

Hi-G Battery Power Supply LB-Li24/32-120

**Hardware Manual
Rev. 4.04 E**

Photron

Introduction

Thank you for your purchase of Photron's Hi-G Battery Power Supply LB-Li24/32-120 (referred to below as the system).

This manual contains the operating instructions and warnings necessary for using the system. Before using the camera, read the entire manual.

If any part of this manual is unclear, contact Photron using the contact information printed at the back of the manual.

Using the Manual

This section explains the layout of the manual.

- ◆ **Introduction**
Explanation on this manual and precautions
- ◆ **Chapter 1 Preparation**
Precautions regarding the use of this product
- ◆ **Chapter 2 Product Specifications**
Specifications for the Hi-G Battery Power Supply LB-Li24/32-120
- ◆ **Chapter 3 Warranty**
Explanation about the warranty
- ◆ **Chapter 4 Contact Information**
Information for contacting Photron regarding any questions you may have or if the product is defective

Manual Notation

The following icons and symbols are used in the explanations in this manual.

Icon/Symbol	Description
 REFERENCE	This symbol indicates the location of a reference.
“ ”	This symbol is used to indicate the names of items on a screen, references, dialog names, and connectors.
[]	This symbol is used to indicate menu names, and sub-menu names.

Using the System Safely and Correctly

In order to prevent injury to yourself and others, and to prevent damage to property, carefully observe the following safety precautions.

Photron has given its full attention to the safety of this system. However, the extent of damage and injury potentially caused by ignoring the content of the safety precautions and using the system incorrectly is explained next. Pay careful attention to the content of the safety precautions when using the system.



Warning

This symbol indicates actions that carry the risk that a person could receive a serious injury.



Caution

This symbol indicates actions that carry the risk that a person could receive a moderate injury, or that damage to physical property might occur.

- The safety precautions to be observed are explained with the following symbols.



This symbol indicates actions that require caution.



This symbol indicates actions that are prohibited and must be avoided.



This symbol indicates actions that must always be performed.



Warning



- Do not charge or discharge in a location where the temperature might get unusually hot (e.g. beside a fire, in a car under the sunshine), or a location where might rise flammable gas.

Doing so can cause heat, smoke, or fire.



- Stop charging when the charging does not finish after five hours from starting charging.

Not doing so can cause heat, smoke, or fire.



- Do not disassemble or modify the system.

There are high voltages inside the system that can cause electric shock.



- Keep away from water.

Wetness can cause fire, electric shock or malfunction from short circuit.



- Use appendage or indicated cable.

Using other cables can causes heat, fire and malfunction.



- Do not plug in or unplug the power cord with wet hands.

Doing so can cause electric shock.



- Note the followings when handling the cables.

- Do not scratch - Do not wrench - Do not bend forcibly

- Do not put heavy object - Do not heat - Do not modify

- Do not pull - Do not bind - Do not touch with wet hands

Doing so can cause cable break and can causes fire or electric shock.

When cable or connector had damaged, do not continue to use but exchange.



- Contact your dealer or nearest Photron office when disposing of the product.



Caution



- Do not store the product in a location with a lot of humidity or dust.
Doing so causes malfunction.



- Do not stick and press strong to connector hole.
Doing so can cause malfunction.



- Do not use beside gasoline, flammable spray, thinner, lacquer, and so on.
Doing so can cause explosion.



- Do not disassemble or repair the product for yourself.

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1

Chapter 1 Preparation

This chapter gives an overview of the system.

1.1. Precautions

1.1.1. Checking the product

Refer to the attached packing list for this product's standard components and accessories. Unpack the system from the box and check each component.



For safety reason, the battery is discharged for shipping.

Recharge it until "CHARGE" lamp is turned to green before using it.



Use the dedicated AC adapter included in the box. (P/N: AT S300T-P240)

1.1.2. Features and precautions

■ Features

- ◆ Compact, light and high capacity battery power supply.

■ Precautions

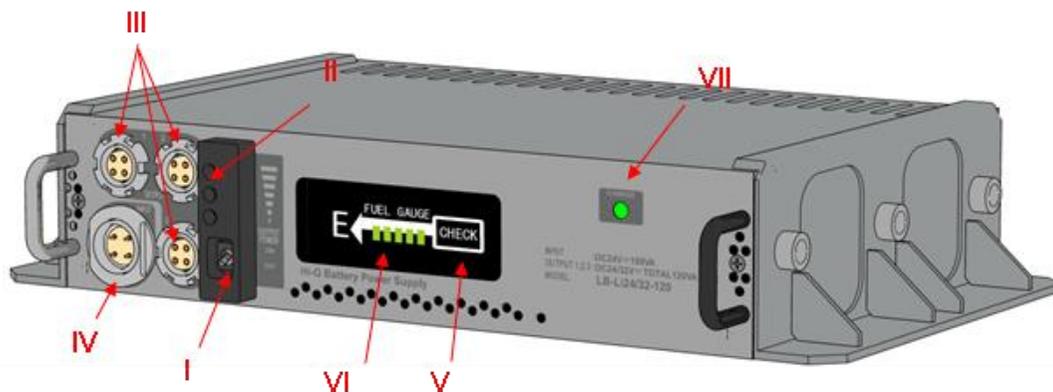
- ◆ Read through warnings and cautions once again before using the system, thoroughly follow them.
- ◆ Use the battery system as fully charged as possible.
- ◆ In case of exchanging the internal battery, contact your dealer or the nearest Photron office.
- ◆ If heat, fire, noise, or some other abnormalities are noticed, stop using the system and disconnect the AC adapter.
- ◆ Do not use outdoor.
- ◆ This battery system is specially designed for Photron's high speed cameras. Do not use with other manufacturer's products.
- ◆ In case of transportation by air freight, discharge electricity until lower the remaining battery amount to below 30%.

1.2. Part Names

1.2.1. Main Unit

Up to 3 camera devices can be connected. The internal lithium-ion battery supplies the power to each connected device via DC/DC converter. The total output is up to 120VA, and the power can be supplied from one connector.

By using the dedicated AC adapter, each device is powered by the AC power supply, and the internal battery is charged. The AC adapter connector is also used as the internal lithium-ion battery charger input, therefore the battery is charged even when OUTPUT POWER is off.



	Part Names	Functions	Notes
I	OUTPUT POWER (ON/OFF)	Power switch	Power is supplied to the connected camera devices when turned on.
II		Indicator	Battery condition at the time of power supply is shown.
III	OUTPUT (A, B, C)	Output power connector	Connect camera devices.
IV	INPUT	Power supply connector	Connect the AC adapter.
V	CHECK	Remaining power check	Ensure that the dedicated AC adapter is used.
VI	FUEL GAUGE	Remaining power indicator	Remaining power is shown when this button is pressed.
VII	CHARGE	Charging indicator	Remaining power is indicated by LED.



The temperature control unit is embedded in the battery charger circuit.

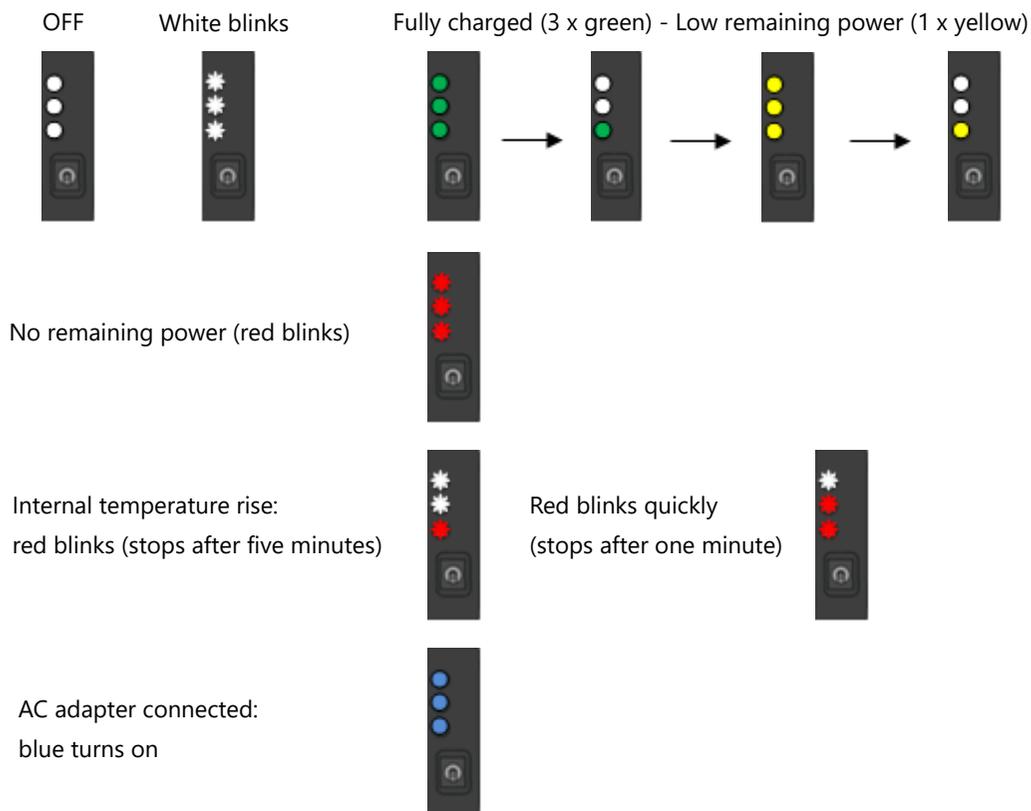
The battery will not be charged if the surrounding temperature is more than 40degC.

Due to a temperature rise in the system immediately after using, the battery may not be charged even if the AC adapter is connected. In this case, wait for the battery to cool before charging. Once the temperature cools down, charging will be possible. Make sure the CHARGE light turns red and the battery starts charging.

1.2.2. LED Display

■ INDICATORS

OUTPUT POWER ON - Check the remaining power - Indicate the actual remaining power



■ FUEL GAUGE

Remaining battery condition is shown when "CHECK" is pressed.



The indicator looks like this when the remaining power is below 50%. 

■ CHARGE

Charging, in use



Charge completed, fully charged

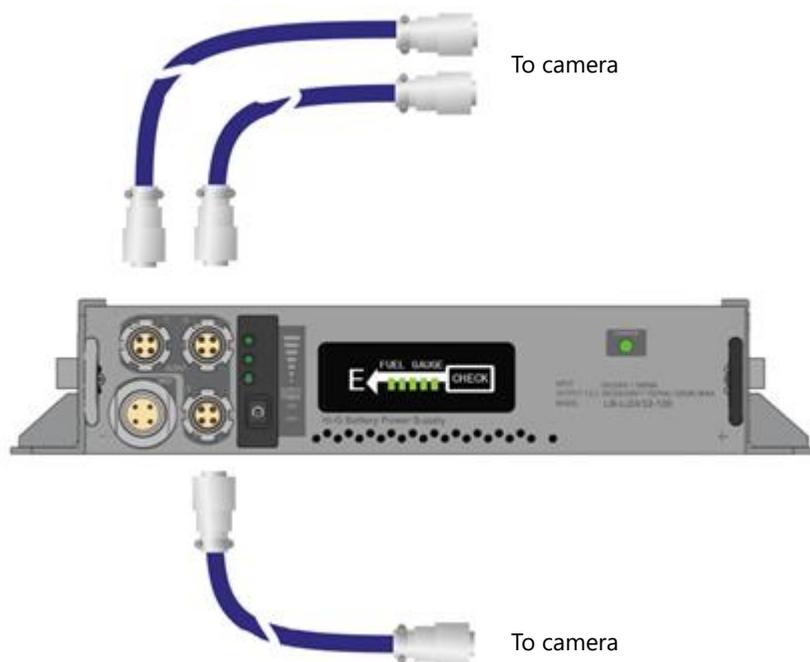


If you charge the battery for an enough time and it does not become fully charged, charge it again after using the battery up to 0%.

1.3. How to use

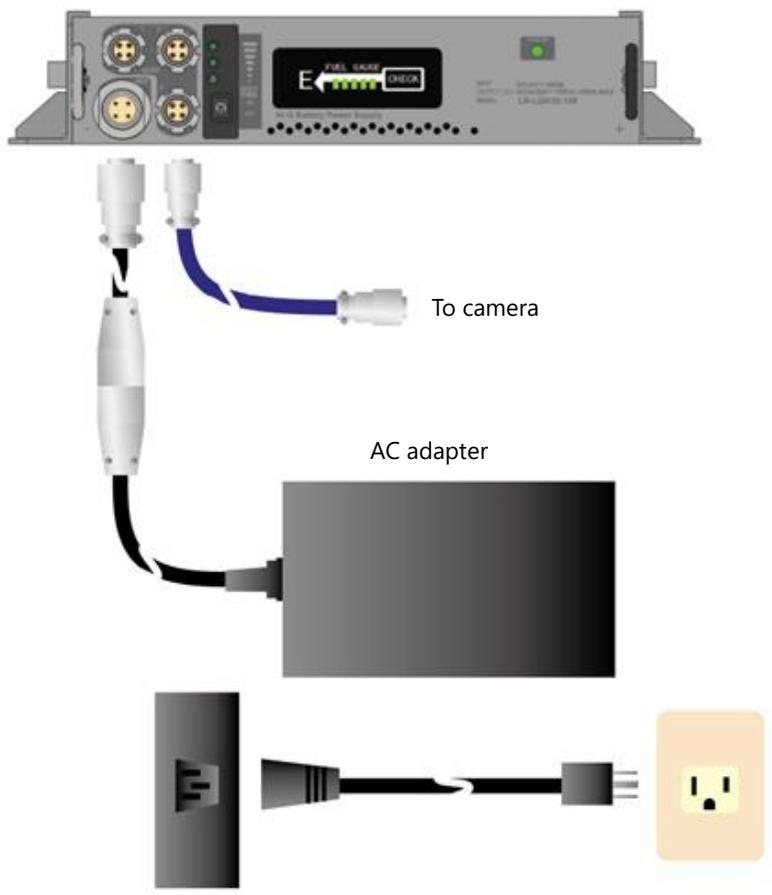
1.3.1. To power the connected cameras by the internal lithium-ion battery

1. Connect each camera as the pictures shown below.
2. Connect the battery system and cameras with the dedicated cables (max. 3 cameras can be connected).
3. Switch OUTPUT POWER to “ON”.



1.3.2. To power the connected cameras by the AC adapter

1. Connect each camera as the pictures shown below.
2. Connect the AC adapter to the battery system.
3. Connect the battery system and each camera with the dedicated cables (maximum 3 cameras can be connected).
4. Switch OUTPUT POWER to "ON".



Cameras cannot be used during battery charge.

1.3.3. Battery

■ Use of battery

In order to fully utilize the battery performance, the operating temperature between 10 to 30 degC is recommended.

■ Storage

In case of long-term storage (more than 3 months), store the system half charged (around 50%).

■ Indicator

Indication of remaining battery amount (FUEL GAUGE)

The remaining battery amount can be checked by the following LED indicators in 5 stages.

Press "CHECK" button, then the LED lamp will turn on for 3 seconds.

Indicator	LED indicator
100%	5
75%	4
50%	3
25%	2
10%	1
OFF	0

When checking the remaining battery amount, do not place any loads on the system.

■ Circuit protection

For safety reason, the protection circuit with a fuse is integrated in the system.

If a short circuit occurs, or instantly a large amount of electric current is flown, or more than the rated load is applied, the system will need to be repaired.



If the battery system is below 0 degC, the fully charged condition may not be correctly detected even if the designated charging time is passed. In this case, wait until the system is warmed and start charging.

Due to a temperature rise in the system immediately after using, the battery may not be charged even if the AC adapter is connected. In this case, wait for the battery to cool before charging. Once the temperature cools down, charging will be possible. Make sure the CHARGE light turns red and the battery starts charging.

If the system needs to be repaired, contact your dealer or nearest Photron office listed on page 16.

You are not allowed to change a fuse on their own. We will check the safety and functions of the system and change the fuse.



When supplying power from the battery to multiple cameras, start the cameras in sequence.

If multiple cameras are started up at the same time, the starting current may cause the fuse to blow.

Keep a startup interval of about 3 seconds for each camera.

■ Protection against temperature

If the battery temperature exceeds 70 degC, the system will stop working after 5 minutes in any cases.

The red indicator starts to blink if the temperature exceeds 70 degC, and the system stops after 5 minutes.



One minute before the battery stops, the red indicator starts to blink quickly.

The system needs to be restarted for recovery. However, it will stop working after 5 minutes again if the temperature still exceeds 70degC at the time of restart. Wait until the internal temperature drops for restart.

* If the above symptom appears, turn off “OUTPUT POWER” switch and disconnect cables from “INPUT” connector and “OUTPUT (A, B, C)” connectors.

2

Chapter 2 Product Specifications

This section explains the product's specifications.

2.1. Product Specifications

2.1.1. General Specifications

Environmental Conditions	
Storage temperature range	-25 to 60 degrees (0 to 20 degrees recommended)
Storage humidity range	Less than 95 % (prevent condensation)
Temperature range for guaranteed performance	0 to 40 degrees (prevent condensation) (10 to 30 degrees recommended)
Humidity range for guaranteed performance	Less than 85 % (prevent condensation)
Pollution degree	Degree 2 according to IEC60664-1
Overvoltage category	Battery system: OVC I When using the AC adapter: OVC II
Maximum altitude for use	Less than 2,000 m
External Dimensions	
Main Unit	(W) 245 x (H) 160 x (D) 55 mm (W) 9.64" x (H) 6.29" x (D) 2.16" excluding protrusions
Weight	
Main Unit	3.75 kg, 8.26 lbs
Battery	
Battery type	Lithium-ion battery
Rated output	TYPE 24V: DC24V / 120VA (3 ports in total) TYPE 32V: DC32V / 120VA (3 ports in total)
Rated input	DC24V / 180VA
Shock Resistance performance	100 G / 10 ms / 6 axis x 1,000 times in total
Battery capacity	130 Wh
Charging time	Approx. five hours (In case of charging from 0 to 100%)

■ Connected camera devices and operating time

This battery system can be connected to maximum three camera devices, but the maximum power consumption is 120VA. Do not use the system with over 120VA.

If the total output of three camera devices is 120VA, the operating time is approximately 45 minutes (in case of the battery full charged).

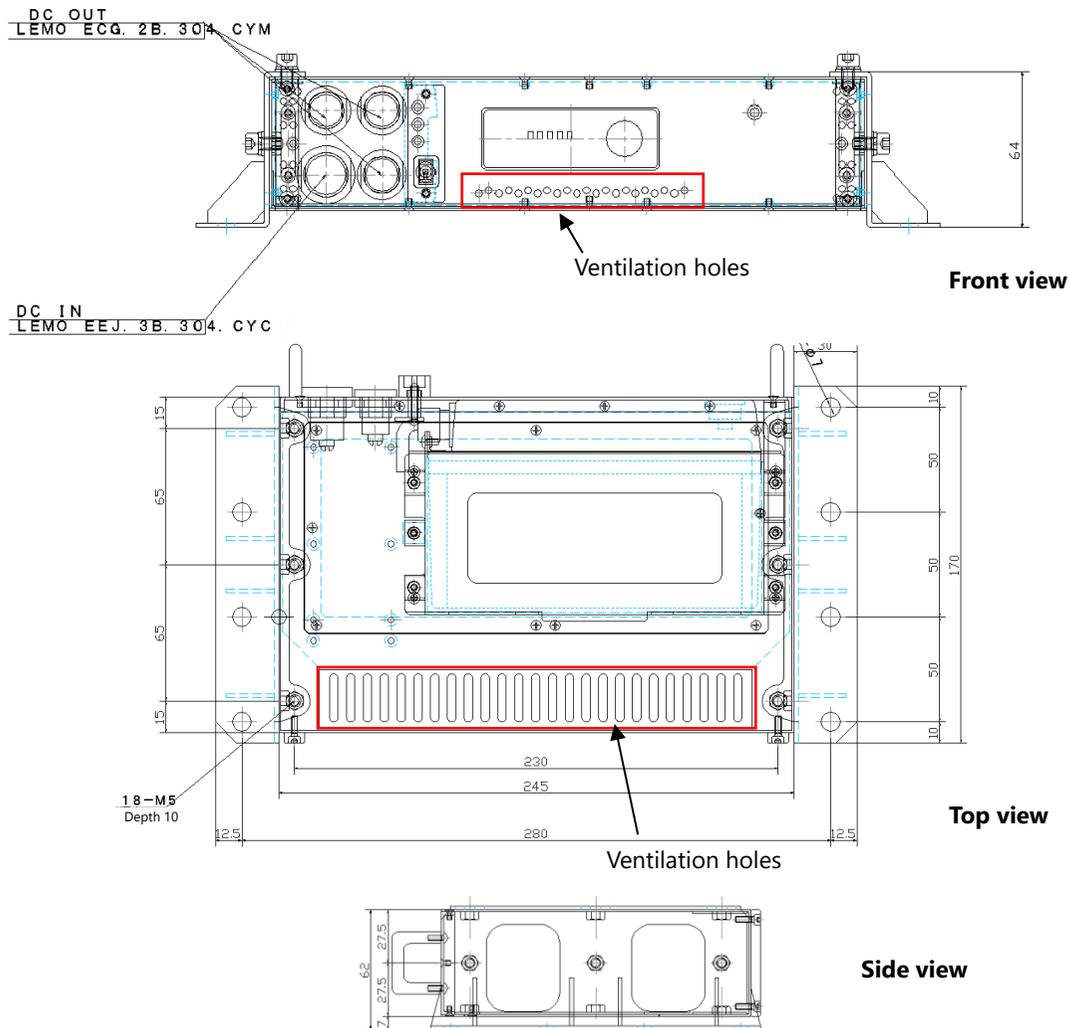
If only one camera device is used and the output is 40VA, the operating time is approximately 135 minutes (in case of the battery fully charged).

The operating time varies depending on the total amount of the power consumed by the connected camera devices. Refer to the hardware manual of each camera device for its power consumption.

2.2. Dimensional Drawings

2.2.1. Main Unit (horizontal mounting bracket)

Units: mm



If a screw that is longer than the specified length is forced into the hole, the screw hole may be damaged. When fixing the bracket to the side of the battery, use the supplied screws (M5 x 10) or use screws that do not exceed 10 mm. Failure to do so may lead to internal damage.

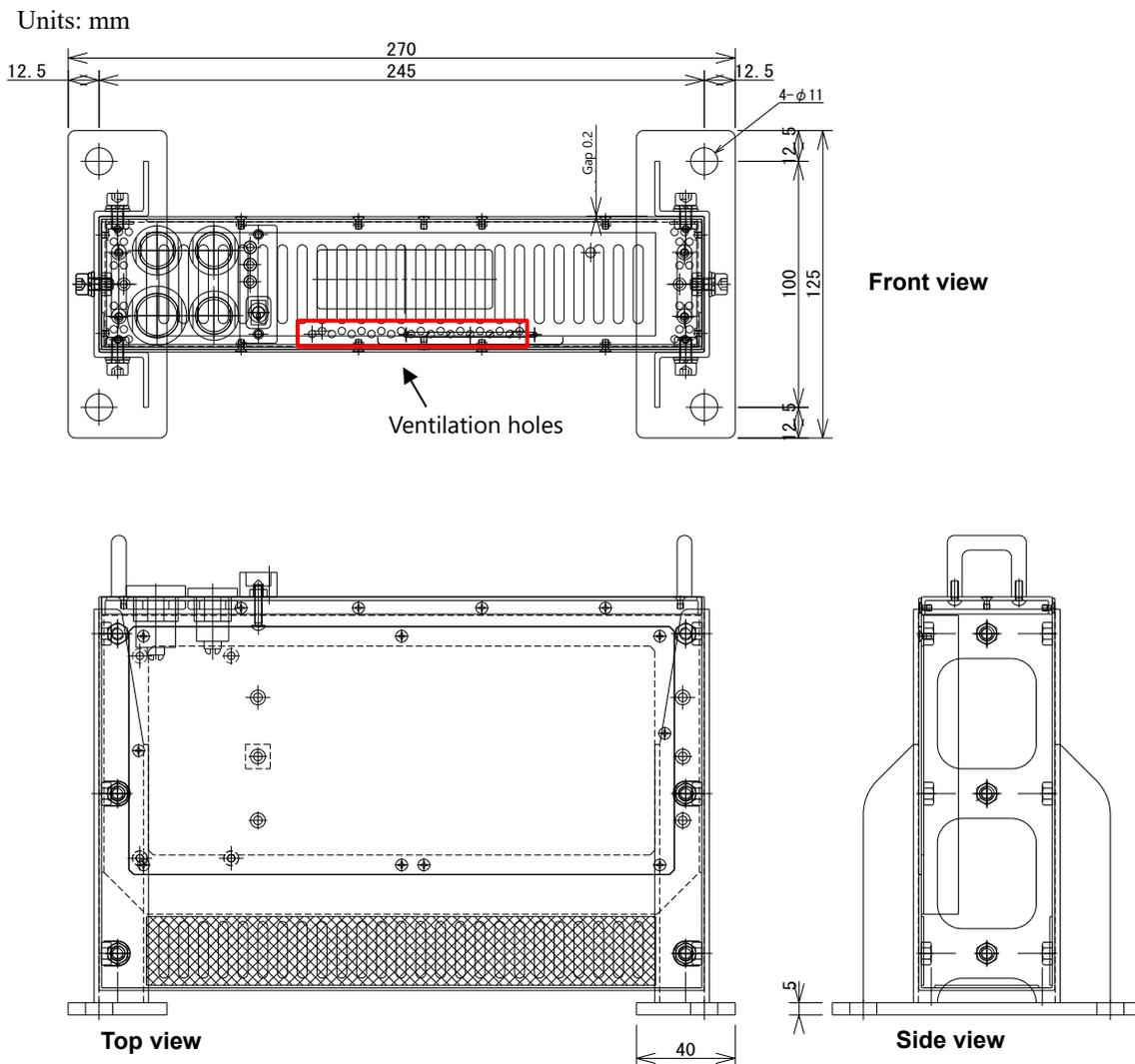
■ Cautions for system installation

Make at least 30 mm gap from the wall and avoid closing the ventilation holes.

If two or more systems are installed, also make at least 30 mm gap between each system.

If the ventilation holes are filled with dusts, remove them with a clean cloth without using chemicals.

2.2.2. Main Unit (vertical mounting bracket)



If a screw that is longer than the specified length is forced into the hole, the screw hole may be damaged. When fixing the bracket to the side of the battery, use the supplied screws (M5 x 10) or use screws that do not exceed 10 mm. Failure to do so may lead to internal damage.

■ Cautions for system installation

Make at least 30 mm gap from the wall and avoid closing the ventilation holes.

If two or more systems are installed, also make at least 30 mm gap between each system.

If the ventilation holes are filled with dusts, remove them with a clean cloth without using chemicals.

3

Chapter 3 Warranty

3.1. About the Warranty

In the unlikely event that it malfunctions due to a manufacturing defect, it will be repaired, at no charge, within the warranty period.

■ Warranty Exceptions

The following exceptions will result in fee-based repair, even within the warranty period.

1. Damage or malfunction as a result of fire, earthquake, water damage, lightning, other natural disasters, pollution, or the effects of abnormal voltage.
2. Damage or malfunction as a result of dropping or mishandling during shipment or moving after purchase or misuse.
3. When repair, adjustment, or alternation done by an entity other than Photron service has been performed on the system, or damage or malfunction that is determined to be a result of the responsibility of using the product.
4. Damage or malfunction as a result of taking an impact surpassing the anti-G performance of this product.

For inquires related to malfunction, contact the dealer where the product was purchased, or the nearest Photron office.

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Chapter 4 Contact Information

4.1. Contacting Photron

For inquiries related to Hi-G Battery, contact Photron at the contact information listed below. Additionally, the following items will be verified when inquiring, so prepare them in advance.

Items Verified	Example
Contact Information	Company name, school name, customer name, phone number, etc.
Product Name	<ul style="list-style-type: none"> Hi-G Battery Power Supply LB-Li24/32-120 High speed camera name and firmware version From the LIVE mode tab, click the [ Edit] icon of a camera item in [Function panel] – [Camera controls] and the information can be checked from [Camera name] and [Firmware ver.] in the “Edit Camera Info” dialog.
Inquiry	Condition

Contact Information	
In Americas and Antipodes	PHOTRON USA, INC. 9520 Padgett Street, Suite 110, San Diego, CA 92126-4426, USA Phone: +1 (800) 585 2129 or +1 (858) 684 3555 Fax: +1 (858) 684 3558 E-mail: image@photron.com Web: www.photron.com
In UK, Africa and India	PHOTRON (EUROPE) LIMITED The Barn, Bottom Road, West Wycombe, Buckinghamshire HP14 4BS, U.K. Phone: +44 (0) 1494 48 1011 Fax: +44 (0) 1494 48 7011 E-mail: image@photron.com Web: www.photron.com
In Europe outside the UK	Photron Deutschland GmbH Ziegelweg 3, 72764 Reutlingen, Germany Phone: +49 (0) 7121 699 7950 Fax: +49 (0) 7121 699 7943 E-mail: image@photron.com Web: www.photron.com
In China	PHOTRON (SHANGHAI) LIMITED Room 20C Zhao-Feng World Trade Building, No. 369 Jiangsu Road Chang Ning District, Shanghai 200050, China Phone: +86 (21) 5268 3700 Fax: +86 (21) 5268 3702 E-mail: info@photron.cn.com Web: www.photron.cn.com
In other areas	PHOTRON LIMITED 21F, Jinbocho Mitsui Bldg., 1-105 Kanda Jimbocho, Chiyoda-Ku, Tokyo 101-0051, Japan Phone: +81 (3) 3518 6271 Fax: +81 (3) 3518 6279 E-mail: image@photron.co.jp Web: www.photron.co.jp

A

A. Appendix

A1. FAQ and Troubleshooting

If the battery is not working properly, check the following trouble examples and try the solutions.

Q1. The battery does not reach 50% after four hours of charging.

- There is a display error between the battery's actual remaining capacity and the indicator display, and it may reset once the battery is used up to 0%.
Try to use up the battery once and then recharge it to see if it is fully charged.

Q2. The battery does not reach 100% even after charging from 0%, and the CHARGE light is off.

- The temperature around the battery is close to 40 degC, which may have triggered the protection function and stopped the charging operation.
The battery will automatically resume charging when the ambient temperature cools down sufficiently, so try to lower the ambient temperature.
* Note that charging may not resume until the ambient temperature becomes lower than when charging was stopped.

Q3. Charging does not proceed from 25% even after half a day of charging, no camera is connected. The indicator remains lit red.

- Try to use up the battery once.
Try operating at the recommended temperature (10 to 30 degC). Even if the ambient temperature is above 0 degC, the battery performance itself may be degraded due to low temperature.
If there is no improvement, the indicator may be faulty, or the battery may be malfunctioning.

Q4. When the battery is fully charged and connected to the AC adapter, the CHARGE light turns red after supplying power to cameras.

- When the AC adapter is connected, the battery is bypassed, and power is supplied to cameras. It seems that the battery's self-discharge has caused the voltage to drop below the specified level, causing the battery to resume charging. Continue charging.

If you have any other questions, cannot solve a problem, or encounter any other abnormalities, take a moment to contact Photron or the dealer.

Hi-G Battery Power Supply

LB-Li24/32-120

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