

**Pytes**



**Energie Douce**  
Systèmes & Solutions Autonomes en Energie

# Creating Undertaking & Sharing



PYTES (USA) Energy Inc.  
BATTERY EXPERT-GREEN ENERGY PROVIDER

## **LI-ION BATTERY FOR ENERGY STORAGE**



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# Pytes

PYTES, a national high-tech enterprise founded in 2004, focuses on Lithium-ion battery solutions for e-bikes, 3C products, vacuum cleaners and energy storage systems, etc. Headquartered in Shanghai, PYTES has been expanding globally, setting up three production bases in Shanghai (China), Shandong (China), and Vietnam, two marketing & service centers in Europe and North America. PYTES is strong in R&D, with advanced laboratories certified by TUV, DEKRA, SGS & BV, etc.



**\$125M**

Total Asset

**19 Years**

Industry experience

**1000+**

Employee

**Pytas**

Since 2004

**\$177M**

Turnover in 2022

**3.95Gwh**

Annual capacity



# Global Marketing & Service

## Europe

PYTES EU office  
(The Netherlands)



## China

Factory in Shandong



## North America

PYTES USA office  
(Los Angeles)

PYTES USA warehouse  
(Dallas)

Factory in  
Hungary

PYTES office  
in France

PYTES office  
in Germany

## Vietnam



Factory in Ho Chi Minh City

## China



Headquarter/  
Factory in Shanghai

- Global pre-sales & after-sales services
- 7\*24H support, Efficient feedback



## Testing Labs



SGS



BV



TUV



DEKRA

## Mechanical Tests



Vibration Test



Drop Test



Shocking Test



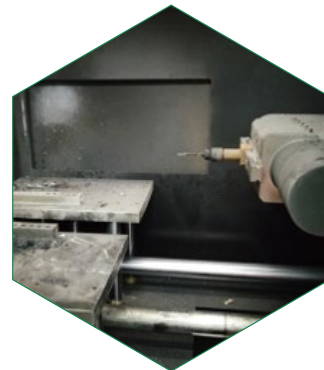
Safety Tests



Short circuit Test



Impact Test



Needle Test

Environmental Tests



Altitude Simulation



Thermal Shock

Electrical Tests





ISO9001:2015



ISO14001:2015



UL9540



IEC62619



UL1973



RoHS



CB



UL



PSE



KC



REACH



UN38.3



GB31241



CU



IEC62133



A modern two-story house with a large tree in the foreground and a covered outdoor dining area. The house features a mix of dark brown vertical slats, white walls, and large glass windows. The outdoor area is furnished with a dining table and chairs, and a grill. The interior is visible through the glass walls, showing a dining area with a table and chairs, and a living area with a sofa. The house is set on a green lawn.

## Standard Products Introduction

# E-BOX-48100R



## Introduction

E-BOX series, the new generation LFP battery for home energy storage system. It provides safe, well-designed and high-performance standard LFP battery pack. The battery pack is compact, easy to install, free of maintenance and can be installed in parallel in the energy storage system to increase its capacity. It is widely applied in residential applications, small commercial and industrial energy storage system as well as Telecom stations.

## Features



### Self-Consumption

store excess energy generated by solar panels and use it whenever needed



### Back-Up Power Supply

provide emergency power supply during grid outage



### Electricity Bills Reduction

charge the battery during off-peak period and discharge the battery during peak period



### Smart Energy Management

measure, monitor and manage the system in real-time optimize the system life span by intelligent algorithms



### Long-lasting Battery Module

integrated with tier 1 automotive LFP cells lifespan  $\geq 6000$  cycles



### Wide Compatibility

compatible with most of inverters in the market

**10 Years Warranty**



**UN38.3**

# Batteries

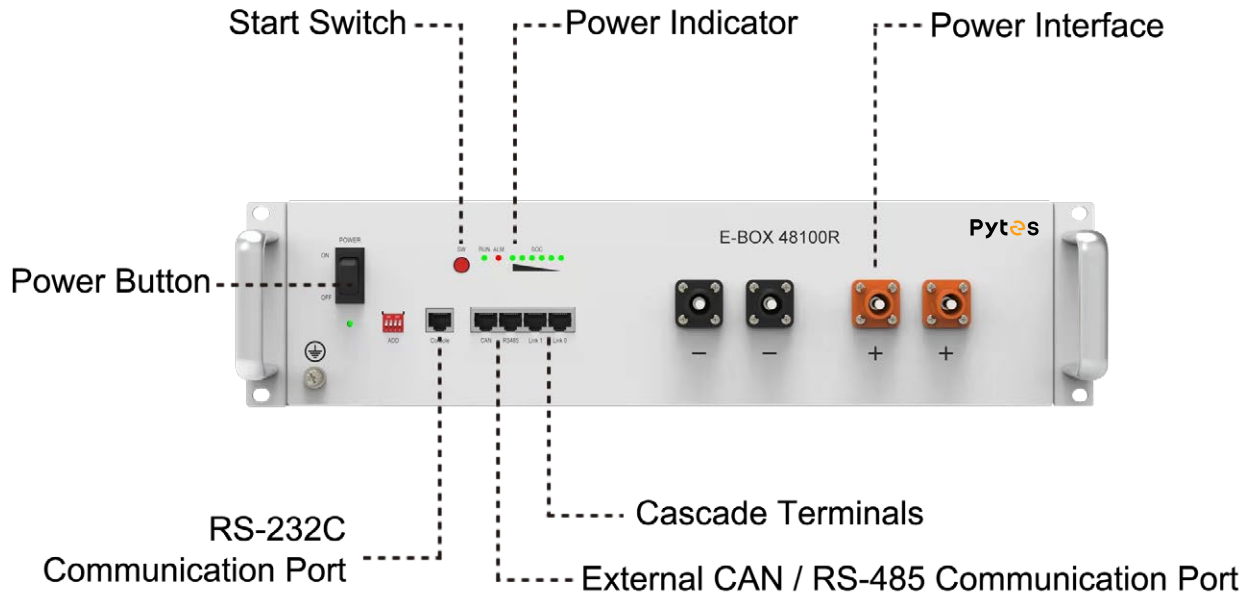
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## E-BOX-48100R

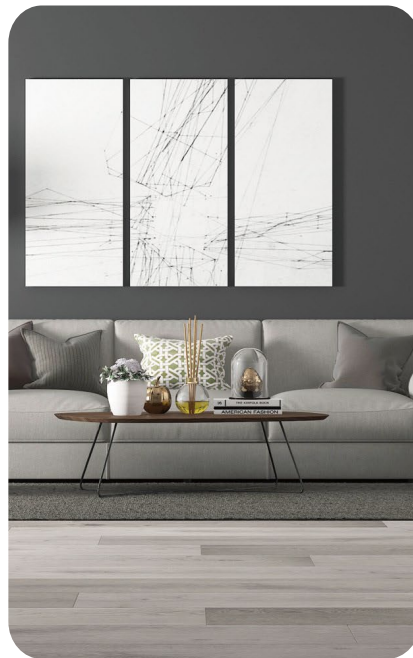
L440mm\* W620mm \* H117mm (2.6U)  
L17.32" \* W24.41" \* H4.61" (2.6U)  
51.2V 100Ah 5.12kWh

## Operation Panel



# Technical Specifications

Battery Model	E-BOX-48100R
Chemistry	LFP
Nominal Voltage	51.2V
Voltage Range	47.5V-58V
Nominal Capacity	100Ah
Nominal Energy	5.12kWh
Unit Dimension (L*W*H)	17.32 * 24.41 * 4.61 inch (440 * 620 * 117 mm)
Unit Weight	112.5lbs
Peak Discharge Rate	102A (5.22kW@15s)
Maximum Continuous Charge/Discharge Rate	50A (2.56kW DC)
Standard Continuous Charge/Discharge Rate	50A (2.56kW DC)
Round-Trip Efficiency	≥95%
Communication Protocol	RS232, RS485, CAN
Cycle Life	≥6000cycle
Calendar Life	≥10years
Operating Temperature	14 °F~122°F
Maximum Allowed Modules in Parallel	8 pcs (41kWh)
Storage Temperature	<1month: -4~131 °F, 1-3months: 32~95 °F, 3-12months: 68~77 °F
Certificates	UL9540, UL9540A, UL1973, SGIP, CEC





## Introduction

V5°, the new generation LFP battery for home energy storage system. It provides safe, well-designed and high-performance standard LFP battery pack for you. The battery pack is compact, easy to install, free of maintenance, and could be deployed to the building block of energy storage system by being assembled in parallel. It is widely applied in home applications, small commercial and industrial energy storage system as well as Telecommunication stations. Its rechargeable LFP battery pack provides energy storage for solar self-consumption, time-based control, and backup.

## Features



### Below Freezing Temperature Charging

- designed for cold environment



### Long-lasting Battery Module

- integrated with tier 1 automotive LFP cells
- lifespan  $\geq 6000$  cycles



### Smart Energy Management

- field-proven sophisticated BMS to maximize reliability and longevity
- remote upgrading



### Easy Connection

- Up to 300A confluence current in parallel



### High Charge/Discharge Rate

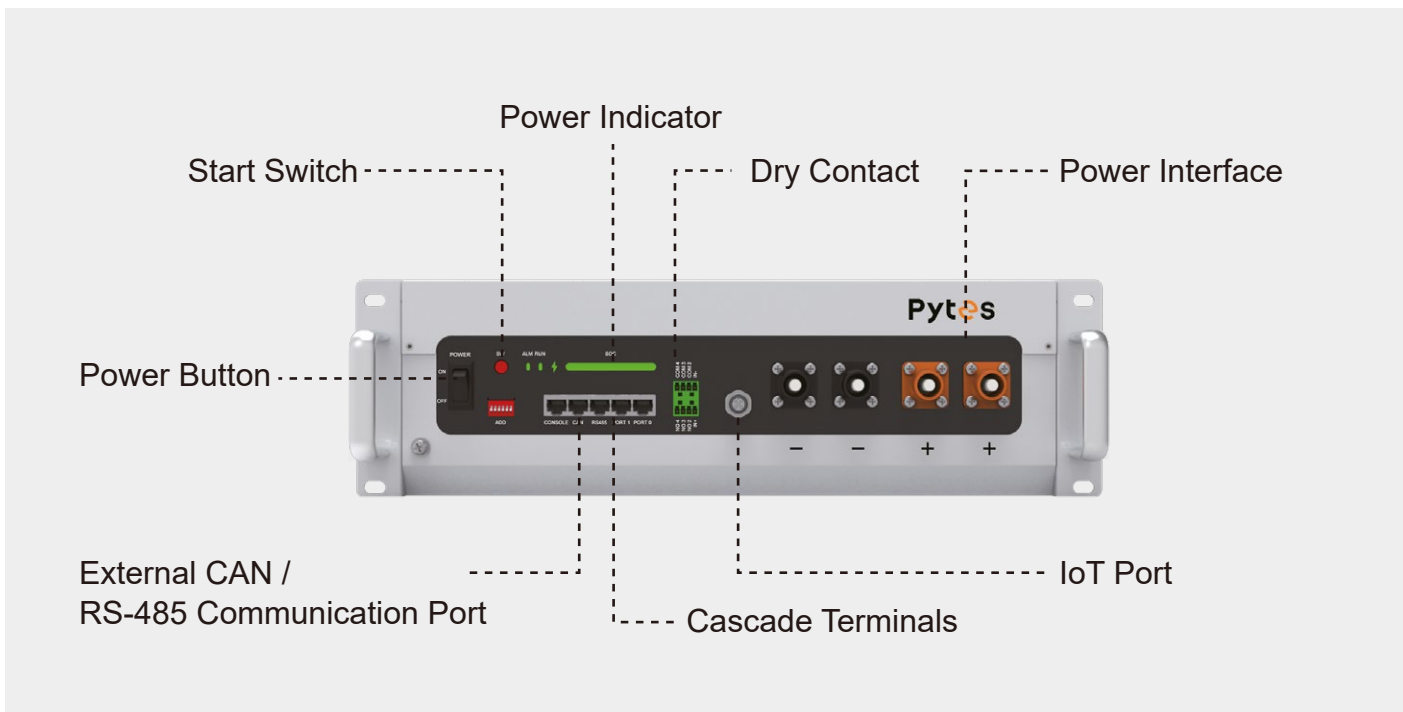
- fully charged in 1 hour
- high power output (1C)

**10 Years Warranty**

# Technical Specifications

Battery Model	V5°
Chemistry	LFP
Nominal Voltage	51.2V
Voltage Range	44.8V-57.6V
Nominal Capacity	100Ah
Nominal Energy	5.12kWh
Unit Dimension(L*W*H)	19*20.9*5.5 in
Weight	97 lbs
Standard Charge/Discharge	75A
Maximum Continuous Charge/Discharge	100A
Peak Charge/Discharge	150A(at 15s)
Round-Trip Efficiency	≥95%
Communication Protocol	CAN/RS485
Cycle Life	≥6000 cycles (@ 90%DOD)
Calendar Life	≥10years
Operating Temperature	14°F~131°F
Maximum Allowed Modules in Parallel	16 pcs (82kWh) in a group 7 groups (573kWh) in a system w/ a Hub
Heating system	14.4~18°F/h

# Operation Panel





# R-BOX

## Introduction

The R-BOX is a state-of-the-art home energy storage system solution. It has a total usable energy capacity of 10kWh. Product features include quick and easy installation, a compact and elegant home style design and great extensibility. The R-BOX can provide smart configurable backup power during grid outages and power smart homes with solar energy, day and night.

## Technical Specifications

Model	R-BOX
Total capacity	10.24kWh
Usable capacity	9.22kWh
Chemistry	Lithium iron phosphate (LFP)
Nominal voltage	51.2V
Max. charge/ discharge current	100A
Communication	CAN, RS485
Operating Temperature	Charge: 32~113°F, Discharge: 14~122°F
Altitude	< 6562ft (2000m)

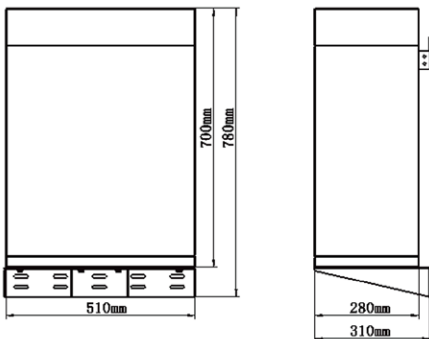
Mechanical Design	Parameter
Dimensions (L*W*H)	11.0 * 20.1 * 27.5 inch (30.8 inch H w/ holder) 280 * 510 * 700 mm (780 mm H w/ holder)
Weight	264lbs
Mount	Wall / Floor mount
Enclosure rating	IP20
Enclosure material	Cool-rolled steel
Cooling	Natural convection
Warranty	6000 cycles or 10 years

## Designed for two E-BOX-48100R battery models

### 3D image

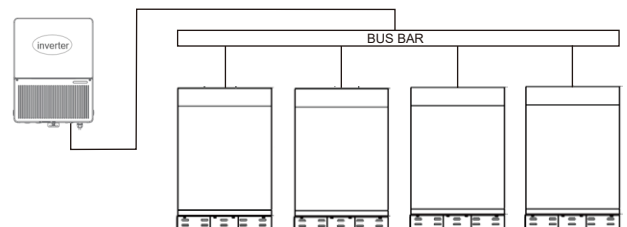


### Mechanical Drawing



### Battery Expansion

PYTES Home Energy Storage System can connect up to 4 pcs R-BOX directly. Please refer to a HUB solution for bigger expansion demands.

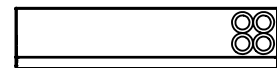
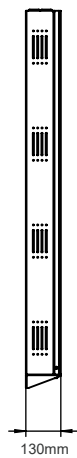
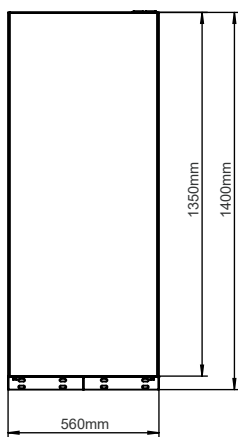




# R-BOX-A



## Mechanical Drawing





## Introduction

The PYTES R-BOX-IP64 is a state-of-the-art home energy storage system solution. It has a total usable energy capacity of 10kWh. Product features include quick and easy installation, a compact and elegant home style design and great extensibility. The PYTES R-BOX-IP64 can provide smart configurable backup power during grid outages and power smart homes with solar energy, day and night.

## Technical Specifications

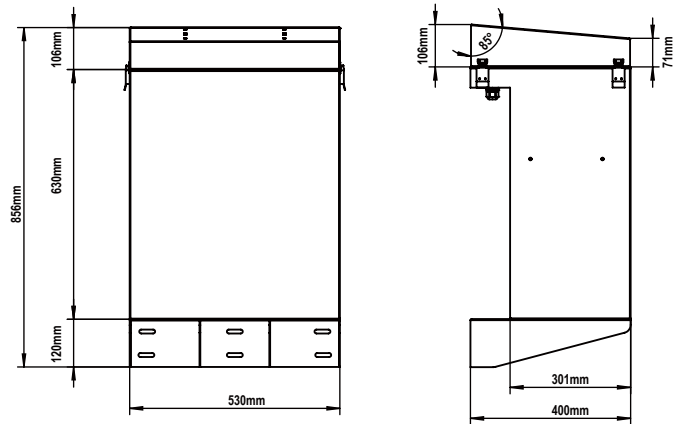
Model	IP64
Total capacity	10.24kWh
Usable capacity	9.22kWh
Chemistry	Lithium iron phosphate (LFP)
Nominal voltage	51.2V
Max. charge/ discharge current	100A
Communication	CAN, RS485
Operating Temperature	Charge: 32~113°F, Discharge: 14~122°F
Altitude	< 6562ft (2000m)

Mechanical Design	Parameter
Dimensions (L*W*H)	12.2 * 20.9 * 29 inch (33.7 inch H w/ holder) 400 * 530 * 736 mm (856 mm H w/ holder)
Weight	264lbs
Mount	Wall / Floor mount
Enclosure rating	R-BOX-IP64
Enclosure material	Cool-rolled steel
Cooling	Natural convection
Warranty	6000 cycles or 10 years

### 3D image

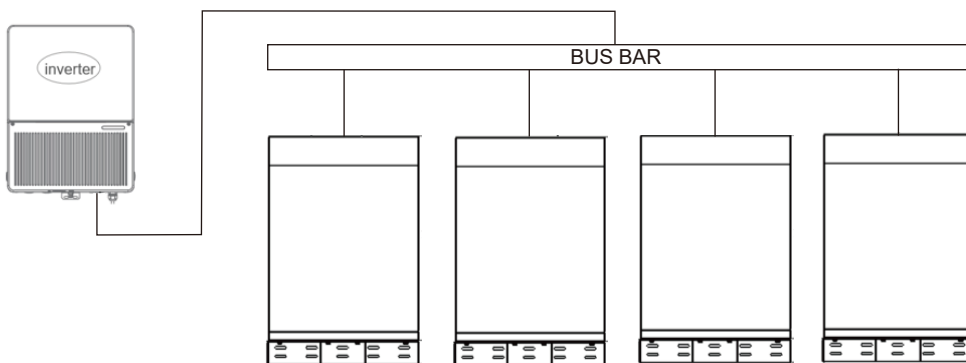


### Mechanical drawing



### Battery Expansion

PYTES Home Energy Storage System can connect up to 4 pcs R-BOX-IP64 directly. Please refer to a HUB solution for bigger expansion demands.





## Introduction

R-BOX-OC series is an advanced energy storage system solution. The total available energy capacity of each unit can reach up to 20kWh, and up to 4 units (16 batteries, 80kWh) can be connected in parallel. Product features include quick and easy installation, strong scalability, and support for outdoor use. The R-BOX-OC Series provides smart configurable backup power during grid outages and uses solar energy to power smart homes during the day and night.

## Features



Built-in busbars and breakers



Expandable up to 80kWh



Support outdoor installation



compatible with most of inverters in the market



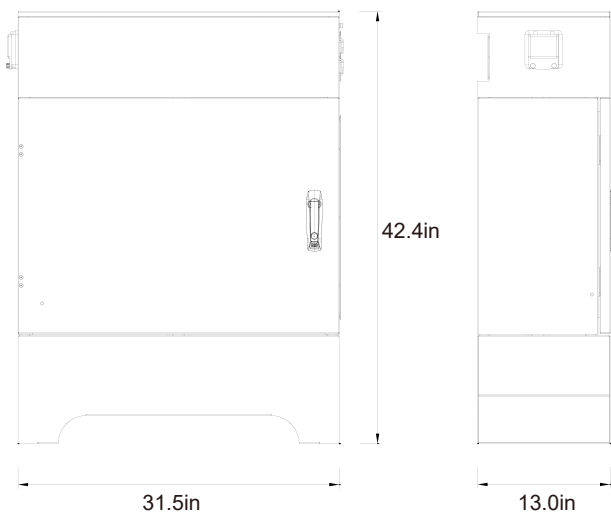
Easy to install

## Technical Specifications

Model	R-BOX-OC(II)	R-BOX-OC(IV)
Total capacity	10.24kWh	20.48kWh
Normal voltage	51.2V	
Standard Charge/Discharge Current	100A	200A
Operating Temperature	Charge:32~113°F, Discharge:14~122°F	
Warranty	Cabinet: 2 years, Battery: 10 years	
Positive and Negative Battery Busbars	300A, 2*12 points, M8/M6 terminal rings	
Breaker	100A	
Weight	143.5 lb	176.4 lb
Dimensions (L*W*H)	31.5×13.0×42.4 in	31.5×13.0×62.0 in
Enclosure Protection	IP65/NEMA 3R	
Alltitude	< 6562ft (2000m)	

## Mechanical drawing

R-BOX-OC(II)



R-BOX-OC(IV)



# Forest 12K/15K

UL 9540 Certificated Residential BESS System



Sol-Ark 12K/15K



PYTES E-BOX 48100R(5kWh)

The integrated solution of Pytes storage batteries and Sol-Ark hybrid inverter is UL 9540 certificated and is ready to form a high-performance residential energy storage system, efficiently and cost-effectively.



6000 Cycle Battery



4ms Transfer Time



Generator Support



Parallel Stacking



10yr Warranty



Excellent Technical Support

## UL 9540 Certificated Models

### Forest 12K includes:

Hybrid Inverter Sol-Ark-12K-P, Battery Pack E-BOX 48100R (Up to 6 battery packs in parallel)

### Forest 15K includes:

Hybrid Inverter Sol-Ark Limitless 15K-LV, Battery Pack E-BOX 48100R (Up to 12 battery packs in parallel)

## Specifications

### Battery

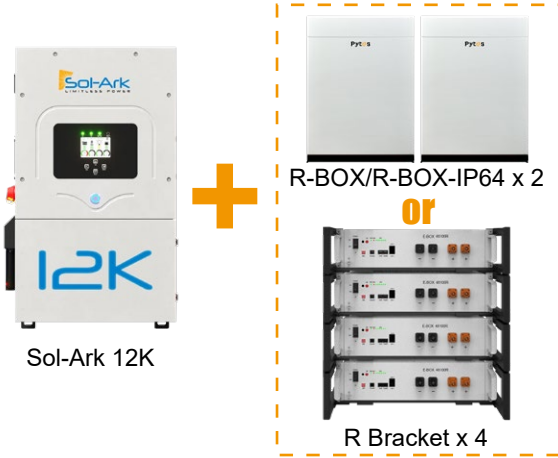
Model	E-BOX-48100R
Nominal Capacity	100Ah (5.12kWh)
Standard Charge/Discharge Rate	50A (25.6kW)
Max Charge/Discharge Rate	50A (25.6kW)
Peak Current	102A@15s
Cycle Life	6000 cycles
Parallel Stacking	Up to 6
Operating Temperature	Discharge:-10°C-50°C; Charge: 0-45°C
Weight	112.5 lbs (51kg)
Dimensions (H * W * D)	17.32 * 24.41 * 4.61 inch (440 * 620 * 117 mm)

### Inverter

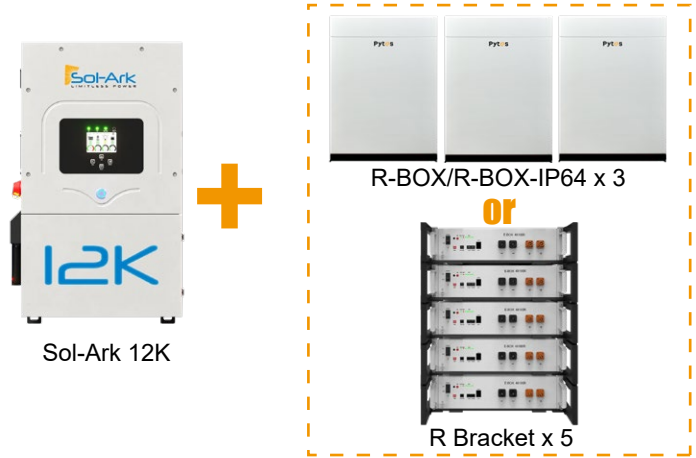
Inverter	Sol-Ark-12K	Sol-Ark-15K
Solar output power	12000W	15000W
Max DC voltage	500V@18A, 450V@20A	500V@26A
MPPT voltage range	150~425V	150~425V
Start-up voltage	125V	125V
No. of MPPT trackers	2	3
Max DC current per MPPT (self limiting)	20A	26A
Rated AC output power	9000W 37.5A L-L (240V)	12000W 50A-L(240V)
Parallel stacking	Yes	Yes
Grid type	120/240/208V split phase	120/240/208V split phase

## Recommended Packages

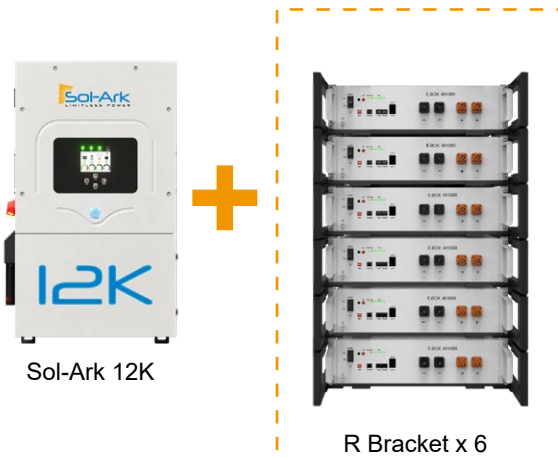
12kW / 20kWh



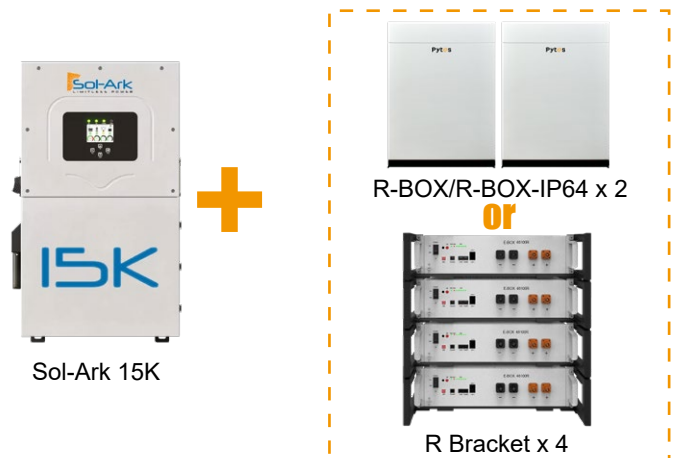
12kW / 25kWh



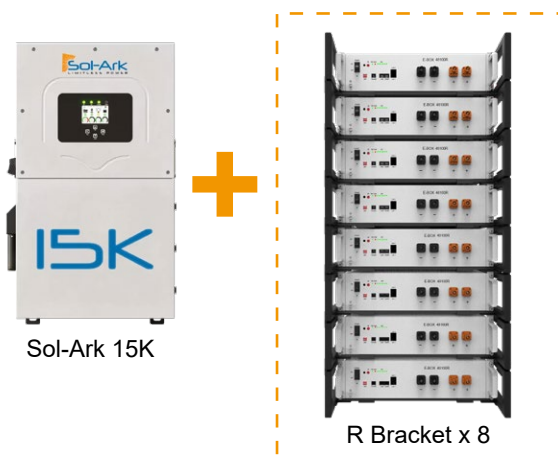
12kW / 30kWh



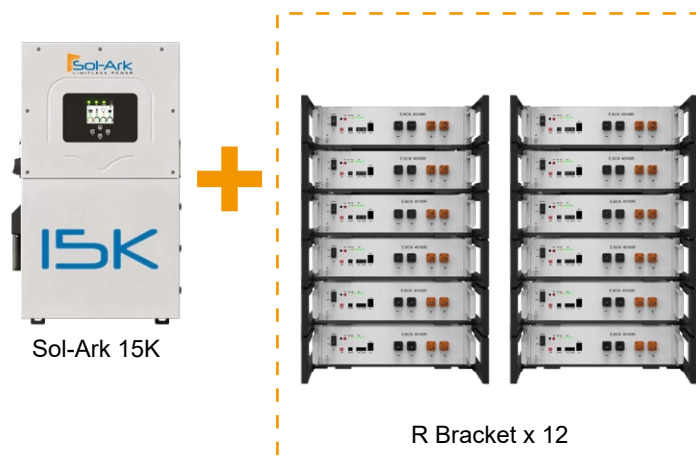
15kW / 20kWh



15kW / 40kWh



15kW / 60kWh



# Brackets

# Pytes

## R Bracket



## Introduction

In order to install the E-BOX-48100R Battery more conveniently and reduce installation costs, PYTES has developed this battery bracket. You can use it on a single battery or on multiple battery packs. Compared with cabinet storage, besides taking up less space, the bracket can ventilate and reduce the heat much more easily.





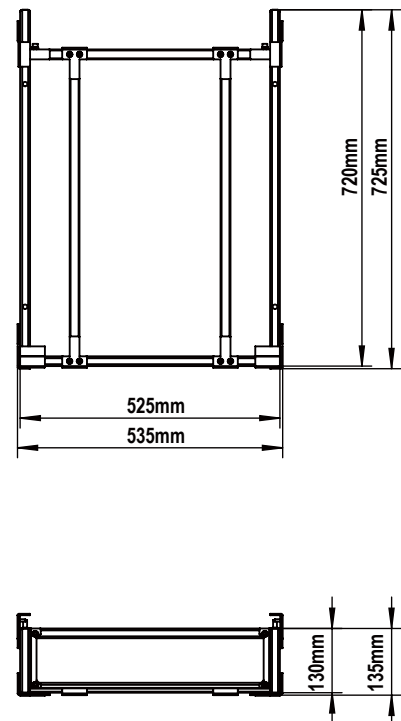
## Parameters

Unit Dimension (L*W*H)	20.9 * 28.5 * 5.3 inch (535 * 725 * 135 mm)
Unit Weight	17lbs
Installation	<ol style="list-style-type: none"> <li>1.Install the parts by following the guide of the installation manual;</li> <li>2.Screws are needed to assemble single battery and rack;</li> <li>3.Multi-layer battery rack: after assembling all the single batteries and racks, stack them up vertically. Connection board is needed to install in between each two layers of battery racks ;</li> <li>4.Secure multi-layer battery rack with accessories to the wall;</li> <li>5.Connect multi-layer battery rack to the distribution box.</li> </ol>

## Can bear more weight

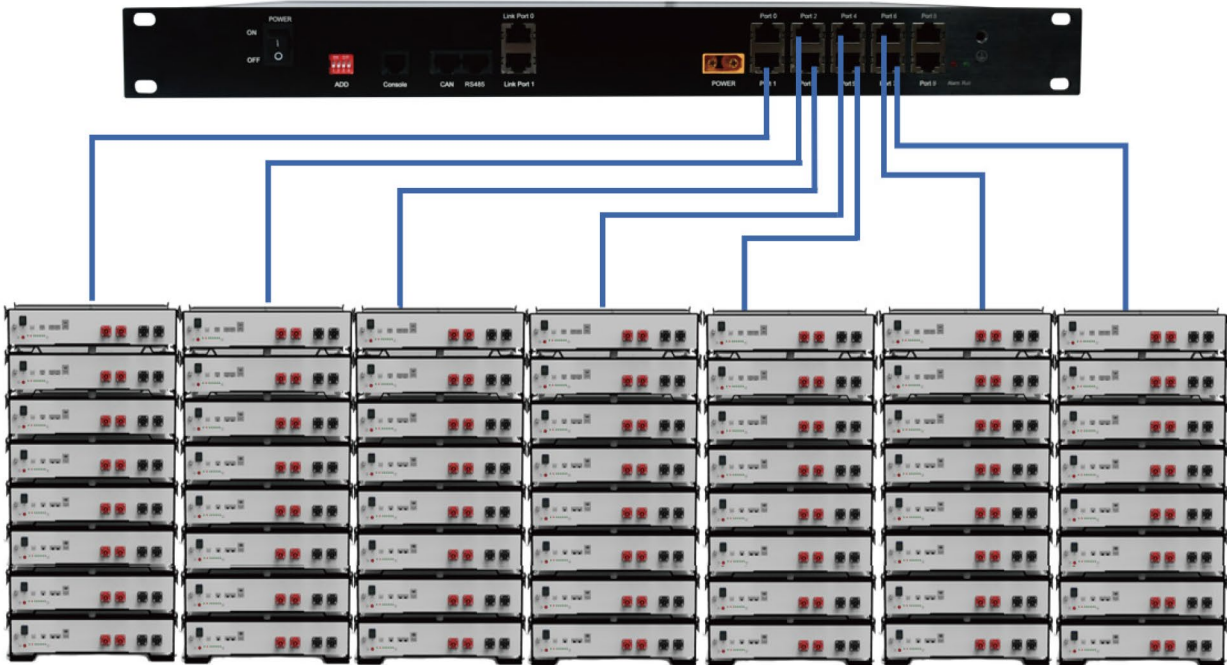


## Mechanical drawing





Each communication hub connects maximum 7 battery groups



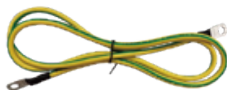
Each group supports maximum 8 pcs E-BOX-48100R in parallel

# Accessories

## Battery Accessories Package



Battery to Battery Comm Cable



1000mm Ground Wire



2000mm Battery to Inverter Power Cable

161412100244: 2000mm Battery to Inverter Positive Power Cable (6'6.8")

161412100245: 2000mm Battery to Inverter Negative Power Cable (6'6.8")



Battery to Battery

161412100251: 160mm Positive Power Cable (6.30")

161412100252: 160mm Negative Power Cable (6.30")



Battery to Inverter Communication

161412100229: Standard Comm Cable 3500mm (11'5.79")  
Compatible: Sol-Ark, Growatt, SMA

161412100451: Custom Comm Cable 3500mm (11'5.79")  
Compatible: Voltronic, Phocos, Mpp Solar



161412100700: USB-to-Console cable for firmware upgrade/monitor software



161506100001: Bus Bar 12+2 terminal 300A

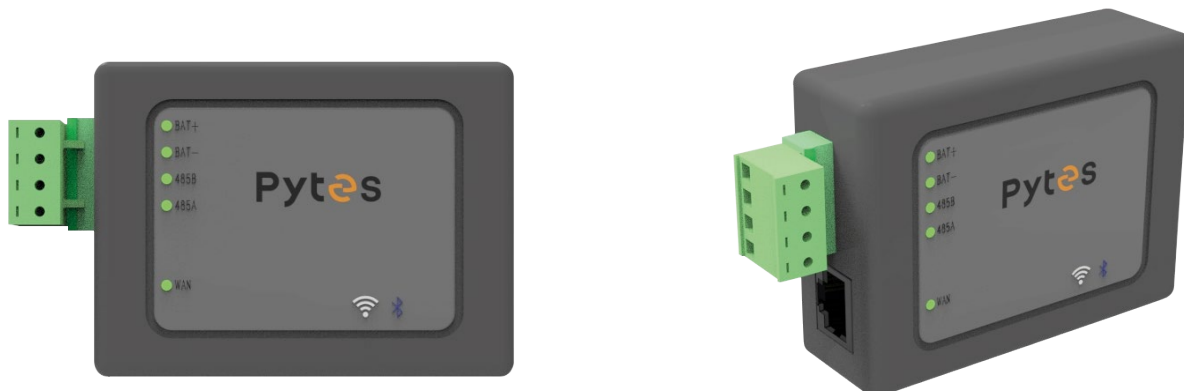


150215100012: Front Bracket

150215100011: Rear Bracket

Brackets For E-BOX-48100R (2.6U)

# SMART MONITOR



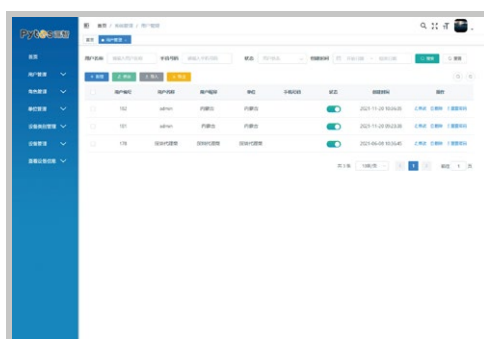
## Smart Monitor feature

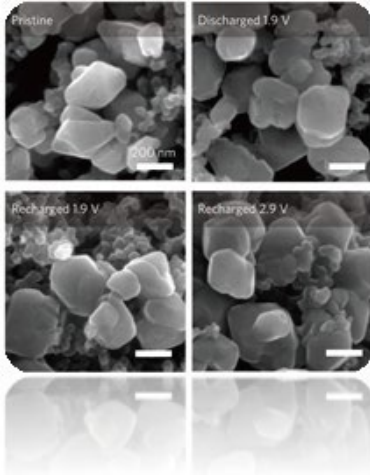
1. Battery remote upgrade;
2. Battery fault monitoring;
3. Historical fault inquiry;
4. Historical power inquiry;
5. Mobile APP and cloud monitoring;
6. Wireless and Bluetooth two ways of connection ;
7. Multi-level management ;

## Diagram



## WEB/APP





## Cells& Packs

- The olivine structure and the stability of P-O bond of LFP cells guarantee much higher safety than those of NCM cells.
- 17 years experiences of pack R&D ensure longer cycle life of the battery.

## Self-designed BMS

- Equipped with automotive grade chips
- Double protection by master chips. When the main chip fails, the back-up chip keeps protecting the system.
- Real-time temperature, current, voltage measuring and monitoring.
- Accurate SoC and SoH calculation.



## Quality Assurance

- UL1973/ IEC62619/ CE/ UN38.3 Certificates
- TÜV, SGS, BV International Certified Cooperative Testing Laboratories.

## Quick Response

Quick local after-sales response/ 24hours\*7days.



## Compatibility List of PYTES ESS and Inverters

### Closed loop



### Open loop



# Pytes

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More Catalogs



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**Pytes**