

Working principle of aerospace base station power supply





Overview

What type of power supply does an aircraft use?

The main power supply is a 400 Hz, 115/200 V three-phase AC power system consisting of a constant speed drive and an AC generator. The aircraft power supply operates in a high-altitude, cold, low-pressure environment, which results in large temperature differences, humidity, salt spray corrosion, and sand and dust wear.

What is an aircraft power system?

An aircraft power system is defined as a combination of the power generation sources, such as solar panels, and energy storage mechanisms, which together manage and supply the necessary power for propulsion and operational requirements during different stages of flight. How useful is this definition?

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Why do aircraft power supply failures occur?

The aircraft power supply operates in a high-altitude, cold, low-pressure environment, which results in large temperature differences, humidity, salt spray corrosion, and sand and dust wear. Any decline in the insulation performance of the electrical facilities, equipment corrosion, and wear can lead to electrical failure and fire accidents.

Why do cellular base stations have backup batteries?

[.] 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.



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