



Lightning/Surge protection for Photovoltaic Systems

Leutron Protects Buildings with Photovoltaic Systems

Leutron Protects the Future

Because photovoltaic systems (among other things) are the future. Whether for new buildings or for renovations, for private residences or for office buildings: these systems are being installed on more and more roofs across Germany. In this sector, the last seven years have witnessed a 30-fold increase in turnover; and Germany has been the global market leader since 2004. These hi-tech systems provide valuable protection against lightning strikes and power surges thanks to their exposure and large surface area.

In addition to the modules, the photovoltaic system is also integrated into the building's electrical systems, which are necessarily vulnerable to direct or indirect lightning strikes. Lightning strikes and power surges have serious consequences: aside from production losses, there are also high repair costs - Costs that Leutron can keep down. Because Leutron protects PV systems from power surges.

The Basics

The following standards and directives must be observed when implementing a photovoltaic system:

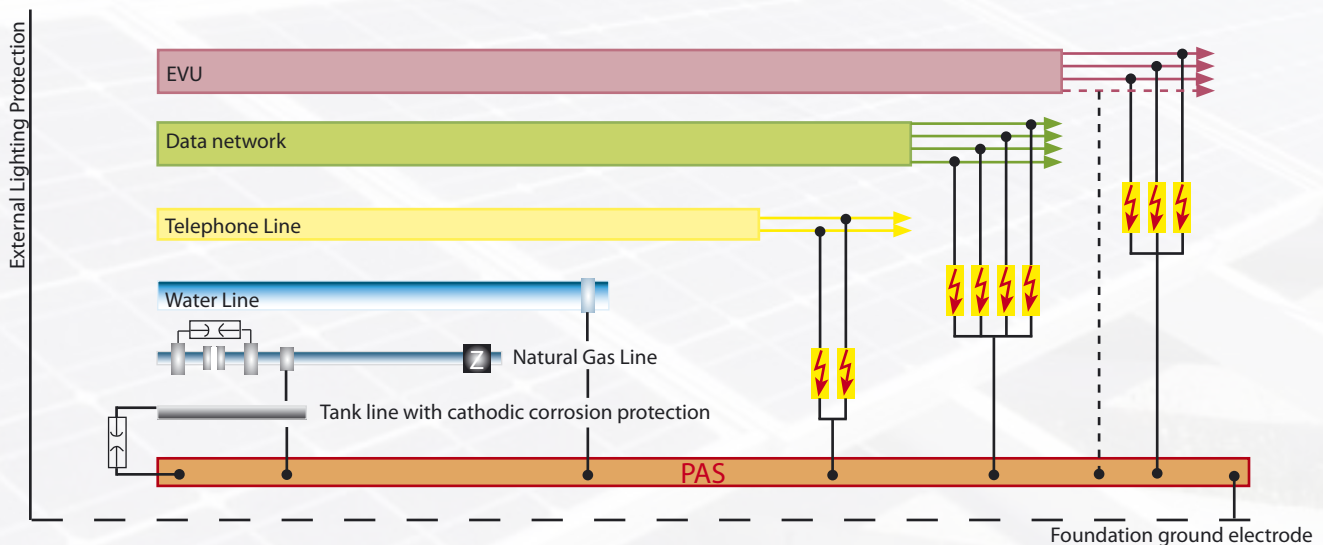
IEC 62305 part 1-4 (DIN V VDE 0185 (1-4))

E DIN IEC 64/1123/CD (Draft VDE 0100 Part 712): 2000-08

VdS 2010 (Damage Prevention) valid in Germany

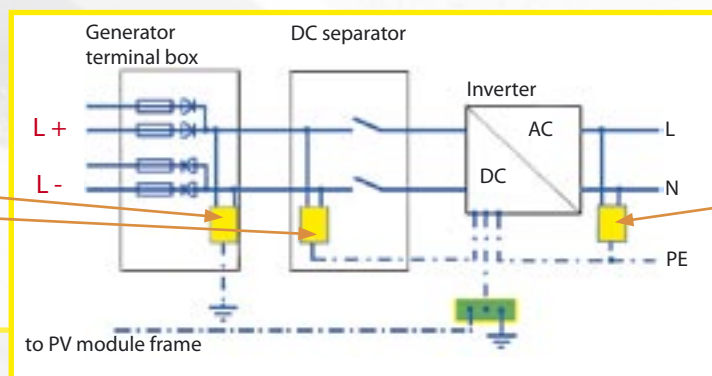
Lighting Protection – Potential Equalization

The electrical system, the metallic systems and metal building components must all be connected to the lightning protection system.



(Source: VDE/ABB)

Basic Circuit Diagram



PV System for the Home

There is one point to bear in mind when installing PV systems in private residences with lightning protection systems:

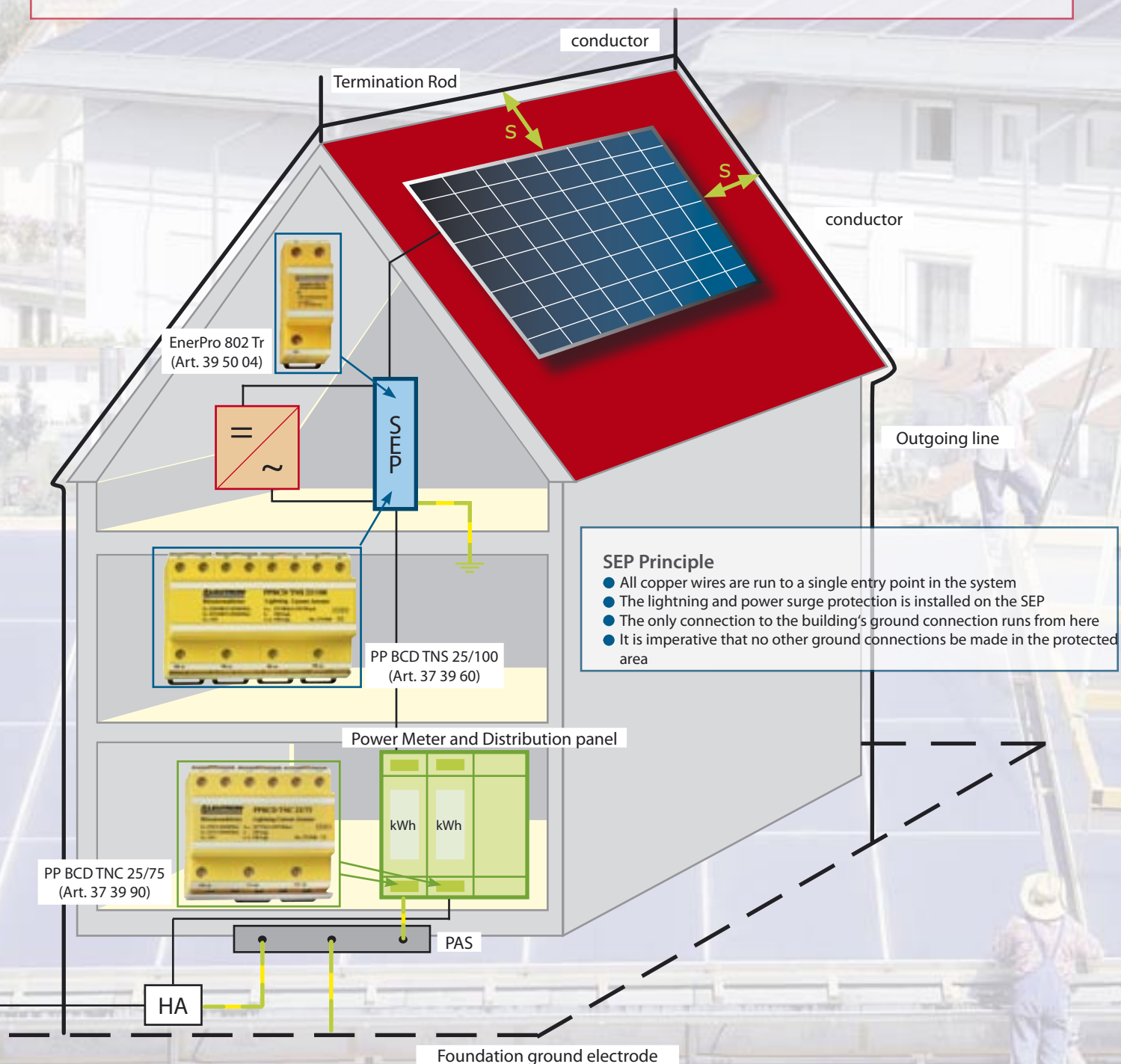
The lightning rods must be distanced from the PV module in such way that lightning discharge are prevented, while casting as little shade as possible onto it on the other. The length and place of the air termination rod must also be chosen accordingly.

Specifications for adjustment of the protection area of the lightning rod are given in VDE V 0185-3. The space (s) between the photovoltaic system and the air

termination rod should be greater than 0.5 m. If it is not possible to leave a buffer space, then a direct electro-conductive connection must be installed between the external lightning protection system and the PV module frame.

The purpose of this is to prevent lightning currents from flowing through the module frame construction.

Thus, the electrical connection between the air termination rod and the frame construction is made on one side only, preferably on the side of the outgoing lines from the external lightning protection.



Proposed Solution

- Installation of PV module according to risk analysis (VDE 0185-3-4)
- Sheathing of primary generator line
- Installation of combination arresters (BCD device)
- Installation of protection components according to our combination plan:
 - Combination of lightning protection components and SEP principle
 - Installation of combination arresters on the building entry point (e.g. PP BCD TNC 25/75)
 - Set-up of suitable protection islands
 - Installation of protection components on the SEP point
 - Use of filtered protection components (e.g. EPF 16A/230)



Would you like further information?

We would be happy to send you materials with further information.
Just contact us via email, telephone or fax.
We are at your service!



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