

Technical Report No.: 64.290.16.00037.02

Rev. 00

Dated: 2017-12-18

Client:	Name: Shenzhen Kstar New Energy Company Limited Address: The 9th floor, R&D building, Kstar Industrial Park, Guangming Hi-Tech Industrial Zone, Shenzhen 518110, Guangdong Province, P.R. China contact person: Mr. Li Bin
Manufacturing place:	Manufacturer's Name: Shenzhen Kstar New Energy Company Limited Address: The 9th Floor, R&D Building, Kstar Industrial Park, Guangming Hi-tech Industrial Zone, 518107 Shenzhen, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA Factory's name: Shenzhen KSTAR Science & Technology Co., Ltd. Guangming Branch Address: Kstar High Tech Park, Guangming High, Technology Town, Gongming Street, Baoan District, 518107 Shenzhen City, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA
Test subject:	Product: PV grid-connected inverter Type: KSG-10K, KSG-12K, KSG-15K, KSG-17K and KSG-20K
Test specification:	IEC 62109-1(ed.1) IEC 62109-2(ed.1) EN 62109-1:2010 EN 62109-2:2011
Purpose of examination:	<ul style="list-style-type: none">inspection according to specified requirements to realize the observance of the protection aims of the following EC directives: 2014/35/EUTest according to the test specification
Test result:	The test results show that the presented product is in compliance with the specified requirements.

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1 Description of the test subject

1.1 Function

- (1) The units are non-isolated PV grid-connected inverters, for indoor and outdoor use;
- (2) The units are intended to be mounted on the wall with screws and expansion tube;
- (3) There are two independent MPP trackers and each tracker have two independent strings.
- (4) The units shall be used at specified ambient range. Temperature range: -25 °C ~ +60 °C;
Altitude: < 2000 m; Overvoltage category: II(DC side), III(AC side); Relative humidity range:
4 % ~ 100 %.
- (5) The units shall meet the local grid code, which should be verified separately;
- (6) Power factor should be verified separately according to the local grid code.
- (7) The firmware version is DSP: V1.5, ARM: V1.3.
- (8) The setting of rated frequency and protection are described in the user manual.

Model differences:

- (1) Model KSG-10K and KSG-12K are identical to each other except for the power rating.
- (2) Model KSG-15K, KSG -17K and KSG-20K are identical to each other except for the power rating.
- (3) Model KSG-10K and KSG-20K are identical to each other except for the following Items

Model	KSG-10K	KSG-20K
Relay	SHENZHEN SONGCHUAN Rating: 30A/250Vac	Tyco Electronics Rating: 35A/250Vac
Inductor (Boost circuit)	Φ1.7*2P EIW, 1.6mH	Φ2.1*2P EIW, 0.715mH
Inductor (INV circuit)	Φ 2.1*1P EIW 2.26mH	Φ1.7*2P EIW,1.6mH
Heatsink	Size: 509x330x58mm	Size: 509x330x80.5mm

1.2 Consideration of the foreseeable misuse

- ☐ Not applicable
- ☒ Covered through the applied standard
- ☐ Covered by the following comment
- ☐ Covered by attached risk analysis

1.3 Technical Data

Model:	KSG-10K	KSG-12K	KSG-15K	KSG-17K	KSG-20K
Vmax PV (Vd.c.)	1000	1000	1000	1000	1000
MPPT voltage range (Vd.c.)	480-800	480-800	480-800	480-800	480-800
Maximum operating PV input current (Ad.c.)	13x2	13x2	21x2	21x2	21x2
Isc PV (Ad.c.)	15x2	15x2	23x2	23x2	23x2
a.c. output voltage (Va.c.)	3/N/PE, 400/230V	3/N/PE, 400/230V	3/N/PE, 400/230V	3/N/PE, 400/230V	3/N/PE, 400/230V
Nominal a.c. output frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Maximum continuous a.c. output current(Aa.c.)	15	18	22	25	29
Maximum continuous a.c. output power(kW)	10	12	15	17	20
Power factor range	0.8 under-excited to 0.8 over-excited	0.8 under-excited to 0.8 over-excited	0.8 under-excited to 0.8 over-excited	0.8 under-excited to 0.8 over-excited	0.8 under-excited to 0.8 over-excited
Protection class	I	I	I	I	I
IP code	IP65	IP65	IP65	IP65	IP65

Note: The power factor range isn't verified in this report, this rating is declared by the manufacturer.

2 Order

2.1 Date of Purchase Order, Customer's Reference

2017-12-05

2.2 Receipt of Test Sample, Location

2015-12-30

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch

5F, Communication Building, 163 Pingyun Rd, Huangpu Ave. West, Guangzhou 510656, P. R. China

2.3 Date of Testing

2016-01-08 to 2016-01-28, 2017-12-08 to 2017-12-15

2.4 Location of Testing

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch

5F, Communication Building, 163 Pingyun Rd, Huangpu Ave. West, Guangzhou 510656, P. R. China

2.5 Points of Non-compliance or Exceptions of the Test Procedure

N/A

3 Test Results

3.1 Positive Test Results



- Electrical safety (IEC 62109-(ed. 1)/EN 62109-1:2010, IEC 62109-2(ed. 1)/EN 62109-2:2011)
- Mechanical safety (IEC 62109-(ed. 1)/EN 62109-1:2010, IEC 62109-2(ed. 1)/EN 62109-2:2011)

4 Remark

4.1 Remarks to Factory

The assembly of the product has to comply with the documentation (CDF). Before the implementation of safety relevant modifications to the product into the ongoing production the product must be retested for assessment. The results must be implemented to the documentation and if necessary the certificate must be updated.

- 4.2 The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.
- 4.3 When the product is placed on the market, it must be accompanied with safety instructions written in official language of the country. The instructions shall give information regarding safe operation, installation and maintenance.
- 4.4 According to the EU decision 768/2008/EC, the name and address of manufacturer (an EU-based importer or authorized representative if the manufacturer is not based in EU) shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on EU market.
- 4.5 The manufacturer/ Importer has to ensure the appliance placing on the EU market conforms to the applicable EU directives which provide the affixing of the CE marking, such as LVD, EMC, RoHS, ErP, and so on.
- 4.6 This report is based on original report No.: 64.290.16.00037.01 (Certificate No.: Z2 16 02 75386 029, N8A 16 02 75386 030), with the parameters of 60 Hz added. Original test report and certificates are reserved.

5 Documentation

- CDF
- Photo documentation

6 Summary

The test specifications are met.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

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Kennen Wang
Max Fang
Project Handler

Technical Report checked: Billy Qiu

Billy Qiu



Designated Reviewer

..... End of Technical Report