



HOT SWAP SYSTEM

FOR V-LOCK LITHIUM ION BATTERIES

Model

MVQUICK

OPERATING INSTRUCTIONS

Revision 1.2

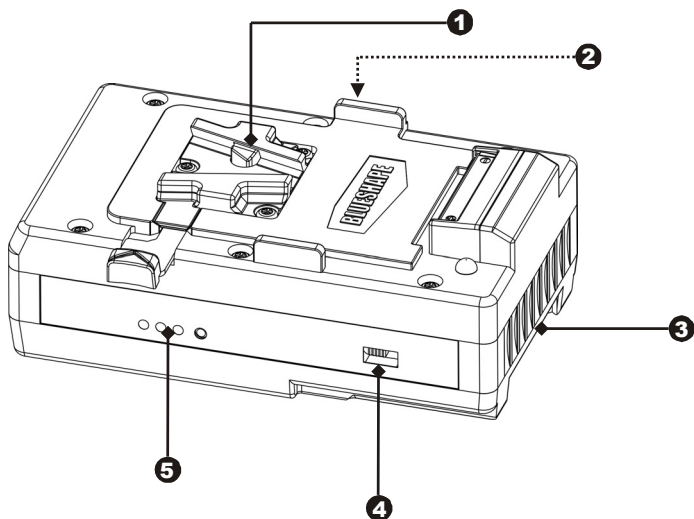
Introduction

MVQUICK is a hot swap system to be installed as a battery interface between the camera (or any other V-lock compatible device) and the battery pack.

The main purpose is to allow camera battery replacement without any power interruption through an automatic detection of the battery removal.

Additionally, MVQUICK provides an alternative power source of about 21Wh to be used as UPS in case of a sudden power failure or extended power requirements.

MVQUICK graphic description



1. Installation interface for external V-Lock battery
2. D-tap connector (on opposite site, not visible in drawing)
3. Output connector (power outlet, to device)
4. Data communication selector
5. LED indicators showing state of charge of internal battery

Principle of operation

MVQUICK features an internal battery system of about 21Wh. This power source is automatically connected to the output terminals (becoming the only power source) whenever the main V-Lock battery is not installed, removed or empty (voltage below 12V).

Alternatively, when a V-Lock battery with a voltage greater than 12V is installed, it becomes the main power source connected to the output connector.

If, during usage, the V-lock battery voltage drops below 12V, or it is removed, MVQUICK automatically provides a continuous power supply to the device without any power interruption.

As soon as this switchover takes place and MVQUICK operates through its internal power source, the 3 LEDs become alighted (depending on the state of charge) to alarm the user that the main power source, coming from the external V-Lock battery is no more available and the internal UPS is providing continuity power.

When operating as the main power source, the runtime provided by MVQUICK depends by the state of charge of its internal battery and the actual power consumption.

The LED array displays the state of charge based on the internal battery voltage and the following criteria:

Voltage	Approx. state of charge	LEDs
> 15.2V	100% ~ 66%	All 3 LEDs on [H M L]
15.2V ~ 14.4V	66% ~ 33%	2 LEDs on [M L]
14.4V ~ 13.0V	33% ~ 10%	1 LED on [L]
< 13.0V	0% ~ 10%	1 LED flashing [L]

How to check the state of charge

Out from the box, the internal battery of MVQUICK has a state of charge of about 50% or higher.

To verify the state of charge:

- When the external battery is installed:
Press the “Check” button to verify the state. The LED will stay on for about 3 sec showing the state (see table above). The LEDs will flash when the internal battery is being charged.
- When the external battery is not installed:
The LEDs are automatically alighted continuously displaying the state of charge. However, if 60 minutes elapse without an installation of a new battery, MVQUICK enters in a low power mode and automatically shuts off. Press the “Check” button to wake up the device and verify the state (see later).

The prediction of the state of charge based on cell voltage may appear inaccurate especially when the device is requesting a high current load. Under similar circumstances, the internal voltage drop may be large enough to switch off the first LED [H] and apparently displays a state of charge below 66%. In similar cases the LED gauge is programmed with a pessimistic capacity prediction, and the state of charge seems to reduce faster, especially for the first and even the second LED [H M]. In any case the flashing 3rd LED represents a critical threshold after which the camera should be switched off or alternatively, a fresh battery installed.

How to charge the internal battery

MVQUICK has an internal battery pack that can be charged in two different ways:

- By installing MVQUICK on a V-Lock charger as a standalone device:
The internal battery will be charged automatically. The charging time depends on the charge current but should not exceed 60 minutes on most commercially available chargers.
- Automatically upon installation of a new battery:
Whenever an empty battery is swapped with a fresh battery, the newly installed battery will restore the lost energy of MVQUICK by charging the its internal battery with a 120mA current for a maximum time of 90 minutes. This will ensure that a maximum of 180mAh will be replenished in the internal battery.

This automatic partial charging is an efficient way to keep MVQUICK fully charged even after several swaps. It is however recommendable to fully charge MVQUICK on a charger for the first time, or prior to an extensive working session.

How to switch off / switch on

MVQUICK is supplied switched off to save internal power and automatically enters in low power mode when not in use.

- How to switch it on:
 - a) MVQUICK automatically switches on upon installation of an external battery with a voltage > 12V. Note that when an external battery is installed, MVQUICK is permanently on and will never enter in low power mode.
 - b) By pressing the LED button to check the state, when an external battery is not installed.
- How to switch it off:
 - a) MVQUICK automatically switches off when an external battery is not installed for at least 60 minutes and the LED button is not pressed during this period.
 - b) To force a switch off, remove the external battery and press and hold the LED button for about 5 seconds until the LEDs go off.

When MVQUICK is operating as the only power source, regardless whether it is powering a device or not (meaning that no external battery is installed), it will switch off after 60 minutes. To avoid this, just press the LED button once to restart the countdown and prolong the operating period.

It is preferable to switch off MVQUICK after a working session or before storage to minimise the power consumption and the self-discharge.

Battery communication bypass

When MVQUICK is used with BLUESHAPE V-lock batteries or with batteries having the same communication protocol, it is possible to obtain data communication between the device and the battery. The data switch selector can be moved by a pointed object towards ON to enable or towards OFF to disable data communication.

Technical specifications

Internal battery:	
Type	Li-Ion rechargeable
Nominal voltage	14.4V
Nominal capacity	1.5Ah – 21Wh
Max. discharge current	10A
Operating temperature range	-20°C ~ +60°C (-4°F ~ +140°F)
Storage temperature range	0°C ~ +30°C (32°F ~ 86°F)
Dimensions	142 x 83 x 50mm
Weight	488g

At our own responsibility we declare that this product is CE certified.

Warranty

BLUESHAPE MVQUICK is 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 should 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.

In all warranty claims, the buyer must reproduce the original purchase invoice.



NEW CELL TOP Srl
VIA LIGURIA 4-6,
42124 REGGIO EMILIA,
ITALY
TEL. +39 0522 518556
FAX. +39 0522 277084
WEB: www.blueshape.net
EMAIL: info@blueshape.net