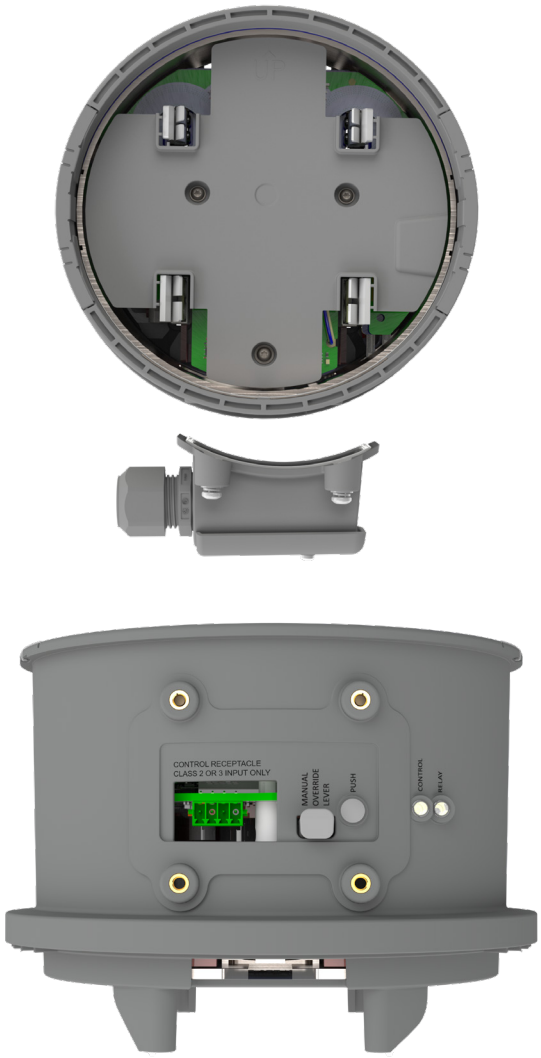
QUICK INSTALL GUIDE Model: MC-200-011-V01

IQ Meter Collar quick install guide

The Enphase IQ Meter Collar is a meter socket adapter with integrated microgrid interconnection device (MID) and current sensors for energy consumption metering. The IQ Meter Collar is rated at 200 A and can be installed on an ANSI C12 Form 2S meter socket rated up to 200 A continuous operation. It can be installed either at the service entrance directly on the utility meter socket or on a load-side standalone meter socket.

The IQ Meter Collar is compatible with 3rd generation Enphase Energy Systems, installed with IQ System Controller 3M and IQ Battery 5P. It is also compatible with 4th generation Enphase Energy Systems installed with the IQ Combiner 6C and IQ Battery 10C.

IQ Meter Collar can be used in Enphase grid-interactive (grid-tied) as well as multi-mode (grid-forming) installations. In grid-interactive installations, the IQ Meter Collar serves as a consumption metering device, eliminating the need for additional CTs to be field wired. In grid-forming installations, the IQ Meter Collar provides both consumption metering and grid isolation to enable microgrid formation.



✓ **NOTES:**

- If installing on utility meter socket, ensure that the IQ Meter Collar is approved by the local utility.
- The IQ Meter Collar is not compatible with all meter socket installations. Verify the meter socket installation complies with national and local electrical codes.
- Do not install the IQ Meter Collar with IQ System Controllers 2, 3, or 3G.
- These installation instructions do not cover all aspects of a renewable energy system.
- If you do not fully understand any of the concepts, terminology, or hazards outlined in these instructions, refer to a qualified electrician or installer.

140-00403-03

Specifications

ELECTRICAL SPECIFICATIONS	
Nominal grid supply	120/240 VAC/180°, split-phase
Nominal frequency	60 Hz
Overvoltage category	Category IV (service entrance-rated)
Integrated consumption meter	±0.5% accurate
Maximum continuous current rating	200 A
Maximum short circuit current withstand[1]	22 kA
Maximum overcurrent protection device	200 A
MECHANICAL SPECIFICATIONS	
Dimensions	6.9 in x 8.1 in x 5.0 in (175 mm x 206 mm x 128 mm)
Weight	3.6 lb
Meter and meter socket interface	ANSI Form 2S, 200A, ringless, or ring type
Cooling	Forced convection cooled
ENVIRONMENTAL SPECIFICATIONS	
Operating ambient temperature range	-40°F to 122°F (-40°C to 50°C)
Enclosure environmental rating	NEMA 3R, Indoor/Outdoor
Maximum altitude	8,200 ft. (2,500 meters)
COMPLIANCE	
Safety	UL 414
Emissions (FCC)	CFR 47 Part 15B This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

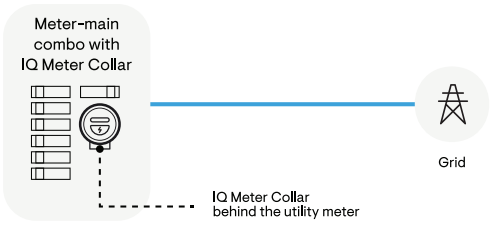
[1] Short circuit current limited by an external, load-side, overcurrent protection device.

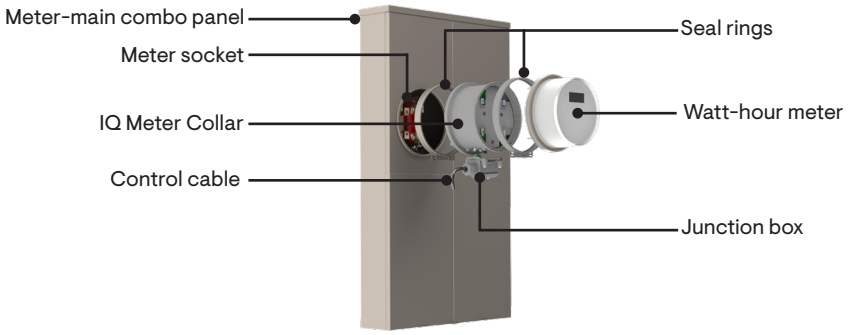
SYSTEM AND GRID COMPATIBILITY	
Grid	UL 1741 SA/SB (IEEE 1547:2018), Multi-mode
Power Control System (PCS)	Current sensor for a Power Control System under UL 3141
INTERFACES	
Control connector	4-wire signaling with 24 V DC power supply between system components
Manual override lever	Manually sets MID relay state. Pull to open the MID relay, push to close the MID relay
Push button	Short press (5–10 seconds): Disable firmware control of MID, toggle again to enable firmware control of MID Long press (>15 seconds): Hard reset of the unit. The relay state does not change
Light-emitting diodes (LED)	1 Relay LED 1 Control LED
WARRANTY	
Warranty	15-year limited warranty
ENPHASE EQUIPMENT COMPATIBILITY	
IQ Gateway	ENV2-IQ-AM1-240, ENV-IQ-AM1-240
Communications Kit	COMMS-KIT-02
Microinverters	IQ8, IQ7, and IQ6 Series Microinverters
3rd generation Enphase Energy System	IQ Battery 5P (IQBattery-5P-1P-NA), IQ Combiner 5 (X-IQ-AM1-240-5), IQ Combiner 5C (X-IQ-AM1-5C), and IQ System Controller 3M (SC200D111CMC1US01)
4th generation Enphase Energy System	IQ Battery 10C (IQBATTERY-10C-1P-NA), IQ Combiner 6C (X-IQ-AM1-240-6C)
Third-party inverters and legacy Enphase microinverters	Supported with 4th generation Enphase Energy System
WHAT'S IN THE BOX	**DESCRIPTION**
IQ Meter Collar	Meter collar adapter with microgrid interconnect device (MID)
Seal ring	Seal ring to prevent tampering or unauthorized removal of the utility watt-hour meter
Plastic bag	Plastic bag for installers to hang the IQ Meter Collar next to the utility watt-hour meter
Quick install guide (QIG)	IQ Meter Collar quick install guide (this document)
Accessories kit	One control connector; one junction box sub-assembly; two cable glands, 1/2" NPT (national pipe taper thread)
Blank cover plate	One blank cover plate attached in front of IQ Meter Collar
TOOLS/ADDITIONAL ITEMS REQUIRED [2]	**DESCRIPTION**
Arc flash personal protective equipment	Gloves, safety glasses, protective footwear
Tesco hot socket gap indicator	To ensure the meter socket jaws are not loose prior to installation
Meter puller	6.2" diameter meter puller to safely remove the watt-hour meter from the meter socket
Torx driver with T20 tip	To fasten the junction box fasteners
Flathead Screwdriver	To fasten the conductors to terminals in the control connector
Conductor stripper	To strip the control cable outer jacket and insulation of 18 AWG conductors
Conduits (with fittings and fitting tools)	Control cable can be connected to the IQ Meter Collar junction box using an liquid-tight flexible metal conduit (LFMC) system. Alternatively, the control cable can be routed as exposed run.
Control cable	Length as required. Available from distribution/Enphase Store [3]
Form 2S meter socket	Required when the IQ Meter Collar is installed on a separate non-utility meter socket
Form 2S jumper cover	Required when the IQ Meter Collar is installed on a separate non-utility meter socket. Used to bypass the need for a watt-hour meter on the front of IQ Meter Collar

[2] The list of tools does not include tools required to install the meter socket
[3] Enphase SKU for control cable: CTRL-SC3-NA-01

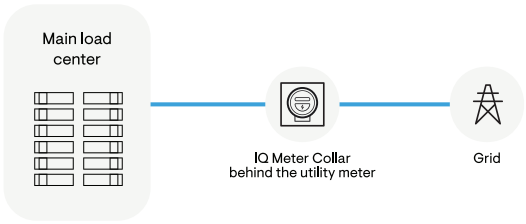
Installation scenarios

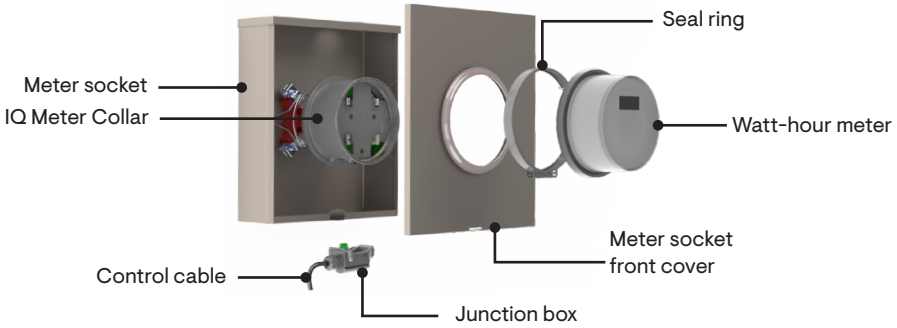
Scenario 1A: Whole home backup with IQ Meter Collar installed on a utility meter-main combo panel



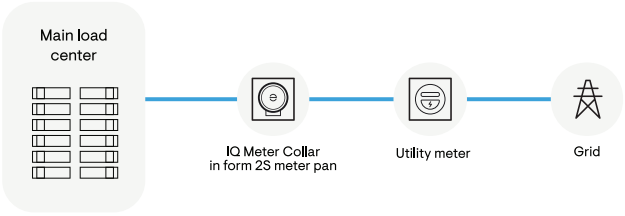


Scenario 1B: Whole home backup with IQ Meter Collar installed on a separate utility meter socket

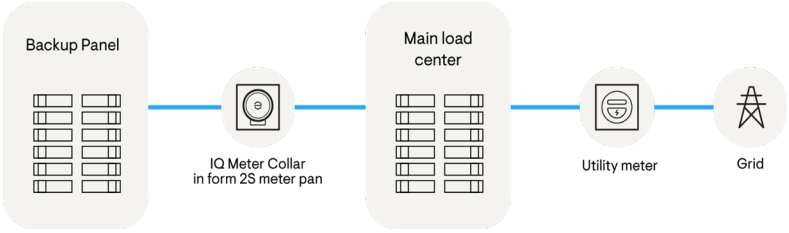


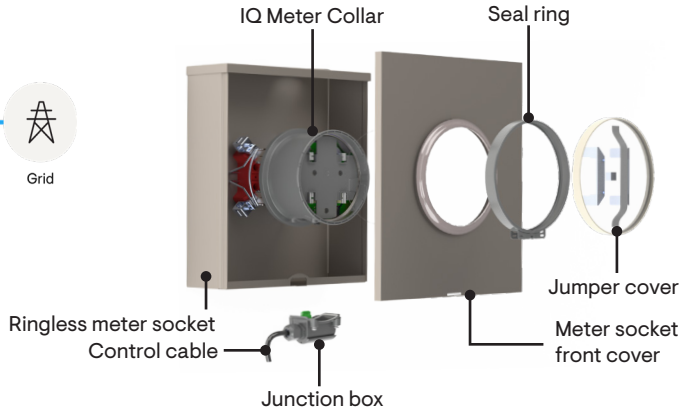


Scenario 2A: Whole home backup with IQ Meter Collar installed on a separate utility meter socket[4]



Scenario 2B: Partial home backup with IQ Meter Collar installed on a separate utility meter socket[4,5]





[4] When the IQ Meter Collar is installed on a separate meter socket, a jumper cover is required to bypass the need for a watt-hour meter.
[5] In this configuration, the IQ Meter Collar measures energy consumed by loads connected to the backup panel.

Before installation

1 Check compatibility

a) Determine if the local utility has approved the installation of an IQ Meter Collar on the utility meter socket.

b) Determine if the IQ Meter Collar is compatible with the available grid voltage.

c) Determine if the IQ Meter Collar is compatible with the utility meter socket.

✓ **NOTES:** The following types of meter sockets are incompatible with IQ Meter Collar

- Non-Form 2S meter sockets
- Meter sockets which use clips to attach jaws to the busbar

✓ **NOTE:** If another meter socket adapter is already installed, then the IQ Meter Collar cannot be installed.

✓ **NOTE:** The junction box can be rotated for either left or right entry of the control cable. For ganged meter sockets, please ensure that the control cable does not obstruct any panel door from opening. This may mean that the IQ Meter Collar can be installed only in the top/bottom/left /right corner sockets.

✓ **NOTE:** The IQ Meter Collar must be installed with the junction box at the bottom. Please ensure that the junction box does not obstruct any panel door below the meter socket from opening.

✓ **NOTE:** If the existing installation of utility meter socket or meter-main combo panel is not compliant with local and national codes, then the utility may not allow the IQ Meter Collar to be installed.

✓ **NOTE:** Some ringless meter sockets require the socket cover to be inserted under a tab on top of socket enclosure before sliding it over the IQ Meter Collar. In such cases the socket cover may be obstructed by the manual override lever. Avoid using such meter sockets. Examples include the Talon UAT437-XGF.

2 Determine installation scenario

a) If the IQ Meter Collar is approved by the local utility and is suitable for installation at the premise, then select either scenario 1A or scenario 1B, depending upon the type of meter socket panel.

b) If the IQ Meter Collar is not approved by the local utility, and the premise does not have a meter-main combo panel at the service entrance, then scenario 2A may be selected for whole home backup.

c) If the IQ Meter Collar is not approved by the local utility, and the premise has a meter-main combo panel at service entrance, then scenario 2B may be selected for partial home backup.

Installation — Whole home backup with IQ Meter Collar installed on utility meter-main combo panel or a separate utility meter socket

Scenarios 1A and 1B

Steps 1-3 and Step 5 are to be followed by the installer
Step 4 is to be followed by the utility

1 Connect the control cable to the IQ Meter Collar

a) Run the control cable either through a conduit or as an exposed run.

b) If a conduit is used, install fittings that ensure a flexible liquid-tight conduit system.

✓ **NOTE:** Flexible conduit must be securely fastened within 12" of the IQ Meter Collar.

c) If the control cable is routed as an exposed run, use the waterproof cable gland provided in the package. A spare cable gland is provided for waterproofing the far end of the control cable.

d) Insert the control cable either in the cable gland or the conduit fitting and strip 1.5" of outer insulation.

e) Strip the conductors in the control cable to 5/16th of an inch and connect them to the control connector provided in the package.

f) For ringed meter sockets, insert the control connector in the control receptacle in the IQ Meter Collar and fasten the junction box to the IQ Meter Collar using the Torx driver with T20 tip (Torque 1.2 N m/10 lb-in). For ringless meter sockets, wrap plastic around the junction box to prevent moisture ingress due to rain or water sprinklers.

2 Insert in plastic bag

Insert the IQ Meter Collar assembly (with the junction box and control cable in case of ringed meter sockets) along with the seal ring in the plastic bag provided with the package. If the meter socket is ringless, only the IQ Meter Collar along with seal ring needs to be inserted in the plastic bag.

✓ **NOTE:** The blank cover helps prevent the live jaws on the front of the IQ Meter Collar from accidental contact while inserting it into a live meter socket. Do not remove the blank cover.

3 Hang the plastic bag with the IQ Meter Collar near the utility meter socket

FOR UTILITY

4 Install the IQ Meter Collar behind the utility meter.

⚠ **CAUTION:** IQ Meter Collar can be installed behind the utility meter only by personnel authorized by the utility.

a) Turn off all service disconnects and the main breaker.

⚠ **CAUTION:** Proceed with caution and always use PPE. If installing the IQ Meter Collar, even if all the disconnects are turned off, the jaws connected to utility service lines may still be energized.

b) For ring-type sockets, uninstall the seal ring. For ringless sockets, remove the meter socket front cover by sliding it over the watt-hour meter.

c) Remove the watt-hour meter using the meter puller. Follow the instructions provided by the meter puller manufacturer to safely remove the watt-hour meter from the meter socket.

⚠ **CAUTION:** Make sure the following are available before removing the meter from the meter socket.

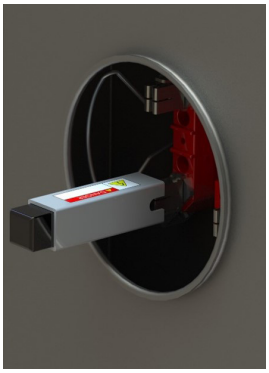
- Gloves, safety glasses, and protective footwear (personal protective equipment)
- Meter puller/grabber
- Tesco hot socket gap indicator

Grab the meter using a meter grabber

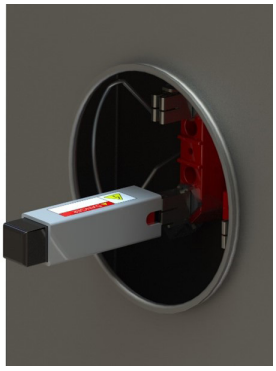
Pull the meter out of the meter socket

d) Visually inspect the meter socket jaws and ensure that there are no signs of arcing or damaged jaws.

e) Use the Tesco hot socket gap indicator to ensure meter jaws have adequate spring force and the jaw gap is not compromised. After inserting it into the meter socket jaw, the red indicator should not be visible.



PASS: Socket jaw has adequate spring force



FAIL: Socket jaw has significant loss of spring force

⚠ **CAUTION:** If any meter jaw fails the hot socket gap indicator test, work with the customer and utility to get the meter socket replaced before installing the IQ Meter Collar.

✓ **NOTE:** To ensure accuracy, use the Tesco hot socket gap indicator before the calibration due date.

f) Remove the IQ Meter Collar from the plastic bag.

g) With the TOP marking on the IQ Meter Collar facing up, insert the rear side four blades of the IQ Meter Collar into the meter socket.

⚠ **CAUTION:** Do not remove the blank protective cover in front of the IQ Meter Collar until it is inserted into the meter socket jaws. The blank cover helps prevent the live jaws on the front of the IQ Meter Collar from accidental contact while inserting it into a live meter socket.

h) Remove the protective blank cover in front of the IQ Meter Collar. The blank cover may be discarded.

i) In case of ringless meter socket, reinstall the front cover by first tilting it slightly and then sliding it over the IQ Meter Collar.

j) With the watt-hour meter correctly oriented, insert the four blades on the watt-hour meter into the jaws in front of the IQ Meter Collar.

k) Secure the assembly with the seal ring(s). One seal ring is included in the plastic bag.

✓ **NOTE:** The interface between the watt-hour meter and the IQ Meter Collar needs to be secured with a seal ring.

5 Commission the IQ Meter Collar

a) For ringless meter sockets, return to the site and install the junction box.

b) Perform validation of the IQ Meter Collar on-site using the Enphase Installer App or remotely through the Enphase Installer Portal.

Installation — IQ Meter Collar installed on a separate meter socket

Scenarios 2A and 2B

1 Install ringless meter socket

a) De-energize the grid supply to the home and turn off all PV and battery breakers and service disconnects.

b) Install a ringless meter socket (Form 2S, 4 jaws) of the appropriate current rating.

✓ **NOTE:** Ensure that the meter socket is ringless with ground bridges. The ground bridges provide ground reference to the IQ Meter Collar.

c) CASE: Whole home backup

1. Wire L1/L2/N from the utility meter socket to the line side terminals of the ringless meter socket.
2. Wire L1/L2/N from the load side terminals of the ringless meter socket to the main load center.

✓ **NOTE:** Neutral is bonded to Ground in the main load center.

d) CASE: Partial home backup

1. Wire L1/L2/Ground from the main load center to line side terminals of the ringless meter socket.
2. Wire L1/L2/Ground from the load side terminals of the ringless meter socket to the IQ System Controller 3M or the IQ Combiner 6C.

✓ **NOTE:** Neutral is not connected to any terminal in the meter socket in partial home backup scenario.

2 Install the IQ Meter Collar

a) Remove the front cover of the ringless meter socket.

b) With the TOP marking on the IQ Meter Collar facing up, insert the rear side four blades of the IQ Meter Collar into the meter socket.

c) Remove the protective blank cover in front of the IQ Meter Collar. The blank cover may be discarded

d) Reinstall the front cover by slightly tilting it and then sliding it over the IQ Meter Collar.

✓ **NOTE:** Do not remove the blank protective cover in front of the IQ Meter Collar until it is inserted into the meter socket jaws. The blank cover helps prevent the live jaws on the front of the IQ Meter Collar from accidental contact while inserting it into a live meter socket.

⚠ **CAUTION:** Proceed with caution and always use PPE. When installing the IQ Meter Collar, even if all the disconnects are turned off, the jaws connected to utility service lines may still be energized.

3 Install the jumper cover

a) With the jumper cover correctly oriented, insert the four blades into the jaws in front of the IQ Meter Collar.

b) Secure the assembly with the seal ring(s). One seal ring is included in the IQ Meter Collar package.

4 Connect the control cable to the IQ Meter Collar.

a) Run the control cable either through a conduit or as an exposed run.

b) If a conduit is used, install fittings that ensure a flexible liquid-tight conduit system.

✓ **NOTE:** Flexible conduit must be securely fastened within 12” of the IQ Meter Collar.

c) If the control cable is routed as an exposed run, use the waterproof cable gland provided in the package. A spare cable gland is provided for waterproofing the far end of the control cable.

d) Insert the control cable either in the cable gland or the conduit fitting and strip 1.5" of outer insulation.

e) Strip the conductors in the control cable to 5/16th of an inch and connect them to the control connector provided in the package.

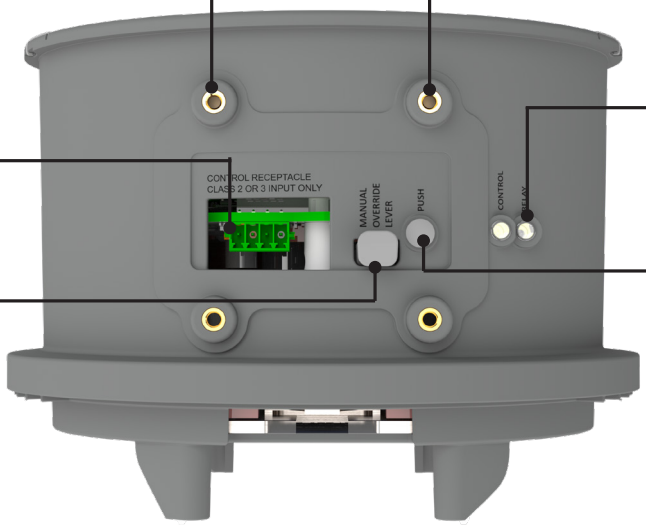
f) Insert the control connector in the control receptacle in the IQ Meter Collar.

g) Fasten the junction box to the IQ Meter Collar using the Torx driver with T20 tip (Torque 1.2 N m/10 lb-in)

5 Commission the IQ Meter Collar

a) Perform validation of the IQ Meter Collar using the Enphase Installer App.

User interface



Fasten four captive screws in the junction box using a Torx driver with T20 tip (Torque 1.2 N m/10 lb-in)

Control and Relay light-emitting diodes show the operating state of the IQ Meter Collar (refer to the table below)

Control receptacle – insert control connector to install control cable

Short press (5–10 seconds): Push to disable firmware control of MID; Push again to enable firmware control of MID

Manual override lever -to be operated under instructions from Enphase customer support. Push to close MID, pull to open MID

Long press (>15 seconds): Hardware reset of IQ Meter Collar (Reset does not change MID state)

LED indication for IQ Meter Collar operating state

RELAY LED	CONTROL LED	IQ METER COLLAR STATE
RED	RED	MID closed
RED	Blinking (1 second ON, 1 second OFF)	MID locked closed, firmware control disabled
RED	OFF	Error
OFF	RED	MID open
OFF	Blinking (1 second ON, 1 second OFF)	MID locked open, firmware control disabled
OFF	OFF	No supply
OFF	Fast blinking (0.25 seconds ON, 0.25 seconds OFF)	MID open, Error
OFF	Slow blinking (1 second ON, 3 seconds OFF)	MID open, grid present

✓ **NOTE:**

a) Manual override lever should not be used under normal operation.

b) Contact Enphase Support before operating the manual override lever.

c) All generation sources such as PV and battery which can back-feed power should be powered off before operating the manual override lever.

Control cable wiring

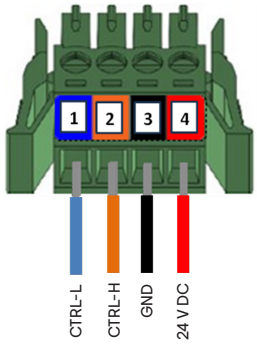
STEP 1:

a) Strip 1.5" of outer insulation of control cable.

b) Strip insulation of individual conductors by 5/16".

c) Insert the stripped end of the conductors into the terminal of the control connector per the color code.

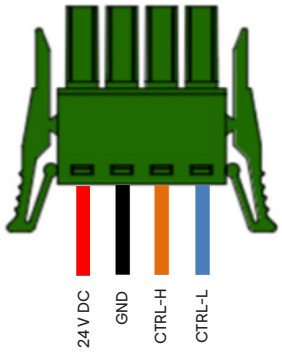
d) Fasten the screws on the control connector (Torque 0.2 N m/1.77 lb-in).



STEP 2:

a) Flip the connector 180° before inserting it into the control receptacle in the IQ Meter Collar.

b) Pull the connector gently to ensure that it is securely latched into the receptacle.



✓ **NOTE:** Control receptable connects to an external low-energy circuit using the control connector. It has a maximum voltage of 24 V DC and a maximum current of 0.5 A DC. The connector must be wired in accordance with the requirements of NFPA 70 for Class 2 and 3 circuits, in addition to any local requirement.

✓ **NOTES:**

- 120 ohms termination resistor is not required on the control connector used with the IQ Meter Collar.
- The drain wire must not be connected to any terminal on the IQ Meter Collar. The drain wire must be connected to protective earth (PE) on the equipment at the far end of the control cable.
- The equipment at the far end could be IQ System Controller 3M for 3rd generation Enphase Energy System and IQ Combiner 6C for 4th generation Enphase Energy System.
- Refer to the IQ System Controller 3M or IQ Combiner 6C installation guide for further directions on connecting the control cable.

SAFETY

Safety and advisory symbols

⚠	**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.
✓	**NOTE**: This indicates information particularly important for optimal system operation. Follow instructions carefully.

Safety instructions

⚠	**DANGER**: Risk of electric shock. Risk of fire. Do not attempt to repair the IQ Meter Collar. Tampering with the IQ Meter Collar will void the warranty. If the IQ Meter Collar fails, contact Enphase Support for assistance (enphase.com/en-us/support/contact).
⚠	**DANGER**: Risk of electrocution! Do not remove the utility watt-hour meter or install IQ Meter Collar unless the home loads are de-energized.
⚠	**DANGER**: Risk of electric shock. Do not use Enphase equipment in a manner not specified by the manufacturer. Doing so may cause death or injury to persons or damage to equipment.
⚠	**DANGER**: Risk of electric shock. Be aware that installation of this equipment includes the risk of electric shock. Do not install the IQ Meter Collar without first removing AC power from the Enphase system. Ensure that microinverters and batteries are switched off and the home is de-energized before installing.
⚠	**DANGER**: Risk of electric shock. Risk of fire. Only qualified personnel should troubleshoot, install, or replace the IQ Meter Collar.
⚠	**DANGER**: Risk of electric shock. Improper servicing or removal of the IQ Meter Collar from the meter socket may result in a risk of shock, fire, or explosion.
⚠	**DANGER**: When installing a meter socket, make sure that the utility supply is de-energized.
⚠	**DANGER**: Risk of electric shock. Risk of fire. Only use the electrical system components approved for wet locations.
⚠	**DANGER**: Risk of electric shock. Risk of fire. Ensure that all wiring is correct and that none of the wires are pinched or damaged.
⚠	**DANGER**: Risk of electric shock. Risk of fire. Do not work alone. Someone should be in the range of your voice or close enough to come to your aid when you work with or near electrical equipment. Remove rings, bracelets, necklaces, watches, etc. when working with IQ Meter Collar, batteries, photovoltaic modules, or other electrical equipment.
⚠	**DANGER**: Risk of electric shock. Risk of fire. Before making any connections verify that the circuit breaker(s) are in the off position. Double-check all wiring before applying power.
⚠	**DANGER**: Risk of electric shock. Risk of fire. Do not wire terminals or terminal blocks on the IQ Meter Collar.
⚠	**WARNING**: Risk of electric shock. To maintain the warranty, do not modify the IQ Meter Collar and install it as per instructions provided in this installation guide.
⚠	**WARNING**: Before installing or using the IQ Meter Collar, read all instructions and cautionary markings in the technical description and on the equipment.
⚠	**WARNING**: This product is intended for operation in an environment having a maximum ambient temperature of 50°C (122°F).
⚠	**WARNING**: Only waterproof flexible conduit connections must be used to connect the control cable to the junction box.
✓	**NOTE**: Perform all wiring per all applicable local electrical codes, with the Canadian Electrical Code, Part I, and with the National Electrical Code (NEC), ANSI/NFPA 70.
✓	**NOTE**: Protection against lightning and resulting voltage surges must follow local standards.
✓	**NOTE**: Using unapproved attachments or accessories could result in damage or injury.
✓	**NOTE**: Install the meter socket in the field with 75°C or higher copper conductors sized per local code requirements and voltage drop/rise considerations.
✓	**NOTE**: To ensure optimal reliability and to meet warranty requirements, the IQ Meter Collar must be installed according to the instructions in this guide.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Environmental protection
ELECTRONIC DEVICE: DO NOT THROW AWAY. Waste electrical products should not be disposed of with household waste.

Proper disposal of IQ Meter Collar is required. Refer to your local codes for disposal requirements.

Revision history

REVISION	DATE	DESCRIPTION
140-00403-03	January 2025	Updated the “Interfaces” section.
140-00403-02	December 2024	Updated “Scenario 2B”.
140-00403-01	November 2024	Initial release.