

ENERGY STORAGE

ESS-BESS T

P007

CONTENT

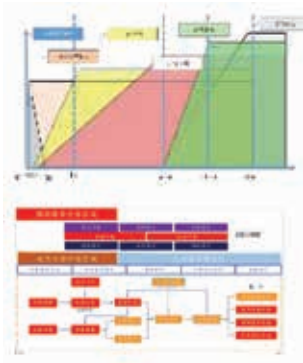
ENERGY STORAGE ESS-BESS T

- **INDIPENDENT BATTERY MODULE**
ESBM 064 100 001
ESBM 064 280 001
- **BATTERY MODULE**
ESBM 064 100 002
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ESBM 064 280 003
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ESRS 064 280 002
- **RACK SYSTEM - LIQUID COOLING BATTERY CONTAINER**
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ENERGY STORAGE SYSTEM BESS TECHNICAL IDEA

With a deep understanding of power system application scenarios, multiple designs of energy storage systems, self-developed core components and long-life battery materials, to realize the optimal solution of electric chemical ENETRA in terms of safety, economy and efficiency.

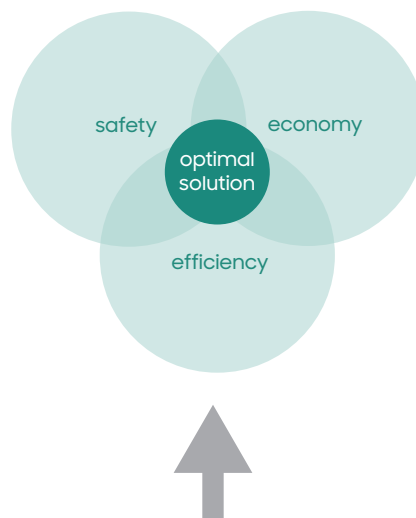
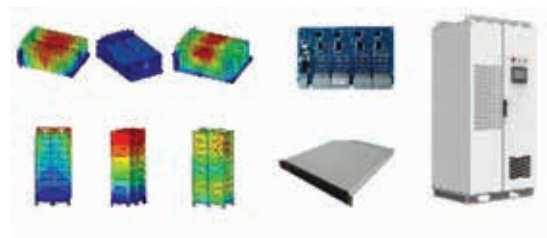
Scenarios



- Emergency response systems
- Frequency regulation
- Grid stability
- Reduction of grid congestion
- Ramp rate control
- Energy arbitrage
- Peak shaving
- Black start

Equipments

Self-developed core components according to requests of Scenario and system



Systems

- Cell safety warning and protection
- Electrical design and protection
- Multiple-graded hierarchical protection
- Multiple fire warning and protection
- Cloud platform warning and diagnosis

Cell Material



- Long life safe LiFePO₄ Cell
 - Long cycle time (>10,000 times)
 - More secure (Low Failure)
 - More cost-effective
- Olive structure

INDIPENDENT BATTERY MODULE

ESBM 064 100 001

- -30~60°C ultra wide operating temperature; cycle life>4000cls@1C 80%
- Nail penetration & crush test, no fire, no explosion



Applications



Solar Storage



Wind Storage



Residential ESS



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS	CONDITIONS
Rated Capacity	100Ah	25°C@0.5P/0.5P
Rated Voltage	3.2V	
Operating Voltage	2.5~3.65V 2.0~3.65V	T > 0°C T ≤ 0°C
Internal Resistance@1kHz	0.20±0.05mΩ	27SOC
Shipment Capacity	27±3Ah	27% SOC
Energy Density	≥160Wh/kg	25°C@0.5P/0.5P
Weight	2±0.20kg	
Cycle Life	≥6000cls(@70%)	100%DOD/25°C@0.5P/0.5P
Dimension (W*L*H)	48,8*115,6*173,9mm	

Note: please refer to the specification sheet for details.

INDIPENDENT BATTERY MODULE

ESBM 064 280 001

- -30~60°C ultra-wide operating temperature; cycle life>10000cls
- Energy density≥160Wh/kg; energy efficiency is over ≥95%
- Nail penetration & crush test, no fire, no explosion



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS	CONDITIONS
Rated Capacity	280Ah	25°C@0.5P/0.5P
Rated Voltage	3.2V	
Operating Voltage	2.5~3.65V 2.0~3.65V	T> 0°C T≤0°C
Internal Resistance@1kHz	0.18±0.05mΩ	27SOC
Shipment Capacity	75.6±3Ah	27% SOC
Energy Density	≥160Wh/kg	25°C@0.5P/0.5P
Weight	5.43±0.20kg	
Cycle Life	≥10000cls(@70%)	100%DOD/25°C@0.5P/0.5P
Dimension (W*L*H)	71*173*207mm	

Note: please refer to the specification sheet for details.

BATTERY MODULE

ESBM 064 100 002

- Integration and standardization; cycle Life> 4000 cls @0.5C 70% BOL
- High reliability and safety
- Support to be connected in parallel



Applications



Solar Storage



Wind Storage



Residential ESS



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS
Rated Voltage	48V/51.2V
Series-parallel Mode	15S1P/16S1P
Rated Energy	4.8kWh/5.12kWh
Cell Rated Capacity	50Ah
Rated Charge / Discharge Current	100A
Max. Continuous Charge / Discharge Current	100A
Cooling Method	Natural convection cooling
Charge / Discharge Temperature	0~55°C/-20~55°C
Energy Density	100Wh/kg
Weight	48±1kg
Dimension (W*L*H)	483*550,5*127mm

Note: please refer to the specification sheet for details.

BATTERY MODULE - AIR COOLING

ESBM 064 280 002

- Integration and standardization; cycle Life> 4000 cls @0.5C 70% BOL
- High reliability and safety
- Support to be connected in parallel



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS	
Basic Specification	Rated Voltage	51.2V
	Rated Range	DC40~58.4V
	Series-parallel Mode	1P16S
	Rated Capacity	280Ah
	Rated Energy @25°C,0.5C	14.336kWh
	Rated Charge/Discharge Rate	0.5C/0.5C
	Dimension (W*L*H)	746*424*230mm
	Weight	110±2kg
	Cooling Method	Air cooling
Other Parameters	Energy Density	143Wh/Kg
	Waterproof Grade	IP20
	Operating Temperature	-20~60°C
	Storage Humidity	5%~95%

Note: please refer to the specification sheet for details.



BATTERY MODULE - LIQUID COOLING

ESBM 064 280 003

- Integration and standardization
- High energy density
- Flexible configuration, long cycle life >6000 cIs @0.5C 70% BOL



Applications



Technical Parameter

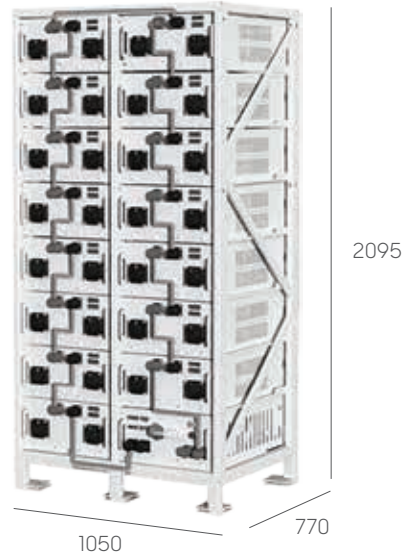
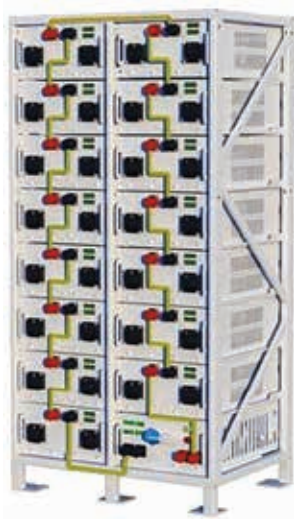
ITEM	SPECIFICATIONS	
Basic Specification	Rated Voltage	166.4V
	Rated Range	DC 145.6~184.6V
	Series-parallel Mode	1P52S
	Rated Capacity	280Ah
	Rated Energy @25°C,0.5C	46.6kWh
	Rated Charge/Discharge Rate	0.5C/0.5C
	Dimension (W*L*H)	1152*810*254mm
	Weight	330±2kg
	Cooling Method	Liquid cooling
Other Parameters	Waterproof Grade	IP67
	Operating Temperature	-20~60°C
	Storage Humidity	5%~95%

Note: please refer to the specification sheet for details.

RACK SYSTEM - AIR COOLING BATTERY CONTAINER

ESRS 064 280 001

- High security, DC multistage isolation
- Integration, standardization
- Flexible configuration, strong scalability and easy maintenance



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS
Rated Voltage	768V
Rated Range	600~876V
Series-parallel Mode	1P240S
Rated Capacity	280Ah
Rated Energy @25°C, 0.5C	215kWh
Rated Charge/Discharge Rate	0.5C/0.5C
Dimension (L*W*H)	1050*770*2095mm
High-voltage Control Box Dimension	746*464*230mm
Weight	2000±5(kg)
Cooling Method	Air cooling
Communication Method	RS485, CAN, Ethernet
Operating Temperature	-30~60°C
Shipment SOC	27%

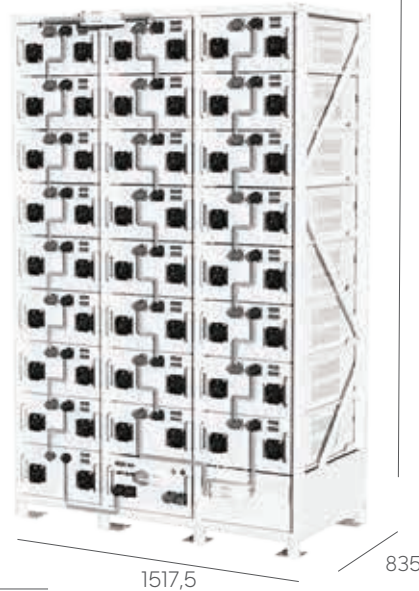
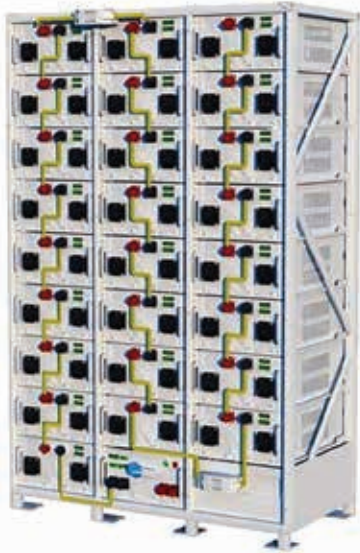
Note: please refer to the specification sheet for details.



RACK SYSTEM - AIR COOLING BATTERY CONTAINER

ESRS 064 280 002

- High security, DC multistage isolation
- Integration, standardization
- Flexible configuration, strong scalability and easy maintenance



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS
Rated Voltage	1280V
Rated Range	1000~1460V
Series-parallel Mode	1P400S
Rated Capacity	280Ah
Rated Energy @25°C, 0.5C	358.4kWh
Rated Charge / Discharge Rate	0.5C/0.5C
Dimension (L*W*H)	1517,5*835*2282mm
High-voltage Control Box Dimension	746*464*230mm
Weight	2860±5(kg)
Cooling Method	Air cooling
Communication Method	RS485, CAN, Ethernet
Operating Temperature	-30~60°C
Shipment SOC	27%

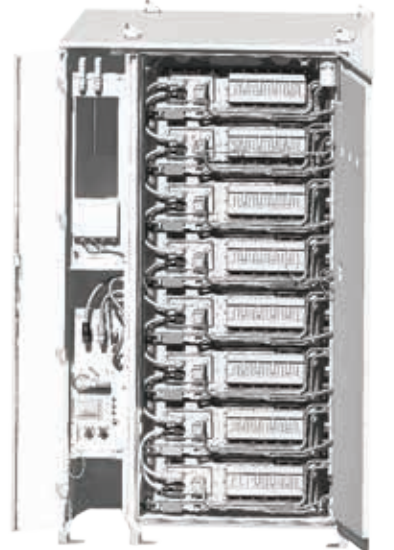
Note: please refer to the specification sheet for details.



RACK SYSTEM - LIQUID COOLING BATTERY CONTAINER

ESRS 064 280 003

- Long cycle life; high security, DC multistage isolation
- Integration, standardization
- Flexible configuration, strong scalability and easy maintenance



2280

1300

Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS
Rated Voltage	1331.2V
Rated Range	1164.8~1497.6V
Series-parallel Mode	1P416S
Rated Capacity	280Ah
Rated Energy @25°C, 0.5C	372.736kWh
Rated Charge / Discharge Rate	0.5C/0.5C
Dimension (L*W*H)	1300*1300*2280mm
High-voltage Control Box Dimension	810*1152*230mm
Weight	2860±5(kg)
Cooling Method	Liquid cooling
Communication Method	RS485, CAN, Ethernet
Operating Temperature	-30~60°C
Shipment SOC	27%

Note: please refer to the specification sheet for details.



STORAGE CONTAINER - AIR COOLING

ESSC 064 2.1M 001

- High security, DC multistage isolation
- Integration, standardization
- Flexible configuration, strong scalability and easy maintenance



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS
Rated Voltage	768V
Rated Range	600~876V
Series-parallel Mode	1P240S (10 Sets)
Rated Capacity	280Ah
Rated Energy @25°C, 0.5C	2.15MWh
Rated Charge / Discharge Rate	0.25C-1C
Dimension (L*W*H)	6058*2438*2896mm
High-voltage Control Box Dimension	810*1152*230mm
Weight	22000±100(kg)
Cooling Method	Air cooling
Communication Method	RS485, CAN, Ethernet
Operating Temperature	-20~60°C
Shipment SOC	27%

Note: please refer to the specification sheet for details.

STORAGE CONTAINER - LIQUID COOLING

ESSC 064 3.7M 001

- Long cycle life; high security, DC multistage isolation
- Integration, standardization
- Flexible configuration, strong scalability and easy maintenance



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

ITEM	SPECIFICATIONS
Rated Voltage	1331.2V
Rated Range	1164.8~1497.6V
Series-parallel Mode	1P416S (10 Sets)
Rated Capacity	280Ah
Rated Energy @25°C, 0.5C	3.73MWh
Rated Charge /Discharge Rate	0.25C-1C
Dimension (L*W*H)	6058*2438*2896mm
High-voltage Control Box Dimension	810*1152*230mm
Weight	32000±100(kg)
Cooling Method	Liquid cooling
Communication Method	CAN
Operating Temperature	-20~60°C
Shipment SOC	27%

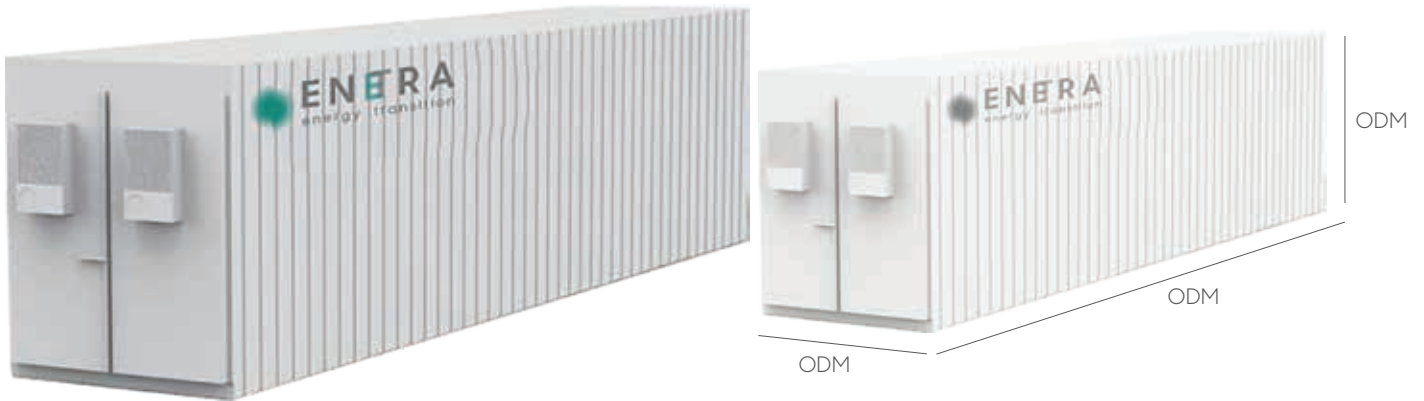
Note: please refer to the specification sheet for details.



OEM/ODM BESS STORAGE CONTAINER

ESSC 064 1.2M ODM

- OEM/ODM BESS Liquid/Air cooling container
- High security, DC multistage isolation; integration, standardization
- Flexible configuration, strong scalability and easy maintenance



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

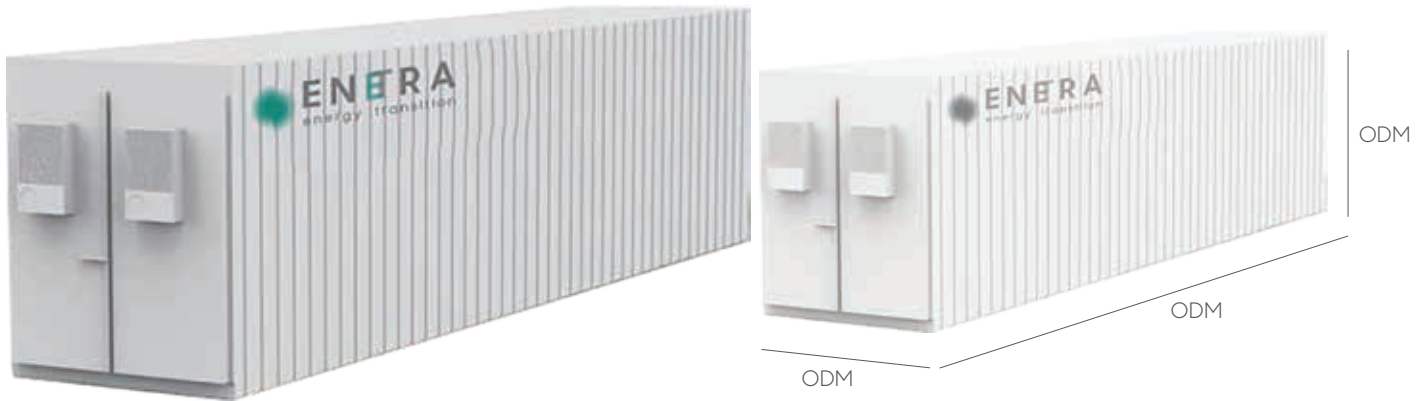
Item	SPECIFICATIONS*
Rated Capacity	1.2MWh
Rated Power	630kW/ 0.25C/0.5C/1C
Rated Grid Voltage	AC 380V
Output Wiring	3P/3P+N
Rated Frequency	50Hz/60Hz
DC Rated Voltage	768V
DC Voltage Range	DC600~876V/OEM
THDi	≤3%
Converter Container Size (L*W*H)	6058*2438*2896mm
Battery Container Size (L*W*H)	
Temperature Control Method	Air conditioning + forced air cooling / Liquid Cooling
Firefighting Method	Heptafluoropropane fire extinguishing system
Altitude	<3000m
IP Rating	IP54
Operating Temperature	-20~55°C
Relative Humidity	0~95% without condensation
Communication Method	RS485, CAN, Ethernet

Note: please refer to the specification sheet for details. *Usually by 20ft container.

OEM/ODM BESS STORAGE CONTAINER

ESSC 064 3.5M ODM

- OEM/ODM BESS Liquid/Air cooling container
- High security, DC multistage isolation; integration, standardization
- Flexible configuration, strong scalability and easy maintenance



Applications



Solar Storage



Wind Storage



Power Grid Side



Industrial



Telecom Station

Technical Parameter

Item	SPECIFICATIONS*
Rated Capacity	3.58MWh
Rated Power	1725/0.25C/0.5C/1C
Rated Grid Voltage	AC 0.69/10/35kV
Output Wiring	3P
Rated Frequency	50Hz/60Hz
DC Rated Voltage	1280V/1331.2V
DC Voltage Range	DC1000~1460V/OEM
THDi	≤3%
Converter Container Size (L*W*H)	6058*2438*2896mm
Battery Container Size (L*W*H)	12192*2438*2896mm
Temperature Control Method	Air conditioning + forced air cooling / Liquid Cooling
Firefighting Method	Heptafluoropropane fire extinguishing system
Altitude	<3000m
IP Rating	IP54
Operating Temperature	-20~55°C
Relative Humidity	0~95% without condensation
Communication Method	RS485, CAN, Ethernet

Note: please refer to the specification sheet for details.*Usually by 20ft or 40ft container.



STORAGE SMART BOX

ESSB 064 100 001 / ESSB 064 200 001 / ESSB 064 300 001 / ESSB 064 400 001

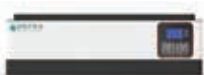





STORAGE SMART BOX

ESSB 064 100 001 / ESSB 064 200 001 / ESSB 064 300 001 / ESSB 064 400 001

- Rechargeable Li-ion
- ESS Battery - LFP







SPECIFICATIONS	ESSB 064 100 001	ESSB 064 200 001	ESSB 064 300 001	ESSB 064 400 001
System demo				
Battery Type	LiFePO ₄	LiFePO ₄	LiFePO ₄	LiFePO ₄
Normal Battery Model	51.2V100Ah*1	51.2V100Ah*2	51.2V100Ah*3	51.2V100Ah*4
Normal Capacity (250.2C)	5120Wh	10.24KWh	15.36KWh	20.48KWh
Voltage window (Vdc)	44.858.4V	44.858.4V	44.858.4V	44.858.4V
Fast Charge Voltage	57.6V	57.6V	57.6V	57.6V
Folat Charge Voltage	56.0V	56.0V	56.0V	56.0V
Low DC Cut-off Voltage	46.8V	46.8V	46.8V	46.8V
Max.continue discharge current A	100	200	300	400
Max.pulse discharge current A	150A 1Sec.	300A 1Sec.	450A 1Sec.	600A 1Sec.
Max.continue charge current A	50	100	150	200

STORAGE SMART BOX

ESSB 064 100 001 / ESSB 064 200 001 / ESSB 064 300 001 / ESSB 064 400 001

- Rechargeable Li-ion
- ESS Battery - LFP



SPECIFICATIONS	ESSB 064 100 001	ESSB 064 200 001	ESSB 064 300 001	ESSB 064 400 001
System demo				
Cycle life(+25 0.2C 100%DOD)	>6000 Cycles			
Terminal	Double M8			
Storage Temperature	0°C-30°C			
Storage Duration	6 months at 25°C			
Safety Standard	UN38.3, MSDS			
IP Degree	IP65			
Communication Function	RS485/CAN(Communication protocol supported inverter brand: Deye, Growatt, Voltroni, GOODWE, VICTRON, PYLONTEC, SMA, SOFAR)			
Protection	Overcharge protection,Over discharge protection,Overcurrent protection Shortcircuit protection, Over temperature protection			
Working Temperature	-10°C/+50°C			
Humidity	0~95% (no condensation)			
Sea Level	≤ 1500 m			

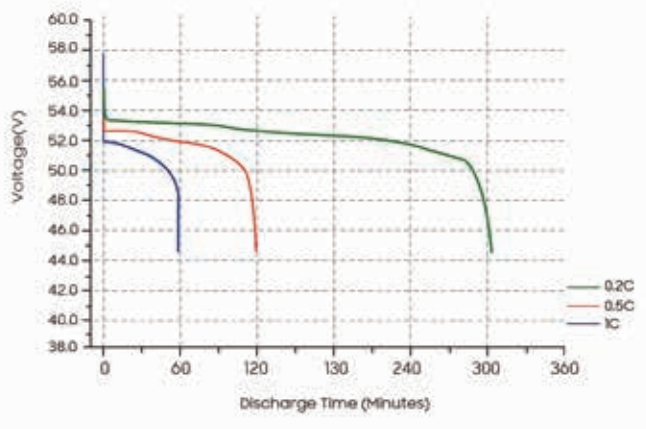
STORAGE SMART BOX

ESSB 064 100 001 / ESSB 064 200 001 / ESSB 064 300 001 / ESSB 064 400 001

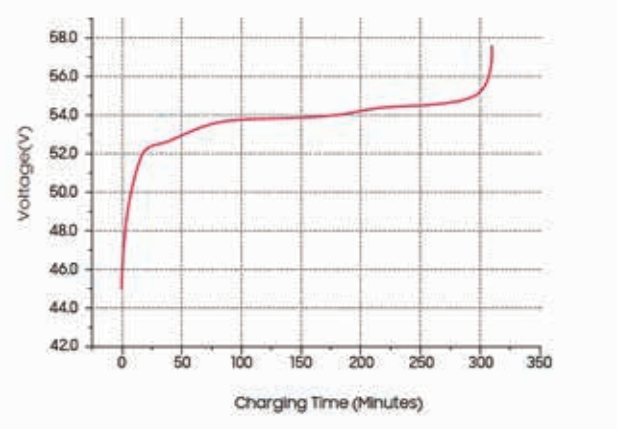
- Rechargeable Li-ion
- ESS Battery - LFP

SPECIFICATIONS	ESSB 064 100 001	ESSB 064 200 001	ESSB 064 300 001	ESSB 064 400 001
L×W×H (case base size)	850*430*95mm (7.5Kg)			
L×W×H (case base package size)	862*442*147mm (8.0Kg)			
L×W×H (products size)	870*454*192mm (no case base)*1	870*454*192mm (no case base)*2	870*454*192mm (no case base)*3	870*454*192mm (no case base)*4
L×W×H (package size)	927*502*254mm (UN carton)*1	927*502*254mm (UN carton)*2	927*502*254mm (UN carton)*3	927*502*254mm (UN carton)*4
System Weight(NW)	55.0Kg * 1	55.0Kg * 2	55.0Kg * 3	55.0Kg * 4
System Weight(GW)	60.0Kg * 1	60.0Kg * 2	60.0Kg * 3	60.0Kg * 4
20FT QTY(UNIT)	272	136	90	68

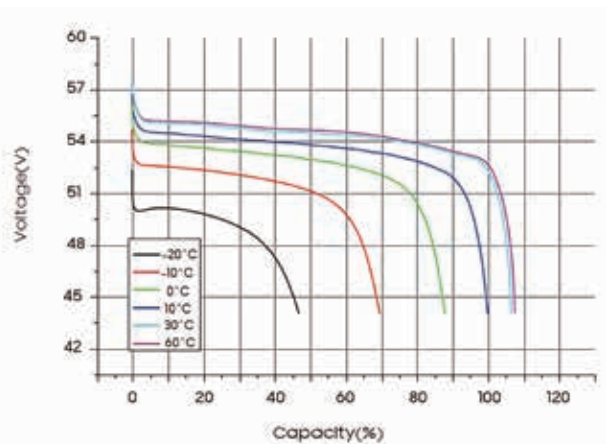
Discharging curve at differet rate @25°C



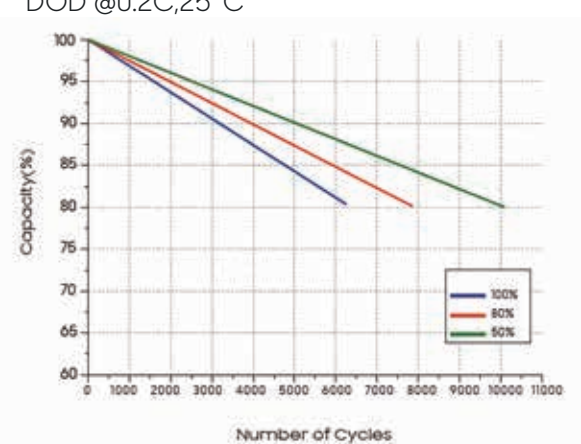
Charging Characteristic @0.2°C,25°C



Capacity under different Temperature



Cycle Life under different DOD @0.2C,25°C



STORAGE SMART BOX

ESSB 064 100 001 / ESSB 064 200 001 / ESSB 064 300 001 / ESSB 064 400 001



STORAGE COMPACT BOX

ESCB 064 100 001









STORAGE COMPACT BOX

ESCB 064 100 001



- Rechargeable Li-ion
- ESS Battery - LFP



Product Features

-  Prismatic LifePO₄ cell-3.2V, higher reliability
-  Fully replaceable with current batteries (Lead-acid, Ni-Cd)
-  Maintenance free with standard 19" design wasy installation
-  Longer cycle life ≥ 6000 cycles
-  Built-in BMS management system with interface RS485/CAN
-  Optimum adaptation to variety applications with parallel expansion support

Applications

-  Communication
-  Data Center
-  Industrial
-  Wind Power
-  Solar Power
-  Electric Power

NOMINAL CHARACTERISTICS	ESCB 064 100 001
Nominal Voltage	51.2V
Nominal Capacity (@0.2C)	100Ah
Nominal Energy	5120Wh
Self Discharge Rate	$\leq 3.5\%$ per month
Cycle Life(@25,0.2C ,100%DoD)	≥ 6000 cycles

STORAGE COMPACT BOX

ESCB 064 100 001

- Rechargeable Li-ion
- ESS Battery - LFP

CHARGING SPECIFICATIONS	ESCB 064 100 001
Charging cut-off Voltage	58.4V
Float charge voltage	55.2V
Max. continuous Charging Current	50A

DISCHARGING SPECIFICATIONS	ESCB 064 100 001
Discharging cut-off Voltage	44.8V
Recommended Discharge Current	50A
Max. Discharging Continuous Current	100A

MECHANICAL CHARACTERISTICS	ESCB 064 100 001
Width	498mm
Thickness	183mm
Height	705mm
Terminal	M8
Weight	Approx.50.0Kg
Communication Interface	R485/CAN

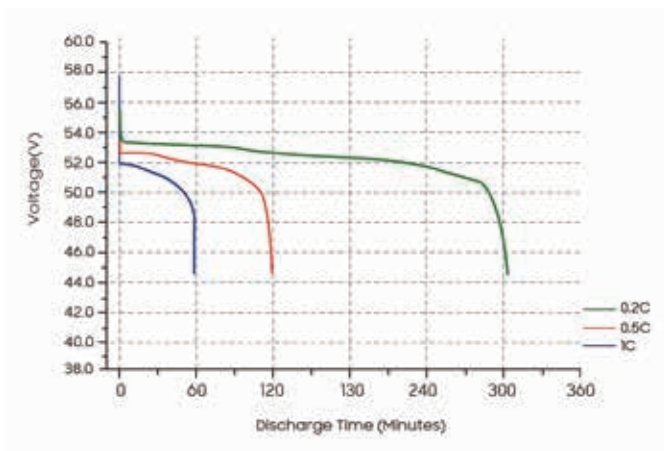
STORAGE COMPACT BOX

ESCB 064 100 001

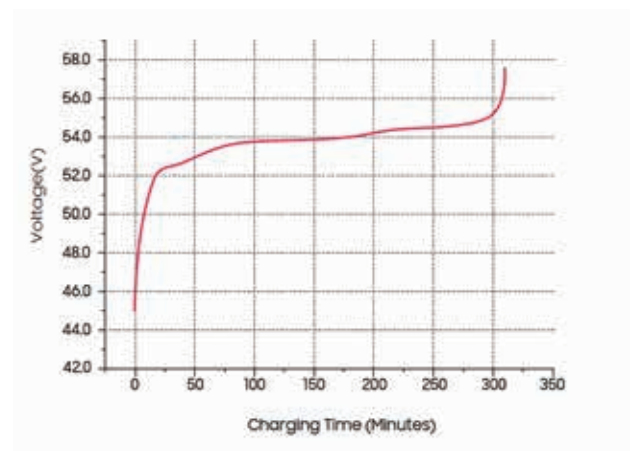
- Rechargeable Li-ion
- ESS Battery - LFP

OPERATING CONDITIONS	ESCB 064 100 001
Charge Temperature	0°C to 45°C (32°F to 113°F)
Discharge Temperature	-20°C to 60°C (-4°F to 140°F)
Storage Temperature	0°C to 45°C (32°F to 113°F)
Safety Standard	UN38.3, MSDS, IEC62619,CE
Water Dust Resistance	IP65

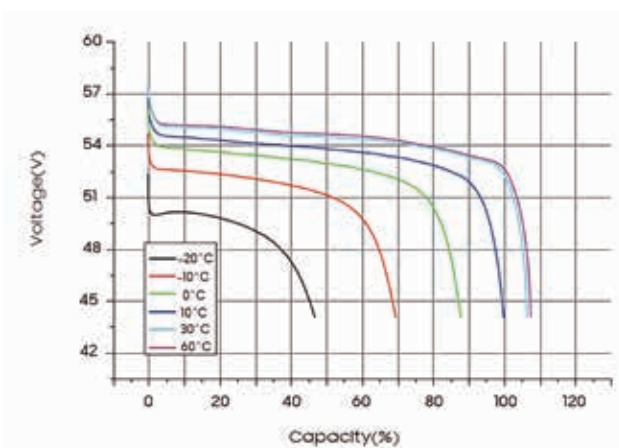
Discharging curve at differet rate @25°C



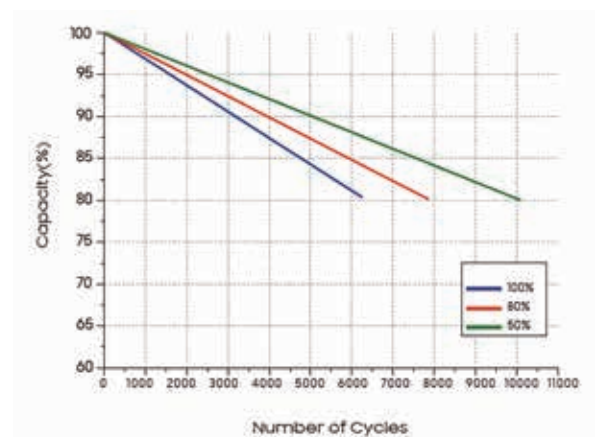
Charging Characteristic @0.2°C,25°C



Capacity under different Temperature



Cycle Life under different DOD @0.2C,25°C



STORAGE COMPACT BOX

ESCB 064 100 001 / ESCB 064 200 001



STORAGE COMPACT BOX

ESCB 064 200 001



STORAGE COMPACT BOX

ESCB 064 200 001

- Rechargeable Li-ion
- ESS Battery – LFP



Product Features

- Prismatic LifePO₄ cell-3.2V, higher reliability
- Fully replaceable with current batteries (Lead-acid, Ni-Cd)
- Maintenance free with standard 19" design easy installation
- Longer cycle life ≥ 6000 cycles
- Built-in BMS management system with interface RS485/CAN
- Optimum adaptation to variety applications with parallel expansion support

Applications

- Communication
- Data Center
- Industrial
- Wind Power
- Solar Power
- Electric Power

NOMINAL CHARACTERISTICS	ESCB 064 200 001
Nominal Voltage	51.2V
Nominal Capacity (@0.2C)	200Ah
Nominal Energy	10.24KWh
Self Discharge Rate	≤3.5% per month
Cycle Life(@25,0.2C ,100%DoD)	≥ 6000 cycles

STORAGE COMPACT BOX

ESCB 064 200 001

- Rechargeable Li-ion
- ESS Battery - LFP

CHARGING SPECIFICATIONS	ESCB 064 200 001
Charging cut-off Voltage	58.4V
Float charge voltage	56.0V
Max. continuous Charging Current	100A

DISCHARGING SPECIFICATIONS	ESCB 064 200 001
Discharging cut-off Voltage	44.8V
Recommended Discharge Current	50A
Max. Discharging Continuous Current	100A

MECHANICAL CHARACTERISTICS	ESCB 064 200 001
Width	593mm
Thickness	192mm
Height	954mm
Terminal	M8
Weight	Approx. 92.0Kg
Communication Interface	R485/CAN

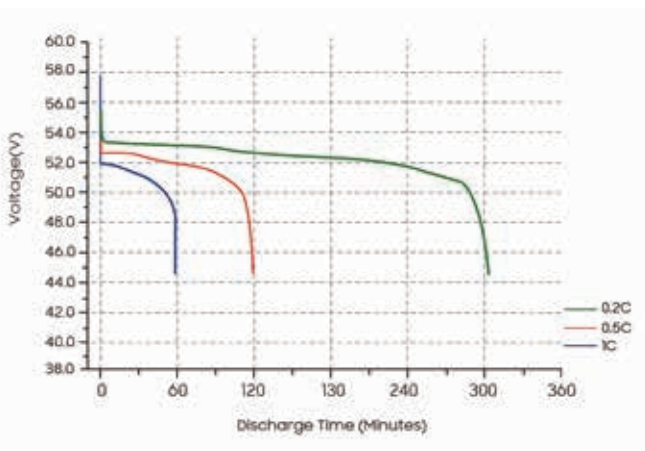
STORAGE COMPACT BOX

ESCB 064 200 001

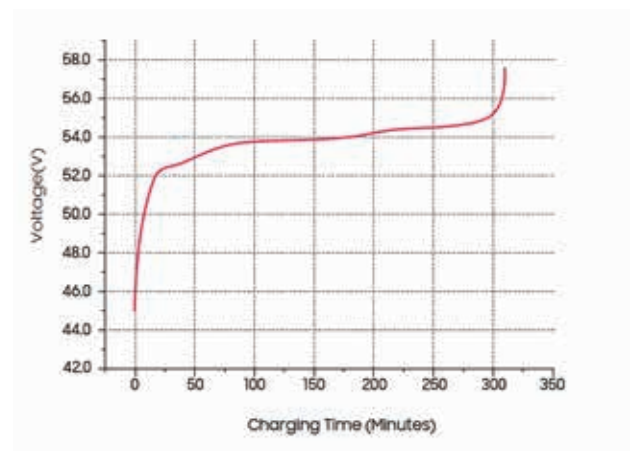
- Rechargeable Li-ion
- ESS Battery - LFP

OPERATING CONDITIONS	ESCB 064 200 001
Charge Temperature	0°C to 45°C (32°F to 113°F)
Discharge Temperature	-20°C to 60°C (-4°F to 140°F)
Storage Temperature	0°C to 45°C (32°F to 113°F)
Safety Standard	UN38.3, MSDS, IEC62619, CE
Water Dust Resistance	IP65

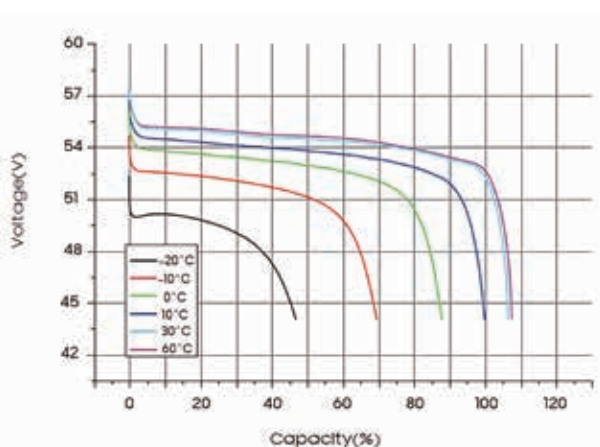
Discharging curve at different rate @25°C



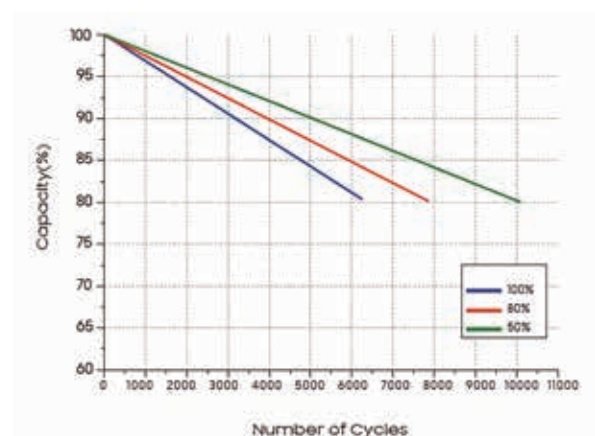
Charging Characteristic @0.2°C, 25°C



Capacity under different Temperature



Cycle Life under different DOD @0.2C, 25°C





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