Maximise Profits with Energy Storage

Beating the Eskom Tariff Hike with Solar MD

Webinar

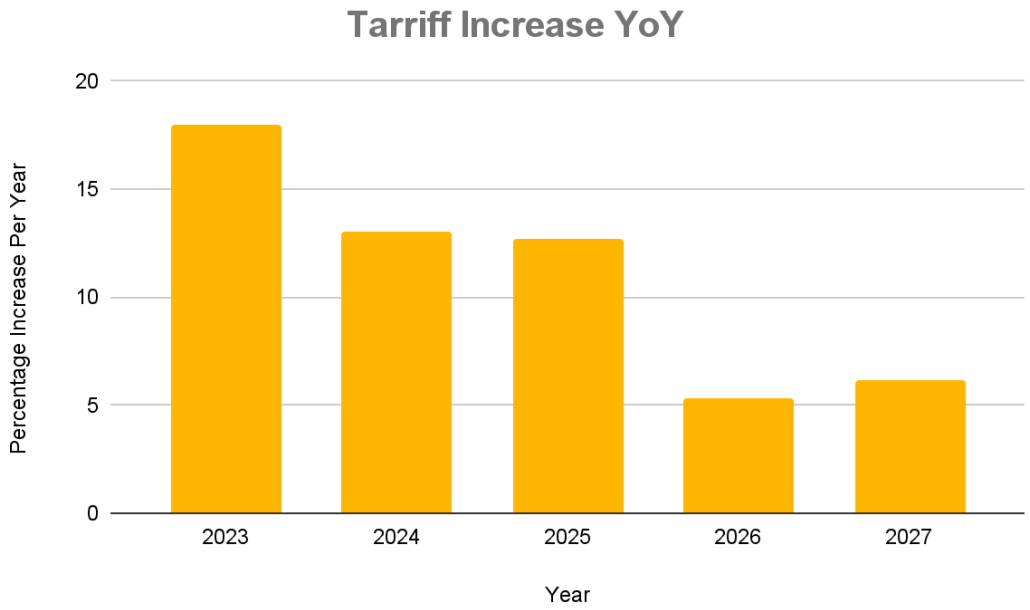
Overview

- Impact of Eskom tariff hikes on energy costs
- Why battery storage is the key to energy independence
- Solar MD solutions increase profitability
- Installation best practices

Why this matters

- 12.7% Eskom tariff hike in 2025
- Energy costs are rising thus threatening business profitability
- Solar with battery storage is no longer optional it has become a necessity

Eskom Electricity Tariff Increase



55.25% over 5 years

Why Relying on the Grid is No Longer Viable

Challenges

- Rising costs make grid electricity unpredictable
- Load shedding continues to disrupt productivity
- Traditional solar without storage doesn’t protect against rising tariffs

Benefits of Energy Storage

- Store solar energy for use when grid power is expensive
- Protect your business/home from power cuts
- Reduce electricity bills with peak shaving & arbitrage

Solar + Battery Storage = **Energy Independence**

Grid-Tied vs. Storage: What is Changing?

Grid-Tied Solar: A Limited Solution

Solar alone **reduces energy bills** but does **not provide full independence.** Without storage, energy is lost when not used immediately.

Why Adding Storage Makes the Difference

- **Peak shaving:** Store excess solar power & use it during high-tariff hours.
- **Arbitrage:** Charge batteries when electricity is cheap & use when it’s expensive.
- **Backup power:** Protect against load shedding & outages.

Eskom’s Time-of-Use (ToU) tariff

🔴 **Peak hours (most expensive):**

- **Weekdays:** 07:00 – 10:00 & 18:00 – 20:00

🟡 **Standard hours (moderate cost):**

- **Weekdays:** 06:00 – 07:00, 10:00 – 18:00 & 20:00 – 22:00
- **Saturdays & Sundays:** 06:00 – 22:00

🟢 **Off-peak hours (cheapest):**

- **Every day:** 22:00 – 06:00

How Solar MD Batteries Maximise Profitability

Cost Savings & Revenue Streams:

- **Peak Shaving:** Reduce demand charges by optimizing energy use.
- **Arbitrage**: Buy cheap electricity and use it when tariffs are high.
- **Backup Power**: Ensure uptime during load shedding.

Why Solar MD Batteries Stand Out

1. Industry-leading **efficiency**
2. **Scalability**: Fits **homes, businesses & large-scale projects**
3. **Smart EMS integration** for real-time optimization

About Us

Solar MD specializes in Lithium-Ion Battery Energy Storage Systems for residential, commercial and utility scale applications.

“Our goal is to bring affordable, clean energy Africa. There, where people have no access to the power grid”

Global Presence

- > 1500 MWh shipped
- 50+ Countries
- 15 000 sqm Factory
- 50% R&D Employees
- 2 Factories
- 4 Sales & Service Offices

Technology Partner

Mechanical Engineering
- Containerized Solutions
- Inhouse construction
- Battery housing
- Design, Plan & Build

Production & Support
- Low Voltage 8.3-14.3kWh
- High Voltage 71.5 – 243.1kWh
- PCB manufacturing
- Metal rack flat packed
- Technical Support Team

Software Development
- Inhouse EMS
- Mypower 24 portal
- Energy Management
- Battery/Cell Level Monitoring

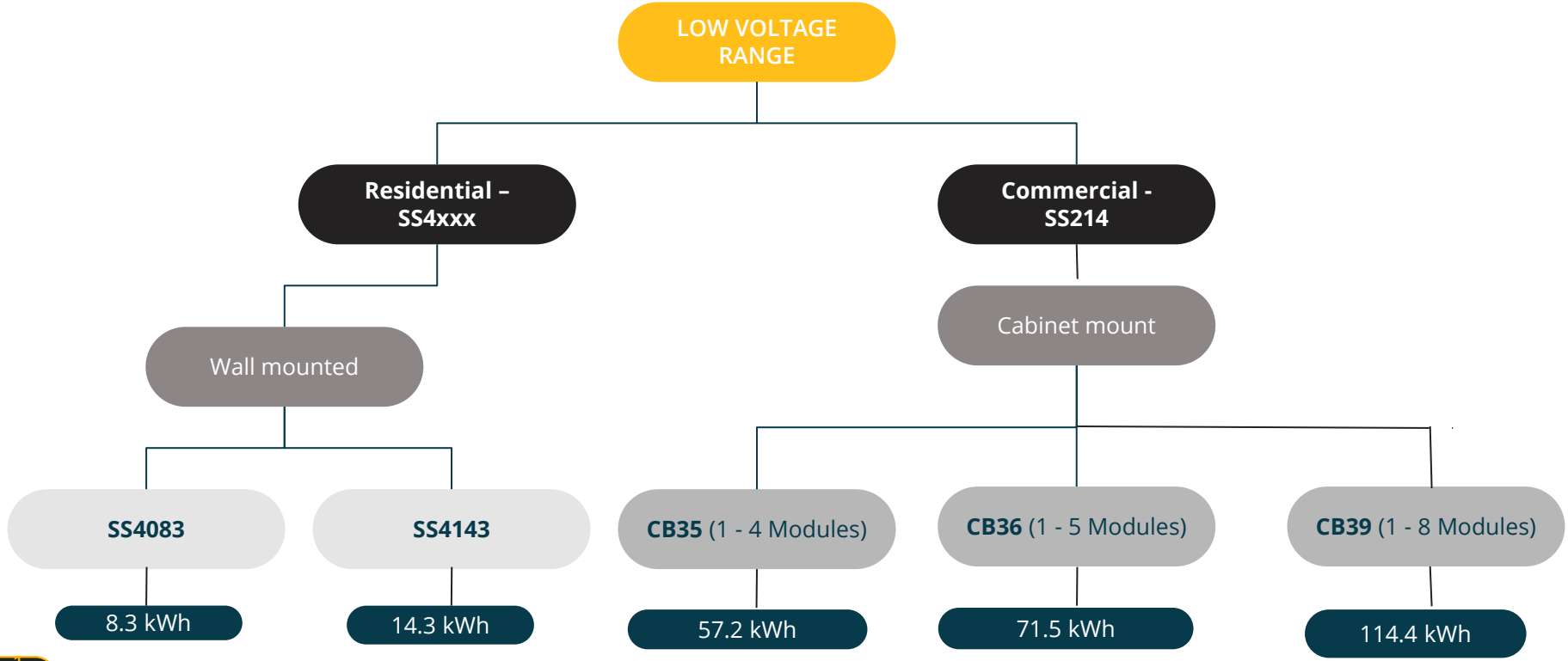
Electrical Engineering
- Inhouse BMS design
- BMU manufacture
- Logger V2 design
- PCB design

https://www.youtube.com/watch?v=0mZm77lhvx4

Product Overview

01 – LV Batteries

Low Voltage Battery Range



Low Voltage Battery Range | SS4083

- 48V Solution
- 8.3kWh
- Smallest in our range
- Wall Mounted or Floor Standing

5 Years
Guarantee on Product Material & Workmanship

12 Years
Energy Output Warranty

Low Voltage Battery Range | SS4083

- Off-Grid
- Hybrid Inverter
- Grid Tied
- Charger Systems
- Residential UPS Systems
- Commercial UPS Systems

Cell Chemistry	Lithium Iron Phosphate (LiFePO4)
Cell Manufacturer	CALB
Rated Capacity	8.3kWh
Nominal Power @0.7C	7.5kWh
Nominal Voltage	51.2V
Number of battery modules	1
Weight per module	70kg
Operational Voltage	44.8 - 55.6Vdc
Communication	CANBUS / RS485
Dimensions W x D x H	389mm x 183mm x 635mm
Cycle Life @25°C	≥4000
Charging Efficiency	99%
Operational Temperature	0°C to +50°C
Storage Duration	6 months @25°C
Safety Standard Compliance	CE / EN 55016 / IEC 61000
Cell Certificate	IEC 62619 / UN38.3 /UN3480 / UL 1642 / UL 1973

Low Voltage Battery Range | SS4143

- 48V Solution
- 14.3 kWh
- TOP- Seller
- Wall Mounted or Floor Standing

5 Years
Guarantee on Product Material & Workmanship

12 Years
Energy Output Warranty

Low Voltage Battery Range | SS4143

- Off-Grid
- Hybrid Inverter
- Grid Tied
- Charger Systems
- Residential UPS Systems
- Commercial UPS Systems

Cell Chemistry	Lithium Iron Phosphate (LiFePO4)
Cell Manufacturer	CATL
Rated Capacity	14.3kWh
Nominal Power @0.7C	10.0kW
Nominal Voltage	51.2V
Number of battery modules	1
Weight per module	118kg
Operational Voltage	44.8 - 55.6Vdc
Communication	CANBUS / RS485
Dimensions W x D x H	675mm x 185mm x 605mm
Cycle Life @25°C	≥6000
Charging Efficiency	99%
Operational Temperature	0°C to +50°C
Storage Duration	6 months @25°C
Safety Standard Compliance	CE / EN 55016 / IEC 61000
Cell Certificate	IEC 62619 / UN38.3 / UN3480 / UL 1642 / UL 1973

Low Voltage Battery Range | SS214

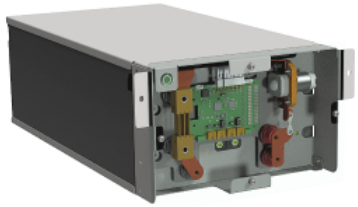
- 48V Solution
- 14.3 kWh
- Space Optimized
- Rack Mounted
- International Best-Seller

5 Years
Guarantee on Product Material & Workmanship

12 Years
Energy Output Warranty

Low Voltage Battery Range | SS214

- Off-Grid
- Hybrid Inverter
- Grid Tied
- Charger Systems
- Residential UPS Systems
- Commercial UPS Systems
- Low Voltage Battery Inverter



Cell Chemistry	Lithium Iron Phosphate (LiFePO4)
Cell Manufacturer	CATL
Rated Capacity	14.3kWh
Nominal Power @0.7C	10.0kW
Nominal Voltage	51.2V
Number of battery modules	1
Weight per module	118kg
Operational Voltage	44.8 - 55.6Vdc
Communication	CANBUS / RS485
Dimensions W x D x H	675mm x 185mm x 605mm

Low Voltage Battery Range | SS214

CB35

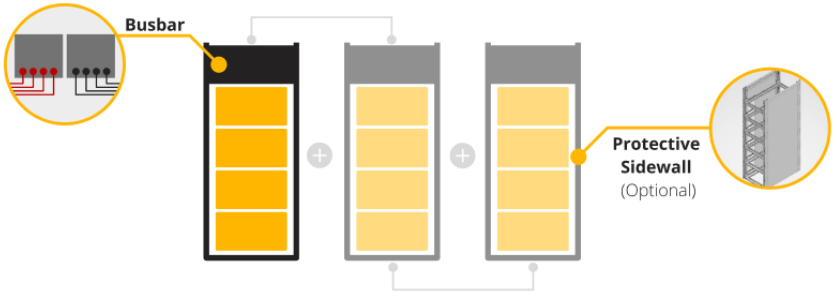
1 - 4x SS214 modules.

CB36

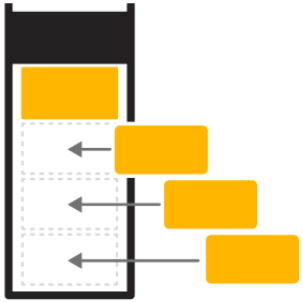
1 - 5x SS214 modules.

CB39

1 - 8x SS214 modules.



Capacity can be increased through a parallel connection of the batteries.



Increase capacity by adding on more modules when you need

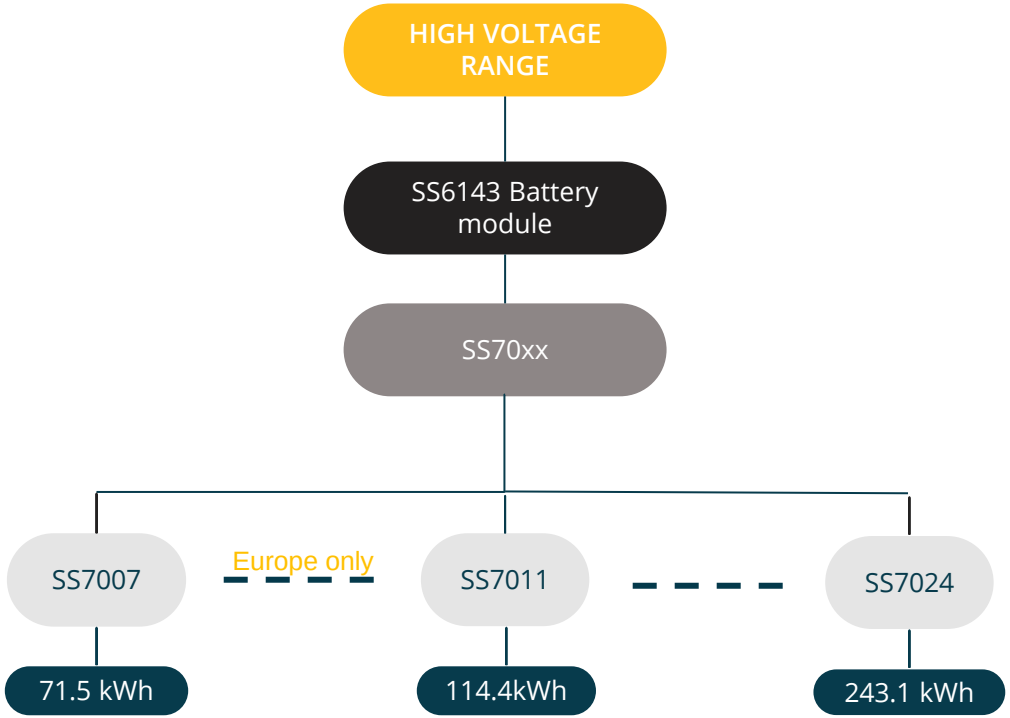
Low Voltage Battery Range | SS214

	CB35	CB36	CB39
Cell chemistry	Lithium Iron Phosphate (LiFePO4)	Lithium Iron Phosphate (LiFePO4)	Lithium Iron Phosphate (LiFePO4)
Cell manufacturer	CATL	CATL	CATL
Rated capacity	57.2kWh	71.5kWh	114.4kWh
Nominal Power (@0.7C)	40.0kW	50.0kW	80.0kW
Nominal Voltage	51.2V	51.2V	51.2V
Number of battery modules	1 - 4x SS214 Modules	1 - 5x SS214 Modules	1 - 8x SS214 Modules
Weight per cabinet	470kg	580kg	950kg
Operational Voltage	44.8 - 55.6Vdc	44.8 - 55.6Vdc	44.8 - 55.6Vdc
Communication	CANBUS / RS485	CANBUS / RS485	CANBUS / RS485
Dimensions W x D x H	436mm x 707mm x 1300mm	436mm x 707mm x 1565mm	436mm x 707mm x 2260mm

Product Overview

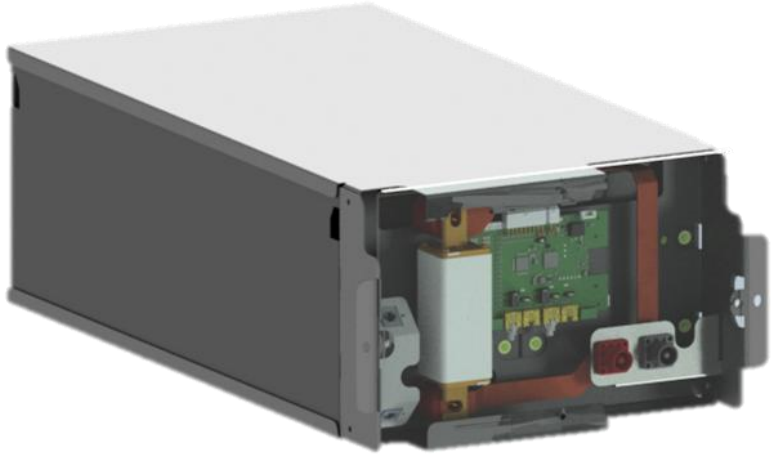
HV Batteries

High Voltage Battery Range | SS70xx



High Voltage Battery Range | SS70xx

- 51.2V – 870.4V
- SS6143 / 14.3kWh
- Infinite Scalable
- High Energy Use
- Distributor Friendly

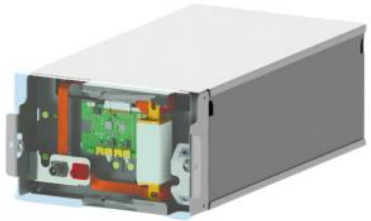


5 Years
Guarantee on Product Material & Workmanship

12 Years
Energy Output Warranty

High Voltage Battery Range | SS70xx

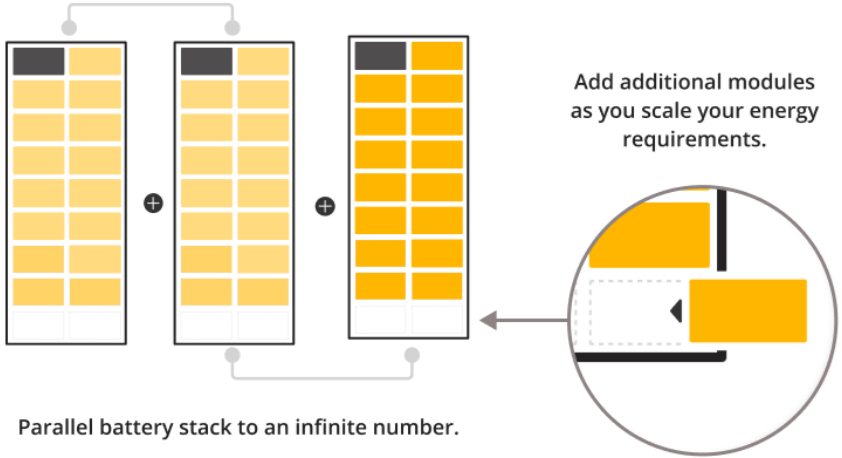
- Back-Up Power
- Peak Shaving
- Charger Systems
- Residential UPS Systems
- Commercial UPS Systems
- Off-Grid Electricity Supply
- High Voltage Battery Inverter



Cell Chemistry	Lithium Iron Phosphate (LiFePO4)
Cell Manufacturer	CATL
Rated Capacity	14.3kWh
Nominal Power @0.7C	10.0kW
Nominal Voltage	51.2V
Number of battery modules	1
Weight per module	118kg
Operational Voltage	44.8 - 55.6Vdc
Dimensions W x D x H	675mm x 185mm x 605mm

High Voltage Battery Range | SS70xx

Extend your existing system anytime when more capacity is needed.



Parallel battery stack to an infinite number.

High Voltage Battery Range | SS70xx (EU Only)

	SS7007 [1]	SS7008 [1]	SS7010 [1]
Rated capacity	71.5 kWh	85.8 kWh	100.1 kWh
Nominal Power (@0.7C)	50.0 kW	60.0 kW	70.0 kW
Nominal Voltage	260V	312V	364V
Number of battery modules	5	6	7
Weight per module	115 kg	115 kg	115 kg
Total weight	575 kg	690 kg	805 kg
Operational Voltage	255 - 278	306 - 333.6	357 - 389.2
Communication	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet
Dimensions W x D x H	424mm x 704mm x 1974mm	424mm x 704mm x 1974mm	424mm x 704mm x 1974mm

High Voltage Battery Range | SS70xx

	SS7011	SS7013	SS7014	SS7016
Rated capacity	114.4 kWh	128.7 kWh	143 kWh	157.3 kWh
Nominal Power (@0.7C)	80.0 kW	90.0 kW	100.0 kW	110.0 kW
Nominal Voltage	416V	468V	520V	572V
Number of battery modules	8	9	10	11
Weight per module	115 kg	115 kg	115 kg	115 kg
Total weight	920 kg	1035 kg	1150 kg	1265 kg
Operational Voltage	408 - 444.8	459 - 500.4	510 - 556	561 - 611.6
Communication	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet
Dimensions W x D x H	848mm x 704mm x 1490mm	848mm x 704mm x 1490mm	848mm x 704mm x 1490mm	848mm x 704mm x 1490mm

High Voltage Battery Range | SS70xx

	SS7017	SS7019	SS7020
Rated capacity	171.6 kWh	185.9 kWh	200.2 kWh
Nominal Power (@0.7C)	120.0 kW	130.0 kW	140.0 kW
Nominal Voltage	624V	676V	728V
Number of battery modules	12	13	14
Weight per module	115 kg	115 kg	115 kg
Total weight	1380 kg	1495 kg	1610 kg
Operational Voltage	612 - 667.2	663 - 722.8	714 - 778.4
Communication	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet
Dimensions W x D x H	848mm x 704mm x 2221mm	848mm x 704mm x 2221mm	848mm x 704mm x 2221mm

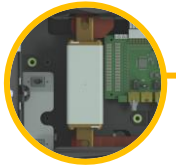
High Voltage Battery Range | SS70xx

	SS7021	SS7023	SS7024
Rated capacity	214.5 kWh	228.8 kWh	243.1 kWh
Nominal Power (@0.7C)	150.0 kW	160.0 kW	170.0 kW
Nominal Voltage	780V	832V	884V
Number of battery modules	15	16	17
Weight per module	115 kg	115 kg	115 kg
Total weight	1725 kg	1840 kg	1955 kg
Operational Voltage	765 - 834	816 - 889.6	867 - 945.2
Communication	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet	CANBUS / RS485 / Ethernet
Dimensions W x D x H	848mm x 704mm x 2221mm	848mm x 704mm x 2221mm	848mm x 704mm x 2221mm

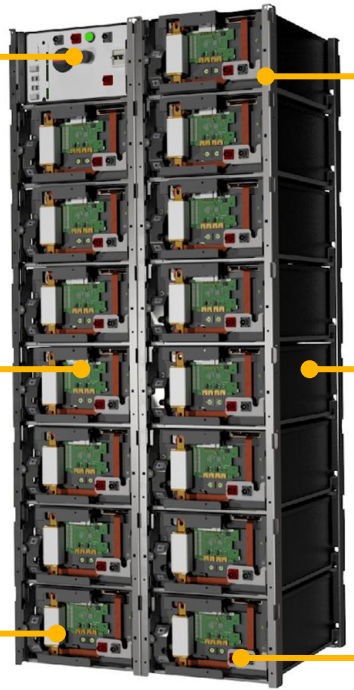
High Voltage Battery Range | SS70xx

Battery Management Unit (BMU)

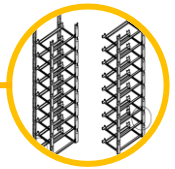
Battery Management System (BMS)



Protection 1000V 200A Fuse



Battery Module SS6143



Battery Frame 8, 12 or 18 Rack System

Connection ports DC & Coms

Product Overview

03 – Utility Scale BESS

Utility Scale Solutions | SS70XX Containerized

- Pre-Commissioned
- Plug & Play
- PCS or Hybrid Included
- Highly Customized
- Containerized

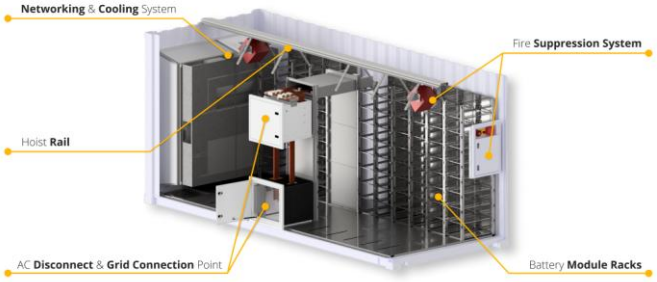
5 Years
Guarantee on Product Material & Workmanship

12 Years
Energy Output Warranty

Utility Scale Solutions | SS70XX Containerized

The Containerized **Battery Energy Storage Solution (BESS)** is an advanced Lithium-Ion storage unit built into a customized 20ft or 40ft container.

The unit is designed to be fully scalable to meet your storage requirements. Storage size for a containerized solution can **range from 750 kWh up to 5.834,4 MWh per container**. This solution can be a pure storage solution or integrated with various Power Conversion Systems (PCS) from 500kW+ output power.



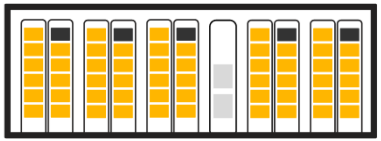
Cell Chemistry	Lithium Iron Phosphate (LiFePO4)
Cell manufacturer	CATL
Cell Certification and Standards	IEC 62619 / UN38.3 / UN3480/ UL1642/ CE
Cycle Life @25'C	6000
Recommended depth of discharge (DoD)	90% (possible up to 100%)
Container Round Trip Efficiency	90,25% (Battery Only)
Container Round Trip Efficiency (EoL)	85,20% (Battery Only)
Container Ambient Temperature	-10C to +50C (-30C on request)
Container Thermal Insulation	Rockwool
Protection Class	IP65
Container Safety Standard	IEC 62933-5-2:2020
Fire Protection	Fire Pro (Eco Friendly - K2 CO3)
Climatization	2x 36000 BTU Air Conditioners 20'C Standard room temperature
Energy Management System	Solar MD Logger V2 – Plant Controller

Utility Scale Solutions | SS70XX Containerized

Technical Information	20ft Battery Only	40ft Battery Only
Max. capacity:	2.431MWh	5.834,4 MWh
Inverter Power (PCS):	-	-
Nominal Power @ 0.7C:	1.70 MW	4.084 MW
Usable Battery Energy (90% DOD):	2.210 MWh	5.250 MWh
Number of Batteries:	170 pcs (SS6143-14.3kWh)	408 pcs (SS6143-14.3kWh)
Operational Voltage:	761.6 - 945.2Vdc	761.6 - 945.2Vdc
DC Max. Current:	2000A	4800A
Dimensions:	6058 × 2440 × 2890 mm	12200 × 2440 × 2890 mm
Weight:	Max. 23 950 kg	Max. 30 500 kg*

20ft Battery Only

Our 20ft battery only has a maximum capacity of 2.431MWh utilising 170x SS6143 High Voltage battery modules connected in parallel.



40ft Battery Only

Our 40ft battery only has a maximum capacity of 5.834,4 MWh utilising 408x SS6143 High Voltage battery modules connected in parallel.

Utility Scale Solutions | SS70XX Containerized

Technical Information	20ft Battery & Inverter	40ft Battery & Inverter
Max. capacity:	0.75 - 1.45 MWh	1.45 - 3.4 MWh
Inverter Power (PCS):	0.5 - 1 MW	1 - 2.75 MW
Nominal Power @ 0.7C:	0.525 - 1.015 MW	1.015 - 2.38 MW
Usable Battery Energy (90% DOD):	0.675 - 1.305 MWh	1.305 - 3.06 MWh
Number of Batteries:	52 - 102 pcs (SS6143-14.3kWh)	102 - 238 pcs (SS6143-14.3kWh)
Operational Voltage:	676 - 945.2Vdc	676 - 945.2Vdc
DC Max. Current:	800 - 1200A	1200 - 2800A
Dimensions:	6058 × 2440 × 2890 mm	12200 × 2440 × 2890 mm
Weight:	Max. 23 950 kg	Max. 30 500 kg*

20ft Battery & Inverter

Our 20ft battery & inverter variation has a maximum capacity range of 0.75 - 1.45 MWh utilising 52 - 102x SS6143 High Voltage battery modules connected in parallel.

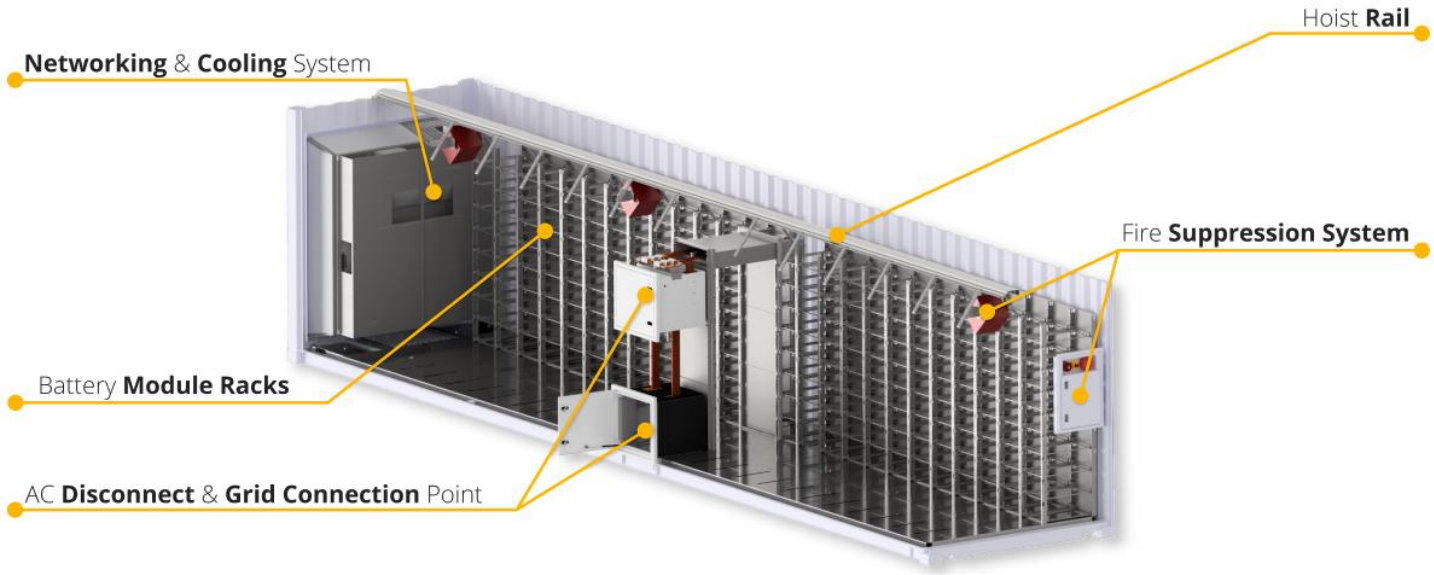
A single high voltage inverter is installed with a power range between 0.5 - 1 MW.

40ft Battery & Inverter

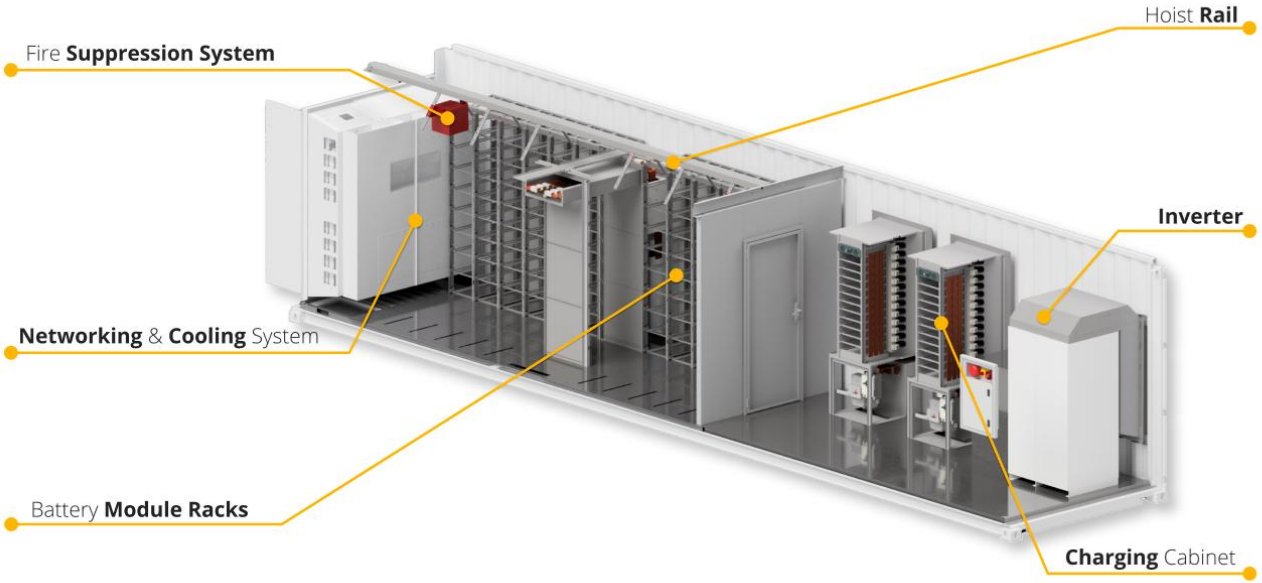
Our 40ft battery & inverter variation has a maximum capacity range of 1.45 - 3.4 MWh utilising 102 - 238x SS6143 High Voltage battery modules connected in parallel.

Dual high voltage inverters are installed with a power range between 1 - 2.75MW.

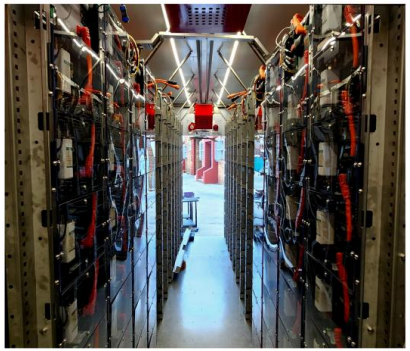
Utility Scale Solutions | SS70XX Containerized



Utility Scale Solutions | SS70XX Containerized



Utility Scale Solutions | SS70XX Containerized



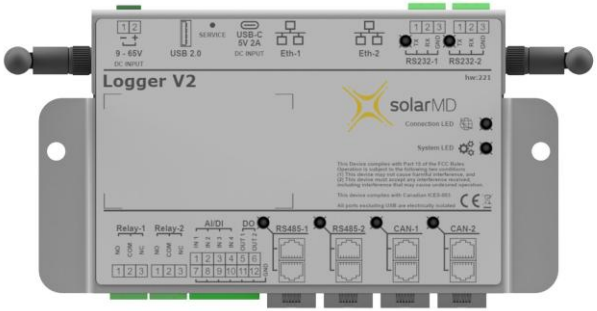
Product Overview

04 – Monitoring & Control

Monitoring & Control | EMS – Logger V2

The High-Performance Logger V2 offers easy and fast communication with automatic device discovery and connection.

- **Interfaces include** CAN Bus, RS232, RS485, Ethernet, and Wi-Fi (client and station).
- **Integrated programmable relays** for load control.
- **Communicates with supported inverters**, energy meters, weather stations, and other energy devices.



Monitoring & Control | EMS – Logger V2

System Level Management

The **Energy Management System (EMS)** is a comprehensive solution designed to monitor, control, and optimize the energy consumption and production of all connected systems. It allows to integrate with multiple brands and products to adjust energy consumption or production based on real time data to enable seamless integration of renewable energy sources into power grids. Regular reports provide insights into energy consumption, cost savings, and environmental impact.

Features:

- Remote Control
- Solar Inverter Integration
- Generator and Alternative Sources
- Energy Arbitrage (Integration with local energy exchange)
- Energy Management
- Peak Shaving
- Mini-Grid Management

Free access - No monthly fee

Battery Level Management

Each battery module features a sophisticated **Battery Management System (BMS)**. This system seamlessly communicates with the Battery Management Unit (BMU) to ensure optimal performance and safety.

Key functionalities include:

- Precise cell voltage measurement
- Cell balancing for extended lifespan
- High voltage management to prevent damage
- Data collection and storage for monitoring
- Efficient charging and discharging control
- Thermal management for ideal operating temperatures

Monitoring & Control | EMS – Logger V2

Compatibility

Solar MD batteries are compatible with specific inverters/chargers and MPPTs such as off-grid, hybrid and UPS inverters and more. We provide guidelines for other power electronic brands as well. We recommend integration with digital communication or voltage-based integration by both Solar and power electronics manufacturers.

We have tested and can recommend the below-mentioned popular inverter brands compatible with Solar MD batteries and Solar MD Logger-V2 monitoring systems.

Monitoring & Control |

mypower24 is a comprehensive management platform designed to simplify and centralize the control of your energy devices. Seamlessly integrating with your Logger V2, mypower24 offers a robust suite of features that effectively manage and optimize your energy infrastructure:

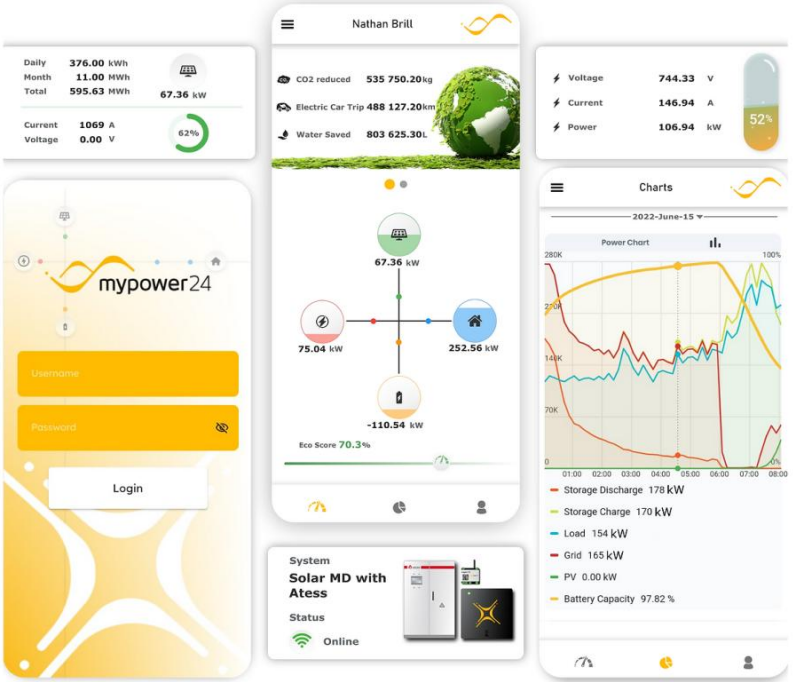
- **Real-Time Data & Insights**: Gain valuable insights into your energy usage with real-time data visualisation and historical records.
- **Unmatched Security:** mypower24 prioritises your data security with certified authentication and encrypted data transfer.
- **Convenient Remote Management:** We remotely manage your system & devices for maximum efficiency.

Monitoring & Control |

Mobile User App

The mypower24 mobile app is the user interface for the end client. It's a friendly and easy to use overview of the most important information of the energy system.

- **Dashboard Overview** of all devices and their energy information.
- **Energy Flow Diagram** to view and isolate information about your battery, consumption, solar production and other devices in the network.
- **Device Status** shows the connectivity and product information of all devices connected.

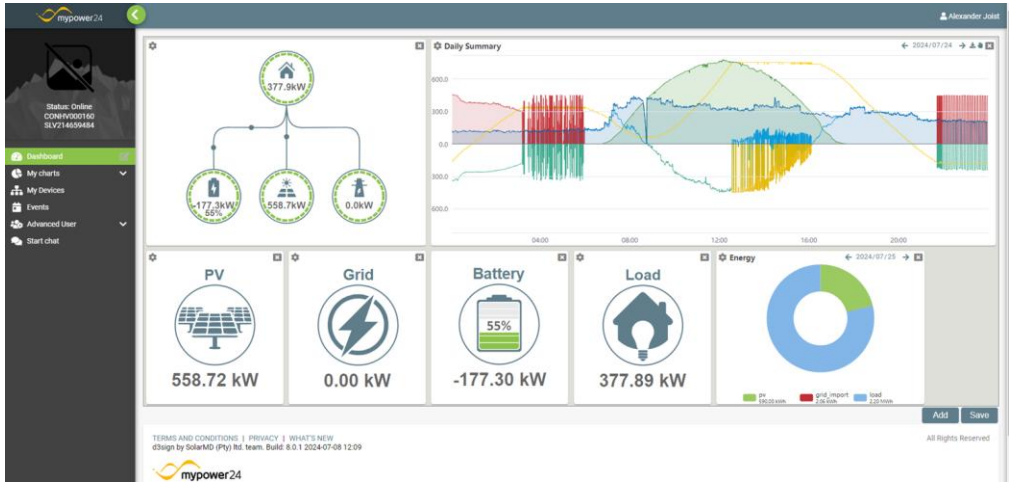


Monitoring & Control |

Installer Interface

The mypower24 Web Version is the user interface for the installer. This is the place where the magic happens.

- **Dashboard Overview** of all devices and their energy information.
- **Energy Flow Diagram** to view and isolate information about your battery, consumption, solar production and other devices in the network.
- **Insights** to battery information, easy programmimg logics and plant setup.



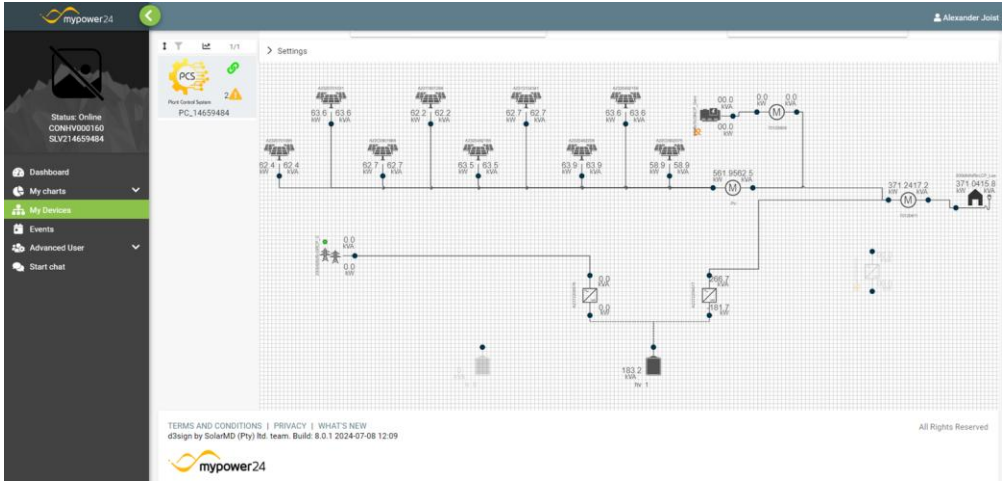
Monitoring & Control |

(Expert Level Access)

Plant Controller

The Plant Controller is a tool inside the mypower24 platform. This is where all devices connect and logics are applied

- **Draw** the electrical connections of your system in a single line diagram
- **Load all connected devices** onto the screen
- **Setup Logics** of what these devices are supposed to do or control
    - Energy Arbitrage
    - Energy Management
    - Peak Shaving
    - Zero Feed In



After Sales | Support Hotline

- Strong technical support department
- Troubleshoot any issues related to both low and high voltage batteries
- Assists remotely with firmware updates
- BMS & Relay replacements
- Installation
- Available Monday to Saturday via WhatsApp chat & Telephone

Installation Best Practices & System Optimization

- Correct system sizing for different clients
- How to optimize solar + storage for peak shaving & arbitrage
- Common installation mistakes & how to avoid them

What Installers Should Consider:

- Battery placement & ventilation
- Proper communication with inverters
- EMS integration for maximum efficiency

Key Takeaways

- Eskom **tariffs are rising** - Solar + **Storage is the only long term** solution.
- Solar MD **batteries maximize savings** with peak shaving & arbitrage.
- Our products are built for **real-world energy challenges** in South Africa.

Thank you!