CERTIFICATE

Issued to:
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, China

Licensee:
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, China

Product	:	Hybrid Inverter
Trade name(s)	:	felicitysolar
Type(s)/model(s)	:	IVGM10KHP3G3, IVGM12KHP3G3, IVGM15KHP3G3, IVGM20KHP3G3, IVGM25KHP3G3, IVGM8KHP3G3 and IVGM9K9HP3G3

The product and any acceptable variation thereof as specified in the Annex to this certificate and the documents referred to therein.

DEKRA hereby declares that the above-mentioned product has been certified based on:
- a type test according to VDE-AR-N 4105:2018 and DIN VDE V 0124-100:2020
- an inspection of the factory location according to CENELEC Operational Document CIG 421
- a DEKRA certification agreement with the number 6073845

DEKRA hereby grants the right to use the DEKRA Mark.

The DEKRA Mark may be applied to the product as specified in this certificate for the duration and under the conditions of the DEKRA Mark certification agreement.

This certificate is issued on 23 June 2026 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 35-177996

DEKRA Certification B.V.

B.T.M. Holtus
Managing Director

Miranda Zhou
Certification Manager

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PRODUCTS
RvA C 001

DEKRA

35-177996

DEKRA Mark is the new KEMA-KEUR
The DEKRA Mark certificate for this product is to all intents and purposes equivalent to a KEMA-KEUR certificate, the other certification mark used by DEKRA and should be valued and used as such. DEKRA Mark is gradually replacing KEMA-KEUR.
For more information please check: Introducing DEKRA Mark

SPECIFICATION OF THE CERTIFIED PRODUCT

Product data

Product	:	Hybrid Inverter
Trade name(s)	:	felicitysolar
Type(s)/model(s)	:	IVGM10KHP3G3, IVGM12KHP3G3, IVGM15KHP3G3, IVGM20KHP3G3, IVGM25KHP3G3, IVGM8KHP3G3 and IVGM9K9HP3G3
Battery Voltage Range	:	160 - 700 Vdc
Rated Battery Voltage	:	500 Vdc
Max. charge/discharge current	:	50 Adc
Max. PV input Voltage	:	1000 Vdc
Rated PV input Voltage	:	600 Vdc
MPPT Voltage Range	:	150 - 850 Vdc
Rated Voltage	:	230/400V, 3L+N+PE
Rated Frequency	:	50/60 Hz
Initial short-circuit AC current	:	65.0 Aac

Product data – type IVGM10KHP3G3

Max. charge/discharge Power	:	10.0 kW
Max. PV input current	:	21+21 Adc
Isc current	:	32+32 Adc
Max. PV input power	:	16.0 kW
Max. input current	:	16.0 Aac
Max. input Power	:	11.0 kW
Rated output current	:	14.5 Aac
Max. output current	:	16.0 Aac
Rated output Power	:	10.0 kW
Max. output Apparent power	:	11.0 kVA

Product data – type IVGM12KHP3G3

Max. charge/discharge Power	:	12.0 kW
Max. PV input current	:	42+21 Adc
Isc current	:	63+32 Adc
Max. PV input power	:	19.2 kW
Max. input current	:	19.2 Aac
Max. input Power	:	13.2 kW
Rated output current	:	17.4 Aac
Max. output current	:	19.2 Aac
Rated output Power	:	12.0 kW
Max. output Apparent power	:	13.2 kVA

Product data – type IVGM15KHP3G3

Max. charge/discharge Power	:	15.0 kW
Max. PV input current	:	42+21 Adc
Isc current	:	63+32 Adc
Max. PV input power	:	24.0 kW
Max. input current	:	23.8 Aac
Max. input Power	:	16.5 kW

Rated output current	:	21.7 Aac
Max. output current	:	23.8 Aac
Rated output Power	:	15.0 kW
Max. output Apparent power	:	16.5 kVA

Product data – type IVGM20KHP3G3

Max. charge/discharge Power	:	20.0 kW
Max. PV input current	:	42+42 Adc
Isc current	:	63+63 Adc
Max. PV input power	:	32.0 kW
Max. input current	:	32.0 Aac
Max. input Power	:	22.0 kW
Rated output current	:	29.0 Aac
Max. output current	:	32.0 Aac
Rated output Power	:	20.0 kW
Max. output Apparent power	:	22.0 kVA

Product data – type IVGM25KHP3G3

Max. charge/discharge Power	:	25.0 kW
Max. PV input current	:	42+42 Adc
Isc current	:	63+63 Adc
Max. PV input power	:	40.0 kW
Max. input current	:	39.8 Aac
Max. input Power	:	27.5 kW
Rated output current	:	36.3 Aac
Max. output current	:	39.8 Aac
Rated output Power	:	25.0 kW
Max. output Apparent power	:	27.5 kVA

Product data – type IVGM8KHP3G3

Max. charge/discharge Power	:	8.0 kW
Max. PV input current	:	21+21 Adc
Isc current	:	32+32 Adc
Max. PV input power	:	12.8 kW
Max. input current	:	12.8 Aac
Max. input Power	:	8.8 kW
Rated output current	:	11.6 Aac
Max. output current	:	12.8 Aac
Rated output Power	:	8.0 kW
Max. output Apparent power	:	8.8 kVA

Product data – type IVGM9K9HP3G3

Max. charge/discharge Power	:	9.9 kW
Max. PV input current	:	21+21 Adc
Isc current	:	32+32 Adc
Max. PV input power	:	15.8 kW
Max. input current	:	14.3 Aac
Max. input Power	:	9.9 kW
Rated output current	:	14.3 Aac
Max. output current	:	14.3 Aac
Rated output Power	:	9.9 kW
Max. output Apparent power	:	9.9 kVA

TESTS

Test requirements
VDE-AR-N 4105:2018
DIN VDE V 0124-100:2020

Test result
The test results are documented in DEKRA test file 4952431.50.

Conclusion
The examination has confirmed that all requirements were met.

Factory location
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, China

Trade name : felicitysolar stands for

E.4 Unit certificate

Unit certificate		
Manufacturer / Address:	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, China	
Type of power generation unit:	Hybrid Inverter IVGM8KHP3G3, IVGM9K9HP3G3, IVGM10KHP3G3, IVGM12KHP3G3, IVGM15KHP3G3, IVGM20KHP3G3, IVGM25KHP3G3	
☒ Inverter	☐ Asynchronous generator	☐ Synchronous generator
☐ Stirling generator	☐ Fuel cell	☐ Others
Assessment values	Max. active power P_{Emax}	25.0 kW (IVGM25KHP3G3)
	Max. apparent power S_{Emax}	27.5 kVA (IVGM25KHP3G3)
	Rated voltage	230/400 V (3L+N+PE)
	Rated current (AC) I_r	36.3 A (IVGM25KHP3G3)
	Initial short-circuit AC current	65.0 A
Network connection rule	**VDE-AR-N 4105 "Generators connected to the low-voltage distribution network"** Technical minimum requirements for connection and parallel operation of power generation systems connected to the low-voltage network	
Test requirement	**DIN VDE V 0124-100 (VDE V 0124-100) "Network integration of power generation systems – Low voltage"** Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network	
Test report	4952431.50 from (2026-06-18)	
The above designated power generation unit meets the requirements of VDE-AR-N 4105.		

E.6 Certificate of the network and system protection

Certificate of NS protection		
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, China	
Type of NS protection	Integrated NS protection	
Central NS protection	☐	
Integrated NS protection	☒	Assigned to power generation unit of type: IVGM8KHP3G3, IVGM9K9HP3G3, IVGM10KHP3G3, IVGM12KHP3G3, IVGM15KHP3G3, IVGM20KHP3G3, IVGM25KHP3G3
Network connection rule	**VDE-AR-N 4105 "Generators connected to the low-voltage distribution network"** Technical minimum requirements for connection and parallel operation of power generation systems connected to the low-voltage network	
Test requirement	**DIN VDE V 0124-100 (VDE V 0124-100) "Network integration of power generation systems – Low voltage"** Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network	
Test report	4952431.50 from (2026-06-18)	
The network and system protection designated above meets the requirements of VDE-AR-N 4105.		

E.7 Requirements for the test report for the NS protection

Extract from test report for NS protection "Determination of electrical properties"		Report No.: 4952431.50
Test report NS protection		
Type of NS protection:	Integrated NS protection	**Other Manufacturer indications**
Software version:	100	N/A
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, China	
Measuring period:	From 2026-02-03 to 2026-04-24	

	Inverter		
Protection function	**Setting value**	**Tripping value**	**Tripping time NS protection***
Rise-in-voltage protection *U* >>	1.25 * U_n	L1-N&L2-N&L3-N: 287.6 V L1-N: 287.5 V L2-N: 287.6 V L3-N: 287.5 V	L1-N&L2-N&L3-N: 111 ms L1-N: 110 ms L2-N: 110 ms L3-N: 111 ms
Rise-in-voltage protection *U* >	1.10 * U_n	1.10 * U_n, ≤ 100 ms**	
Voltage drop protection *U* <	0.8 * U_n	L1-N&L2-N&L3-N: 183.4 V L1-N: 183.3 V L2-N: 184.5 V L3-N: 184.5 V	L1-N&L2-N&L3-N: 3.022 s L1-N: 3.030 s L2-N: 3.037 s L3-N: 3.030 s
Voltage drop protection *U* <<	0.45 * U_n	L1-N&L2-N&L3-N: 103.1 V L1-N: 102.4 V L2-N: 102.4 V L3-N: 102.3 V	L1-N&L2-N&L3-N: 323 ms L1-N: 347 ms L2-N: 342 ms L3-N: 343 ms
Frequency decrease protection *f* <	47.5 Hz	47.50 Hz	119 ms
Frequency increase protection *f* >	51.5 Hz	51.52 Hz	120 ms

*: The tripping time includes the period from the limit value violation U/f until the tripping signal to the interface switch.
When planning the power generation system, the response time of the interface switch shall be added to the maximum time value obtained as indicated above.
The disconnection time (sum of tripping time of the NS protection plus response time of the interface switch) shall not exceed 200 ms.
**: Verification disconnection time of moving 10-min-average value. Disconnecting time as below:
(499.0/497.0/488.0) s (L1-N/L2-N/L3-N from 600 s @ 100% Un to 112% Un)
Continuous operation (L1-N/L2-N/L3-N from 600 s @ 100% Un to 108% Un)
(301.0/291.0/287.0) s (L1-N/L2-N/L3-N from 600 s @ 106% Un to 114% Un)

☒ **For integrated NS protection**

Assigned to power generation unit type	IVGM8KHP3G3, IVGM9K9HP3G3, IVGM10KHP3G3, IVGM12KHP3G3, IVGM15KHP3G3, IVGM20KHP3G3, IVGM25KHP3G3
Integrated interface switch type	Series-connected relays for all phase conductors each Relay type: CHAR-112A90C

Response time of interface switch for integrated NS protection	Release time: max. 30 ms
Verification of the entire functional chain “integrated NS protection – interface switch” has resulted in successful disconnection.	☒