

Power Surge – Frequently Asked Questions (FAQs)

1. What is a power surge?

Power surges are surges of electrical voltage and/or current that are higher than normal and can damage devices connected to a power supply. The electronics and microprocessor controllers found in most household electrical appliances are especially sensitive to power surges and are often permanently damaged.

2. What is a surge arrester?

A surge arrester is a device used to redirect excess energy, therefore safeguarding equipment from the harmful effects of power surges.

3. Why should I have power surge protection?

Electronic devices that are connected to the electrical grid, such as computers and televisions, require a specific and constant voltage supply. If the voltage and/or current of the electrical supply increases temporarily, it can result in damage to these devices and any other appliances connected to the grid.

4. What is a distribution board?

A distribution board (often referred to as a “DB board” in South Africa) is a central point for the distribution of electrical power to circuits throughout a building. It is a great place to add protection against a surge as it is central and the most cost-effective place to do so.

5. What are transient voltage spikes?

Transient voltage spikes, also known as voltage transients, or power surges, are brief, high-amplitude increases in voltage that occur on an electrical power line or circuit. These spikes are characterised by their short duration and rapid rise time, typically lasting only a few microseconds or milliseconds.

6. Why should a surge arrester comply with the SANS/IEC 61643-11 low voltage surge protection standards and be a connection type 2 device?

There are multiple reasons for this, including safety, reliability of protection, compatibility, technical specifications, and compliance with regulations. By following these standards, surge arresters are designed and manufactured to effectively protect electrical systems and equipment from the damaging effects of power surges and transient voltage spikes.

7. What is a type 2 surge arrester?

A type 2 surge arrester is designed to be installed at the main distribution board or sub-distribution panels within a building’s electrical system. These devices protect against transient voltage surges that can occur due to lightning strikes, switching operations, and other sources of power surges. This differs from a type 1 surge arrester which protects against indirect surges (which occur via electrical induction), and type 3 surge arresters which are typically point-of-use devices that connect between a wall plug and a device.

8. Why not use type 3 surge arresters to protect my equipment?

While this is an option, and even preferable to include with other devices, a type 2 surge arrester offers more protection, and it is more cost-effective. Type 3 arresters such as red plug arresters only protect the equipment plugged in after the device, and thus are more costly to protect your whole house if used at each plug point. They are also often not rated appropriately to be protective.



9. Where can I find the standards SANS/ IEC 61643-11 & SANS 10142-1 (wiring standard)?

These can be obtained from the South African Bureau of Standards (SABS), libraries, professional organisations, universities, or from online standards portals.

10. What is a 40kA(/_{max})?

This rating refers to the maximum current that the protection device can withstand (in other words, the maximum current it can handle) during a surge event. It indicates the maximum current that the device can suppress/divert in the event of a surge.

11. What is an inverter?

An inverter is an electronic device that converts direct current (DC) power into alternating current (AC) power. It is commonly used to enable devices that require AC power, such as household appliances, to be powered by DC sources like batteries or solar panels. Inverters work by rapidly switching the direction of current flow, resulting in an output waveform that mimics the shape of utility grid AC power (a sinusoidal wave).

12. Does an inverter provide surge protection?

No, an inverter does not typically provide surge protection on its own. The primary function of an inverter is to convert direct current (DC) power from a power source, such as a battery or solar panel, into alternating current (AC) power that can be used to run electrical devices. While some inverters may have built-in surge protection features, such as surge suppression circuits, it is not a standard feature on all inverters. These built-in surge protection measures, if present, are usually limited in their capacity and may only provide basic protection against certain types of surges. Moreover, they may only protect equipment downstream of the device (after it). Furthermore, an inverter may itself be prone to power surges.

13. What is a UPS?

A UPS, which stands for Uninterruptible Power Supply, is a device that provides back-up power to electrical devices in case of a power outage or voltage fluctuation. It acts as a reliable bridge between the main power source and the connected equipment, ensuring uninterrupted operation and protection against potential damage or data loss. A UPS typically utilises internal batteries that automatically take over the power supply when a disruption occurs, allowing for a seamless transition until normal power is restored or a safe shutdown can be performed. The device does provide a small amount of surge protection depending on its rating for equipment connected after the device, however the UPS device itself may be prone to surge damage if the surge is high energy.

14. How can I determine if the distribution board has surge protection?

This can be done in a few ways:

- through inspection by a registered electrician or electrical engineer
- by looking for the device in the distribution board which states T2 with the relevant IEC standard.

15. What is a status indicator for surge protection?

If, over time, the surge arrester protects the electrical installation from a major surge or a number of surges, it may ultimately stop working due to it having performed its job of protecting the electrical system and diverting current. The status indicator is a physical light (LED) or a green/red strip which shows whether the surge protection is operational or not. Green means it is in working order, and red means it needs replacement.

16. If I see a red strip, must I replace my arrester?

It depends on the device itself. You may not need to replace the entire surge arrester, but rather just swap out the cartridge in the device.

17. Where or how can I get hold of a registered electrician in my area?

We recommend that you search for a local electrician via the Electrical Conformance Board of SA (ECBSA) website <https://ecb.org.za/> or speak to your friends or neighbours to source a reputable certified electrician.



18. How will I know that an electrician is registered?

You need to check the licensing requirements and thereafter verify the credentials of the electrician according to these. The ECBSA plays a central role in registering electricians and therefore allows you to confirm whether a contractor has all the applicable licences. You can visit the website at <https://ecb.org.za/>.

19. Do I need to send the certificate of compliance/proof of installation to my broker?

Following the installation of the surge arrester and the receipt of your *supplementary* certificate of compliance (CoC) from the installing electrician, you are required to send a picture of the installed device on your DB board and the compliance certificate or the completed Hollard surge protection checklist form to your broker.

20. What happens if my surge arrester is no longer operational due to a surge?

You can identify if your surge arrester is no longer operational via the status indicator on the surge arrester. The indicator is either a physical light (LED) or a green/red strip which shows whether the surge protection is operational or not. Green means it is in working order and red means the device has been compromised and may need replacement.

If the indicator shows your surge arrester is no longer operational, you must either replace the device or swap the cartridge.

21. What happens if the surge arrester is faulty?

Please note that a red strip on a surge arrester does not mean the surge arrester is faulty. Instead, it means that the surge arrester has reached its maximum capacity to absorb surges. In this case, you must either swap the cartridge or replace the device.

You can also contact the supplier you used when sourcing your device to arrange for a new cartridge or device (please read the supplier's terms and conditions carefully to ensure there is a warranty).

22. While the device is damaged or non-operational, and I am in the process of replacing it, do I have a grace period to replace a faulty surge arrester?

Yes, however, it is your responsibility to notify your broker if your arrester is faulty. You will also be required to provide proof that your arrester is non-operational or faulty.

In this case, you will be given a 30-day grace period to replace your cartridge or surge arrester. Following the installation of your new cartridge or arrester, you will need to advise your broker and ensure that you follow the steps in Question 19 again to ensure that you are covered.

23. Upon ordering the device, am I covered between the time of order and delivery of the device?

Yes, your cover starts from the date you have placed the order for an approved device as long as it is installed within 30 days of the order date.



24. When a new surge arrester is installed, should the electrician issue a new Certificate of Compliance?

Yes, the electrician will issue a supplementary Certificate of Compliance (CoC). This indicates that the component installed (the surge arrester) is compliant, without commenting on the overall electrical compliance of the rest of the building. Alternatively, the electrician must complete the Hollard surge protection checklist form.

25. Can the Hollard surge protection checklist form be used instead of an electrical CoC?

No, under the regulations, the electrician you hire is responsible for your electrical installation by issuing a CoC. The CoC must have a unique number to allow for it to be traced.

Where any addition or alteration has been done to an electrical installation for which a CoC has already been issued, a supplementary CoC must then be provided. Both CoCs must be kept together in a safe place. An electrical CoC is also required for other purposes, for example when you sell your house.

Nevertheless, Hollard will accept the checklist where a client is unable to produce a CoC. The electrician completing the checklist must, however, confirm that the installation adhered to the required electrical standards and regulations when the device was installed.

