

# IQ8MC Microinverters

Our newest IQ8 Series Microinverters are the industry’s first microgrid-forming\* microinverters. The high-powered, smart grid-ready IQ8 Series Microinverters are designed to match the latest-generation high-output PV modules. The IQ8 Series Microinverters have the highest energy production and reliability standards in the industry, and with rapid shutdown functionality, they meet the highest safety standards. The brain of the semiconductor-based microinverter is our proprietary, application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55 nm technology with high-speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



### IQ Gateway

The IQ Gateway is the platform for energy management and integrates with the IQ Microinverters and IQ Batteries to provide complete control and insights into the Enphase Energy System.



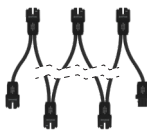
### IQ Relay single-phase and multi-phase

Production and storage circuit, integrated Neutral Sensing-protection device with PLC-Phase coupler (multi-phase) and DC current injection monitoring.



### IQ8 Series with integrated MC4 connectors

Connect PV modules quickly and easily to the IQ8 Series Microinverters that have integrated MC4 connectors.



### IQ Cabling

Install microinverters quickly and safely with IQ Cabling. With multi-phase IQ Cabling, the installed capacity is automatically distributed evenly across all three phases.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 15 years, extendable to 20 years and 25 years.\*\*

\* Only when installed with IQ System Controller 3 INT.

\*\* 15-year warranty is valid, provided an internet-connected IQ Gateway is installed.



### IQ Battery 5P

Part of the Enphase Energy System, IQ Battery 5P integrates with the IQ8 Series Microinverters, IQ System Controller 3 INT, and the Enphase App monitoring and analysis software.

### Compatible with latest generation high-output PV modules

- Supports latest high-current PV modules
- IQ8 Series Microinverters support all common PV module powers and cell architectures

### Easy to install and commission

- Lightweight and compact with integrated Stäubli MC4 connectors for easy installation
- Fast installation with simple AC cabling
- New integrated circuit technology enables faster firmware upgrades

### High energy production, reliability, and safety

- Produce power even when the grid is down\*
- More than one million power-on hours of reliability testing
- Patented Burst Mode technology provides increased energy production
- Low-voltage DC and rapid shutdown for the ultimate fire safety

**Note:**

- (i) Commissioning of IQ8 Series Microinverter systems requires Enphase Installer App version 3.31.0 or higher.
- (ii) IQ8 Series Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, etc) on the same IQ Gateway.

# IQ8MC Microinverters

INPUT DATA (DC)		UNITS	IQ8MC-72-M-ACM-INT	
Typical module compatibility			54-cell/108-half-cell, 60-cell/120-half-cell, 66-cell/132-half-cell, 72-cell/144-half-cell No enforced DC/AC ratio and the maximum input power. Modules can be paired as long as the maximum input voltage is not exceeded and the maximum input current of the inverter at the lowest and highest temperatures is respected. See the compatibility calculator at <a href="https://enphase.com/en-gb/installers/microinverters/calculator">https://enphase.com/en-gb/installers/microinverters/calculator</a> .	
Minimum/maximum input voltage	$U_{dcmin}/U_{dcmax}$	V	18/60	
Start-up input voltage	$U_{dcstart}$	V	22	
Rated input voltage	$U_{dc,r}$	V	35.0	
Minimum/maximum MPP voltage	$U_{mppmin}/U_{mppmax}$	V	25/45	
Minimum/maximum operating voltage	$U_{opmin}/U_{opmax}$	V	18/49	
Maximum input current	$I_{dcmax}$	A	14	
Maximum short-circuit DC input current	$I_{scmax}$	A	25 Maximum short-circuit current for modules ( $I_{sc}$ ) allowed being paired with IQ8 Series Microinverters: 20 A (calculated with 1.25 safety factor as per IEC 62548).	
Maximum input power <sup>1</sup>	$P_{dcmax}$	W	480	
OUTPUT DATA (AC)		UNITS	IQ8MC-72-M-ACM-INT	
Maximum apparent power	$S_{ac,max}$	VA	330	
Rated power	$P_{ac,r}$	W	325	
Nominal grid voltage	$U_{acnom}$	V	230	
Minimum/maximum grid voltage	$U_{acmin}/U_{acmax}$	V	184/276	
Maximum output current	$I_{acmax}$	A	1.43	
Nominal frequency	$f_{nom}$	Hz	50	
Minimum/maximum frequency	$f_{min}/f_{max}$	Hz	45/55	
Maximum units per single-phase 20 A circuit			12 (L+N) Single-phase	42 (3L+N) Multi-phase
Maximum units per multi-phase 25 A circuit			For IQ Cable with 2.5 mm <sup>2</sup> stranded conductors and using a 1.20 safety factor. The safety factors applied may vary based on local regulations or best practices, also upon the characteristic the OCPD selected.	
Recommended maximum units per single-phase/multi-phase IQ Cable section to reduce voltage rise in IQ Cable			8 (L+N) Single-phase	18 (3L+N) Multi-phase
			It is recommended to centre feed IQ Cable within microinverter branch circuits to minimize the voltage rise. These design limits should ensure voltage rise and line conductor resistance on the IQ Cable are maintained within acceptable limits. In locations with a risk of high grid voltage at the point of connection, it may be necessary to decrease the maximum number of microinverters on the IQ Cable section by as much as 50%.	
Protective class (all ports)			II	
Total harmonic distortion		%	< 5	
Power factor setting			1.0	
Power factor range	cos phi		0.8 leading ... 0.8 lagging	
Inverter maximum efficiency	$\eta_{max}$	%	97.5	
European weighted efficiency	$\eta_{EU}$	%	96.7	
Inverter topology			Isolated (HF transformer)	
Nighttime power loss		mW	50	
MECHANICAL DATA			IQ8MC-72-M-ACM-INT	
Ambient air temperature range			-40°C to 60°C (-40°F to 140°F)	
Relative humidity range			4% to 100% (condensing)	
Overvoltage class AC port			III	

(1) Pairing PV modules with wattage above the limit may result in additional clipping losses. See the compatibility calculator at <https://enphase.com/en-gb/installers/microinverters/calculator>.

**MECHANICAL DATA**

**IQ8MC-72-M-ACM-INT**

Number of input DC connectors (pairs) per single MPP-tracker	1
AC connector type	IQ Cabling (refer to separate datasheet for cable and accessories)
DC connector type	Stäubli MC4
Dimensions (H×W×D)	212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2") (without mounting brackets)
Weight (with mounting plate)	1.1 kg (2.4 lbs)
Cooling	Natural convection-no fans
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
IP rating	Outdoor-IP67
Maximum altitude	< 2600 m
Calorific value	37.5 MJ/unit

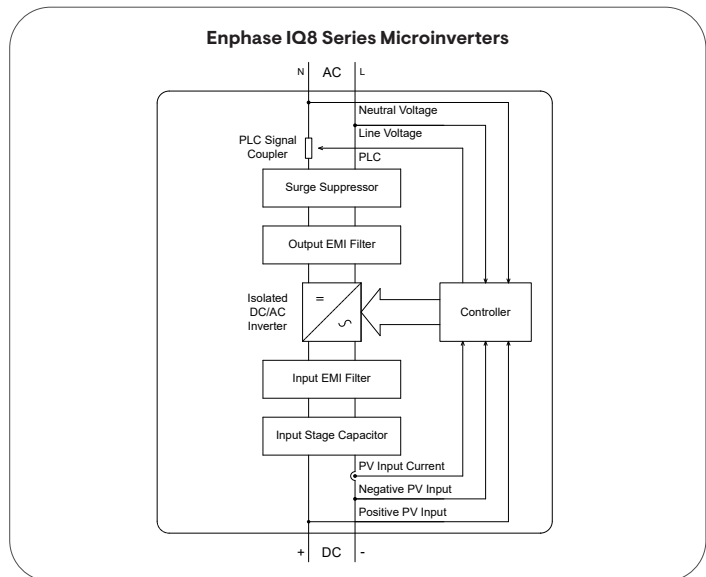
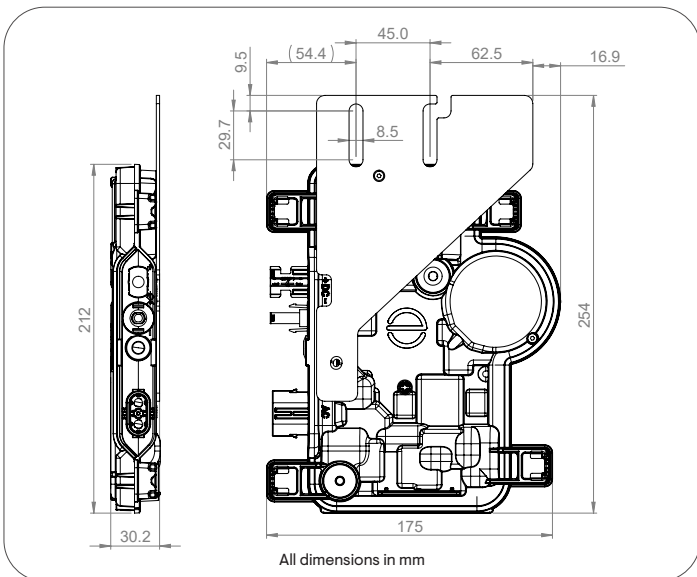
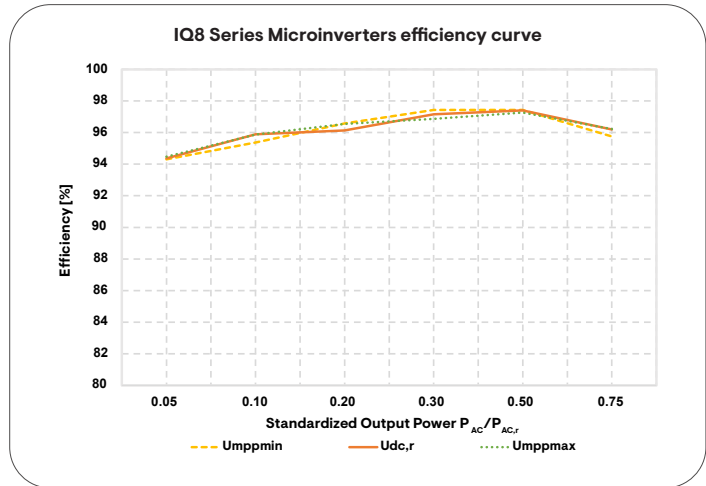
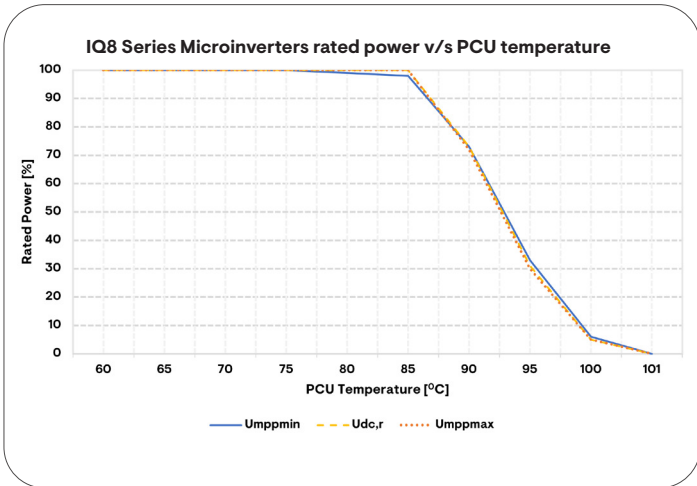
**STANDARDS**

**IQ8MC-72-M-ACM-INT**

Grid compliance (with IQ Relay)	AS/NZS 4777-2:2020
Safety	EN IEC 62109-1, EN IEC 62109-2
EMC	EN IEC 61000-3-2, 61000-3-3, 61000-6-2, 61000-6-3, EN IEC 50065-1, 50065-2-1, EN55011 <sup>2</sup>
Product labelling	CE, RCM
Advanced grid functions <sup>3</sup>	Power export limiting (PEL), phase imbalance management (PIM), loss of phase detection (LOP), power factor control Q (U), cos (phi) (P)
Microinverter communication	Powerline communication (PLC) 110-120 kHz (Class B), narrowband 200 Hz

(2) At STC within MPP range.

(3) Some of these functions require IQ Gateway Metered with current transformers and/or IQ Relay installed.



# Revision history

REVISION	DATE	DESCRIPTION
DSH-00069-1.0	June 2023	Initial release