

Technical Note – SolarEdge Residential Power Optimizer Inter-Compatibility

Revision History

- Version 1.5, September 2023 – Added section regarding Smart Modules.
- Version 1.4, September 2023 – Added legal note.
- Version 1.3, July 2023 – Fixed error in Table 1 and changed Footnote 2.

This technical note specifies the inter-compatibility between S-Series and P-Series SolarEdge Residential Power Optimizers. In addition, it specifies the inter-compatibility of P-Series Power Optimizers with previous PBxxx and OPxxx series of Power Optimizers.

For inter-compatibility of Commercial Power Optimizers refer to <https://knowledge-center.solaredge.com/sites/kc/files/se-power-optimizer-commercial-inter-compatibility-technical-note.pdf>

NOTES

- Inter-compatibility refers to the possibility of connecting different Power Optimizer types in the same PV string.
- All Power Optimizers that are installed within the same PV string must be inter-compatible with each other as specified in inter-compatibility Tables 1 and 2.
- A single PV string refers to Power Optimizers that are connected using their output cables to form a string.

Guidelines for Replacing Power Optimizers

When replacing a Power Optimizer, ensure that it is compatible with the other Power Optimizers in the string. Use the following general guidelines:

- You can include different series and models of Power Optimizers in the same installation if you install them in separate PV strings. Inter-compatible Power Optimizers may be installed in the same PV string.
- When replacing a Power Optimizer use SolarEdge Designer to verify that the specifications of the PV module such as the power, I_{SC} and V_{oc} (at minimum ambient temperature) are compatible with the replacement Power Optimizer. Refer to the Power Optimizer datasheet for details.

Smart PV Module Compatibility

SolarEdge Smart PV Modules all have compatible, built-in Power Optimizers (P370 or S440). These Power Optimizers are compatible and thus ensure that all SolarEdge Smart Modules are inter-compatible.

P-Series and S-Series Compatibility

In existing installations, installing P-Series and S-Series Power Optimizers in the same PV string is only possible based on their inter-compatibility as specified in Table 1. When replacing P-Series Power Optimizers with S-Series Power Optimizers, verify that the inverter firmware version is updated as follows:

- For inverters with LCDs the minimum required CPU firmware version is 3.2537.
- For SetApp enabled inverters the minimum required CPU firmware version is 4.8.xx.

The following tables summarize Power Optimizer series and models that may be installed in the same PV string during installation or when a Power Optimizer is being replaced. Where a cell contains a check mark, the relevant Power Optimizers may be installed in the same string.

S-Series Power Optimizer Inter-Compatibility Table

Residential		S440	S500	S500B	S650B
S-Series	S440	✓	✓		
	S500	✓	✓		
	S500B			✓	✓
P-Series	P3xx	✓	✓		
	P400 ¹	✓			
	P500 ¹	✓	✓		
	P401	✓	✓		
	P350I/P370I/P401I ²	✓	✓		
	P404/P485/P505			✓	✓
	P601			✓	✓

Table 1

NOTES

- Support for all phased-out P-Series Power Optimizer models by SolarEdge support centers will continue with a compatible replacement while supplies last, followed by replacement with compatible Service Part numbers from the S-Series.
- In the case of a retrofit installation or RMA replacement, you may need to mix P-series and S-series in the same string. This requires an extension cable. See <https://knowledge-center.solaredge.com/sites/kc/files/se-extension-cables-with-power-optimizer-application-note.pdf>
- In systems where both P-series and S-series Power Optimizers are connected to the same inverter unit, the Sense Connect feature is enabled only in the S-series connectors. For Sense Connect inverter compatibility table please refer to <https://knowledge-center.solaredge.com/sites/kc/files/se-sense-connect-application-note.pdf>

¹ Important – Verify the module's Voc. If Voc is less than 60V, use S440 or S500. If Voc is greater than 60V, contact Support.

² Operation with SMI or SolarEdge Key is not supported by S-Series Power Optimizers.

Power Optimizer Inter-Compatibility

Series	Optimizers	M2640	P320/P340/P350/ P370/P375/P395	P370T	P400	P401	P404	P405	P485	P500	P505	P601	P350I/P370I /P401I	
P-Series	P300		✓		✓	✓				✓				
	P320		✓		✓	✓				✓				
	P340		✓		✓	✓				✓				
	P350		✓		✓	✓				✓				
	P370		✓		✓	✓				✓				
	P370T			✓										
	P375		✓		✓	✓				✓				
	P395		✓		✓	✓				✓				
	P400		✓		✓	✓				✓				
	P401					✓	✓			✓				
	P350I/P370I/P401I					✓ ³	✓ ³				✓ ³			✓
	P404							✓	✓	✓		✓	✓	
	P405 ⁴							✓	✓	✓		✓	✓	
	P485 ⁴							✓	✓	✓		✓	✓	
	P500			✓		✓	✓				✓			
	P505							✓	✓	✓		✓	✓	
P601							✓	✓	✓		✓	✓		
OP-Series	OP250-LV		✓		✓	✓				✓				
	OP300-LV		✓		✓	✓				✓				
	OP300-MV		✓		✓					✓				
	OP350-LV		✓		✓	✓				✓				
	OP350-MV		✓		✓					✓				
	OP400-MV		✓		✓					✓				
	OP400-EV		✓		✓					✓				
	OP480		✓		✓	✓				✓				
OP500-IV									✓					
PB-Series	PB250-AOB		✓		✓	✓				✓				
	PB350-AOB		✓		✓	✓				✓				
	PB350-TFI		✓		✓	✓				✓				
	PB250-CSI		✓		✓									
	OPJ300-LV		✓		✓	✓				✓				
M series	M2640	✓												

Table 2



IMPORTANT NOTE: Using a configuration in contradiction to the compatibility table(s) above may result in the exclusion of warranty.

³ Compatible only when connected to a SolarEdge inverter.

⁴ For P405 and P485 the same replacement options apply for both single and dual input versions.