Perfect Laser Technologies

SURGE PROTECTION

Lightning strikes and Eskom's incompetence

Electrical damage can happen in a flash.

Lightning can get to whatever is in its path, from appliances to electronics or an entire electrical distribution board - and a voltage surge from Eskom when initiating or returning from loadshedding can cause the same damage. Each item could wind up in an insurance claim. With a lightning strike, the policyholder may be able to prove a direct strike occurred because of burning or charring where the lightning entered an outdoor object.

Power surges from Eskom, however, are more difficult to prove. I know that some technical claims adjusters will not believe that an item (such as a laser tube) can be damaged by a power surge when the high voltage power supply appears to be intact and undamaged.

What tends to be forgotten is that an HT power supply is also directly connected to the mains - and is subject to Eskom fluctuations, and although the power supply may still work after a loadshedding surge, the surge itself may cause massive transient spikes in the output to the tube, thus damaging it.

Electrically powered equipment is prone to damage if any surge enters the electrical system - and anything plugged into or connected to these components could sustain damage. Surge protectors are key to controlling how much excess energy an item receives. Remember though, that a surge protector can only protect the equipment that is plugged into it. They don't completely prevent damage, though they could reduce the impact.

Nobody seems to want to spend money on a "proper solution" to power surges, but you need a surge protector anyway, with or without load shedding. It won't keep the lights on, and it won't even keep your electronics working during load shedding like a UPS (Uninterruptible Power Supply) would, but it can offer some level of protection. But if you buy the cheapest one you can find, you are asking for trouble.

Not all surge protectors are of a high standard, and many manufacturers aren't really transparent about how helpful their devices may be in the event of a lightning strike or power surge. Technically, a power surge occurs when the normal mains voltage increases for three nanoseconds or more (in some countries with stable power grids they're fairly rare).

Aside of course for lightning strikes (which most of these devices claim to protect against), surges occur when Eskom switches off (and on) your power. Most of the times this happens, devices such as computers, decoders, routers, and televisions may still be connected to the mains. Voltage fluctuation can easily damage components in electronic devices, and even if the surge doesn't immediately destroy your electronics, repeat surges will damage anything over time.

A good quality surge protector will divert "extra" electricity away from your equipment, and can save your sensitive electronics. But not all surge protectors are created equal - in fact some offer protection only marginally better than nothing at all.

Establishing how good a particular surge protector is, can be difficult, but generally speaking, the more you spend, the more protection you'll get. This means that the cheap surge protectors sold at most electronics and hardware stores in South Africa may not be offering as much protection as they promise. If the Voltage rises above an acceptable level, the surge protector suppresses the excess Voltage to prevent it from causing harm. Specifically, internal components called MOVs (Metal Oxide Varistors) will absorb the excess Voltage and divert it safely to the ground wire, preventing it from reaching the connected equipment.

There are a few key things to look out for when buying a surge protector:

1. Clamping Voltage
Clamping Voltage refers to the Voltage level at which the surge protector begins to attenuate or reduce the surge. The best surge protectors feature a clamping voltage of 300 Volts or less.

2. Response time
This determines the length of time your equipment is exposed to the surge before protection kicks in. Look for a surge protector that responds in less than 100 nanoseconds.

Unfortunately, many plug manufacturers and retailers in South Africa neglect to mention all of these figures, or they bury them in complex acronyms and numbers that most average consumers aren't able to understand. Instead, they tend to shift the focus onto terms like "heavy duty rating", and focus on 'features' like "overload protection" and "comes in different colours".

FEEO FSP-A40 AC 2P 275

R695

(Including VAT)

Now in stock

- Protect your sensitive electrical equipment from lightning and power surges.
- Complete prewired modular unit for single-phase 230 V (or 3-phase 380V) TT and TN systems.
- Requires installation by an electrician.

Technical Parameters					
Pole	1P	2P	3P	4P	
Rated Operating Voltage Un (V~)	230V/275V		385V/420V		
Maximum Continuous Operating Voltage Uc (V~)	275/385/420VAC				
Voltage protection Level Up(V~)kV	≤2.5				
Nominal Discharge Current In μs kA	5	20	30	40	60
Maximum Discharge Current Imax μs kA	10	40	60	80	100
Response Time (ns)	<25				
Test Standard	IEC61643.1, GB18802.1				
Operating Environment(centigrade)	-40℃ ~+85℃				
Max Connection Line	35mm² hard wire/35mm² strand wire copper line				
Recommended Connection Line	16mm² hard wire/25mm² strand wire copper line				
Installation	Standard Rail 35mm				
Material of Outer Covering	Burning-proof Nylon				

Full specs available on request

Buy online at https://www.perfectlaser.co.za/shop-online/

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