

# Zigbee Wireless Range Extender installation guide

**Model number:** COMMS-24-EXT-01 and COMMS-24-EXT-INT-01

The Zigbee Wireless Range Extender ((COMMS-24-EXT-01 for NA or COMMS-24-EXT-INT-01 for EMEA)) may be required when Enphase IQ Batteries™ or the IQ System Controller are located far from the IQ Gateway (IQ Combiner or a stand-alone IQ Gateway).

The IQ Gateway, IQ System Controller, and IQ Battery communicate with each other using the 2.4GHz wireless band. Range extension is needed in cases where the RF signal quality between them is inadequate. This could either be due to a weak signal and/or the presence of RF noise at the site. A Range Test (refer to [Zigbee Range Test user manual](#)) can determine the need and location of the Zigbee Wireless Range Extender.

If IQ Gateway and IQ System Controller are co-located, and IQ Batteries devices are placed at a location that is not in the line of sight with them, then the preferred option should be to place the Zigbee Wireless Range Extender at a location where it is in line of sight with both sets of devices. Alternatively, the Zigbee Wireless Range Extender should be placed at a location midway between the devices.

A [Range Test](#) must be conducted again after finalizing an appropriate location for the Zigbee Wireless Range Extender. Direct links between the Zigbee Wireless Range Extender and IQ Gateway, IQ System Controller, and IQ Batteries respectively must pass Range Test. In case Zigbee Wireless Range Extender does not pass the Range Test, Wired USB Extender must be considered. Please refer to the [Zigbee range extension FAQ](#) for further recommendations.

To use the Zigbee Wireless Range Extender, you must purchase an off-the-shelf 5V DC USB adaptor and a suitable NEMA 3R enclosure to house the extender if it is placed outdoors. All installations must comply with national and local electrical codes. Professional installation is recommended.

# Specifications

SPECIFICATION	COMMS-24-EXT-01	COMMS-24-EXT-INT-01
Transmit Power Output (Nominal 25° C)	79 mW (+19 dBm)	6.3 mW (+8dBm)
Receiver Sensitivity	-103 dBm	
Supply Voltage	5V from USB port	
Transmit Current	145 mA	45 mA
Receive Current	26 mA	
Frequency Band	2.4 GHz ISM	
Dimension (L x W x H)	5.83cm x 2.03cm x 1.12cm	
Operating Temperature	-40° C to +85° C	
Connector	USB Type A	

# Regulatory Approvals

FCC PART 15.247 (USA) - COMMS-24-EXT-01	Approved, contains: MCQ-XBEE3
IC (Canada) - COMMS-24-EXT-01	Approved, contains IC: 1846A-XBEE3
EMEA - COMMS-24-EXT-INT-01	CE Marked



# Installation

The Zigbee Wireless Range Extender is used to improve RF signal quality between the Enphase IQ Gateway, IQ System Controller, and IQ Batteries.

A) Purchase an off-the-shelf USB adaptor (Output-5VDC, 200mA, 1W power) and a suitable NEMA 3R enclosure for the wireless range extender if placed outdoors. Visit the Enphase Support webpage for recommendations on the USB adaptor and the type of enclosure that can be used.

B) Make sure there is a power socket nearby to plug in the extender. The socket must be powered from a circuit that is backed-up.

C) Use the Enphase Installer App to commission the Range Extender

- Download the latest version of Enphase Installer App from the iOS App Store or Android Play Store. You may also download it from the Enphase website at [enphase.com/tool](http://enphase.com/tool)
- Log into the Enphase Installer App on your mobile

D) You must upgrade the IQ Gateway software to version 7.0.68/69 or later for Ensemble 1.0/1.5 and 7.0.101 or later for Ensemble 2.0 for the COMMS-24-EXT-01 in NA and software version 7.2.20 or higher for COMMS-24-EXT-INT-01 in EMEA.

- Download the latest version of IQ Gateway software by going to the Settings tab in the Installer App and using the Update Now button under IQ Gateway software.

**NOTE:** The IQ Controller software update process may take up to 25 minutes. During the software update, the LEDs on the IQ Controller flash green one at a time from right to left. During this time the IQ Controller will reboot multiple times. All four LEDs flash red when the IQ Controller reboots.

Step 1: Tap on Systems in the Enphase Installer App → Select the system you are working with or tap [+] to add a system. Make sure system details are added as part of Step 1.

Step 2: Devices and Array: Enter 1 for the number of Range Extenders in the system. Scan the QR code on the Zigbee Wireless Range Extender using camera scanner to get the serial number or manually enter the serial number.

Step 3: Connect to the IQ Gateway with your mobile device (smart phone or tablet). On the IQ Gateway if the AP mode LED is not lit, press the AP mode button. The AP mode LED lights as solid green when the WiFi network created by IQ Gateway is available

- On your mobile device, go to Settings and join the WiFi network “Envoy\_nnnnnn” (where “nnnnn” equals the final six digits of the IQ Gateway serial number).

Step 4: Go to the InstallerApp and make sure your mobile device is connected to IQ Gateway. Proceed to Provision devices.

Step 5: During Provisioning of devices, with your mobile device in hand, walk from the IQ Gateway toward the Zigbee Wireless Range Extender. This helps to ensure that the Zigbee Wireless Range Extender can be provisioned over Bluetooth Low Energy (BLE).

- Initially the Installer App shows the Range Extender as Not Discovered while the circle next to it spins indicating that Installer App is trying to discover it using Bluetooth.
- Wait near the Range Extender until the Installer App shows “Waiting for Provisioning”.
- Return to the IQ Gateway. The status is now shown as “Waiting for Acknowledgment”. Enphase Installer App is waiting for IQ Gateway to confirm communication with the Extender.
- Wait until it shows as Provisioned. The Zigbee network is now ready.



## Safety

### IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This guide contains important instructions that you must follow during installation of the Enphase Ensemble Communications Kit.

# 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 Instruction



**DANGER:** Risk of electric shock. Risk of fire. Do not attempt to repair the extender. It contains no user-serviceable parts. If the equipment fails, contact Enphase Customer Support for assistance or replacement equipment ([enphase.com/en-us/support/contact](http://enphase.com/en-us/support/contact))



**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. Risk of fire. Only qualified personnel should troubleshoot or install the extender.



**DANGER:** Risk of electric shock. All sources to equipment being serviced must be disconnected external to the device. In particular, the storage system may energize conductors, so storage circuits must ALWAYS be isolated via circuit breaker or disconnect before working on any portion of the system.



**DANGER:** Risk of electric shock. Always de-energize the IQ Combiner if planning to remove the deadfront during the following procedure.



**DANGER:** Risk of electric shock. All sources to equipment being serviced must be disconnected external to the device. In particular, the storage system may energize conductors, so storage circuits must ALWAYS be isolated via circuit breaker or disconnect before working on any portion of the system.



**DANGER:** Risk of electric shock. Risk of fire. Only use 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 batteries, photovoltaic modules or other electrical equipment.



**DANGER:** Risk of electric shock. Risk of fire. Before making any connections verify that the circuit breakers are in the off position. Double check all wiring before applying power.



**WARNING:** Before installing or using the extender, read all instructions and cautionary markings in the technical description and on the equipment.



**NOTE:** Using unapproved attachments or accessories could result in damage or injury.

**Enphase Customer Support:** <http://enphase.com/global/contact/>