data		
Display		LEDs
Control units		webserver, supports mobile devices
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (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 ² (0.372 in ²) Cu or Al
AC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-25 °C – +60 °C ¹⁾
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		500 m
Cooling		temperature controlled fan
Protection class		IP66 / NEMA 4X
Noise emission		59.2 db (A)
H x W x D		719 x 699 x 460 mm
Weight		78.2 kg
Certifications		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

¹⁾ Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	1 - 2	1 - 2
DC switch	-	✓
DC SPD	Type 1 + 2	Type 1 + 2
AC SPD	○	○
RS485 interface SPD	○	○
Ethernet interface SPD	○	○
PID Set	○	○

standard = ✓ upgradeable = ○

blueplanet 92.0 TL3

Transformerless, three-phase string inverter.



15

The trendsetter among inverters.

Suitable for use with 1000 Volt and 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

DC input data		92.0 TL3
Max. recommended PV generator power		138 000 W
MPP range		591 – 1 300 V ¹⁾
Operating range		591 – 1 450 V ¹⁾
Rated DC voltage / start voltage		620 V / 675 V ¹⁾
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		1 - 2
AC output data		
Rated output		92 000 VA
Max. power		92 000 VA
Line voltage		400 V (3P+PE)
Voltage range (Ph-Ph)		300 – 580 V
Rated frequency (range)		50 Hz / 60 Hz (45 – 65 Hz)
Rated current		3 x 132,3 A
Max. current		3 x 132,3 A
Reactive power / cos phi		0 – 100 % Snom / 0,30 ind. – 0,30 cap.
Max. total harmonic distortion (THD)		≤ 3 %
Number of grid phases		3
General data		
Max. efficiency		98.8 %
Europ. efficiency		98.5 %
CEC efficiency		98.4 %
Standby consumption		5 W
Circuitry topology		transformerless
Mechanical data		
Display		LEDs
Control units		webserver, supports mobile devices
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (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 ² (0.372 in ²) Cu or Al
AC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-25 °C – +60 °C ²⁾
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		500 m
Cooling		temperature controlled fan
Protection class		IP66 / NEMA 4X
Noise emission		59.2 db (A)
H x W x D		719 x 699 x 460 mm
Weight		78.2 kg
Certifications		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

¹⁾ Line voltage 240 V; MPP-range 613 - 1 300 V | start voltage 700 V

²⁾ Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	1 - 2	1 - 2
DC switch	-	✓
DC SPD	Type 1 + 2	Type 1 + 2
AC SPD	○	○
RS485 interface SPD	○	○
Ethernet interface SPD	○	○
PID Set	○	○

standard = ✓ upgradeable = ○

blueplanet 110 TL3

Transformerless, three-phase string inverter.



The trendsetter among inverters.

Suitable for use with 1000 Volt and 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

DC input data		110 TL3
Max. recommended PV generator power		165 000 W
MPP range		705 – 1 300 V
Operating range		705 – 1 450 V
Rated DC voltage / start voltage		730 V / 805 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		1 - 2
AC output data		
Rated output		110 000 VA
Max. power		110 000 VA
Line voltage		480 V (3P+PE)
Voltage range (Ph-Ph)		300 – 580 V
Rated frequency (range)		50 Hz / 60 Hz (45 – 65 Hz)
Rated current		3 x 132,3 A
Max. current		3 x 132,3 A
Reactive power / cos phi		0 – 100 % Snom / 0,30 ind. – 0,30 cap.
Max. total harmonic distortion (THD)		≤ 3 %
Number of grid phases		3
General data		
Max. efficiency		99.1 %
Europ. efficiency		98.8 %
CEC efficiency		98.8 %
Standby consumption		5 W
Circuitry topology		transformerless
Mechanical data		
Display		LEDs
Control units		webserver, supports mobile devices
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (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 ² (0.372 in ²) Cu or Al
AC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-25 °C – +60 °C ¹⁾
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		500 m
Cooling		temperature controlled fan
Protection class		IP66 / NEMA 4X
Noise emission		59.2 db (A)
H x W x D		719 x 699 x 460 mm
Weight		78.2 kg
Certifications		
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

¹⁾ Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	1 - 2	1 - 2
DC switch	-	✓
DC SPD	Type 1 + 2	Type 1 + 2
AC SPD	○	○
RS485 interface SPD	○	○
Ethernet interface SPD	○	○
PID Set	○	○

standard = ✓ upgradeable = ○

blueplanet 125 TL3

Transformerless, three-phase string inverter.



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

DC input data		125 TL3
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		1 - 2
AC output data		
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 % Snom / 0.3 ind. – 0.30 cap.
Max. total harmonic distortion (THD)		≤ 3 %
Number of grid phases		3
General data		
Max. efficiency		99.2 %
Europ. efficiency		99.0 %
CEC efficiency		98.9 %
Standby consumption		6 W
Circuitry topology		transformerless
Mechanical data		
Display		LEDs
Control units		webserver, supports mobile devices
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (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 ² (0.372 in ²) Cu or Al
AC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-25 °C – +60 °C ¹⁾
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		500 m
Cooling		temperature controlled fan
Protection class		IP66 / NEMA 4X
Noise emission		59.2 db (A)
H x W x D		719 x 699 x 460 mm
Weight		78.2 kg
Certifications		
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

¹⁾ Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	1 - 2	1 - 2
DC switch	-	✓
DC SPD	Type 1 + 2	Type 1 + 2
AC SPD	○	○
RS485 interface SPD	○	○
Ethernet interface SPD	○	○
PID Set	○	○

standard = ✓ upgradeable = ○

blueplanet 137 TL3

Transformerless, three-phase string inverter.



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

DC input data		137 TL3
Max. recommended PV generator power		205 500 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		1 - 2
AC output data		
Rated output		137 000 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 132,3 A
Max. current		3 x 132,3 A
Reactive power / cos phi		0 – 100 % Snom / 0,30 ind. – 0,30 cap.
Max. total harmonic distortion (THD)		≤ 3 %
Number of grid phases		3
General data		
Max. efficiency		99.2 %
Europ. efficiency		99.0 %
CEC efficiency		98.9 %
Standby consumption		7 W
Circuitry topology		transformerless
Mechanical data		
Display		LEDs
Control units		webserver, supports mobile devices
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (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 ² (0.372 in ²) Cu or Al
AC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-25 °C – +60 °C ¹⁾
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		500 m
Cooling		temperature controlled fan
Protection class		IP66 / NEMA 4X
Noise emission		59.2 db (A)
H x W x D		719 x 699 x 460 mm
Weight		78.2 kg
Certifications		
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

¹⁾ Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	1 - 2	1 - 2
DC switch	-	✓
DC SPD	Type 1 + 2	Type 1 + 2
AC SPD	○	○
RS485 interface SPD	○	○
Ethernet interface SPD	○	○
PID Set	○	○

standard = ✓ upgradeable = ○

blueplanet 150 TL3

Transformerless, three-phase string inverter.



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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

DC input data		150 TL3
Max. recommended PV generator power		225 000 W
MPP range		960 – 1 300 V
Operating range		960 – 1 450 V
Rated DC voltage / start voltage		1 000 V / 1 100 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		1 - 2
AC output data		
Rated output		150 000 VA
Max. power		150 000 VA
Line voltage		660 V (3P+PE)
Voltage range (Ph-Ph)		480 – 760 V
Rated frequency (range)		50 Hz / 60 Hz (45 – 65 Hz)
Rated current		3 x 131,2 A
Max. current		3 x 132,3 A
Reactive power / cos phi		0 – 100 % Snom / 0,30 ind. – 0,30 cap.
Max. total harmonic distortion (THD)		≤ 3 %
Number of grid phases		3
General data		
Max. efficiency		99.2 %
Europ. efficiency		99.0 %
CEC efficiency		99.0 %
Standby consumption		7 W
Circuitry topology		transformerless
Mechanical data		
Display		LEDs
Control units		webserver, supports mobile devices
Interfaces		Ethernet (Modbus TCP, Sunspec) RS485 (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 ² (0.372 in ²) Cu or Al
AC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-25 °C – +60 °C ¹⁾
Humidity		0 – 100 %
Max. installation elevation (above MSL)		3 000 m
Min. distance from coast		500 m
Cooling		temperature controlled fan
Protection class		IP66 / NEMA 4X
Noise emission		59.2 db (A)
H x W x D		719 x 699 x 460 mm
Weight		78.2 kg
Certifications		
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

¹⁾ Power derating at high ambient temperatures

Versions	S	XL
Number of DC inputs	1 - 2	1 - 2
DC switch	-	✓
DC SPD	Type 1 + 2	Type 1 + 2
AC SPD	○	○
RS485 interface SPD	○	○
Ethernet interface SPD	○	○
PID Set	○	○

standard = ✓ upgradeable = ○

blueplanet DC-breaker

External disconnect unit.



25

Safely separated.

Safe DC disconnection of
inverters

Suitable for all versions of the
blueplanet 87.0 TL3 to 150 TL3

Optimized for a DC voltage of
1500 V

Easy installation and quick
maintenance thanks to
removable connection plate

Retrofit

Technical Data

DC input data		DC-breaker	
Max. no-load voltage		1 500 V	
Max. input current		160 A	
Max. short circuit current $I_{sc\ max}$		300 A	
Connection per tracker		1 - 2	
Mechanical data			
DC connection		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al	
Ambient temperature		-25 °C – +60 °C	
Humidity		0 – 95 %	
Max. installation elevation (above MSL)		3 000 m ¹⁾	
Min. distance from coast		500 m	
Protection class		IP66	
H x W x D		477 x 230 x 260 mm	
Weight		8 kg	
Certifications			
Installation standard		UTE C15 715-	
Safety		EN 61439-1/-2, IEC 62109-1/-2	
Environment		EN 60529:1991+A1:2000+A2:2013	

¹⁾Voltage derating above 2000m

Powador 39.0 – 72.0 TL3

Transformerless, three-phase string inverters.



27

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	60.0 TL3
Max. recommended PV generator power	39 000 W	60 000 W
MPP range	340 – 800 V	480 – 850 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	3 x 34 A	3 x 36 A
Max. short circuit current $I_{sc\ max}$	3 x 40,8 A	3 x 45 A
Number of MPP tracker	3	3
Connection per tracker	1 (M) / 4 (XL)	1 (M) / 4 (XL)
Max. input power per tracker	20 000 W	20 000 W
AC output data		
Rated output	33 300 VA	50 000 VA
Max. power	34 600 VA	52 000 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 69,6 A @ 415 V 3 x 72,2 A @ 400 V 3 x 76,0 A @ 380 V
Max. current	3 x 51,1 A	3 x 76,5 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 %	97.8 %
Europ. efficiency	97.8 %	97.5 %
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	M: screw- / spring-loaded terminals max. 35 mm ² XL: screw- / spring-type terminals max. 10 mm ²	M: screw- / spring-loaded terminals max. 35 mm ² XL: screw- / spring-type terminals max. 10 mm ²
AC connection	screw terminals max 50 mm ²	screw terminals max 50 mm ²
Ambient temperature	-20 °C – +60 °C ¹⁾	-20 °C – +60 °C ¹⁾
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	173 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	

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

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

overview see homepage / download area

¹⁾ Power derating at high ambient temperatures

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

Standard = ✓ upgradeable = ○ optional = ★

²⁾ Park-versions



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 _n
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 ²
Connection measurement	screw terminals, max. 4 mm ²
Connection external switches	screw terminals, max. 4 mm ²
Connection inverter	screw terminals, max. 4 mm ²
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.



33

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

DC input data		Mini-Argus 50.0
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
Mechanical data		
DC connection (input)		screw terminal, max. 16 mm ²
DC connection (output)		cable lug, max. 120 mm ² 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
Certifications		
Safety		CE

Versions	Mini-Argus 50.0 - 10	Mini-Argus 50.0 - 12
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.



35

Make short work of long cables.

Designed for a DC system voltage of 1 500 V

Direct connection of DC strings

Door can only be opened when DC switch is off

String monitoring (optional)

Protection rating IP65

Norms: IEC 61439-1, IEC 61439-2

Surge protection SPD I + II

16 / 20 / 24 DC inputs

Technical Data

DC input data		Argus
Max. no-load voltage		1 500 V
Max. input current		160 / 200 / 240 A
Max. short circuit current $I_{sc\ max}$		250 / 400 / 400 A
Number of DC connections		16 / 20 / 24
String monitoring (optional)		
Measurement range-current		0 - 360 A
Current measurement tolerance		< 0.5 %
Measurement range-voltage		0 - 1500 V
Voltage measurement tolerance		< 0.5 %
Interfaces		RS485 (Modbus RTU, Kernel) 2 x digital input
Control units		dip-switches for setting the baud rate, address and protocol type
Number measuring channels		up to 24
Self-consumption		< 3 W
General data		
DC connection (input)		direct connection
DC connection (output)		cable lug, max. 240 mm ² (0.372 in ²) Cu or Al
Ambient temperature		-20 °C - +55 °C
Humidity		0 - 95 %
Max. installation elevation (above MSL)		2 000 m
Protection class		IP65
H x W x D		845 x 635 x 300 mm (16 string) 1056 x 852 x 350 mm (20 / 24 string)
Certifications		
Safety		IEC 61439-1, IEC 61439-2

Versions	Argus 16	Argus 16 Mon	Argus 20	Argus 20 Mon	Argus 24	Argus 24 Mon
Number of DC inputs	16	16	20	20	24	24
DC switch	✓	✓	✓	✓	✓	✓
String protection PV+	✓	✓	✓	✓	✓	✓
String protection PV -	✓	✓	✓	✓	✓	✓
Fuses	✓	✓	✓	✓	✓	✓
DC surge protection	Type 1 + 2	Type 1 + 2	Type 1 + 2	Type 1 + 2	Type 1 + 2	Type 1 + 2
String monitoring	-	✓	-	✓	-	✓
Internal power supply for measuring	-	✓	-	✓	-	✓
Overvoltage protection RS485 / Measuring	-	✓	-	✓	-	✓
Weight	35 kg	37 kg	40 kg	42 kg	42 kg	44 kg

standard = ✓

blueplanet 50.0 TL3 RPonly

Reactive power inverter.



37

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

AC output data		50.0 TL3 ROnly
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
General data		
Max. efficiency		98.5 %
Europ. efficiency		98.1 %
Standby consumption		2.5 W
Circuitry topology		transformerless
Mechanical data		
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 ² , Cu / Al
Ambient temperature		-20 °C – +60 °C ¹⁾
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
Certifications		
Safety		IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-11/-12
Grid connection rule		overview see homepage / download area

¹⁾ Power derating at high ambient temperatures

blueplanet hybrid 6.0 - 10.0 TL3

Hybrid inverter.



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Storing the sun the easy way.

6.0 - 10 kW inverter output, also in battery operation

3-phase mains parallel operation, off-grid capable (upcoming)

2 MPP trackers for flexible integration of solar PV systems

98% efficiency, outstanding partial load behaviour

Integrated battery management and monitoring

Adapter plate and low weight for easy installation

Technical Data

	PRELIMINARY	PRELIMINARY	PRELIMINARY	
PV Input (DC)	hybrid 6.0 TL3	hybrid 7.5 TL3	hybrid 8.5 TL3	hybrid 10.0 TL3
Max. power per input	6 000 W	6 000 W	6 000 W	6 000 W
Number of inputs / MPP Tracker	2	2	2	2
Nom. / max. DC voltage	720 V DC / 900 V DC	720 V DC / 900 V DC	720 V DC / 900 V DC	720 V DC / 900 V DC
Start-up voltage	240 V DC	240 V DC	240 V DC	240 V DC
MPP voltage range	200 V DC – 740 V DC	200 V DC – 740 V DC	200 V DC – 740 V DC	200 V DC – 740 V DC
Max. input current per MPP Tracker	12 A	12 A	12 A	12 A
Max. short-circuit current $I_{sc,max}$	15 A per input channel			
Overload behaviour	shift of working point			
Efficiency				
PV (DC) to grid (AC) [max.]	>98 %	>98 %	>98 %	>98 %
PV (DC) to grid (AC) [EU]	>97,5 %	>97,6 %	>97,7 %	>97,7 %
PV (DC) to battery (DC) [max.]	>97 %	>97 %	>97 %	>97 %
Battery (DC) to grid (AC) [max.]	>97 %	>97 %	>97 %	>97 %
Night-time consumption (off)	<0,1 W	<0,1 W	<0,1 W	<0,1 W
Idle state consumption	27 W	27 W	27 W	27 W
Battery Mode Input (DC)				
Nom. DC voltage	410 V DC	410 V DC	410 V DC	410 V DC
Max. charge / discharge current	25 A	25 A	25 A	25 A
Battery voltage min. - max.	96 V DC - 450 V DC	96 V DC - 450 V DC	96 V DC - 450 V DC	96 V DC - 450 V DC
Galvanic isolation	no	no	no	no
Safeguarding	safety-fuse, cut-off relay			
Battery Mode AC-Connection				
Nom. charging power	6 000 W	7 500 W	8 500 W	9 990 W
Nom. discharging power	6 000 W	7 500 W	8 500 W	9 990 W
Voltage shape in off-grid mode	true sinus	true sinus	true sinus	true sinus
Number of current phases	3	3	3	3
Grid Feed-In (AC)				
Nom. power AC	6 000 W	7 500 W	8 500 W	9 990 W
Max. power AC	6 600 VA	8 300 VA	9 400 VA	11 000 VA
Number of phases	3	3	3	3
Typ. power per phase to grid	2 000 W	2 500 W	2 833 W	3 330 W
Max. AC current per phase	16,1 A RMS	16,1 A RMS	16,1 A RMS	16,1 A RMS
Feed-in	sym. / asym.	sym. / asym.	sym. / asym.	sym. / asym.
Nom. AC voltage	210 – 264 V AC	210 – 264 V AC	210 – 264 V AC	210 – 264 V AC
AC voltage range	184 – 264 V AC	184 – 264 V AC	184 – 264 V AC	184 – 264 V AC
Grid frequency range	47,5 Hz – 51,5 Hz	47,5 Hz – 51,5 Hz	47,5 Hz – 51,5 Hz	47,5 Hz – 51,5 Hz
Power factor	0,9c – 0,9i	0,9c – 0,9i	0,9c – 0,9i	0,9c – 0,9i
Topology	transformerless	transformerless	transformerless	transformerless
Load compensation	100 ms	100 ms	100 ms	100 ms
General Data				
Dimension (WxHxD)	610 x 552 x 200 mm	610 x 552 x 200 mm	610 x 552 x 200 mm	610 x 552 x 200 mm
Weight	33 kg	33 kg	33 kg	33 kg
Display	LCD	LCD	LCD	LCD
DC disconnecting switch	integrated	integrated	integrated	integrated
RC Protective Device	integrated	integrated	integrated	integrated
Protective relais	integriert (VDE AR-N 4105)			
Battery Management System	integrated	integrated	integrated	integrated
Operating temperature range	+5 bis +40°C	+5 bis +40°C	+5 bis +40°C	+5 bis +40°C
Installation altitude*	0 – 1000 m	0 – 1000 m	0 – 1000 m	0 – 1000 m
Installation humidity	20 – 90% RH (non-condensing)			
Protection (island mode)	PE, RCD type B integrated**			
Noise emission	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
Over temperature behaviour	power reduction	power reduction	power reduction	power reduction
Degree of protection (IEC 60529)	IP20	IP20	IP20	IP20
Case material	aluminium	aluminium	aluminium	aluminium
PWM frequency	20 kHz	20 kHz	20 kHz	20 kHz
On-grid operation	grid-commutated	grid-commutated	grid-commutated	grid-commutated
Energy source for battery charging	PV, grid	PV, grid	PV, grid	PV, grid
Pollution degree	PD2	PD2	PD2	PD2

* Power reduction of 2 % per 100 m above 1000 m altitude.

** If two or more inverters are installed in the same grid, a separate residual current device (RCD type B) is compulsory.

General Datas

Protection class (IEC 62109-1)	I	I	I	I
DC Overvoltage category (IEC 60664-1)	II	II	II	II
AC Overvoltage category (IEC 60664-1)	III	III	III	III
WEEE-Reg.-Nr.	DE57110363	DE57110363	DE57110363	DE57110363
Certificates	VDE 0126, VDE AR-N 4105			
Warranty	5 years	5 years	5 years	5 years
Kommunikationsanschlüsse	2 x RJ45 (RS485), 1 x RJ45 (Ethernet) external			

Connections

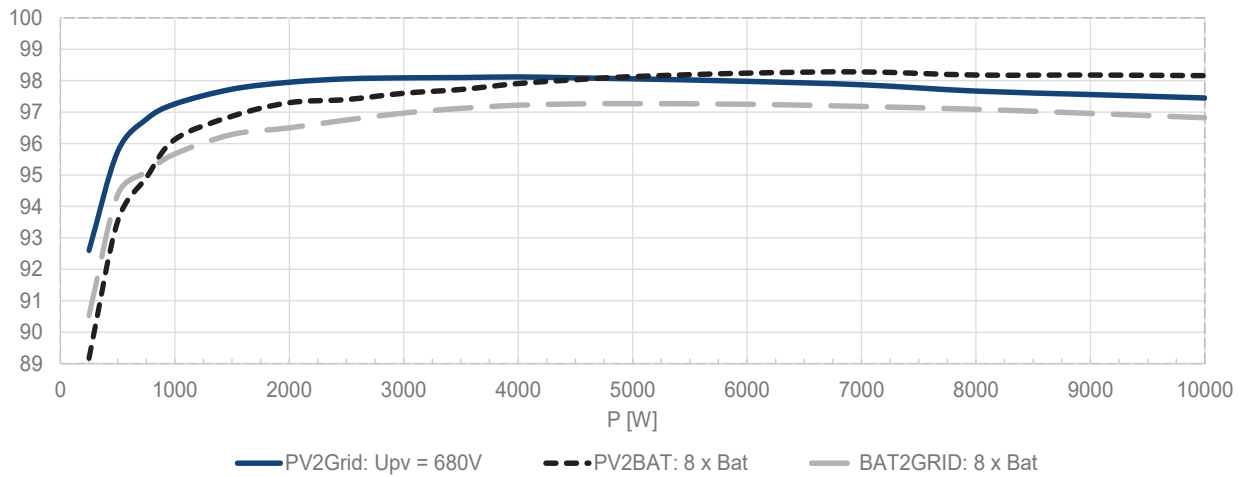
DC connection for battery with automatic cut-off poin	PhoenixContact Sunclix
DC connection for PV	PhoenixContact Sunclix
AC connection for grid and off-grid operation	5-Pole PhoenixContact - Art. 1409205
AC connection max. wire cross section	4 mm ² (da upgrade möglich)
Communication ports	2 x RJ45 (RS485), 1 x RJ45 (Ethernet) external

Supported Devices

Energy storage	blueplanet hy-bat 3.6 or higher, DOMUS 3.6 or higher, BYD Battery-Box H6.4-10.2
Meter	blueplanet hy-switch

Energiewandlungspfade

PV (DC) to grid (AC) PV	(DC) to battery (DC)	PV (DC) to grid (AC) PV	(DC) to battery (DC)
yes	yes	yes	yes





blueplanet hy-switch

Your smart power switch.



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Automatic switching and current measurement.

Real-time measurement of power consumption

Easy installation

Flexibly expandable

Ready for retrofit

Safe due to all-pole separation

Technical Data

Disconnecter		hy-switch
Max. cut-off voltage		264 V
Max. load current		50 A
Max. permanent power		30 000 W
Power failure detection time		200 ms
Switching time grid to off-grid mode		<3 s (depending on test sequence)
Current meter		
Internal current sensors range		50 A RMS
External current sensors range		100 A RMS
AC power accuracy (internal)		3% (0 – 35 A)
AC power accuracy (external)		5%
Measurement frequency		real-time
Installation		
Max. cable length to blueplanet hy-switch		20 m
AC max. wire cross section		35 mm ²
Communication port		1 x RJ45 (RS485)
Connection for ext. current sensors		3 x 3.5 mm jack
General data		
Protection class (IEC 60529)		IP20
Degree of protection (IEC 62109-1)		I
Certificates		VDE 0126, VDE AR-N 4105
Warranty		2 years
Dimension (W x H x D)		170 x 280 x 92 mm
Weight		1.2 kg
Supported devices		
Inverter		blueplanet hybrid 10.0 TL3
Max. number of inverters		3

blueplanet gridsave 50.0 TL3-S

Bidirectional battery inverter.



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The heart of your battery storage

High system availability due to several inverters connected to one battery

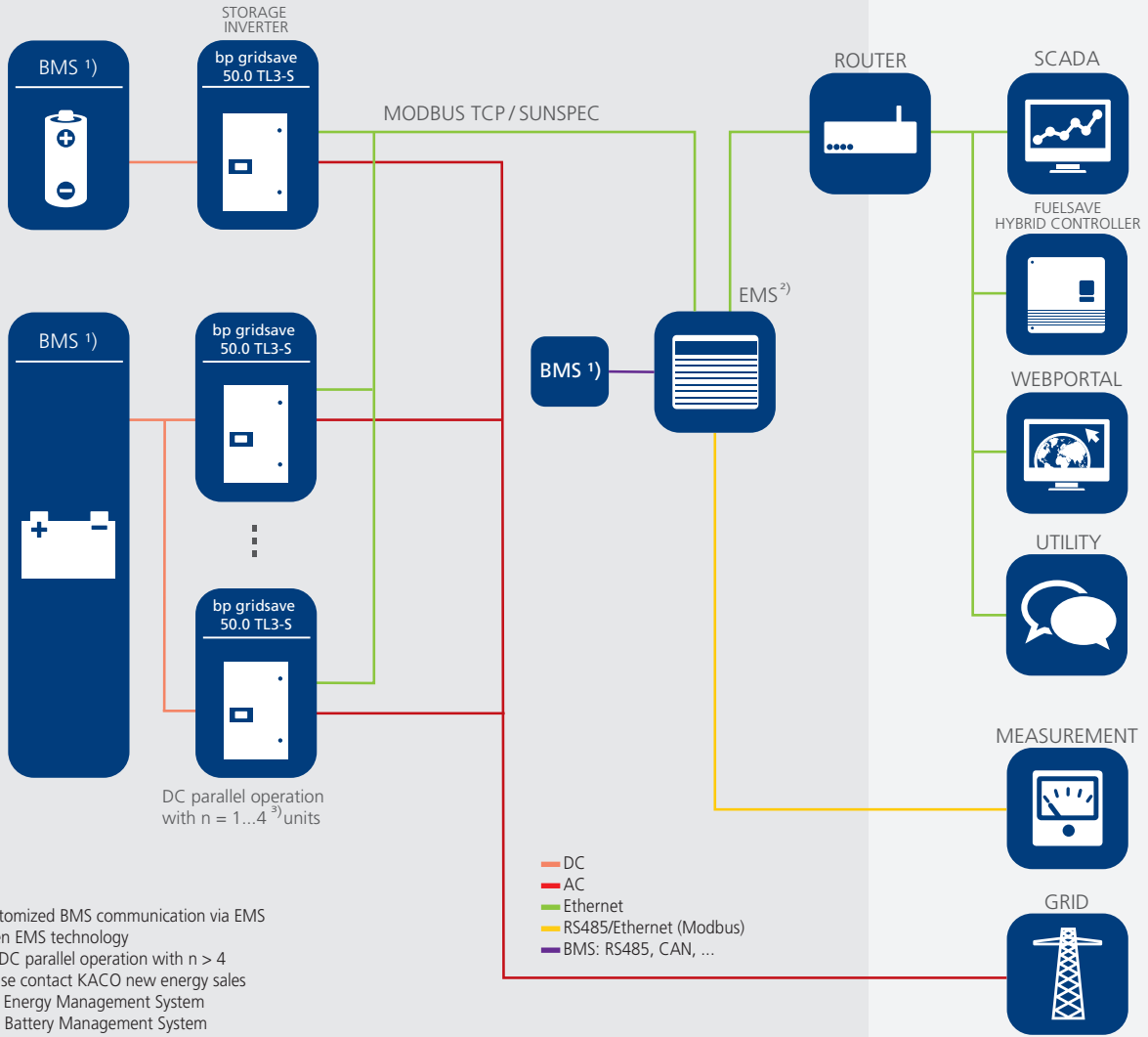
Reactive power capable

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
Rated DC voltage		765 V
Operating range		662 V ¹⁾ – 1050 V ²⁾
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)		286 – 500 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. ³⁾
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 ⁴⁾
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 ² Cu or Al
AC connection		screw terminal, max. 95 mm ² Co or Al
Ambient temperature		-20 °C ²⁾ – +60 °C ⁵⁾
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 available: AT : TOR D4 Version 2.3:2016-7 DE: VDE-AR-N 4105:2018, VDE-AR-N 4110:2018 FR: VDE 0126 / IT: CEI-21 planned: BE: C10/11:2012-6 / ES PO.12.2 / GB: ENA-EREC G99 / CZ: PPDS PŘÍLOHA 4 / IT: CEI-16 certificates see homepage / download area
Grid connection rule		

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

¹⁾633 V @ 220 V; 662 V @ 230 V

²⁾power derating@low heat sink temperatures and high DC voltages

³⁾for cos phi < 0.30 (inductive, capacitive) direct Q-setpoint is required

⁴⁾for DC parallel operation > 4 please contact KACO new energy sales

⁵⁾power derating at high ambient temperatures

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

standard = ✓ upgradeable = ○ optional = ★

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