

SunPower AC Modules: Best Practices for Enphase Q Cable™ Selection and Management

Each SunPower AC module features an integrated Enphase IQ7A microinverter attached to the module’s backsheet. Because of the factory integration of the DC cable management, SunPower AC module installations differ than a typical microinverter system installation.

This document outlines:

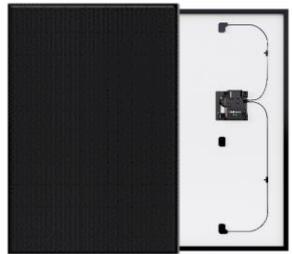
- Cable management recommendations along the rails and using cable clips
- Schematics for portrait and landscape orientations of Maxeon 5 AC modules
- Schematics for portrait and landscape orientations of Performance 3 AC modules

AC cable (or Enphase Q Cable™)* management is a critical part of system design and install as per AS/NZS 4777.1:2016, Clause 4.2. **This document should be used as a reference only.** All projects should be planned and executed in relation to job checklists, site constraints, etc.

Please read this document in conjunction with the *Safety and Installation Instructions for SunPower AC modules.*

For the latest version please refer to: www.sunpower.maxeon.com/int/InstallGuideACModules

QUICK GUIDE

MODULE	INSTALLATION ORIENTATION	CABLE MANAGEMENT	RECOMMENDED Q CABLE LENGTH	DETAILS ON PAGE
MAXEON 5 AC [SPR-MAX5-xxx-E3-AC] 	Portrait	Using cable clips on module frame	1.3 m (Q-25-10-1p/3p) or 2.0 m (Q-25-17-1p/3p)	2
		Along the Rails	2.0 m (Q-25-17-1p/3p)	2
	Landscape	Using cable clips on module frame	Not recommended	3
		Along the Rails	2.3 m (Q-25-20-1p/3p)/ Q Cable planning required	3
PERFORMANCE 3 AC [SPR-P3-xxx-BLK-E3-AC modules] 	Portrait	Using cable clips on module frame	Not recommended	4
		Along the Rails	2.0 m (Q-25-17-1p/3p)	4
	Landscape	Using cable clips on module frame	Not recommended	5
		Along the Rails	2.3 m (Q-25-20-1p/3p)	5

MAXEON 5 AC MODULES

The position of IQ7A in SPR-MAX5-xxx-E3-AC is on the top end of the module.

PORTRAIT ORIENTATION

Using Cable Clips on Module Frame: While installing SPR-MAX5-xxx-E3-AC in portrait mode using cable clips along the module frame, **1.3m Q Cable** is required as shown in Figure 1. This option might reduce the Q Cable length required.

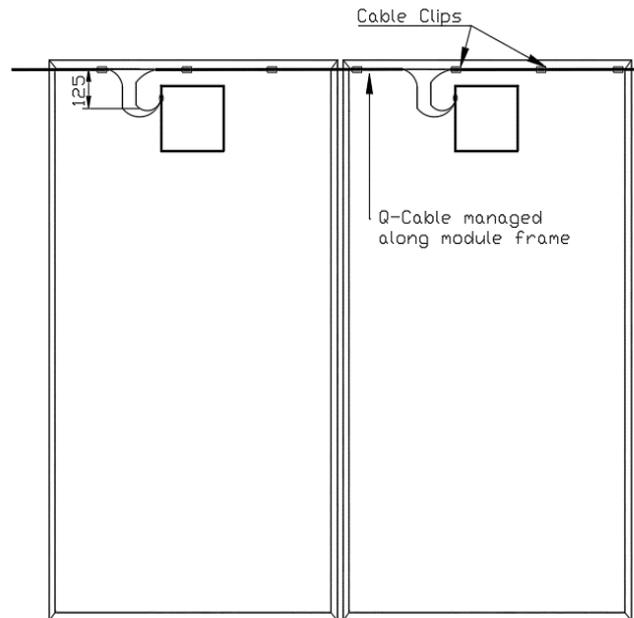


Figure 1: Maxeon 5 AC system portrait layout showing module backside and Q Cable management along module frame using cable clips

Along the Rails: While installing SPR-MAX5-xxx-E3-AC in portrait mode along the rails, **2.0m Q Cable** is required as shown in Figure 2.

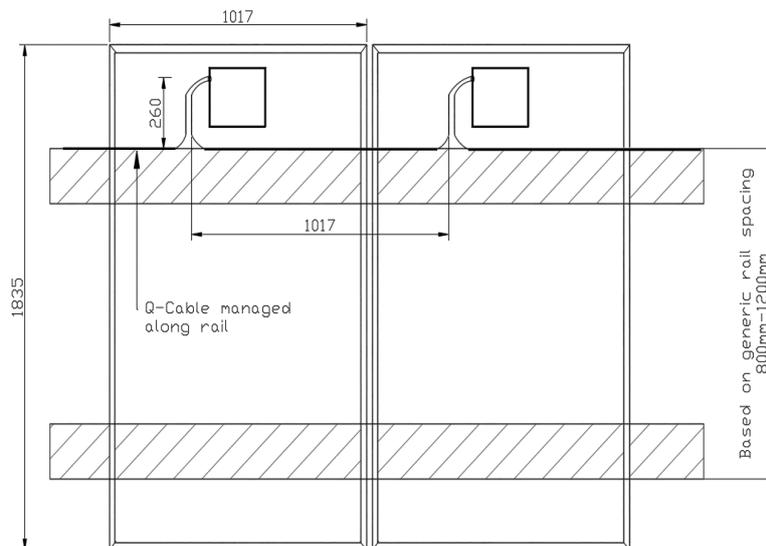


Figure 2: Maxeon 5 AC system portrait layout showing module backside and Q Cable management along the rail

MAXEON 5 AC MODULES

The position of IQ7A in SPR-MAX5-xxx-E3-AC is on the top end of the module. Owing to placement of IQ7A, longer Q Cables are required to assist cable management between modules installed in landscape.

LANDSCAPE ORIENTATION

Using Cable Clips on Module Frame: While installing SPR-MAX5-xxx-E3-AC in landscape mode with cable clips, >2.3m Q Cable is required as shown in Figure 3. Hence, this is option **not recommended**.

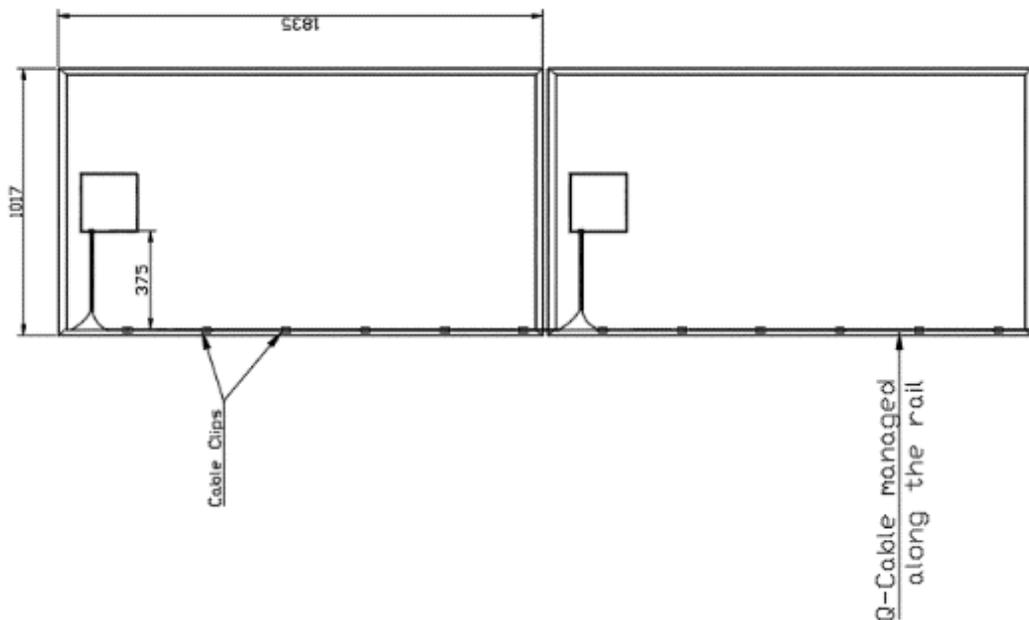


Figure 3: Maxeon 5 AC system landscape layout showing module backside and Q Cable management along module frame using cable clips

Along the Rails: While installing SPR-MAX5-xxx-E3-AC in landscape mode along the rails, >2.3m Q Cable is required as shown in Figure 4 (assuming that rails are spaced at 800mm apart). However, if the rails are spaced at 700mm apart or lower, **a 2.3m Q-cable** is sufficient.

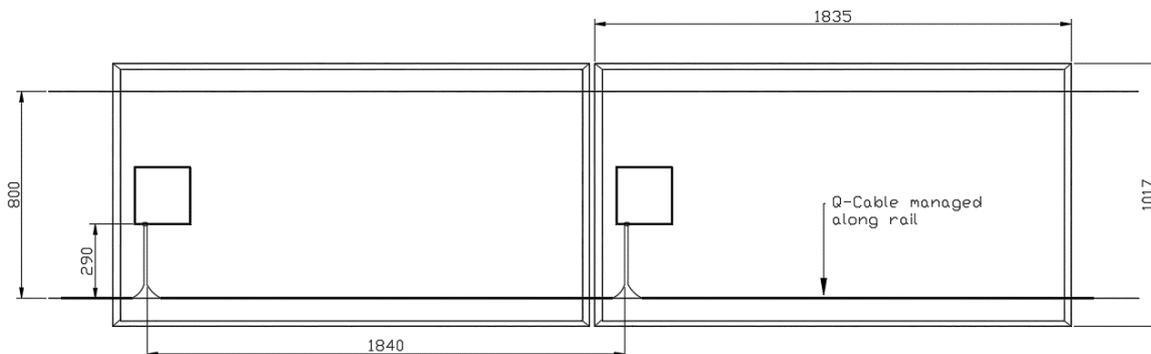


Figure 4: Maxeon 5 AC system landscape layout showing module backside and Q Cable management along the rail

PERFORMANCE 3 AC MODULES

PORTRAIT ORIENTATION

Using Cable Clips on Module Frame: Installing SPR-P3-xxx-BLK-E3-AC modules in portrait orientation using cable clips **is not recommended** due to 1Q7A placement.

Along the Rails: While installing SPR-P3-xxx-BLK-E3-AC modules in portrait orientation along the rails, a **2.0m Q Cable** is required as shown in Figure 5.

Additional care needs to be taken to manage ADDITIONAL Q Cable length while marking the Q Cable location along the rails.

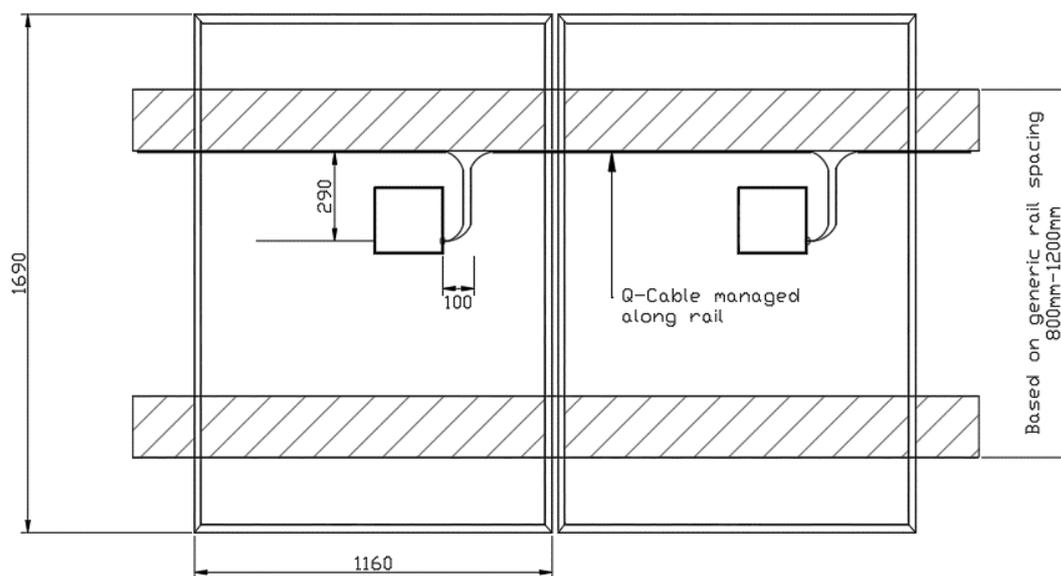


Figure 5: Performance 3 AC Portrait layout showing module backside and Q Cable management
For this example, the generic rail placement is 800mm to 1200mm.

PERFORMANCE 3 AC MODULES

LANDSCAPE ORIENTATION

Using Cable Clips on Module Frame: While installing SPR-P3-xxx-BLK-E3-AC in landscape mode using cable clips along the module frame, >2.3m Q Cable is required as shown in Figure 6. Hence, this option is **not recommended**.

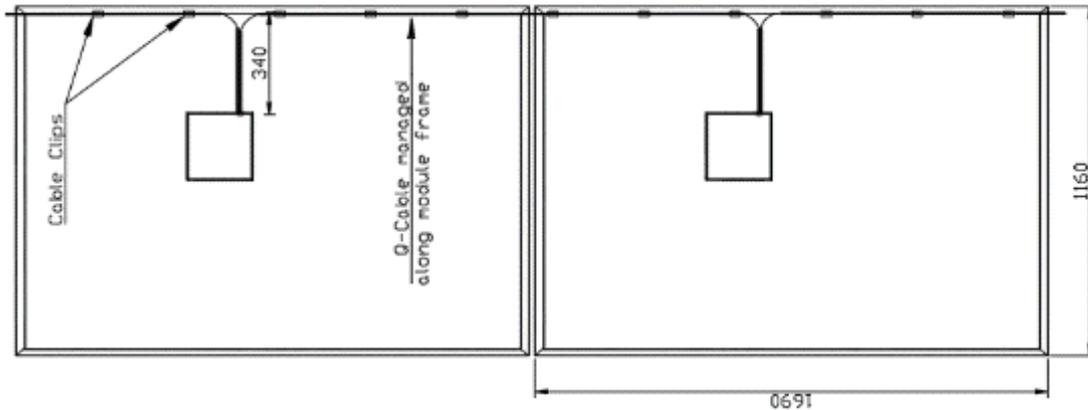


Figure 6: Performance 3 AC system landscape layout showing module backside and Q Cable management along module frame using cable clips

Along the Rails: While installing SPR-P3-xxx-BLK-E3-AC in landscape mode along the rails, **2.3m Q Cable** is required as shown in Figure 7. Rails can be used along the short edge of the modules.

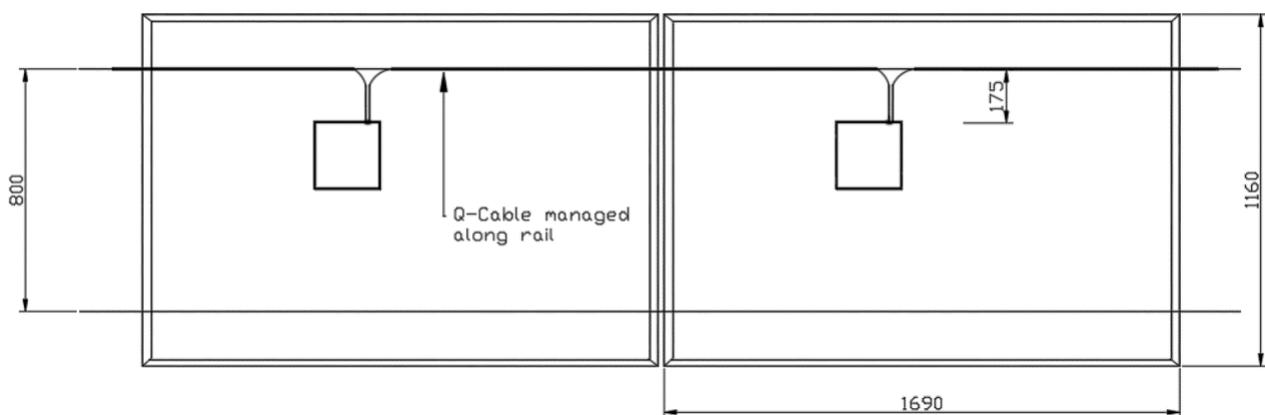


Figure 7: Performance 3 AC system layout showing module backside and Q Cable management along the rail. For this example, the rails are spaced at 800mm apart.

PURCHASING BALANCE OF SYSTEM + CABLE CLIPS

All Enphase related balance of system needs to be purchased directly from authorized Enphase distributors. For recommendations, please contact your sales manager at Maxeon.

Recommended cable clips for Q Cable management along the module frames can be sourced from:

- Araymond Energies (Part numbers: 053842009, 236331000, 208738001).
Link: https://www.araymond-energies.com/sites/default/files/medias/document/2021/ARaymond-energies_CableRouting_datashet-2021_0.pdf

Pictorial depiction of these parts is shown below:

MULTIDIRECTIONAL
(with cable straps)



CONNECTOR CLIP

ARTICLE N°	CABLE ORIENTATION	EXTERNAL DIAMETERS	THICKNESS RANGE OF THE SUPPORT	POSSIBILITY TO RE-OPEN
263882	Parallel to the edge	17 to 22 mm	1 to 3 mm	YES

- Solar clips from Wiremarkers (<https://wiremarkers.com.au/collections/solar-clips>):



Smartmark
SOLAR CLIP Stainless edge clip 304 for cable tie
CCTPA605

Smartmark
SOLAR CLIP Stainless Steel module frame clip 304 2 wire
MFC30422

Smartmark
SOLAR CLIP Stainless Steel module frame clip 304 2 wire 90 degree
MFC304229

Smartmark
SOLAR CLIP Stainless Steel module frame clip 304 4 wire 90 degree NEW
MFC30444

- or other suitable cable clips to hold single phase and three phase Q Cables (as per installer’s discretion and suitability for effective Q-cable management)

ADDITIONAL QUESTIONS?

Further clarifications on Q Cable management and microinverter installation design should be directed to Enphase Technical Support: <https://www4.enphase.com/en-au/support/contact>

First-time installation resources from Enphase are available here: [Getting Started with Enphase](#)