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INCTALLATION MAD

## QUICK INSTALL GUIDE



## Install the **Enphase IQ8 Series** Microinverter

To install Enphase IQ8 Series Microinverters, read and follow all warnings and instructions in this guide and in the Enphase IQ8 Series Microinverter Installation and Operation Manual at <a href="mailto:specific-specifi

The Enghase Microinverter models listed in this guide do not require grounding electrode conductors (GCC), equipment grounding conductors (EGC), or grounded conductor (Cectral). The microinverter has a blass il double-instabilitied rating, which includes ground fault protection (GFP). To support GFP use only her models expupped with 10 calculate bladel PV Wint 10 Cectral V Cable.

IMPORTANT: Enphase IQ8 Series Microinverters require the IQ Cable. An IQ Gateway is required to monitor performance of the IQ Microinverters. The Q Accessories work only with Enphase IQ8 Series Microinverters.

Note: After you log in to your Enphase Installer Platform account from Enphase Installer app, Scan the microinverter QR code and connect to the Enphase Q Gateway to track the system installation progress.

#### PREPARATION

Downhad the Enphase Installer App and open it to log into your Envise Installer Platform account. With this alpose and the microinvertor R Goods and concert to the Enphase ID Gateway to track system installation progress. To download, go to exphase convitockst or scan the QR code at right.



B ) Refer to the following table and check PV module electrical compati-

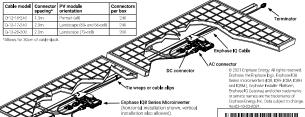
)	bility at: enphase.	electrical surges.		
	Model	DC connector	Typical PV module* cell count	F) Plan your AC branc number of microin
	IQ8-60-2-US	MC-4 locking type	Pair with 60 cell /120-half-cell modules	over-current protec
	IQ8PLUS 72-2-US IQ8M-72-2-US	MC-4 looking type	Pair with 60 cell / 120 half-cell, 66 cell, or 72 cell / 144 half-cell	Maximum* IQ8 Se

| IQ8H-240-72-2-US | MC-4 locking type | Pair with 60 cell /120-half-cell, 66 cell, or 72 cell / 144 half-cell Tenhase (IQS Series Microinverters are competible with bifacial PV modules if the temperature adjusted electrical parameters (maximum power, voltage and current) of the modules, considering the front side electrical parameters (e.g. 0% back side gain), are within the allowable microinverter input parameters range.

- C) In addition to the Enphase Microinverters, PV modules and racking, you will need these Enphase (80 Series Microinverters:
  Enphase 10 Gateway (model ENVI-LAMI-242) communications gateway or Enphase 10 Combiner (check enphase com for models): is required to monitor solar productions.

  The wings on called (sigs (C-UIP-100))

- Tile wraps or cable class (C-CUP-100)
   Enphase Reing Cags (C-SELV-10) for any unused connectors on the Enphase IRQ Cable
   Enphase IRQ Cable
   Enphase IRQ Cable
   The Committee IRV-10): one needed at the end of each AC cable segment
   Enphase Disconnect Tool (C-DISC-10)
   Enphase Disconnect Tool (C-DISC-10)



- D.) Check that you have these other items:
   AG junction box.
   Tools: screwdrivers, wire cutter, voltmeter, torque wrench, sockets, and wrenches for mounting hardware.
- E) Protect your system with lightning and/or surge suppression devices. It is also important to have insurance that protects against lightning and ejectrical surges.
- nch circuits to meet the following limits for maximum inverters per branch when protected with a 20-amp ection device (OCPD).

IQ8 (240V)	IQ8+ (240V)	IQ8M (240V)
16	13	11
IQBA (240V)	IQ8H (240V)	IQ8H (288V)
11	10	9

\* Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

G) Size the AC wire gauge to secount for voltage rise. Select the correct wire size based on the distance from the beginning of the Enphase IQ Cable to the breaker in the load center. Design for a voltage rise total of less than 2% for these sections. Refer to the Voltage Rise Technical Birl of sumplex-continguator for more information.

Best practice: Center-feed the branch circuit to minimize voltage rise in a fully-populated branch.

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### INSTALLATION

#### Position the Enphase IQ Cable

- Plan each cable segment to allow connectors on the Enphase IQ Cable to align with each PV module. Allow extra length for slack, cable turns, and any obstructions.
- B.) Mark the approximate centers of each PV module on the PV ranking.
- C) Lay out the cabling along the installed racking for the AC branch circuit.
- D ) Cut each segment of cable to meet your planned needs.

#### Position the Junction Box

A) Verify that AC voltage at the site is within range:

Service Type and Voltage: L1 - L2				
240 V single phase	211 to 264 VAC			
208 V single phase	183 to 229 VAC			

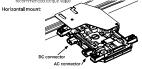
- B) Install a junction box at a suitable location on the racking.
- Provide an AC connection from the junction box back to the electricity network connection using equipment and practices as required by local invisitations.

#### Mount the Microinverters

 Mount the microinverter horizontally bracket side up or vertically. Always Place it under the PV module, protected from direct exposure to rain, sun, and other hermful weather events. Allow a minimum of 1.9 cm (3/4\*) between the roof and the microinverter. Also allow 13 cm (1/2\*) between the roof and the microinverter. Also allow 13 cm (1/2\*) between the back of the PV module and the top of the microinverter. For vertical mount, also maintain > 30 cm (121) degrance from the edges of and other harmful weather events.



- B) Torque the mounting fasteners (1/4-inch or 5/16-inch) as follows. Do
- not over torque. 6 mm (1/4 inches) mounting hardware: 5 N m (45 to 50 in-lbs).
- 8 mm (5/16 inches) mounting hardware: 9 N m (80 to 85 in-lbs)
   When using UL 2703 mounting hardware, use the manufacturer's
- recommended torque value





#### 4 Create an Installation Map

Create a gager installation map to record microinverter serial numbers and position in the array.

- A.) Peel the removable serial number label from each microinverter and affix it to the respective location on the paper installation map.
- B) Peel the label from the IQ Gateway and affix it to the installation
- C.) Always keep a copy of the installation map for your records.



### Manage the Cabling

- A.) Use cable clips or tie wraps to attach the cable to the racking. The cable must be supported at least every 1.8 m (6 feet).
- Dress any excess cabling in loops so that it does not contact the roof. Do not form loops smaller than 12 cm (4.75 inches) in diameter.



### Connect the Microinverters

- A ) Connect the microinverter. Listen for a click as the connectors
- B) Cover any unused connectors on the AC cable with Enphase Sealing Caps. Listen for a click as the sealing caps engage.



ING: Install sealing caps on all unused AC connectors connectors become live when the system is energized

To remove a sealing cap or AC connector, you must use an Enphase

#### Terminate the Unused End of the Cable

A ) Remove 13 mm (1/2") of the cable sheath from the conductors. Use the terminator loop to measure



- B) Slide the hex nut onto the cable. There is a grommet inside of the terminator body that should remain in place.
- Insert the cable into the terminator body so that each of the two wires land on opposite sides of the internal separator.



- D.) Insert a screwdriver into the slot on the top of the terminator to hold it in place, and torque the nut to 7
- F.) Hold the terminator body stationary with the screwdriver and turn only the hex nut to prevent the conductors from twisting out of the separator.
- F) Attach the terminated cable end to the PV racking with a cable clip or tie wrap so that the cable and terminator do



### Complete Installation of the Junction Box

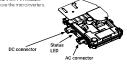
- Connect the Enghase IO Cable into the junction box
- B) The IQ Cable uses the following wiring color code:



### Connect the PV Modules



- A) If required, attach the Enphase DC bulkhead adapters to the microinverters. Make sure they are fully seated. Do not reverse the adapter connections.
- B.) Connect the DC leads of each PV module to the DC input connectors or adapters of the microinverter.
- C) Check the LED on the connector side of the microinverter. The LED flashes six times when DC power is applied.
- D ) Mount the PV modules



#### Energize the System

- A) Turn ON the AC disconnect or circuit breaker for the branch circuit. B 1 Turn ON the main utility-grid AC circuit breaker. Your system will start
- producing power after a five-minute wait time. C.). Check the LED on the connector side of the microinverter
- Indicates

  Normal operation, AC grid function is normal and there is communication with the IC Gateway.

  The AC grid is normal but there is no communication with the IC Gateway.

  The AC grid is normal but there is no communication with the IC Gateway.

  The AC grid is either not green for not with a specification.

  These is no exist in CP Destroation and the Design Off condition.

There is an active "DC Resistance Low, Power Off" condition. To reset, refer to the Enphase IQ Gateway Installation and Operation

### ACTIVATE MONITORING AND CONTROLS

After you have installed the microinverters, follow the procedures in the Enphase IQ Gateway Quick Install Guide to activate system monitoring, set up grid management functions, and complete the installation. Connecting

- Detecting devices
- Connecting to Enphase Installer Platform
- Registering the system Building the virtual array

#### Enphase Connector Rating

Emphase Connectors on the cable assemblies in the following table have a maximum current of 20 A, a maximum OCPD of 20 A, and maximum ambient temperature of -40° to +79° C (-40° to +174.2° F) and are rated for disconnection under load.

Part Number	Model	Maximum Voltage
840-00387	Q-12-10-240	250 VAC
840-00388	0.12-17-240	250 VAC
840-00389	0.12-20-200	250 VAC
840-00385	Q-DCC-2	100 VDC

- -2015 for more information. ionally, in a prominent location near the initiator e, a placard or label must be provided with a
- permanent marking including the following wording: PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN: The term PHOTOVOLTAIC may be replaced with TOP.
- replaced with PV.
  The placerd, label, or directory shall be reflective, with all letters capitalized and having a minimum height of 9.5 mm (3/8 in) in white on red background.

	instructions to follow during installation Q8, IQ8+, IQ8A, IQ8H, and IQ8M microins
$\triangle$	WARNING: Hot surface.
$\triangle$	WARNING: Refer to safety instruction
Â.	DANGER: Risk of electric shock.
1	Refer to manual
	Double-Insulated
	0 b I

# Δ

#### PV Rapid Shutdown Equipment (PVRSE)

(LYVICE)

This product is UL Listed as PV Rapid Shut Down
Enginement and conforms with NEX-2014 and NEX-20

Enginement and conforms with NEX-2014 and NEX-20

Enginement and conforms with NEX-2014 and NEX-20

Mean and Conforms of the following requirement of the following requirement of the following requirement of the following requirement of the production of the following requirement of t

IMPORTANT SAFETY INSTRUCTIONS
SAVE THIS INFORMATION. This quide conti

important	instructions to follow during installation of the Q8, IQ8+, IQ8A, IQ8H, and IQ8M microinverters.
$\triangle$	WARNING: Hot surface.
$\triangle$	WARNING: Refer to safety instructions.
<u> Á</u>	DANGER: Risk of electric shock.
$\bigcirc$ i	Refer to manual

Δ

✓ NOTE Indicates information particularly important for optimal system operation.

General Safety, continued DANGER: Risk of electric shock. Risk of fire Chip use electrical system components approved for wet locations.

Emphase Microinverter to the usury game.

MARNING Risks of equipment damage. Emphase
male and female connectors must only be mailed
with the maching male/female connector.

WARNING Before installing or using the
Emphase Microinverter, read all instructions and
cautionary makings in the technical descrip-tion, on the Emphase Microinverter System, and
on the photovolate IPV equipment.

WARNING Pen or connect Emphase Microinverter.

on the photocounts, if y pages and warming the photocounts to the gird or energize the AC circuit(s) until you have completed all of the installation procedures and have received prior approaching the electrical unity company.

WARNING: When the PV array is exposed to light, DC voltage is supplied to the PCE.

- exposure to min, IV, and other harmful weather of the control of t
- DANGER: Risk of electric shock. Risk of fire.
   Only qualified personnel may connect the Enphase Microinverter to the utility grid.

# SAFETY

 NOTE: Protection against lightning and resultin voltage surge must be in accordance with loca standards. Microinverter Safety

icates a hazardous situation, voided, will result in death or serious injury.

WARNING: Indicates a situation where fa to follow instructions may be a safety had or cause equipment malfunction. Use extraordination and follow instructions carefully.

WARNING Indicates a situation where failure follow instructions may result in burn injury. ҈Ѧ

General Safety

ANGER Risk of electric shock: Do not use Enphase equipment in a manner not specified by the manufacture. Doing so may ouse dealt in injury to persons, or damage to equipment.

electric shock.

DANGER: Risk of electric shock. The DC conductors of this photovoltaic system are ungrounded and may be energized.

DANGER: Risk of electric shock. Always de-energize the AC branch circuit before servicion. A

DANGER: Risk of electric shock, Risk of Only qualified personnel should troubles install, or replace Enphase Microinverter Enphase IQ Cable and Accessories. DANGER Risk of electric shock. Risk of fire. Fissure that all AC and DC wiring is correct and that none of the AC or DC wires are pinched or damaged. Ensure that all AC junction boxes are properly closed. Microinverter Safety, continued

and could be considered to the considered to the

- NOTE: The Enphase Microinverter has adjustable voltage and frequency trip points the may need to be set within grid profile, dependin upon local requirements. Contact Enphase
- NOTE: To ensure optimal reliability and to meet warranty requirements, install the Enphase Microinverters and Enphase IQ Cable according to the instructions in this guide. Enphase IQ Cable Safety
- ✓ NOTE: Provide support for the Enphase IQ Cable at least every 1.8 m (6 feet). A DANGER: Risk of electric shock. Do not install the Emphase IQ Cable terminator while power is connected. NOTE: Perform all electrical installations in acceptable with all applicable local electrical codes, such as the Canadian Electrical Code, Part 1 and NFPA 70 (NEC).  $\triangle$
- is connected.

  DANGER Isks of electric shock Take of fine. When stripping the shealth from the Enphase (I) Castle, make sure the conductors are not character. If the exposed when are demanded. DANGER Isks of electric stocks else of fine. Do not lewer AC connectors on the Enphase (I) Castle unoxided period. You must cover any tinused connector with a seeking day. DANCER Risk of electric shock. Risk of fire. Do not attempt to repair the Enghase Microinverter. It contains no user-serviceable parts. If it fals, contact Enghase disconer service to obtain an RRM. fectrim mechanishe authorization, number and start the replacement process. Tempering with or opening the Emphase.
  - DANGER: Risk of electric shock. Risk of fire. Make sure protective sealing caps have been installed on all unused AC connectors; Unused AC connectors are live when the system is energized. WARNING: Use the terminator only once if you open the terminator following installation, the latching mechanism is destroyed to not reuse the terminator. If the latching mechanism is defective, do not use the terminator. Do not orcument or manipulste the facilities.
- Microinverter.

  WARNING: You must match the DC operating voltage range of the PV module with the allowable input voltage range of the Enphase WARNING: When installing the Enphase IQ Cable, secure any loose cable to minimize tripping hazard NOTE: When looping the Enphase IQ Cable, do not form loops smaller than 12 cm (4.75 inches) in diameter.
- Micromerte.

  MRRING: The maximum open circuit violage of the PV module must not exceed the specified must not exceed the specified must not exceed the specified must make the proposed feet to the Eighness commission of the Proposed Feet on the Eighness commission open descriptions of the Eighness commission open descriptions of the Eighness commission open descriptions of the Eighness commission ✓ NOTE If you need to remove a sealing cap, yo must use the Enphase disconnect tool

Enphase Customer Support: enphase.com/en-us/support/contact

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