





<p align="center">TEST REPORT IEC 62109-2 Safety of Power Converter for use in Photovoltaic Power Systems Part 2: Particular requirements for inverters</p>	
Report Number	EFSH24070140-IE-02-L02-A1
Date of issue	2024-07-23; Amendment 1: 2025-01-08
Total number of pages	9 pages
Name of Testing Laboratory	
preparing the Report	Eurofins Electrical Testing Service (Shanghai) Co., Ltd.
Applicant's name	Enverttech (Shanghai) Corporation Ltd.
Address	Room 401, Block 1, No. 138, Xinjunhuan Road, Minhang District, Shanghai, China
Test specification:	
Standard	IEC 62109-2:2011
Test procedure	Test report
Non-standard test method	N/A
Test Report Form No.	IEC62109_2B
Test Report Form(s) Originator	LCIE - Laboratoire Central des Industries Electriques
Master TRF	Dated 2016-11
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General disclaimer:	
<p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.</p>	

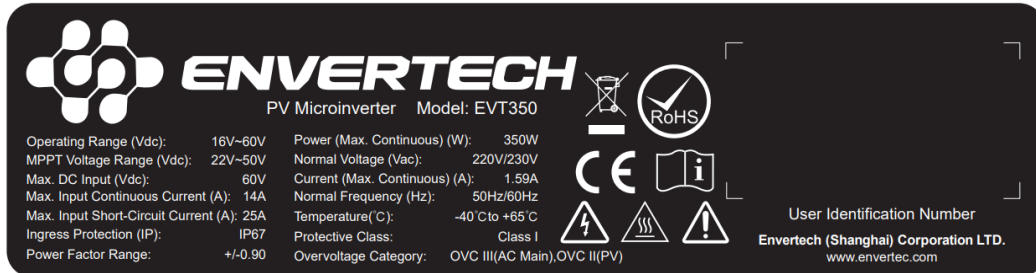
Test item description	Micro Inverter
Trade Mark	ENVERTECH
Manufacturer	Envertech (Shanghai) Corporation Ltd. Room 401, Block 1, No. 138, Xinjunhuan Road, Minhang District, Shanghai, China
Model/Type reference	EVT350, EVT400, EVT450, EVT500, EVT600, EVT800, EVT900, EVT1000
Ratings	IP67, Class I; Model EVT350: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 14A; Output: 220/230V, 50/60Hz, 350W, Max. 1.59A Model EVT 400: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 14A; Output: 220/230V, 50/60Hz, 400W, Max. 1.81A Model EVT450: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 16A; Output: 220/230V, 50/60Hz, 450W, Max. 2.05A Model EVT500: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 18A; Output: 220/230V, 50/60Hz, 500W, Max. 2.27A Model EVT600: Input: 16~60V DC, MPPT voltage range 22-50V DC, max. 14A*2; Output: 220/230V, 50/60Hz, 600W, max.2.73A Model EVT800: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 14A*2; Output: 220/230V, 50/60Hz, 800W, Max. 3.63A Model EVT900: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 16A*2; Output: 220/230V, 50/60Hz, 900W, Max. 4.09A Model EVT1000: Input: 16~60V DC, MPPT voltage range 22-50V DC, Max. 18A*2; Output: 220/230V, 50/60Hz, 1000W, Max. 4.55A

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	Eurofins Electrical Testing Service (Shanghai) Co., Ltd.
Testing location/ address		Building 18, No. 2168 Chenhang Highway, Minhang District, Shanghai, China
Tested by (name, function, signature)		Jackie Zhao / Project Engineer 
Approved by (name, function, signature) ..		Jack Gan / Manager 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	N/A
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	N/A
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	N/A
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment): Refer to test report EFSH24070140-IE-02-L01 and its amendments	
Summary of testing: From the result of our inspection and tests on the submitted samples, we conclude they comply with the requirements of the standards.	
Tests performed (name of test and test clause): Refer to test report EFSH24070140-IE-02-L01 and its amendments	Testing location: Eurofins Electrical Testing Service (Shanghai) Co., Ltd. Building 18, No. 2168 Chenhang Highway, Minhang District, Shanghai, China
Summary of compliance with National Differences (List of countries addressed): EU Group <input checked="" type="checkbox"/> The product fulfils the requirements of EN 62109-2:2011 Remark: IEC 62109-2:2011 (EQV)	

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

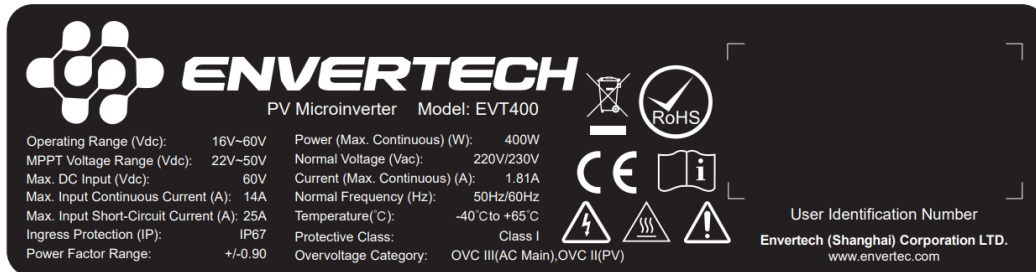


ENVERTECH
PV Microinverter Model: EVT350

Operating Range (Vdc): 16V~60V	Power (Max. Continuous) (W): 350W
MPPT Voltage Range (Vdc): 22V~50V	Normal Voltage (Vac): 220V/230V
Max. DC Input (Vdc): 60V	Current (Max. Continuous) (A): 1.59A
Max. Input Continuous Current (A): 14A	Normal Frequency (Hz): 50Hz/60Hz
Max. Input Short-Circuit Current (A): 25A	Temperature(°C): -40°C to +65°C
Ingress Protection (IP): IP67	Protective Class: Class I
Power Factor Range: +/-0.90	Overvoltage Category: OVC III(AC Main), OVC II(PV)

CE, RoHS, i, and warning symbols are present.

User Identification Number
Envertech (Shanghai) Corporation LTD.
www.envertec.com

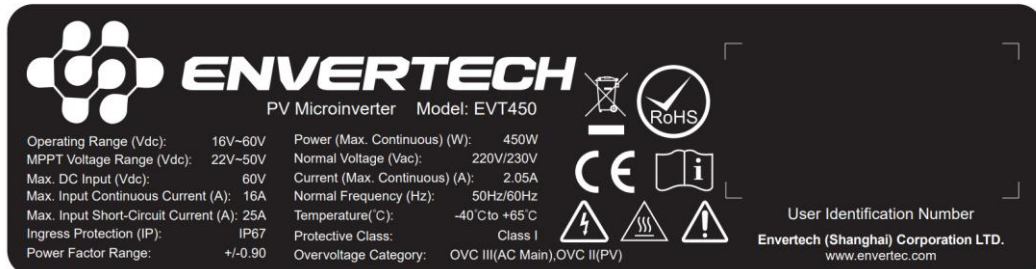


ENVERTECH
PV Microinverter Model: EVT400

Operating Range (Vdc): 16V~60V	Power (Max. Continuous) (W): 400W
MPPT Voltage Range (Vdc): 22V~50V	Normal Voltage (Vac): 220V/230V
Max. DC Input (Vdc): 60V	Current (Max. Continuous) (A): 1.81A
Max. Input Continuous Current (A): 14A	Normal Frequency (Hz): 50Hz/60Hz
Max. Input Short-Circuit Current (A): 25A	Temperature(°C): -40°C to +65°C
Ingress Protection (IP): IP67	Protective Class: Class I
Power Factor Range: +/-0.90	Overvoltage Category: OVC III(AC Main), OVC II(PV)

CE, RoHS, i, and warning symbols are present.

User Identification Number
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www.envertec.com

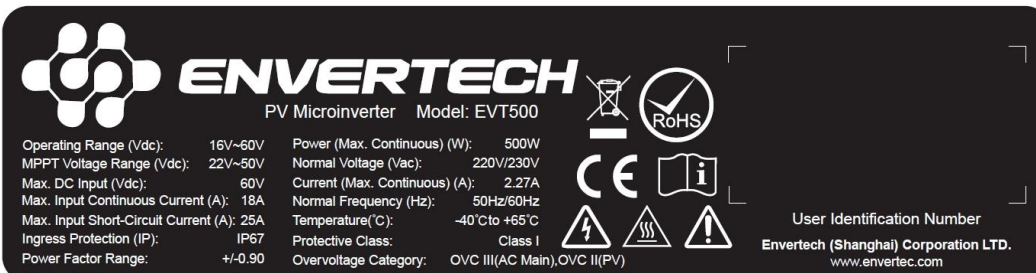


ENVERTECH
PV Microinverter Model: EVT450

Operating Range (Vdc): 16V~60V	Power (Max. Continuous) (W): 450W
MPPT Voltage Range (Vdc): 22V~50V	Normal Voltage (Vac): 220V/230V
Max. DC Input (Vdc): 60V	Current (Max. Continuous) (A): 2.05A
Max. Input Continuous Current (A): 16A	Normal Frequency (Hz): 50Hz/60Hz
Max. Input Short-Circuit Current (A): 25A	Temperature(°C): -40°C to +65°C
Ingress Protection (IP): IP67	Protective Class: Class I
Power Factor Range: +/-0.90	Overvoltage Category: OVC III(AC Main), OVC II(PV)

CE, RoHS, i, and warning symbols are present.

User Identification Number
Envertech (Shanghai) Corporation LTD.
www.envertec.com




ENVERTECH
PV Microinverter Model: EVT500

Operating Range (Vdc): 16V~60V	Power (Max. Continuous) (W): 500W
MPPT Voltage Range (Vdc): 22V~50V	Normal Voltage (Vac): 220V/230V
Max. DC Input (Vdc): 60V	Current (Max. Continuous) (A): 2.27A
Max. Input Continuous Current (A): 18A	Normal Frequency (Hz): 50Hz/60Hz
Max. Input Short-Circuit Current (A): 25A	Temperature(°C): -40°C to +65°C
Ingress Protection (IP): IP67	Protective Class: Class I
Power Factor Range: +/-0.90	Overvoltage Category: OVC III(AC Main), OVC II(PV)

CE, RoHS, i, and warning symbols are present.











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ENVERTECH

PV Microinverter Model: EVT600

1

Operating Range (Vdc): 16V~60V	Normal Voltage (Vac): 220/230V	CE 
MPPT Voltage Range (Vdc): 22V~50V	Current (Max. Continuous) (A): 2.73A	User Identification Number
Max. DC Input (Vdc): 60V	Normal Frequency (Hz): 50Hz/60Hz	
Max. Input Continuous Current (A): 14Ax2	Power Factor Range: +/-0.90	2
Max. Input Short-Circuit Current (A): 25Ax2	Protective Class: Class I	  
Ingress Protection (IP): IP67	Overvoltage Category: OVC III (AC Main) OVC II (PV)	
Power (Max. Continuous) (W): 600W		  
Temperature (°C): -40°C to +65°C		  











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ENVERTECH

PV Microinverter Model: EVT800

1

Operating Range (Vdc): 16V~60V	Normal Voltage (Vac): 220/230V	CE 
MPPT Voltage Range (Vdc): 22V~50V	Current (Max. Continuous) (A): 3.63A	User Identification Number
Max. DC Input (Vdc): 60V	Normal Frequency (Hz): 50Hz/60Hz	
Max. Input Continuous Current (A): 14Ax2	Power Factor Range: +/-0.90	2
Max. Input Short-Circuit Current (A): 25Ax2	Protective Class: Class I	  
Ingress Protection (IP): IP67	Overvoltage Category: OVC III (AC Main) OVC II (PV)	
Power (Max. Continuous) (W): 800W		  
Temperature (°C): -40°C to +65°C		  











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ENVERTECH

PV Microinverter Model: EVT900

1

Operating Range (Vdc): 16V~60V	Normal Voltage (Vac): 220/230V	CE 
MPPT Voltage Range (Vdc): 22V~50V	Current (Max. Continuous) (A): 4.09A	User Identification Number
Max. DC Input (Vdc): 60V	Normal Frequency (Hz): 50Hz/60Hz	
Max. Input Continuous Current (A): 16Ax2	Power Factor Range: +/-0.90	2
Max. Input Short-Circuit Current (A): 25Ax2	Protective Class: Class I	  
Ingress Protection (IP): IP67	Overvoltage Category: OVC III (AC Main) OVC II (PV)	
Power (Max. Continuous) (W): 900W		  
Temperature (°C): -40°C to +65°C		  











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ENVERTECH

PV Microinverter Model: EVT1000

1

Operating Range (Vdc): 16V~60V	Normal Voltage (Vac): 220/230V	CE 
MPPT Voltage Range (Vdc): 22V~50V	Current (Max. Continuous) (A): 4.55A	User Identification Number
Max. DC Input (Vdc): 60V	Normal Frequency (Hz): 50Hz/60Hz	
Max. Input Continuous Current (A): 18Ax2	Power Factor Range: +/-0.90	2
Max. Input Short-Circuit Current (A): 25Ax2	Protective Class: Class I	  
Ingress Protection (IP): IP67	Overvoltage Category: OVC III (AC Main) OVC II (PV)	
Power (Max. Continuous) (W): 1000W		  
Temperature (°C): -40°C to +65°C		  

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The below information is also marked on the product to distinguish the product with the single grid connector or dual paralleled grid connectors

Model Number	Single grid connector	Dual paralleled grid connectors
EVT350	EVT350-short	EVT350-long
EVT400	EVT400-short	EVT400-long
EVT450	EVT450-short	EVT450-long
EVT500	EVT500-short	EVT500-long
EVT600	EVT600-short	EVT600-long
EVT800	EVT800-short	EVT800-long
EVT900	EVT900-short	EVT900-long
EVT1000	EVT1000-short	EVT1000-long

Test item particulars	
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> stationary <input checked="" type="checkbox"/> fixed <input type="checkbox"/> transportable <input type="checkbox"/> for building-in
Connection to the mains	<input checked="" type="checkbox"/> pluggable equipment <input type="checkbox"/> direct plug-in <input type="checkbox"/> permanent connection <input type="checkbox"/> for building-in
Environmental category	<input checked="" type="checkbox"/> outdoor <input checked="" type="checkbox"/> indoor unconditional <input type="checkbox"/> indoor conditional
Over voltage category Mains	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input checked="" type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Over voltage category PV	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Mains supply tolerance (%).....	-90 / +110 %
Tested for power systems.....	TN system
IT testing, phase-phase voltage (V)	- - -
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Mass of equipment (kg)	1,8kg for EVT350, EVT400, EVT450 and EVT500 3,7kg for EVT 600, EVT800, EVT900 and EVT1000
Pollution degree	2
IP protection class.....	- - -
.....	IP 67
Possible test case verdicts:	
- test case does not apply to the test object : N/A	
- test object does meet the requirement : P (Pass)	
- test object does not meet the requirement : F (Fail)	
Testing	
Date of receipt of test item	2024-12-12
Date (s) of performance of tests.....	2024-12-18 to 2025-01-03
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report.</p> <p>"(See appended table)" refers to a table appended to the report.</p> <p>Test report EFSH23061572-IE-01-L02 with its amendments are cancelled and replaced by this test report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:	

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies).....: Shanghai Zhyea Intellingent Technology Co .,Ltd Building C, No. 8 Shiyuan Road Songjiang District, Shanghai, China	
General product information: Refer to test report EFSH24070140-IE-02-L01	
Amendment 1: The original test report No. EFSH24070140-IE-02-L02, issued on 2024-07-23 with its amendments was modified on 2025-01-08 with following changes: <ol style="list-style-type: none"> 1. Add new models EVT900 which is same with EVT800 and EVT1000 series in hardware and distribute little power by software. 2. WiFi module added to the Table 14 – List of critical components. 3. Correct the rated max. continuous current of EVT450 and EVT1000 as below <ol style="list-style-type: none"> a. EVT450 from 1.96A to 2.05A b. EVT500 from 2.17A to 2.27A c. EVT1000 from 4.34A to 4.55A This report should be read in conjunction with test report EFSH24070140-IE-02-L02 and its amendments	