ATTESTATION of Conformity

Certificate No.:	**2688AP030118001**
Product:	**Photovoltaic (PV) and battery inverter**
Brand Name:	Felicitysolar® Make life full of hope
Test Model No.:	IVGM5KLP1G1, IVGM6KLP1G1, IVGM7K6LP1G1, IVGM8KLP1G1
Applicant:	**Guangzhou Felicity Solar Technology Co., Ltd.** (Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China
Manufacturer：	**Guangzhou Felicity Solar Technology Co., Ltd.** (Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China
Report No.:	**PVGB2603WDG0118-1**

Use in accordance with regulations:

Automatic disconnection device with single-phase mains surveillance in accordance with Engineering Recommendation G99/2 for photovoltaic systems with a single-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 G99/2:2025
Requirements for the connection of generation equipment in parallel with public 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

At the time of issue of this certificate the safety concept of an aforementioned representative product corresponds to the valid safety specifications for the specified use in accordance with regulations.

Dongguan/China, 2026-04-28

Name: Daniel Yu
Title: Manager

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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 A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

Type Approval and declaration of compliance with the requirements of Engineering Recommendation G99.			
PGM Technology:	Photovoltaic (PV) and battery inverter		
Manufacturer / applicant:	**Guangzhou Felicity Solar Technology Co., Ltd.**		
Address:	(Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China		
Tel	-	**Fax:**	-
Email:	-	**Website:**	-

Rated values .....:	**IVGM5KLP1G1**	**IVGM6KLP1G1**	**IVGM7K6LP1G1**	**IVGM8KLP1G1**
Max. Input PV voltage [V].....:	500	500	500	500
MPP PV voltage range [V].....:	120-425	120-425	120-425	120-425
Max. Input PV current [A].....:	13/13	26/13	26/26	26/26
Max. Battery voltage [V] .....:	60	60	60	60
Max. Battery current [A] .....:	120	135	190	190
Max. Battery charging power[kW] .....:	5,0	6,0	7,6	8,0
Max. Battery discharge Power[kW] .....:	5,0	6,0	7,6	8,0
Output AC voltage [V] .....:	L/N/PE, 230Vac, 50Hz			
Max. Output AC current [A] ...:	23,9	28,7	36,0	38,3
Rated Output power [kW] .....:	5,0	6,0	7,6	8,0
Rated Output power [kVA].....:	5,0	6,0	7,6	8,0

Firmware version	Hardware Version: V100; Software Version: V100

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 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 IVGM5KLP1G1, IVGM6KLP1G1, IVGM7K6LP1G1 and IVGM8KLP1G1 are identical in hardware and software, and the output power derated by software.

The above stated Generating Units are tested according the requirements in the Engineering Recommendation G99/2. 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 G99/2.

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

Operating Range.	
Test 1	Voltage = 85% of nominal (195,5V) Frequency = 47Hz Power Factor = 1 Period of test 20 s
Connection:	Always connected
Limit:	Always connected
Test 2	Voltage = 85% of nominal (195,5V) Frequency = 47,5Hz Power Factor = 1 Period of test 90 minutes
Connection:	Always connected
Limit:	Always connected
Test 3	Voltage = 110% of nominal (253V) Frequency = 51,5Hz Power Factor = 1 Period of test 90 minutes
Connection:	Always connected
Limit:	Always connected
Test 4	Voltage = 110% of nominal (253V) 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 Power Generating Module 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 500ms. Note that this is not expected to be demonstrated on site.
Connection:	Always connected
Limit:	Always connected

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 — **Nr. PVGB2603WDG0118-1**

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
U/V	184	2,5	184,0	2,51	188V / 5,0s	No trip
					180V / 2,45s	No trip
O/V stage 1	262,2	1,0	262,4	1,03	258,2V 5,0s	No trip
O/V stage 2	273,7	0,5	272,7	0,51	269,7V 0,95s	No trip
					277,7V 0,45s	No trip

Note. For Voltage tests the Voltage required to trip is the setting ±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 ±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	20,0	47,50	20,03	47,7Hz / 30s	No trip
U/F stage 2	47,0	0,5	47,01	0,57	47,2Hz / 19,5s	No trip
					46,8Hz / 0,45s	No trip
O/F stage 2	52,0	0,5	52,00	0,58	51,8Hz / 120s	No trip
					52,2Hz / 0,45s	No trip

Note. For Frequency Trip tests the Frequency required to trip is the setting ±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 ±0,2Hz and for the relevant times as shown in the table above to ensure that the protection will not trip in error.

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 [ms]	328	308	416	227	211	375

Note. Trip time limit is 0,5s.

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 — **Nr. PVGB2603WDG0118-1**

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 10.1.	
Over Voltage	
Time delay setting	**Measured delay**
60s	63,6s
Under Voltage	
Time delay setting	**Measured delay**
60s	60,2s
Over Frequency	
Time delay setting	**Measured delay**
60s	60,4s
Under Frequency	
Time delay setting	**Measured delay**
60s	60,3s

	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

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
$P_{expected}$ [kW]:	8,00	7,92	7,52	6,80	7,52	7,92	8,00
$P_{measured}$ [kW]:	7,97	7,92	7,52	6,78	7,52	7,92	7,97
2. Measurement a) to g): Active power output 40% and 60% Pn							
Frequency [Hz]:	50,00	50,45	50,70	51,15	50,70	50,45	50,00
$P_{expected}$ [kW]:	4,00	3,92	3,52	2,80	3,52	3,92	8,00
$P_{measured}$ [kW]:	3,98	3,93	3,50	2,79	3,50	3,92	8,00

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 — **Nr. PVGB2603WDG0118-1**

Output Power with falling Frequency						
Frequency setpoint [Hz]:	50,00	49,50	49,00	48,00	47,60	47,10
Frequency [Hz]:	50,00	49,50	49,00	48,00	47,60	47,10
Active power [kW]:	7,98	7,98	7,97	7,98	7,99	7,97
ΔP/Pmax [%]:		0,25	0,38	0,25	0,13	0,38

Note.
No power reduction takes place in electronic inverter.

Power Quality. Harmonics.

Test: IVGM5KLP1G1

SSEG rating per phase (rpp)			5,00kW			
	At 45-55% of Registered Capacity 2,50kW		**100% of Registered Capacity 5,00kW**			
Harmonic	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Limit in BS EN61000-3-12**	
					1 phase	**3 phase**
2nd	0,021	0,060	0,022	0,064	8,00	8,00
3rd	0,325	0,933	0,359	1,032	21,60	N/A
4th	0,017	0,048	0,019	0,054	4,00	4,00
5th	0,332	0,955	0,397	1,141	10,70	10,70
6th	0,010	0,030	0,013	0,038	2,67	2,67
7th	0,568	1,634	0,814	2,340	7,20	7,20
8th	0,010	0,028	0,016	0,045	2,00	2,00
9th	0,319	0,917	0,589	1,694	3,80	N/A
10th	0,006	0,016	0,013	0,037	1,60	1,60
11th	0,142	0,407	0,405	1,164	3,10	3,10
12th	0,002	0,005	0,011	0,031	1,33	1,33
13th	0,065	0,188	0,295	0,848	2,00	2,00
14th	0,002	0,007	0,009	0,025	N/A	N/A
15th	0,040	0,116	0,196	0,563	N/A	N/A
16th	0,005	0,013	0,007	0,019	N/A	N/A
17th	0,065	0,187	0,140	0,402	N/A	N/A
18th	0,005	0,013	0,005	0,014	N/A	N/A
19th	0,059	0,169	0,092	0,264	N/A	N/A
20th	0,005	0,015	0,003	0,010	N/A	N/A
21th	0,054	0,155	0,069	0,199	N/A	N/A
22th	0,004	0,011	0,003	0,008	N/A	N/A
23th	0,039	0,113	0,047	0,136	N/A	N/A
24th	0,002	0,006	0,003	0,009	N/A	N/A
25th	0,030	0,086	0,039	0,112	N/A	N/A
26th	0,002	0,005	0,002	0,007	N/A	N/A
27th	0,024	0,070	0,037	0,106	N/A	N/A
28th	0,001	0,004	0,003	0,008	N/A	N/A
29th	0,017	0,050	0,034	0,097	N/A	N/A
30th	0,002	0,005	0,004	0,011	N/A	N/A
31th	0,016	0,045	0,031	0,088	N/A	N/A
32th	0,002	0,005	0,003	0,008	N/A	N/A
33th	0,015	0,043	0,027	0,079	N/A	N/A
34th	0,001	0,004	0,003	0,008	N/A	N/A
35th	0,018	0,051	0,029	0,083	N/A	N/A
36th	0,001	0,004	0,003	0,008	N/A	N/A

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

37th	0,018	0,052	0,026	0,074	N/A	N/A
38th	0,002	0,005	0,002	0,007	N/A	N/A
39th	0,016	0,047	0,026	0,075	N/A	N/A
40th	0,002	0,005	0,003	0,008	N/A	N/A
THD_40[%]	--	2,376	--	3,670	23	13
PWHD_[%]	--	1,717	--	3,482	23	22

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.

The normal current is 21,74A.

Test: IVGM6KLP1G1

SSEG rating per phase (rpp)			6,00 kW			
	At 45-55% of Registered Capacity 3,00 kW		**100% of Registered Capacity 6,00 kW**			
Harmonic	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Limit in BS EN61000-3-12**	
					1 phase	**3 phase**
2nd	0,016	0,046	0,010	0,029	8,00	8,00
3rd	0,279	0,801	0,298	0,856	21,60	N/A
4th	0,013	0,036	0,013	0,037	4,00	4,00
5th	0,297	0,853	0,341	0,981	10,70	10,70
6th	0,012	0,035	0,012	0,035	2,67	2,67
7th	0,544	1,565	0,709	2,037	7,20	7,20
8th	0,009	0,025	0,010	0,028	2,00	2,00
9th	0,341	0,979	0,523	1,505	3,80	N/A
10th	0,005	0,014	0,009	0,025	1,60	1,60
11th	0,186	0,535	0,376	1,081	3,10	3,10
12th	0,004	0,011	0,008	0,023	1,33	1,33
13th	0,102	0,293	0,288	0,827	2,00	2,00
14th	0,002	0,005	0,005	0,015	N/A	N/A
15th	0,041	0,118	0,203	0,583	N/A	N/A
16th	0,002	0,005	0,005	0,013	N/A	N/A
17th	0,040	0,114	0,153	0,439	N/A	N/A
18th	0,002	0,007	0,004	0,012	N/A	N/A
19th	0,038	0,108	0,109	0,313	N/A	N/A
20th	0,004	0,011	0,003	0,008	N/A	N/A
21th	0,042	0,122	0,085	0,244	N/A	N/A
22th	0,003	0,010	0,002	0,007	N/A	N/A
23th	0,038	0,108	0,062	0,177	N/A	N/A
24th	0,003	0,009	0,002	0,006	N/A	N/A
25th	0,034	0,097	0,048	0,138	N/A	N/A
26th	0,003	0,008	0,002	0,006	N/A	N/A
27th	0,030	0,086	0,039	0,111	N/A	N/A
28th	0,002	0,005	0,002	0,005	N/A	N/A
29th	0,023	0,067	0,030	0,087	N/A	N/A
30th	0,002	0,005	0,002	0,006	N/A	N/A
31th	0,016	0,047	0,026	0,076	N/A	N/A
32th	0,001	0,003	0,002	0,005	N/A	N/A
33th	0,009	0,027	0,023	0,066	N/A	N/A
34th	0,001	0,003	0,001	0,004	N/A	N/A
35th	0,009	0,027	0,024	0,070	N/A	N/A
36th	0,001	0,003	0,001	0,004	N/A	N/A
37th	0,008	0,023	0,022	0,063	N/A	N/A

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

38th	0,001	0,003	0,001	0,004	N/A	N/A
39th	0,010	0,029	0,023	0,066	N/A	N/A
40th	0,001	0,003	0,002	0,005	N/A	N/A
THD_40[%]	--	2,290	--	3,279	23	13
PWHD_[%]	--	1,407	--	3,750	23	22

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.

The normal current is 26,09A.

Test: IVGM7K6LP1G1

SSEG rating per phase (rpp)			7,60kW			
	At 45-55% of Registered Capacity 3,80kW		**100% of Registered Capacity 7,60kW**			
Harmonic	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Limit in BS EN61000-3-12**	
					1 phase	**3 phase**
2nd	0,016	0,047	0,009	0,025	8,00	8,00
3rd	0,228	0,655	0,232	0,668	21,60	N/A
4th	0,014	0,041	0,010	0,029	4,00	4,00
5th	0,249	0,715	0,274	0,788	10,70	10,70
6th	0,015	0,043	0,010	0,029	2,67	2,67
7th	0,488	1,404	0,584	1,680	7,20	7,20
8th	0,011	0,032	0,010	0,029	2,00	2,00
9th	0,331	0,953	0,440	1,265	3,80	N/A
10th	0,009	0,027	0,008	0,024	1,60	1,60
11th	0,209	0,600	0,324	0,931	3,10	3,10
12th	0,006	0,018	0,008	0,022	1,33	1,33
13th	0,136	0,392	0,259	0,745	2,00	2,00
14th	0,004	0,012	0,007	0,019	N/A	N/A
15th	0,076	0,218	0,193	0,554	N/A	N/A
16th	0,002	0,006	0,006	0,017	N/A	N/A
17th	0,048	0,137	0,154	0,442	N/A	N/A
18th	0,001	0,004	0,005	0,014	N/A	N/A
19th	0,027	0,079	0,116	0,334	N/A	N/A
20th	0,002	0,005	0,004	0,011	N/A	N/A
21th	0,027	0,077	0,093	0,266	N/A	N/A
22th	0,003	0,008	0,004	0,011	N/A	N/A
23th	0,025	0,073	0,073	0,209	N/A	N/A
24th	0,003	0,009	0,003	0,009	N/A	N/A
25th	0,026	0,076	0,059	0,169	N/A	N/A
26th	0,003	0,010	0,003	0,009	N/A	N/A
27th	0,027	0,079	0,047	0,135	N/A	N/A
28th	0,003	0,008	0,003	0,008	N/A	N/A
29th	0,024	0,069	0,039	0,111	N/A	N/A
30th	0,002	0,007	0,002	0,007	N/A	N/A
31th	0,019	0,054	0,032	0,093	N/A	N/A
32th	0,002	0,006	0,002	0,006	N/A	N/A
33th	0,014	0,041	0,025	0,073	N/A	N/A
34th	0,002	0,005	0,001	0,004	N/A	N/A
35th	0,013	0,037	0,024	0,069	N/A	N/A
36th	0,001	0,004	0,001	0,004	N/A	N/A
37th	0,010	0,030	0,019	0,056	N/A	N/A
38th	0,001	0,004	0,001	0,004	N/A	N/A

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

39th	0,012	0,034	0,018	0,052	N/A	N/A
40th	0,001	0,004	0,001	0,004	N/A	N/A
THD_40[%]	--	2,110	--	2,780	23	13
PWHD_[%]	--	1,462	--	3,868	23	22

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.

The normal current is 33,04A.

Test: IVGM8KLP1G1

SSEG rating per phase (rpp)			8,00 kW			
	At 45-55% of Registered Capacity 4,00 kW		**100% of Registered Capacity 8,00 kW**			
Harmonic	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Measured Value (MV) in [A]**	**Measured Value (%) in [A]**	**Limit in BS EN61000-3-12**	
					1 phase	**3 phase**
2nd	0,012	0,035	0,007	0,021	8,00	8,00
3rd	1,594	4,582	1,358	3,905	21,60	N/A
4th	0,013	0,037	0,006	0,017	4,00	4,00
5th	0,801	2,304	1,351	3,885	10,70	10,70
6th	0,009	0,026	0,006	0,017	2,67	2,67
7th	0,423	1,215	0,454	1,305	7,20	7,20
8th	0,005	0,015	0,005	0,013	2,00	2,00
9th	0,224	0,643	0,638	1,833	3,80	N/A
10th	0,002	0,007	0,003	0,009	1,60	1,60
11th	0,087	0,250	0,267	0,767	3,10	3,10
12th	0,002	0,007	0,002	0,007	1,33	1,33
13th	0,037	0,106	0,269	0,773	2,00	2,00
14th	0,002	0,007	0,002	0,006	N/A	N/A
15th	0,024	0,069	0,159	0,456	N/A	N/A
16th	0,002	0,005	0,002	0,007	N/A	N/A
17th	0,022	0,064	0,115	0,332	N/A	N/A
18th	0,002	0,007	0,003	0,008	N/A	N/A
19th	0,021	0,059	0,106	0,304	N/A	N/A
20th	0,002	0,006	0,002	0,007	N/A	N/A
21th	0,010	0,028	0,064	0,184	N/A	N/A
22th	0,002	0,006	0,002	0,006	N/A	N/A
23th	0,005	0,015	0,059	0,171	N/A	N/A
24th	0,001	0,003	0,002	0,006	N/A	N/A
25th	0,012	0,034	0,036	0,103	N/A	N/A
26th	0,001	0,004	0,002	0,005	N/A	N/A
27th	0,019	0,056	0,027	0,078	N/A	N/A
28th	0,001	0,003	0,002	0,005	N/A	N/A
29th	0,023	0,066	0,024	0,069	N/A	N/A
30th	0,003	0,008	0,003	0,010	N/A	N/A
31th	0,025	0,071	0,014	0,041	N/A	N/A
32th	0,001	0,003	0,001	0,004	N/A	N/A
33th	0,023	0,065	0,016	0,047	N/A	N/A
34th	0,001	0,003	0,002	0,005	N/A	N/A
35th	0,020	0,058	0,006	0,018	N/A	N/A
36th	0,001	0,004	0,002	0,005	N/A	N/A
37th	0,016	0,047	0,010	0,030	N/A	N/A
38th	0,001	0,003	0,001	0,003	N/A	N/A
39th	0,014	0,040	0,011	0,033	N/A	N/A

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

40th	0,001	0,004	0,001	0,003	N/A	N/A
THD_40[%]	--	5,321	--	6,090	23	13
PWHD_[%]	--	1,017	--	2,987	23	22

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.

The normal current is 34,78A.

Power Quality. Power factor.

Output power	216,2V	230,0V	253,0V	Measured at three voltage levels and at full output. Voltage to be maintained within ±1,5% of the stated level during the test.
20%	0,997	0,998	0,999	
50%	0,999	0,999	0,999	
75%	0,999	0,999	0,999	
100%	0,997	1,000	1,000	
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**
Phase 1								
Measured values at test impedance	0,037	0,012	0,00	1,784	1,653	0,00	0,483	0,270
Measured values at standard impedance	0,037	0,012	0,00	1,784	1,653	0,00	0,483	0,270
Values at maximum impedance	0,037	0,012	0,00	1,784	1,653	0,00	0,483	0,270
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	0,400	Ω	Xl	0,250	Ω
	Z	0,472	Ω			
Standard impedance	R	0,400	Ω	Xl	0,250	Ω
	Z	0,472	Ω			
Maximum impedance	R	0,400	Ω	Xl	0,250	Ω
	Zmax	0,472	Ω			

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

Power Quality. DC injection.			
Test: IVGM8KLP1G1			
Phase 1			
Test level power [%]	10	55	100
Recorded value [mA]	44,2	43,1	13,2
Recorded value [%]	0,13	0,12	0,04
Limit [%]	0,25	0,25	0,25

Note. Informative measurement of DC-injection of each phase of the inverter and a limit of 0,25% per phase of the rated current per phase as pass criteria.

Sum of all Phases

Tests are carried out at three defined power levels ±5%. At 230 V a 8kW single phase Inverter has a current output of 34,78 A so DC limit is 86,96 mA. These tests is undertaken in accordance with Annex A.7.1.4.4.

The % DC injection (“as % of rated AC current” below) is calculated as follows:

% DC injection = Recorded DC value in Amps / Base current where the base current is the Registered Capacity (W) / V phase. The % DC injection should not be greater than 0,25%.

Power Quality. DC injection.			
Test: IVGM5KLP1G1			
Phase 1			
Test level power [%]	10	55	100
Recorded value [mA]	5,8	34,2	31,1
Recorded value [%]	0,02	0,10	0,14
Limit [%]	0,25	0,25	0,25

Note. Informative measurement of DC-injection of each phase of the inverter and a limit of 0,25% per phase of the rated current per phase as pass criteria.

Sum of all Phases

Tests are carried out at three defined power levels ±5%. At 230 V a 5 kW Single phase Inverter has a current output of 21,74 A so DC limit is 54,35 mA. These tests is undertaken in accordance with Annex A.7.1.4.4.

The % DC injection (“as % of rated AC current” below) is calculated as follows:

% DC injection = Recorded DC value in Amps / Base current where the base current is the Registered Capacity (W) / V phase. The % DC injection should not be greater than 0,25%.

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

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	0,138	3,165
Initial Value of aperiodic current	A	N/A	100ms	0,090	1,418
Initial symmetrical short-circuit current*	I_k	N/A	250ms	0,042	0,897
Decaying (aperiodic) component of short circuit current*	i_{DC}	N/A	500ms	0,021	0,635
Reactance/Resistance Ratio of source*	X/R	N/A	**Time to Trip [s]**	0,003	In seconds

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.

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 Power Park Module, 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 0124-100).

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

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 9.1.7.	Yes
Note. Different levels of access, all are password protected, only certain parameters can be changed on maintenance level. Manufacturer information provided, see test report.	

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Cybersecurity compliance Declaration

Company Name: Guangzhou Felicity Solar Technology Co., Ltd.,

Address: (Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China)

We hereby declare that all our listed products comply with the communication protocols and cybersecurity requirements of the following standards:

Applicable Standards:

- ETSI EN 303 645

Product Model Numbers:
IVGM5KLP1G1, IVGM6KLP1G1, IVGM7K6LP1G1, IVGM8KLP1G1

Supported Communication Protocols & Security Features:

- SunSpec (with secure transmission mechanisms)
- Modbus/TCP (supports authentication and encryption)

Declared by:

Company Name: Guangzhou Felicity Solar Technology Co., Ltd.

Responsible Person: Deng Zucan
Position: Certification responsible person

Signature: Deng Zucan
Company Stamp:

Date: 2026-4-1

Appendix A2-3 Compliance Verification Report for Inverter Connected Power Generating Modules

Extract from test report according to the Engineering Recommendation G99 **Nr. PVGB2603WDG0118-1**

Wiring functional tests if required by para. 15.2.1	**N/A**
Confirm that the relevant test schedule is attached (tests to be undertaken at time of commissioning).	N/A
Note. Type test of components wired correct together on site is part of the commissioning test. The inverter was tested in a test laboratory. The correct wiring functional test in the field has to be done by the responsible person for the installation of the plant.	

Logic Interface (input port) Required by paragraph 11.1.3.1	**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 11.1.3.1 such as AC or DC signal	Yes

The logic interface is implemented by external devices. The REF GEN/0 and COM LOAD/0 pins of the external devices are respectively connected to the CN3_Pin5 and CN3_Pin6 of the COMM board of the power generation module;
The REF GEN/0 and COM LOAD/0 of the external devices are connected to two series-connected switches S0 and S9. A 15KΩ resistor is connected in parallel between the two ends of switch S0;
When switch S9 is closed and switch S0 is open, the voltage at the DRM0 logic port is 1.67 Vd.c., and the power generation module operates normally;

When both switch S0 and switch S9 are closed, the voltage at the DRM0 logic port is 2.5 Vd.c., and the power output of the power generation module is shut off within 5 seconds.

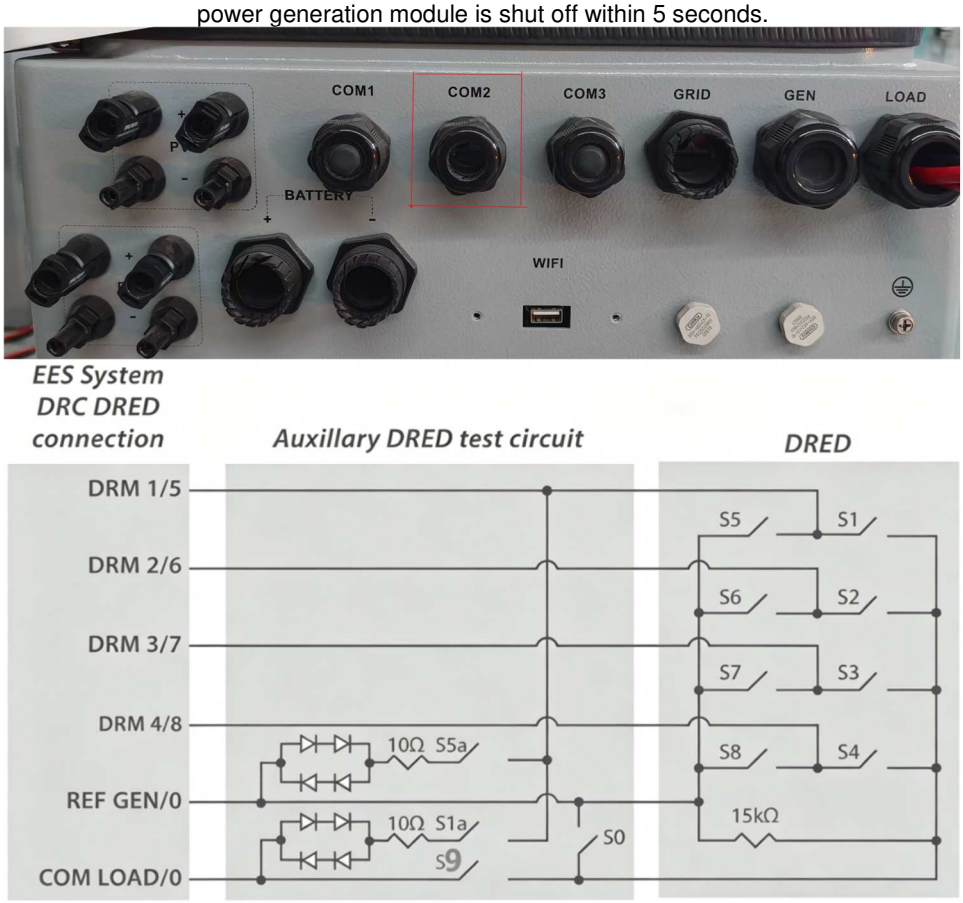


Figure 4

Additional comments