



## Compatibility of SMA Inverters with PID Solutions

In order to recover PID<sup>3</sup> effects in PV modules, it may make sense to implement a technical solution that applies a high direct voltage to the PV module at night when there is no solar irradiation. This, however, results in operating conditions for the PV inverter that differ from operation without PID solutions of this kind.

SMA has marketed PID solutions in the past (PV Offset Box) and gained extensive experience in the field as a result. It was observed that these operating conditions accelerated rare failure mechanisms in a very small number of exceptional cases. This results in particular from the application of high direct current at night.

SMA has continually improved the construction and qualification of newer PV inverter types in order to minimize the risk of failure in case of the use of external PID solutions. In older devices, however, there is still a risk of failure. This is why SMA only recommends use in conjunction with an external PID solution for the following inverter types:

SUNNY BOY	SUNNY TRIPOWER	
SB 3000TL-21 <sup>1</sup>	STP 5000TL-20 <sup>2</sup>	STP 8000TL-10
SB 3600TL-21 <sup>1</sup>	STP 6000TL-20 <sup>2</sup>	STP 10000TL-10
SB 4000TL-21 <sup>1</sup>	STP 7000TL-20 <sup>2</sup>	STP 12000TL-10
SB 5000TL-21 <sup>1</sup>	STP 8000TL-20 <sup>2</sup>	STP 15000TL-10
SB 6000TL-21 <sup>1</sup>	STP 9000TL-20 <sup>2</sup>	STP 17000TL-10
SB 3500TL-JP-22	STP 10000TL-20	STP 20000TL-30
SB 4500TL-JP-22	STP 12000TL-20	STP 25000TL-30

<sup>1</sup> From production date 02/03/2014, <sup>2</sup> From production date 02/10/2014, <sup>3</sup> PID: Potential Induced Degradation

SMA is unable to make similar comments on other inverters that are not included in this list because no appropriate positive test results are available.

Based on the circumstances assumed by SMA, it would be sensible in case of a PID solution for the PV generator to be disconnected from the inverter at night because then the inverter will not be burdened with a high level of input voltage for long periods during the night. We estimate that this would avoid any increase in the probability that the inverter will fail.

Please note that the probability of failure is very low and is dependent on many external factors. Our high level of quality awareness, however, means that we treat even such rare cases with great care. This has led to the conclusions and recommendations given here. These recommendations are not associated with any guarantee.

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