Certificate of compliance

Applicant:	**Jiayu Energy Technology Co., Ltd** **Unit 1, Building 3, No.3 Nanshan Road, Songshan Lake Park. Dongguan City** **523000 GUANGDONG** **P. R. CHINA**
Product:	**Photovoltaic inverter**
Model:	**JMI-800**

The device is designed to work as a generation unit of the type: A

Inverter for single-phase parallel connection to the public grid. The network monitoring and disconnection device is an integral part of the above-mentioned model.

Applied rules and standards:

EN 50549-1:2019/A1:2023
Requirements for parallel connection of installations with distribution networks - Part 1: Connection to an LV distribution network - Production of installations up to and including Type B

4.4 Normal operating range
4.5 Immunity to disturbances
4.6 Active response to frequency deviation
4.7 Power response to voltage variations and voltage changes
4.8 EMC and power quality
4.9 Interface protection
4.10 Connection and starting to generate electrical power
4.11 Ceasing and reduction of active power on set point
4.13 Requirements regarding single fault tolerance of interface protection system and interface switch

EN 50549-10:2022
Requirements for generating plants to be connected in parallel with distribution networks - Part 10: Tests for conformity assessment of generating units

Compliance with the parameters in Annex C of the standard
(see appendix parameter table)

Commission Regulation (EU) 2016/631 of 14 April 2016
Establishing a network code on requirements for grid connection of generators (NC RFG).
Type approval for generation units to use in Type A plants.

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.

Report number:	**LS2A25021441EGEU01**	**Certification Program:**	**NSOP-0032-DEU-ZE-V10**
Certificate number:	**U25-0512**	**Date of issue:**	**2025-05-27**

Certification body

Georg LORITZ
Lab Supervisor Energy Systems

Accreditation

DAkkS Deutsche Akkreditierungsstelle D-ZE-12024-01-00

Type Approval and declaration of compliance with the requirements of EN 50549-1 and Commission Regulation (EU) 2016/631 of 14 April 2016				
Manufacturer	Jiayu Energy Technology Co., Ltd Unit 1, Building 3, No.3 Nanshan Road, Songshan Lake Park. Dongguan City 523000 GUANGDONG P. R. CHINA			
Product type	Photovoltaic inverter			
Static converter model	JMI-800	--	--	--
Input DC (photovoltaic)				
MPP voltage range [V]	28 - 48	--	--	--
Max. input voltage [V]	60	--	--	--
Max. input current per MPPT [A]	15*2	--	--	--
Output AC				
Rated AC voltage [V]	230 (L + N + PE, 50Hz)	--	--	--
Max. output current [A]	3,48	--	--	--
Nom. converter output (P_{NINV}) [W]	800	--	--	--
Rated apparent power [VA]	800	--	--	--

Interface protection system and interface switch (Network and system protection "NS-protection")	
Type of protection	Integrated NS-protection
Assigned to generation unit type	JMI-800
Integrated interface switch	Type of switching equipment 1: Galvanic Separation (HF Transformer) Type of switching equipment 2: Relay (Model HF46FA)
	Note: The output is switched off by the inverter bridge and one relay in line and neutral.
Firmware version	0147

Note

The settings of the product are password protected adjustable.

In case the generators are used with an external protection device, the protection settings of the inverters are to be adjusted according to the manufacturer's declaration.

The above stated generators are tested according to the requirements in the EN 50549-1 and the Commission Regulation (EU) 2016/631 of 14 April 2016. 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.

Type Approval and declaration of compliance with the requirements of EN 50549-1 and Commission Regulation (EU) 2016/631 of 14 April 2016

Name of parameter set		**"EU_EN50549"**					
Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	**Parameter**	**Remarks / additional information**	**configurable value range**	**Step size**	**unit**	**default value**	
4.3.2 Interface switch	Single fault tolerance for interface switch required	Requirement met	---	---	---	---	
4.4.2 Operating frequency range	Internal parameter not configurable	Requirement acc. EN 50549-1, table 1 can be met	---	---	---	---	
4.4.3 Minimal requirement for active power delivery at under frequency	Internal parameter not configurable	Requirement acc. EN 50549-1, clause 4.4.3 can be met	---	---	---	---	
4.4.4 Continuous operating voltage range	Upper limit	---	not configurable	---	$\%U_n$	110	
	Lower limit	---	not configurable	---	$\%U_n$	80	
4.5.2 Rate of change of frequency (ROCOF) immunity	Internal parameter not configurable	ROCOF withstand capability ≥ 2Hz/s	---	---	---	---	
4.5.3.2 Generating plant with non- synchronous generating technology (FRT)	Maximum power resumption time	---	Not configurable	---	---	≤ 3s	
	Enable under voltage ride through	---	Enable | Disable	---	---	Enable	
	Voltage-Time-Diagram	Voltage-Time-Diagram definition	Requirement acc. EN 50549-1, figure 6 (default requirement) can be met			Time	U
	V1		0.0 – 100.0	0.1	$\%U_n$		0.0
	T1		0.00 – 60.00	0.01	s	0.00	
	V2		0.0 – 100.0	0.1	$\%U_n$		25.0
	T2		0.00 – 60.00	0.01	s	1.50	
	V3		0.0 – 100.0	0.1	$\%U_n$		85.0
	T3		0.00 – 60.00	0.01	s	3.50	
4.5.4 Over-voltage ride through (OVRT)	Enable over voltage ride through	---	Enable | Disable	---	---	Enable	
	Voltage-Time-Diagram	Voltage-Time-Diagram definition	Requirement acc. EN 50549-1, figure 8 can be met			Time	U
	V1		0.0 – 130.0	0.1	$\%U_n$		125.0
	T1		0.00 – 60.00	0.01	s	0.00	
	V2		0.0 – 130.0	0.1	$\%U_n$		125.0
	T2		0.00 – 60.00	0.01	s	0.10	

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	V3		0.0 – 130.0	0.1	$\%U_n$		120.0
	T3		0.00 – 60.00	0.01	s	0.10	
	V4		0.0 – 130.0	0.1	$\%U_n$		120.0
	T4		0.00 – 60.00	0.01	s	5.00	
	V5		0.0 – 130.0	0.1	$\%U_n$		115.0
	T5		0.00 – 60.00	0.01	s	5.00	
	V6		0.0 – 130.0	0.1	$\%U_n$		115.0
	T6		0.00 – 60.00	0.01	s	5.00	
	V7		0.0 – 130.0	0.1	$\%U_n$		110.0
	T7		0.00 – 60.00	0.01	s	60.00	
4.6.1 Power response to over frequency (LFSM-O)	Activation frequency	Threshold frequency f1	50.00 – 65.00	0.01	Hz	50.20	
	Power gradient	Droop	2.0 – 12.0	0.1	%	5.0	
	Overfrequency reference power section	Power reference	P_M | P_{max}	---	---	P_{max}	
	Delay time	Intentional delay	0.0 – 60.0	0.1	s	0.0	
4.6.2 Power response to under frequency (LFSM-U)	Activation frequency	Threshold frequency f1	45.00 – 50.00	0.01	Hz	49.80	
	Power gradient	Droop	2.0 – 12.0	0.1	%	5.0	
	Underfrequency reference power section	Power reference	P_M | P_{max}	---	---	P_{max}	
	Delay time	Intentional delay	0.0 – 60.0	0.1	s	0.0	
4.7.2.2 voltage support by reactive power - Capabilities	Reactive power range overexcited	---	0.0 - 43.6%S_n	0.1	$\%S_n$	31.2	
	Reactive power range underexcited	---	-43.6%S_n – 0.0	0.1	$\%S_n$	-31.2	
	Minimum inductive power factor	Active factor range underexcited	0.80 - 1.00	0.01	---	0.95	
	Minimum capacitive power factor	Active factor range overexcited	0.80 - 1.00	0.01	---	0.95	
4.7.2.3 Control modes	Enabled control mode	---	Q setpoint Q(U) cosφ setpoint cosφ(P)	---	---	Q setpoint	
4.7.2.3.2 Set point control modes (Q setpoint and excitation)	Reactive power setting value	---	-43.6%S_n - 43.6%S_n	0.1	$\%S_n$	-31.2 – 31.2	
	Delay time	---	0.0 – 60.0	0.1	s	0.0	
	Tau value	PT1-filtering time constant	0.00 – 60.00	0.01	s	3.33	

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4.7.2.3.2 Set point control modes (cosφ setpoint and excitation)	cosφ setting value	---	0.80 - 1.00 - 0.80	0.01	---	0.95-1.00-0.95
	Delay time	---	0 - 60	0.1	s	0.0
	Tau value	PT1-filtering time constant	0.00 – 60.00	0.01	s	3.33
4.7.2.3.3 Voltage related control modes - Q(U)	Voltage node 1	---	0.0 – 300.0	0.1	V	213.9
	Voltage node 2	---	0.0 – 300.0	0.1	V	216.2
	Voltage node 3	---	0.0 – 300.0	0.1	V	243.8
	Voltage node 4	---	0.0 – 300.0	0.1	V	248.4
	Reactive Power responding node 1	---	0.0 – 100.0	0.1	%S_n	31.2
	Reactive Power responding node 2	---	0.0 – 100.0	0.1	%S_n	0.0
	Reactive Power responding node 3	---	0.0 – 100.0	0.1	%S_n	0.0
	Reactive Power responding node 4	---	-100.0 – 100.0	0.1	%S_n	-31.2
	Delay time	---	0.0 – 60.0	0.1	s	0.0
	Tau value	PT1-filtering time constant	0.00 – 60.00	0.01	s	3.33
4.7.2.3.4 Power related control mode - cosφ(P)	PF Node 1	---	0.00 – 1.00	0.01	---	1.00
	PF Node 2	---	0.00 – 1.00	0.01	---	1.00
	PF Node 3	---	-1.00 – 1.00	0.01	---	0.95
	Power node 1	---	0.0 – 100.0	0.1	%S_n	10.0
	Power node 2	---	0.0 – 100.0	0.1	%S_n	50.0
	Power node 3	---	0.0 – 100.0	0.1	%S_n	100.0
	Tau Value	PT1-filtering time constant	0.00 – 60.00	0.01	s	3.33
4.7.2.3.4 Power related control mode - (cos φ (P))	Ena	disable / enable	[0 / 1]	---	---	0
	PF	---	-0.90 – 0.90	0.01	---	- 0.95
	Time	---	0.5 – 1800.0	0.5	s	5.0
4.7.4.2.2 Zero current mode for converter connected generating technology	Threshold value of under voltage	---	not configurable	---	p.u.@ U_n	0.85
	Threshold value of over voltage	---	not configurable	---	p.u.@ U_n	1.15
4.9.2 Requirements on voltage and frequency protection	Undervoltage Protection value Level_1(V)	Undervoltage threshold stage 1	0.0 – 300.0	0.1	V	184.0
	Undervoltage Disconnection Time Level_1(V)	Undervoltage operate time stage 1	0 - 60000	1	ms	3000

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	Undervoltage Protection value Level_2(V)	Undervoltage threshold stage 2	0.0 – 300.0	0.1	V	103.5
	Undervoltage Disconnection Time Level_2(V)	Undervoltage operate time stage 2	0 - 60000	1	ms	300
	Overvoltage Protection value Level_1(V)	Overvoltage threshold stage 1	0.0 – 300.0	0.1	V	253.0
	Overvoltage Disconnection Time Level_1(V)	Overvoltage operate time stage 1	0 - 60000	1	ms	100
	Overvoltage Protection value Level_2(V)	Overvoltage threshold stage 2	0.0 – 300.0	0.1	V	287.5
	Overvoltage Disconnection Time Level_2(V)	Overvoltage operate time stage 2	0 - 60000	1	ms	100
	10min overvoltage Protection Value	Overvoltage threshold 10min mean protection	0.0 – 300.0	0.1	V	253.0
	10-min mean Disconnection Time	Overvoltage operate time 10 min mean protection	---	---	---	10 min (update every 3s)
	Underfrequency Protection value Level_1	Underfrequency threshold stage 1	45.0 – 65.0	0.1	Hz	47.5Hz
	Underfrequency Disconnection Time Level_1	Underfrequency operate time stage 1	0 - 60000	1	ms	100
	Overfrequency Protection value Level_2	Underfrequency threshold stage 2	45.0 – 65.0	0.1	Hz	47.0Hz
	Overfrequency Disconnection Time Level_2	Underfrequency operate time stage 2	0 - 60000	1	ms	100
	Overfrequency Protection value Level_1	Overfrequency threshold stage 1	45.0 – 65.0	0.1	Hz	51.5Hz
	Overfrequency Disconnection Time Level_1	Overfrequency operate time stage 1	0 - 60000	1	ms	100
	Level-2 overfrequency frequency value	Overfrequency threshold stage 2	45.0 – 65.0	0.1	Hz	52.0Hz
	Level-2 overfrequency trip delay time	Overfrequency operate time stage 2	0 - 60000	1	ms	---
4.10.2 Automatic reconnection after tripping	Start up time follewing grid error	---	0 - 900	1	s	120

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	Power gradient follewing grid error (%Pn/min)	---	0.0 – 100.0	0.1	%Pn/ min	10.0
	Max. grid reconnection voltage	---	0.0 - 300.0	0.1	V	253.0
	Min. grid reconnection voltage	---	0.0 - 300.0	0.1	V	195.5
	Max. grid reconnection frequency	---	45.0 – 65.0	0.1	Hz	50.2
	Min. grid reconnection frequency	---	45.0 – 65.0	0.1	Hz	49.5
4.10.3 Starting to generate electrical power	Start up time	---	0.0 – 900.0	0.1	s	60.0
	Power gradient	---	0.0 – 100.0	0.1	%Pn/ min	10.0
	Max. grid start voltage	---	0.0 – 300.0	0.1	V	253.0
	Min. grid start voltage	---	0.0 – 300.0	0.1	V	195.5
	Max. grid start frequency	---	45.0 – 65.0	0.1	Hz	50.1
	Min. grid start frequency	---	45.0 – 65.0	0.1	Hz	49.5
4.11.1 Ceasing active power	---	---	---	---	---	WIFI
4.11.2 Reduction of active power on set point	Temporary Active Power Setting	---	0.0 – 100.0	0.1	%	100.0
	Active Power Slope Setting	---	[0 - 100]	0.1	%Pn/ min	29.0
4.12 Remote information exchange	---	---	---	---	---	---