EXPLANATION SHEET
SOLAR PV SPDS

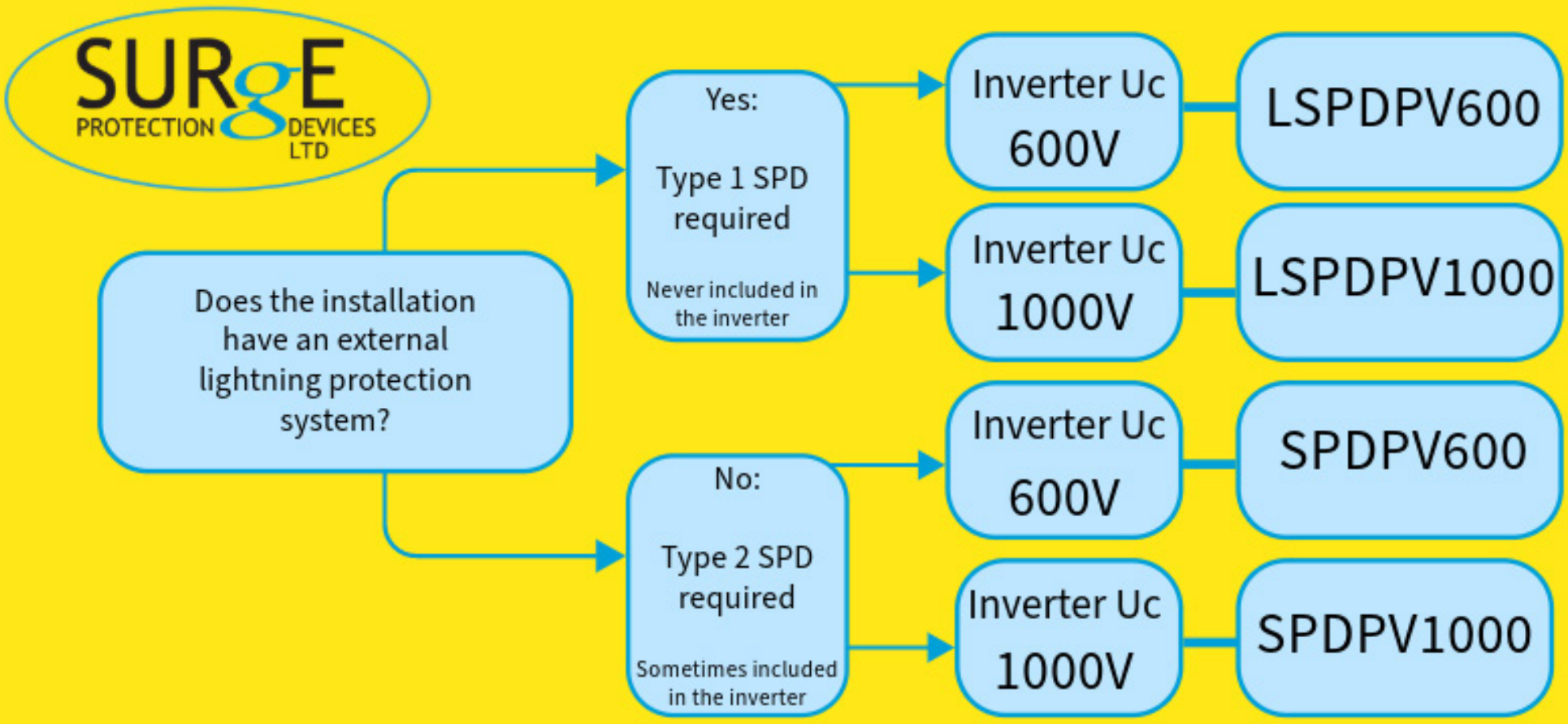
BS 7671: 2018 712.443.101:
Where protection against transient overvoltage is required by section 443, such protection shall also be applied to the DC side of the PV installation

Some inverters state that they include overvoltage protection. For an incorporated SPD to fulfil the requirements of the wiring regulations, the manufacturer must specify that it is installed on the DC side of the inverter, as this ensures that it is providing protection on the correct side of the inverter. There are quite a few inverters on the market which say they have overvoltage protection included, when in fact, it is only providing protection on the AC side of the system. It must also state the type of SPD, the reason it is important for the type of SPD to be mentioned is that once a device is specified as a type it must conform to the product standard BS EN 61643-31 as some manufacturers incorporate individual varistors, which are not considered to be a complete surge protection device. Another consideration is that the inverter will only ever include a Type 2 surge protection device, so if the building has an external lightning protection system, then the installation will always require the use of external Type 1 SPDs to conform to BS EN 62305.

Although the SPDs are still defined as Type 1 and Type 2 devices, they are different to the SPDs we see used on AC electrical systems and only SPDs that are designed for the specific use on the DC side of a solar PV installation should be used. This is due to the continual loading and higher voltages of PV systems. The devices designed for the use on the DC side of PV systems are clearly marked with the PV symbol, as per the requirements in BS EN 61643-31. Also, they obviously look slightly different, with the live and neutral terminals being replaced by a positive and negative terminal.

Selection of a PV SPD is quite simple. From the above, you should know what type of SPD you need. The only other information needed is the operating capacity of the inverter, which is usually 600V or 1000V. There are some specialist systems which are different, and there are devices available for those too.

Now we have the correct device selected, we can move on to installation. As with our AC SPDs, our DC SPDs are installed in parallel with the string, usually a DC isolator would be used. DC SPDs should be installed one per string to provide protection, although in some situations, it may be possible to protect multiple strings with one SPD, depending on the installation design.



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