

Declaration of the Max. short-circuit current of optimizers and inverters

On the datasheet of both inverters and optimizers, it shows max. short-circuit current (I_{sc}). But the meaning of them is different.

For the inverter, there are 2 different values as I_{mppt} and I_{sc} . For example, the L1:

SUN2000-2/3/3.68/4/4.6/5/6KTL-L1 Technical Specification

Technical Specification	SUN2000-2KTL-L1	SUN2000-3KTL-L1	SUN2000-3.68KTL-L1	SUN2000-4KTL-L1	SUN2000-4.6KTL-L1	SUN2000-5KTL-L1	SUN2000-6KTL-L1
Efficiency							
Max. efficiency	98.2%	98.3%	98.4%	98.4%	98.4%	98.4%	98.4%
European weighted efficiency	96.7%	97.3%	97.3%	97.5%	97.7%	97.8%	97.8%
Input (PV)							
Recommended max. PV power ¹	3,000 Wp	4,500 Wp	5,520 Wp	6,000 Wp	6,900 Wp	7,500 Wp	9,000 Wp
Max. input voltage	600 V						
Startup voltage	100 V						
MPPT operating voltage range	90 ~ 560 V						
Rated input voltage	360 V						
Max. input current per MPPT	12.5 A						
Max. short-circuit current	18 A						
Number of MPP trackers	2						
Max. inputs per MPP tracker	1						

For inverter:

- if I_{mpp} of module > I_{mppt} of inverter, it doesn't mean that the module is incompatible. However, the power generation may be limited in some specific situations.
- If I_{sc} of module > I_{sc} of inverter, the module is not compatible with the inverter. (If the I_{sc} of module exceeds 18 A during deployment, there may be safety risks. In such cases, connecting the PV string to the inverter in reverse could cause the inverter to fail.)

For the optimizer, there are I_{sc} and P_{rated} . For example, the SUN2000-450/600W-P/P2:

Input	
Rated input DC power ¹	450 W 600 W
Absolute max. input voltage	80 V
MPPT operating voltage range	10 ~ 80 V
Max. short-circuit current (I_{sc})	14.5 A
Max. efficiency	99.5%
Weighted efficiency	99.0%
Overvoltage category	II
Output	
Max. output voltage	80 V
Max. output current	15 A
Output bypass ²	Voc

For optimizer:

- If I_{sc} or P_{max} of module > I_{sc} or P_{rated} of optimizer, the power generation may be limited in some specific situation.
- No matter how large I_{sc} and P_{max} the module has, it doesn't mean no compatibility. (The terminal of optimizer is fool-proof designed, so there is no risk of reverse connected*. If the string is reverse connected, optimizer will limit the output current under maximum output 15A)

*Extension wire is not allowed between module and optimizer.

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