

# Surge-Trap: North America vs. Europe

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In this global business environment, it is common for manufacturers in North America to ship equipment to Europe. North America and Europe each have their own standards for Surge Protective Devices (SPD's) which makes understanding the differences in electrical system terminology very important. In North America, all SPD products are associated with UL 1449 3rd edition whereas in Europe, IEC 61643-1 is used to provide standards. Recently 1449 3rd edition adopted new terminology and testing criteria to be more congruent with IEC 61643-1. However, system voltages and the how they are defined differ between the two standards.



## For example:

- In North America, electrical systems are defined by how the taps on the main transformer are connected. The two connection methods used are Wye or Delta. It is more common to find a Wye connection than that of a Delta simply for the ease to connect a single phase circuit.
- In the majority of Europe, electrical systems are defined by how the system is grounded rather than the transformer configuration. A coding system (consisting of at least two letters) is used to define the type of grounding. Some valid types are TN-C, TN-S, TT and TI. The code for each letter is as follows:

### First letter:

- T - The live parts in the system have one or more direct connections to earth.
- I - The live parts in the system have no connection to earth, or are connected only through a high impedance.

### Second letter:

- T - All exposed conductive parts are connected via your earth conductors to a local ground connection.
- N - All exposed conductive parts are connected via your earth conductors to the earth provided by the supplier.

### Remaining letter(s):

- C - Combined neutral and protective earth functions (same conductor).
- S - Separate neutral and protective earth functions (separate conductors).

Mersen makes selecting an SPD for North American and European applications easy and takes the guesswork out of selecting the right device for your application. Since both the modular and pluggable Surge-Trap have the highest nominal discharge possible and a short circuit current rating of 200kA, all you will need to know is the system voltage and configuration, which will indicate where the product is being sold.