

# IQ8 Series Microinverters

The high-powered, smart grid-ready IQ8 Series Microinverters are designed to match the latest generation high output PV modules. The IQ8 Series Microinverter has the highest energy production and reliability standards in the industry, and with rapid shutdown functionality, it meets the highest safety standards. The brain of the semiconductor-based microinverter is our proprietary, application specific integrated circuit (ASIC) that enables the microinverter to operate in a grid-connected mode.



### IQ Gateway

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





IQ Relay single-phase and multi-phase Production and storage circuit, integrated network and system-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.



IQ8 Series Microinverters redefine reliability standards with more than 1 million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.\*\*



### 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.

## Compatible with latest generation high-output PV modules

- Supports the latest high-current PV modules
- Supports 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
- Faster firmware upgrades enabled by the new integrated circuit technology

## High energy production, reliability, and safety

- More than 1 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 and so on) on the same IQ Gateway.

<sup>\*</sup>IQ Relay is not required in all countries; check local grid connection requirements to confirm.

<sup>\*\*25-</sup>year warranty is valid, provided an internet-connected IQ Gateway is installed.

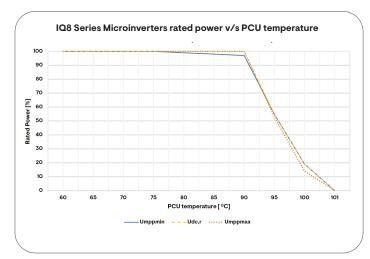
# IQ8 Series Microinverters

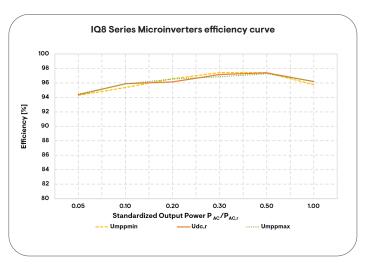
maximum injout voltage is not exceeded and the maximum injout current to inverter invested in the inverter invested and the invested. See the completion calculator at https://enphase.com/en-gb/installers/inicrolowerters/clasulator.    V	INPUT DATA (DC)		UNITS	IQ8MC-72-M-INT	IQ8AC-72-M-INT	IQ8HC-72-M-INT
Part				54-cell/108-half-cell, 60-cell/	/120-half-cell, 66-cell/132-half-	cell, 72-cell/144-half-cell
Start-up input voltage	Typical module compatibility					
Rated input voltage	Minimum/maximum input voltage	U <sub>dcmin</sub> /U <sub>dcmax</sub>	V		18/60	
Minimum/maximum MPP voltage   U_{open/V_Company   V   V   V   V   V   V   V   V   V	Start-up input voltage	U <sub>dostart</sub>	V		22	
Maximum poperating voltage   V	Rated input voltage	U <sub>dc,r</sub>	V	35.0	36.5	37.0
Maximum linput current   I_s.ms   A   14   14   15   15   15   16   15   16   15   15	Minimum/maximum MPP voltage	$U_{mppmin}/U_{mppmax}$	V	25/45	28/45	29.5/45
Maximum short-circuit DC input   Limits   A   Maximum short-circuit current for modules (I) allowed to be paired with IQS series Microinverters: 20 A Calculated with 125 safety factor as per IEC 62548).		$U_{\text{opmin}}/U_{\text{opmax}}$	v		18/49	
Maximum short-circuit DC input current   Luman   Maximum short circuit current for modules (I.) allowed to be paired with 108 Series Microinverters: 20 A (calculated with 1.25 safety factor as per IEC 62548).	Maximum input current	dcmax	A		14	
Maximum input power¹         P <sub>dunat</sub> W         480         550         560           OUTPUT DATA (AC)         UNITS         IQBMC-72-M-INT         IQBAC-72-M-INT         IQBAC-72	·	l scmax	A	Maximum short circuit current for modules (I <sub>sc</sub> ) allowed to be paired with IQ8 Series		
OUTPUT DATA (AC)         UNITS         IQSMC-72-M-INT         IQSAC-72-M-INT         IQSAC-72-M-I	Maximum input nower 1	P	w			
Maximum apparent power         S <sub>scriats</sub> VA         330         366         384           Rated power         P <sub>scri</sub> W         325         360         380           Nominal grid voltage         U <sub>scriat</sub> V         230         184/276           Minimum/maximum grid voltage         U <sub>scriat</sub> V         184/276         167           Maximum output current         I <sub>scriat</sub> A         1.43         1.59         1.67           Nominal frequency         f <sub>cor</sub> Hz         50         167         1.67           Minimum/maximum frequency         f <sub>cor</sub> Hz         50         1.67         1.67           Maximum units per single/multi-phase 2O A circuit         16 A/1 scriats         Hz         For IQ Cable with 2.5 mm² stranded conductors and using a 1.25 safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor, 16 A per is calculated as the maximum derivations or bertal current according to IEC 60364. Safet		dcmax				
Nominal grid voltage		S				
Nominal grid voltage  U_scross V  184/276  Minimum/maximum grid voltage U_scross V  184/276  Maximum output current  I_scross A  1.43  1.59  1.67  Nominal frequency f_mo Hz  50  Minimum/maximum frequency f_mo/f_ms Hz  For IQ Cable with 2.5 mm² stranded conductors and using a 1.25 safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor applied multi-phase 20 A circuit  Maximum units per single/ multi-phase 20 A circuit  Maximum units per single/ multi-phase 20 A circuit  Maximum units per single/ multi-phase 1Q Cable section  Maximum units per single/ multi-phase 1Q Cable section by as maximum units per single/ multi-phase 1Q Cable section  Maximum units per single/ multi-phase 1Q Cable section  Maximum units per single/ multi-phase 1Q Cable section  Maximum uni						
Minimum/maximum grid voltage  Maximum output current  Isomax  A  1.43  1.59  1.67  Nominal frequency  finant  Hz  SD  Minimum/maximum frequency  finant  finant  Hz  16 A/1 somax  Maximum units per single/ multi-phase 20 A circuit  Maximum units per single/ multi-phase 20 A circuit  Maximum units per single/ multi-phase 20 A circuit  Maximum units per single/ multi-phase 10 Cable section  Maximum units per single/ multi-phase 10 Cable section best practices, also upon the characteristic the OCPD section best practices, also upon the characteristic the OCPD section best practices, also upon the characteristic the OCPD section best practices, also upon the characteristic to OCPD section best practices, also upon the characteristic the OCPD section bes						
Maximum output current  I acmax  A 1.43 1.59 1.67  Nominal frequency  f nom  f nom  Hz  50  Minimum/maximum frequency  f mm/f f max  Hz  I1 (L+N)/33 (3L+N)  I2 (L+N)/33 (3L+N)  I3 (L+N)/30 (3L+N)  I4 (L+N)/30 (3L+N)  I5 (L+N)			V		184/276	
Nominal frequency    Finant   Hz   50			Α	1.43	1.59	1.67
Minimum/maximum frequency  f me/f max  Hz  16 A/I memax  16 A/I multi-phase 20 A circuit  17 Cable with 2.5 mm² stranded conductors and using a 1.25 safety factor, 16 A per is calculated as the maximum current according to IEC 60364. Safety factor applied me based on local regulations or best practices, also upon the characteristic the OCPD set of the conductor resistance on the IO Cable are maintained within acceptable limits. In location with a risk of high grid voltage at the point of connection, it may be necessary to decremaximum number of microinverters on the IO Cable section by a much as 50%.  Protective class (all ports)  II  Total harmonic distortion  7 Set of the point of connection. It may be necessary to decremaximum number of microinverters on the IO Cable section by a much as 50%.  Power factor range  10 Cable section by a much as 50%.  11 Set of the point of connection is much as 50%.  12 Set of the point of connection is much as 50%.  13 Set of the point of connection is much as 50%.  14 Set of the point of connection is much as 50%.  15 Set of the point of connection is much as 50%.  16 Set of the point of connection is much as 50%.  18 Set of the point of connection is much as 50%.  19 Set of the point of connection is much as 50%.  10 Set of the point of connection is much as 50%.  10 Set of the point of connection is much as 50%.  10 Set of the point of connection is much as 50%.  10 Set of the point of connection is much as 50%.  10 Set of the point of connection is much as 50%.  10 Set of the point of connection is much as 50%.  11 Set of IO Set of the point of connection is much as 50%.  12 Set of IO Set of	·		Hz		50	
Maximum units per single/ multi-phase 20 A circuit  16 A/I acmax  17 A/I acmax  18 A/I acmax  18 A/I acmax  18 A/I acmax  18 A/I			Hz		45/55	
multi-phase 20 Å circuit    16 Å/I		THE THAT		11 (L+N)/33 (3L+N)	10 (L+N)/30 (3L+N)	9 (L+N)/27 (3L+N)
Maximum units per single/ multi-phase IQ Cable section       Centre feeding is the best practice. These design limits should ensure voltage rise and conductor resistance on the IQ Cable are maintained within acceptable limits. In locati with a risk of high grid voltage at the point of connection, it may be necessary to decre maximum number of microinverters on the IQ Cable section by as much as 50%.         Protective class (all ports)       II         Total harmonic distortion       %       < 5		16 A/I <sub>acmax</sub>		For IQ Cable with 2.5 mm <sup>2</sup> stranded conductors and using a 1.25 safety factor, 16 A per phase is calculated as the maximum current according to IEC 60364. Safety factor applied may vary based on local regulations or best practices, also upon the characteristic the OCPD selected.		
multi-phase IQ Cable section  conductor resistance on the IQ Cable are maintained within acceptable limits. In locati with a risk of high grid voltage at the point of connection, it may be necessary to decremaximum number of microinverters on the IQ Cable section by as much as 50%.  Protective class (all ports)  II  Total harmonic distortion  %  Power factor setting  1.0  Power factor range  cosphi  Inverter maximum efficiency  \$\eta_{max}\$  %  \$\text{97.5}\$  \$\text{97.5}\$  \$\text{97.3}\$  \$\text{97.4}\$  European weighted efficiency  \$\eta_{EU}\$  \$\text{96.7}\$  \$\text{96.6}\$  \$\text{96.8}\$  Inverter topology  Night-time power loss  \$\text{mW}\$  \$\text{1Q8MC-72-M-INT}\$  \$\text{1Q8AC-72-M-INT}\$  \$\text{1Q8AC-72-M-INT}\$  \$\text{1Q8AC-72-M-INT}\$  \$\text{1Q8AC-72-M-INT}\$  \$\text{1Q8AC-72-M-INT}\$				8 (L+N)/18 (3L+N)	8 (L+N)/18 (3L+N)	8 (L+N)/18 (3L+N)
Total harmonic distortion % < 5  Power factor setting 1.0  Power factor range cosphi 0.8 leading - 0.8 lagging Inverter maximum efficiency $\eta_{max}$ % 97.5 97.3 97.4  European weighted efficiency $\eta_{EU}$ % 96.7 96.6 96.8  Inverter topology Isolated (HF transformer)  Night-time power loss mW 108MC-72-M-INT 108AC-72-M-INT 108HC-72-M-INT 108HC-72-M-IN				Centre feeding is the best practice. 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%.		
Power factor setting  1.0  Power factor range  1.0  Power factor range  1.0  1.0  Power factor range  1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.	Protective class (all ports)				II	
Power factor range cosphi 0.8 leading - 0.8 lagging Inverter maximum efficiency η <sub>max</sub> % 97.5 97.3 97.4  European weighted efficiency η <sub>EU</sub> % 96.7 96.6 96.8  Inverter topology Isolated (HF transformer)  Night-time power loss mW 50  MECHANICAL DATA IQ8MC-72-M-INT IQ8AC-72-M-INT IQ8HC-72-M-III	Total harmonic distortion		%		< 5	
Inverter maximum efficiency $\eta_{max}$ % 97.5 97.3 97.4  European weighted efficiency $\eta_{EU}$ % 96.7 96.6 96.8  Inverter topology Isolated (HF transformer)  Night-time power loss mW 50  MECHANICAL DATA IQ8MC-72-M-INT IQ8AC-72-M-INT IQ8HC-72-M-III	Power factor setting				1.0	
European weighted efficiency $\eta_{EU}$ % 96.7 96.6 96.8  Inverter topology Isolated (HF transformer)  Night-time power loss mW 50  MECHANICAL DATA IQ8MC-72-M-INT IQ8AC-72-M-INT IQ8HC-72-M-III	Power factor range	cosphi			0.8 leading - 0.8 lagging	
Inverter topology  Night-time power loss  mW  SO  MECHANICAL DATA  IQ8MC-72-M-INT IQ8AC-72-M-INT IQ8HC-72-M-III	Inverter maximum efficiency	$\eta_{\text{max}}$	%	97.5	97.3	97.4
Night-time power loss mW 50  MECHANICAL DATA IQ8MC-72-M-INT IQ8AC-72-M-INT IQ8HC-72-M-II	European weighted efficiency	$\eta_{\scriptscriptstyle{EU}}$	%	96.7	96.6	96.8
MECHANICAL DATA IQ8MC-72-M-INT IQ8AC-72-M-INT IQ8HC-72-M-III	Inverter topology				Isolated (HF transformer)	
	Night-time power loss		mW		50	
Ambient air temperature range -40°C to 65°C (-40°F to 149°F)	MECHANICAL DATA			IQ8MC-72-M-INT	IQ8AC-72-M-INT	IQ8HC-72-M-INT
	Ambient air temperature range			-40°C to 65°C (-40°F to 149°F)		
Relative humidity range 4% to 100% (condensing)	Relative humidity range			4% to 100% (condensing)		
Overvoltage class AC port III	Overvoltage class AC port			III		
Number of input DC connectors (pairs) per single MPP tracker 1	Number of input DC connectors (pairs) per single MPP tracker			1		
AC connector type IQ Cabling (refer to the cable accessories datasheet)	AC connector type			IQ Cabling (refer to the cable accessories datasheet)		

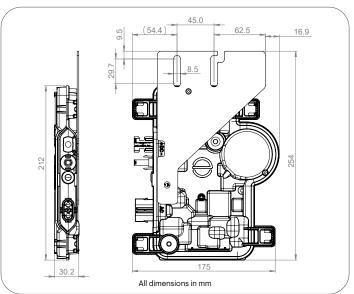
MECHANICAL DATA	IQ8MC-72-M-INT	IQ8AC-72-M-INT	IQ8HC-72-M-INT	
DC connector type		Stäubli MC4		
Dimensions (H x W x D)	212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2") (without mounting brackets)			
Weight (with mounting plate)	1.1 kg (2.4 lbs)			
Cooling	Natural convection - no fans			
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure			
IP rating	Outdoor - IP67			
Altitude		< 2600 m		
Calorific value	37.5 MJ/unit			
STANDARDS	IQ8MC-72-M-INT	IQ8AC-72-M-INT	IQ8HC-72-M-INT	
Grid compliance	G98, G98 NI, G99, G99 NI, G100			
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		
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	Power line communication (PLC) 110 - 120 kHz (Class B), narrow band 200 Hz			

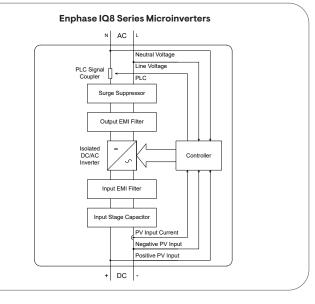
(2) At STC within MPP range.

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









Assembled in China, India, or Romania.