

# Photovoltaic application – Surge protection Protection of cells & Inverter DC side



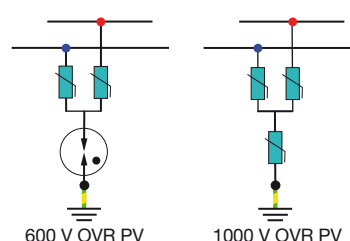
## Application notes

### Application principle:

Providing power with photovoltaic solar panels is tremendously interesting in the context of renewable energy sources, as regards economical LV photovoltaic systems connected to the public electricity network. Because of their exposition, frequently in isolated sites and of the extended surface of photovoltaic systems (PV), lightning strikes are a major components in the risk to be assumed, both for the direct effect of lightning on the structures, and of the surge overvoltages on the installation. Cells are generally associated with inverters. The lightning group of ABB has developed a specific Din Rail product to protect DC side of cells and inverters against surge in power plant or residential application. In case of indirect surge, the cells, their electronic components and semi-conductors in the inverters which are essential and expensive equipment could be damaged. The reason is because the electronic components can not support the high value of over voltage.

### Detailed description

With the combination of MOV-MOV (Metal Oxide Varistor) or MOV-spark gap, the overvoltage will be limited at the value of the voltage protection level of the ABB OVR surge protector. Our surge protector, as recommended in standards and guides, insure all protections (between + and -, + and Ground and - and Ground). On each surge arrester, as option, an available auxiliary contact will inform the end life status to ensure a maximum efficiency.





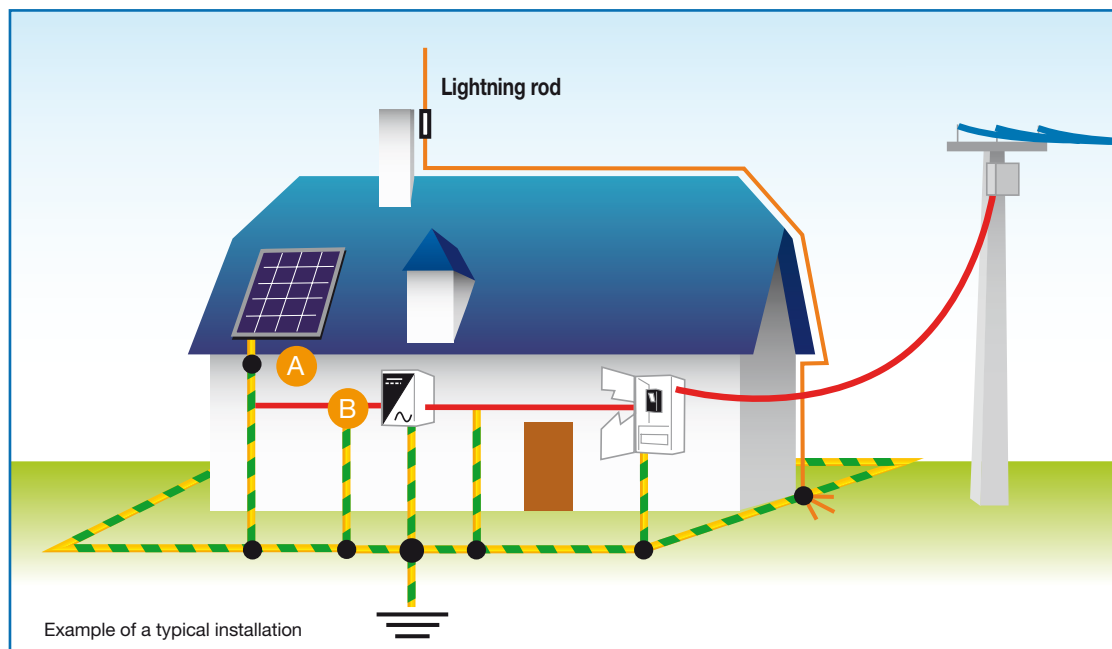
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## One easy solution

With this solution, many cells in power plant and residential application have been protected. Thanks to lightning protection group of ABB because for all kind of power in the installation ABB has a solution. If you don't protect your cells, in case of several big surges, your cells will be completely damaged

and in case of many small surges without visual damages for you, your efficiency will go down over the years. You should use a surge protection to have a better return on investment. You should also check with your insurance company if in your contract, a surge protection is required to be insured at 100%.



## Configuration of surge arresters on the whole installation

Surge arrester location	Role	Options	Comment
	Protection of cells	If the distance between point A & B is <10 m, only OVR PV in A or B is recommended	Connection to the chassis should be as short and rectilinear as possible. The lightning arrester depending on the environment should be installed in a leak-proof casing.
	Protection of the inverter input on the DC side	If the distance between point A & B is <10 m, only OVR PV in A or B is recommended	Connection to the earthing bar and to the ground of the inverter on the DC side should be as short and rectilinear as possible.

## To see also protection of the inverter AC side



### ABB France

Automation Products Division  
Lightning Protection Group

22, rue du 8 Mai 1945  
F-95340 Persan / France

Tel. : +33 (0)1 30 28 60 88  
Fax : +33 (0)1 30 28 60 79