






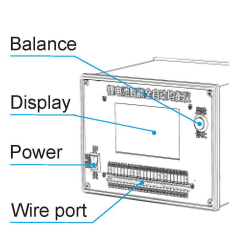
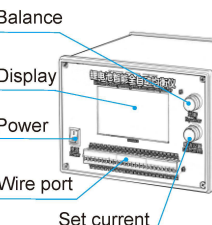
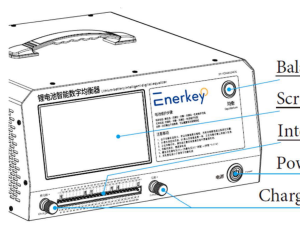
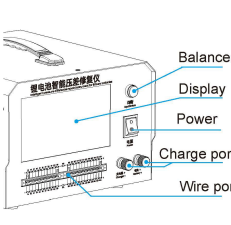
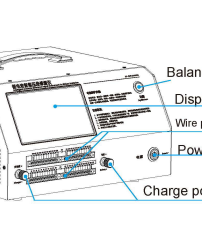
Lithium battery Intelligent Charge and Discharge Automatic Equalizer (pressure difference repair instrument)






Product Manual

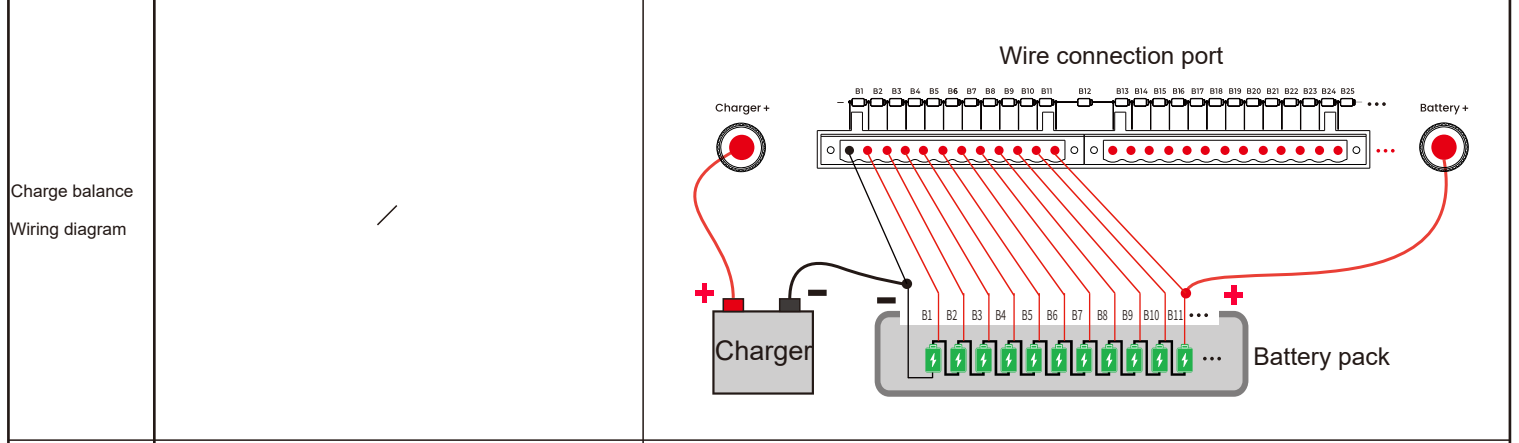
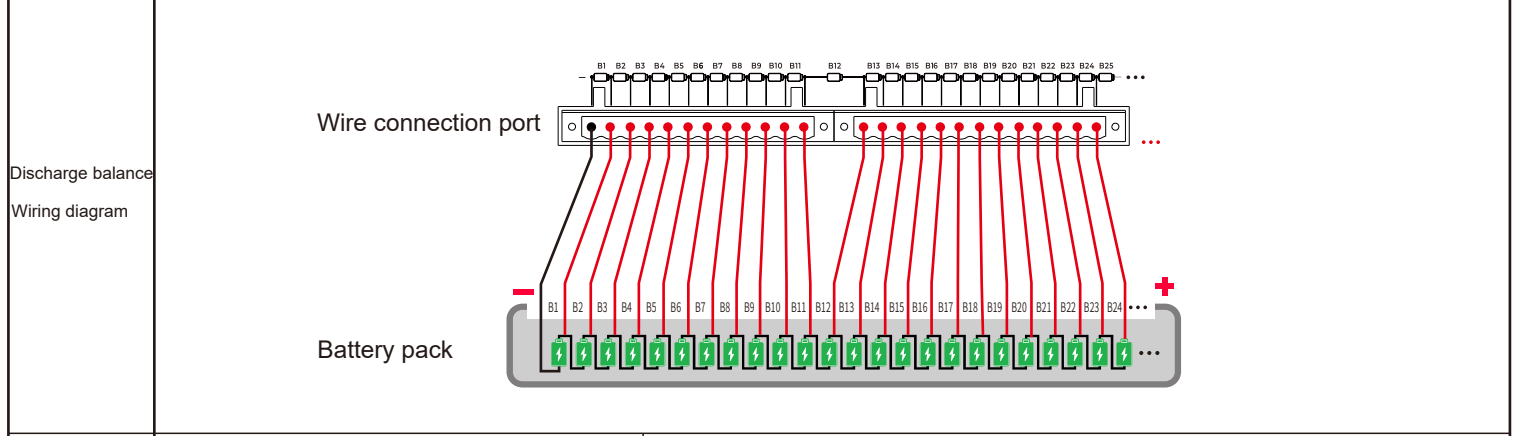
Product Parameters

Product photo					
Product name	24S 4A Intelligent Discharge Equalizer	24S 7A Intelligent Discharge Equalizer	24S 14A Intelligent Charge and Discharge Equalizer	24S 7A Intelligent Charge and Discharge Equalizer	48S 7A Intelligent Charge and Discharge Equalizer
Product model	EK-SA-B24S4A	EK-SA-B24S7A	EK-SA-B24S014AR	EK-SA-B24S07AR	EK-SA-B48S07AR
Battery strings	2~24S				2~48串
Battery type	NCM / LFP/LTO(Li-ion/Lifepo4/Lto), Battery voltage between 2V and 4.5V				
Automatically identify strings	Support				
Discharge balance method	1 ohm constant resistance discharge	PWM pulse discharge method			
Protective function	Reverse connection protection, over-temperature protection, over-voltage (4.5V) protection, low-voltage (2V) protection, and alarm. After balancing is completed, it automatically stops and alarms.				
Balanced mode	Discharge balance		Discharge balance, constant voltage balance, charge balance (needs an external charger with adjustable non-auto-stop function)		
Balance voltage	Automatic identification		Automatic identification/adjustable (2.0V~4.5V)		
Charging assistance	/		Need to use an external charger, the charging port withstands voltage \pm DC130V		Need to use an external charger, the charging port withstands voltage \pm DC250V
Balanced voltage mode	Automatic identification		There are two modes: automatic identification mode and manual input mode. The automatic identification mode is based on the lowest voltage string, and all are balanced to the voltage of the lowest voltage string (voltage is aligned downward). The manual input mode is to set the required balanced voltage, and all are balanced to the set voltage value.		
Display content	Balanced voltage, voltage per string, total voltage, highest voltage, lowest voltage, average voltage, maximum voltage difference, number of battery strings, temperature	Balanced voltage, balanced current, voltage per string, total voltage, highest voltage, lowest voltage, average voltage, max voltage difference, number of battery strings, temperature	Balanced voltage, balanced current, voltage per string, total voltage, maximum voltage, minimum voltage, average voltage, maximum voltage difference, number of battery strings, temperature		
Display size	4.3inch		7inch		
Language conversion	After turning on the device, press and hold the balance button for 10 seconds to switch between Chinese and English				
Voltage measure range	1V~4.5V				
Voltage measure accuracy	\pm (0.08%+0.06%FS)				
Current setting range	Li-ion: 4A, Lifepo4/Lto: 3A (Can't be adjust)	1A-7A(Can be adjust)	0.1A-14A(Can be adjust)	0.1A-7A(Can be adjust)	
Actual current	The actual current is related to input voltage, line resistance, temperature, and battery performance.				
Interface withstand voltage B- to B24 without voltage	-120V~+120V	-120V~+120V	-120V~+120V	-120V~+120V	DC220V
Power supply	DC12V 5A				

Operation and use instructions

Use steps	<ol style="list-style-type: none"> Power on the device and turn it on; Connect the battery pack according to the number on the equalizer interface or wiring board (refer to the wiring diagram); Check whether the voltage and number of strings displayed on the display are normal. If not, check the wiring or battery; Charge equalization, connect the charger, press "Charge Assist", set the parameters and start equalization, and wait for the equalization to complete; Discharge equalization, start equalization after setting parameters, and wait for equalization to complete. 				
Operation Instructions	<p>After turning on the device, connect the wire and press the "Start" button to start equalization.</p>	<p>After turning on the device, connect the wire, Press the "Set current" button, Set the balancing current, and press the "Equilibrium" button to start equalization.</p>	<ul style="list-style-type: none"> After power on, the default mode is automatic identification. After connecting the wire, press the "Start" button or the "Equilibrium" button on the chassis to automatically identify and start balancing. Manual input mode, press "Manual input" to enter manual input mode, Then press "Equilibrium Voltage (V)" to open the numeric keypad and enter the balance voltage (2.0v-4.5v) to confirm, then press the "Start" button or the "Equilibrium" button on the chassis to start balancing. Press "Maximum Balance Current (A)" to enter the current setting, the range is 0A-14A. 	<ul style="list-style-type: none"> After power on, the default mode is automatic identification. After connecting the wire, press the "Start" button or the "Equilibrium" button on the chassis to automatically identify and start balancing. Manual input mode, press "Manual input" to enter manual input mode, Then press "Balance Voltage (V)" to open the numeric keypad and enter the balance voltage (2.0v-4.5v) to confirm, then press the "Start" button or the "Equilibrium" button on the chassis to start balancing. Charging Assist: Connect a suitable charger, press "Charging Assist" and set the required parameters, then press the "Start" button or "Equilibrium" button on the chassis to start balancing; Press "Maximum Balance Current (A)" to enter the current setting, the range is 0A-7A. 	
Product diagram					

Product photo					
Product name	24S 4A Intelligent Discharge Equalizer	24S 7A Intelligent Discharge Equalizer	24S 14A Intelligent Charge and Discharge Equalizer	24S 7A Intelligent Charge and Discharge Equalizer	48S 14A Intelligent Charge and Discharge Equalizer
Product model	EK-SA-B24S4A	EK-SA-B24S7A	EK-SA-B24S014AR	EK-SA-B24S07AR	EK-SA-B48S07AR
Product size	207mm*205mm*145mm	207mm*205mm*145mm	360mm*340mm*195mm	260mm*312mm*210mm	360mm*340mm*220mm



Optimum charger voltage

Optimal charger voltage (V) = (balance voltage (V) * number of strings) + (number of strings * 0.01V); Charger current is less than or equal to the balance current. Charging current is less than or equal to 10A. Exceeding 12A will damage the device. When charging balance, please disconnect the charger immediately after balance is completed.

Battery maintenance steps

Discharge balance	Bad battery: Replace the battery---Fully charge---Complete balancing---Fully charge. Battery maintenance completed. Not bad battery: Fully charged---equalization completed---Fully charged---battery maintenance completed.	Charge balance	Bad battery: Replace battery - Charge assist - Complete balance - Battery maintenance completed Not bad battery: Charge assist - Complete balance - Battery maintenance completed
		Discharge balance	Bad battery: Replace battery - Full charge - Complete balance - Full charge - Battery maintenance completed Not bad battery: Full charge - Complete balance - Full charge - Battery maintenance completed

If one balancing operation does not achieve the desired effect, repeating the process several times will achieve better results.

Environmental conditions for use

- No corrosive, explosive, or insulation-damaging gases and dust
- Working temperature -10 C ~ 40 C
- Relative humidity 20% ~ 70%

Attention

- Due to the large balancing current, the balancing wire must be thick enough, otherwise the wire may be burned or other problems may occur.
- B- is the negative pole of the battery pack, and B1 is the first string from the negative pole. It is forbidden to connect the battery again during balancing.
- The balancing completion time is related to the capacity, pressure difference and performance of the battery; the greater the capacity, the greater the pressure difference, the worse the performance, the longer it will take.
- When charging and balancing at the same time, the charger voltage must be adjusted correctly. Excessive charger voltage may cause safety hazards.
- When balancing, please be sure that the lines of the idle channels do not touch the battery, otherwise the machine will be damaged
- If one balancing operation does not achieve the desired effect, repeating the process several times will achieve better results.

Product Service Policy

During normal use of the product, if the product has a performance failure that is not caused by human damage, the consumer will enjoy free maintenance service during the warranty period of 12 months from the date of purchase. The merchant will bear the round-trip shipping cost if the warranty is within 1 month from the date of purchase; the sender will pay the shipping cost if the warranty is between 1 month and 12 months from the date of purchase.

Not eligible for warranty coverage

- Damage caused by force majeure, such as earthquake, fire, flood, typhoon, etc.;
- Damage caused by improper use, maintenance, or storage by consumers;
- Damage beyond the use environment conditions;
- Damage caused by consumers disassembling the device without permission;
- Damage beyond the warranty period.