AcraDyne®
A Division of AIMCO

Multi-Bay Charger User Manual
AB-C18-4W

for AcraDyne Batteries AB-B1825LI & AB-B1850LI

AIMCO

10000 SE Pine St. Portland, Oregon 97216 Phone: 1-800-852-1368
www.aimco-global.com

TABLE OF CONTENTS

CONTENTS

Disposal

Power tools, batteries, accessories and packaging must be disposed of at an environmentally-compatible recycling facility. Power tools and batteries do not go into the household trash.



Transport

Li-Ion batteries are subject to the specifications in the laws pertaining to hazardous goods. The batteries can be transported on roads by the user without further constraints.

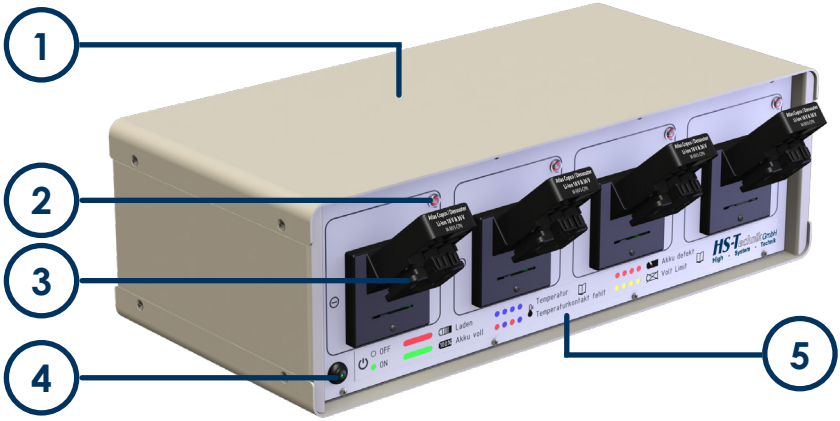
When shipping with third parties (e.g.: freight forwarders), special requirements must be observed for packaging and labeling!
Only ship batteries if the casing is not damaged. Cover the contacts with tape and package the battery so it cannot move around in the packaging. Please comply with other national and international requirements.

This symbol indicates additional information that will make your work easier.

General warning to prevent operating errors and failures.

This indicates a direct hazard for the worker or the tool. This warning symbol is especially important and must be observed.

AB-C18-4W



1. Casing
2. Status LED charger compartment
3. Battery adapter
4. Wake-up button
5. LED signal description

1. GENERAL INFORMATION

1.1.0. IMPORTANCE OF THE OPERATING INSTRUCTIONS

This information was written with the intention of being read, understood, and complied with in all points by persons responsible for the operation of the charging station.

Prior to start-up, please read the operating instructions and comply with the safety instructions. Work station faults can only be prevented if the contents of these operating instructions are known, and fault-free operation can be ensured.

AIMCO is not liable for damages and operational errors that result from non-compliance with these operating instructions. If difficulties arise, please contact us and we will gladly provide assistance.

1.2.0. PROPER INTENDED USE

The tool may only used to charge matching batteries as specified in this manual.

NOTICE

Proper intended use also includes:

- complying with all instructions in the operating instructions
- complying with inspection and maintenance work.

WARNING

The charging station is solely suitable for charging AB-B1825LI and AB-B1850LI Li-Ion batteries. It is not suitable for other battery types.

Any other use beyond this is not considered proper intended use.

1.3.0. IMPROPER USE

AIMCO is not liable for damages and operational errors that result from non-compliance with these operating instructions or improper use.

1.4.0. WARRANTY AND LIABILITY

Any new tool or accessory branded with the AIMCO, Uryu, AcraDyne or Eagle Industries name, and purchased from AIMCO, or through one of its authorized distributors or agents, is warranted to the original buyer against defects in materials and workmanship for a period of one (1) year* from date of delivery. Under the terms of this warranty, AIMCO will repair or replace any product or accessory warranted hereunder and returned freight prepaid proving to AIMCO's satisfaction to be defective as a result of workmanship or materials. In order to qualify for this warranty, written notice to AIMCO must be given immediately upon discovery of such defect, at which time AIMCO will issue an authorization to return the tool. The defective item must be promptly returned to an authorized AIMCO service center with all freight charges prepaid.

REPAIRED TOOL WARRANTY

Once a tool is beyond the new product warranty period as detailed above, AIMCO repairs are subject to the following warranty periods: pneumatic tools: 90 days*; electric tools and Acra-Feed: 90 days; battery tools: 30 days*; DC Electric tools: 90 days*

EXCLUSION FROM WARRANTY

This warranty is valid only on products purchased from AIMCO, or through its authorized distributors or agents. AIMCO shall have no obligation pursuant to the AIMCO Warranty with respect to any tools or accessories which in AIMCO's sole judgment have been altered, damaged, misused, abused, badly worn, lost or improperly maintained. This Warranty is null and void if the customer, or any other person other than an authorized representative of AIMCO, has made any attempt to service or modify the tool or accessory prior to its return to AIMCO under this Warranty.

The warranty provision with respect to each such product may be amended by AIMCO from time to time in its sole discretion. The liability of AIMCO hereunder shall be limited to replacing or repairing, at its option, any products which are returned freight prepaid to AIMCO and which AIMCO determines to be defective as described above or, at AIMCO's option, refunding the purchase price of such products.

AIMCO reserves the right to make periodic changes in construction or

tool design at any time. AIMCO specifically reserves the right to make these changes without incurring any obligation or incorporating such changes or updates in tools or parts previously distributed.

THE AIMCO WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND AIMCO EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY SETS FORTH THE SOLE AND EXCLUSIVE REMEDY IN CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE.

THIS WARRANTY IS THE ONLY WARRANTY MADE BY AIMCO WITH RESPECT TO THE GOODS DELIVERED HEREUNDER, AND MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED OFFICER OF AIMCO.

LIMITATION OF LIABILITY

AIMCO'S LIABILITY PURSUANT TO WARRANTY OF THE PRODUCTS COVERED HEREUNDER IS LIMITED TO REFUND OF THE PURCHASE PRICE. IN NO EVENT SHALL AIMCO BE LIABLE FOR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS BY THE BUYER. IN NO EVENT SHALL AIMCO BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF PROFIT) WHETHER OR NOT AIMCO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS, HOWEVER CAUSED, WHETHER FOR BREACH OR REPUDIATION OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHERWISE. THIS EXCLUSION ALSO INCLUDES ANY LIABILITY WHICH MAY ARISE OUT OF THIRD PARTY CLAIMS AGAINST BUYER. THE ESSENTIAL PURPOSE OF THIS PROVISION IS TO LIMIT THE POTENTIAL LIABILITY OF AIMCO ARISING OUT OF THIS AGREEMENT AND/OR SALE.

Note: The AIMCO Warranty confers specific legal rights, however some states or jurisdictions may not allow certain exclusions or limitations within this warranty.

* All warranty periods addressed herein are determined using a standard shift, eight-hour work day.

2. BASIC SAFETY INSTRUCTIONS

2.1.0. INFORMATION CONTAINED IN THIS DOCUMENT

- Knowledge of safety information and safety regulations is a prerequisite for safety-compliant handling and problem-free operation.
- Be sure to observe all local rules and regulations.

2.2.0. OPERATOR'S RESPONSIBILITY

The operator is obligated to only allow persons to work with this charging station who are familiar with the basic regulations for work safety and accident prevention, and are trained in how to use the charging station. Personnel safety checks must be conducted at regular intervals.

2.2.1. PERSONNEL'S RESPONSIBILITY

All persons working with this charging station are obligated to comply with the basic regulations for work safety and accident prevention prior to starting work.

2.2.2. PERSONNEL TRAINING

Only trained and qualified personnel may work with this charging station. The responsibilities of the personnel for the assembly, start-up, operation, maintenance, and servicing must be clearly defined. Personnel-in-training may only operate the machine in the presence of an experienced person.

2.3.0. RISKS WHEN WORKING WITH THE CHARGING STATION

Faults that may hinder safety must be immediately rectified.

WARNING The charging station was built in accordance with the state of the art in technology and approved safety regulations. Still, when using it, risks to life and limb of the user, or third parties, or other material assets may arise.

WARNING Only use the charging station for the proper intended use. Only use in working order with regard to safety.

2.4.0. DANGER FROM ELECTRICAL ENERGY

Only allow a qualified electrician to perform work on this tool. The electrical equipment of the tool must be regularly inspected. Loose connections and charred cables must be immediately repaired. If work must be performed with the tool, remove the battery prior to opening the device.

The tool must be kept closed at all times. Access is only permitted for authorized persons with a tool.

2.4.1. WORKPLACE SAFETY

a) **Keep your workspace clean and well lit.**
Disorder or poorly lit workspaces can lead to accidents.

b) **Do not use the charging station in an explosive environment,**
in which flammable liquids, gases, or dusts are located.

c) **Take environmental influences into account.**
Never subject charging stations to rain.
Do not use charging stations in moist or wet environments.

2.4.2. ELECTRICAL SAFETY

a) **Avoid physical contact with grounded surfaces such as pipes, radiators, etc.**
There is an increased risk of electrical shock if your body is grounded.

b) **Keep the device away from rain or moisture.**
Water penetrating into the charging station increases the risk of an electrical shock.

c) **Keep the charging station away from heat, oil, sharp edges, or moving device parts.**

2.4.3. SERVICE

Charger should be repaired by a qualified technician using only original spare parts, available from AIMCO. This ensures that the safety of your device is maintained.

2.5.0. LITHIUM-ION BATTERY

NOTICE

Please make sure to follow the following instructions for using lithium-ion batteries.

a) **Only charge the batteries in suitable chargers**
If the battery is not used in a suitable charger, it may be permanently damaged.

b) **If the battery is not used for a long period of time, it must not remain on the charger or on the tool.**
If a work break of more than 3 hours is expected, the battery must be removed from the tool. Otherwise, the battery may be permanently damaged.

c) **The lithium-ion battery should not remain on the charger for longer than 36 hours for safety reasons.**
Remove the battery from the charger immediately after the charging process is completed.

d) **An empty battery should not be in contact with the tool or a charger that is disconnected from the mains for a long period of time**.
In both cases, currents can flow that deep discharge the battery and can permanently damage it.

e) **Recharge the lithium-ion batteries immediately and never store them when empty.**
If the battery is stored while disconnected from the tool and the charger, it will maintain a constant capacity over a long period of time. (Loss approx. 5% per year.)

f) **Do not subject the lithium-ion battery to high temperatures (+50° C / 122° F) or direct sunlight.**
If the battery gets warmer than 50° C / 122° F during operation (charging or discharging), it must be removed from the charger or tool immediately.

g) **Keep the unused battery away from paper clips, coins, keys, nails, screws, or other small metal objects that might bridge the contacts. Do not open the battery and do not short-circuit it.**
A short-circuit between the battery contacts can lead to burns, fire, or explosions.

h) **Under extreme use or temperature conditions, batteries can leak.**
Avoid contact with the skin or eyes if the battery leaks. The

battery fluid is acidic and can cause chemical burns. If the fluid comes into contact with skin, immediately wash it with soap and water and then rinse it with lemon juice or vinegar. If the fluid gets into the eyes, flush with water for at least 10 minutes and immediately go to the doctor.

i) **Make sure that the Li-Ion battery does not fall down or is subject to vibrations and impacts.**

j) **Clean the contacts on the batteries and charging station regularly with a cloth soaked in high-percentage alcohol or, alternatively, with a cotton swab.**

NOTICE

Lithium-ion batteries have nearly no self-discharge and do not have a memory effect. If properly used, they will reliably supply your tool with power for several years (approx. 800 – 1,200 charge cycles).

Avoid deep discharging or overcharging the lithium-ion battery under any circumstances. It will be permanently damaged from this.

2.6.0. CLEANING

Use and dispose of used materials and substances properly, in particular cleaning agents and solvents.

2.7.0. SET-UP

The charging station is only suitable for operation in a dry room. All ventilation slits must be unobstructed. If possible, set up the charging station away from heaters and sun radiation, as an ambient temperature of more than 35° C / 95° F can result in significantly longer charging times.

WARNING

The charging station must not be operated in closed cabinets.

2.8.0. POWER SUPPLY

By plugging the power cable into the outlet and toggling the ON/OFF switch on the back, the charging station is ready to use.

3. PLACEMENT INTO SERVICE

3.1.0. BENEFITS

- Battery parameters are measured and processed
- Special frequency modulation impulse charging process anti-memory effect
- Automatic voltage detection
- IFCS - Intelligent Full Charge System for Li-Ion batteries
- Detection of defective cells
- Protection against reverse polarity
- Can also charge at temperatures > 40° C / 104° F
- Adapter can be changed in 2 minutes
- Software update via USB
- With PFC (Power Factor Control)

WARNING The matching battery adapter and the correct software and firmware must be mounted/installed to charge the batteries.

3.2.0. ADDITIONAL INFORMATION

If the operation voltage is connected and the charging station is switched on, a self test will start automatically.

After switching on the charger, all of the LEDs will light up and then a signal will sound. When all of the LEDs go off, the charging station is ready to use. Now batteries can be inserted for charging.

NOTICE The operator is obligated to keep the charging station firmware up-to-date. AIMCO does not assume any liability for defective batteries if the charging station is not operated with up-to-date firmware.

WARNING Make sure the polarity +/- is correct.

When replacing batteries, do not insert new battery until the LEDs have gone out (red or green). If a battery is replaced very quickly, the electronics may retain the status of the previous battery pack.

3.2.1. CHARGING PROCESS

Via an initialization routine, the voltage, temperature, short circuits, and reverse polarity of the inserted battery are checked.

Prior to starting the charging process, the temperature contacts (NTC contact, etc.) are checked. If the temperature contacts are OK, the battery will be charged.

If the battery is too hot, it can stay in the charging station, and when it has cooled down, it will automatically charge.

If the red LED lights up, charging begins using the special frequency modulation impulse process, which charges the battery based on how depleted the battery is.

During the charging process, the voltage and temperature of the cells and the remaining charging time are continuously monitored.

Taking all of the parameters into account, the charging current and remaining charging time varies on a case-by-case basis. The installed fans switch on automatically, as needed, during each charging process.

Every charging process is recorded on a memory chip for subsequent evaluation.

NOTICE

Prior to use, always check that the mounted battery adapter is compatible with the battery you wish to charge.

3.2.2. EXPLANATION OF THE LED SIGNALS / FUNCTIONS

When the charging station is not in use, it switches to sleep mode. In order to be able to charge a battery, the station must be activated by pressing the "wake up" button. This is located on the lower left of the front side.

If the button is lit green, the charging station is switched on and batteries can be charged. If the button is pressed for longer than 10 seconds, the charging station switches to sleep mode.

Continuously lit red:
Battery is charging
Continuously lit green:
Battery is fully charged

Blinking blue:
Temperature is too high or too low to charge. If the temperature of the battery is below 10° C, the LED will blink blue and the charging station will only charge the battery with 500 mA up to a temperature of 10° C / 50° F has been reached. From then on, the station will charge the battery normally. The same applies when the temperature of the battery exceeds 55° C / 130° F; the battery will also be charged with 500 mA until the temperature of the battery drops below 55° C / 130° F.

Blinking red/blue:
The charging station cannot find a temperature contact. In most cases, the battery contact is defective or damaged.

Blinking red:
The battery is defective. The charging station cannot find a measurable voltage.

Blinking yellow:
The battery voltage is too high or too low for the battery type. This battery cannot be charged.

3.2.3. SLEEP FUNCTION

The sleep function defines the time after which the charging station or the board switches to sleep mode when it is not charging batteries. The time can be set up to 18:12:15 hours via the software. The charging station can be awakened by pressing the wake-up button on the front or by pulling on a battery.

Each board goes into sleep mode separately after the set time if it is not in use. If the last board goes in sleep mode the power supply will shut off.

3.3.0. SAFETY FUNCTIONS AND SPECIAL FEATURES

The battery is charged using a frequency modulation impulse charging process until a charging parameter is reached, then the charger switches to charge-retention mode.

A microprocessor monitors and controls every charging box and supplies the battery with only as much energy as it can effectively absorb (dialog between the battery and charging station).

This results in low heat development and faster and better storage of the capacity (high capacity at lower currents). This special charging technology ensures the charging process is always extremely gentle on the battery and guarantees a very long service life of the battery. Furthermore, this dynamic charging technology automatically regenerates older batteries (that were charged with other chargers) with reduced capacity, so these batteries can continue to be used.

The charging boxes are completely short-circuit-proof and protected against reverse polarity so the batteries will not be destroyed. If the polarity is reversed or there is a short-circuit, the charging box disconnects from the power supply and a signal will sound, accompanied by a red blinking LED. Thus, the highest level of safety is ensured.

The fans are controlled based on need and cool the batteries quickly, even under extreme stress.

The charging box provides absolute protection against overloading via voltage monitoring and voltage gradient evaluation, as well as Delta U, charging time limitation, and dynamic temperature evaluation.

3.4.0. SOFTWARE

Operation software (preinstalled) enables the following:

- **Special frequency modulation impulse charging process:** Absolutely no memory effect due to variable frequency-modulated impulse charging current with a high amplitude.
- **Self diagnostics**: Testing of the internal power circuit
- **Polarity reversal protection**: Power disconnects from the charging box, accompanied by a signal and a red blinking LED.
- **Automatic battery voltage detection:** No voltage change required.
- **Charging at battery temperatures exceeding 40° C / 104° F:** This is accomplished by generating gradients using dynamic temperature evaluation.
- **Automatic evaluation of the temperature contacts:** With NTC contact, a dynamic temperature evaluation is performed.
- **Defective cell detection:** Red blinking LED = battery is defective or battery no longer has full capacity.
- **Status indication via LED:** Red = charging / Green = full)
- **Charging effectiveness higher than 95%**
- **Fan control**
- **3.6V – 50.4V (43.2V nominal voltage)**

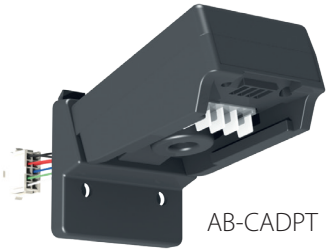
3.5.0. SHUT-OFF CRITERIA

- **Dynamic temperature evaluation:** Temperature gradient evaluation.
- **Capacity-related full detection**
- **∆U detection and voltage gradient evaluation:** Automatic parameter definition based on the charge status of the battery pack.
- **Battery analysis and characteristic diagram control prior to and during the charging process:** Charging parameters are automatically determined and defined based on the battery pack.
- **Plausibility test**: Check whether the battery parameters are logical with regard to each other.

4. TECHNICAL DATA

Model	AB-C18-4W
Input	85 - 260 V AC, 47 - 63 Hz
Power output	max. 624 W
Level of efficiency	> 89 %
Output	56 V / 624 VA
Weight	7.6 kg / 16.8 lb
Dimensions without battery adapter	539 mm (W) x 182 mm (H) x 260 mm (D) (incl. feet) 21.2" (W) x 7.2" (H) x 10.2" (D) (incl. feet)
Tested	CE; EN55022B; EN61000-3-2,-3; EN61000-4-2, 3, 4, 5, 6, 8, 11; EN60950

5. BATTERY ADAPTER



AB-CADPT

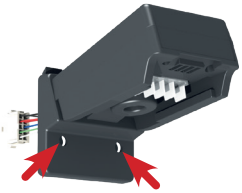
Model #	Compatible Batteries
AB-CADPT	AB-B1825LI, AB-B1850LI

A battery adapter alone cannot charge batteries; it can only be used in combination with the 4-bay charging station. Additional battery adapters are available upon request.

5.1.0. CHANGING THE BATTERY ADAPTER

In order to mount the battery adapter, proceed as follows:

The charging station must be switched off and the power supply must be disconnected prior to changing the adapter. Then, the battery which needs to be changed must be loosened, so that the circuit board of the battery adapter is accessible.



Rotate the two flathead screws approx. half a turn.

loosen (CW)

mount (CCW)

After loosening the mountings, remove the adapter. To do this, lift the adapter up slightly and pull it out to the top.

After removing the battery adapter, the connection plug must be removed from the board. Push the small locking mechanism to open it, then remove the plug. In order to connect a new battery adapter, the locking mechanism must be locked again.

Install adapters by following these steps:

Place/plug in the connection plug onto the circuit board

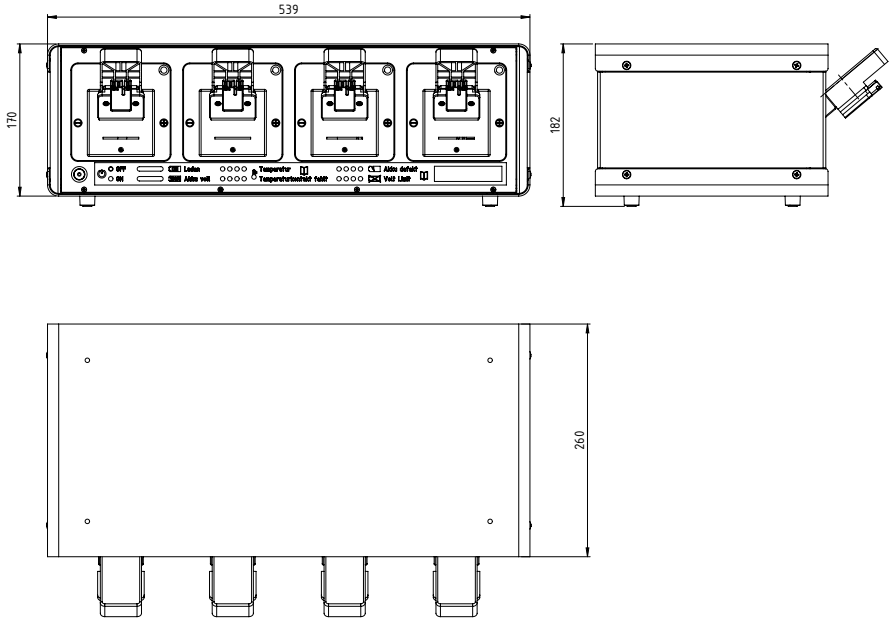
Insert and screw down the battery adapter

WARNING Only authorized specialists are permitted to change the battery adapter. For the exchange, no electrical qualified personnel is required.

DANGER Be careful of sharp edges!

6. DRAWINGS

AB-C18-4W



Dimensions in mm (without battery adapter)

7. SPARE PARTS LIST

This charging station is not a user-serviceable system. Please contact your authorized AIMCO/AcraDyne service center for any service or repair needs.

CORPORATE HEADQUARTERS
10000 SE Pine Street
Portland, Oregon 97216
Phone: (503) 254–6600
Toll Free: 1-800-852-1368

AIMCO CORPORATION DE MEXICO SA DE CV
Ave. Cristobal Colon 14529
Chihuahua, Chihuahua. 31125
Mexico
Phone: (01-614) 380-1010
Fax: (01-614) 380-1019

AIMCO EUROPE
Dibao Plaza Avenida Río Gallo, 431
19174 Galápagos - Guadalajara
Spain
Phone: +34 673 34 99 25

AIMCO SOUTH AMERICA
Carrera 29A, #7B-91.
Origami Building. Int604.
Madellin; Colombia 050021

AIMCO CHINA
Room 607, No. 3998 Hongxin Rd
Minhang District, Shanghai
China
Phone: 0086-21-34319246
Fax: 0086-21-34319245

AIMCO SOUTH KOREA
B-1213, 167, Songpa-Daero
Songpa-Gu, Seoul 05800
South Korea
Phone: 0082-2-2054-8930
Cell: 0082-10-9804-8905

LIT-MAN232 Rev. 07-18
Printed in USA