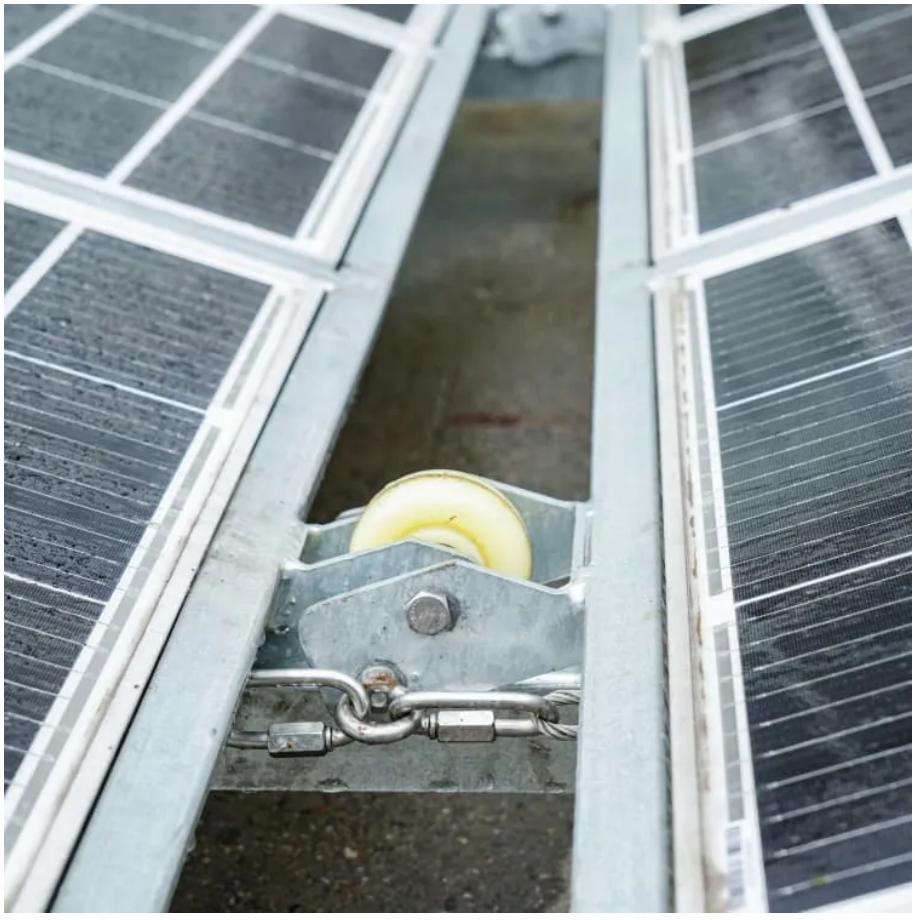
BUHLE POWER

Base station power control



Overview

How to reduce power-intensive base stations?

To address the issue of power-intensive base stations, proposed a combined approach involving base station sleep and spectrum allocation. This approach aims to discover the most efficient operating state and spectrum allocation for SBS to minimize power consumption and network disturbance.

What is a monitoring-and-control solution for a base station?

Monitoring and controlling the performance of a base station’s PA makes it possible to maximize the output power while achieving optimum linearity and efficiency. This article discusses the elements of a monitoring-and-control solution for the PA using discrete components—and describes an integrated solution.

How can a base station reduce energy consumption?

Significant efforts are being made to reduce the overall energy consumption of base stations to lessen their impact on the environment. Electrical energy is the principal source of everyday operating costs in a base station, and the PA can be responsible for more than half of the power dissipation.

How does a virtual battery control a base station?

By regulating the charging and discharging behavior of the virtual battery of the base station in such a way that the base station avoids the peak period of power consumption and staggered power preparation, it is able to optimize the regional demand for electricity.

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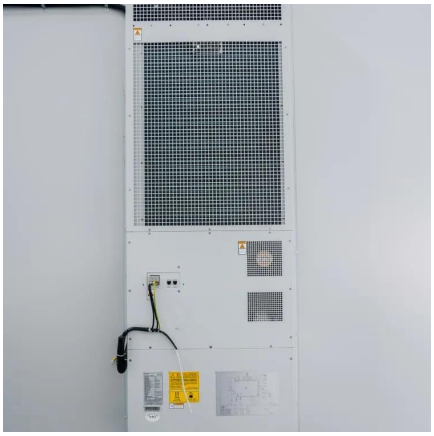
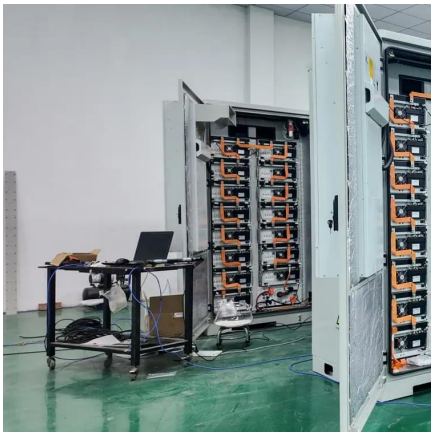


[Smart Power of Communication Base Station]

Using 5G Internet of things technology, combined with data analysis, to improve the traditional power management level, and to achieve the visible, measurable, controllable, and linkage of ...

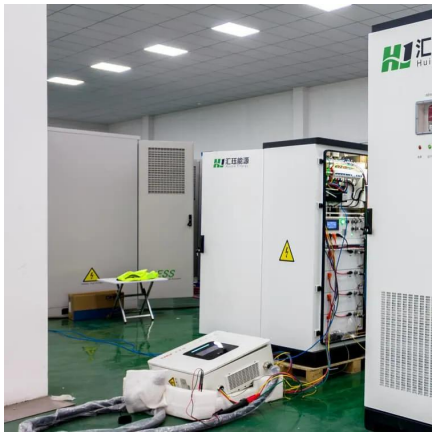


[Directional Power Control of 5G Radio Base Stations for EMF ...]

Jul 23, 2024 · When the electromagnetic field (EMF) compliance boundary of a radio base station (RBS) is determined based on the actual maximum EMF exposure condition according to the ...

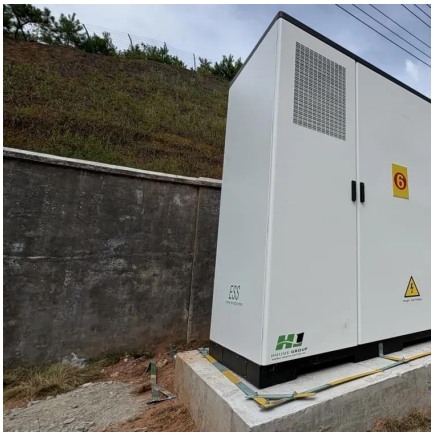
[Energy-saving control strategy for ultra-dense network base stations]

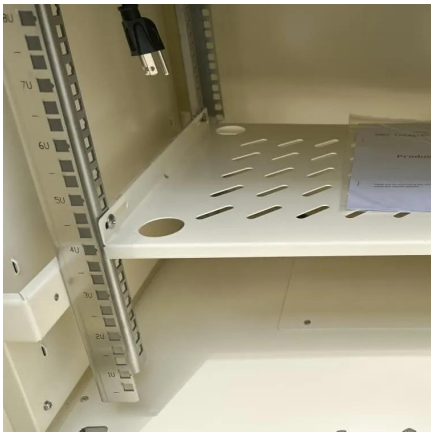
Aug 1, 2025 · A base station control algorithm based on Multi-Agent Proximity Policy Optimization (MAPPO) is designed. In the constructed 5G UDN model, each base station is considered as ...



[Base station power control strategy in ultra-dense networks ...]

Aug 1, 2025 · This paper proposed a multi-agent reinforcement learning based power control strategy for base stations in UDN. The method initially modeled system energy consumption ...



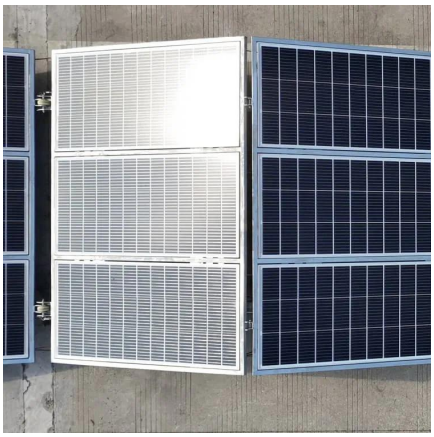


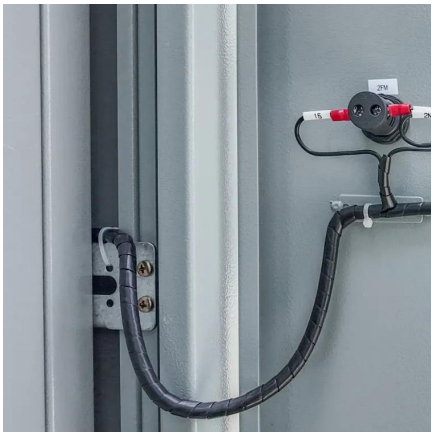
Discrete

Introduction In wireless base stations, the power amplifier (PA) dominates signal-chain performance in terms of power dissipation, linearity, efficiency, and cost. Monitoring and ...

[Hybrid Control Strategy for 5G Base Station Virtual Battery ...]

Sep 2, 2024 · Aiming at this issue, an interactive hybrid control mode between energy storage and the power system under the base station sleep control strategy is delved into in this paper.



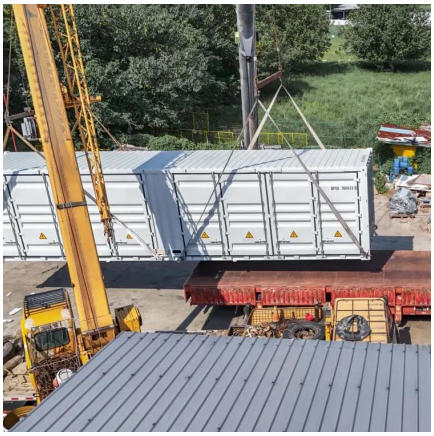


[Integrated power control and base station assignment]

However, previous work has assumed the assignment of mobiles to base stations is known and fixed. In this work, we integrate power control and base station assignment. In the context of a ...

[Base Station Sleeping and Power Control for Bursty ...]

Nov 12, 2021 · Abstract--In this paper, we study sleeping and power control of a single-cell cellular network with bursty traffic. The base station (BS) sleeps whenever the system is ...



[Base station power control strategy in ultra-dense networks ...]

Aug 6, 2025 · Within the context of 5G, Ultra-Dense Networks (UDNs) are regarded as an important network deployment strategy, employing a large number of low-power small cells to ...

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