Beleeb Pulses of High-Voltage Automatic Battery Charger BLB-C15/C20/C30/C40

Why choose Beleeb Series versatile battery charger?

Desulfation is particularly important for applications, such as solar arrays or electric wheelchairs, that don't often allow for a complete charging cycle. The interrupted charging cycles common in these applications can lead to extensive sulfation within the battery, causing premature battery death.
However, a new technology called battery desulfation promises to help extend the life of lead-acid batteries. This technology uses specialized equipment to send periodic frequency-based pulses and/or pulses of high-voltage electricity through the battery, helping to break up these hardened sulfate crystals over the course of many days. By breaking up the sulfate crystals, battery desulfation allows the lead dioxide plates to regain their full functionality, increasing the potential current that can be generated within the battery. When used correctly, this desulfation technology can restore functionality to worn-out batteries and extend the useful lifespan of fresh batteries.

By extending battery life, Beleeb series battery charger is designed to charge and maintain 6V 8V 12V 24V 36V 48V 60V 72V lead- acid and lithium-ion batteries, including flooded, gel, AGM, and deep-cycle batteries.



Read and understand this instruction manual thoroughly before using the product. It contains important information for your safety as well as operating and maintenance advice.
Keep this instruction manual for future use. Should this product be passed on to a third party, this instruction manual must be included.

This Beleeb product carries a one (1) year warranty against defects in workmanship and materials. This product is not guaranteed against wear or breakage due to misuse and/or abuse.

INTRODUCTION

Beleeb chargers use an isolation transformer as a step-down unit, this isolation transformer converts high-voltage, low-current power into low-voltage, high-current power. A bridge rectifier converts mains AC input to pulsating DC output. And CPU is used to control the output voltages and current.

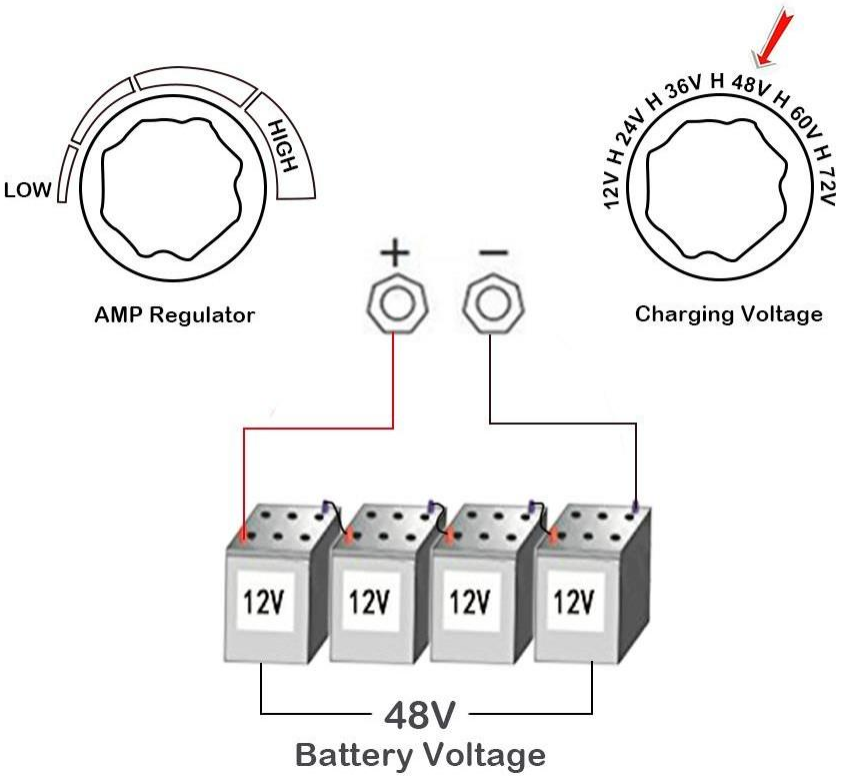
They can be used on batteries of differing types, including power batteries, capacity batteries, start-up batteries. Or they can be used in a 12, 24, 36, 48, or 72 volt system using a combination of 6,8,12 volt lithium-ion or lead-acid batteries. Beleeb battery chargers will handle their own charging and stop when full charged . Therefore there's no need for a person to be on duty.

They also have devulcanization repair and equalization mode, equalizing charge can compensate for the unbalance between batteries, which lengthens the life of batteries.

1. Beleeb series battery chargers are designed for charging various voltage batteries and battery packs (6/8/12/24/36/48/60/72V). The voltage output is critical and must match your battery pack.

2. The charger's output current is adjustable(BLB-C15 has no current control knob), and the internal protection circuit will limit the max charging current to prevent overload. Charging speed will differ based on a charger amperage. Pick the charger amperage and charging speed that’s right for your batteries.

3. They are equipped with both normal and equalizing charge modes. The normal charging mode is used to charge the battery daily, and the deep charging mode can desulfurize and equalize the battery through pulse high voltage.



IMPORTANT SAFETY INSTRUCTIONS

1. SAVE THESE INSTRUCTIONS.

Read all instructions, warnings, and cautions printed on the battery charger, battery, and vehicle or equipment using the battery.

DO NOT expose the charger to rain or snow.

Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.

To reduce the risk of damage to the electric plug and cord, pull by plug rather than cord when disconnecting charger. An extension cord should not be used unless absolutely necessary.

The use of an improper extension cord could result in a risk of fire and electric shock.

DO NOT operate charger with a damaged cord or plug—replace the cord or plug immediately.

DO NOT operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way—take it to a qualified serviceman.

DO NOT disassemble the charger. Take it to a qualified service professional if service or repair is required. Incorrect assembly may result in fire or electric shock.

To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

2. WARNING—RISK OF EXPLOSIVE GASES.

WORKING IN THE VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS.

BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.

To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery.

Review cautionary markings on these products and on the engine.

3. PERSONAL SAFETY INSTRUCTIONS.

Consider having someone close by coming to your aid when you work near a lead-acid battery. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

Wear complete eye protection and clothing protection. Avoid touching eyes while working near the battery.

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters the eyes, immediately flood the eyes with running cold water for at least 10 minutes and get medical attention immediately.

NEVER smoke or allow a spark or flame in the vicinity of the battery or engine.

Take extra precautions to avoid dropping a metal tool onto the battery. It may spark or create a short circuit that can cause an explosion.

Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead- acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.

Use the charger for charging a LEAD-ACID and LITHIUM-ION battery only. It is not intended to supply power to

a low voltage electrical system other than in a starter-motor application. Do not use the battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property. NEVER charge a frozen battery.

4. PREPARING TO CHARGE

If it is necessary to remove the battery from the vehicle to charge, always remove the grounded terminal from the battery first. Make sure all accessories in the vehicle are off so as not to cause an arc.

Be sure the area around the battery is well ventilated while the battery is being charged. Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.

Study all battery manufacturer's specific precautions while charging and follow recommended rates of charge.

Determine voltage of battery by referring to car owner's manual and make sure that output voltage selector switch is set at the correct voltage.

5. CHARGER LOCATION

Locate charger as far away from battery as DC cables permit.

Never place charger directly above battery being charged; gases from battery will corrode and damage the charger. Never allow battery acid to drip on the charger when reading electrolyte specific gravity or filling the battery.

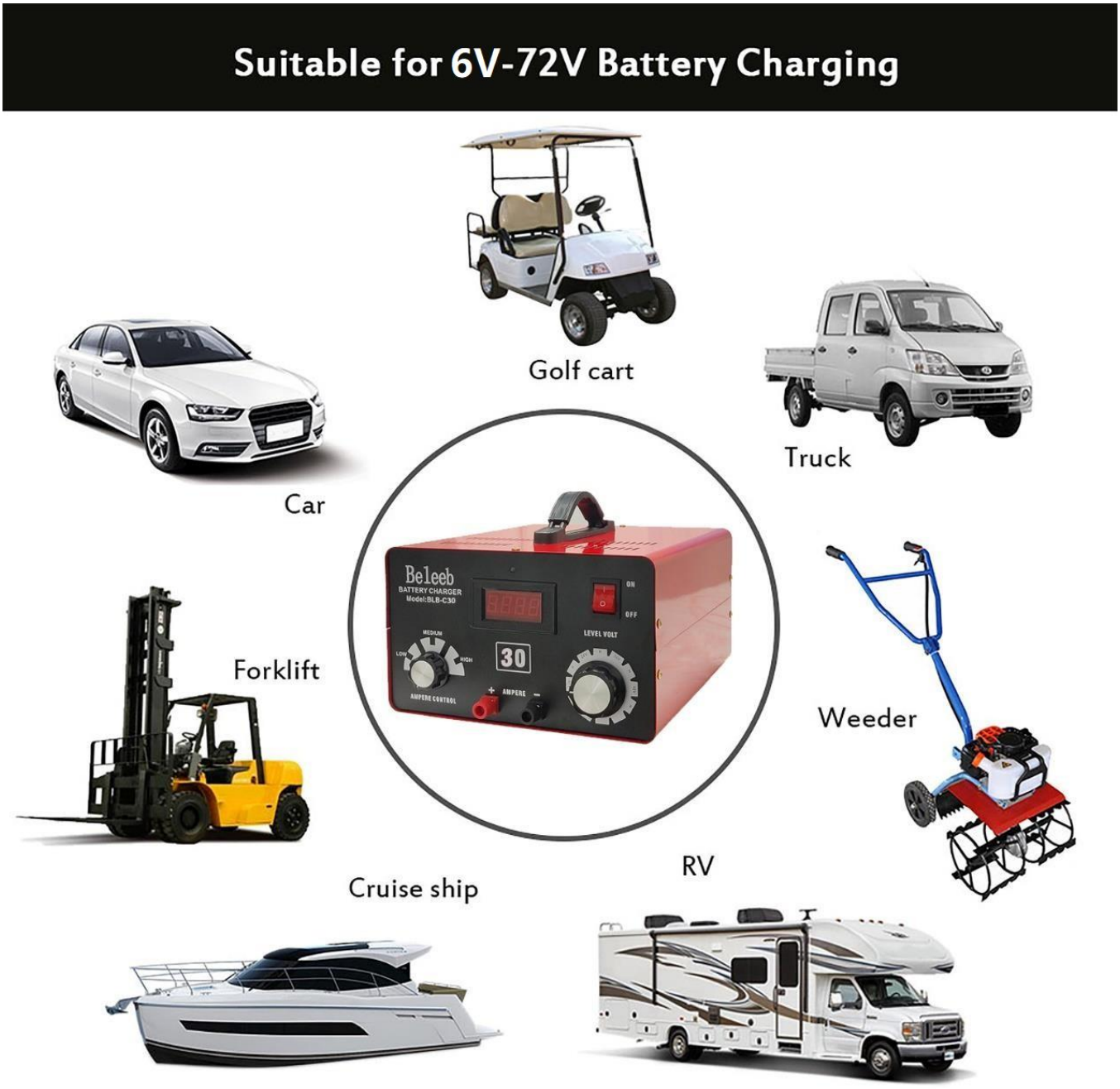
Do not operate the charger in a closed-in area or restrict ventilation in any way. Do not set a battery on top of the charger.

6. DC CONNECTION PRECAUTIONS

Connect and disconnect DC output clips only after removing the AC cord from the electrical outlet. Never allow clips to touch each other.

Attach clips to the battery and chassis as indicated in the Connecting Your Battery section

APPLICATION



Beleeb stocks commercial quality battery chargers for marine, RV, automotive, electronic/security, industrial, and military applications. They can be used in a 6,8,12, 24, 36, 48, 72 volt system using a combination of 6, 8, 12 volt batteries.

Battery systems using 24 volts are found in mobility applications (wheelchairs, scooters), military vehicles and other military use, industrial systems, material carts, scissor-lifts, RV and marine, aircraft, riding scooters, and many others.

Battery systems using 36 volts are found in industrial systems, golf carts, RV and marine, riding scooters, and others. Battery systems using 48 volts are found in industrial systems, golf carts, floor scrubbers, scissor lifts, forklifts, etc.

Beleeb battery chargers are also excellent for floor scrubbers, lifts, industrial carts, etc., where higher volts （60V, 72V）are desirable.

CONNECTING YOUR BATTERY

FOLLOW THESE STEPS WHEN THE BATTERY IS INSTALLED IN THE VEHICLE

WARNING: A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION. TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:

Position AC and DC cords to reduce the risk of damage by the hood, door, or moving engine part. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.

Check the polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N,-) post.

Determine which post of battery is grounded (connected) to the chassis.

If the negative post is grounded to chassis (as in most vehicles), see the step "For negative-grounded vehicle". If the positive post is grounded to the chassis, see the step "For positive-grounded vehicle".

For a negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of the battery. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from the battery. Do not connect the clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy-gauge metal part of the frame or engine block.

For a positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, -) ungrounded post of the battery. Connect POSITIVE (RED) clip to vehicle chassis or engine block away from the battery. Do not connect the clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy-gauge metal part of the frame or engine block.

When disconnecting the charger, turn the switch off, disconnect the AC cord, remove the clip from the vehicle chassis, and then remove the clip from the battery terminal.

FOLLOW THESE STEPS WHEN THE BATTERY IS OUTSIDE THE VEHICLE

WARNING: A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION. TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:

Check the polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N,-) post.

Attach at least a 24" (61 cm) 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post. Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of the battery.

Position yourself and the free end of the cable as far away from the battery as possible—then connect the NEGATIVE (BLACK) charger clip to the free end of the cable.

Do not face battery when making the final connection.

When disconnecting the charger, always do so in the reverse sequence of connecting procedure and break the first connection while as far away from the battery as practical.

A marine (boat) battery must be removed and charged onshore. To charge it on board requires equipment specially designed for marine use.

CONTROLS AND INDICATORS

Current control

Through a stepless adjustment knob, you can adjust the charging current.

Turn the knob counterclockwise to reduce the current, and the minimum current value is 2A; turn the knob clockwise to increase the current to the maximum. You can rest assured to turn the knob to the maximum, the charger will automatically limit the current within a safe range (see the table below for the maximum output current). The optimal charging current of the battery is one-fifth of the battery capacity.

Maximum output current in constant current stage

Model	C15	C20	C30	C40
Output voltage	Maximum outputcurrent			
6V	15A	/	/	/
8V	15A	/	/	/
12V	15A	12A	14A	16A
24V	15A	10A	12A	14A
36V	/	8A	10A	12A
48V	/	6A	8A	10A
60V	/	/	6A	8A
72V	/	/	4A	6A

Charging voltage in constant voltage stage

Normal charging		Deep charging	
Mode	Constant voltage	Mode	Constant voltage
6V	7.4V	6V(H)	8V
8V	9.8V	8V(H)	11V
12V	14.7V	12V(H)	16V
24V	29.4V	24V(H)	32V
36V	44.1V	36V(H)	48V
48V	58.8V	48V(H)	64V
60V	73.5V	60V(H)	80V
72V	88.2V	/	/



How to charging batteries?

Beleeb Series battery charger are engineered for precision recharging to promote battery life, deliver consistent reliability and prevent overcharging mistakes.

Step 1
Read the specifications for your battery.
Read the specifications of Beleeb Series Battery charger

Step 2
Identify the positive negative on your battery.

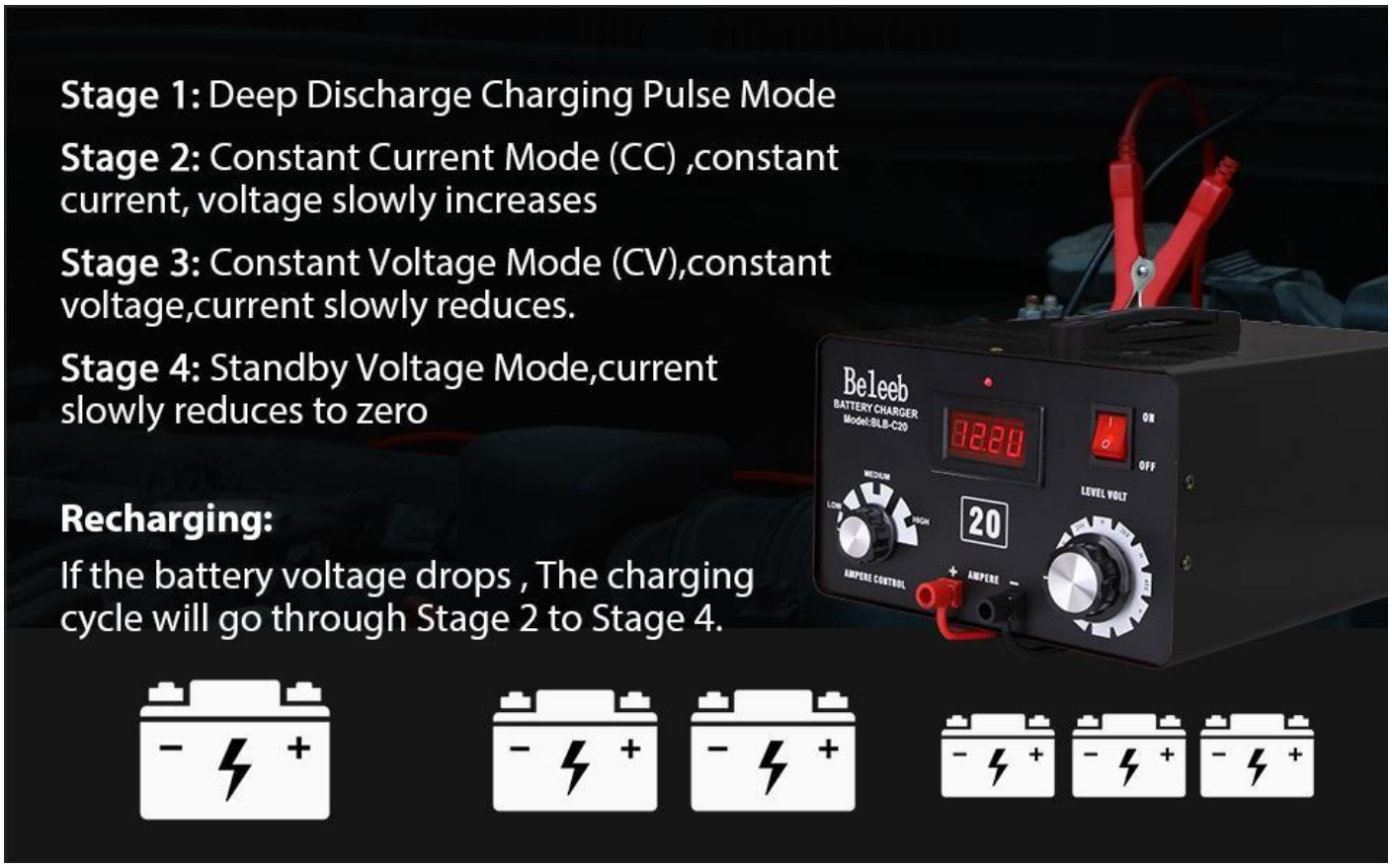
Step 3
Set the charger to deliver the correct voltage.
Connect the charger to the battery. Attach the black cable from the charger with the negative (-) sign on it to the negative terminal on the battery marked with the same symbol. Then attach the red cable with the positive (+) sign to the positive terminal on the battery with the corresponding symbol

Step 4
Select charging voltage matches to batteries voltage, 12V for 12V batteries, 48V for 48V Batteries.

Step 5
Plug the charger into an outlet. The charger should be equipped with a grounded plug (three pronged plug) and should be plugged into a properly grounded outlet (three prong outlet). An adapter should not be used.

Step 6
Leave the battery on the charger until the battery is fully charged,
Once fully charged the current will turn Zero.





Charging process

Stage 1: Deep Discharge Charging Pulse Mode

Stage 2: Constant Current Mode (CC) ,constant current, voltage slowly increases

Stage 3: Constant Voltage Mode (CV),constant voltage,current slowly reduces.

Stage 4: Standby Voltage Mode,current slowly reduces to zero

Recharging:

If the battery voltage drops , The charging cycle will go through Stage 2 to Stage 4.

TROUBLESHOOTING

Condition	Cause	Solution
The digital display shows "OFF"	The charger does not recognize the battery.	Connect the battery to the charger BEFORE connecting the charger to AC power
	Poor clamp connection	Ensure battery posts are clean. Rock clamps back and forth on battery posts to ensure a good connection
	The charging voltage does not match the battery.	Check your battery voltage.
The AC protector pops up	The circuit is short-circuited	Press AC to restore
The DC protector pops up	The battery clamps are incorrectly connected	Reverse clamp connections, press DC after 30 seconds to restore

TECHNICAL SPECIFICATIONS

Input AC	100V-130V 50-60HZ 6A/7A/8A 200V-260V 50-60HZ 6A/7A/8A
Battery Voltage	6V/8V/12V/24V/36V/48V/60V/72V
Output DC	7V-85V 2A-16A
Charger Type	4-step
Compatible Battery Types	All lead-acid (Wet, MF, Ca, AGM and Gel), lithium-ion battery
Protection mechanism	Reverse connection protection, short circuit protection
Temperature control	Cooling fan (when under 1.5A, it stop working after 10mins)
Dimensions (L x W x H)	20X25X14cm(C15), 29X22X16.5cm(C20,30,40)
Weight	C15 6.2kg/ C20 8kg/ C30 9kg/ C40 10.5kg

Certification

Shenzhen LST Technology Co.,Ltd.
HOTLINE: 400-096-8018
WWW.LST-LAB.COM

Certificate of Compliance

Certificate No.	:	LST190578036E
Applicant	:	Shenzhen Beleeb Tech Co.,Ltd
Applicant Address	:	Room 503, Building C, Hongmen Science Park, Jihua Road, Longgang District, Shenzhen, China
Manufacturer	:	Shen Zhen Shi Bi Li Bao Ke Ji You Xian Gong Si
Manufacturer Address	:	BAO AN QU XI XIANG JIE DAO CHEN TIAN GONG YE QU BO ZHI ZHONG XIN 40C
Product	:	Battery Charger
M/N	:	BLB-C30 BLB-C10,BLB-C20,BLB-C40,BLB-C50,BLB-C80
Trademark	:	Beleeb
Test Standard	:	EN 55032:2015+AC:2016, EN 61000-3-2:2014 & EN 61000-3-3:2013 EN 55024-2010+A1-2015 (EN 61000-4-2:2009, EN 61000-4-3:2006+A1:2008+A2:2010, EN 61000-4-4:2012, EN 61000-4-5:2014, EN 61000-4-6:2014, EN 61000-4-8:2010, EN 61000-4-11:2004)

The EUT described above has been tested by us with the listed standards and found in compliance with the council EMC directive 2014/30/EU. It is possible to use CE marking to demonstrate the compliance with this EMC Directive. It is only valid in connection with the test report number: LST190578036ER.

CE

SHENZHEN LST TECHNOLOGY CO.,LTD. LST

Manager

Issue Date: May. 29, 2019

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Certificate of Compliance

Certificate No.	:	LST190578036R
Applicant	:	Shenzhen Beleeb Tech Co.,Ltd
Applicant Address	:	Room 503, Building C, Hongmen Science Park, Jihua Road, Longgang District, Shenzhen, China
Manufacturer	:	Shen Zhen Shi Bi Li Bao Ke Ji You Xian Gong Si
Manufacturer Address	:	BAO AN QU XI XIANG JIE DAO CHEN TIAN GONG YE QU BO ZHI ZHONG XIN 40C
Product	:	Battery Charger
M/N	:	BLB-C30 BLB-C10,BLB-C20,BLB-C40,BLB-C50,BLB-C80
Trademark	:	Beleeb
Test Standard	:	IEC62321-1:2013

The EUT described above has been consolidated by us and found in compliance with the council RoHS directive—2011/65/EU Annex II (EU) 2015/863 as last amended by Directive (EU) 2017/2102. It is possible to use CE marking to demonstrate the compliance with this RoHS Directive. It is only valid in connection with the test report number: LST190578036RR.

RoHS

Manager

Issue Date: May. 29, 2019

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