

Summary

Surge protection is crucial for protecting your electronic devices against voltage spikes and surges. However, it's important to understand that surge protectors have their limitations and may not be able to protect your devices from all types of electrical disturbance.

For instance, a direct lightning strike produces an enormous amount of energy which are not possible for a surge protector to absorb or protect equipment from. Therefore, it's essential to understand the limitations of surge protection and choose the appropriate level of protection for your electronic device, as indicated in the table below:

<i>Energy protection level</i>	<i>Electronic Device</i>
100-400 joules	Small electronic appliances such as LED lightings, Radio, monitor, digital clock etc.
400-1000 joules	Office equipment such as copier, fax machine, printer, routers etc.
1000 joules or higher	Expensive devices like home theatre equipment, and devices storing valuable data, such as game consoles, hard drives, and computers

Understanding Power Surges

Power surges can occur in various forms, from lightning strikes to voltage fluctuations. Surge protectors work by blocking or shorting these power surges to the ground. However, it's important to note that not all power surges are equal, and some can be more damaging than others.

For instance, voltage spikes that occur due to power tool, AC motor or refrigeration start-ups are more common in domestic applications. On the other hand, power surges caused by lightning strikes or industrial processes can be more severe and require higher levels of protection. Please also note that voltage fluctuations or spikes are a regular occurrence more prevalent in regional and industrialised areas.

Moreover, it's important to note that surge protectors do not protect against high-frequency electrical magnetic interference (EMI), which can also cause damage to equipment. In such cases, a power board with an EMI filter should be used in addition to a surge protector to provide a comprehensive protection against electrical disturbance.

Joules Rating and Surge Protection

The amount of energy level generated by a power surge is measured in joules. The higher the joules rating, the better the surge protection. For example, surge protector with a rating of from 100 to 400 joules is sufficient for small electronic appliance such as LED lightings, radio, monitor, digital clock etc.

Office equipment such as copier, fax machine, printer, routers etc. will require a surge protector with a rating of 400-1000 joules, while expensive devices like home theatre equipment, and devices storing valuable data, such as game consoles, hard drives, and computers require a surge protector with a rating of 1000 joules or higher.

The illuminated indicator light for the surge protection on the power boards shows that the product is providing surge protection. If the indicator light no longer illuminates, the surge protector has absorbed power energy and sacrificed. However, the product can still be used as a regular power board.