

# Li ion battery concepts

**Nominal Capacity**

**280Ah**

**Nominal Energy**

**50kW/100kWh**

**IP Grade**

**IP54**



## Overview

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Lithium-ion batteries stand out for their high energy density, lightweight design, and long cycle life, making them ideal for modern applications such as smartphones, EVs, and power tools. They charge quickly and are rechargeable up to 1,000–3,000 cycles. However, they come at a cost. Explore lithium-ion battery types, how they work, cell formats, safety advancements, Unico's expert insights, and future innovations driving efficiency in EVs and energy storage. Lithium-ion (Li-ion) batteries are essential to today's connected world. Understanding what a Li-ion battery is, I go back to basics and explain the relationship between electrons and lithium ions, the relationship between Gibbs free energy and potential, which is the energy that drives the battery, the background to the development of lithium-ion batteries, and the relationship between the positive and negative electrodes. Lithium batteries are the backbone of modern portable power, fueling everything from smartphones and laptops to electric vehicles and renewable energy storage systems. From smartphones and laptops to electric vehicles and IoT devices, these batteries are everywhere. But while hardware engineers traditionally handle battery-related concerns, software developers and system engineers are also increasingly involved.

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### A Beginner's Guide to Lithium-Ion Battery Technology

When you charge a lithium-ion battery, lithium ions move from the cathode to the anode through an electrolyte. During discharge, the ions flow back to the cathode, releasing energy that ...

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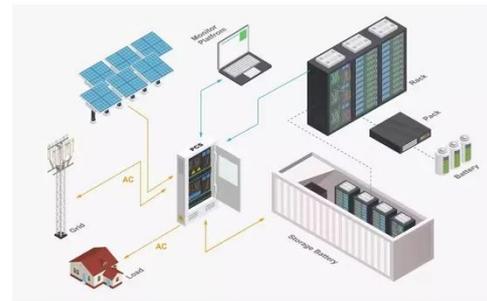
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### Unlocking Battery Basics: Key Concepts for Better Energy Solutions

Learn the battery basics in this comprehensive guide. Discover how batteries work, the differences between lithium-ion, lead-acid, and NiMH types, and key performance factors like ...

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### How Lithium-ion Batteries Work , Department of Energy

From laptops and cell phones to hybrids and electric cars, this technology is growing in popularity due to its light weight, high energy density, and ability to recharge. So how does it work? ...

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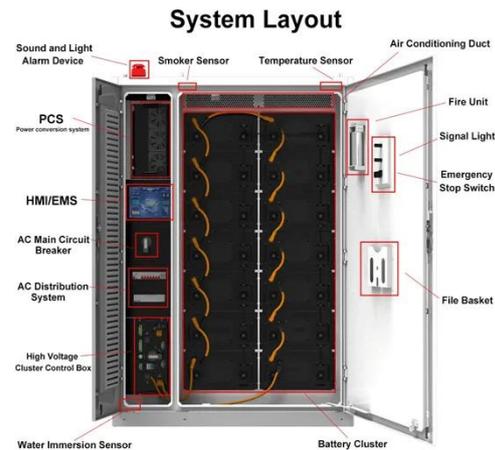
### Lithium-ion Battery Principles -



## Operating Principles of ...

In this chapter, I explain the principles of lithium-ion batteries.

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## How Does a Lithium Battery Work? A Complete Guide



Each cell contains four key components: The anode is usually made from graphite (carbon). During charging, lithium ions move into the anode, where they are stored until the battery ...

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## Lithium-ion batteries and the future of sustainable energy: A

Current knowledge, trends, and challenges in Lithium-ion battery technology are summarized. A novel integration of Lithium-ion batteries with other energy storage technologies is ...

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## What is a Lithium-Ion Battery and How Does it Work?

This article will delve into the inner workings of lithium-ion batteries, exploring how they store and release energy, types of lithium-ion batteries,

battery applications, and expert insights.

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## What Is a Li-ion Battery? Your Complete Guide 2025

Li-ion batteries come in three main shapes: cylindrical, prismatic, and pouch. Cylindrical cells (like the popular 18650 and 21700 models) are shaped like small cans. They're rugged, efficient

...

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## Fundamentals and perspectives of lithium-ion batteries

This chapter presents an overview of the key concepts, a brief history of the advancement and factors governing the electrochemical performance metrics of battery technology. It also contains in-depth ...

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## Understanding Lithium-Ion Batteries: A Beginner's Guide for ...

This beginner's guide introduces the fundamentals of lithium-ion batteries

and explains why developers and engineers should become battery literate, especially in today's age of energy ...

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