



SBRC

Battery Rack Charger

User guide for SBRC battery rack charger.
Version: 5 (2019-E)

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SBRC Battery Rack Charger

WARNING

- Battery packs may explode or release toxic materials. Risk of fire or burns. Do not open, crush, modify, disassemble, heat above 140°F (60°C), or incinerate.
- Follow instructions from manufacturer
- Only use Shure charger to recharge Shure rechargeable batteries
- **WARNING:** Danger of explosion if battery incorrectly replaced. Replace only with same or equivalent type.
- Never put batteries in mouth. If swallowed, contact your physician or local poison control center
- Do not short circuit; may cause burns or catch fire
- Do not charge or use battery packs other than Shure rechargeable batteries
- Dispose of battery packs properly. Check with local vendor for proper disposal of used battery packs.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like

WARNING: Danger of explosion if incorrect battery replaced. Operate only with AA batteries.

Note:

- This equipment is intended to be used in professional audio applications.
- EMC conformance is based on the use of supplied and recommended cable types. The use of other cable types may degrade EMC performance.
- Use this battery charger only with the Shure charging modules and battery packs for which it is designed. Use with other than the specified modules and battery packs may increase the risk of fire or explosion.
- Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

Please follow your regional recycling scheme for batteries, packaging, and electronic waste.

SBRC Rack Mount Charger

The Shure Battery Rack Charger (SBRC) supports up to eight rechargeable batteries in a compact, single rack space. SBRC accepts interchangeable charging modules that accommodate Shure Lithium-ion batteries including AXT910, AXT920, and SB900A. An easy-to-read front panel displays essential battery parameters including charge status, time-to-full, and battery health indicators (such as temperature and cycle count). When connected to a network, Shure Wireless Workbench[®] software provides remote monitoring of the SBRC to track battery status.

Features

- Interchangeable charging modules for mixing and matching eight bodypack and handheld transmitter batteries
- Touring-ready battery charging and storage solution with comprehensive status display
- Charges batteries to 50 percent capacity within one hour; full capacity within three hours.
- Fully networkable for monitoring of all charging status parameters in Shure Wireless Workbench software

- Storage mode for charging or discharging batteries to optimal storage voltage
- Tracks battery health metrics for charging cycle count and percentage of original capacity
- Simple three-button interface control

Included Components

IEC AC Power Cable (1)	Part number varies by region. Contact your local Shure representative for more information
Shielded 3-foot Ethernet Cable (1)	C803
Hardware Kit (1)	90XN1371
Mounting Screws for Charger Modules (8)	30B13476

Optional Accessories

Optional Accessories

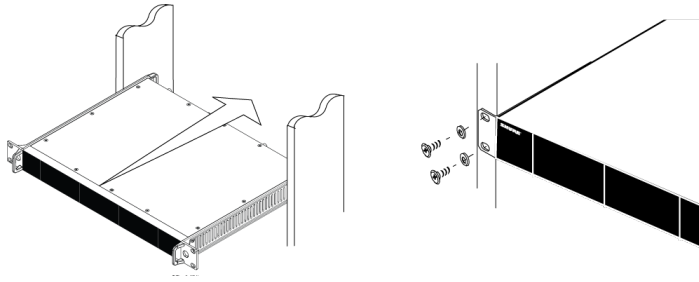
AXT901 Charging Module for AXT910	AXT901
AXT902 Charging Module for AXT920	AXT902
SBC-AX Charging Module for SB900 and SB900A	SBC-AX
SBM910 Charging Module for SB910	SBM910
SBM920 Charging Module for SB920	SBM920
SBM910M Charging Module for SB910M	SBM910M

Note: AXT910 and AXT920 are not available for sale in Taiwan.

Mounting Instructions

This component is designed to fit into an audio rack.

Warning: To prevent injury this apparatus must be securely attached to the rack.



Batteries

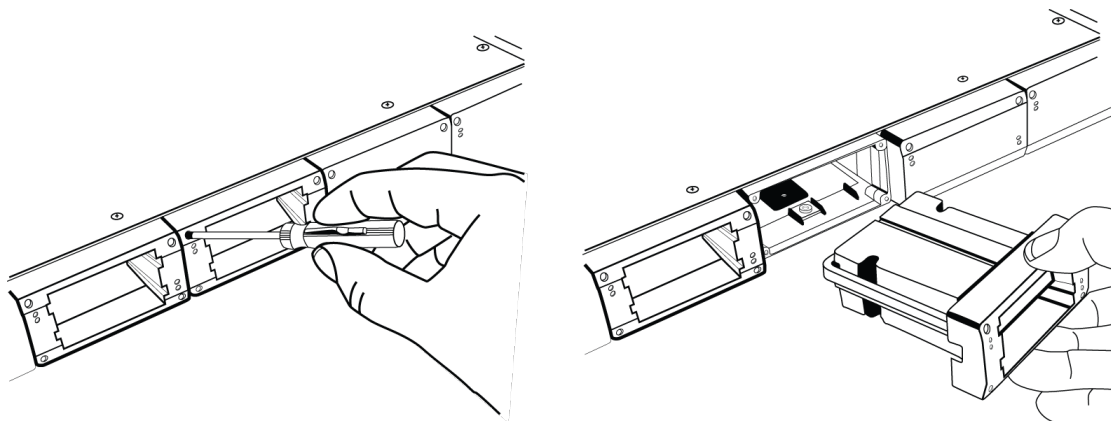
This charger supports the following models of Shure lithium-ion rechargeable batteries:

- AXT910
- AXT920
- AXT920SL
- SB900
- SB900A
- SB910
- SB920
- SB910M

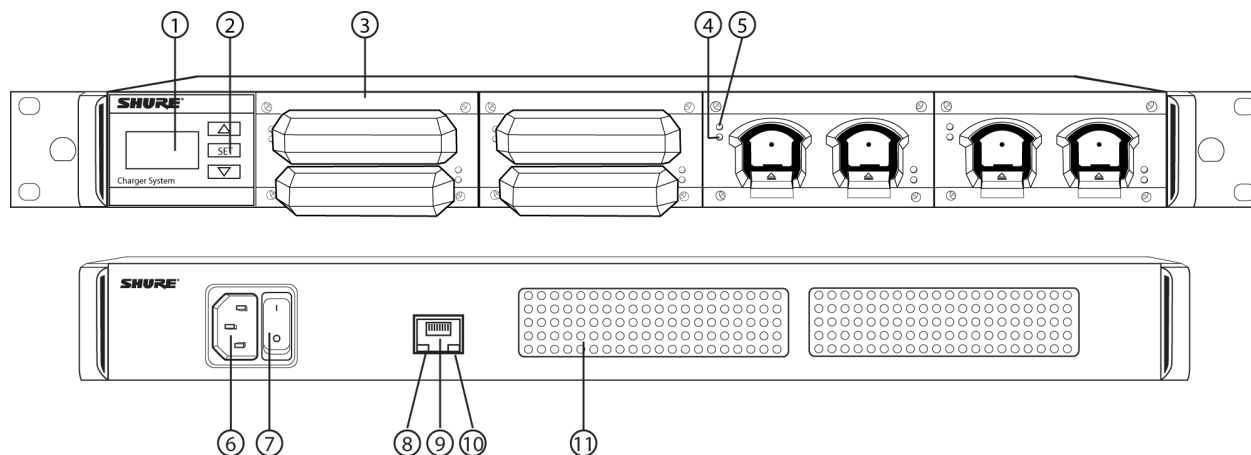
Charging Modules

Caution! Remove AC power and batteries when installing charger modules.

- To remove a module, remove the four (4) mounting screws and pull.
- To install, slide the module into the housing (noting the orientation of the guide rails) until it is flush with the housing.
- Replace the screws.



Controls And Connectors



① Display Screen

Displays battery status and menu settings.

② Control Buttons

For navigating the menu screen. Press and hold both arrow buttons to enter or exit the utility menu.

③ Charging Module

Interchangeable modules for Shure lithium-ion batteries.

④ Charge Status LED

Indicates battery charge status

⑤ Monitoring Selection LED

This white LED shows which battery is selected in the monitoring menu.

⑥ AC Power In (locking)

Connect to AC mains with supplied power cable.

⑦ Power Switch

Powers the unit on and off.

⑧ Network Speed LED (amber)

Off = 10 Mbps

On = 100 Mbps

⑨ Ethernet Port

Connect to an Ethernet network to enable remote control and monitoring.

⑩ Network Status LED (green)

Off = No network link

On = Network link active

Flashing = Network link active, flash rate corresponds to traffic volume.

⑪ Cooling Fan Vent

Clean fan screen as needed to maintain airflow.

Charge Status LED

Each charger bay has an LED to indicate the status of the battery.

LED Color	Charging Mode	Display	Battery Status
Green	Charging Complete	Home Screen	Battery charged
Red	Charging	Home Screen	Battery charging
	Deep Discharge Recovery	Home Screen	Battery charging
	Charging	Warm	Battery charging, temperature warm
Red Flashing	Storage Mode	Store at 3.8V	Battery charging or discharging to 3.8 volts
Amber	Storage Mode	Store at 3.8V	Battery voltage at 3.8 volts
Amber Flashing	Charging	Error - press SET for info	Charging error, press SET button for information
	Deep Discharge Recovery	Error - press SET for info	Deep Discharge Recovery failed
	Charging	Warm	Battery charged to 80 percent
	Charging	Hot	Charging stopped, battery hot
	Charging	Cold	Charging stopped, battery cold

Controls

1. Use the arrow buttons to scroll to the desired menu.
2. Press the *SET* button to enter the selected menu item.
3. Use the arrow buttons to change a menu parameter.
4. Press *SET* to save the setting.

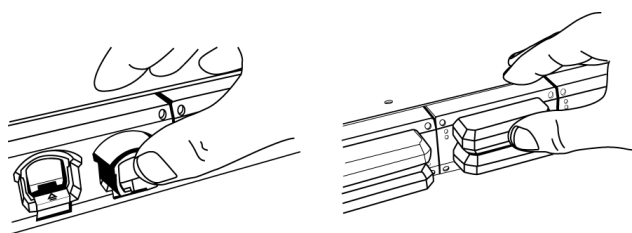
Press and hold both arrow buttons to enter or exit the Utility menu.

Press and hold the *SET* button for 1 second to activate the Hardware Identify feature in Wireless Workbench.



Inserting Batteries into the Charging Bay

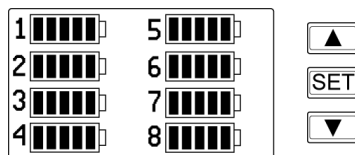
Slide the battery into the charging bay until it locks into place. The charge LED illuminates and the charge cycle begins.



Home Screen and Battery Status

When powered on, the charger displays the home screen. Icons indicate the charge level of each battery, and the display alternates to show approximate hours and minutes remaining until the battery is fully charged.

The numbers on the screen correspond to the charging bays 1 through 8 from left to right.



The following messages may be displayed next to the bay number to indicate battery status:

CALC	calculating time to full
COLD	battery cold
WARM	battery warm
HOT	battery hot
Recovery	recovery mode active
Error	error - press <i>SET</i> button for information

Monitoring Menu

Use the monitoring menu to access detailed information about each battery.

1. From the home screen, use the arrow buttons to highlight the number of the battery you want to monitor. The white LED next to the selected battery illuminates when a selection has been made.
2. Press the *SET* button to access the monitoring menu.
3. Use the arrow buttons to scroll through the menu screens. Press *SET* button at any time to return to the home screen.

Time to Full

Displays the time remaining until the battery is fully charged.

IMPORTANT: Battery might not be charged to full capacity if any of the following status indicators appear:

- *Cold:* Charging stopped because battery temperature is too cold. Charging will resume when battery temperature increases.
- *Warm:* Battery charging to less than full capacity (not less than 80 percent) because of elevated temperature. The amber LED will flash when charging has stopped.
- *Hot:* Charging stopped because battery temperature is too hot.

Charge Status

Displays charge as a percentage of the total battery capacity. Also displays charge in milliampere-hours (mAh).

Battery Health

This displays the health of a selected battery as a percentage of the charge capacity of a new battery. Charge capacity (battery life when fully charged) will decline as a result of repeated charge cycles, age, or storage conditions.

Cycle Count

Displays the total number of times that the battery has undergone one full count of discharge and charge. Recharging after discharging half way counts as one half of a cycle. Recharging after discharging a quarter of the way counts as one quarter of a cycle.

Batt. Temp. (Battery Temperature)

Displays both the battery temperature (in Celsius and Fahrenheit) and the status, as follows:

- *[Normal]:* Battery temperature = 0°C to 45°C (32°F to 113°F)
- *[Cold]:* Battery temperature = 0°C (32°F) or lower
- *[Warm]:* Battery temperature = 45°C to 60°C (113°F to 140°F)
- *[Hot]:* Battery temperature = 60°C (140°F) or higher

Note: If warm or hot, try adjusting the fan speed or increasing ventilation to the rack.

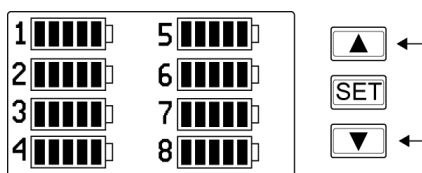
Network Status

IP address must be valid to enable networked control.

- *Active*: Indicates connectivity with other devices on the network
- *Inactive*: No connectivity with other devices on the network

Utility Menu

Press and hold both arrow buttons to enter and exit the utility menu, which contains network and display settings.



IP Address Mode: *Automatic*

This is the default setting for use with a DHCP server, which automatically assigns an IP address.

1. Navigate to the IP Mode menu and press the *SET* button.
2. Use the arrow buttons to highlight *Automatic*.
3. Press the *SET* button.
4. Use the arrow button to move the ► to select *OK* to save or *Cancel* to discard, and then press the *SET* button.

IP Address Mode: *Manual*

Use manual IP addressing to manually set the IP address, subnet mask, or gateway.

Entering an IP Address

1. Navigate to the IP mode menu and press the *SET* button.
2. Use the arrow button to highlight *Manual*.
3. Press the *SET* button to enable editing of the IP address.
4. Use the arrow buttons to move the ► to select *IP*:
5. Use the arrow buttons to edit the IP numbers and use the *SET* button to advance to the next number.
6. When finished, use the arrow buttons to move the ► to select *OK* to save or *Cancel* to discard, and then press the *SET* button.

GW Address

Displays current gateway (GW) address. Press *SET* button to edit in IP menu.

Setting the Gateway

1. Navigate to the IP mode menu and press the *SET* button.
2. Use the arrow button to highlight *Manual*.
3. Press the *SET* button to enable editing of the gateway.
4. Use the arrow buttons to move the ► to select *GW*:
5. Use the arrow buttons to edit the IP numbers and use the *SET* button to advance to the next number.

6. When finished, use the arrow buttons to move the ► to select *OK* to save or *Cancel* to discard, and then press the *SET* button.

Subnet

Displays the current subnet setting. Press *SET* button to edit in IP menu.

Setting the Subnet

1. Navigate to the IP mode menu and press the *SET* button.
2. Use the arrow button to highlight *Manual*.
3. Press the *SET* button to enable editing of the subnet.
4. Use the arrow buttons to move the ► to select *Sub:*.
5. Use the arrow buttons to edit the IP numbers and use the *SET* button to advance to the next number.
6. When finished, use the arrow buttons to move the ► to select *OK* to save or *Cancel* to discard, and then press the *SET* button.

MAC (MAC Address)

Displays the MAC address, which is an embedded, uneditable identification number unique to each device. The MAC address is used by the network and Wireless Workbench software to identify components.

Brightness

Sets the brightness of the display to *low*, *medium*, or *high*.

Display Invert

This changes the display colors from white text on dark background to dark text on a light background.

Setting the Fan Speed

The cooling fan has the following speed options:

- *Low Speed* = fan is always on, at a lower speed for quiet operation
- *High Speed* = fan is always on, at a higher speed for maximum cooling
- *Automatic* = fan will operate only when the internal temperature becomes too warm

Note: Speed may switch from Low to High if additional cooling is needed to protect the component.

1. Simultaneously press and hold the ▲ and ▼ buttons to access the utility menu.
2. Use the arrow buttons to scroll to the *Fan* setting.
3. Press *Set* to enable editing, and then use the arrow buttons to select a speed option.
4. Press *Set* to save, and then simultaneously press and hold the ▲ and ▼ buttons to return to the main menu.

Fan (Cooling Fan Mode)

The cooling fan has the following operating modes:

- *Automatic*: The fan is enabled and adjusts speed based on the internal temperature of the unit
- *Always on*: The fan runs continuously to provide maximum cooling in warm environments

Storage Mode

- *OFF*: Batteries will be charged to capacity

- *Store at 3.8 V*: Charges or discharges all batteries to bring them to a 3.8 volts, ideal for long term storage

Firmware

Displays the version of firmware installed on this device.

Serial Number

Displays the serial number.

Device ID

This eight-character name is displayed when this device is detected on other network devices or in WWB software.

1. Press *SET* button to enable editing.
2. Use the arrow buttons to change the characters.
3. To finish editing, press the *SET* button until none of the characters are highlighted.

Storage Mode

When set to storage mode (*Storage Mode = Store at 3.8 V*), all batteries are charged or discharged to 3.8 volts, which is ideal for long-term storage.

The charge status LEDs indicate the voltage state:

- Red flashing = battery charging or discharging to 3.8 volts.
- Amber = battery voltage at 3.8 volts.

The following indicators appear on the home screen next to each bay number:

Rdy	battery at 3.8 V, ready for storage
Cold	battery cold
Wrm	battery warm
Hot	battery hot
Err	Error, press <i>SET</i> button for info
%	percentage of charge

Charging or discharging may take several hours. The remaining time is displayed as *Time to 3.8 V* in the battery monitoring menu (instead of *Time to Full*).

To exit storage mode:

1. Enter the utility menu by holding both arrow buttons.
2. Navigate to the *Storage Mode* menu and press the *SET* button.
3. Use the arrow buttons to select *Off*.
4. Press the *SET* button to exit.

When batteries are ready for storage, they should be removed from the charger and placed into a temperature controlled area. Recommended battery storage temperature is 0°C (10°F) to 25°C (77°F).

Recovering a Battery from Deep Discharge

A deeply discharged battery is one that has been discharged to less than 3.0 volts. When the charger detects a deeply discharged battery, it automatically enters recovery mode, which charges the battery using a reduced current. The *Recovery* icon is displayed next to the bay number on the home screen. If recovery is successful, the charger exits recovery mode and charges the battery to capacity. If the battery cannot be recovered in less than 30 minutes, *Recovery Failed* is displayed and charging stops.

Tip: Periodically charge batteries using the *Storage Mode* function to avoid deep discharge and to maintain the ideal battery storage voltage of 3.8 volts.

Firmware Updates

Firmware is embedded software in each component that controls functionality. Periodically, new versions of firmware are developed to incorporate additional features and enhancements. To take advantage of design improvements, new versions of the firmware can be uploaded and installed using the Firmware Update Manager tool available in Wireless Workbench software. Firmware is available for download from www.shure.com.

Troubleshooting and Error Messages

Warnings and Error Messages	Troubleshooting Solution
<i>Cold</i>	Charging stopped. Battery temperature must rise above 0° C for charging to resume.
<i>Hot</i>	Charging stopped. Battery temperature must cool below 60° C for charging to resume. Avoid direct sunlight and other heat sources.
<i>Warm</i>	Battery charging stops at 80 percent of full capacity. Allow battery to cool below 45° C to resume charging to full capacity.
<i>Recovery</i>	Charger has detected a battery that has been discharged below 3.0 volts and has entered <i>Deep Discharge</i> mode to recover the battery charge.
<i>Recovery Failed</i>	Battery discharged beyond recovery — replace battery. To avoid this condition, periodically charge batteries to prevent full discharge.
<i>Charging Failed</i>	Battery unable to charge within specified time frame. Check battery and contacts. If condition persists, replace battery.
<i>Unknown Battery</i>	Update the battery charger firmware
<i>Unknown Module</i>	Update the battery charger firmware
<i>Read Error</i>	Battery contacts may be dirty or damaged, preventing battery detection by the charger. Check that the battery contacts

Warnings and Error Messages	Troubleshooting Solution
	are clean and undamaged. If condition persists, replace the battery.
Check Charger	Check the battery contacts and charger module contacts to make sure they are clean and fully engaged. If condition persists, try substituting a functional battery or charger module.
Check Battery	Make sure battery is fully inserted in charger module and that module door is latched. Check battery contacts and charger module contacts to make sure they are clean. Replace battery if condition persists.
Over Temp! Check Fan/Vents	Remove any obstructions or debris from fan vents and ensure that there is sufficient airflow to the charger.

Energy Efficiency Mode

Use energy efficiency mode to charge batteries with the display screen backlight and network functionality (including charging and battery information) disabled.

1. Press and hold the up button while turning the charger on.
2. The charger LEDs and display screen will flash for 10 seconds.
3. When they stop, the first bay's white LED will be on at half brightness, and the display will say *Energy Efficiency Mode*.

To resume normal operation, turn off the charger, wait 5 seconds, and turn it back on.

Specifications

Battery Type

Up to 8 rechargeable Li-Ion batteries

Charge Time

50%=1 hour; 100%=3 hours

Charging Module Type

Up to 4 charging modules

in any combination

Operating Temperature Range

-18°C (0°F) to 63°C (145°F)

Battery Charging Temperature Range

0°C (32°F) to 60°C (140°F)

Storage Temperature Range

-29°C (-20°F) to 74°C (165°F)

Dimensions

44 mm x 483 mm x 366 mm (1.7 in. x 19.0 in. x 14.4 in.), H x W x D

Weight

4.4 kg (9.8 lbs), without batteries or charging modules

Housing

Steel; Extruded aluminum

Power Requirements

Input	100 to 240 V AC, 50-60 Hz
Output	4.5 V DC maximum, 60 W maximum

Current Drain

1.8 A RMS (referenced at 90 V AC)

Networking

Network Interface

Ethernet 10/100 Mbps

Network Addressing Capability

DHCP or Manual IP address

Certifications

Approved per Australian Standard requirements of AS/NZS 4665.1:2005 and AS/NZS 4665.2:2005.

Conforms to electrical safety requirements based on IEC 60950-1

Meets essential requirements of all applicable European Directives.

Eligible for CE marking.

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3 (B)/NMB-3 (B)

Information to the user

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

Please consider the environment, electric products and packaging are part of regional recycling schemes and do not belong to regular household waste.