

Enphase

# Frame Mount and Connector Clip Installation Guide

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## Other Information

Product information is subject to change without notice. All trademarks are recognized as the property of their respective owners.

User documentation is updated frequently. Check the Enphase website (<http://www.enphase.com/support>) for the latest information.

For Enphase patent information refer to <http://enphase.com/company/patents/>.

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## Audience

This manual is intended for use by professional installation and maintenance personnel.

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# Safety Warnings

To reduce the risk of electrical shock or injury, and to ensure the safe installation of the Enphase Frame Mount and Connector Clip, follow these instructions. The following safety symbols and information indicate dangerous conditions and important safety instructions.

## Safety and Advisory Symbols

- ✓ NOTE: This indicates information particularly important for optimal system operation. Follow instructions carefully
-  DANGER! This indicates a hazardous situation, which if not avoided, will result in death or serious injury.
-  WARNING! This indicates a situation where failure to follow instructions may be a safety hazard or cause equipment malfunction. Use extreme caution and follow instructions carefully.
-  WARNING! This indicates a situation where failure to follow instructions may result in burn injury.

## Microinverter Safety

-  WARNING: To reduce the risk of electrical shock, and to ensure the safe installation and operation of the Enphase Microinverter, read and follow the all instructions in the *Enphase Microinverter Installation and Operation* and the photovoltaic (PV) equipment manuals before installing or using the Enphase Microinverter.
-  WARNING: Risk of skin burn. The body of the microinverter is the heat sink. Under normal operating conditions, the temperature is 15°C above ambient, but under extreme conditions the microinverter can reach a temperature of 80°C. To reduce risk of burns, use caution when working with microinverters.
-  WARNING: Risk of electric shock. Risk of fire. If the AC cable on the microinverter is damaged, do not install it.
-  DANGER: Risk of Electrical Shock. Be aware that installation of this equipment includes risk of electric shock. Do not install the AC junction box without first removing AC power from the Enphase System.
-  WARNING: Risk of equipment damage. The microinverter must be installed under the module, out of rain and sun. Do not mount the microinverter in a position that allows long-term exposure to direct sunlight or in a vertical orientation that allows water to collect in the DC connector recess. Do not install the microinverter black side up or vertically, with the DC connectors facing up.

## Engage Cable and Accessory Safety

-  **WARNING:** Risk of electric shock. Always remove power from the Enphase Microinverter System before servicing. Never disconnect or remove the terminator cap.
-  **CAUTION:** When installing the Engage Cable, secure any loose cable to minimize tripping hazard.
-  **WARNING:** Tripping Hazard. Loose cables can become a tripping hazard. Dress the Engage Cable to minimize this potential.
-  **NOTE:** When you dress the Engage Cable, adhere to the following requirements:
  - Do not expose the cable connections to continuous immersion.
  - Use the cable and connectors only when all parts are present and intact.
  - Do not expose the terminator cap or cable connections to continuous tension (e.g., tension due to pulling or bending the cable near the connection).
  - Use only the connectors and cables provided.
  - Do not allow contamination or debris in the connectors.
  - Do not install or use in potentially explosive environments.
  - Do not allow the terminator to come into contact with open flame.
  - Do not expose the terminator cap or cable connections to directed, pressurized liquid (like a water jet from a hose nozzle).
-  **NOTE:** There are two release-holes in the Engage Cable connector. These are not for mounting but are used to disconnect the connector. Keep these release holes clear and accessible.
-  **NOTE:** When looping the Engage Cable, do not form loops smaller than 4.75 inches (12 cm) in diameter.
-  **NOTE:** Do not use the shipping cap to cover unused connectors. The shipping cap does not provide an adequate environmental seal. Enphase sealing caps are required to protect against moisture ingress.

## Photovoltaic (PV) Safety

-  DANGER: Risk of injury. PV module connectors, when energized, may cause fire, spark or lethal shocks even when the modules are not connected.
-  DANGER: Risk of electric shock. Modules generate electricity when the modules are exposed to sunlight, even if they are not connected. It is dangerous to touch 30V DC or higher, so never open the electrical connectors or unplug the electrical connectors while the circuit is under load, and do not touch the connector ends.
-  NOTE: Wear gloves when handling the module.
-  NOTE: Do not lift or move the module by holding the frame mount.
-  NOTE: Do not place anything on the module or press on the module surface.
-  NOTE: Do not drop the module or allow objects to fall on the module.
-  NOTE: Do not handle the modules in wet or strong windy conditions.

# About the Enphase Frame Mount and Connector Clip

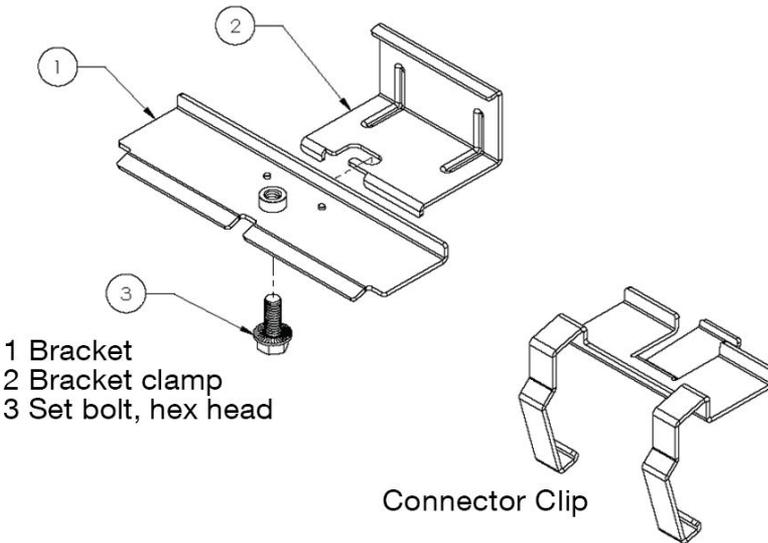
The Enphase Frame Mount and Connector Clip Kit allows you to attach an Enphase Microinverter easily and rapidly to the PV module frame whether you are on the ground or on the roof.

You can use the Frame Mount in rail-free or ballasted solar installations.

The Connector Clip secures the Engage drop connector directly to the module frame.

The Frame Mount comes in two sizes, 35 mm and 40 mm, depending upon the thickness (depth) of the PV module frame.

## Enphase Frame Mount & Connector Clip



**⚠ WARNING!** If you attach the microinverters to PV module frames while on the ground, use caution when moving the PV module/microinverter units to the roof. Adhere to the following guidelines when moving PV modules with attached microinverters:

- Secure all cables with tape or cable ties to prevent a trip hazard.
- Do not stack PV module/microinverter units on the roof.
- Handle the PV module/microinverter units carefully to avoid damaging the microinverter, bracket, or connector clip.

# Installing the Frame Mount and Connector Clip

## Enphase Frame Mount Kit Parts List

- Frame mount bracket
- Frame mount bracket clamp, 35 mm or 40 mm
- Hex head set bolt
- Connector Clip

## Other Parts

- Enphase Microinverter
- Engage Cable
- PV Module

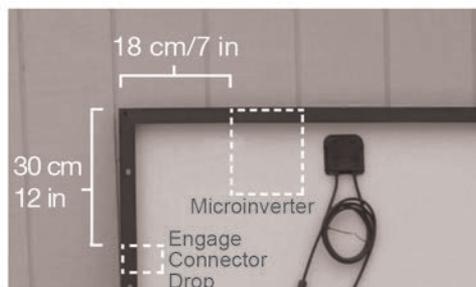
## Tools Needed

13 mm (1/2-in) socket wrench

## Where to Place the Microinverter and Drop Connector

In a standard array, place the:

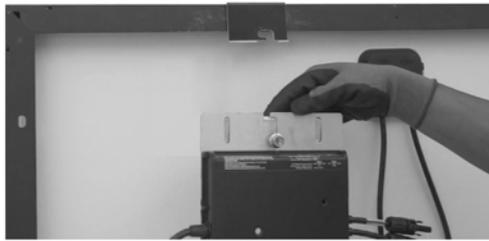
- Microinverter with the Frame Mount approximately 18 cm (7 in) in from the edge of the PV module.
- Engage connector drop using the Connector Clip approximately 30 cm (12 in) from the corner of the PV module. You may need to adjust the distance if it interferes with mounting the PV module on the racking.



## How to Install the Frame Mount and Connector Clip

 **WARNING:** DO NOT connect Enphase Microinverters to the utility grid or energize the AC circuit(s) until you have completed all of the installation procedures described in the Enphase Microinverter Installation and Operations Manual.

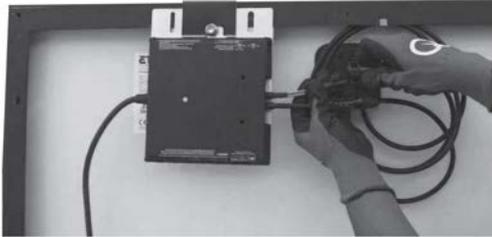
1. Place the bracket clamp over the edge of the module frame.



2. Thread the cap bolt into the threaded insert on the bracket, then slide middle channel of the microinverter onto the bolt.
3. Slide the microinverter unit onto the bracket clamp, then move it slightly to the left. The bolt now holds the frame mount to the bracket clamp. The microinverter mounting flange should be on the outside of the module frame.



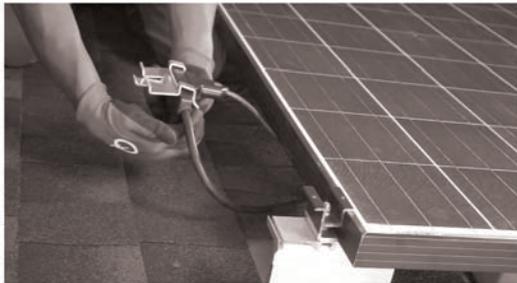
4. With a 13mm or 1/2 inch socket wrench, tighten the cap screw until you reach a torque of 18 Nm (13 ft-lbs).
5. Neatly coil the module wires and secure with a wire clip.
  - ✓ NOTE: When looping the Engage Cable, do not form loops smaller than 12 cm (4.75 inches) in diameter.
6. Connect the microinverter DC connectors to the PV module.



**⚠ CAUTION:** When installing the Engage Cable, secure any loose cable to minimize tripping hazard.

Dress the Engage Cable so that it does not contact the roof. Refer to the *Enphase Microinverter Installation and Operation Manual* for details.

7. After you have installed the module, connect the Engage drop connector to the microinverter. Listen for two clicks as the connectors engage.
8. Clip the Engage Cable drop connector into the connector clip.



9. Attach the connector clip onto the underside of the module frame.



10. Secure the Engage Cable to the module frame with wire clips as needed.

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