Test Verification of Conformity

Verification Number: 220510042GZU -VOC001

On the basis of the tests undertaken, the sample<s> of the below product have been found to comply with the requirements of the referenced specification<s>/standard<s> at the time the tests were carried out. This verification is part of the full test report<s> and should be read in conjunction with it <them>.

Applicant Name & Address:	Huawei Digital Power Technologies Co., Ltd. Office 01, 39th Floor, Block A, Antuoshan Headquarters Towers, 33 Antuoshan 6th Road, Futian District, Shenzhen, 518043, P.R.C.
Product Description:	Photovoltaic rapid shutdown system
Ratings & Principle Characteristics:	See Appendix: Test Verification of Conformity
Models/Type References:	See Appendix: Test Verification of Conformity
Brand Names:	HUAWEI
Specification<s>/Standards:	National Electric Code, 2017 and 2020, section 690.12 requirement for rapid shutdown
Verification Issuing Office Name & Address:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch. Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China
Date of Tests:	09 May 2022 – 11 May 2022
Test Report Number(s):	220510042GZU-001

Additional information in Appendix.

Signature

Name: Tommy Zhong
Position: Technical Manager
Date: 12 May 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 20510042GZU -VOC001.

Ratings & Principle Characteristics:

Attenuators	Initiation	Inverter	System Ratings
SUN2000-600W-P SUN2000-450W-P SUN2000-450W-P2	Integral to inverter PLC transmitter	Huawei Digital Power Technologies Co., Ltd. SUN2000-2KTL-L1 SUN2000-3KTL-L1 SUN2000-3.68KTL-L1 SUN2000-4KTL-L1 SUN2000-4.6KTL-L1 SUN2000-5KTL-L1 SUN2000-6KTL-L1	600Vdc maximum system voltage;12.5A maximum per input current;18A max per input short circuit current. Rapid shutdown time within 30s on PV input of inverter There are three methods to initiate the system 1, Initiated by the loss of AC power 2, Initiated by turning off the DC safety switch. 3, Initiated by the emergency switch that should be connected to inverter

Signature

Name: Tommy Zhong
Position: Technical Manager
Date: 12 May 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 20510042GZU -VOC001.

Ratings & Principle Characteristics:

Attenuators	Initiation	Inverter	System Ratings
SUN2000-600W-P SUN2000-450W-P SUN2000-450W-P2	Integral to inverter PLC transmitter	Huawei Digital Power Technologies Co., Ltd. SUN2000-3KTL-M1 SUN2000-4KTL-M1 SUN2000-5KTL-M1 SUN2000-6KTL-M1 SUN2000-8KTL-M1 SUN2000-10KTL-M1 SUN2000-12KTL-M1	1000Vdc maximum system voltage;13.5A maximum per input current;19.5A max per input short circuit current. Rapid shutdown time within 30s on PV input of inverter There are three methods to initiate the system 1, Initiated by the loss of AC power 2, Initiated by turning off the DC safety switch. 3, Initiated by the emergency switch that should be connected to inverter

Signature

Name: Tommy Zhong
Position: Technical Manager
Date: 12 May 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 20510042GZU -VOC001.

Ratings & Principle Characteristics:

Attenuators	Initiation	Inverter	System Ratings
SUN2000-600W-P SUN2000-450W-P SUN2000-450W-P2	Integral to inverter PLC transmitter	Huawei Digital Power Technologies Co., Ltd. SUN2000-8KTL-M2 SUN2000-10KTL-M2 SUN2000-12KTL-M2 SUN2000-15KTL-M2 SUN2000-17KTL-M2 SUN2000-20KTL-M2	1000Vdc maximum system voltage;27A maximum per input current;39A max per input short circuit current. Rapid shutdown time within 30s on PV input of inverter There are three methods to initiate the system 1, Initiated by the loss of AC power 2, Initiated by turning off the DC safety switch. 3, Initiated by the emergency switch that should be connected to inverter

Signature

Name: Tommy Zhong
Position: Technical Manager
Date: 12 May 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 20510042GZU -VOC001.

Ratings & Principle Characteristics:

Attenuators	Initiation	Inverter	System Ratings
SUN2000-600W-P SUN2000-450W-P SUN2000-450W-P2	Integral to inverter PLC transmitter	Huawei Digital Power Technologies Co., Ltd. SUN2000-15KTL-M3 SUN2000-17KTL-M3 SUN2000-20KTL-M3 SUN2000-29.9KTL-M3 SUN2000-30KTL-M3 SUN2000-36KTL-M3 SUN2000-40KTL-M3 SUN2000-42KTL-M3	1000Vdc maximum system voltage;26A maximum per input current;40A max per input short circuit current. Rapid shutdown time within 30s on PV input of inverter There are three methods to initiate the system 1, Initiated by the loss of AC power 2, Initiated by turning off the DC safety switch. 3, Initiated by the emergency switch that should be connected to inverter

The testing done has verified that controlled conductors are limited to:

- Not more than 30 volts or 15Vac(rms) and 240 voltamperes within 30 seconds of rapid shutdown initiation outside the array.
- Not more than 80 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation inside the array.

Noted:

When Attenuators are connected to 2 or more modules in series, the max input voltage may exceed 80V. Following the implementation of the NEC 2017 rapid shutdown value of 80V max inside of the array at the beginning of 2019, modules exceeding this combined input max voltage will be required to use attenuators with parallel inputs. Also meeting NEC 2020 rapid shutdown requirement.

Tommy

Signature

Name: Tommy Zhong
Position: Technical Manager
Date: 12 May 2022