



**BUREAU
VERITAS**

Attestation of compliance

Certificate No.: 2388AP100087001
Product: Photovoltaic (PV) and battery inverter
Brand Name:



HUAWEI

Test Model No.: SUN2000-2KTL-L1, SUN2000-3KTL-L1, SUN2000-3.68KTL-L1

Applicant: Huawei Technologies Co., Ltd.
Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian,
Longgang District, Shenzhen, 518129, P.R.C

Report No.: PVGB2310WDG0087-1

Use in accordance with regulations:

Automatic disconnection device with Single-phase mains surveillance in accordance with Engineering Recommendation G98/1 for photovoltaic systems with a three-phase parallel coupling via an inverter in the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter. This serves as a replacement for the disconnection device with isolating function, which can be accessed the distribution network provider at any time.


Applied rules and standards:

Engineering Recommendation G98/1-7:2022

Requirements for the connection of Fully Type Tested Micro-generators (up to and including 16 A per phase) in parallel with public Low Voltage Distribution Networks

DIN VDE V 0124-100:2020 (5.5.2.1 Functional safety of network and system protection)

Grid integration of generator plants - Low-voltage - Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks


Name: Daniel Yu
Manager/ New Energy
Date: 2023-11-22

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Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch.

Information given in this document is related to the tested specimen of the described electrical sample

**Appendix C Type Test Verification Report**

Extract from test report according to the Engineering Recommendation G98/1

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Type Approval and declaration of compliance with the requirements of Engineering Recommendation G98/1.

PGM Technology	Photovoltaic (PV) and battery inverter		
Manufacturer	Huawei Technologies Co., Ltd.		
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C		
Tel	-	Fax	-
Email	-	Website	-

Rated values	SUN2000-2KTL-L1	SUN2000-3KTL-L1	SUN2000-3.68KTL-L1
Max. Input PV voltage [V] :	600		
MPP PV voltage range [V]:	90-530		
Max. Input PV current [A] :	13,5 / 13,5		
Isc PV [A]:	20,0 / 20,0		
Output AC voltage [V] :	L/N/PE, 230Vac, 50Hz		
Max. Output AC current [A]:	10,0	15,0	16,0
Nominal Output power [kW]:	2,00	3,00	3,68
Max. Output power [kVA] :	2,20	3,30	3,68
Max. Battery input voltage [V]:	600		
Max. Battery current [A] :	15,0		

Note:

Firmware version	Hardware version: V200R001 Software version: V200R001
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Description of the structure of the power generation unit:

The power generation unit is equipped with a PV and line-side EMC filter. The power generation unit has no galvanic isolation between DC input and AC output. Output switch-off is performed with single-fault tolerance based on two series-connected relays in each line and neutral. This enables a safe disconnection of the power generation unit from the network in case of error.

Differences between Generating Units:

The models SUN2000-2KTL-L1, SUN2000-3KTL-L1 and SUN2000-3.68KTL-L1 are almost identical in hardware except current sampling circuit and the output power derated by software.

The above stated Generating Units are tested according the requirements in the Engineering Recommendation G98/1. Any modification that affects the stated tests must be named by the manufacturer/supplier of the product to ensure that the product meets all requirements of the Engineering Recommendation G98/1.



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Annex to the G98/1 certificate of compliance No. 2388AP100087001

Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1	Nr. PVGB2310WDG0087-1
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Operating Range.	
Test 1	Voltage = 85% of nominal (195,5 V) Frequency = 47,0 Hz Power Factor = 1 Period of test 20 seconds
Connection:	Always connected
Limit:	Always connected
Test 2	Voltage = 85% of nominal (195,5 V) Frequency = 47,5 Hz Power Factor = 1 Period of test 90 minutes
Connection:	Always connected
Limit:	Always connected
Test 3	Voltage = 110% of nominal (253 V) Frequency = 51,5 Hz Power Factor = 1 Period of test 90 minutes
Connection:	Always connected
Limit:	Always connected
Test 4	Voltage = 110% of nominal (253 V) Frequency = 52,0 Hz Power Factor = 1 Period of test 15 minutes
Connection:	Always connected
Limit:	Always connected
Test 5	Voltage = 100% of nominal (230 V) Frequency = 50,0 Hz Power Factor = 1 Period of test 90 minutes
Connection:	Always connected
Limit:	Always connected
Test 6	Confirm that the Micro-Generating Plant is capable of staying connected to the Distribution Network and operate at rates of change of frequency up to 1 Hzs-1 as measured over a period of 500 ms.
Connection:	Always connected
Limit:	Always connected



Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1

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Protection. Voltage tests.

Single Phase

Function	Setting		Trip test		No trip test	
	Voltage [V]	Time delay [s]	Voltage [V]	Time delay [s]	Voltage / time	Confirm no trip
UV	184	2,5	183,6	2,540	188V / 5s	No trip
					180V / 2,45s	No trip
O/V stage 1	262,2	1,0	261,5	1,080	258,2V / 5,0s	No trip
O/V stage 2	273,7	0,5	273,0	0,540	269,7V / 0,95s	No trip
					277,7V / 0,45s	No trip

Note. For Voltage tests the Voltage required to trip is the setting $\pm 3,45V$. The time delay can be measured at a larger deviation than the minimum required to operate the protection. The No trip tests need to be carried out at the setting $\pm 4V$ and for the relevant times as shown in the table above to ensure that the protection will not trip in error.

Protection. Frequency tests.

Function	Setting		Trip test		No trip test	
	Frequency [Hz]	Time delay [s]	Frequency [Hz]	Time delay [s]	Frequency / time	Confirm no trip
U/F stage 1	47,5	20	47,5	20,000	47,7Hz / 30s	No trip
U/F stage 2	47	0,5	47,0	0,540	47,2Hz / 19,5s	No trip
					46,8Hz / 0,45s	No trip
O/F stage 2	52	0,5	52,0	0,520	51,8Hz / 120s	No trip
					52,2Hz / 0,45s	No trip

Note. For Frequency Trip tests the Frequency required to trip is the setting $\pm 0,1Hz$. In order to measure the time delay a larger deviation than the minimum required to operate the projection can be used. The "No-trip tests" need to be carried out at the setting $\pm 0,2Hz$ and for the relevant times as shown in the table above to ensure that the protection will not trip in error.



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Appendix C Type Test Verification Report

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Protection. Loss of Mains.

Inverters tested according to BS EN 62116.

Balancing load on islanded network	33% of -5% Q Test 22	66% of -5% Q Test 12	100% of -5% P Test 5	33% of +5% Q Test 31	66% of +5% Q Test 21	100% of +5% P Test 10
Trip time [s]	0,284	0,275	0,316	0,297	0,287	0,297

Note. Trip time limit is 0,5s.

Protection. Re-connection timer.

Test should prove that the reconnection sequence starts in no less than 20 seconds for restoration of voltage and frequency to within the stage 1 settings of table 2.

Over Voltage

Time delay setting

Measured delay

60s

76,6s

Under Voltage

Time delay setting

Measured delay

60s

76,1s

Over Frequency

Time delay setting

Measured delay

60s

76,3s

Under Frequency

Time delay setting

Measured delay

60s

76,4s

Checks on no reconnection when voltage or frequency is brought to just outside stage 1 limits of table 1.

At 266,2V

At 180,0V

At 47,4Hz

At 52,1Hz

Confirmation that the Generating Unit does not re-connect.

No reconnection

No reconnection

No reconnection

No reconnection

Appendix C Type Test Verification Report

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Protection. Frequency change, Stability test.

	Start Frequency [Hz]	Change	Test Duration	Confirm no trip
Positive Vector Shift	49,5	+50 degrees		No trip
Negative Vector Shift	50,5	-50 degrees		No trip
Positive Frequency drift	49,0 to 51,0	+0,95Hz/sec	2,1s	No trip
Negative Frequency drift	51,0 to 49,0	-0,95Hz/sec	2,1s	No trip

Limited Frequency Sensitive Mode – Over Frequency

1-min mean value [Hz]:	a) 50,00	b) 50,45	c) 50,70	d) 51,15	e) 50,70	f) 50,45	g) 50,00
1. Measurement a) to g): Active power output > 80% Pn							
Frequency [Hz]:	50,00	50,45	50,70	51,15	50,70	50,45	50,00
P _{expected} [W]:	N/A	3643	3467	3135	3467	3643	N/A
P _{measured} [W]:	3670	3633	3448	3118	3448	3632	3670
2. Measurement a) to g): Active power output 40% and 60% after freezing > 80% Pn							
Frequency [Hz]:	50,00	50,45	50,70	51,15	50,70	50,45	50,00
P _{expected} [W]:	N/A	1803	1619	1288	1619	1803	N/A
P _{measured} [W]:	1840	1805	1620	1288	1620	1804	3680

Output Power with falling Frequency

5-min mean value (each)	a) 50 ± 0,01 Hz	b) - 0,4 to - 0,5 Hz	c) - 2,4 to - 2,5 Hz
Frequency [Hz]:	50,00	49,50	47,55
Active power [W]:	3673	3672	3672
ΔP/P _{max} [%]:			0,22

Note.

No power reduction takes place in electronic inverter.



Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1 Nr. PVGB2310WDG0087-1

Power Quality. Harmonics.						
SUN2000-2KTL-L1						
Phase 1						
SSEG rating per phase (rpp)			2 kW			
	At 45-55% of Registered Capacity 1 kW		100% of Registered Capacity 2 kW			
Harmonic	Measured Value (MV) in [A]	Measured Value (MV) in [%]	Measured Value (MV) in [A]	Measured Value (MV) in [%]	Limit in BS EN61000-3-2 in Amps	Higher limit for odd harmonics 21 and above
2nd	0,007	0,150	0,011	0,131	1,080	--
3rd	0,031	0,665	0,029	0,344	2,300	--
4th	0,007	0,150	0,009	0,107	0,430	--
5th	0,035	0,751	0,013	0,154	1,140	--
6th	0,012	0,258	0,015	0,178	0,300	--
7th	0,028	0,601	0,019	0,226	0,770	--
8th	0,009	0,193	0,012	0,143	0,230	--
9th	0,013	0,279	0,017	0,202	0,400	--
10th	0,009	0,193	0,009	0,107	0,184	--
11th	0,021	0,451	0,012	0,143	0,330	--
12th	0,007	0,150	0,011	0,131	0,153	--
13th	0,031	0,665	0,017	0,202	0,210	--
14th	0,009	0,193	0,010	0,119	0,131	--
15th	0,030	0,644	0,018	0,214	0,150	--
16th	0,008	0,172	0,007	0,083	0,115	--
17th	0,020	0,429	0,019	0,226	0,132	--
18th	0,009	0,193	0,008	0,095	0,102	--
19th	0,015	0,322	0,020	0,238	0,118	--
20th	0,008	0,172	0,007	0,083	0,092	--
21th	0,013	0,279	0,016	0,190	0,107	0,160
22th	0,007	0,150	0,011	0,131	0,084	--
23th	0,014	0,300	0,016	0,190	0,098	0,147
24th	0,007	0,150	0,009	0,107	0,077	--
25th	0,013	0,279	0,014	0,166	0,090	0,135
26th	0,008	0,172	0,010	0,119	0,071	--
27th	0,010	0,215	0,012	0,143	0,083	0,124
28th	0,008	0,172	0,009	0,107	0,066	--
29th	0,008	0,172	0,009	0,107	0,078	0,117
30th	0,007	0,150	0,008	0,095	0,061	--
31th	0,008	0,172	0,010	0,119	0,073	0,109
32th	0,007	0,150	0,007	0,083	0,058	--
33th	0,009	0,193	0,012	0,143	0,068	0,102
34th	0,007	0,150	0,006	0,071	0,054	--
35th	0,010	0,215	0,013	0,154	0,064	0,096
36th	0,008	0,172	0,007	0,083	0,051	--
37th	0,012	0,258	0,014	0,166	0,061	0,091
38th	0,008	0,172	0,008	0,095	0,048	--
39th	0,014	0,300	0,013	0,154	0,058	0,087
40th	0,009	0,193	0,009	0,107	0,046	--

Note the higher limits for odd harmonics 21 and above are only allowable under certain conditions, if these higher limits are utilised please state the exemption used as detailed in part 6.2.3.4 of BS EN 61000-3-2 in the box below.



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Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1

Nr. PVGB2310WDG0087-1

Power Quality. Harmonics.

SUN2000-3KTL-L1

Phase 1

SSEG rating per phase (rpp)			3 kW		Limit in BS EN61000-3-2 in Amps	Higher limit for odd harmonics 21 and above
Harmonic	At 45-55% of Registered Capacity 1,5 kW		100% of Registered Capacity 3 kW			
	Measured Value (MV) in [A]	Measured Value (MV) in [%]	Measured Value (MV) in [A]	Measured Value (MV) in [%]		
2nd	0,013	0,191	0,010	0,075	1,080	--
3rd	0,064	0,942	0,046	0,346	2,300	--
4th	0,004	0,059	0,012	0,090	0,430	--
5th	0,047	0,692	0,016	0,120	1,140	--
6th	0,006	0,088	0,011	0,083	0,300	--
7th	0,038	0,559	0,013	0,098	0,770	--
8th	0,003	0,044	0,009	0,068	0,230	--
9th	0,031	0,456	0,020	0,150	0,400	--
10th	0,006	0,088	0,007	0,053	0,184	--
11th	0,029	0,427	0,015	0,113	0,330	--
12th	0,003	0,044	0,008	0,060	0,153	--
13th	0,024	0,353	0,018	0,135	0,210	--
14th	0,003	0,044	0,008	0,060	0,131	--
15th	0,020	0,294	0,017	0,128	0,150	--
16th	0,003	0,044	0,008	0,060	0,115	--
17th	0,021	0,309	0,017	0,128	0,132	--
18th	0,003	0,044	0,008	0,060	0,102	--
19th	0,020	0,294	0,018	0,135	0,118	--
20th	0,003	0,044	0,007	0,053	0,092	--
21th	0,016	0,235	0,019	0,143	0,107	0,160
22th	0,004	0,059	0,007	0,053	0,084	--
23th	0,019	0,280	0,020	0,150	0,098	0,147
24th	0,003	0,044	0,007	0,053	0,077	--
25th	0,022	0,324	0,019	0,143	0,090	0,135
26th	0,004	0,059	0,007	0,053	0,071	--
27th	0,020	0,294	0,021	0,158	0,083	0,124
28th	0,004	0,059	0,007	0,053	0,066	--
29th	0,019	0,280	0,016	0,120	0,078	0,117
30th	0,003	0,044	0,007	0,053	0,061	--
31th	0,017	0,250	0,015	0,113	0,073	0,109
32th	0,003	0,044	0,007	0,053	0,058	--
33th	0,014	0,206	0,017	0,128	0,068	0,102
34th	0,003	0,044	0,008	0,060	0,054	--
35th	0,011	0,162	0,015	0,113	0,064	0,096
36th	0,003	0,044	0,007	0,053	0,051	--
37th	0,009	0,132	0,015	0,113	0,061	0,091
38th	0,003	0,044	0,007	0,053	0,048	--
39th	0,006	0,088	0,013	0,098	0,058	0,087
40th	0,003	0,044	0,007	0,053	0,046	--

Note the higher limits for odd harmonics 21 and above are only allowable under certain conditions, if these higher limits are utilised please state the exemption used as detailed in part 6.2.3.4 of BS EN 61000-3-2 in the box below.

Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1

Nr. PVGB2310WDG0087-1

Power Quality. Harmonics.

SUN2000-3.68KTL-L1

Phase 1

SSEG rating per phase (rpp)			3,68 kW		Limit in BS EN61000-3-2 in Amps	Higher limit for odd harmonics 21 and above
	At 45-55% of Registered Capacity 1,84 kW	100% of Registered Capacity 3,68 kW				
Harmonic	Measured Value (MV) in [A]	Measured Value (MV) in [%]	Measured Value (MV) in [A]	Measured Value (MV) in [%]		
2nd	0,014	0,177	0,033	0,204	1,080	--
3rd	0,051	0,645	0,064	0,397	2,300	--
4th	0,006	0,076	0,049	0,304	0,430	--
5th	0,037	0,468	0,031	0,192	1,140	--
6th	0,008	0,101	0,023	0,142	0,300	--
7th	0,032	0,405	0,028	0,173	0,770	--
8th	0,006	0,076	0,029	0,180	0,230	--
9th	0,025	0,316	0,017	0,105	0,400	--
10th	0,006	0,076	0,029	0,180	0,184	--
11th	0,024	0,304	0,021	0,130	0,330	--
12th	0,005	0,063	0,025	0,155	0,153	--
13th	0,024	0,304	0,016	0,099	0,210	--
14th	0,005	0,063	0,020	0,124	0,131	--
15th	0,021	0,266	0,015	0,093	0,150	--
16th	0,005	0,063	0,020	0,124	0,115	--
17th	0,020	0,253	0,014	0,087	0,132	--
18th	0,005	0,063	0,015	0,093	0,102	--
19th	0,020	0,253	0,018	0,112	0,118	--
20th	0,005	0,063	0,015	0,093	0,092	--
21th	0,014	0,177	0,022	0,136	0,107	0,160
22th	0,005	0,063	0,015	0,093	0,084	--
23th	0,014	0,177	0,024	0,149	0,098	0,147
24th	0,005	0,063	0,012	0,074	0,077	--
25th	0,015	0,190	0,024	0,149	0,090	0,135
26th	0,005	0,063	0,009	0,056	0,071	--
27th	0,014	0,177	0,028	0,173	0,083	0,124
28th	0,005	0,063	0,008	0,050	0,066	--
29th	0,012	0,152	0,028	0,173	0,078	0,117
30th	0,005	0,063	0,009	0,056	0,061	--
31th	0,011	0,139	0,027	0,167	0,073	0,109
32th	0,005	0,063	0,010	0,062	0,058	--
33th	0,011	0,139	0,026	0,161	0,068	0,102
34th	0,005	0,063	0,011	0,068	0,054	--
35th	0,010	0,127	0,026	0,161	0,064	0,096
36th	0,005	0,063	0,012	0,074	0,051	--
37th	0,010	0,127	0,025	0,155	0,061	0,091
38th	0,005	0,063	0,013	0,081	0,048	--
39th	0,009	0,114	0,021	0,130	0,058	0,087
40th	0,006	0,076	0,013	0,081	0,046	--

Note the higher limits for odd harmonics 21 and above are only allowable under certain conditions, if these higher limits are utilised please state the exemption used as detailed in part 6.2.3.4 of BS EN 61000-3-2 in the box below.



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Power Quality. Power factor.

SUN2000-2KTL-L1

Output power	216,2V	230V	253V	Measured at three voltage levels and at full output. Voltage to be maintained within $\pm 1,5\%$ of the stated level during the test.
20%	0,9998i	0,9999i	0,9999i	
50%	0,9999i	0,9999i	0,9999i	
75%	0,9999i	0,9999i	0,9999i	
100%	0,9999i	0,9999i	0,9999i	
Limit	>0,95	>0,95	>0,95	

SUN2000-3.68KTL-L1

Output power	216,2V	230V	253V	Measured at three voltage levels and at full output. Voltage to be maintained within $\pm 1,5\%$ of the stated level during the test.
20%	0,9999i	0,9999i	0,9999i	
50%	0,9999i	0,9999i	0,9999i	
75%	0,9999i	0,9999i	0,9999i	
100%	0,9999i	0,9999i	0,9999i	
Limit	>0,95	>0,95	>0,95	

Power Quality. Voltage fluctuation and Flicker.

	Starting			Stopping			Running	
	dmax	dc	d(t)	dmax	dc	d(t)	Pst	Plt 2 hours
Test: SUN2000-3.68KTL-L1								
Measured values at test impedance	1,98	1,87	--	2,01	1,85	--	0,028	0,023
Normalised to standard impedance	1,98	1,87	--	2,01	1,85	--	0,028	0,023
Normalised to required maximum impedance	1,98	1,87	--	2,01	1,85	--	0,028	0,023
Limits set under BS EN 61000-3-11	4%	3,3%	3,3% 500ms	4%	3,3%	3,3% 500ms	1,0	0,65
Test impedance	R	0,4	Ω	XI	0,25	Ω		
	Z	0,472	Ω					
Standard impedance	R	0,4	Ω	XI	0,25	Ω		
	Z	0,472	Ω					
Maximum impedance	R	0,4	Ω	XI	0,25	Ω		
	Zmax	0,472	Ω					

Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1

Nr. PVGB2310WDG0087-1

Power Quality. DC injection.				
SUN2000-2KTL-L1				
Phase 1				
Test level power [%]	20	50	75	100
Recorded value [mA]	2	2	3	4
Recorded value [%]	0,02	0,02	0,03	0,05
Limit [%]	0,25	0,25	0,25	0,25
<p>Note. DC-injection is tested at each phase of the inverter and a limit of 0,25% per phase was used as pass criteria. The tests should be carried out on a single Generating Unit. Tests are to be carried out at four defined power levels $\pm 5\%$. At 230 V a 2kW single phase Inverter has a current output of 8,70 A so DC limit is 21,7 mA. These tests should be undertaken in accordance with Annex A.1.3.4. The % DC injection ("as % of rated AC current" below) is calculated as follows: $\% \text{ DC injection} = \text{Recorded DC value in Amps} / \text{Base current where the base current is the Registered Capacity (W) / V phase}.$ The % DC injection should not be greater than 0,25%.</p>				
SUN2000-3.68KTL-L1				
Phase 1				
Test level power [%]	20	50	75	100
Recorded value [mA]	22	21	19	27
Recorded value [%]	0,14	0,13	0,12	0,17
Limit [%]	0,25	0,25	0,25	0,25
<p>Note. DC-injection is tested at each phase of the inverter and a limit of 0,25% per phase was used as pass criteria. The tests should be carried out on a single Generating Unit. Tests are to be carried out at four defined power levels $\pm 5\%$. At 230 V a 3,68 kW single phase Inverter has a current output of 16,0 A so DC limit is 40,0 mA. These tests should be undertaken in accordance with Annex A.1.3.4. The % DC injection ("as % of rated AC current" below) is calculated as follows: $\% \text{ DC injection} = \text{Recorded DC value in Amps} / \text{Base current where the base current is the Registered Capacity (W) / V phase}.$ The % DC injection should not be greater than 0,25%.</p>				

Fault level Contribution.					
For a directly coupled SSEG			For a Inverter SSEG		
Phase 1					
Parameter	Symbol	Value	Time after fault	Volts [V]	Amps [A]
Peak Short Circuit current	I_p	N/A	20ms	10,29 V	16,39A
Initial Value of aperiodic current	A	N/A	100ms	6,19V	0,41A
Initial symmetrical short-circuit current*	I_k	N/A	250ms	6,14V	0,42A
Decaying (aperiodic) component of short circuit current*	i_{dc}	N/A	500ms	6,24V	0,41A
Reactance/Resistance Ratio of source*	X/R	N/A	Time to Trip [s]	0,059	In seconds
<p>For rotating machines and linear piston machines the test should produce a 0s – 2s plot of the short circuit current as seen at the Generating Unit terminals. * Values for these parameters should be provided where the short circuit duration is sufficiently long to enable interpolation of the plot.</p>					

Appendix C Type Test Verification Report

Extract from test report according to the Engineering Recommendation G98/1

Nr. PVGB2310WDG0087-1

Self Monitoring – Solid state switching.	N/A
It has been verified that in the event of the solid state switching device failing to disconnect the Generating Unit, the voltage on the output side of the switching device is reduced to a value below 50 volts within 0,5 seconds.	N/A
Note. Unit do not provide solid state switching relays. In case the semiconductor bridge is switched off, then the voltage on the output drops to 0. In this case the relays on the output will also open (Functional safety of the internal automatic disconnection device according to VDE 0126-1-1).	

Cyber security	P
Confirm that the Manufacturer or Installer of the Micro-generator has provided a statement describing how the Micro-generator has been designed to comply with cyber security requirements, as detailed in 9.7.	Yes
Note. Different levels of access, all are password protected, only certain parameters can be changed on maintenance level. Manufacturer information provided.	

Logic Interface (input port) Required by paragraph 9.4.4	P
Confirm that an input port is provided and can be used to reduce the Active Power output to zero	Yes
Note. Manufacturer information provided.	
Provide high level description of logic interface, e.g. details in 9.4.4 such as AC or DC signal	Yes
The DNO logic interface use COM port, control the on and off of DI1 and GND by switch. When the switch is opened, the Power Generating Module can operate normally. When the switch is closed, the Power Generating Module will reduce its active power to zero within 5s. The signal from the Power Generating Module that is being switched is DC(value 12V).	



Additional comments