

Product Certificate Number	20537-12-CER
Applicant	KACO new energy GmbH Carl-Zeiss-Str. 1 74172. Neckarsulm.Germany
Series	KACO blueplanet
Models	See page 3
Type of generating unit	Photovoltaic Inverter
Technical Data	See page 4 and 5
Software version	V2.09 V2.25
Standard	VDE-V- 0126-1-1: 2013. Automatic disconnection device between a generator and the public low voltage grid. Specific annex for Greece

Having assessed the report number: 469/18/183097LP, 11515-2-TR, 11515-9-TR, 103550889CRT-002d, 103550889CRT-002f, EMV 18 10 3915 and 20537-TR-E1 performed by CREI Ven S.c.a.r.l (EA Accredited Laboratory N° 0259), CERE (N° 1239/LE2396), INTERTEK (N°1249.01), TUV Hessen (N° D-PL-14137-02-00) and CERE (Accredited Laboratory N° 5314.01) based on the requirements of the EN ISO/IEC 17025: 2017.

The above-mentioned generating unit complies with the requirements of the:

VDE-V- 0126-1-1: 2013. Automatic disconnection device between a generator and the public low voltage grid.
Specific annex for **Greece**

This certification is according the CERE internal process PET-CERE-09 Rev 27 based on the requirements of the EN ISO/IEC 17065:2012. For this certification process the conformity assessment activities were based on:

- Testing of production samples selected by CERE.
- Audit of quality system according ISO 9001 with certificate number: 2018-0076483-00 issued by a certification body accredited according EN ISO/IEC 17021.
- Inspection of the manufacturing process.

This certificate cancels and supersedes the certificate 20457-16-CER issued on January 31, 2020.

Madrid, September 30, 2020. This certificate is valid until September 30,, 2023

Miguel Martínez Lavin
Certification Manager

Models:

KACO blueplanet 87.0 TL3 M1 WM OD IIF0	KACO blueplanet 87.0 TL3 M1 WM OD IIFX
KACO blueplanet 92.0 TL3 M1 WM OD IIG0	KACO blueplanet 92.0 TL3 M1 WM OD IIGX
KACO blueplanet 100 TL3 M1 WM OD IIG0	KACO blueplanet 100 TL3 M1 WM OD IIGX
KACO blueplanet 105 TL3 M1 WM OD IIG0	KACO blueplanet 105 TL3 M1 WM OD IIGX
KACO blueplanet 125 TL3 M1 WM OD IIP0	KACO blueplanet 125 TL3 M1 WM OD IIPX
KACO blueplanet 125 TL3 M1 WM OD IIK0	KACO blueplanet 125 TL3 M1 WM OD IIKX
KACO blueplanet 137 TL3 M1 WM OD IIP0	KACO blueplanet 137 TL3 M1 WM OD IIPX
KACO blueplanet 150 TL3 M1 WM OD IIQ0	KACO blueplanet 150 TL3 M1 WM OD IIQX
KACO blueplanet 155 TL3 M1 WM OD IIP0	KACO blueplanet 155 TL3 M1 WM OD IIPX
KACO blueplanet 165 TL3 M1 WM OD IIQ0	KACO blueplanet 165 TL3 M1 WM OD IIQX



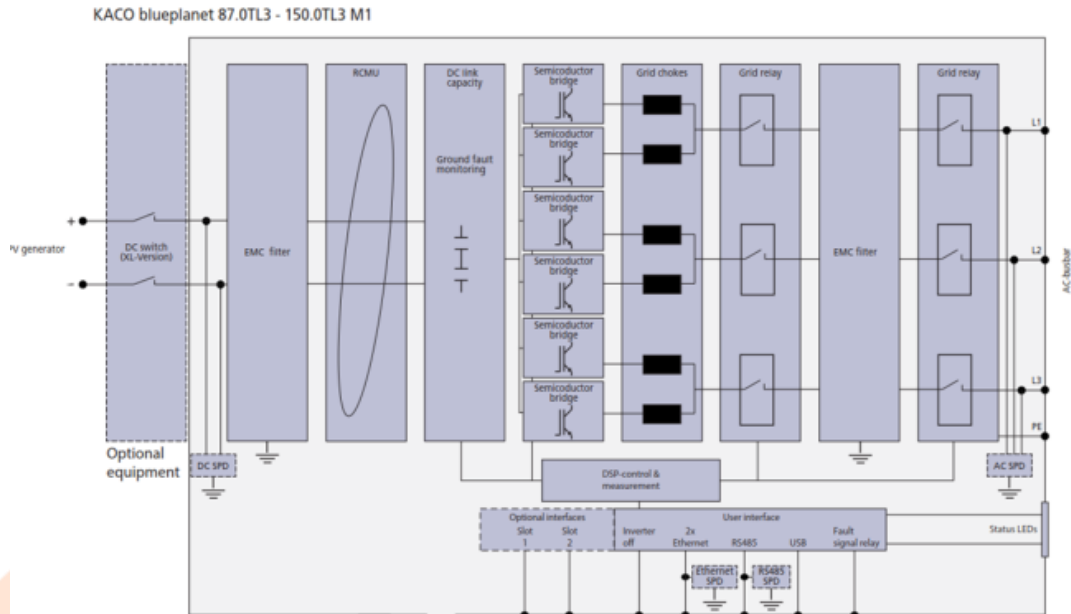
Technical data

KACO blueplanet		
	87.0TL3 M1 WM OD IIF0	92.0TL3 M1 WM OD IIG0
DC INPUT DATA		
Recommended generator power range	130,5 kW	138 kW
MPP range	563 – 1300 V	591 – 1300 V
Working range	563 – 1450 V	591 – 1450 V
Rated voltage / starting voltage	600 V/ 645 V	620 V/ 675 V
Open circuit voltage	1500 V	
Max. input current	160 A	
Max. short circuit current $I_{sc\ max}$	300 A	
AC OUTPUT DATA		
Nominal power	87 kVA	92 kVA
Rated voltage	380 V (3P+PE)	400 V (3P+PE)
Voltage range (continuous operation)	300 – 437 V	300 – 460 V
Max. Voltage range (up to 100 s)	475 V	500 V
Rated frequency (range)	50 Hz / 60 Hz (45 Hz – 65 Hz)	
Rated current	3 x 132,3 A	
Max. current	3 x 132,3 A	
Reactive current / cos phi	0 – 100 % Som / 0.3 ind. – 0.30 cap	
Max. total harmonic distortion (THD)	< 3 %	
GENERAL DATA		
Circuitry topology	transformerless	
Control units	Button / webserver	
Interfaces	2xEthernet 2xRS485, USB, optional	
ENVIRONMENTAL DATA		
Ambient temperature	-25 °C – +60 °C	
Humidity	0 – 100 %	
DC switch	Model 0: without DC switch Model X: with DC switch	

KACO blueplanet			
	125 TL3 M1 WM OD IIP0	137 TL3 M1 WM OD IIP0	150 TL3 M1 WM OD IIQ0
DC INPUT DATA			
Recommended generator power range	187,5 kW	205,5 kW	225 kW
MPP range	875-1300 V		960-1300 V
Working range	875-1450 V		960-1450 V
Rated voltage / starting voltage	900 V / 1000 V		1000 V / 1100 V
Open circuit voltage	1500 V		
Max. input current	160 A		
Max. short circuit current $I_{sc\ max}$	300 A		
AC OUTPUT DATA			
Nominal power	125 kVA	137 kVA	150 kVA
Rated voltage	600 V (3P+PE)		660 V (3P+PE)
Voltage range (continuous operation)	480 – 690 V		480 – 760 V
Max. Voltage range (up to 100 s)	750 V		825 V
Rated frequency (range)	50 Hz / 60 Hz (45 – 65 Hz)		
Rated current	3 x 120.3 A	3 x 132.3 A	3 x 131.2 A
Max. current	3 x 132.3 A		
Reactive current / cos phi	0 – 100 % Som / 0.3 ind. – 0.30 cap		
Max. total harmonic distortion (THD)	< 3 %	3 %	2.8 %
GENERAL DATA			
Circuitry topology	Transformerless		
MECHANICAL DATA			
Control units	webserver, supports mobile devices		
Interfaces	2xEthernet 2xRS485, USB, optional		
Ambient temperature	-25 °C – +60 °C		
Humidity	0 – 100 %		
DC switch	Model 0: without DC switch Model X: with DC switch		

KACO blueplanet				
	105TL3 M1 WM OD IIG0 / 105TL3 M1 WM OD IIGX	125TL3 M1 WM OD IIK0 / 125TL3 M1 WM OD IIKX	155TL3 M1 WM OD IIP0 / 155TL3 M1 WM OD IIPX	165TL3 M1 WM OD IIQ0 / 165TL3 M1 WM OD IIQX
DC INPUT DATA				
Recommended generator power range	157,5 kW	187,5 kW	232,5 kW	247,5 kW
MPP range	580-1300 V	700-1300 V	875-1300 V	950-1300 V
Working range	591-1450 V	705-1450 V	875-1450 V	960-1450 V
Rated voltage / starting voltage	620 V / 673 V	730 V / 804 V	900 V / 1000 V	1000 V / 1098 V
Open circuit voltage	1500 V			
Max. input current	183 A			
Max. short circuit current $I_{sc\ max}$	300 A			
AC OUTPUT DATA				
Nominal power	99,9 kVA	125 kVA	155 kVA	165 kVA
Rated voltage	380 V (3P+PE) 400 V (3P+PE) 415 V (3P+PE)	480 V (3P+PE)	600 V (3P+PE)	660 V (3P+PE)
Voltage range (continuous operation)	300 – 478 V	300 V – 552 V	480 V – 690 V	480 V – 760 V
Max. Voltage range (up to 100 s)	519 V	600 V	750 V	825 V
Rated frequency (range)	50 Hz / 60 Hz			
Rated current	3 x 144,5 A	3 x 150,5 A	3 x 149,5 A	3 x 144,5 A
Max. current	3 x 152 A			
Reactive current / cos phi	0 – 100 % Som / 0.3 ind. – 0.30 cap			
Max. total harmonic distortion (THD)	< 3 %			3%
GENERAL DATA				
Circuitry topology	Transformerless			
MECHANICAL DATA				
Control units	Button / webserver			
Interfaces	2xEthernet 2xRS485, USB, optional			
Ambient temperature	-25 °C – +60 °C			
Humidity	100 %			
DC switch	Model 0: without DC switch Model X: with DC switch			

Electrical Diagram of KACO blueplanet Series



The sample selected to test was representative of the production.
The sample was selected in:

Sample Report Number:

The inspection of manufacturing process was performed in:
On 20th of November of 2019

Inspection Report Number:

KACO new energy GmbH
Werner-von-Siemens Allee, 1.
74172 Neckarsum, Germany

11515-1-TM
11515-2-TM
11515-3-TM
11515-4-TM
20537-TM

KACO new energy GmbH
Werner-von-Siemens Allee, 1.
74172 Neckarsulm, Germany

11515-19-2-IF

RECORD OF CHANGES

Revision	Modification / Changes	Date
0	Initial version/Update of certificate number 20457-16-CER	30/09/2020

Under Voltage protection (U<)		
Voltage drop from 90% to 77% of Un		
Trip Threshold [% U/Un]	Measured Trip value [% U/Un]	Measured Trip time [ms]
80	79,77	71
Over Voltage protection (U>>)		
Voltage drop from 112% to 118% of Un		
Trip Threshold [% U/Un]	Measured Trip value [% U/Un]	Measured Trip time [ms]
115	114,48	67
Over Voltage protection (F<)		
Trip Threshold [Hz]	Measured Trip value [Hz]	Measured Trip time [ms]
47,50	47,50	67
Over Voltage protection (F>)		
Trip Threshold [Hz]	Measured Trip value [Hz]	Measured Trip time [ms]
51,50	51,55	61

The inverter has an automatic grid disconnection system in accordance with DIN VDE 0126-1-1:2013-08. The automatic disconnection device is an integral part of such inverter and replaces the disconnecting device. The inverter trips for voltage and frequency protections in less than 500 ms and the reconnection time is greater than 180s.

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 200 ms.

Test power level	10%	55%	100%
DC current measured value phase 1 [A]	0,156	0,213	0,068
DC current measured value phase 2 [A]	-0,063	-0,081	-0,066
DC current measured value phase 3 [A]	-0,107	-0,147	-0,016
% of rated AC current	<0,12%	<0,16%	<0,05%

EUT Operative condition	Idc threshold [mA]	Idc simulated [mA]	Trip time [ms]	Measured time [ms]			Result
				#1	#2	#3	
OC1	1000	>1000	200	131	134	121	COMPLIES
OC2				125	138	121	COMPLIES
OC3				132	139	121	COMPLIES