ContainerPower Energy Solutions

Space Station Energy Storage Lithium Battery

Overview

The International Space Station recently replaced its old nickel-hydrogen batteries with 24 lithium-ion batteries, improving energy efficiency and reducing maintenance requirements.Are lithium ion batteries good for space missions?

In recent decades, lithium-ion (Li-ion) batteries have become the preferred choice for powering space missions, replacing older nickel-based and silver-zinc battery chemistries. Their high energy density, long cycle life, and superior weight-to-power ratio make them ideal for space applications.

When did NASA use lithium-ion batteries?

NASA first used nickel-hydrogen batteries in 1990 for the Hubble Space Telescope — the technology's debut in low-Earth orbit on a major project. It was the primary power system for the International Space Station for more than 18 years before eventually being replaced by lithium-ion batteries.

Which spacecraft uses lithium-ion batteries?

The James Webb Space Telescope (JWST) uses lithium-ion batteries to store energy during orbital maneuvers. The Osiris-Rex spacecraft, which collected samples from asteroid Bennu, used lithium-ion batteries to power critical instruments.

Why are lithium-ion batteries important in space exploration?

Lithium-ion batteries have revolutionized space exploration, providing lightweight, energy-dense, and long-lasting power solutions for rovers, satellites, and space stations. Their role in future Moon and Mars missions, deep space exploration, and satellite constellations makes them indispensable for advancing space technology.

Can lithium batteries be used in space?

Despite their advantages, lithium batteries must overcome several challenges

in space applications: Space temperatures can range from -250°F to 250°F (-157°C to 121°C), which can degrade battery performance. Use of thermal management systems (such as heaters and insulation).

Should lithium-sulfur batteries be tested on the International Space Station?

Dan Cook, Lyten’s co-founder and CEO, emphasized the importance of this opportunity, saying, "The process for inclusion of batteries for testing on the International Space Station is a highly competitive one and a necessary step to enable broad adoption of lithium-sulfur for space applications.

Space Station Energy Storage Lithium Battery

Contact Us

For catalog requests, pricing, or partnerships, please visit: https://www.websparafotografos.es