

Certificate of Conformity

No. ESY 075386 0222 Rev. 00

Holder of Certificate: **Shenzhen Kstar New Energy Company Limited**
The 9th Floor, R&D Building
Kstar Industrial Park, Guangming Hi-tech Industrial Zone
518107 Shenzhen, Guangdong Province
PEOPLE'S REPUBLIC OF CHINA

Product: **Converter
(Hybrid inverter)**

Model(s): **KAC50DP**

Parameters: See page 3

Applicable standards: EN 50549-1:2019/AC:2019
RfG:2016
NC RfG:2018
PTPIREE:2021

This Certificate of Conformity confirms the compliance with the above listed standards on a voluntary basis. It refers only to the sample submitted to TÜV SÜD Product Service GmbH and does not certify the quality or safety of the serial products. It was issued according to TÜV SÜD Product Service certification program Photovoltaics and Grid Integration. For details see: www.tuvsud.com/ps-cert

Test report no.: 64290233039501

Date, 2023-07-14



(Billy Qiu)

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Technical Certifier (Billy Qiu) appointed by Certification Body TÜV SÜD Product Service GmbH performed assessment of the products listed in this certification in the place: Ridlerstraße 65, 80339 Munich, Germany.

Test requirement	<p>The certification complies with the requirements of the following documents for Type A/B PGM installations:</p> <p>EN 50549-1:2019/AC:2019 Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV distribution network - Generating plants up to and including Type B</p> <p>RfG:2016 Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for the connection of generating units to the Network (OJ EU L 112/1 of 27.4.2016)</p> <p>NC RfG:2018 General applicability requirements resulting from EU commission regulation 2016/631 of 14 April 2016 establishing a network code concerning the requirements for with regard to the connection of generating units to the grid (NC RfG-2018)- approved by the Decision of the President of the Energy Regulatory Office DRE.WOSE.7128.550.2.2018.ZJ dated 2 January 2019.</p> <p>PTPiREE:2021 Conditions and procedures for the use of certificates in the process of connecting modules generation modules to the power grid V1.2</p>
Type of certification programme	1(a) according to EN ISO/IEC 17067 Based on Photovoltaics and Grid Integration Certification Program (Revision 6,Dated 5 Dec 2021) for Poland Grid Code
Manufacturer & Address of manufacturing site	Shenzhen Kstar New Energy Company Limited The 9th Floor, R&D Building, Kstar Industrial Park, Guangming Hi-tech Industrial Zone,Shenzhen, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA
Software version	V000B000D001
Certificate expiry date	2028-07-13

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Parameters:

Model	KAC50DP
PV input rating	
Input voltage range	350 Vd.c.~1000 Vd.c.
Input voltage range (full load)	667 Vd.c.~750 Vd.c.
Max. continuous input current	108 Ad.c. (36 Ad.c. per PV string)
Max. PV short circuit current	120 Ad.c. (40 Ad.c. per PV string)
Ma. input power	75 kW
Battery input/output rating	
Battery type	Lithium-ion
Rated voltage	512 Vd.c.
Battery voltage range	350 Vd.c.~750 Vd.c.
Max. dis/charging power	55/55 kW
Max. dis/charging current	110/110 Ad.c. (55 Ad.c. per battery terminal)
Grid input/output rating	
Rated active power	50 kW
Max. active power	50 kW
Max. apparent power	55 kVA
Rated frequency	50 Hz
Rated voltage	3W+N+PE, 230/400 Va.c.
Rated current	72 Aa.c.
Max. continuous current	80 Aa.c.
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)

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Scope of assessment and results

Clause of NfG	Requirement	Type A	Type B	Type C	Type D	Assessment Result
Article 13.1 (a)	Frequency range	Y	Y	-	-	Pass
Article 13.1 (b)	Ability to withstand the rate of change of frequency (RoCoF)	Y	Y	-	-	Pass
Article 13.2	Limited frequency sensitive mode — overfrequency (LFSM-O)	Y	Y	-	-	Pass
Article 13.4 & 13.5	Maximum power capability reduction with falling frequency	Y	Y	-	-	Pass
Article 13.6	Remote ceasing active power	Y	Y	-	-	Pass
Article 13.7 & 14.4	Automatic connection to the network	Y	Y	-	-	Pass
Article 14.2	PGM remote control	-	Y	-	-	Pass
Article 14.3 & 16.3& 20.2 (b, c) & 20.3	Ability to withstand voltage dips for terminals below 110 kV & Introduction of fast current & Restore of active power after fault	-	Y	-	-	Pass
Article 20.2 (a)	Voltage support by reactive power – Capabilities	-	Y	-	-	Pass