


# You made the switch

*July Edition*



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# Expect Heavy Thunderstorm this July

In last month's newsletter, we explored lightning strikes and their impact on the solar system. We highlighted the importance of **EARTHING** and **THUNDER ARRESTOR** as the major defense of your solar system against lightning strikes during this rainy season. In this edition, we aim to provide an even more thorough examination of the effects of lightning strikes on solar systems, drawing on expert insights and feedbacks from our customer's service experience.

## 1 PHOTOVOLTAIC (PV) PANELS

A direct lightning strike or a nearby strike can cause significant physical damage to the panels. The intense heat generated by lightning can shatter the glass surface, scorch the photovoltaic cells, and damage the aluminium frame. Even without a direct hit, the electromagnetic pulse (EMP) from a nearby strike can induce currents that damage the delicate electronic circuits within the panels, reducing their efficiency or rendering them inoperable.

## 2 INVERTERS

Inverters, which convert the direct current (DC) generated by the solar panels into alternating current (AC) for use in homes and businesses, are particularly vulnerable to lightning strikes. A surge in voltage caused by a lightning strike can overwhelm the inverter's capacity, leading to immediate failure. The sensitive electronic components inside inverters are not designed to handle such high voltage spikes, and as a result, they can burn out, short circuit, or suffer irreversible damage, requiring replacement.

### 3 CHARGE CONTROLLERS

Charge controllers regulate the voltage and current from the solar panels to the batteries. They are designed to ensure the batteries are charged correctly and protected from overcharging. A lightning strike can cause a sudden surge of electricity that overwhelms the charge controller's protective circuits. This could result in a fire, malfunction or total failure of the charge controller, which can damage the batteries due to improper charging.

### 4 BATTERIES

The batteries in a PV solar system store energy for use when the sun is not shining. Lightning strikes can cause voltage surges that damage the internal chemistry of the batteries, leading to reduced capacity, shorter lifespan, or even catastrophic failure. In some cases, the high energy from a lightning strike can cause the batteries to overheat or explode, posing a serious safety hazard.

### 5 MONITORING SYSTEMS

Modern PV solar systems often include sophisticated monitoring systems that track performance and detect issues in real-time. These systems rely on sensitive electronic sensors and communication equipment. A lightning strike can damage these sensors, corrupt data, or disable the communication links, making it difficult to monitor the system's performance accurately. This can lead to undetected issues and reduced overall efficiency.

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## SYSTEM DOWNTIME AND ECONOMIC IMPACT

Overall, the cumulative effect of a lightning strike on a PV solar system can lead to significant system downtime. Each damaged component requires inspection, repair, or replacement, which can be time-consuming and costly. During this downtime, the system cannot generate electricity, leading to potential financial losses, especially for commercial installations that rely heavily on solar power. The economic impact of lightning damage and power loss emphasizes the need for strong lightning protection measures.

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## EARTHING AND THUNDER ARRESTOR

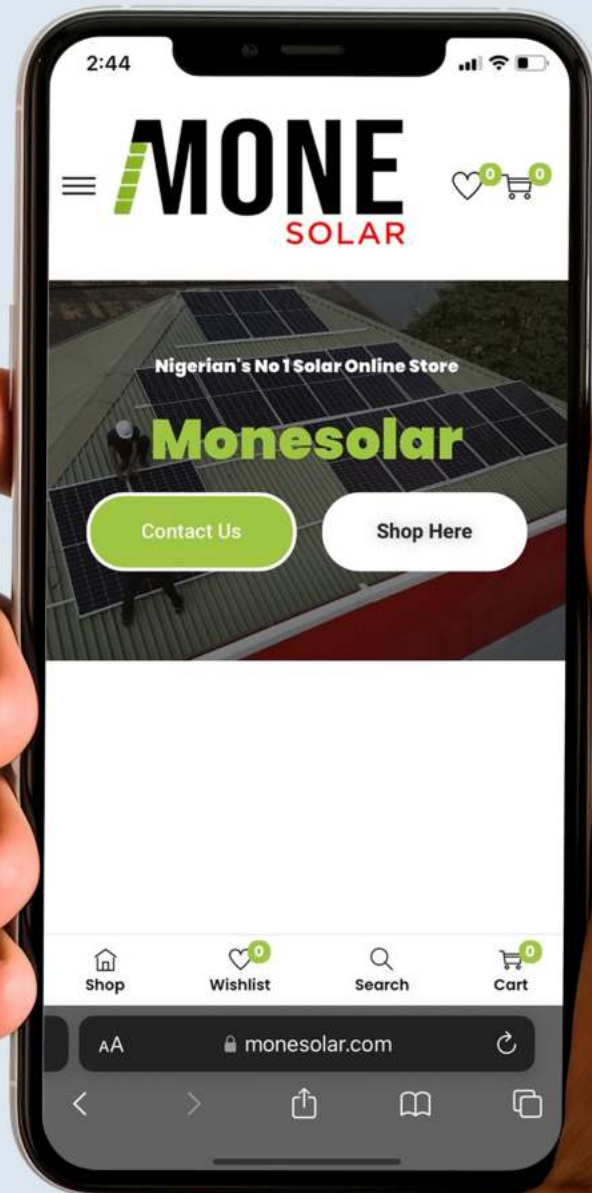
To ensure the utmost safety and efficiency of your system, we strongly urge you to implement proper protective measures, such as surge protectors, earthing/grounding systems, thunder arrestors and regular maintenance. This is crucial to safeguarding these systems and ensuring their long-term reliability and efficiency. Engage our team of expertise engineer to conduct a comprehensive assessment and offer tailored guidance.






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