



**ENERGY STORAGE SYSTEM ESS 9.0  
EXTENDED DATA SHEET**



## 1.0 Introduction.

ESS 9.0 is a new modular lithium-ion based energy storage system, which stores the surplus of the collected solar energy for later use. Energy can either be directed into the storage system or be fed into the public grid via an inverter.

Energy is available as required: in the evening, at night, or on a cloudy day.

With the BMZ 9.0 System consumers of solar power become more independent from electricity prices and can use their home-made eco-electricity when they need it.

### Advantages

- Store during the day; use day and/or night
- Independent from daylight and the public grid
- Economic, cost-cutting and ecofriendly
- Space saving (stackable up to 3 units)
- Modular installation: the storage capacity can be expanded according to your needs

### Technical Properties

- Powerful energy storage system (up to 18 kW)
- High efficiency: 95 %
- High discharge depth: 80 % DOD
- Durable: 5,000 full cycles<sup>1</sup>
- Parallel installation possible (max. 12 systems)
- High operational safety (additional second level protections)

### Safety Measures

Direct current relay and 2 <sup>nd</sup> protection (chemical fuse) for a redundant battery cut-off	<b>yes</b>
Overvoltage and low voltage monitoring for each cell string with redundant battery cut-off	<b>yes</b>
Temperature monitoring for each cell string and current interrupt device (CID) in each cell	<b>yes</b>
Protection against a reboot after deep discharge or any other serious incident	<b>yes</b>
No insecure parallel connection of cells without current interrupt device (CID) in each cell	<b>yes</b>
Active current control as a function of cell voltage and temperature	<b>yes</b>
Closed metal housing	<b>yes</b>

## 2.0 Technical Properties of a Single Module.

### General Properties

Energy nominal	8,46 kWh
Nominal voltage	54 V
Charge end voltage	61,5 V
Discharge end voltage	41,0 V
Nominal capacity	156,6 Ah (The design capacity is established at a battery temperature of 25 °C and when the battery is disconnected from any other components of the energy storage system, i.e. from inverters.)
Max. charge current	120 A
Max. discharge current	300 A (3 sec.)
Max. discharge power	18.000 W (3sec.)
Weight	97 kg
Dimensions (mm) W x H x D	638 x 421 x 487
Volume	260 l
Communication	CAN – SMA/Victron ready
Battery chemistry	Li-Ion NMC
Discharge depth	80% DOD
Full cycles <sup>1</sup>	5 000

### Developed according to the standards and user guidelines for stationary energy storage systems

VDE-ST-Li-ESS-001:2013/03

IEC62897Ed1

DIN EN 50272-1

DIN EN 50272-2

DIN EN 61427-1

DIN EN 61427-2

DIN EN 61508

DIN EN 62281

DIN EN 60950-1

DIN EN 62619 (draft)

DIN EN 62620

FNN-Hinweis

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### Performance Data For ESS 9.0

Energy density (weight)	87,2 Wh/kg
Power density (weight)	185,6 W/kg

1. When charging and discharging with max 1C, cut off at 3,0 V, operating temp. 10-25°C

## User Information

Discharge temperature (cells)	2 °C to +45 °C
Charge temperature (cells)	2 °C to +45 °C
Recommended storage temperature	10 °C to 25 °C
Self discharge (cells)	ca. 2 % per year
Max. parallel connection (of batteries)	12
Protection class	IP 21
European Conformity (CE)	yes
UN-test 38.3	yes

We inform that the product's on-board system records the product's and storage system's details.

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