

Installing overvoltage protection

Application Note

blueplanet 50.0 TL3 M / XL

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1 Introduction

The M and XL versions of the unit series blueplanet 50.0 TL3 allows you to upgrade the AC and DC lightning and overvoltage protection in a straightforward and cost-efficient manner.

The overvoltage protection prevents damage being caused by overvoltage in the inverter.

We recommend installing overvoltage design type I+II or design type II for both versions of the unit

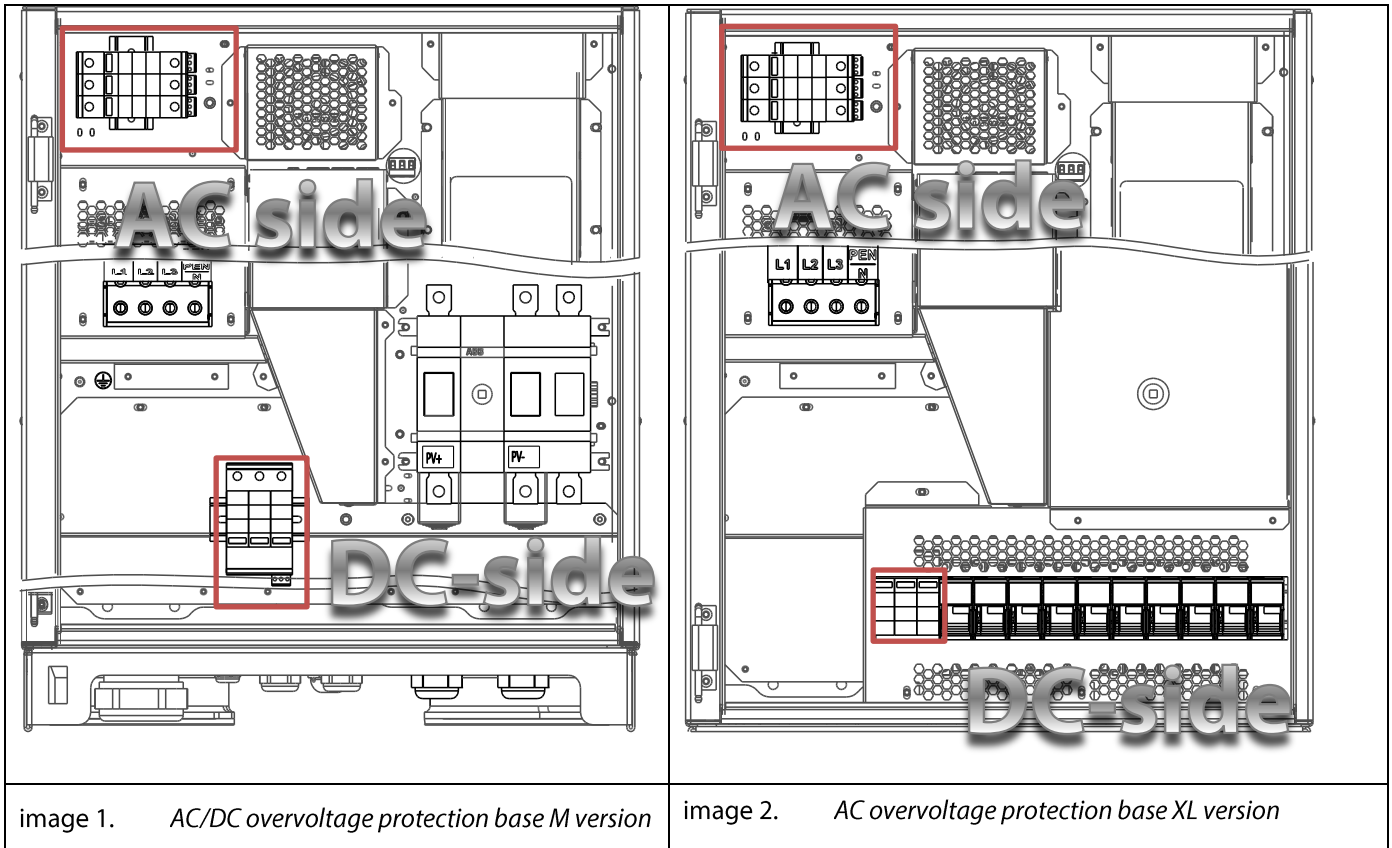
Overvoltage protection type I+II combines coarse and moderate protection.

Coarse protection (overvoltage protection type I) diverts lightning currents from the power cables into the ground.

Moderate protection (overvoltage protection type II) protects the unit against further cases of overvoltage.

This document describes how to upgrade the system by installing plug-in modules.

The AC overvoltage protection base is located above the AC connection point. The DC overvoltage protection base is located next to the DC connection area.



2 Connection

2.1 Required components





Overvoltage protection		AC side	DC-side
Photo of the required components			
Required amount		3 modules	3 modules
Manufacturer		Finder	Phoenix Contact
Possible design type I+II or II	SPD	I + II	I + II
	Order description	7P.10.8.275.0012	VAL-MS-T1/T2 1000DC-PV-ST - article no. 2801162 (already integrated in the XL unit version)
	Kaco article no.	3010610	3010608
	SPD	II	II
	Order description	7.P.20.8.275.0020	VAL-MS 1000DC-PV-ST - article no. 2800624
Base		Built-in	Built-in
Manufacturer		Finder	Phoenix Contact
Manufacturer part number		7.P.X3.8.275.1000	VAL-MS/2+V-BE FM-PU40 - article no. 2908425

Table 1: Required components

2.2 Installing the AC overvoltage protection element

	 DANGER
	<p>Risk of electric shock and fire hazard</p> <p>Installation and commissioning must only be carried out by suitably qualified technicians.</p> <p>Check for any damage to the exterior before commencing with installation. Installation must not take place if the base is defective.</p>

	
<p>image 3. <i>Inserting the overvoltage protection</i></p>	<p>image 4. <i>Status display</i></p>

Installing the AC overvoltage protection


- ⌚ Ensure there is no AC/DC voltage present.
- 1. Open the housing and secure the door with the latch lever.

Note: The coding at the base plug-in position must match the coding on the module. (see detailed view in image 3).



- 2. Insert the AC overvoltage modules into the AC base one after another.

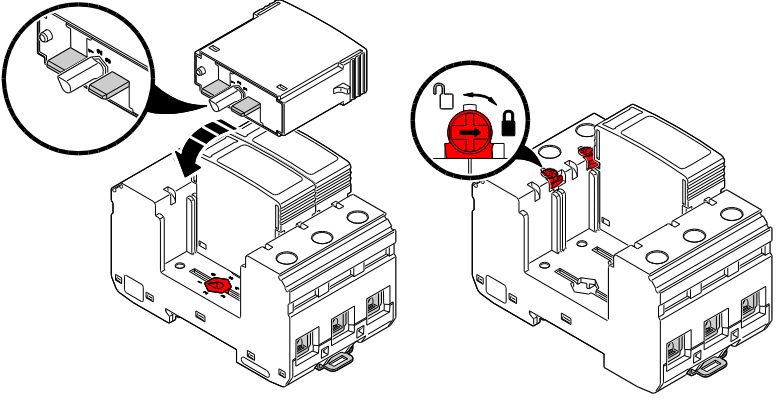

Note: If the status “defective” appears, the module is damaged. Exchange the module for another module of the same design.

- 3. Lock the modules over the upper and lower locking latches using a screwdriver. (see detailed view on the right side of image 3).
- 4. Ensure that all protective elements are properly secured.
- 5. Close the housing door or insert DC overvoltage protection if required.

	<p>NOTE</p> <p>The recommended fuse values and the max. permissible continuous voltage U_C must be adhered to (see chapter “7.1.4 Cable and Fuse Requirements” in the unit operating instructions).</p> <p>The protective modules must be removed from the base before carrying out insulation measurements of the electrical system. Following the measurement, these must be inserted back into the base module.</p>
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2.3 Installing the DC overvoltage protection element

	 DANGER
	<p>Risk of electric shock and fire hazard</p> <p>Installation and commissioning must only be carried out by suitably qualified technicians.</p> <p>Check for any damage to the exterior before commencing with installation. Installation must not take place if the base is defective.</p>

	
image 5. <i>Inserting the DC overvoltage protection</i>	image 6. <i>Status display</i>

Installing the DC overvoltage protection

- ⌚ Ensure there is no AC/DC voltage present.
- 1. Open the housing and secure the door with the latch lever.

Note: The coding at the base plug-in position must match the coding on the module.

- 2. Insert the DC overvoltage modules into the DC base one after another.

Note: If the status “defective” appears, the module is damaged. Exchange the module for another module of the same design.

- 3. Lock the modules over the locking latches using a screwdriver (see the detailed view on the right side of image 5).
- 4. Ensure that all protective elements are properly secured.
- 5. Close the housing door or insert the AC overvoltage protection where required.

2.4 Additional information

Further information on lightning and overvoltage protection can be found in the following publications:

- DIN EN 62305 / VDE 0185-305-3 Lightning protection part 3: Protecting structural installations and persons (2006)
- DIN EN 62305-3 / VDE 0185-305-3 Lightning protection part 3: Protecting structural installations and persons - addendum 5: Lightning and overvoltage protection for PV power supply systems (2009)
- Federal Association of the Solar Industry, Central Association of German Electrical and Installation Trades (2008): Data sheet for PV installation technicians - Lightning and overvoltage protection for photovoltaic systems on buildings. (Available for download in the info area at www.zveh.de)
- Michael Beer (2009): Lightning Protection Guide for Solar Systems - Guidebook for Solar System Installation Technicians and Lightning Protection Technicians, 4th completely revised and extended edition, wAgnier & Co Cöble/Marburg. (www.wagner-solar.com)
- Dehn + Söhne (2007): Lightning Planner, 2nd updated edition, Dehn + Söhne GmbH + Co. KG. Neumarkt i.d.OPf. (Available for download at www.dehn.de)
- VdS: Inspected. Approved. Safe. 2010 – Risk-oriented Lightning and Overvoltage Protection, Guidelines from the German Insurance Association (can be downloaded at http://www.vds.de/verlag/files/vds_2010_werb.pdf)
- Specialist information from the manufacturers of overvoltage protection devices.

You can find information on the overvoltage protection modules described above on the manufacturer's website:

- <http://www.findernet.com/de/products/>
- <https://www.phoenixcontact.com/online/portal/de>

