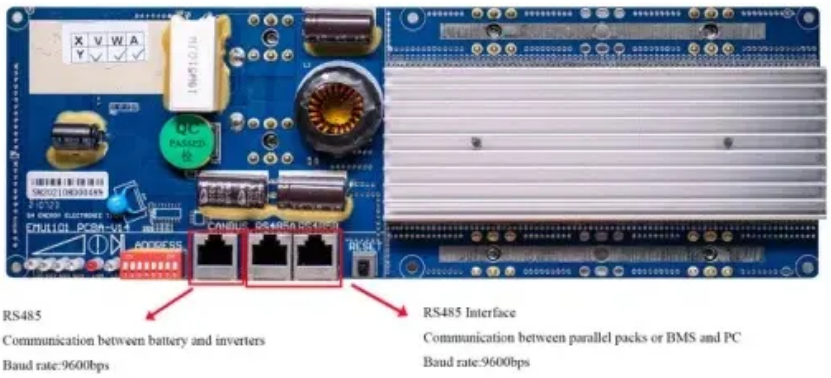
SolarInnovate Energy Solutions

Are mobile base stations powered by batteries



Overview

Why do cellular base stations have backup batteries?

Abstract: Cellular base stations (BSs) are equipped with backup batteries to obtain the uninterruptible power supply (UPS) and maintain the power supply reliability. While maintaining the reliability, the backup batteries of 5G BSs have some spare capacity over time due to the traffic-sensitive characteristic of 5G BS electricity load.

How to make base station (BS) green and energy efficient?

This paper aims to consolidate the work carried out in making base station (BS) green and energy efficient by integrating renewable energy sources (RES). Clean and green technologies are mandatory for reduction of carbon footprint in future cellular networks.

What are the components of a base station?

A typical base station consists of different sub-systems which can consume energy as shown in Fig. 4. These sub-systems include baseband (BB) processors, transceiver (TRX) (comprising power amplifier (PA), RF transmitter and receiver), feeder cable and antennas, and air conditioner (Ambrosy et al., 2011).

Can a battery bank sustain a BS load?

Their energy storage algorithm controlling the battery bank's SoC is shown to sustain the BS load by effectively managing the solar in a stand alone power system.

What types of batteries are used in cellular BS?

Different types of batteries such as lead-acid, Lithium-ion, Redox-flow, Lithium-polymer etc are being investigated for use in cellular BS (Merei et al., 2013), (Fabbri et al., 2011a). Proper configuration and optimal battery utilization are particularly important in stand alone or off-grid Bs.

Can BS backup batteries be used as flexibility resources for power systems?

Therefore, the spare capacity is dispatchable and can be used as flexibility resources for power systems. This paper evaluates the dispatchable capacity of the BS backup batteries in distribution networks and illustrates how it can be utilized in power systems.

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