Eos Z3

Zinc-powered aqueous liquid battery module

It's the intraday market's only U.S.-designed and -manufactured—and fully-commercialized—alternative to lithium ion and lead acid monopolar batteries for critical 3- to 12-hour discharge duration applications.

Our latest generation Eos Z3 battery module sets new standards in simplicity, safety, durability, flexibility, and availability. Its ingenious design extracts the highest performance yet from our proven zinc hybrid cathode technology, solving the limitations that other stationery energy storage solutions ignore—and transforming how utility, industrial, and commercial customers store power.

Technology	Zinc hybrid cathode
Module version	Z3
Voltage range	22 to 48 VDC
Rated Power (DC) / Energy	0.15 kW / 0.8 kWh
Certifications	UL 1973, UL9540A
Dimensions	7.3H x 14.7W x 12.4D in 18.5H x 37.3W x 31.5D cm
Weight	45 lbs / 20.5 kg

Three proprietary components. One ingenious design.

With more than 95 patents pending, published, or issued, our streamlined zinc-powered Eos Z3 battery module design features an aqueous electrolyte, bipolar electrodes, and a polymer casing.

1

Non-degradable bipolar electrodes

Conductive plastic anodes (-)and carbon-felt cathodes (+) make up the Z3 electrodes. They're mechanically tough, corrosion resistant, and chemically stable, delivering for years with virtually no degradation. Plus, our bipolar structure simplifies internal battery connections to reduce internal resistance and improve round-trip efficiency.

2

High-performance aqueous electrolyte

Our innovative blend of water, halides, additives, and buffering agents make up our proprietary aqueous electrolyte. The formula both enhances zinc solubility and plating and eliminates the dendrite and densification issues that can lead to performance decay and safety hazards.

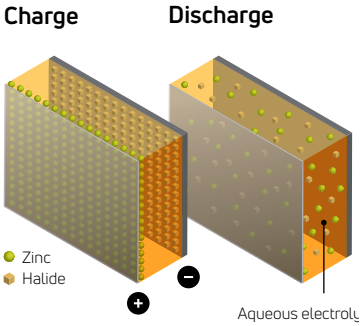
3

Fully-sealed polymer casing

A rugged, injection-molded thermoplastic polymer exterior provides an optimized structure into which our electrodes are inserted—the Z3 design requires just 20 of them—minimizing materials, manufacturing, and maintenance. And all while eliminating the risk of any external leaking.

Inspired by zinc plating baths

Z3 battery modules store electrical energy through zinc deposition. Our aqueous electrolyte is held within the individual cells, creating a pool that provides dynamic separation of the electrodes. During charge and discharge, ions move through the electrolyte to their respective electrode to donate or accept electrons, creating a current flow through the bipolar stack..



Realizing the full power of zinc

Eos Z3 modules are as high-performing and price-competitive as leading industry storage solutions in the intraday market. But our proven, zinc-powered chemistry delivers significant additional operational advantages in 3- to 12-hour discharge duration applications that other technologies can't.

Simple

Fully sealed.
Long lived.

Each Z3 battery module is a self-contained unit, a closed-system design with no moving or delicate parts, so they're as easy and cost-effective to maintain as they are to manufacture. And they can last at least 6,000 cycles—almost twice the operational life of most conventional battery chemistries.

Safe

Non-flammable.
Non-corrosive.

Z3 modules are inherently safe to use. With a water-based electrolyte and flame-retardant polymer framing, there's no risk of thermal runaway. When fully charged, they're at most mildly acidic (pH 2-4 range). And even when over-charged, only negligible levels of hydrogen are off-gassed.

Durable

High tolerance.
Low degradation.

No matter what conditions our Z3 battery modules face, they keep on going—even fully recovering from 90°C+ abuse cycles with just a simple, short rest period—with no change to their overall degradation curve. Which, at less than 9% over the first 3 years and then zero thereafter, is well below conventional standards

Lasts

20 years

Certified to the

UL1973

Batteries in Stationary Applications standard

Retains

>91%

of rated capacity over product lifespan

Flexible

Variable DoD.
Variable duration.

Our zinc-based battery chemistry is highly tolerant of significant variation in operational requirements. A Z3 module's storage duration can range from 3 to 12 hours, with no impact on degradation. And the maximum DoD can be reduced for applications demanding round trip efficiency in the mid-80s.

Available

Reliable supply.
Ethical sourcing.

Z3 modules require just five low-cost, widely-used, earth-abundant commodities, that have no geopolitical issues connected to their extraction. This enables local sourcing that minimizes the risk of supply chain disruptions—and related price swings.

Maximum of

100%

Depth of Discharge (DoD)

Approximately

80%

of materials sourced within a day's drive

Power that stacks up.

Z3 battery modules are the building blocks of all of our ingenious energy storage systems. Our standard Z3 strings are racked in a variety of configurations to form our Eos Cube, Eos Hangar, and Eos Stack solutions.

Eos. Positively ingenious.

Eos Energy Enterprises, Inc.
3920 Park Avenue / Edison, NJ 08820
1 732 225 8400 / info@eose.com / eose.com