

# ENERGY STORAGE USE AND OPERATING INSTRUCTIONS Sluxer Home



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# 1 Introductory information

Thank you for choosing the Sluxer LiFePO<sub>4</sub> Energy Storage Kit with Battery Management System. We believe you've made the right decision, which will result in many years of trouble-free operation.

## Warning



Before installing and using the device, please read the information contained in this manual.

The manual is intended for the product marked: LFP2P16S314BOX.

## 2 Safety Rules



A new battery or one that has not been used for a long time should be fully charged.



Do not use the battery if it is deformed.



Do not stack batteries on top of each other.



Pay attention to the polarity of the connector and battery. Improper connection may damage the battery and lead to a short circuit, fire, or electric shock..



Do not disconnect the terminals while the device is operating..



Do not disassemble, bend or puncture the battery.



Do not throw batteries into fire. May cause fire. Keep away from fire and flammable materials. Maintain good ventilation.



Do not throw used batteries into the trash.

**Warning**

The energy storage device should not be installed in places where the following unfavorable conditions occur:

- Exposure to sunlight or heat sources;
- Vibrations, shocks, impacts;
- High humidity, corrosive, flammable, aggressive vapors or gases.
- Flooding and inundation.

## 2.1 Purpose of the device

The Energy Storage Cell Kit is designed to work with inverters with a nominal battery voltage of 40V-60V. It is designed for permanent installation in rooms with standard indoor conditions. It can be installed in homes and offices, provided that safety regulations and all operating parameters and guidelines contained in this document are observed.

## 2.2 Safety instructions

**Warning**

In the event of any accident – such as an impact, fall, shock, or other situation that may affect the technical condition of the energy storage device – the device should be immediately taken out of service and an authorized service center should be contacted immediately. Even invisible mechanical damage can pose a serious threat to the user's safety and lead to system malfunction. Do not attempt to diagnose or repair the device yourself.

- Installation should be performed by individuals with appropriate electrical qualifications and in accordance with design documentation prepared by a licensed designer. These qualifications must be confirmed by current documents in accordance with applicable regulations.
- The installation must be confirmed by as-built documentation, including measurement and technical acceptance reports.
- The energy storage unit is delivered as a complete, ready-to-use unit. It should not be disassembled. If service or repairs are required, contact the manufacturer or an authorized distributor. Improper assembly may result in a fire hazard.
- Before starting any installation or service work, disconnect all external cables and turn off the energy storage using the button on the housing.

- The electrical installation and connection to the inverter and/or charger must comply with operational requirements. Design and installation should be performed by qualified personnel.
- During installation and maintenance work, be especially careful when using metal tools to avoid short circuits. Before starting work, remove all metal objects (e.g., watches, jewelry)
- The energy storage device should be installed and stored in dry, clean, dust-free, closed rooms with a positive ambient temperature in the range of 0°C to +40°C and relative humidity of 5–80
- The recommended ambient operating temperature is between 10°C and 35°C. Below 10°C, reversible cell capacity reduction may occur.
- The set is designed to work only in a vertical position.
- The device must be placed on a stable, hard and level surface.
- The energy storage unit must be stable and its wheels must be locked.
- The set must be protected against tipping over and mechanical damage.
- The device should be installed in a place protected from direct sunlight, heat sources and strong electromagnetic fields.

### 3 Battery management system (BMS)

#### Information

The battery management system monitors, protects, and optimizes the energy storage system's performance. Precise sensors and advanced algorithms ensure safety and extend the system's lifespan.

#### 3.1 Voltage and temperature measurements

- Measurement of the voltage of each of the 16 battery cells with an accuracy of  $\pm 20$  mV.
- 4 cell temperature sensors, 1 ambient temperature sensor and 1 MOSFET temperature sensor; measurement accuracy  $\pm 2^\circ\text{C}$ .

#### 3.2 Intelligent cell alignment

- Flexible cell voltage equalization strategies both during charging and in rest mode.
- It prevents uneven aging of cells, extending their service life.

### 3.3 Communication interface

- Possibility of remote monitoring and configuration of battery parameters via a PC or intelligent supervisory system.
- Remote command support: telemetry, signaling, regulation, control.
- Communication protocol compliant with YD/T 1363.3 standard; cascade connection support

### 3.4 Data logging and diagnostics

- In the event of an abnormality, the full battery status and alarm information are recorded.
- Ability to store up to 500 historical fault records.

### 3.5 Configuration of BMS system parameters

- Possibility to set parameters such as:
  - voltage: cell voltage and total voltage exceeded/dropped,
  - current: charging and discharging current limits,
  - temperatures: high and low temperature limits,
  - operating mode and maximum current values.

### 3.6 Protective functions

- Hardware and system battery protection,
- temperature protection (high and low temperature),
- output short circuit protection,
- automatic response in the event of irregularities.

## 4 Technical data

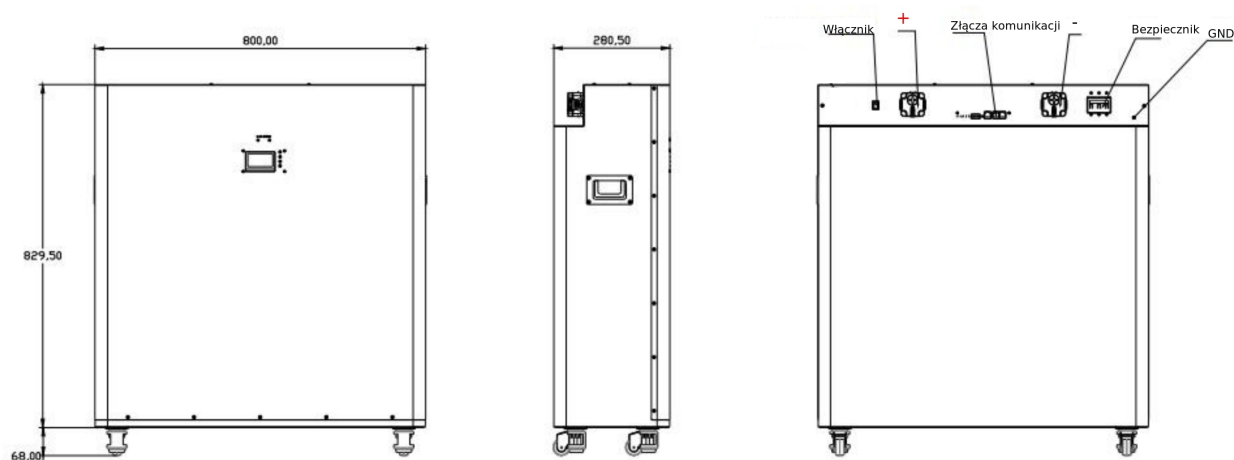
Sluxer Home				
Model	Sluxer Home 32/190	Sluxer Home 32/150	Sluxer Home 32/90	Sluxer Home 32/60
Nominal voltage	51.2V	51.2V	51.2V	51.2V
Maximum operating voltage range	42.0~58.4V	42.0~58.4V	42.0~58.4V	42.0~58.4V
Recommended operating voltage range	48.0~54.4V	48.0~54.4V	48.0~54.4V	48.0~54.4V
Capacity	628Ah   32.153Wh	628Ah   32.153Wh	628Ah   32.153Wh	628Ah   32.153Wh
Service life	≥ 8000 cycle*	≥ 8000 cycle*	≥ 8000 cycle*	≥ 8000 cykl*
Efficiency	94%	94%	94%	94%
Configuration	2P16S	2P16S	2P16S	2P16S
Working conditions				
Charging temperature	0°C~40°C	0°C~40°C	0°C~40°C	0°C~40°C
Discharge temperature	-5°C~40°C	-5°C~40°C	-5°C~40°C	-5°C~40°C
Storage <3 months	-5°C~35°C	-5°C~35°C	-5°C~35°C	-5°C~35°C
PrzechoStoragewywanie >6 months	25°C	25°C	25°C	25°C
Humidity	5~80%	5~80%	5~80%	5~80%
Height	<3000m	<3000m	<3000m	<3000m
Cooling	Free convection	Free convection	Free convection	Free convection
Charging and Discharging				
Maximum charging current	190A**	190A**	190A**	190A**
Maximum charging power	9.728kW	9.728kW	9.728kW	9.728kW
Maximum discharge current	190A**	150A	90A	60
Rated discharge power	9.728kW	7.68kW	4.608kW	3.072kW
Compliance with standards				
UN38.3, IEC62619				
Communication protocols				
Pylontech, Growatt, Goodwe, Sofar, SMA, Victron, Studer, GinlongSolis, Voltronic, SRNE, Most inverters available on the market				
Others				
Dimensions HxWxT	829×800×280mm			
Communication interfaces	CAN/RS485/Bluetooth			
weight	210kg			

\* When maintaining the recommended operating conditions.

\*\* At temperature 25°C ±2°C

## 5 Electrical connections

The photo below shows a diagram of the energy storage system, in particular the location of terminals, switches and communication ports.



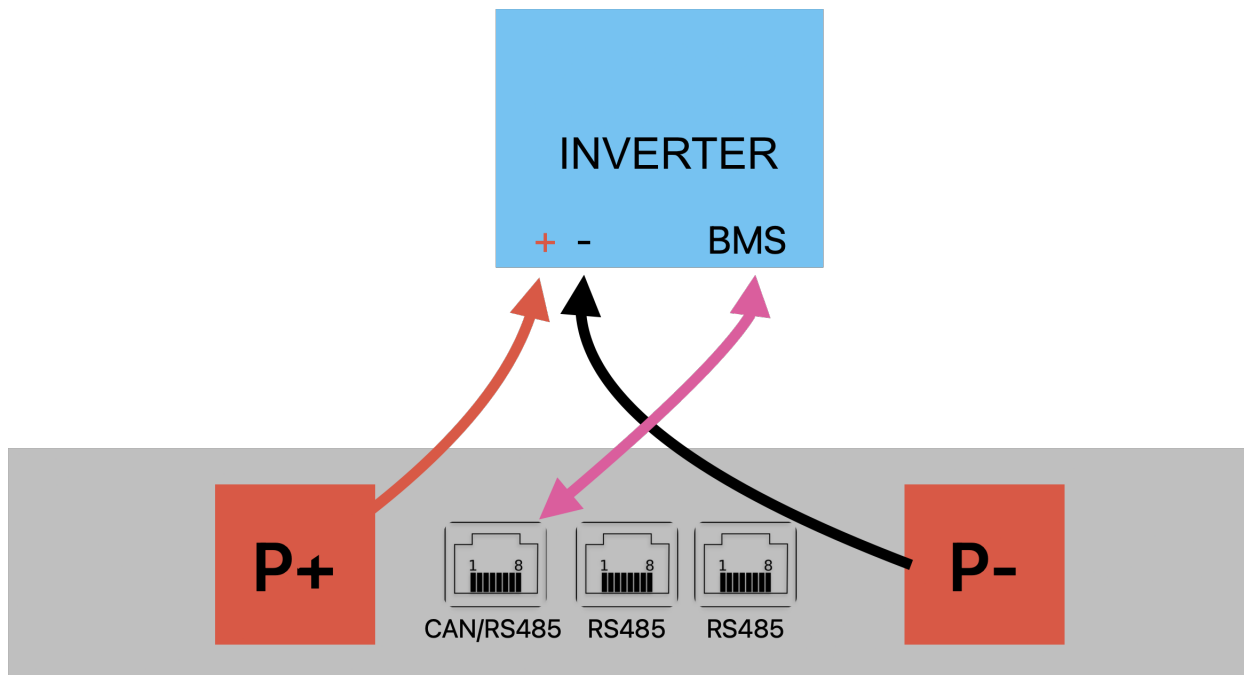


**Warning**

Before starting installation, ensure that the storage, PV installation and power supply to the inverter are turned off.

**Information**

The minimum cross-section of the cable used to connect the energy storage and the inverter is  $50\text{mm}^2$ .

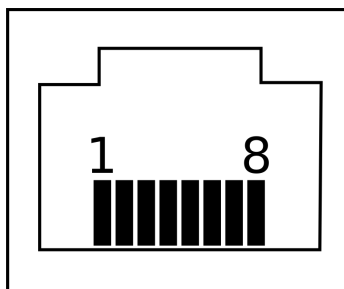


The warehouse can operate in two modes: in a no-communication mode with the inverter, using the inverter's manual settings, or in a full-communication mode via CAN or RS485. The operating mode depends on the inverter's communication capabilities and user selection.

## 5.1 Communication

### 5.1.1 CAN/RS485

The battery module can communicate using the CAN or RS485 interface. The transmission speed is  $500kb/s$  for the CAN interface and  $9600b/s$  for RS485. The interface uses a connector RJ45 8P8C.



Pin	Description
1,8	RS485B
2,7	RS485A
4	CAN-H
5	CAN-L
3,6	GND

### 5.1.2 Communication protocols CAN i RS485

Below is a list of communication protocols, along with the number selected in the BMS settings. To change the protocol, go to the Protocols settings from the main screen by pressing the Confirm button, then select the appropriate option using the Up and Down buttons. Confirm the selected protocol by pressing the Confirm button, and then turn the Energy Storage off and on.

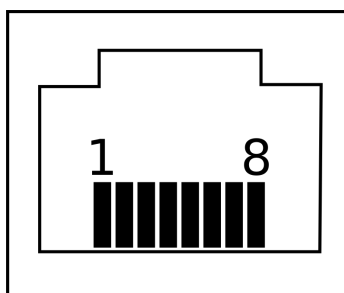
Index	Protocol	Inverter
0	Pylontech CAN	Most inverters available on the market: Deye, Hoymiles, Solplanet, SRNE i wiele więcej
1	Growatt CAN	Growatt
2	Goodwe CAN	Goodwe - low-voltage inverters
3	Sofar CAN	Sofar HYD(3000~6000)-ES
4	SMA CAN	SMA Sunny Island 4.4M / 6.0H / 8.0H
5	Victron CAN	Victron Multiplus-II 48V
6	Studer CAN	Studer - Most inverters
7	Solis CAN	Solis RHI-(3-6)K-48ES-5G
8	Voltronic RS485	Voltronic InfiniSolar, Axpowers - 48V
9	SRNE RS485	SRNE All low voltage "LV"
10	Growatt RS485	Growatt SPF 3k-6k ES
11	Pylontech LV	All inverters Pylontech LV
12	Pylontech RS485	All inverters Pylontech RS485
16	MUST CAN	MUST hybrid inverters

### 5.1.3 Parallel connection

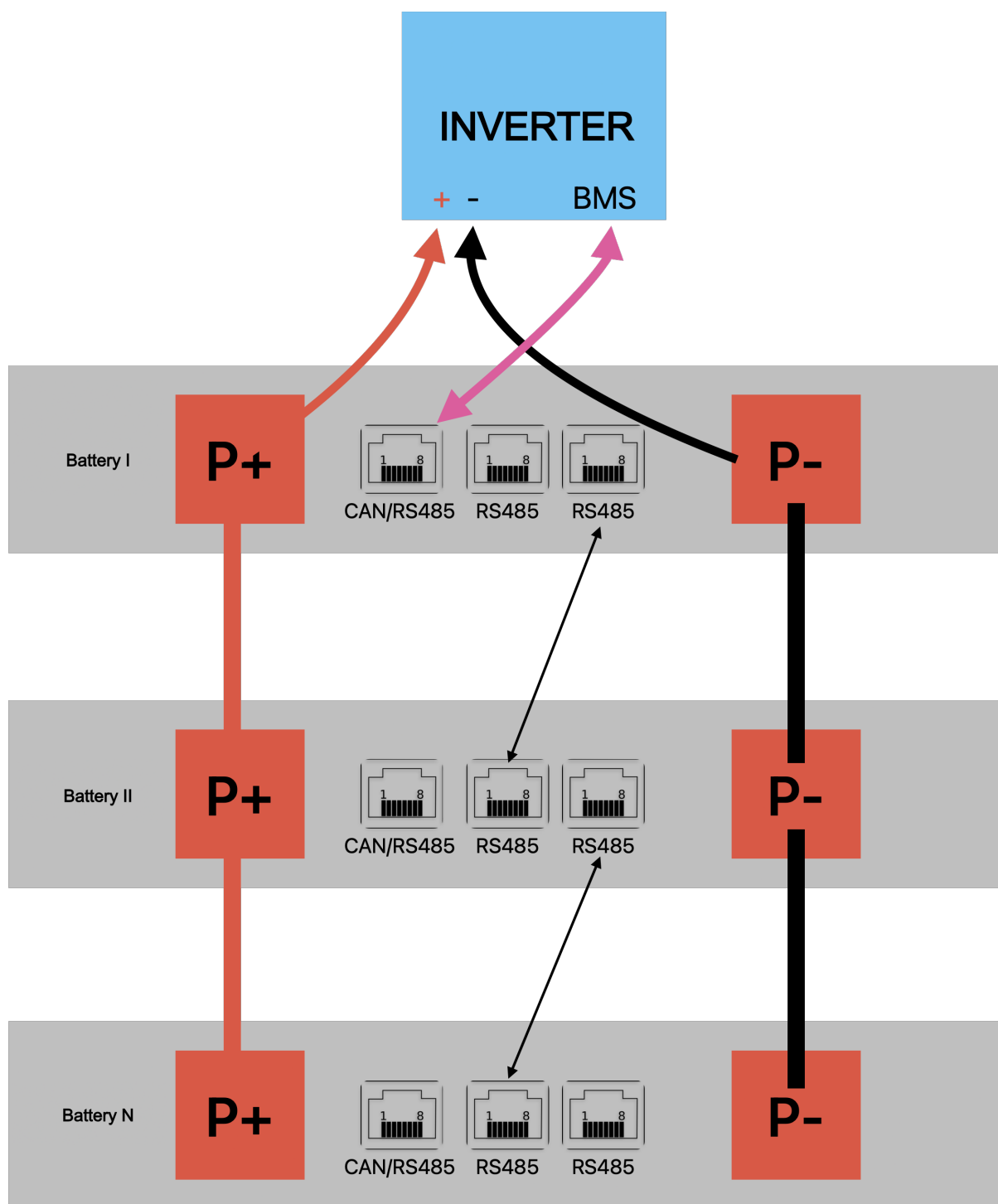
When connected in parallel, the batteries communicate with each other using RS485 interfaces. The CAN interface becomes the primary interface for communication with the inverter. T568B Ethernet cables should be used to connect the battery communication.

### 5.1.4 RS485

The battery module can communicate using the RS485 interface between batteries. The transmission speed is 19200 bps. The interface uses an RJ45 8P8C connector.



Pin	Description
1,8	RS485 A
2,7	RS485 B
4,5	No connection
3,6	GND



## 6 System operating modes

The BMS (Battery Management System) supports four basic operating modes: charging, discharging, standby, and off. Transitions between modes occur automatically depending on voltage and current conditions.

## 6.1 Standby mode

If the system is neither charging nor discharging, it automatically enters standby mode. In this state, power consumption is minimal and the system waits for activation.

## 6.2 Shut mode

### 6.2.1 Conditions for entering shutdown mode

The system will automatically shut down if any of the following occurs:

1. A single cell or the entire pack is in over-discharge protection for at least 30 seconds.
2. The user presses and holds the power button for 3 seconds (provided the charger is not connected).
3. No charging or discharging for 48 hours.

### 6.2.2 Re-waking the system

The system will return to operating mode if any of the following conditions are met:





1. Connecting the charger, the input voltage must exceed the battery voltage by a minimum of 0.5V.
2. Press and hold the power button for 3 seconds.

## Charging mode

The system enters charging mode when the following conditions are met:

- Charger presence detected.
- The charger voltage exceeds the battery voltage by at least 0,5 V.
- When the MOSFET transistor is switched on for charging, the charging current reaches a value considered as the effective charging current.





Once the above conditions are met, the system automatically enters charging mode.

State of Charge				
0–25%	Off	Off	Off	Blinking
25%–50%	Off	Off	Blinking	Green
50%–75%	Off	Blinking	Green	Green
≥75%	Blinking	Green	Green	Green
Working	Green			

## Discharge mode







The system enters discharge mode when:

- A load is detected.
- The discharge current reaches a value considered to be the effective discharge current.

State of Charge				
0–25%	Off	Off	Off	Green
25%–50%	Off	Off	Green	Green
50%–75%	Off	Green	Green	Green
≥75%	Green	Green	Green	Green
Praca	Blinking			

## Work markings

Mode	Turn-on time	Turn-off time
Flashing A	0.25s	3.75s
Flashing B	0.5s	0.5s
Flashing C	0.5s	1.5s

System	Action	Run	Alm	SoC			
							
Turn off	Off	Off.	Off	Off.	Off	Off	Off
Rest	Working	Flashing A	Off	Off	Off	Off	Off
Charging	Working	ON	Off	According to the tables Charging			
	Overcurrent warning	On	Flashing B				
	Overcurrent warning	On	Off	Off	Off	Off	Off
	Overcurrent warning And temperature	Flashing A	Flashing A	Off	Off	Off	Off
Discharge	Working	Flashing C	Off	According to the tables Discharge			
	Warning	Flashing C	Flashing C				
	Temp. Warning short circuit, overcurrent	Off	On	Off	Off	Off	Off
	Undervoltage warning	Off	Off	Off	Off	Off	Off