

CERTIFICATE OF COMPLIANCE

Certificate Number E341165
Report Reference E341165-20200423
Date August 3, 2023

Issued to: ENPHASE ENERGY INC
1420 N McDowell Blvd Petaluma, CA 94954-6515
United States

This is to certify that representative samples of Grid Support, Utility Interactive, Supporting Energy Storage, Multimode, Bi-directional Microinverter
Model IQ8X-BAT-US, IQ8X-BAT-US-NB.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: See Page 2

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Standards for Safety:

UL 1741, Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources, Edition 3, Issue Date 10/18/2022. Including the requirements in UL 1741 Supplement A (SA) and Supplement B (SB).

IEEE 1547, Interconnection and Interoperability of Distributed Energy Resources (DERs) with Associated Electric Power Systems (EPSs) Interfaces, Issue Date 02/15/2018

IEEE 1547.1, IEEE Standard Conformance Test Procedures for Interconnecting Distributed Energy Resources (DERs) with Electric Power Systems (EPSs) Associated Interfaces, Issue Date 03/05/2020.

UL 62109-1, Safety of Converters for Use in Photovoltaic Power Systems - Part 1: General Requirements, Edition 1, Revision Date 04/30/2019; IEC 62109-2, Safety of Power Converters for use in Photovoltaic Power Systems - Part 2: Particular Requirements for Inverters, Edition 1, Issue Date 06/2011.

CSA C22.2 No. 107.1-01, General Use Power Supplies, Edition 3, Issue Date 09/2001

R21: The evaluation to the Standards above provides evidence of compliance to the intent of the existing California Rule 21 Interconnection (references to the past publication of IEEE 1547 standards) and UL1741Table SA1.1 option to use the IEEE 1547.1-2020 and UL1741SB test methods in conjunction with using IEEE 1547-2018 as the SRD under which SA11.2 Normal Ramp Rate is not address. Additional testing was conducted to confirmed compliance to Normal Ramp Rate SA11.2

14H (SA): The evaluation to the Standards above provides evidence of compliance to HECO Rule 14H, SRD V1.0, Interconnection Application.

14H (SB): The evaluation to the Standards above provides evidence of compliance to HECO Rule 14H, SRD V2.0, Interconnection Application.



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Inverter Firmware Version:			
Model	UL 1998 (grid support)	Date	Version/Revision
IQ8X-BAT-US, IQ8X-BAT-US-NB	Yes	2022-08-05	V3.24.01
	Yes	2022-12-12	V3.25.01
	Yes	2023-06-16	V3.26.01



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Appendix A

As permitted by UL1741, 3rd Edition, Table SA1.1, shown below, allows for the evaluation of products using either the UL 1741 SA tests or alternative testing methods using the requirements of IEEE 1547.1-2020 in accordance with IEEE 1547-2018 and IEEE 1547a-2020.

UL1741 SA Test Name	SA Test Section	Comparable IEEE 1547.1-2020 and UL1741 SB Test Section	Subject Inverter complies with SA and SB
Anti-Islanding Protection	<u>SA8</u>	5.10.2	Pass
Low and High Voltage Ride-Through	<u>SA9</u>	5.4.4, 5.4.7	Pass
Low and High Frequency Ride-Through	<u>SA10</u>	5.5.3, 5.5.4	Pass
Normal Ramp Rates	<u>SA11.2</u>	NA ^a	Pass
Soft-Start Ramp Rates	<u>SA11.4</u>	5.6	Pass
Specified Power Factor	<u>SA12</u>	5.14.3	Pass
Volt/Var Mode	<u>SA13</u>	5.14.4	Pass
Frequency-Watt	<u>SA14</u>	5.15.2	Pass
Volt-Watt	<u>SA15</u>	5.14.9	Pass
Disable Permit Service	<u>SA17</u>	5.6	Pass
Limit Active Power	<u>SA18</u>	5.13	Pass

For the purpose of Grid Support Interactive evaluations, this table provides options to use tests from either the UL 1741 SA or IEEE 1547.1 2020 and UL1741SB.

^a IEEE 1547-2018 and IEEE 1547.1-2020 do not have a requirement for, or test equivalent to, the UL 1741 SA Normal Ramp Rate which is presently a local requirement per California Rule 21 and/or Hawaii 14H which both require compliance with the Normal Ramp Rate test of SA11.2. Additional testing to SA11.2 Normal Ramp Rate has been conducted to demonstrate compliance on this DER.

For Volt/Var Mode (clause 5.14.4 of IEEE 1547.1-2020):

Functional in the following priority modes: active power reactive power



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