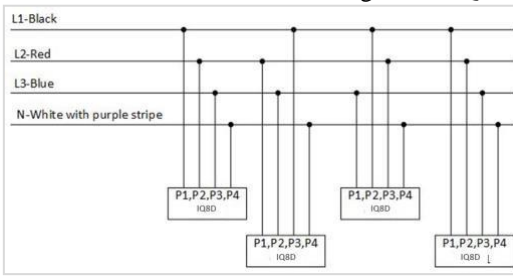
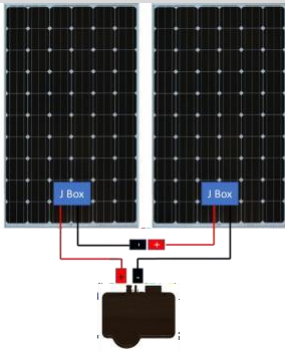


## Frequently Asked Questions

### IQ 8D-72-US for Commercial Applications

1	<p><b>What is the difference between Enphase IQ7™ series microinverters and IQ 8D™?</b></p> <p>The smart-grid ready Enphase IQ7 Microinverter series is built on the seventh-generation platform and achieves the highest efficiency for module-level power electronics. The IQ7 series microinverters are single phase (240V AC) microinverters designed for single phase residential applications. Each IQ7 series microinverter can be connected to individual module. IQ7 series microinverters can also be used in 208V small commercial applications with Three Phase Network Protection Relay (TPNPR).</p> <p>Enphase IQ 8D microinverter is built on the eighth-generation platform for small commercial solar PV segment. The IQ 8D microinverter with revolutionary three phase cabling system is designed for grid-tied, three-phase, 208V PV applications without TPNPR. Each IQ 8D microinverter can be connected to two modules connected in series.</p>
2	<p><b>What are the features of IQ 8D?</b></p> <p>The high-powered smart-grid-ready Enphase IQ 8D microinverter is an integral part of the Enphase small commercial solution for grid-tied, three-phase, 208 V PV applications. Each IQ 8D microinverter (single phase) fully supports two series connected PV modules and integrates with the Enphase IQ Commercial Envoy and Enphase Enlighten monitoring and analysis software. The IQ 8D will offer system level rapid shutdown compliance with UL listed PV modules; offers Advanced Grid Functionalities, Voltage and Frequency ride through and Neutral sense capabilities.</p>
3	<p><b>Enphase IQ 8D is a single phase microinverter. How can it be used for three phase applications?</b></p> <p>Enphase IQ 8D microinverter is a single phase microinverter which is designed for three phase small commercial applications. The IQ 8D microinverter with QD cables will meet the three phase requirements. The three phase QD cable is specific for IQ 8D based small commercial PV applications with Auto Phase Balancing configuration. Please refer below connection diagram of IQ 8D with QD cable in a three-phase setup.</p>  <p>P1, P2, P3 and P4 are pin configurations of individual AC connector in QD cable representing L1, L2, L3 and N.</p>
4	<p><b>How should two modules be connected to IQ 8D - in series or parallel?</b></p> <p>The IQ 8D microinverter is a Dual Module supported microinverter. The IQ 8D Microinverter fully supports two series connected PV modules as shown in below image.</p>



**5 How does IQ 8D meets the RSD requirements?**

Rapid Shutdown is applicable for IQ 8D based rooftop small commercial PV systems. IQ 8D based Small Commercial PV system complies to Rapid Shutdown requirements of UL 3741. The IQ 8D will be UL listed as RSD compliant equipment as per 690.12 (B) (2) (1). The IQ 8D can create a “Listed Rapid Shut Down PV Array” with any 60/72 cell modules.

**6 Can the microinverter work with only one module connected?**

Yes. IQ 8D will work even if one module is connected to the microinverter. This is true especially when the site conditions demand to have only one module connected to the microinverters.

**7 Does IQ 8D offer monitoring per microinverter or per module monitoring?**

The IQ 8D based small commercial system offers monitoring per microinverter with calculated module level information displayed in the Enlighten.

**8 How many IQ 8D microinverters can be connected per three phase branch circuit?**

For a 20A three phase branch circuit maximum of 9 micros can be connected. The calculation of 9 numbers is as follows:

Inverter output current: 3.04A  
 Circuit Current Limit: 20A, 3Phase  
 Usable current limit per 20A circuit: 80% of 20A  
 Utility Voltage: 208V (L-L)  
 Number of microinverter/branch:  $(20 \text{ A} \times 0.8 \times 1.732 / 3.04 \text{ A}) = 9 \text{ Micro/three phase 20A branch.}$

This translates to the configuration of L1-L2: 3 micros; L2-L3: 3 micros and L1-L3: 3 micros. This configuration is automatically achieved by using QD cable Auto Phase Balancing feature.

**9 What is the difference between Enphase Q cables and QD cables?**

The Enphase Q Cable and accessories are part of the Enphase IQ System. These products provide simplicity, reliability, and faster installation for IQ6/7 based single phase applications.

	The Enphase QD cable and accessories are part of Enphase IQ 8D System specifically for small commercial 208V, three phase applications with similar reliability benefits inherited from Enphase Q cables. The QD cable is a 4 wired cable which gets connected to IQ 8D microinverter and offers Auto Phase Rotation and Neutral Sense Capabilities.
10	<b>Is the TPNPR required for IQ 8D?</b>
	TPNPR is not required for IQ 8D based Small Commercial PV System. The IQ 8D based Small Commercial PV System will comply to all the requirements without the need of TPNPR.
11	<b>How many IQ 8D microinverters can be supported by one commercial Envoy?</b>
	Enphase IQ Microinverter systems use power line communications (PLC) to communicate module level data between the microinverters and the IQ Commercial Envoy. Each IQ Commercial Envoy can communicate with a maximum of 249 IQ 8D Microinverters. At DC AC ratio of 1.25, this translated to around 200kW DC system.
12	<b>What types of commercial projects (size, design layout, electrical service, etc.) are recommended for IQ 8D vs IQ 7 portfolio?</b>
	<p>The IQ 8D based small commercial system is ideal for 208V three phase PV systems up to 200kW DC. However, majority of the small commercial systems are sized around 100kW DC. As long as the project meets the electrical service requirements, system size doesn't matter.</p> <p>The IQ 8D based small commercial PV system is ideal for rooftop projects requiring rapid shutdown, and where the owner of the system cares about safety (gas stations, health care facilities, schools, churches etc), quality warranty and long-term O&amp;M are key deciding factors.</p> <p>The electrical service for IQ 8D based small commercial should be 208VAC, three phase and 4 wire (with neutral).</p>
13	<b>Does IQ 8D have grid agnostic functionality?</b>
	The IQ 8D-72-E-US is grid tied version only.
14	<b>Can IQ 8D be used for 240V AC commercial requirements? Do they have the same output at 208VAC and 240VAC?</b>
	The IQ 8D can be used only in 208VAC, three phase small commercial applications. This is not to be used in PV systems with electrical services of 240V AC single phase, split phase, stringer (high-leg Delta) phase and 240VAC commercial applications.
15	<b>Can the existing IQ7+ based commercial system be expanded with IQ 8D based commercial system?</b>
	No. We cannot have IQ7+ and IQ 8D in the same installation connected to same interconnection.