

Date: 26th March 2021

Technical Guide of Current Match Between Module and Inverter

Regarding to the questions about how the power output would be affected and the how should the safety problem be considered due to the increased current, Jiangsu Seraphim Solar Systems Co. Ltd, a privately owned company formed and registered under the laws of China with principal office at 10 Tongshun Road, Henglin Town, Wujin District, Changzhou, 213101, China (herein after “Seraphim”) provide the technical guide herein for the match of current regarding the Seraphim product SRP-440/530-BMA-HV and string inverters in aspect of DC current. Refer to the table below with a typical inverter as an example for a rooftop distribution project.

SRP-390-BMD-HV		5kw Inverter	
short-circuit current (Isc)	13.4A	Max. short-circuit current (Isc)	15A
Max. power current (Imp)	12.78A	Max. input current per MPPT tracker (Imp)	12.5A
SRP-530-BMA-HV		5kw Inverter	
short-circuit current (Isc)	13.6A	Max. short-circuit current (Isc)	15A
Max. power current (Imp)	12.92A	Max. input current per MPPT tracker (Imp)	12.5A

1. Matching Maximum short circuit current

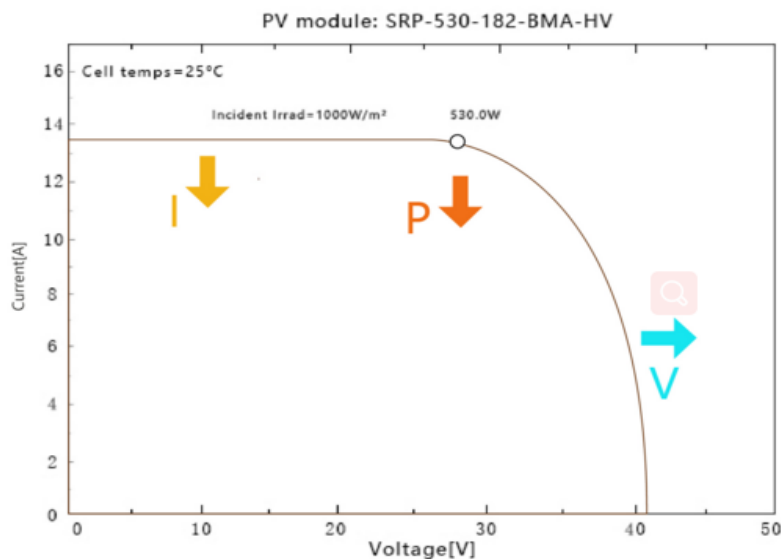
Designer should ensure that the Isc of the subarray lower than the MPPT short circuit limit. Thus, in above case the maximum string in parallel per MPPT is one for each module type. Moreover, the power output capacity will not be impacted due to the Isc of module is lower than the inverter.

2. Matching Max power input current circuit current

MPPT operating current limit reflects the maximum capability of the MPPT, thus in theory power loss due to input current limitation could happened when input current exceeds 12.5A. In respect to

above comparison, the power output would be impacted on SRP-390-BMD-HV product due to 0.28A and SRP-530-BMA-HV product due to 0.42A gap. **However, the impactation of current decline is negligible as the power decline occurs simultaneously with subtle change along the IV curve for 0.28A and 0.42A gap.**

In a typical MPPT power decline mechanism, voltage will increase in the meantime of current decrease along the IV curve, thus the overall input power decline trend as indicated in curve chart below.



- Power decline happens very often during middays, and always occurs before current decline, research shows DC losses due to current decline will have subtle difference when the DC/AC ratio is higher than 1.25. **Therefore, there is no yield loss due to current decline when the DC/AC ratio is larger than 1.25 in Australia.**

Jiangsu Seraphim Solar System Co., Ltd

Representative:

Sky Wu, Technical Manager

Signature:

Changzhou, China