



**E n e r g y   i n s i d e**

**PROFESSIONAL BROADCAST**

**V-LOCK CAMERA BATTERY**

Model

**BV270HD - 270 Wh**

**GRANITE**

**USER MANUAL**

Revision 1.0

## LITHIUM-ION BATTERY PACK HANDLING PRECAUTIONS



### Danger

1. Do not disassemble or modify the battery pack. The battery pack is equipped with built-in safety/protection features. Should these features be disabled, the battery pack may leak corrosive chemicals, overheat, emit smoke, burst and/or ignite.
2. Do not connect the positive (+) and negative (-) terminals to a metal object such as a wire. Do not transport or store the battery pack together with metal objects such as jewellery, hairpins, etc. In such cases, short-circuiting or over-current flow may occur causing the battery pack to leak, overheat, emit smoke, burst and/or ignite. Metal objects such as wires, jewellery or hairpins may generate heat if they come into contact with the battery.
3. Do not discard the battery pack into fire or heat since this may cause the insulation to melt down and may also damage the gas release vents and other safety features possibly leading to chemical leakage, overheating, smoke emission, bursting and/or ignition.
4. Do not use or leave the battery pack near a heat source such as a fire or a heater (> 80°C) or in a car. If the resin separators should become damaged due to overheating, short-circuiting may occur inside the battery pack, possibly leading to chemical leakage, overheating, smoke emission, bursting and/or ignition of the battery pack.
5. Do not immerse the battery pack in fluids, water or seawater and do not allow it to get wet. Otherwise, the protective features inside the battery may be damaged and abnormal chemical reactions may occur, possibly leading to leakage, overheating, smoke emission, bursting and/or ignition.
6. Do not recharge the battery pack near fire or in extremely hot environments. Otherwise, hot temperatures may trigger its built-in protective features, inhibiting recharging or damaging these built-in protective features, causing it to be charged with an excessive current. As a result, abnormal chemical reactions may occur internally, possibly leading to leakage, overheating, smoke emission, bursting and/or ignition.
7. To recharge the battery pack, use the battery charger specifically designed for the device and observe the recharging conditions specified by the maker of the charger. A recharging operation under non-conforming conditions may cause the battery pack to become overcharged, or charged with an excessive current. Abnormal chemical reactions may occur, possibly leading to electrolyte leakage, overheating, smoke emission, bursting and/or ignition.
8. Do not pierce the battery pack with pointed or other sharp objects. Do not strike it with a hammer, or step on it. Otherwise, the battery pack may become damaged and deformed internal short-circuiting may occur, possibly leading to chemical leakage, overheating, smoke emission, bursting and/or ignition.
9. Do not strike or throw the battery pack. An impact may cause leakage, overheating, smoke emission, bursting and/or ignition. Moreover, if the protective features inside become damaged, the resulting internally generated high current could lead to abnormal chemical reactions, electrolyte leakage, overheating, smoke emission, bursting and/or ignition.
10. Do not use an apparently damaged or deformed battery pack. Otherwise, electrolyte leakage, overheating, smoke emission, bursting and/or ignition of the battery pack may occur.
11. Do not directly solder the battery pack. Otherwise, heat may melt down its insulation, damage its gas release vents or other safety features possibly leading to leakage, overheating, smoke emission, bursting and/or ignition.
12. Do not reverse the positive (+) and negative (-) terminals. Otherwise, during recharging, the battery pack will be reverse-charged, abnormal chemical reactions

may occur, or excessively high current may flow during discharging possibly leading to chemical leakage, overheating, smoke emission, bursting and/or ignition.

13. The positive (+) and negative (-) terminals are arranged in a particular orientation. Do not force the connection if you may not easily connect the battery pack terminals to the battery pack charger or other equipment. Confirm that the terminals are correctly oriented. Reversing the terminals will result in reverse charging, possibly leading to electrolyte leakage, overheating, smoke emission, bursting and/or ignition of the battery pack.
14. Do not use the battery pack for other purposes other than those specified. Otherwise, its guaranteed performance will be lost and/or its service life will be shortened. Depending on the equipment in which the battery pack is used, excessively high current may flow through battery pack, possibly damaging it and leading to electrolyte leakage, overheating, smoke emission, bursting and/or ignition.
15. If the battery pack leaks, and the electrolyte reaches the eyes, do not rub them. Instead, rinse the eyes with clean running water and immediately seek medical attention. Failure to do this may result in eye injury.



## **Warning**

1. If recharging operation fails to complete even when a specified recharging time has elapsed, immediately stop further recharging. Otherwise, electrolyte leakage, overheating, smoke emission, bursting and/or ignition may occur.
2. Do not put the battery pack into a microwave oven or a pressurised container. Rapid heating or punctured sealing may lead to electrolyte leakage, overheating, smoke emission, bursting and/or ignition.
3. If the battery pack leaks or gives off a bad odour, remove it from any exposed flame. Otherwise, the leaking electrolyte may catch fire, and the battery pack may emit smoke, burst or ignite.
4. If the battery pack gives off an odour, generates heat, becomes discoloured or deformed, or in any way appears abnormal during use, recharging or storage, immediately remove it from the equipment or battery pack charger and stop using it. Otherwise, the problematic battery pack may develop electrolyte leakage, overheating, smoke emission, bursting and/or ignition.



## **Caution**

1. Do not use or subject the battery pack to intense sunlight or hot temperatures such as in a car in hot weather. Otherwise, electrolyte leakage, overheating and/or smoke emission may occur. Also, its guaranteed performance will be lost and/or its service life will be shortened.
2. The battery pack incorporates built-in safety devices. Do not use it in a location where static electricity may be present. Otherwise, the safety devices may be damaged, possibly leading to electrolyte leakage, overheating, smoke emission, bursting and/or ignition.
3. The guaranteed recharging temperature range is 0°C to 45°C. A recharging operation outside this temperature range may lead to electrolyte leakage and/or overheating of the battery pack, and may cause damage to it.
4. If electrolyte leaking from the battery pack contacts your skin or clothing, immediately wash it away with running water. Failure to do this may result in skin inflammation.
5. Store the battery pack in a location where children cannot reach it. Also, make sure that a child does not take out the battery pack from the battery pack charger or equipment.
6. If you find discoloration, a bad odour due to leakage, overheating and/or other irregularities when using the battery pack for the first time return it to your supplier or vendor.

## GRANITE BV battery series:



### Presentation

- 1 LED gauge and push button for capacity check
- 2 V-bracket for battery installation
- 3 Contact block. The pinout in sequence is:
  - Pack negative (+ve)
  - ID resistor
  - Data communication bus (clock)\*<sup>1</sup>
  - Data communication bus (data)\*<sup>1</sup>
  - Pack positive (-ve)
- 4-5 Twin D-TAP sockets 14.8V(nominal)/5A with overload protection\*<sup>2</sup>

\*<sup>1</sup> The purpose of data communication is to send battery status information to those cameras and devices that are compatible with the battery communication protocol. The battery can also communicate with a standard PC through our BSMON kit. Full technical information is available on our web site.

**4** \*<sup>2</sup> The combined output from both D-TAP sockets should not exceed 70W. Above this value, the D-TAP protection circuit intervenes, disconnecting the output on both sockets but without effecting the battery operation through the main terminals. The power is automatically resumed by removing the overload condition from the D-TAPs.

The total output power of the battery and D-TAPs should not exceed 170W. Above this value, the battery will go into main protection but will resume operation a few seconds after the overload condition has been removed.

## Specifications

Nominal Voltage	14.8V
Operating voltage range	10.8~16.8V
Nominal Capacity	18.6Ah
Nominal Energy	270Wh
Max Continuous Discharge	12A
Max D-TAP combined output	5A
Operating Temp.	-20° ~ +60°C
Dimensions (L x W x H)	171x95x69 mm
Weight (net)	1620g

## Introduction

BLUESHAPE professional broadcast batteries use multiple lithium ion rechargeable battery cells. These batteries are designed for use with cameras and apparatus equipped with the V-lock mount.

## Battery Features

- Robust thick-walled housing made of special plastic resin for superior impact resistance. The battery can withstand several drops from altitudes of up to 2 metres without breaking or suffering internal damage.
- Water-resistant construction for daily use, even in difficult environments.
- Compact size and lightweight. The external dimensions of the battery have been optimised for maximum capacity in the space available.
- Only the best available components are used in the battery construction for ensured longevity.
- Sophisticated factory programmed on-board electronics provide the operator with full safety protection together with premium performance and reliability.
- Advanced interior design permits easy servicing and restoration by qualified BLUESHAPE service personnel.
- Dual overload-protected D-TAP outputs. A generous 70W can be tapped from these 2 outputs (single or combination). The D-tap overload circuit runs independently from the main battery overload protection.
- A 5-step LED indicator provides accurate remaining capacity monitoring. Each LED accounts for 20% of state-of-charge; when the capacity falls below 10%, the lower (first) LED blinks.
- No memory effect - batteries can be recharged at any time.
- The battery's energy is conserved during operation, stand-by and low capacity states through intelligent power mode management. When the pack capacity is very low, it enters automatically into "shutdown mode" to minimise further capacity losses and prolong cell life. The LED indicator is permanently off and the pack can only be re-activated by charging.

The battery will shut down if the maximum specification current discharge (12A for this model) is exceeded. It will reset approximately 30 seconds after the excessive load is removed. The battery will also shut down when fully discharged but will reactivate upon charging.

### **Further precautions**

- Please consult your vendor before use, to ensure compatibility with your equipment. Although the battery has been designed for use with most standard V-Lock equipment, there may be instances when the battery may not be compatible.
- Never attempt to open or dismantle the battery
- Opening the battery during warranty will automatically invalidate the guarantee
- Do not short circuit the battery even though it is short circuit protected
- Do not use the battery in extreme temperature environments
- Keep the battery away from fire to avoid explosion

### **Charging**

The battery can be charged using BLUESHAPE chargers. Consult your vendor if you intend to charge the battery using third-party chargers.

Since the battery is normally shipped in ultra-low power consumption mode, IT NEEDS TO BE CHARGED BEFORE FIRST USE.

The battery may become hot during charging. This is normal. Consult your vendor if during charging, the battery becomes excessively hot or stops charging. Charging is only allowed at temperatures between 0°C and 45°C. While charging, the LED indicator lights up automatically to show the battery capacity as it increases.

### **Performance**

- The battery will give full capacity performance only if it has been fully charged before use.
- The battery will self-discharge to some extent over time due to internal electronic consumption. Recharging will restore this lost capacity.
- It is recommended to charge the battery after each use, and before an expected prolonged shelf period.
- Performance degradation may be observed in very cold or very hot environments.
- Performance decreases as the battery ages or if it has a high cycle count or if it is not stored at the recommended temperature. When the performance noticeably decreases, the battery should be renewed.

## Storage

The battery should be stored in a dry place at normal temperatures, ideally below 25°C and not above 60°C (recommended 0°C to 20°C). The battery is shipped in ultra-low power consumption mode and in this state can withstand long period of storage. However, after the battery has been reactivated with the first charge, more attention and care need to be used:

- It is recommended to charge the battery after each use.
- If the battery is not going to be used for a prolonged period of time, it is advisable to recharge the battery so as not to store it in a very low state of charge. Remember that there will always be some internal power consumption.
- It is advisable to check the state of charge every 6 months and if possible to exercise the battery regularly.

## RECYCLE



This BV270 battery can be recycled. Different countries have different regulations on recycling. Please consult the responsible authority in your country or your BLUESHAPE dealer for further information.

## COMMERCIAL AIR TRANSPORT (IATA regulations)



All BLUESHAPE batteries meet the standard of the UN Manual of Tests and Criteria, and therefore can be transported by air.

Since the BV270 is greater than the 160Wh limit, it must be presented and can only be carried as cargo in accordance with IATA dangerous goods requirements. This applies to batteries on board equipment and also spare batteries. The battery terminals must be protected from short circuit preferably by enclosing the battery in its original packing box and plastic bag.

It is suggested to check with your airline in case the latter applies different policies or if there exists, different legislation in your country.

## Warranty

BLUESHAPE batteries are warranted to be free from defects in materials, workmanship and functionality for a period of 18 months commencing from the date of purchase. This warranty shall not apply to any products or parts of, that have been subjected to misuse, negligence, accidental or abnormal conditions of operation.

The buyer should always contact the place of purchase for any return of defective product. It is important that the buyer provides us with as much information as possible about the failure being claimed.

In the event of product failure for which warranty applies, we will repair or replace the product free of charge. In these cases, all expenses including transport charges will be borne by us.

In the case where the failure has been caused by one of the causes explained above, repairs shall be billed at a nominal cost. Prior to the carrying out of any repairs, we will inform the customer of the estimated costs of these repairs.

These warranty conditions are the only ones applicable to our products and overrule any other expressed or implied warranties. We shall not be held liable for any damages resulting from warranty statements other than those contained in this declaration.

This warranty is not transferable and is only applicable to the original buyer. In all warranty claims, the buyer must reproduce the original purchase invoice.



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