

Certificate No.: A3 60174315 0001

Certificate Of Conformity

Manufacturer: **Enphase Energy Inc.**
47281 Bayside Pkwy, Fremont, CA 94538, USA

Type of product: *Single Phase Power Generation Unit consists of Solar Micro Inverters, Network protection relay and Envoy-S Metered Gateway*

Model: Refer to Appendix 1

Firmware version: Version > 08.04.02

Standard: **C10/11: Ed. 2.2 – 2021-03-15**
Specific technical prescriptions regarding power-generating plants operating in parallel to the distribution network.
(See page Appendix 3 for National Grid Settings)

Report No.: IT23UDM3 001

Date of issue: 30.11.2023

The verification of conformity refers to the above mentioned product. This is to verify that the specimen is in conformity with the assessment requirement mentioned above. This verification does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.



Marco Piva
Certifier



Model list

Basic model	Derived model(s)
IQ8HC	IQ8HC-72-M-INT
	IQ8HC-72-M-ACM-INT
	IQ8HC-72-M-ACM-INT-NM
	IQ8HC-72-M-ACM-INT-RMA
IQ8AC	IQ8AC-72-M-INT
	IQ8AC-72-M-ACM-INT
	IQ8AC-72-M-ACM-INT-NM
	IQ8AC-72-M-ACM-INT-RMA
IQ8MC	IQ8MC-72-M-INT
	IQ8MC-72-M-ACM-INT
	IQ8MC-72-M-ACM-INT-NM
	IQ8MC-72-M-ACM-INT-RMA
IQ8PLUS	IQ8PLUS-72-M-INT
Envoy	ENV-S-WM-230; ENV-S-EM-230
Q Relay	Q-RELAY-1P-INT, Q-RELAY-3P-INT

NATIONAL GRID SETTINGS FOR BELGIUM
GRID SPECIFICATION

Reference Voltage	230 V
Nominal Frequency	50 Hz

VOLTAGE LIMITS

Over Voltage disconnect	Time	Magnitude
Limit	100 ms	264.50 V
Avarage Voltage		253.00 V
Under Voltage disconnect	Time	Magnitude
Limit	100 ms	184.00 V
Reconnect Voltage	Magnitude	
High	253.00 V	
Low	195.50 V	

FREQUENCY LIMITS

Over Frequency disconnect	Time	Magnitude
Limit	100 ms	51.50 Hz
Under Frequency disconnect	Time	Magnitude
Limit	100 ms	47.50 Hz
Reconnect Frequency	Magnitude	
High	50.10 Hz	
Low	49.00 Hz	

RECONNECT

Start/Reconnect time	60 s
Anti-islanding reconnect time (short)	60 s
Anti-islanding reconnect time (long)	60 s
Apply limits after voltage trip	Yes
Apply limits after frequency trip	Yes
Apply limits after anti-islanding trip	Yes

EXTERNAL AC DISCONNECT RELAY

Reconnect delay	10.000 ms
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RAMP RATES

Soft-start ramp rate	0.17%/s
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DC CURRENT INJECTION

DC current injection mode	None
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ISLANDING DETECTION

Appendix 2
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Anti-islanding threshold trip time	1.800 ms
OVER FREQUENCY POWER LIMITS	
Start Frequency	50.20 Hz
Start Delay	0.0 ms
Ramp down rate	40.00 %/Hz
Hysteresis	No
Ramp UP Frequency (max)	50.20 Hz
Ramp UP Frequency (min)	49.80 Hz
Ramp UP delay time	0.0 s
Ramp UP rate	0.167%/s
Ramp UP rate (low)	0.167%/s
UNDER FREQUENCY POWER LIMITS	
Start Frequency	49.80 Hz
Start Delay	0.0 ms
Ramp down rate	40.00 %/Hz
Hysteresis	No
Ramp UP Frequency (min)	50.20 Hz
Ramp UP Frequency (max)	49.80 Hz
Ramp UP delay time	30.0 s
Ramp UP rate	0.167%/s
Ramp UP rate (low)	0.167%/s
PHASE IMBALANCE MANAGEMENT	
Imbalance threshold	5,000.0 W
Imbalance response time	10.000 ms
LOSS OF PHASE DETECTION	
Loss of phase detection enabled	Yes