



Technical Report No.: 64.290.20.30510.01

Date: 2020-10-15

Client: Name: Shenzhen Sinexcel Electric Co., Ltd.
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518055 Shenzhen City, PEOPLE'S REPUBLIC OF CHINA
contact person: qiujiie_zhang@sinexcel.cn

Manufacturing place: Manufacturer's name: Shenzhen Sinexcel Electric Co., Ltd.
Address: Building 6, BaiWangXin High-tech Industrial Park, Nanshan District,
518055 Shenzhen City, PEOPLE'S REPUBLIC OF CHINA
Factory's name: Shenzhen Sinexcel Electric Co., Ltd.
Address: Building 6, BaiWangXin High-tech Industrial Park, Nanshan District,
518055 Shenzhen City, PEOPLE'S REPUBLIC OF CHINA

Test subject: Product: Bi-directional Hybrid Energy Storage Inverter
Type: PWG2-100K-EX, PWG2-50K-EX
Trade mark (if any): Sinexcel

Test specification: EN 50549-1:2019

Purpose of examination: • Test 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 Bi-directional Hybrid Energy Storage Inverter is an isolated (internal industrial frequency transformer used) inverter which apply to converts the DC (direct current) supplied by a battery and PV into grid-compliant AC (alternating current). The unit is defined as type A generator according to Regulation (EU) 2016/631 (NC RfG);
- (2) The unit provides two relays in series on each phase (L1, L2, L3) and one relay on neutral. The internal control is redundantly built. It contains a main DSP and a slave DSP. Main DSP can open relays independently and communicate with slave DSP. An internal industrial frequency transformer used between relays and AC output terminal. Slave DSP can open the electronic switching components;
- (3) For this standard test, the inverter is designed to be operated with a power factor setting from $\cos \phi = 0.9$ lagging to 0.9 leading. The power factor can be adjustable via RS 232/485 communication port;
- (4) Low voltage electrical installations shall comply with national and local regulation. Only qualified electricians are allowed to install and maintain the converter;
- (5) Firmware Version: 1400, software version: A00.

1.2 Consideration of the foreseeable

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

1.3 Technical Data

Model	PWG2-50K-EX	PWG2-100K-EX
PV terminal parameters		
Rated DC input voltage range	520 ~ 900 Vd.c.	520 ~ 900 Vd.c.
Maximum DC input voltage	900 Vd.c.	900 Vd.c.
Maximum input current	220 Ad.c.	440 Ad.c.
Battery terminal parameters		
Rated DC voltage	400 Vd.c.	400 Vd.c.
Battery DC voltage range	250 ~ 500 Vd.c.	250 ~ 500 Vd.c.
Rated charging power	50 kW	100 kW
Rated discharging power	50 kW	100 kW
Max. charging current	130 Ad.c.	260 Ad.c.
Max. discharging current	130 Ad.c.	260 Ad.c.
Grid terminal parameters		
Rated AC voltage	400/230 Va.c., 3/N/PE	400/230 Va.c., 3/N/PE
Rated AC frequency	50 Hz	50 Hz
Rated AC current	72.0 Aa.c.	144.0 Aa.c.
Max. AC current	79.0 Aa.c.	158.0 Aa.c.
Rated apparent power	50 kW	100 kW
Rated output apparent power	50 kVA	100 kVA
Maximum continuous output apparent power	55 kVA	110 kVA
Power factor	0.9 leading to 0.9 lagging	0.9 leading to 0.9 lagging
Load terminal parameters		
Rated AC voltage	400/230 Va.c., 3/N/PE	400/230 Va.c., 3/N/PE
Rated AC frequency	50 Hz	50 Hz



Rated AC current	72.0 Aa.c.	144.0 Aa.c.
Max. AC current	79.0 Aa.c.	158.0 Aa.c.
Rated apparent power	50 kW	100 kW
Rated output apparent power	50 kVA	100 kVA
Maximum continuous output apparent power	55 kVA	110 kVA
Power factor	0.9 leading to 0.9 lagging	0.9 leading to 0.9 lagging

2 Order

2.1 Date of Purchase Order, Customer's Reference

2020-07-03

2.2 Receipt of Test Sample, Condition, Location

2020-08-20

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

2020-08-21 to 2020-09-28

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

Sub clause: N/A

Rational: N/A

3 Test Results

Decision rule according to IEC Guide 115:2007, clause 4.4.3, 4.5.1 (accuracy method) was applied.

Decision rule according to customer's requirements was applied. It was: ().

Decision rule for an upper specification limit (A lower limit or specification with an upper and a lower limit is treated similarly.):

- Compliance with the requirement: If a specification limit is not breached by a measurement result plus the expanded uncertainty with a 95% coverage probability, then compliance with the specification will be stated (e.g. Pass).
- Non-compliance with the requirement: If a specification limit is exceeded by the measurement result minus the expanded uncertainty with a 95% coverage probability, then non-compliance with the specification will be stated (e.g. Fail).
- Inconclusive result: If a measurement result plus/minus the expanded uncertainty with a 95 % coverage probability overlaps the limit it will be stated that it is not possible to state compliance or non-compliance.

3.1 Positive Test Results

All comply with EN 50549-1:2019

4 Remark

4.1 Routine Safety Test

N/A

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 When measurement results are close to limit value of specified requirement, manufacturer shall take actions during the production process to keep the limit, especially if the result of a measurement is in a bandwidth within $\pm 10\%$ to the limit value.

4.5 According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address 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 the EU market.

4.6 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.

5 Documentation

N/A

6 Summary

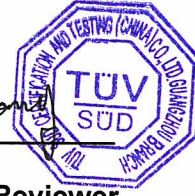
The test specifications are met.



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

Tested by: Ryan He
Ryan He
Project Handler

Reviewed by: Max Fang
Max Fang
Designated Reviewer



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