



BSCHARGER BK20 Smart Bank Battery Charger and Maintainer With Reconditioning Function Instruction Manual

[Home](#) » [BSCHARGER](#) » BSCHARGER BK20 Smart Bank Battery Charger and Maintainer With Reconditioning Function Instruction Manual 

Contents

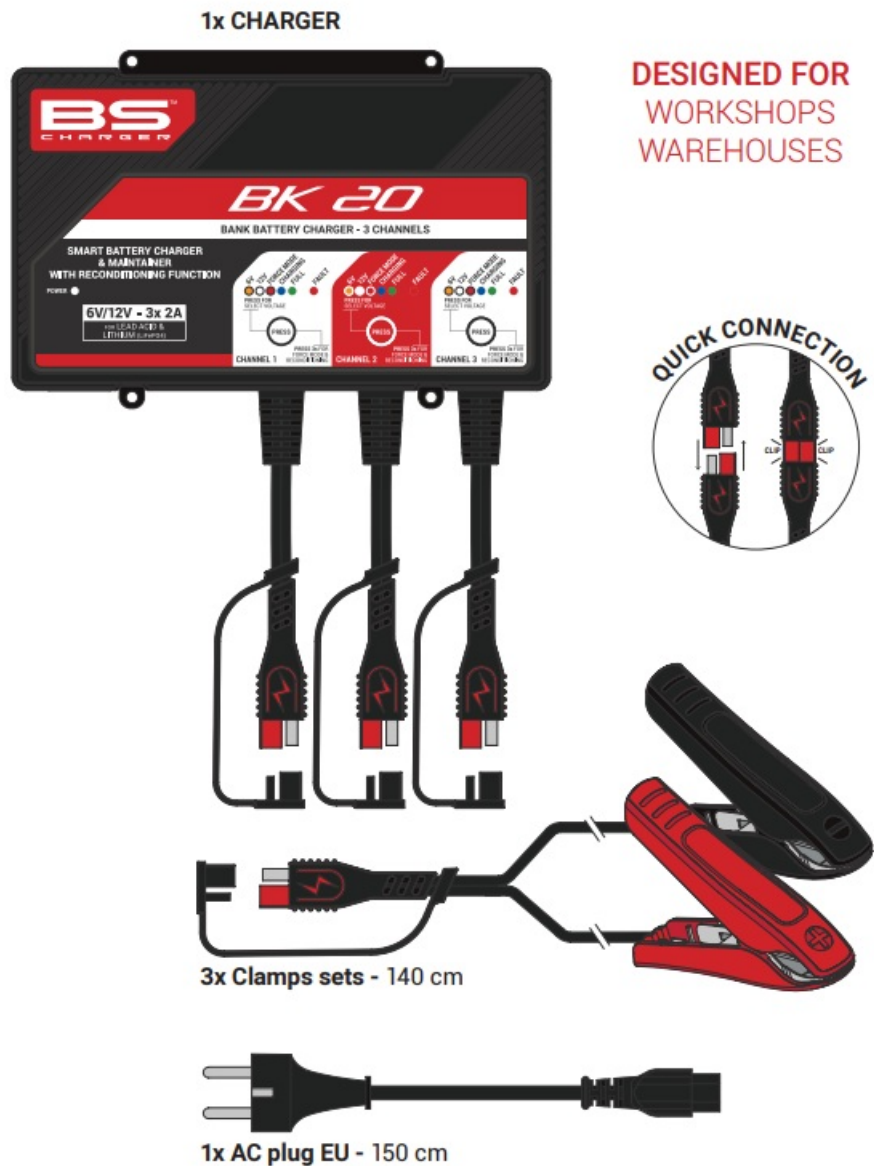
- 1 BSCHARGER BK20 Smart Bank Battery Charger and Maintainer With Reconditioning Function
- 2 BOX CONTENT
- 3 IMPORTANT SAFETY INSTRUCTIONS
- 4 MAIN FEATURES
- 5 PROTECTION FEATURES
- 6 PROTECTION FEATURES
- 7 BATTERY TYPES & CAPACITY
- 8 ELECTRICAL PARTS
- 9 ENVIRONMENTAL CHARACTERISTICS
- 10 TECHNICAL SPECIFICATIONS
- 11 OPERATING INSTRUCTIONS
- 12 CHARGING PROCESS
- 13 CHARGE CURVE
- 14 LED STATUS INDICATOR TABLE
- 15 TROUBLESHOOTING
- 16 MAINTENANCE
- 17 Documents / Resources
 - 17.1 References
- 18 Related Posts



BSCHARGER BK20 Smart Bank Battery Charger and Maintainer With Reconditioning Function



BOX CONTENT



IMPORTANT SAFETY INSTRUCTIONS

WARNING

- When working with a lead-acid battery, remove personal metal items such as rings, bracelets, necklaces, watches etc.
- NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- Do not charge non-rechargeable batteries.
- In order to reduce risk of electric shock, unplug charger from AC outlet before doing any maintenance or cleaning. Turn off controls will reduce risk.
- The kit is not supposed to be used by children or by people who are not able to understand the manual, unless they are supervised by a responsible person who ensures the proper use of the kit.

MAIN FEATURES

- Fully isolate – 3 dependent bank charge output.
- Auto Detect – Auto-detect for Lead acid or LiFePO4 battery hooked.
- Adaptable charging algorithm – Enable the precise charging algorithm targeted for Lead acid or LiFePO4 batteries.
- Smart re-activation – Allows it to wake up “dead” LiFePO4 batteries where the BMS under-voltage protection has been triggered.
- Force re-activation – Allows it to wake up “dead LiFePO4 batteries or low-voltage Lead acid battery by Force mode.
- Two voltage mode – Charge 6V or 12V batteries.
- Battery qualification detection – Automatically detect the battery initial voltage.
- Low voltage Start – Activate the heavy discharged battery from as low as 2.0V at 12V mode.
- Battery bad cell detection – Smart detection to the battery bad cells and error indication.
- Weak or sulphated Battery detection – Automatically detect the weak or heavy-sulphated battery and error indication.
- Battery desulphation – Manual recondition to the sulphated Lead acid batteries.
- Charging time management – Multiple charging stages and charging time management.
- Pulse maintenance – Long term pulse mode maintenance to keep the Lead acid battery at optimal performance.
- Flexible output cable – Detachable clamps terminal cord sets with SEA connector.

PROTECTION FEATURES

- Connection spark free.
- Never overcharge your battery.
- Output short circuit or reverse polarity protection.
- Charging timer for each charge phase protection.
- Thermal run-away protection at the battery side.
- Internal over-heat protection.
- Conformal coatings prevent from moisture for the inside circuit board.
- Corrosion-resistant output connectors.

PROTECTION FEATURES

- Connection spark free.
- Never overcharge your battery.
- Output short circuit or reverse polarity protection.
- Charging timer for each charge phase protection.
- Thermal run-away protection at the battery side.
- Internal over-heat protection.
- Conformal coatings prevent from moisture for the inside circuit board.
- Corrosion-resistant output connectors.

BATTERY TYPES & CAPACITY

- Suits all Lead Acid Type Batteries. (Conventional, AGM & Gel).
- Suits for Lithium (LiFePO4) battery.
- Battery Capacity:

Charge rate	Battery capacity – charging	Battery capacity – maintaining
2Amp	4-40Ah	4-80Ah

ELECTRICAL PARTS

Delivered with:

- Input Cord: 150 cm VDE cord with 3PIN plug.
- Output Cord: with quick connector.
- Extend Cord: 140 cm cord with battery clips.

ENVIRONMENTAL CHARACTERISTICS

- **Operating Temperature:** 0 to 40° C.
- **Storage Temperature:** -25 to 85°C.
- **Operating Humidity Range:** 0 to 90% RH.
- **Cooling:** Natural cooling.

TECHNICAL SPECIFICATIONS

Voltages for 12V mode, x 1/2 for 6V mode.

AC input	90~265Vac
Input Frequency	50/60Hz
Rated output	6/12V 2Amp x 3 channels
Suit for battery type	Compatible for Lead acid or LiFePO4 battery
Power Efficiency	>80%
Charging stage	Multiple – 10 stages
Start voltage	2.0V for 6V mode, 8V for 12V mode
Charging voltage	14.4V
De-sulphation I peak	0.2A
De-sulphation V max	16V
Float voltage – Lead acid battery	13.6V
Maintenance voltage – Lead acid batt.	13.0 – 13.8V
IP class	IP22
Dimension L x W X H	20 x 13.3 x 4.3 cm

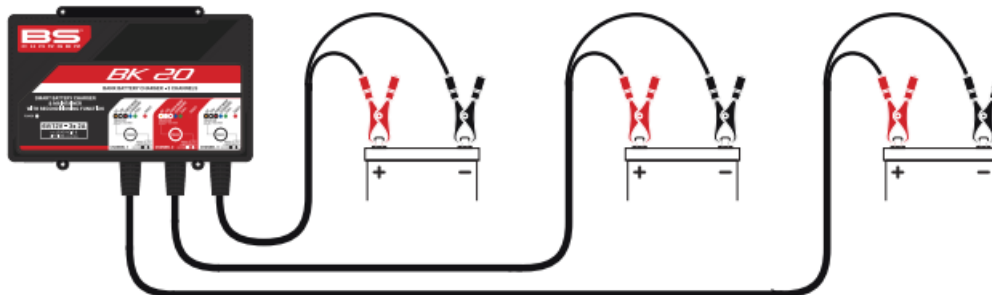
OPERATING INSTRUCTIONS

STEP 1 – Pre-charge Check & electrolyte level check

- Check the Battery Electrolyte level for Lead acid battery (Not required on Sealed & Maintenance Free Batteries). If necessary, remove the vent caps and add distilled water so the levels are halfway between the upper and lower fill lines.
- Check the 6/12V Switch on the charger and make sure it's on the correct voltage.

STEP 2 – Connecting the Bank Charger to your Battery

- Connect the Red lead from the charger to the positive (+) battery terminal.
- Connect the Black lead from the charger to the negative (-) battery terminal.



STEP 3 – Connect the battery charger to mains power

- Connect the battery charger to a mains powered socket.

- Turn on the mains power.

Once the connection instructions have been followed, AC power is presented, power White LED ON. The charger will begin charging automatically, the “Charging” Blue LED is ON. When full charge is reached, the “Maintaining” “Full” Green LED will be ON. The Maintaining Float Mode allows the charger to effectively be left connected to your batteries, over the course of a season for Lead acid batteries, without overcharging your batteries and maintains your battery’s full charge, for a LiFePO₄ battery, it will automatically terminate the charge if the battery fully charged and Green LED will be ON.

STEP 4 – Disconnecting the Bank charger from Battery

Switch OFF and Remove the AC Power Socket from the outlet; Remove the Black lead and then the Red lead. Check electrolyte levels if possible. (As they may need topping up with distilled water after charging)

CHARGING PROCESS

The bank charger provides the multiple charging phases subjected to the Lead acid battery sensed or LiFePO₄ battery sensed.

Force mode stage

Press the Force mode for 3 seconds: the bank charger will activate the low voltage “dead” Lead acid battery and engage de-sulpha-tion; it will wake up the “dead” LiFePO₄ battery where the under-voltage protection has been triggered.

Soft start

In this phase rising voltage and a maximum of 50% of bulk phase current is applied to the battery to start the charging cycle.

Bulk stage

In this phase rising voltage and maximum output current is applied to the battery.

Analysis-1 Stage

In this phase the bank charger tests the battery in order to detect bad cells (only for Lead acid batteries). For abnormal cell detection results please refer to the troubleshooting section.

Absorption stage

In this phase a constant voltage and tapering current is applied to the battery to ensure it reaches 85% state of charge.

Analysis- 2 Stage

In this phase the charger tests the battery again in order to detect bad cells and high levels of sulphation (only for Lead acid batteries)

Float and Maintenance

Compatible only with Lead Acid batteries this stage is used for long term battery maintenance.

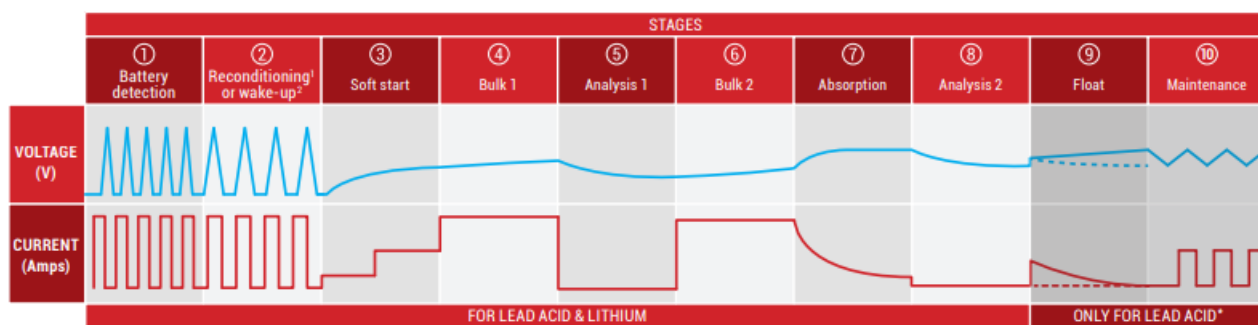
Float returns to Bulk charging

When battery voltage is dropped below 12.5V.

LiFePO₄ Recharge phase

If the battery voltage falls below 12.8V; the bank charger will automatically return to Bulk phase. Voltages are set for 12V mode, x 1/2 for 6V mode.

CHARGE CURVE



- Only if force mode is selected:
 - For lead acid: reconditioning stage.
 - For lithium: wake-up stage.
- No float & maintenance stages for Lithium. Once the battery is fully charged, the charge is stopped.

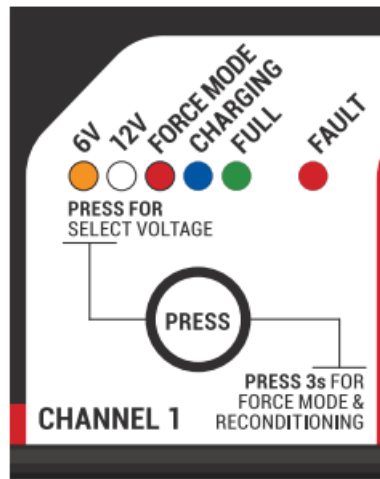
LED STATUS INDICATOR TABLE

NORMAL INDICATION

12V mode selected	WHITE LED ON
6V mode selected	AMBER LED ON
In soft start phase	BLUE Charging light FLASH
In charging phase	BLUE Charging light ON
In Force mode charge	RED Force Charging LED FLASH
In Float mode or Maintenance	GREEN LED ON

ABNORMAL INDICATION

Output reverse polarity or shorted	RED Fault LED ON
Charging timer timed out	RED Fault LED ON
Battery slight sulphated	GREEN Fault LED FLASH
Battery heavily sulphated or cells shorted	RED Fault LED FLASH
6V / 12V mode incorrect selection	RED Fault LED FAST FLASH



The bank charger is always put on the flat surface. The bank charger is also ideal to be installed onto the shelf of in-house workshop for battery long term maintenance.

TROUBLESHOOTING

Types of Problems	Indication	Possible Causes	Suggested Solution
<i>Charger does not work?</i>	No Indicator lights on.	– No AC power.	– Check AC connections and make sure Power Point is switched ON.
<i>Charger has no DC output?</i>	Fault LED is On.	– Output is short circuited – Reverse polarity connection to Battery.	– Check DC connection between charger and battery and make sure they are not short circuiting. – Check that the crocodile clips haven't fallen off the battery. – Check that the crocodile clips / ring terminals are connected to the correct polarity.
<i>Long charging time, Full light does not come on?</i>	Fault LED is ON.	– Battery capacity too large – Battery is defective.	– Check the charger specification matches the battery capacity.
<i>Long charging time, Full light does not come on?</i>	Fault LED is Flash.	– Battery cells internal shorted, battery heavily sulphated.	– Press Force mode for 3 second to activate and desulphate to battery. – Battery cannot be charged and must be replaced.

MAINTENANCE

The bank charger is maintenance-free. If the power cord is damaged, the charger must be left to the reseller for maintenance. The case should be cleaned occasionally. The bank charger should be disconnected from the power while cleaning.

SMART BATTERY CHARGER & MAINTAINER WITH RECONDITIONING FUNCTION

12V – 1/4/6A

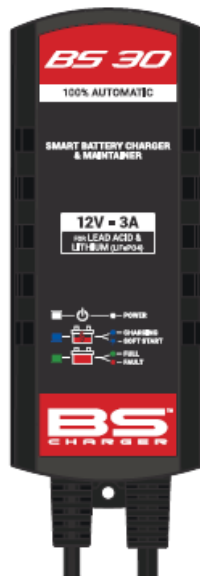


For Lead Acid

- Smart battery charger & maintainer with reconditioning function
- Safe: connection spark free, reverse polarity, short circuit and internal overheat protection
- Easy to use: connect & forget
- Battery thermal runaway protection
- Ideal for charging during winter season

SMART BATTERY CHARGER & MAINTAINER

12V – 3A



For Lead Acid & Lithium

- Smart battery charger & maintainer
- Auto detect Lead Acid or Lithium technology
- Adaptable charging algorithm for Lead Acid & Lithium (LiFePO4)
- **Safe:** connection spark free, reverse polarity, short circuit and internal overheat protection

- Easy to use: connect & forget
- Multiaxis hook

For Lead Acid

12V – 1.5A



- Smart battery charger & maintainer with reconditioning function
- Ideal for charging during winter season
- Safe: connection spark free, reverse polarity, short circuit and internal overheat protection
- Easy to use: connect & forget
- Multiaxis hook

For Lead Acid & Lithium


6V/12V – 1A



- Smart battery charger & maintainer

- Auto-detect Lead Acid or Lithium technology
- Adaptable charging algorithm for Lead Acid & Lithium (LiFePO4)
- Safe: connection spark free, reverse polarity, short circuit and internal overheat protection
- Easy to use: connect & forget
- 6V & 12V manual switch selection

Documents / Resources

 <p>BS CHARGER BK20 SMART BANK BATTERY CHARGER & MAINTAINER WITH RECONDITIONING FUNCTION</p> <p>2 CHANNELS VOLTAGE: 6V/12V CURRENT: 20A CHARGE: 2.0A/10A</p> <p>INSTRUCTION MANUAL 1 1.1 INTRODUCTION 2 1.2 SAFETY PRECAUTIONS 3 1.3 PRODUCT SPECIFICATIONS 4 1.4 PRODUCT FEATURES 5 1.5 PRODUCT APPLICATIONS 6 1.6 PRODUCT WARRANTY 7 1.7 CONTACT INFORMATION 8 1.8 INDEX 9</p>	<p>BSCHARGER BK20 Smart Bank Battery Charger and Maintainer With Reconditioning Function [pdf] Instruction Manual</p> <p>BK20 Smart Bank Battery Charger and Maintainer With Reconditioning Function, BK20, Smart Bank Battery Charger and Maintainer With Reconditioning Function, Maintainer With Reconditioning Function</p>
---	---

References

-  [BS BATTERY – The Power you need](#)