

# BATTERY DATASHEET

ZE-25 | ZE-MEGA-25



High-performance battery matching solar lifetime.

This is the new era of energy storage possibilities built on the novel titanium superconductor cell chemistry, assembled into perfected Zenon Energy battery pack.



Energy storage as it should be.

Safe, modular, cost-effective, sustainable, and long-lasting.

This battery can reliably cycle for decades with little capacity fade, sulphation, overheating, memory effect, short lifetime, fire risk, and other common battery issues.

## FEATURES



**20,000+**  
cycles



**-40°C to +60°C**  
operation



Lifetime  
**matching solar**



**Smart**  
monitoring



**Safest**  
Class 9 cell



**Rapid**  
charging



**Telco**  
designed



**Solar-ready**  
charge port

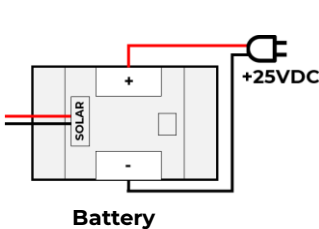


**Unique**  
stacking design

## SOLAR CHARGING



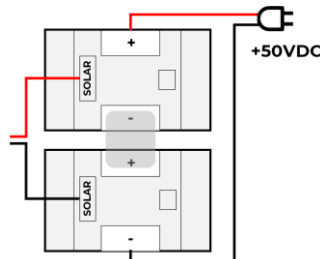
30-38Vmp  
70A max



Battery



60-75Vmp  
70A max



Model 50

Charge directly with reliable solar without extra hardware.

## STACKING



Maximum 9 units



Maximum series  
voltage: 1000VDC



This battery pack was designed using the past decades of energy storage experience with proprietary innovations on materials, cell chemistry, BMS software, and busbar design.

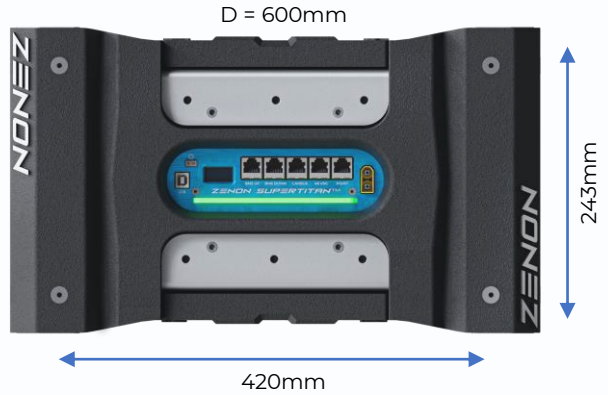
The advanced and open monitoring system combined with future updatability ensures future-proof storage for a truly sustainable future without planned obsolescence.

### Innovations

- Battery stacking technique
- Open monitoring system
- Busbar design
- First “solar ready” battery

### World-class Performance

- Titanium-anode for 25 year longevity
- World-leading battery warranty value
- Passive and active cooling design
- Fits standard telco racking system



#### OTHER WARRANTIES

##### LI-ION / LIFEPO4

- 10 years
- 2.2MWh
- 60% capacity
- 80% usable

### POWERFUL WARRANTY

#### ZENON 10-YR

##### SUPERTITAN

- 10 years
- 5.5MWh
- 90% capacity
- 100% usable

#### 15-YR

##### EXTENSION 1

- 15 years
- 7.3MWh
- 80% capacity
- 100% usable

#### 20-YR

##### EXTENSION 2

- 20 years
- 9.1MWh
- 70% capacity
- 100% usable



Users have full access to their monitoring data per Zenon Energy battery communication protocols which are open-source or publicly available.

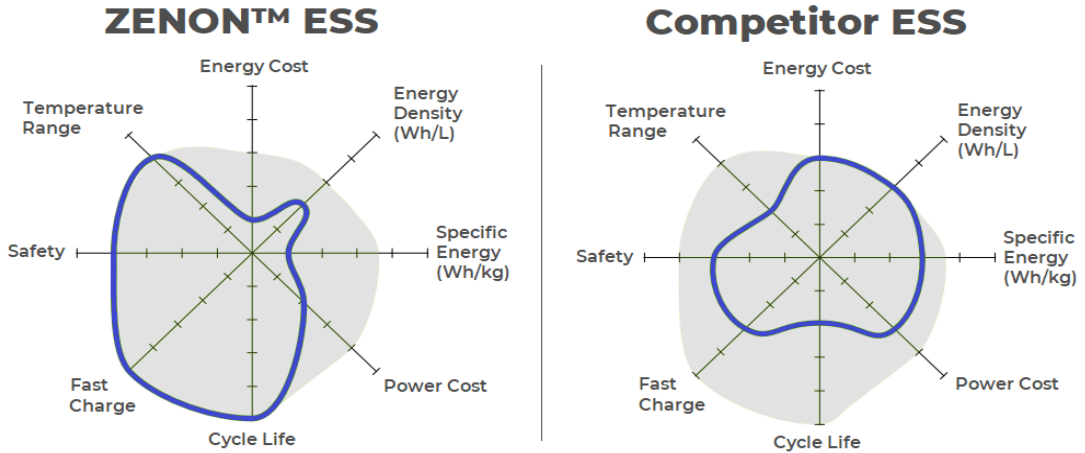
- Extend battery warranty using monitoring data
- Variable data-logging from 5 minutes to 5 years
- Using the SunSpec Alliance monitoring protocol
- Local, WiFi, RS485, and CANBUS monitoring



## OVERALL COMPARISON

The SuperTitan battery is ideal for tough environments which may have demanding battery use, fast charging, and requires a high level of fire safety from the battery.

Note the SuperTitan energy density and specific energy is less than that of typical Lithium batteries, due to a safer and more stable nominal voltage.



## COMPARISON CHART

	Lead Acid / Gel / AGM	Lithium Phosphate	NMC Lithium	Flow Battery	<b>ZENON SUPERTITAN</b>
Cyclife 25°C	1,500	3,000	3,200	10,000	<b>&gt; 20,000</b>
Cyclife 45°C	500	1,000	1,200	10,000	<b>&gt; 6,000</b>
Typical Yearly Degradation	3%	6%	4.4%	N/A	<b>0.6%</b>
Usable lifetime (realistic)	< 4 years	< 8 years	< 8 years	< 20 years	<b>&lt; 25 years</b>
Warrantied kWh cost	Up to 3 years	10 year, 40% loss	8 year, 30% loss	10 year, 0% loss	<b>Up to 20 year, 30% loss</b>
LCOE*	\$0.16/kWh	\$0.13/kWh	\$0.19/kWh	\$0.34/kWh	<b>\$0.052/kWh</b>

\*Depending on region and includes discount rate

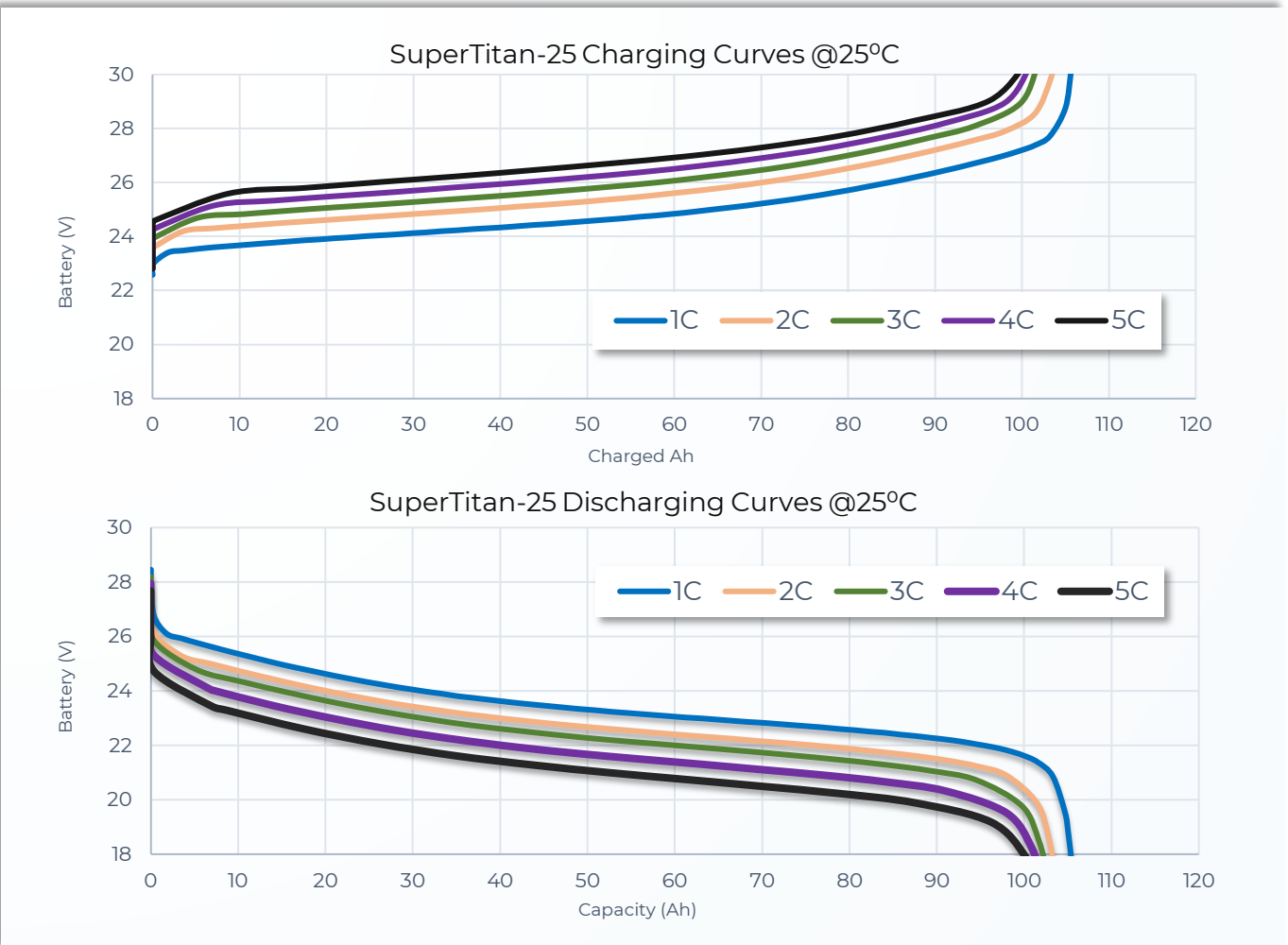
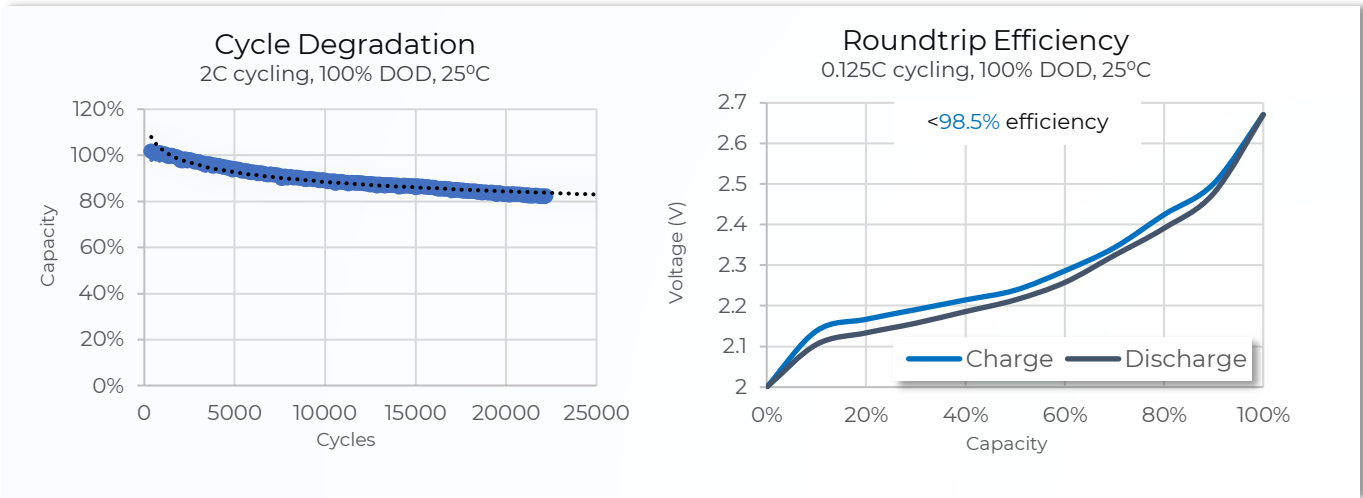


## TECHNICAL SPECIFICATIONS

		SuperTitan™ 25	2x SuperTitan 25	SuperTitan™ MEGA25
OUTPUT	CHEMISTRY	Titanium Superconductor		
	BATTERY VOLTAGES	25V Nominal 19.8 - 30 VDC	50V Nominal 39.4 - 60 VDC	2.25V Nominal 1.8 - 2.7 VDC
	CAPACITY	2.5 kWh (105 Ah)	5.0 kWh (105 Ah)	2.5 kWh (1150 Ah)
INPUT	CHARGE VOLTAGE	29.7 VDC	59.4 VDC	2.7V
	CHARGE CURRENT	105A (1C)	105A (1C)	1150A (1C)
	CHARGING RIPPLE	Less than 30 mV	Less than 50 mV	Less than 10mV
	ROUND TRIP EFFICIENCY	<95% Efficient ( 0 - 100% SOC @ 0.1C) <97% Efficient (20 - 80% SOC @ 0.1C)		
	MAX CURRENT	250A (2C)	250A (2C)	1100A (1C)
	SOLAR CHARGER INPUT	XT90 HV connector		
	CONNECTION TYPE	XT90 HV connector		
	MAX VOLTAGE	55V	85V	Not compatible
	MAX CURRENT		60A	
	RECOMMENDED SOLAR VMP	30-38VMP	60 – 76 VMP	Not compatible
	CONNECTOR TYPE	MC4 adapter		
BATTERY MANAGEMENT SYSTEM	MAX SERIES CONNECTION	2 units	None	450 units
	OVER TEMP.		> 60°C	
	OVER VOLTAGE	> 30V DISCONNECT	> 60V DISCONNECT	>2.8V SIGNAL
	BALANCING	Active Balancing and Passive Balancing		
	LOW VOLTAGE	<19.5V DISCONNECT	< 39.0V DISCONNECT	<1.7V SIGNAL
OPERATING ENVIRONMENT	WORKING TEMP.	-40 °C to +65 °C (recommend -5°C to 35°C)		
	STORAGE SOC	40-70%		
	STORAGE TEMP.	- 5°C to + 30°C		
SAFETY	CELL SAFETY TESTS	Overdischarge, Overcharge, Short circuit, 1.5m Droptest, Heat test 130°C, Stress test cycling, Crush tests of 200kN, Puncture tests, Salt water immersion, Low pressure test, UN38.3, IEC pending		
OTHER	LIFETIME	25+ years at 25°C		
	UNIT WEIGHT	49 kg (51kg boxed)		
	UNIT SIZE	(W, L, H) 420x600x243mm		
	CASING TYPE	Heat-resistant recyclable EPP		
	PACKING	1 pcs/box, 20pcs/pallet		



## SPECIFIC GRAPHS



Note that all data is obtained directly from the cell manufacturer and verified by 3<sup>rd</sup> party testing lab.

Zenon Energy Ltd is a registered Dutch company under registry number 862483554 with registered correspondence address at Westervoortsedijk 73-DC, 6827AV, Arnhem, Netherlands. Please visit [www.zenon.energy](http://www.zenon.energy) for more information.

