

Why do communication base stations use 48v power supply

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Why do telecom networks use -48 V DC power?

Telecom and wireless networks typically operate on -48 V DC power, but why? The short story is that -48 V DC, also known as a positive-ground system, was selected because it provides enough power to support a telecom signal but is safer for the human body while doing telecom activities.

Why do we use 48V power supply?

The choice of 48V was to maximize the distance between the user and the end office under the conditions at the time (36V is a safe voltage, and it is unsafe to exceed too much). Later, in order to be compatible with early equipment and reduce costs, the central office communication equipment still used -48V power supply.

What power supply is used in a central office communication system?

Later, in order to be compatible with early equipment and reduce costs, the central office communication equipment still used -48V power supply. Likewise, with a negative power system, the positive ground is just a convention. It turns out that there is a saying that there are a lot of negative charges in the air.

Why should you use -48 volt DC?

The use of -48 volt DC also ensures compatibility with safety regulations and guidelines. Standardization plays a crucial role in the seamless operation of complex communication networks.

The -48V DC standard ensures a consistent power supply that is crucial for the uninterrupted operation of sensitive telecommunications equipment, thereby maintaining the integrity ...

Figure 3. A power supply for a 5G macro base station block diagram. Highlighted ICs The MAX15258 is a high voltage multiphase boost controller with an I²C digital interface designed to support up to two ...

The batteries, which are floating, provide the -48 VDC power to the telecom equipment or other loads if the rectifiers fail to do so. The base transceiver station (BTS) or remote radio head ...

Telecom networks use 48V DC power for safe, efficient delivery, reliable battery backup, and reduced corrosion, supporting critical communications equipment.

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The communications equipment doesn't notice the difference, and everything keeps operating. When the power comes back, the rectifiers take over again and continue operating. In ...

In modern communication networks--from 4G and 5G to future 6G--mobile base stations form the backbone of wireless connectivity. Behind this infrastructure lies a seemingly minor yet critical design ...

Discover why the telecommunications industry relies on -48 volt DC power. Learn about its historical origins, safety benefits, power efficiency, and compatibility with equipment.

The use of -48V power supply is caused by historical reasons. The earliest communication network used was the telephone network, and the telephones were powered by the telecommunications office.

Thus, 48V became embedded as the "genetic code" of telecom power supply, passed down as the industry evolved from wired telephony to wireless base stations and microwave communication.

Although the -48V power supply system is widely used in the communication field, not all regions of the world adopt the -48V power supply. Different countries and regions may choose ...

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