USERS MANUAL

Floor Cleaning Machine Lithium Battery

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WARRANTY INFO:

Serial number _____

Purchase date _____

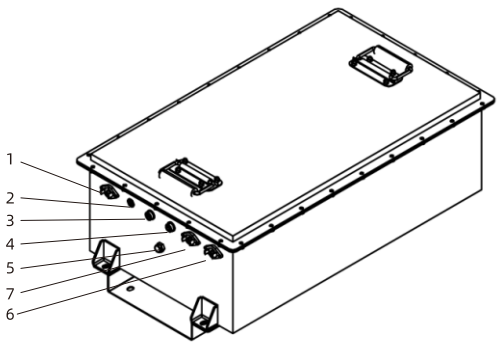
Welcome to BSLBATT Products

BSLBATT offers cutting-edge Floor cleaning machine LiFePO4 batteries. Our lithium battery packs are designed with an integrated battery system and are ideal for electric cleaning equipment such as floor scrubbers, polishers, vacuum cleaners, etc. The batteries are used to replace lead-acid batteries and can directly replace most brands of floor cleaning equipment. Please read the user manual carefully before using the product and use caution when using this product. This product is not suitable for unsupervised use by inexperienced practitioners or the infirm.

Overview

The B-LFP24-100FM, B-LFP24-200FM, B-LFP24-280FM series and B-LFP36-100FM series are floor cleaning machine lithium batteries. The battery is equipped with an integrated battery management system, which features include:

- Cell balancing
- Cell voltage monitoring
- Cell current monitoring
- Warning when the battery is about to run out (via Rs485 communication)
- Cell temperature monitoring (integrated temperature sensor)
- Provides over-discharge, over-charge, over-current, over-temperature and short-circuit protection.



	NAME	PARAMETER	
1	BAT-	M8*15mm	Battery string charge and discharge negative port
2	Switch	Locking press button	Battery string power switch
3	Comm	GX16-4	Charging communication interface
4	Screen	GX16-6	Display screen interface
5	C BAT+	M8*15mm	Positive battery pack charging port
6	D BAT+	M8*15mm	Positive battery string discharge port
7	PRV	Explosion proof valve	

Note:Press "MAIN SWITCH" button to turn on/off the battery, green light indicates power on.


LFP BATTERY


LINE OF COMMUNICATION

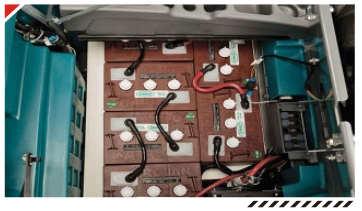

SCREEN

USERS MANUAL

Note: Follow the steps below to install the meter:
1.Install the meter in a suitable location on the equipment.
2.Connect the meter cable, one end to the battery communication port and the other end to the meter. Fix the meter in a suitable location so that you can check the charge at any time.

INSTALLATION STEPS

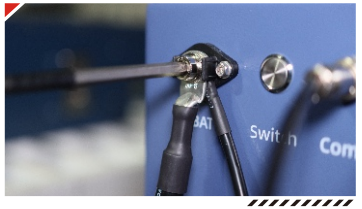
1 Open the battery compartment to clean and remove the old lead-acid batteries.



2 Place the BSL lithium battery in a suitable position and fix it.

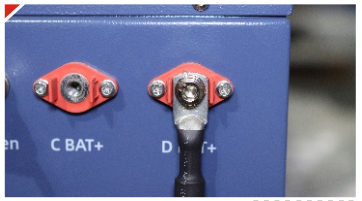
3 Connect the corresponding power output line, input line and communication output line according to the mark

3.1 Connect the charging and discharging common negative pole and lock it tightly

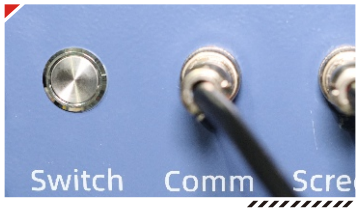


3.2 Dock the charging positive pole and lock

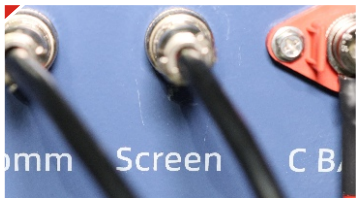
3.3 Connect the positive electrode of discharge and lock



3.4 Dock the charging communication cable (the charging communication connector is GX16-4P female plug)



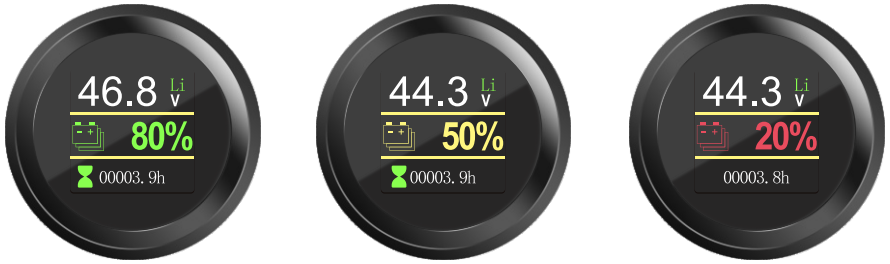
3.5 Dock display communication line (display communication line is GX16-6P female plug)



3.6 Check whether the screw of each connecting wire is locked; after completion, it can be tested

SCREEN OPERATION

Screen display



Note:

Battery status

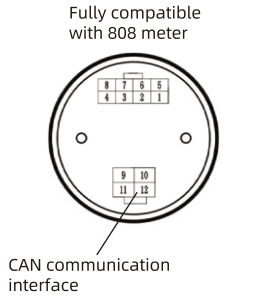
71%-100% It is displayed in green

21%-70% It is displayed in yellow

0%-20% It is displayed in red

- 1.44 "full color TFT display, resolution :128*128
- CAN communication interface
- Lifting and locking function, when the remaining power is equal to 0, the internal normally closed relay is disconnected, lifting and locking (relay overcurrent capacity 1A)
- IP protection class: positive surface I67: bottom I54
- Supply voltage :9-80V
- Maximum current :30mA
- MOLEX 5559-8-core and MOLEX 5559-4-core physical plug-ins

Interface definition



	Port definition	Remark
1	Internal use	
2	Key switch	
3	Normally closed positive relay	
4	Normally closed relay negative pole	
5	Common burden	GND
6	Hour meter trigger	
7	VDD	Decide between
8	VDD	
9	CANL	
10	CANH	
11	NC	
12	CANR	Configure the terminal resistor to short-circuit the CANH

Function

The instrument is a terminal display of battery information and motor controller information. The practical application scheme supports analog acquisition system, CAN bus communication system and hybrid application of CAN communication and analog acquisition.

The instrument supports CAN communication Bootload online download program, support host computer to modify parameters.

Physical quantity display:

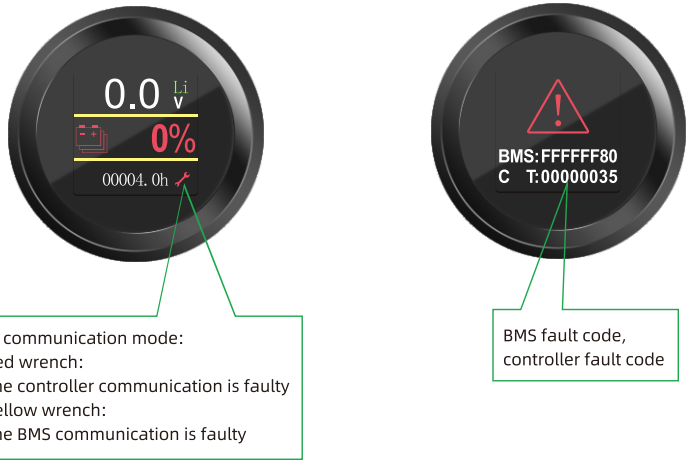
Voltage V

Power display %

Hour meter h

Logical display:

Fault code



THE FOLLOWING GENERAL ABNORMAL FAULT METHOD:

DESCRIPTION	REASON	SOLUTION
Large SOC deviation	1. The offset of the current sensor is large and the measurement is inaccurate 2. Incomplete charge and discharge, the capacity value is not corrected	1. Adjust the current correction value to make it return to 0 2. Fully charged or discharged, the capacity is automatically corrected
Abnormal alarm	1. Abnormal temperature alarm 2. Single unit undervoltage alarm 3. Single over-discharge alarm	1. Detect the actual ambient temperature, if it is consistent with it, it should be stopped immediately, and it can be used after cooling down. 2. The alarm is lower than the setting, and it needs to be charged in time
Not charging	1. The charger signal is interrupted 2. The charger fault light flashes 3. The charger is not powered on	1. Reconnect the charger and battery terminal connector 2. Check whether the 12V power supply of the charger is output normally. If not, replace the charger. 3. Directly replace the charger
Vehicle Power Outage, 12v Output	Small output current, 12 hours power failure protection	Reset the switch once

ALARM LIGHT FAULT INDICATION

CLASSIFICATION	CONTROL LOGIC	ALARM LIGHT INDICATION (BUZZER)	RESET INDICATION
General alarming	Power on for 5s and stop for 5s	Red -- Red -- Red --	Handle exceptions properly
Undervoltage alarming	Power on for 5s and stop for 5s	Red -- Red -- Red --	Charging,higher than undervoltage, release voltage value
Over-discharge alarming	Always powered on	Red	Charging,higher than over-discharge, release voltage value

OPERATION PRECAUTIONS AND PROHIBITIONS

- Be sure to read the user manual and precautions before using the battery system.
- Improper handling of lithium-ion batteries can cause leakage, heat generation, smoke, explosion or fire.
- This may result in poor performance or failure. In order to ensure the service life of lithium batteries, operators should pay attention to the following points:

■ The manual should be placed where it can be seen, the operator should be trained, or work under the guidance of professionals, and read the manual in detail.

■ The lithium-ion battery should be charged immediately after each discharge. if it is not used for a long time, the battery pack should be disconnected from the emergency power off or the button switch, and the power should about 60% to avoid battery power loss.

■ It is not recommended to exceed 80% of the total battery capacity for each discharge. At this time, the voltage of the single battery should not be lower than 2.8V. If it is lower than 2.8V, it is over-discharge. Frequent over-discharge will reduce the life of the battery.

■ Foreign objects and tools should not be placed on the lithium battery to avoid short circuit of the battery.

■ It is forbidden to expose or put the battery in an environment above 55℃ for a long time, and it is forbidden to try to heator put the battery into fire.

■ The charging temperature range is: 0-55℃. High current charging in a low temperature environment below 0℃ will cause damage to the battery; in a low temperature environment below 0℃, please charge the vehicle immediately after use.

■ The discharge temperature range is: -20-50℃, the discharge capacity at low temperature (-20-0℃) may be lower than that at normal temperature; the battery can be used at 40-50℃ ambient temperature, but the ambient temperature of the battery is too high, especially if the battery is in a high temperature environment for a long time, it will accelerate the aging of the internal materials of the battery and shorten the service life of the battery. Therefore, it is not recommended to use it at this temperature for a long time.

■ It is forbidden to disassemble, squeeze, puncture, shelve or bake the battery and battery box at high temperature, and avoid the battery from being subjected to excessive vibration, external force impact, and falling from a high place.

■ It is forbidden to charge the battery without installing a reasonable charging protection device (lithium-ion battery protection circuit board, battery management system, etc.) or using non-battery manufacturer-approved charging equipment (charger, DC power supply, etc.). Non-manufacturer-designated technicians are prohibited from disassembling and assembling the battery without permission.

■ Do not operate electric vehicles with lithium batteries in an environment where the temperature exceeds 55℃ or is lower than -20℃.

■ Do not wash the battery box directly to prevent water from entering the battery box to ensure the safety of the battery pack.

■ Please store the battery module at room temperature (-20℃ ~55℃, 15℃ ~30℃ is better; recommended temperature is lower than 20℃).

■ Use a special charger for charging, reverse charging is prohibited, and the charging current must be controlled to the value specified in the battery specification.

Specification

Model	Capacity	Max continuous charge current (A)	Max continuous discharge current (A)	Max instantaneous discharge current (10S)	Battery box dimension (length*width*height) MM	Control method
B-LFP-24-105FM	25.6V 105AH	50A	1C	2C	436*325*215	Mos
B-LFP-24-150FM	25.6V 150AH	60A	1C	2C	440*333*222	Mos/Relay
B-LFP-24-205FM	25.6V 205AH	100A	1C	2C	550*333*222	Relay
B-LFP-24-280FM	25.6V 280AH	140A	1C	2C	450*360*290	Relay
B-LFP-36-105FM	38.4V 105AH	50A	1C	2C	440*333*222	Mos
B-LFP-36-150FM	38.4V 150AH	60A	1C	2C	600*333*222	Mos/Relay
B-LFP-36-205FM	38.4V 205AH	100A	1C	2C	810*333*222	Relay
B-LFP-36-280FM	38.4V 280AH	140A	1C	2C	580*380*320	Relay

Environment	Charge temperature range	32 °F~131 °F(0 ℃~55 ℃)
	Discharge temperature range	Discharge: -4°F to 140°F (-20°C to 60°C)
	Storage temperature range	Storage (1 month) -4°Fto 140°F(-20°C to 60°C) Storage (1 year) 32°F~95°F (0°C~35°C)

Warnings

1. Do not disassemble, resemble, or repair the battery. Incorrect reassembly may cause combustion or electric shock.
2. If the battery is damaged, contact the place you purchased it.
3. Do not short--circuit the battery, use it near heat or water sources, or allow it to become wet.
4. Do not insert nails or other objects into the battery, strike it, or weld directly on the battery.
5. Do not use a badly damaged battery or operate it with damaged cables or charging adapters.
6. Do not operate this product in explosive atmospheres (i.e. flammable liquids, gases, or dust) or set the unit on flammable materials (i.e. carpeting, upholstery, paper, cardboard).
7. Do not permit the battery to freeze. Never charge a frozen battery.
8. In case of skin or eye contact, rinse immediately with clean water and seek medical attention.
9. Do not keep using this product if it is damaged, waterlogged, distorted, or broke.
10. This product contains lithium ion batteries. When it is worn out, dispose of it properly using local laws and regulations.

Handling and Maintenance

Storage:

- For storage over one month, place the battery in a dry and ventilated room that is 32 °F~95 °F.
- Do not store near corrosive material, fire, and heat sources.
- In order to avoid over discharge, for long-term storage, the power must be turned off and the SOC is kept about 60% to avoid over discharge the battery must be fully charged and must be charged every 3 months.

Operation

- ATTENTION: Before installing, make sure that all appliances are turned off.
- Turn on/off the battery
  Press the "SWITCH" button to turn on/off the battery, green light indicates power on.
- Remaining battery capacity
  Once the battery is turned on, you can press the "SOC" button to check the remaining battery capacity. The gauge will light up for 3 seconds, there are ten bars in total, and the reference power of each bar is 10%.
- Alarm
  The battery may shut down immediately due to over-temperature, over-current, under-voltage, and external short-circuit. When there are only two bars left in the gauce, the gauge will sound an under-votage alarm. It means the battery needs to be charged. When there is only one bar left in the gauge, the gauge will sound an under-voltage alarm again, and the LED indicator is blinking, once this happens, stop driving immediately and charge the battery as soon as possible.
  Disclaimer: Once the gauge sounds an alarm, stop driving and charae the battery as soon as possible. Continue driving will cause the golf cart to suddenly stop. We are not responsible for any loss caused by the sudden stop of driving in this case.
- Charging
  This battery needs to be used with the designated charger we sell, otherwise it may cause insufficient charging or battery damage. We are not responsible for any problems caused by this.

WARRANTY REPAIRS/REPLACEMENTS

Your Battery is warrantied for FIVE years from date of purchase at retail against defective material or workmanship. We make no warranty other than this limited warranty and expressly exclude any implied warranty including any warranty for consequential damages. This limited warranty is not transferable.
Seller warranty this product, if used in accordance with at applicable instructions. to be free from original defects in material and workmanship within the warranty period. If the product has any failure problem within the warranty period, Seller will repair or replace the product at its sole discretion according to the failure situation.

LIMITED WARRANTY

Save proof of purchase, such as a dated receipt. This warranty for the unit is extended to the original purchaser or user, and it may cover defects in materials and workmanship.
For malfunction due to defects in materials or workmanship six months from the purchase date, we will repair or replace the unit at our discretion after inspection.

This warranty is invalidated if any of the following occurs, but not limited to:

- Failure to follow instruction in the User's Manual.
- Accidental or unreasonable use, misuse or mishandling, over charging or loading, or normal wear.
- Extended storage without recharging or repairs done by an unauthorized person or modification.

This warranty is in lieu of all other express warranties. BSLBATT wil not be liable for consequential or incidental damages.