

PV Fact Sheet

04 | The right SPD for a combiner box

This fact sheet focuses on photovoltaic installations in solar parks worldwide. One essential part of such an installation is the PV combiner box. These boxes are used to combine several strings and to protect against overvoltage and feature many more functions.

How to select the correct SPD for a combiner box for a PV plant?

The Surge Protection Device (SPD) is a component of the electrical installation protection system and is the most used and most efficient type of overvoltage protection. This device is connected in parallel on the power supply circuit of the loads that it must protect. It can also be used at all levels of the power supply network. There are three different types of SPD:

Type 1 SPD

The Type 1 SPD is recommended in the specific case of service-sector and industrial buildings, protected by a lightning protection system or a meshed cage. It protects electrical installations against direct lightning strokes. It can discharge the back-current from lightning spreading from the earth conductor to the network conductors.

Type 2 SPD

The Type 2 SPD is the main protection system for all low voltage electrical installations. Installed in each electrical switchboard, it prevents the spread of overvoltage in the electrical installations and protects the loads.

Type 3 SPD

These SPDs have a low discharge capacity. They must therefore mandatorily be installed as a supplement to Type 2 SPD and in the vicinity of sensitive loads.

Weidmüller DC combiner boxes commonly has Type 2 SPD, that is the standard in the PV industry. However, it is possible to change this SPD for another one that adapts more to a particular circumstance. To choose the right SPD we recommend that consider the previous information and look to the next chart that has all the SPD devices (DC and AC), that Weidmüller has available in the catalog.

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PV system

External lightning protection		No external lightning protection	
up to 1000 V VPU PV I + II 3(R) 1000 2530610000 (w/o r) 2530620000 (w r)	up to 1000 V VPU PV II 3(R) 1000 2530550000 (w/o r) 2530180000 (w r)		
			
up to 1500 V VPU PV I + II 3(R) 1500 2530580000 (w/o r) 2530590000 (w r)	up to 1500 V VPU PV II 3(R) 1500 2530640000 (w/o r) 2530650000 (w r)		
			

External lightning protection		No external lightning protection	
5-wire system VPU AC I 3+1(R) 300/12.5 2591460000 (w/o r) 2591470000 (w r)	4-wire system VPU AC I 3(R) 300/12.5 2591440000 (w/o r) 2591450000 (w r)		
			
5-wire system VPU AC II 3+1(R) 300/50 2591080000 (w/o r) 2591090000 (w r)	4-wire system VPU AC II 3(R) 300/50 2591160000 (w/o r) 2591170000 (w r)		
			

Image 1. Chart of SPD available in Weidmüller