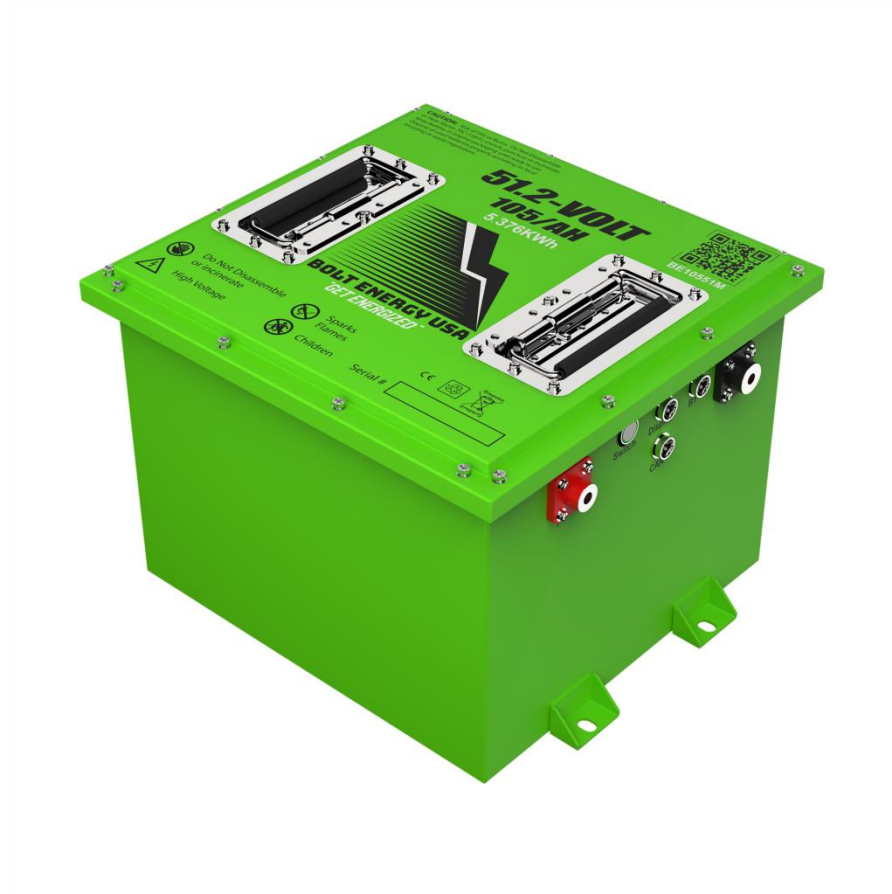


LiFePO4 Battery Operation Manual

Model: BE10551M



Bolt Energy USA LLC
Address: 6650 TREELAND AVE, LARGO, FL 33773

Congratulations on your new high performance

BOLT ENERGY USA Battery

Quick Start guide



***Always keep your Vehicle plugged in to the smart charger when not in use. The Battery computer (BMS) will turn charger on & off as needed.**

***If you do not do this, your SOC (State of Charge) meter will read inaccurately the next time you use your Vehicle. You potentially will run out of power sooner than expected.**

***If your Vehicle will not be in use for more than 1 week, we recommend leaving your Battery at 50-70% SOC on the meter, unplug your charger from the wall outlet, and turn off the Battery by pressing the on/off switch on the Battery. When you are ready to put the Vehicle back in service, turn on the Battery, plug in the charger to the wall outlet, and let the charger perform a full charge cycle uninterrupted. This will re-sync the SOC meter to the Battery and you will be fully charged.**

- * Bolt energy USA batteries are provided as energy storage to provide power for many Vehicles (Golf Carts, RVs, boats, etc.).**
- * You should not use our products for anything not recommended by the original manufacture of your Vehicle. We highly encourage you to contact the original manufacturer of your Vehicle if you have any intentions to modify their original design or specifications to ensure those modifications are safe.**
- * Do not use any extension cord over 15ft with a rating below 12 AWG. Longer extension cords with lighter gauge wires create heat resistance and could present a risk of electrical fire.**
- * Failure to follow these instructions will VOID the warranty and will create operational issues with your Battery and Vehicle.**

Customer acknowledgement:

Sign: _____ Date: _____

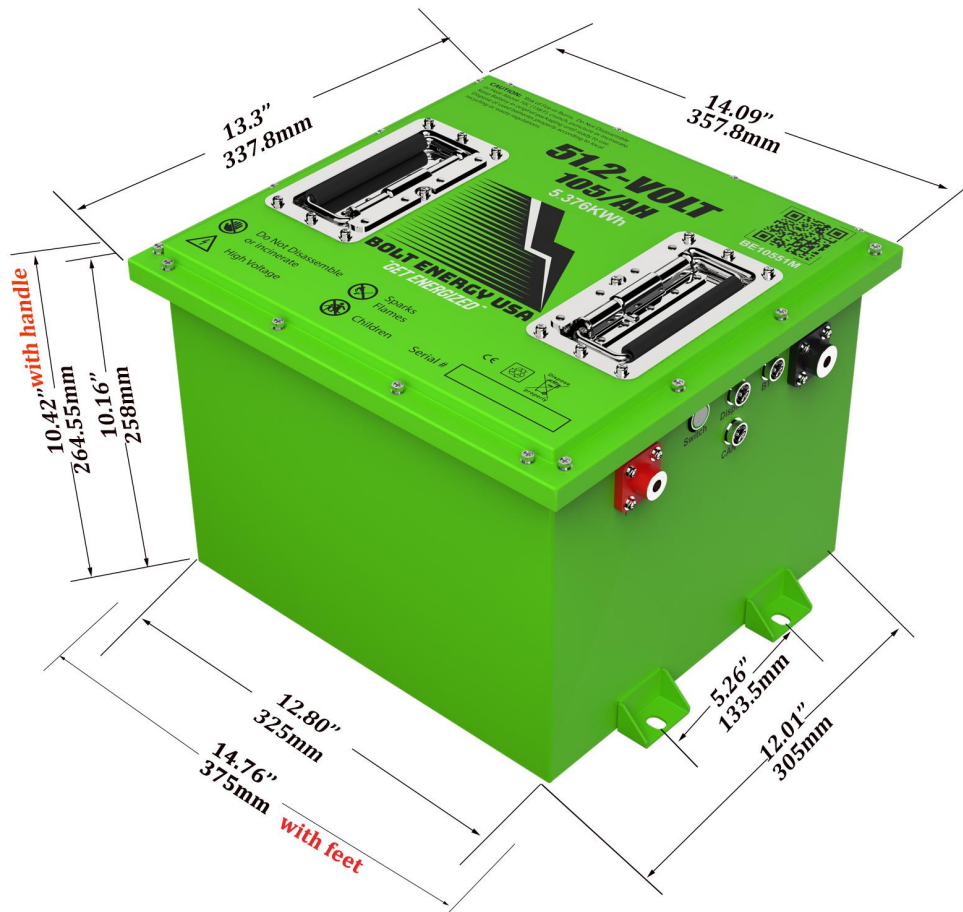
Please refer to your owners manual for additional Battery operations, safety precautions, Bluetooth, installation/wiring diagrams, etc.

**Congratulations on your new
BOLT ENERGY USA LITHIUM BATTERY purchase.
The BEST LITHIUM BATTERY on the market today!
"WE ARE POWER"**

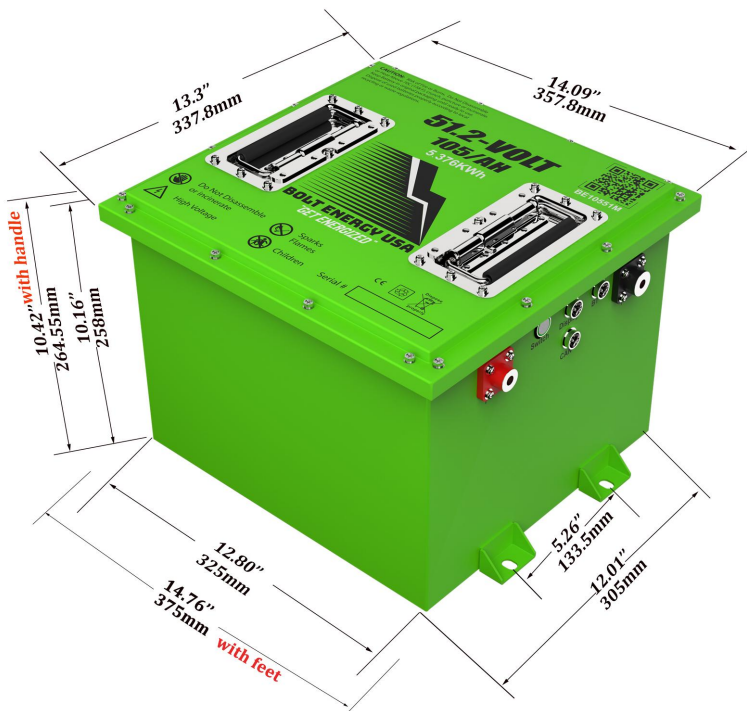
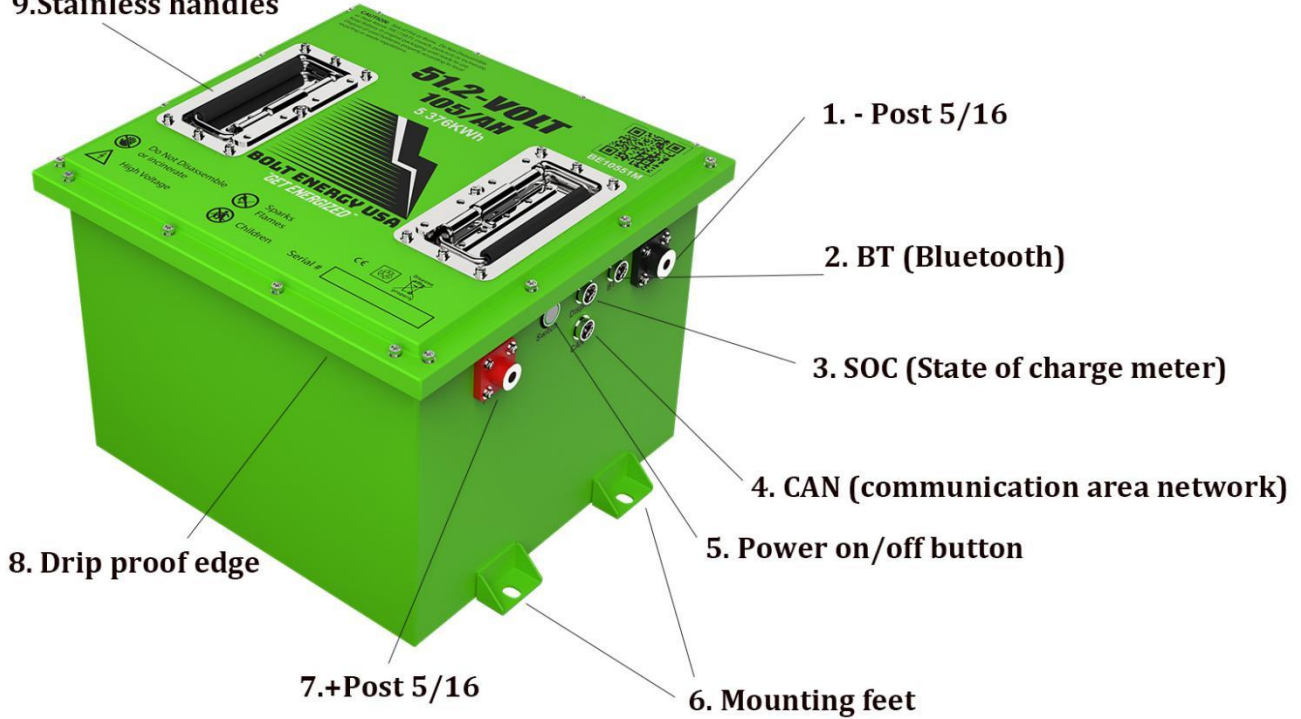
Model: BE10551M

Battery appearance structure and size

51.2V



9. Stainless handles



1. 51V105AH Complete professional kit.(BE10551M)

Note: Standard kit will only have some of these products.

			
51V-105AH Battery	SOC (state of charge meter)	36-51V BOLT 30 AMP high output reducer	*Bluetooth receiver *2-5/16 battery post with lock washers *User manual *3- 3/8, 3-5/16 battery ring terminal *3-ABC stickers *1-Bolt oval sticker *1-Bolt Lightning sticker *10-10" tie straps
			
Bracket with Nuts and bolts	2-40" 2AWG cables	Lead battery removal strap	48V- 400A solenoid with diode
			
Waterproof charger W/charger interlock pigtail	12 AWG 15 foot extension cord	Deco Plate for AC Hardwire	AC Hardwire onboard charge adaptor

2. Normal performance:

NO.	Item	General Parameter	
1	Rated capacity	105Ah	
2	Standard voltage	51.2V (16S)	
3	Standard Charge voltage	58.4 V	
4	Charging method	CC-CV	
5	Charge current	Normal	100A
		Max	375A
6	Cut-off voltage	40V	
7	Continuous discharge current	250A	
8	Peak discharge current	500A(30 Secs)	
9	Total weight	101 LBS	
10	Impedance at 1000Hz.	≤50mΩ	
11	Charge method	Charge	30 - 140°F
		Discharge	-4 - 140°F
12	Storage environment	Temperature	50 - 113°F
		Humidity	≤ 75%RH
13	Cycle life	1C@DOD100%	≥2500 cycles
		0.2C@DOD100%	≥4000 cycles
14	Self-discharge rate	≤3%/Month	
15	Battery dimension	L=12.80 IN	
		W= 12.01IN	
		H= 10.42IN	
16	Bluetooth function	Android telephone (system version must be higher than 4.3) or iPhone (system version must be higher than iPhone4S & iOS7), In the APP store install " Bolt USA " You will be able to read the voltage, SOC, etc. after connected properly.	

3. Performance & Test Condition:

No.	Project	Standard		Testing method
1	Rated capacity	105Ah		After a standard charge, discharge @0.5C current to the end of discharge voltage. Cycles for three times, one cycle capacity arrive standard, that's to say it is qualified. (The below as the same)
2	Charging storage ability in normal temperature	Rest Capacity $\geq$ Standard Capacity *97%		After standard charging, store at 77° F $\pm$ 41° F for 1 month, and then discharge capacity @0.2C current to the end of discharge voltage, then measure the capacity of cell.
3	Cycle life	Capacity $\geq$ Standard Capacity *80%		After standard charge, discharge @0.2C current to the end of the discharge voltage. Rest for 1h, cycles for 4000 times.
4	Internal Impedance	$\leq 50\text{m}\Omega$		At 50% SOC, 1kHz AC internal resistance test instrument.
5	Discharge temperature characteristic At 0.2C	-4° F (6h)	$\geq 70\%$	Discharge Capacity at specified temperature/Capacity at 77° F
		32° F (6h)	$\geq 90\%$	
		77° F (4h)	$\geq 100\%$	
		131° F (4h)	$\geq 97\%$	

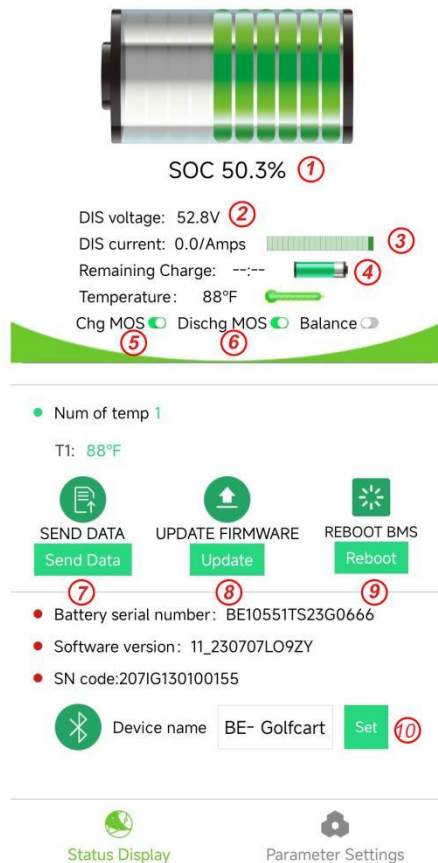
4. BMS technical parameters:

Bolt Energy USA battery is designed with an intelligent protection board solution, which can monitor the battery running status in real time. The protection board has a strong loading capacity, and the maximum discharge current can reach 500A(30 secs). It provides protection against overcharge, over discharge, over current, over temperature, and many others. The battery power input and output are actively cut off for protection. Features are as follows:

- 16-cell battery series protection.
- Various protection functions for charging and discharging.
- Hardware discharge over current, short circuit protection function processing.
- Software over voltage, under voltage, temperature, overload protection function processing.
- Accurate SOC (state of charge) calculation with automatic learning SOC (state of charge) function.
- Hardware discharge over current, short circuit protection function processing.
- With UART (universal asynchronous receiver-transmitter) communication, support for Bluetooth.

5. Bluetooth APP interface

App supports Apple and Android systems, supports English and dual language switching. When Bluetooth signal is strong, it can be connected within 32 feet. In the APP store install "**Bolt USA**" You will be able to read the voltage, SOC, battery history record, send data to email for after sales service, and update firmware.



- ① SOC Remaining battery %
- ② Discharge voltage
- ③ Discharge current
- ④ Remaining Charge
- ⑤ Charge MOS connect or disconnect
- ⑥ Discharge MOS connect or disconnect
- ⑦ SEND DATA: Send BMS DATA to chosen email for technical support.
- ⑧ UPDATE FIRMWARE: Fill in the firm-ware code and update to the new Software version.
- ⑨ REBOOT BMS: It will exit the APP for reboot when click this function.
- ⑩ Fill in the new name and click "Set" to make your own Device name

6. Storage and Transportation

- Proper environment for transportation protocols of the LiFePO4 battery pack need to be followed to protect the Battery and ensure it performs to manufacturer's specs.
- During transportation the Battery should be at 50% SOC to prevent short circuits if there is an accident reducing the risk of fire.
- Battery should be kept at 32°F - 113°F indoors where it's dry, clean, and well-ventilated.
- During the loading and transport of Battery, avoid dropping, turning over or stacking.

7. Warnings and Tips

- In order to prevent the Battery from leaking, overheating and potential explosion, it is vitally important to follow these instructions carefully! Failure to follow these warnings could result in fire, serious personal injury or death.
- Never throw the Battery into water or otherwise expose to water, keep it under dry, shady, and cool conditions.
- Never reverse the positive and negative post connection.
- Never connect the positive and negative posts of the Battery with unapproved wiring.
- Never ship or store the Battery together with metal that could contact the posts.
- Never knock, throw, or trample the Battery.
- Never drill, cut, puncture or bolt through the Battery case.



-  When working with the Battery, do not put wrenches or other metal objects across the Battery terminals. An arc can occur causing an explosion or fire at the Battery.
-  Always remove the negative (-) cable to a motor controller first, and install it last. A spark can occur causing an explosion or fire at the battery.
-  Do not allow charging Battery to be immersed in water or liquids. Failure to follow this warning could result in fire, serious personal injury or death.
-  Do not attempt to open the Battery. Failure to follow this warning could result in fire, serious personal injury or death.
-  Install charging equipment in compliance with local regulations. Failure to follow this instruction could result in personal injury, death or property damage.
-  Make sure any electrical outlet used for charging your Battery is properly grounded. Check with a qualified electrician if you are uncertain whether or not the electrical outlet is properly grounded. Do not modify the plug provided with the product if it does not fit in the outlet. Have a proper outlet installed by a qualified electrician.
-  It is recommended that electrical outlets for use with your charger be installed by a licensed, qualified electrician. To avoid serious injury or death, installation must comply with the provisions of the National Electric Code (NEC) and all local codes. In cases of conflict between local codes and the NEC, local codes shall take precedence.
-  Never use the charger with an extension cord longer than 15ft or rated below 12 AWG.
-  Shock hazard - make sure the plug is fully inserted into the wall outlet so that there are no exposed blade surfaces.
-  Children should be supervised when in the vicinity of the charger while plugged in.
-  Do not put fingers into the electric charge coupler or any electrical outlet.
-  Do not expose the charge cord to flammable vapors.
-  Be sure to have proper ventilation when charging batteries.

NOTICE!

- . Never use or keep the Battery under high temperatures. Otherwise, it will cause battery to heat, catch on fire, or lose some function and reduce the life. The necessary temperature for long-term storage is 32-113°F.
- . Never throw the Battery into fire or a heating machine. This type of action could lead to fire, explosion, and environmental pollution; scrap Batteries should be returned to the supplier or handled by a qualified recycling station.
- . Never use the Battery near strong static and strong magnetic fields, otherwise it will damage the BMS (Battery management system).
- . If the Battery leaks and the electrolyte gets into your eyes, avoid touching your eyes, instead please wash eyes with water and seek emergency medical attention ASAP. Otherwise, it can cause eye damage.
- . If the Battery emits an odor, excessive heat, or anything abnormal during use, storage, or charging, please disconnect the charger, turn the Battery switch to the off position and call Bolt Energy USA for immediate support, do not use the Battery.
- . ONLY use the charger provided by Bolt Energy USA when charging.
- . Check the voltage of Battery and relevant connectors before using. It cannot be used until everything is connected properly.
- . Prior to charging, fully check to make sure the wires and surrounding insulation are intact. Make sure the charging cord is securely plugged in the AC wall outlet. Do not attempt to charge if SOC meter is below 40V as this is abnormal, disconnected the charger, turn off the Battery, and contact Bolt Energy USA for immediate support.
- . The Battery should be stored at 50%-70% SOC and must be charged once every 6 months to avoid severe discharge or damage not covered by warranty.
- . Clean dirty or corroded terminal posts with a clean dry cloth to prevent resistance, heat build up, and potential damage to the Battery.
- . Never run Batteries in series. If you do, your warranty will be VOID.
- . Two of our Batteries in parallel will work and we recommend you seek proper installation guidance from Bolt Energy USA.
- . We do not recommend using our Products for anything not recommended by the original manufacturer of your Vehicle (Golf Cart, RV, Boat, Etc). If you have intentions of making any modifications to the original Vehicle design or specification, we highly recommend you first verify with the OEM of the Vehicle it is safe to do so.
- . Failure to follow these recommendations will VOID your Battery warranty.

Basic Universal Installation Instructions

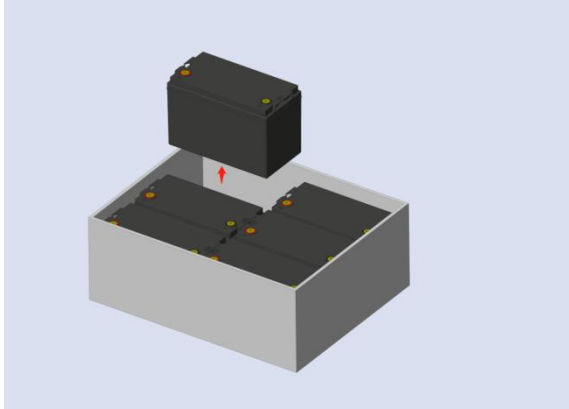
- 51V-105AH-BE10551M
- 51V-105AH-BE10551T
- 38V-105AH-BE10538M
- 51V-160AH-BE16051B
- 72V-105AH-BE10572P

Caution:

- * We recommend you contact a licensed professional for any electrical installations or modifications.
- * If you choose to install your new BOLT ENERGY USA lithium Battery, we highly recommend two-person installation and back braces.
- * Safety glasses and chemical resistant gloves are a necessary safety precaution for any Battery installation.



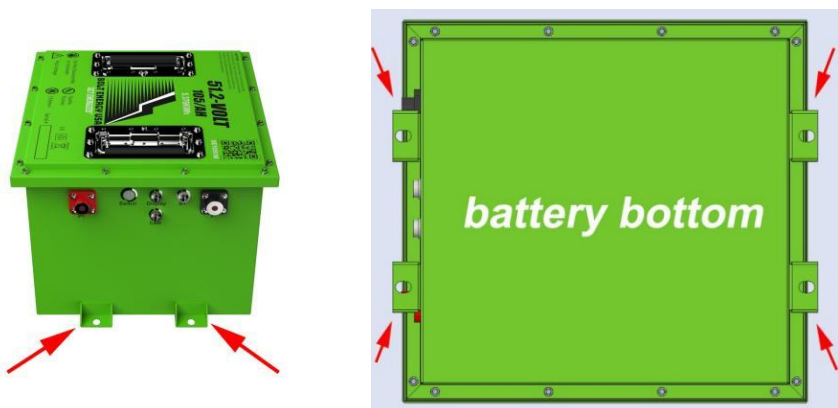
1. Remove old batteries



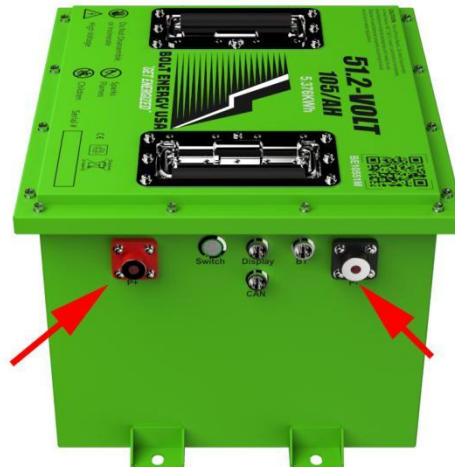
2. Install supplied brackets. Mount the brackets in battery box or tray using the supplied stainless hardware. Drilling required. Caution: do not drill into battery!



3. Install your **BOLT ENERGY USA** battery on the brackets using the supplied 5/16th bolts. Install all 4 bolts by hand before tightening any bolts. Once bolts are in you can now tighten them down. After snug ¼ turn to tighten.



4. Install your positive and negative battery and charger cables (red to positive, black to negative) Using a torque wrench, tighten to 110 inch lbs.
DO NOT OVER TIGHTEN!

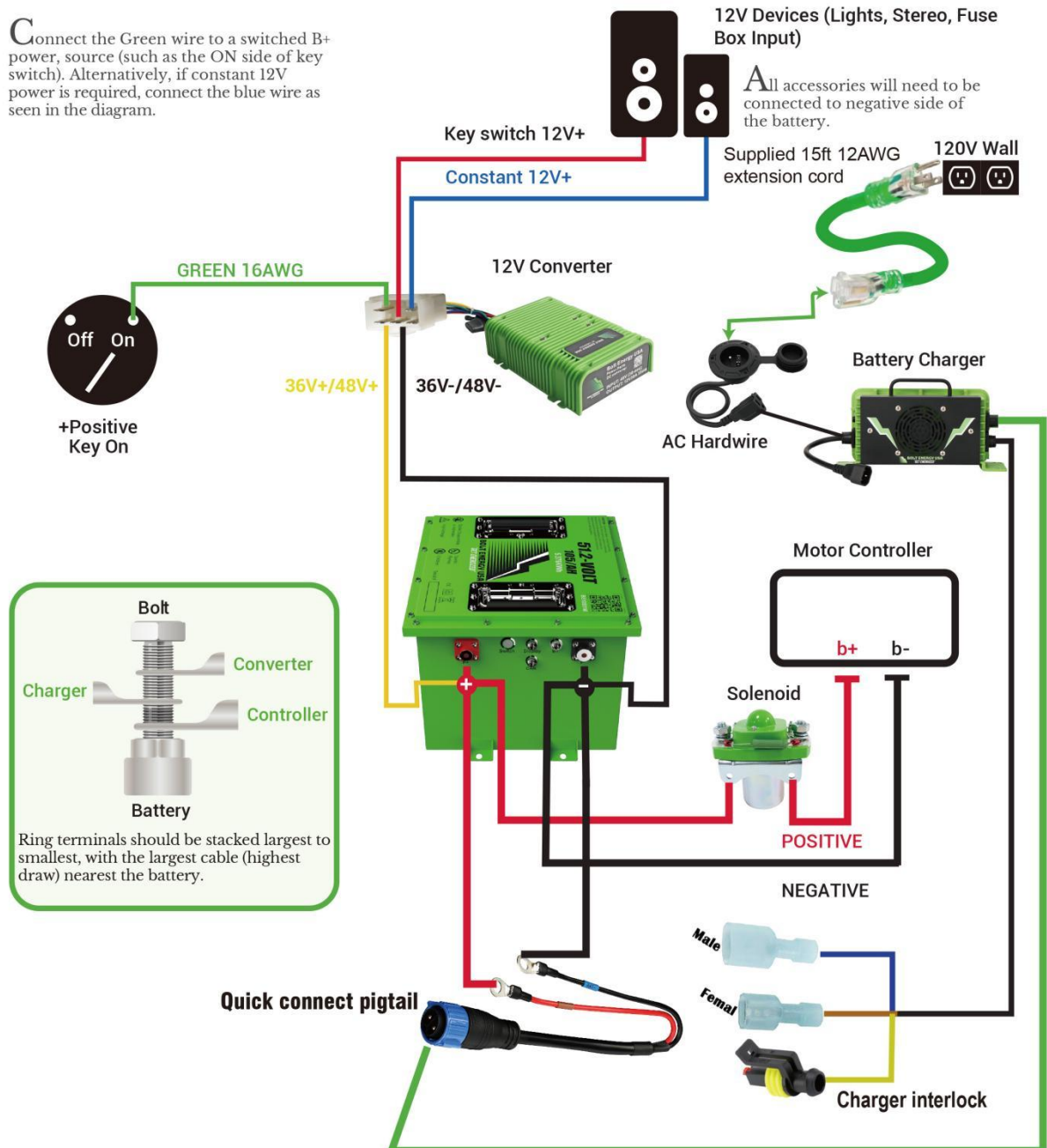


5. See SOC (state of charge meter) installation instructions included in this manual below.



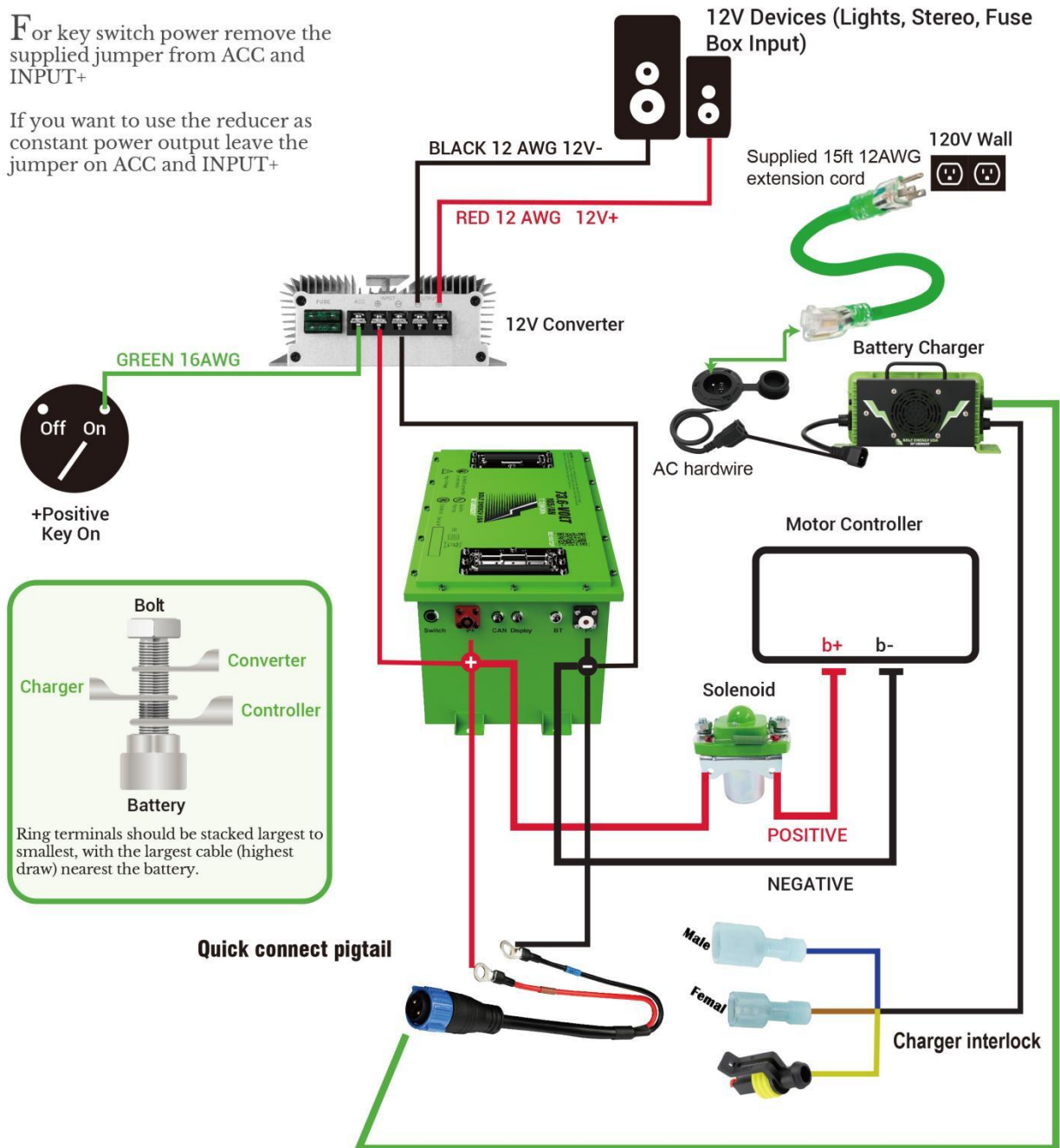
6. **IMPORTANT** charge battery to 100% before first use.
7. See wiring diagram below in this manual for wiring solenoid, voltage reducer, etc

Connect the Green wire to a switched B+ power, source (such as the ON side of key switch). Alternatively, if constant 12V power is required, connect the blue wire as seen in the diagram.



For key switch power remove the supplied jumper from ACC and INPUT+

If you want to use the reducer as constant power output leave the jumper on ACC and INPUT+

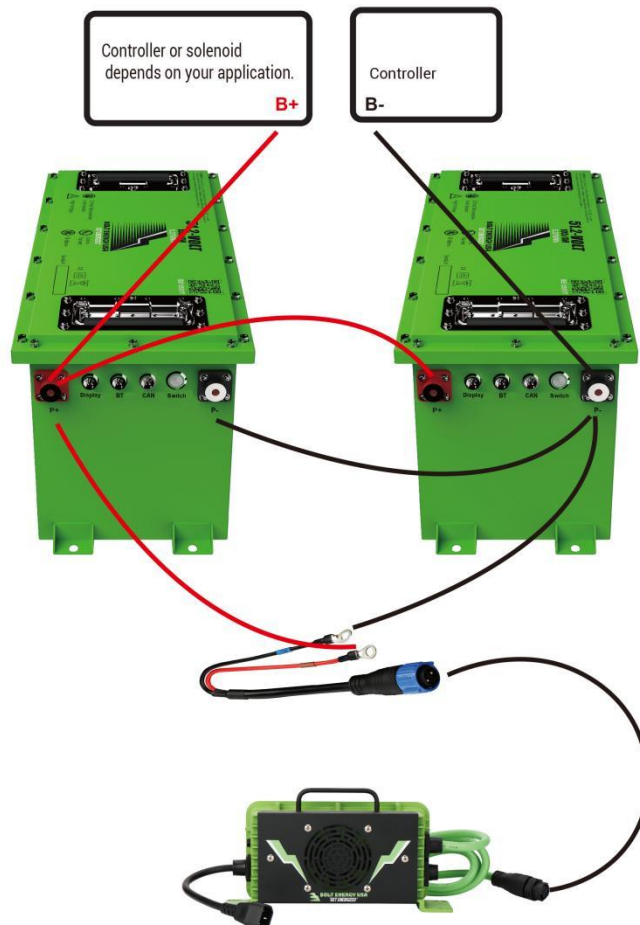


Parallel diagram

For Model BE10551T, BE10551M, BE10538M, BE16051B, BE10572P



- 1) Please ensure two batteries are same Model Bolt Energy batteries and do not parallel with other brand batteries.
- 2) Maximum 2 packs of batteries connect in parallel.
- 3) Be sure the voltage difference range of the two batteries needs to be within 0.1V. It's recommended that both batteries are fully charged when you connect them in parallel.
- 4) Please ensure the two batteries are same age or new batteries purchased at the same time.
- 5) Always keep your cart plugged in to the smart charger when not in use, and do not completely discharge the batteries.



Warranty

Bolt Energy USA warrants each Bolt Energy LiFePO₄ Lithium battery to be free of manufacture defects for a period of **10-years** ("Space for the Warranty Period") from the shipment date determined by the battery serial number and or invoice from purchase date.

As listed below BOLT ENERGY USA'S prorated description of our 10-year limited warranty. The warranty described is exclusively written for BOLT ENERGY USA. All repairs or replacements will always be at the sole discretion of BOLT ENERGY USA.

1-year on all accessories & complimentary products (chargers, cables, SOC (state of charger meter), Solenoids, voltage reducers, etc.)

Year	From original purchase date (MONTHS)	10-YEARS TOTAL WARRANTY PERIOD	TOTAL OUT OF POCKET REPAIR/ REPLACE <i>BE10551M</i> <i>BE10551T</i>	TOTAL OUT OF POCKET REPAIR/ REPLACE <i>BE16051B</i>	TOTAL OUT OF POCKET REPAIR/ REPLACE <i>BE10572P</i>	TOTAL OUT OF POCKET REPAIR/ REPLACE <i>BE10538M</i>
5	0-59	119 MONTHS	\$0	\$0	\$0	\$0
6	60 - 71	119 MONTHS	\$1,595	\$2,095	\$2,095	\$1,095
7	72 - 83	119 MONTHS	\$1,695	\$2,195	\$2,195	\$1,195
8	84 - 95	119 MONTHS	\$1,795	\$2,295	\$2,295	\$1,295
9	96 - 107	119 MONTHS	\$1,895	\$2,395	\$2,395	\$1,395
10	108 - 119	119 MONTHS	\$2,095	\$2,595	\$2,595	\$1,595

NON-TRANSFERABLE

This Limited Warranty is to the original purchaser of the Product and is not transferable to any other person or entity. Please contact the place of purchase regarding any warranty claim. The battery **MUST** be registered through our website within 30 days of purchase (boltenergyusa.com). If battery isn't purchased from an approved Bolt Energy USA dealer. There will be no warranty.

WARRANTY EXCLUSIONS

Bolt Energy has no obligation under this Limited Warranty for Product subjected to the following conditions (including but not limited to):

- Damage due to improper installation; loose terminal connections, under-sized cabling, incorrect connections (series and parallel) for desired voltage and AH requirements, or reverse polarity connections
- Environmental damage: inappropriate storage conditions as defined by the Manufacturer; exposure to extreme hot or cold temperatures, fire or freezing, or water damage
- Damage caused by collision
- Damage due to improper maintenance; under- or over-charging the Product, dirty terminal connections
- Product that has been modified or tampered with
- Product that was used for applications other than which it was designed and intended for, including repeated engine starting
- Product that was used on an over-sized inverter/charger without the use of a Manufacturer-approved current surge limiting device
- Product that was under-sized for the application, including an Air Conditioner or similar device having a locked rotor startup up current that is not used in conjunction with a Manufacturer-approved surge-limiting device.
- Product not stored in adherence to the Manufacturer's storage guidelines, including storage of the Product at low state-of-charge.

This Limited Warranty does not cover a Product that has reached its normal end of life due to usage 3000 charge cycles or above which may occur prior to the "Warranty Period". A battery can deliver only a fixed amount of Energy over its life which will occur over different periods of time depending on the application. For example, cycling the battery more than 1 time daily, will cause the normal end of life to occur before the end of the Warranty Period. This warranty does not cover normal performance drop over time.

Bolt Energy reserves the right to deny a warranty claim if the Product is determined, upon inspection, to be at its normal end of life even if within the Warranty Period.

WARRANTY RETURNS

In the event buyer's battery needs to be returned to Bolt Energy USA for any reason, it must be shipped in an approved lithium-ion hazardous materials UN3480 box with all the proper labels and packaging. Bolt Energy USA recommends customer/dealer



to fully insure any return shipment in the case of loss or damage in transit. Customer/dealer shall use a carrier that provides tracking and proof of delivery. Bolt Energy USA can help customer/dealer .

with arranging return shipping for a fee. Any shipment which arrives damaged or without an RMA will be refused or held at the Bolt Energy USA for customer/dealer to file a claim if needed.

Shipping to BOLT ENERGY USA for diagnoses, repair or replacement but not limited to will always be the customers responsibility. If BOLT ENERGY USA has deemed the warranty claim to be valid, BOLT ENERGY USA will pay the return shipping to the customer for the full 10 years.

WARRANTY DISCLAIMER

Bolt Energy's exclusive liability for breach of any warranty on the Battery shall be to replace the Battery within the warranty period in accordance with the terms of this limited warranty. In no event shall Manufacturer be liable for any loss or damages of any other kind, whether direct, incidental, consequential including lost profits, exemplary, special, or otherwise, including any lost profits or removal, shipping, or installation expenses.

LIFETIME TECHNICAL SUPPORT

All customers covered under this warranty shall receive lifetime technical support, including advice on charging, use, storage, and general questions about BOLT ENERGY USA batteries. Technical support is available for as long as the customer owns and is using the BOLT ENERGY USA battery and may be longer than the 10-year warranty period. Technical support is available at:

INFO@BOLTENERGYUSA.COM.

NON-WARRANTY REPAIRS

Bolt Energy USA will do everything in their means to support their products after the warranty period has expired whenever possible. Customer/dealer costs will include shipping, parts, and labor. Call Bolt Energy USA (727-955-4955) The battery may be required to be shipped back to Bolt Energy USA. An RMA (Return Merchandise Authorization) must be obtained from Bolt Energy USA before any products can be returned. Any battery that arrives without an RMA will be refused and all shipping charges will be the sole responsibility of the customer. The RMA must be clearly marked on the outside of the shipment, or it will be refused. Once buyer has obtained an RMA, all warranty shipments should be shipped to:

Bolt Energy USA

6650 Treeland Ave Largo, Florida 33773

Our unapparelled 10-year warranty on all our batteries.

1. For all returns or warranty claims contact INFO@BOLTENERGYUSA.COM

The best battery and warranty on the planet:

- A. Bolt Energy USA always uses premium grade materials and craftsmanship. Bolt Energy USA has completed 1000's of hours of R&D (research and development) to build the most quality, performance energy storage products in the industry. We continue to always stay ahead of the market curves so we can continue to bring you the best. R&D is our ongoing commitment to our customers to be the best.
 - B. BOLT ENERGY USA offers a 10-year manufacturers defect warranty from the date of purchase. The average lifespan of a BOLT ENERGY USA LiFePO4 battery is 3000 recharge cycles, or approximately 8-12 years with regular use that is appropriate to what the battery is designed for (see the specifications of the battery). This warranty does not cover negligence or misuse of the battery or normal wear and tear. If BOLT ENERGY USA deems the battery accessories were used improperly, this warranty will be voided.
 - C. To submit a warranty claim, please contact the original place of purchase. The battery may be required to be shipped back to BOLT ENERGY USA for a complete inspection.
2. 1 year warranty on all accessories & complimentary products (chargers, cables, SOC (state of charger meter), Solenoids, voltage reducers, etc).
- A. Warranty only applies to original owner (non-transferable).
 - B. If you have any issues with our products, please contact your place of purchase. If you need additional help, contact us at INFO@BOLTENERGYUSA.COM

SOC Installation Instruction

Model: BESOCVer4

1. Product instruction.

The SOC is an abbreviation for "State of charge" The SOC is an extension of the BMS. The BMS is an abbreviation for "Battery management system" The SOC reads real time vital information for the LiFePO4 battery user.

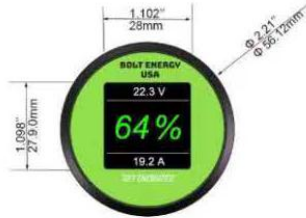
Display content:

- *Voltage, current
- *Battery percentage
- *Low SOC warning



When the SOC lower than 10%, there will be warning beep sound and warning word to remind you to charge the battery in time. When the battery charged for 20 seconds, the warning page will be turned to the charging page.

2. Mechanical size diagram.



3. Easy Installation.

1. Use the hole saw to drill a 2-inch hole. Hole Size	2. Put the SOC into the hole. 3. Lock the SOC with screw and bracket. 4. Plug the SOC cable into the Display port of Battery.
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