



BUREAU VERITAS

Type Certificate

Applicant: KACO new energy GmbH
Address: Carl-Zeiss-Straße 1, 74172 Neckarsulm, Germany

Type of power generating unit:	Grid-tied photovoltaic inverter	KACO blueplanet 50.0 TL3
	Grid-tied battery inverter	KACO blueplanet gs 50.0 TL3
Technical data:	Rated active power:	50 kW
	Rated apparent:	50 kVA
	Max. apparent power:	52 kVA
	Nominal voltage:	400 V (3P+ PE)
	Nominal frequency:	50 Hz
Firmware version:	<i>KACO blueplanet 50.0 TL3:</i>	PKT V5.57, ARM V6.57 (ECB4), CFG V6.4831 (AE57), DSP V4.24 (5099), WEBGUI2 V5.50
	<i>KACO blueplanet gs 50.0 TL3:</i>	PKT V5.56, ARM V6.54 (C1BF), CFG V6.1477 (BF00) DSP V5.03 (1D7C), PCU V1.22 (576B), WEBGUI2 V6.00
Validated type model:	Model file:	Kaco_20-0296_TR4_BP50_V2.zip
	Identification number (MD5):	846af9730ef98dd4c80feada303d10a2

Grid connection regulation: **VDE-AR-N 4110:2018-11** – Technical requirements for the connection and operation of customer installations to the medium voltage network (TCR medium voltage) [1]
VDE-AR-N 4120:2018-11 – Technical requirements for the connection and operation of customer installations to the high voltage network (TCR high voltage) [2]

Pertinent standards / Guidelines: Technical guidelines: FGW TR 3 Rev. 25 [3], FGW TR 4 Rev. 09 [4], FGW TR 8 Rev. 09 [5]

The power generating units, stated in the certificate, were tested and certified according to the technical guidelines referenced to the grid connection regulation. The electrical characteristics fulfil the requirements of the grid connection regulation:

- Quasi-steady-state operation
- Dynamic network stability (reactive current characteristic according to TCR medium voltage & TCR high voltage)
- Active power output and network security management (Note in annex on p. 27)*
- Active power adjustment as a function of the grid frequency (Note in annex on p. 36)**
- Protection technology and protection settings on generating unit level. This functionality was not tested and must be provided by an external interface protection (Note in annex on p.43 and p.45)***
- Power quality

There are no restrictions or deviations. (*,** Some functionality might have to be considered within the plant control scheme
*** Interface protection (including test terminals) is not included in the PGU. For this certificate as example and for completeness of documentation the powador-protect has been considered as intermediate interface protection on PGU level (Note in annex on p.43). Other solutions of intermediate interface protection on PGU level are possible (full documentation and/or component certificate must be provided).

The manufacturer has provided proof of certification of the quality management system of his production facility in accordance with ISO 9001

The certificate includes the following information:

- technical data of the power generating unit, the auxiliary equipment used and the software version used;
- schematic structure of the power generating units;
- summarized information on the properties of the power generating unit.

The certificate is comprised of 81 pages (including Annex of 80 pages).

BV project number	: 15TH0250	Certification scheme	: NSOP-0032-DEU-ZE-V01
Certificate no.	: 20-0296_5	Valid until	: 2025-06-29
Issued	: 2020-10-20		



Certification body of Bureau Veritas Consumer Products Services Germany GmbH accredited according to DIN EN ISO/IEC 17065
A partial representation of the certificate requires the written approval of Bureau Veritas Consumer Products Services Germany GmbH