Three Types of Uninterruptible Power Supply (UPS)

There are two versions of UPS: **offline** and **online**. With an **offline UPS**, the load is usually connected directly to the AC source and switches to the UPS only in the event of a power outage or disturbance. It needs about 10 ms to complete the switch, so it’s not safe to have an offline UPS to protect the industrial facilities. Line–interactive UPS, another type of offline UPS, can actively regulate voltage by either boosting or decreasing utility voltage as needed before allowing it to pass to the protected load. In such a way, a line–interactive UPS can act as a voltage optimizer and have a longer life because the battery mode is not activated so often.

![Diagram of Offline UPS](image1)

![Diagram of Online UPS](image2)

The load always connects to the UPS’s DC/AC inverter with an **online UPS**, eliminating switching delays. Similarly, a **battery energy storage system (BESS)** with a bidirectional charger can provide continuous, seamless power when the AC input is interrupted. An online UPS has the highest price among these three types, but it can solve the most power issues and provide the output with the highest quality; this makes it best suited for high-sensitive devices, data centers, and other critical equipment.