

Installing the Enphase Gapped Ferrite core

In Enphase installations, the IQ Gateway communicates with IQ Series Microinverters over the AC electrical conductors using a 110 kHz communication signal. This technology is known as Power line communication or PLC. Some common appliances produce electrical noise at similar frequencies. The noise produced may be continuous or intermittent at certain times of the day. If this noise occurs on the same electrical conductors as the PLC, it can disrupt communication between the IQ Gateway and microinverters. In some cases, low grid impedance (Low RSSI) on the AC circuit can prevent the IQ Gateway from communicating adequately with the microinverters.

Gapped Ferrite core

A ferrite core is a passive electronic component designed to be a barrier to signals at PLC frequencies. Its primary function is to segregate the circuits that require an Enphase PLC signal for the IQ Gateway, IQ Relay, and microinverters from circuits with equipment that may create noise or attenuate the signal.

A gapped ferrite core is a magnetic core with an air gap to alter its properties. This specific item significantly increases the performance of PLC where other equipment is suppressing it.

Use IQ-FERR-030 or IQ-FERR-065 which is pre-attached with one layer of 3M Kapton tape on both sides of both halves of the ferrite core (four pieces in total).

How and where to install Gapped Ferrite cores?

Install the gapped ferrite core between the PV sub-board and the main distribution board/load center. Alternatively, if a specific piece of fixed equipment is emitting the noise, fit the ferrite on the supply to that equipment.

Single ferrite should be clipped around an L1 or L2 conductor in split-phase (240 V) systems. Ferrites can be clipped around N or L conductors in single-phase systems. Ferrites should be clipped around the N conductors in three-phase systems (ferrites will be more effective on the N conductor as opposed to L1, L2, or L3).

Multiple ferrites can be used to provide even better performance; just add them in series. They can be split between conductors, whichever is easier to install. Ensure the ferrite's current rating matches the maximum current carried by the wire(s) it is clipped around.

✓ **NOTE:** Use IQ-FERR-065 for systems with line currents less than 65 amps and use IQ-FERR-030 for systems with line currents less than 30 amps.

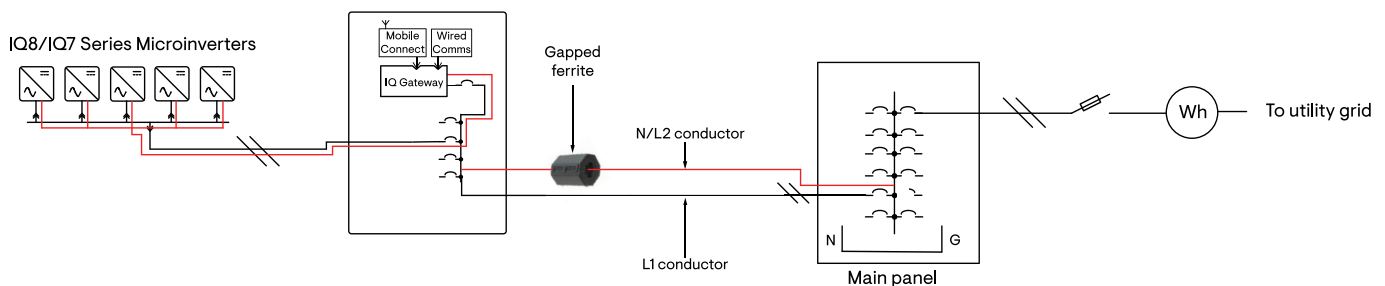


Figure 1: System diagram with gapped ferrite core for single-phase systems



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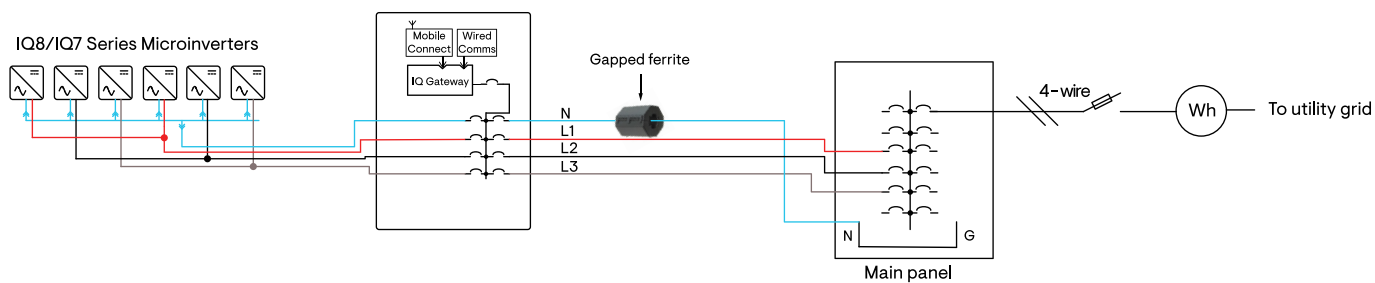
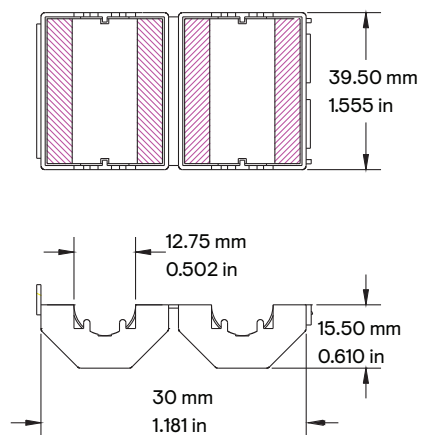


Figure 2: System diagram with gapped ferrite core for three-phase systems

IQ-FERR-030



IQ-FERR-065

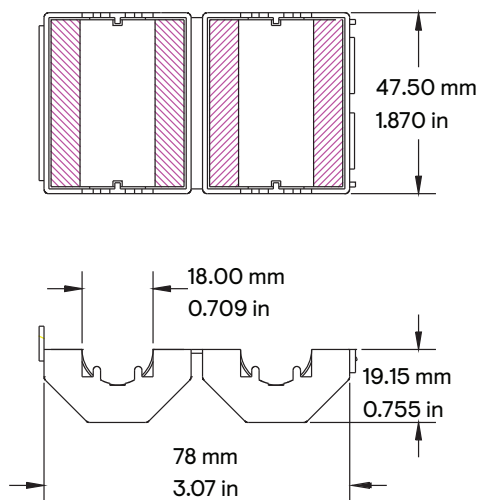


Figure 3: Dimensions for IQ-FERR-030 and IQ-FERR-065

Revision history

REVISION	DATE	DESCRIPTION
140-00398-02	January 2025	Added IQ-FERR-030 content.
140-00398-01	December 2024	Initial release.