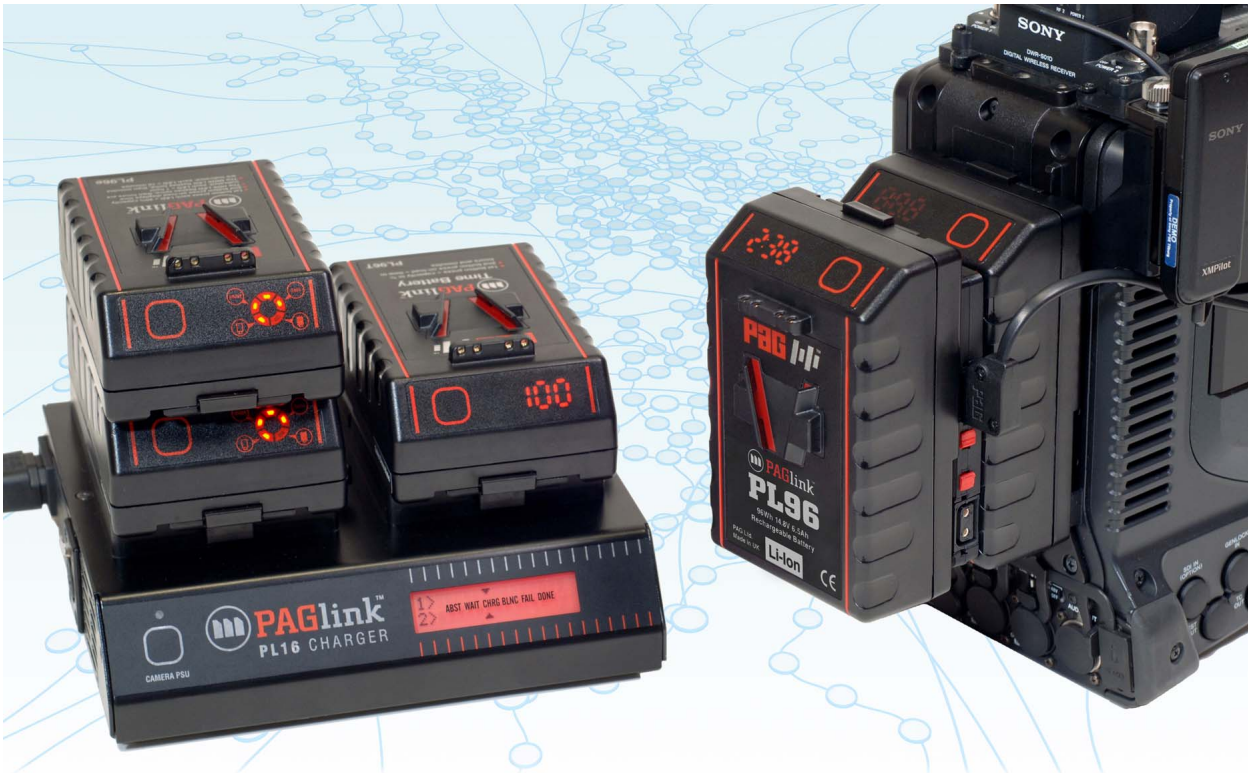
PAGlink™

THE INTELLIGENT V-MOUNT BATTERY SYSTEM



INTERNATIONAL PATENTS APPLY

PAGLINK FOR BROADCAST, PRODUCTION & CINEMA

PAGlink is a revolutionary and innovative system of superior, intelligent V-Mount Li-Ion batteries, that can be linked for charge or discharge. The system has been designed after consultation with leading camera manufacturers and broadcasting organisations to meet the demands of modern broadcast acquisition, video production and digital cinematography.

- Up to 8 batteries, in any state of charge, can be linked for charge or discharge.
- Linking enables you to keep the camera running at vital moments by adding another battery.
- Linking allows you to hot-swap batteries for zero interruption to camera and accessory power.
- Linking allows capacities to be combined, greatly extending run-time.
- Linking increases the current draw capability to 12A, which is ideal for powering a camera and multiple accessories simultaneously. Sharing the load between batteries prolongs their overall life and provides a better return on investment.
- Linking allows you to fly with all the high-capacity power you need.
- Linking allows up to 16 batteries to be charged on a 2-position charger.

PAGlink is the first intelligent battery system designed for today's increasingly computerized cameras; it makes other battery systems seem crude by comparison.

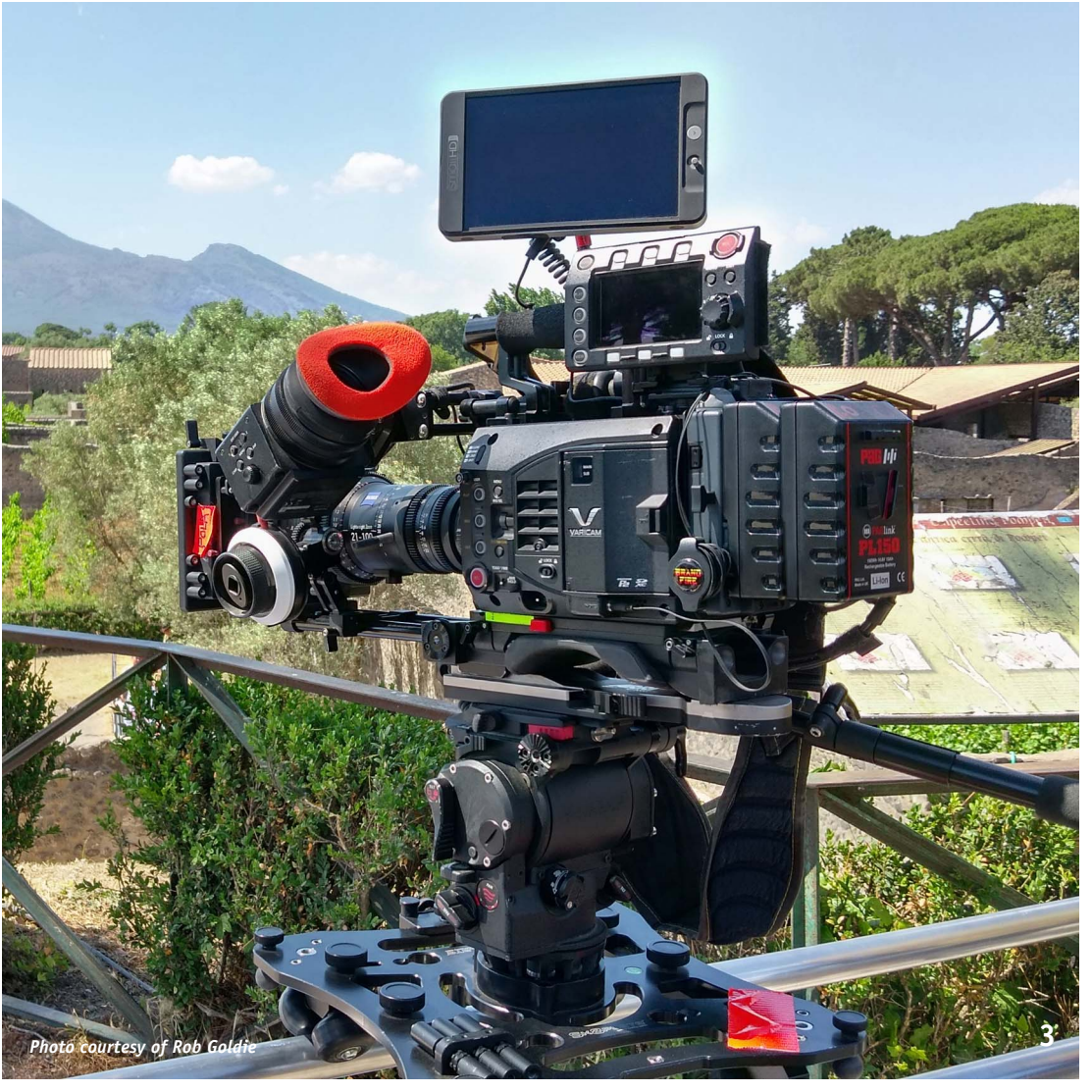


Photo courtesy of Rob Goldie

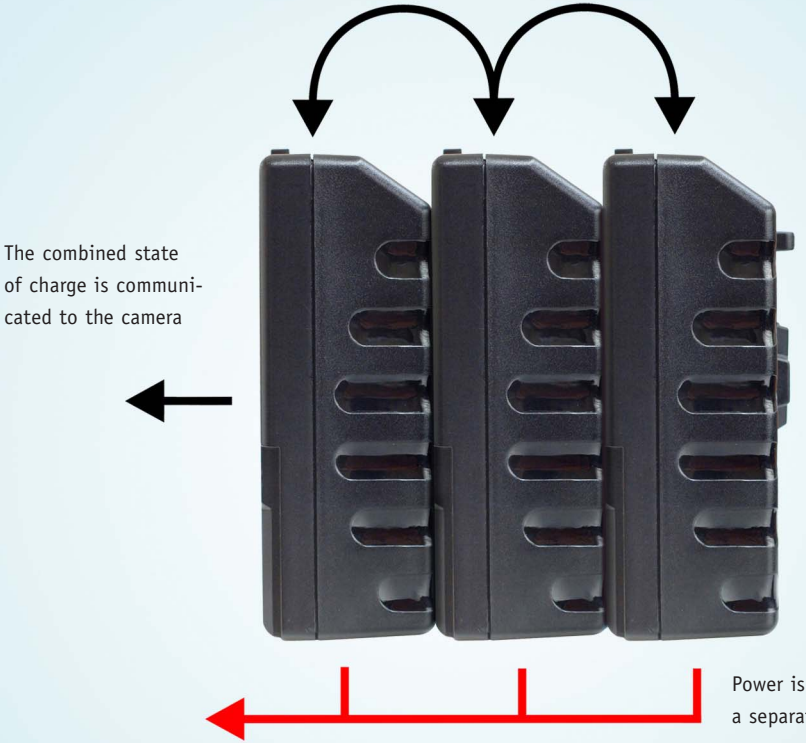
LINK MULTIPLE INTELLIGENT BATTERIES

PAGlink offers the smallest and lightest V-Mount batteries in the industry, with the highest energy density. They are available in two capacities and with a choice of run-time and capacity indication.

The PL96 has a flight-friendly rating of 96Wh and is ideal for broadcasters as well as frequent flyers. The PL150 has a capacity of 150Wh and is ideal for cinematographers and rental companies. It has an air travel allowance of 2 per person. Even though it has 50% more capacity, the PL150 is identical in size to the PL96.

The PAGlink system allows up to 8 batteries, of any rated capacity and in any state of charge, to be linked in parallel for discharge or charging. Three 96Wh batteries, weighing less than 2.2kgs, have a combined capacity of 288Wh. Three 150Wh batteries have a combined capacity 450Wh. Combining capacities allows you to concentrate on creating the images you need without worrying about changing batteries.

Linked batteries form a network
and communicate with each other



The combined state
of charge is communi-
cated to the camera

Batteries are linked
intelligently and
discharge together
using available
power efficiently

Power is delivered via
a separate power rail

The battery connected to the camera becomes the Master. It communicates with the camera and controls the delivery of power. The Master automatically determines which batteries to bring online for discharge, based on their state-of-charge. The output is managed safely and efficiently. When batteries have a similar state-of-charge (within 20%) they will discharge together, sharing the load and providing up to 12A. The rear battery does not fully discharge first and there is no transfer of charge between batteries.

LINK-UP & POWER-UP WITH PAGLINK

Linking batteries enables a higher current-draw for power-hungry camera set-ups that include multiple accessories such as a monitor, a transmission device and a camera light. Linked batteries will supply up to 12A, while individual batteries offer 8A. Sharing the load between batteries prolongs their overall life and provides a better return on investment. **PAGlink PL96 batteries are guaranteed for 3 years, and PL150 batteries for 2 years.**

If power is running low, PAGlink enables you to add another battery to the stack just to keep running. The ability to link a fully-charged battery to one that is almost totally discharged and maintain the delivery of power is one of the cleverest features of the PAGlink system. PAGlink also allows batteries to be hot-swapped to provide continuous power. Either way, PAGlink means no more time-wasting camera reboots at the crucial moment.

PAGLINK PL96 SERIES

Time Battery

PL96T

Model 9304

_ 96 Watt-Hours, 14.8V 6.5Ah
_ Max discharge 8A (12A when linked)
_ Numeric run-time and capacity display
_ 133 x 84 x 50mm / 0.73kg

e-series battery

PL96e

Model 9303

_ 96 Watt-Hours, 14.8V 6.5Ah
_ Max discharge 8A (12A when linked)
_ 5-light run-time and capacity indicator
_ 133 x 84 x 50mm / 0.73kg

PAGLINK PL150 SERIES

Time Battery

PL150T

Model 9309

_ 150 Watt-Hours, 14.8V 10Ah
_ Max discharge 8A (12A when linked)
_ Numeric run-time and capacity display
_ 133 x 84 x 50mm / 0.77kg

e-series battery

PL150e

Model 9308

_ 150 Watt-Hours, 14.8V 10Ah
_ Max discharge 8A (12A when linked)
_ 5-light run-time and capacity indicator
_ 133 x 84 x 50mm / 0.77kg

ACCURATE RUN-TIME AT YOUR FINGERTIPS

Run-Time & Capacity indication

All PAGlink batteries feature built-in run-time and capacity indication. You can choose between the more convenient numeric display of the PAGlink Time Battery, or the 5-light indicator of the lower-cost e-series battery. Both show battery capacity as a percentage. When batteries are linked, the display provides run-time for the total of all the batteries, and capacity for the individual packs. The different battery versions can be mixed, enabling you to link a Time Battery to an e-series battery and benefit from the numeric run-time display.

Camera data system compatibility

PAGlink is the only battery system that supports multiple camera data systems. This enables linked batteries to communicate their collective state of charge for display in the camera viewfinder or LCD. The batteries adapt automatically to each system they encounter.

Time Battery: Numeric Run-Time & Capacity Display

When the batteries are linked, run-time is shown for the total of all connected batteries, while capacity is shown for each individual battery.

Two button presses on-load displays run-time in hours and minutes

One button press on or off-load shows remaining capacity as a percentage

A fully charged battery indicates as above

A fully discharged battery indicates as above

e-Series Battery: 5-Light Run-Time & Capacity Indicator

Capacity is displayed as a percentage (each LED = 20%) 1 LED flashing = less than 10%. When the batteries are linked, run-time is shown for the total of all connected batteries, while capacity is shown for each individual battery.

Two button presses on-load activates the time display. The 'HRS' LED flashes twice.

The number of hours is indicated by the number of lit LEDs: 1 LED = 1 hour.

The 'MINS' LED then flashes twice.

The number of minutes is indicated: 1 LED = 10 mins.

CHOOSE THE MOST CONVENIENT CAPACITY FOR YOU

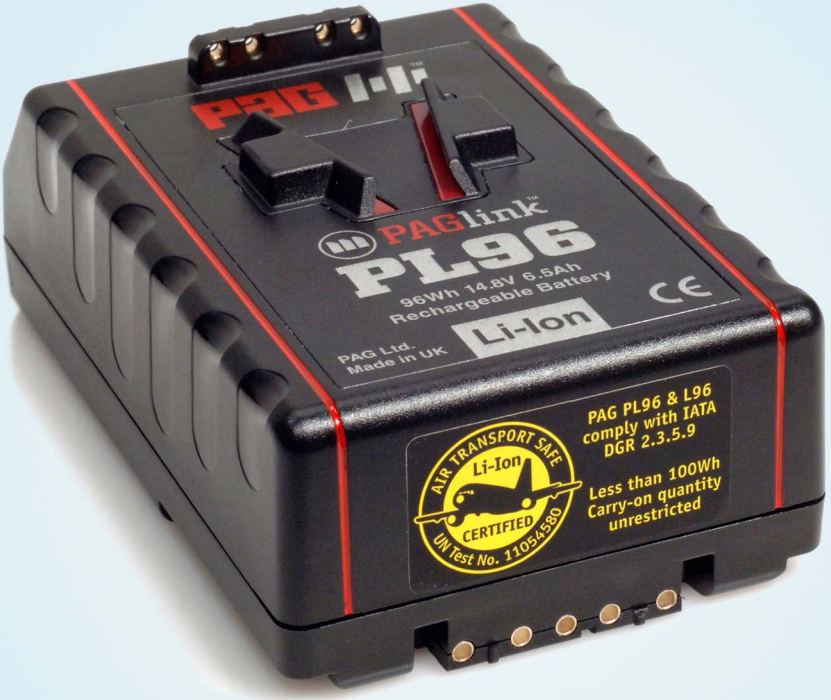
Battery Capacity & Air Transportation

The PAGlink system has been conceived so that you can fly with all the high-capacity Li-Ion power that you need. Batteries that have flight-friendly capacities of 96Wh can be linked when you reach your location to create 192Wh or 288Wh batteries. Individual batteries that have capacities above 160Wh are banned from passenger flights.

PAGlink PL96 batteries are included in your personal allowance of 20 Li-Ion batteries rated 100Wh or less, along with personal devices such as your phone, tablet and laptop. In addition, you are allowed 2 batteries that have capacities between 100 and 160Wh, such as the PAGlink PL150.

Remember, Li-Ion batteries must NOT be checked in with your hold luggage, they must be taken aboard in your carry-on luggage.

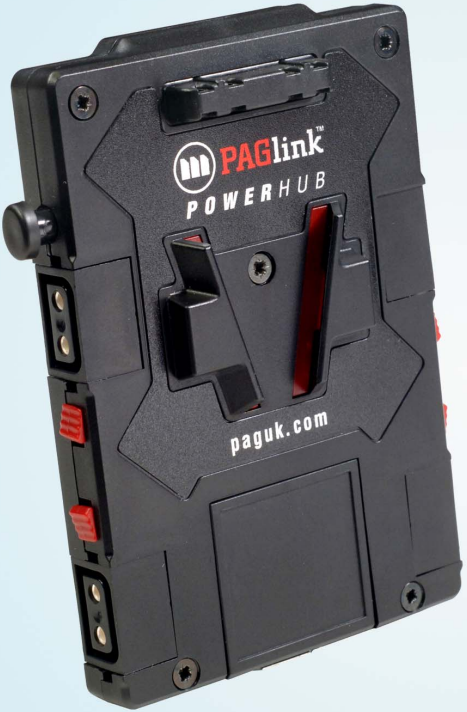
All PAG Li-Ion batteries are tested to UN standards by an independent authority, in accordance with air transport regulations. All PAG batteries are labelled with the relevant UN Test Number and quantity allowance and supplied with a UN Test Certificate. A copy of the UN Test Report and a Material Safety Data Sheet can be obtained from PAG, if required by the carrier.

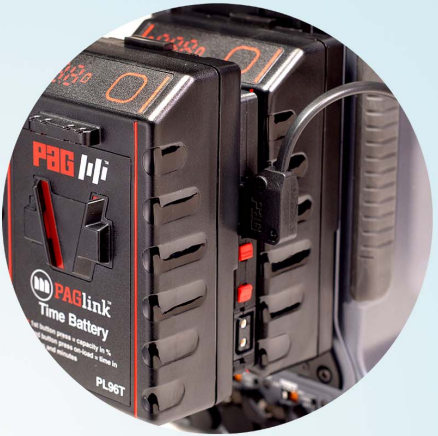

PAG
PAGlink™
PL96
96Wh 14.8V 6.5Ah
Rechargeable Battery
CE
PAG Ltd.
Made in UK
Li-Ion
AIR TRANSPORT SAFE
Li-Ion
CERTIFIED
UN Test No. 11054580
PAG PL96 & L96
comply with IATA
DGR 2.3.5.9
Less than 100Wh
Carry-on quantity
unrestricted

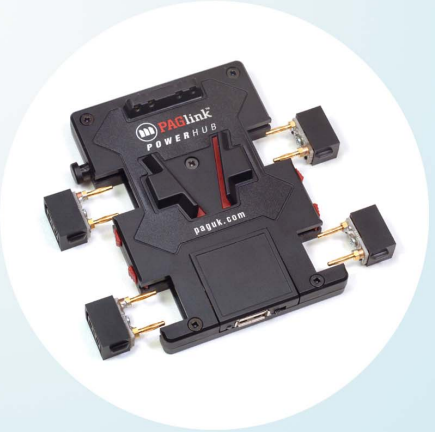
MORE OUTPUTS FOR ACCESSORIES

PAGlink has an innovative approach to powering camera accessories. Rather than providing outputs that are built into the batteries, PAGlink offers a separate, user-configurable power distribution plate called the **PAGlink PowerHub**. This lightweight, low-profile accessory draws power from the linking contacts of PAGlink batteries. It enables you to power multiple 12V DC camera accessories such as a monitor, a transmission device and a camera light. The PowerHub sits between two PAGlink batteries and, unlike built-in battery D-Taps, it enables you to keep accessories powered-up, even when batteries are hot-swapped.

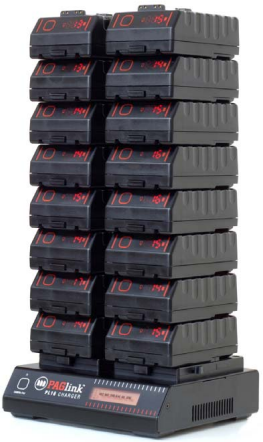
The PowerHub offers users more outputs and a wider choice of connectors. Ouput units can be positioned on the left or right side of the PowerHub for convenience. The PowerHub has 4 ports that accept a range of interchangeable plug-in options: D-Tap, Lemo (2-pin), Hirose (4-pin) and 2.1mm, suitable for 12V camera accessories. A USB output unit is also included, and can be used to power 5V accessories that draw up to 2A continuously (3A peak) or for charging your phone. The PowerHub is supplied with four D-Taps and a USB output as standard. Each output unit type is available to buy individually.


PAGlink
POWERHUB
paguk.com


PAGlink
Time Battery
PL96T

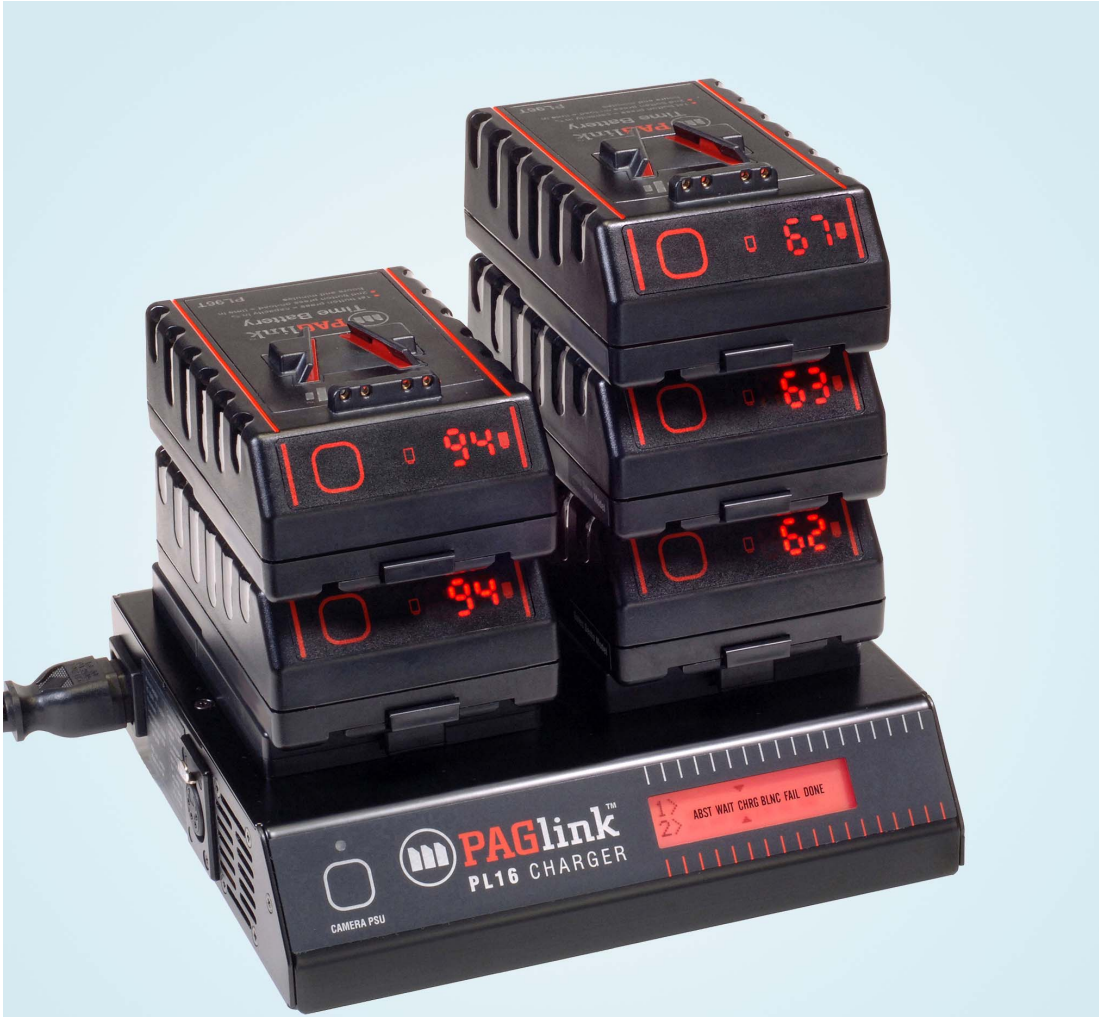

PAGlink
POWERHUB
paguk.com

FAST, EFFICIENT, LINKED BATTERY CHARGING



PAGlink has consigned one-battery-per-channel-charging to history. Linked charging was developed by PAG for the PAGlink system. Now your batteries can be stacked for overnight charging on one compact charger, putting an end to midnight battery swapping. It reduces the number of chargers required to manage your batteries, enabling you to travel light andsave money.

Up to 8 PAGlink batteries can be linked for charging on each position of your charger. The 2-position **PAGlink PL16 Charger** will charge up to 16 batteries simultaneously. The PL16+ offers 4 positions for charging simultaneously a mix of PAGlink batteries and individual, non-linking PAG V-Mount Li-Ion batteries. This makes it ideal for broadcasters and rental companies that own a mixture of PAG batteries .

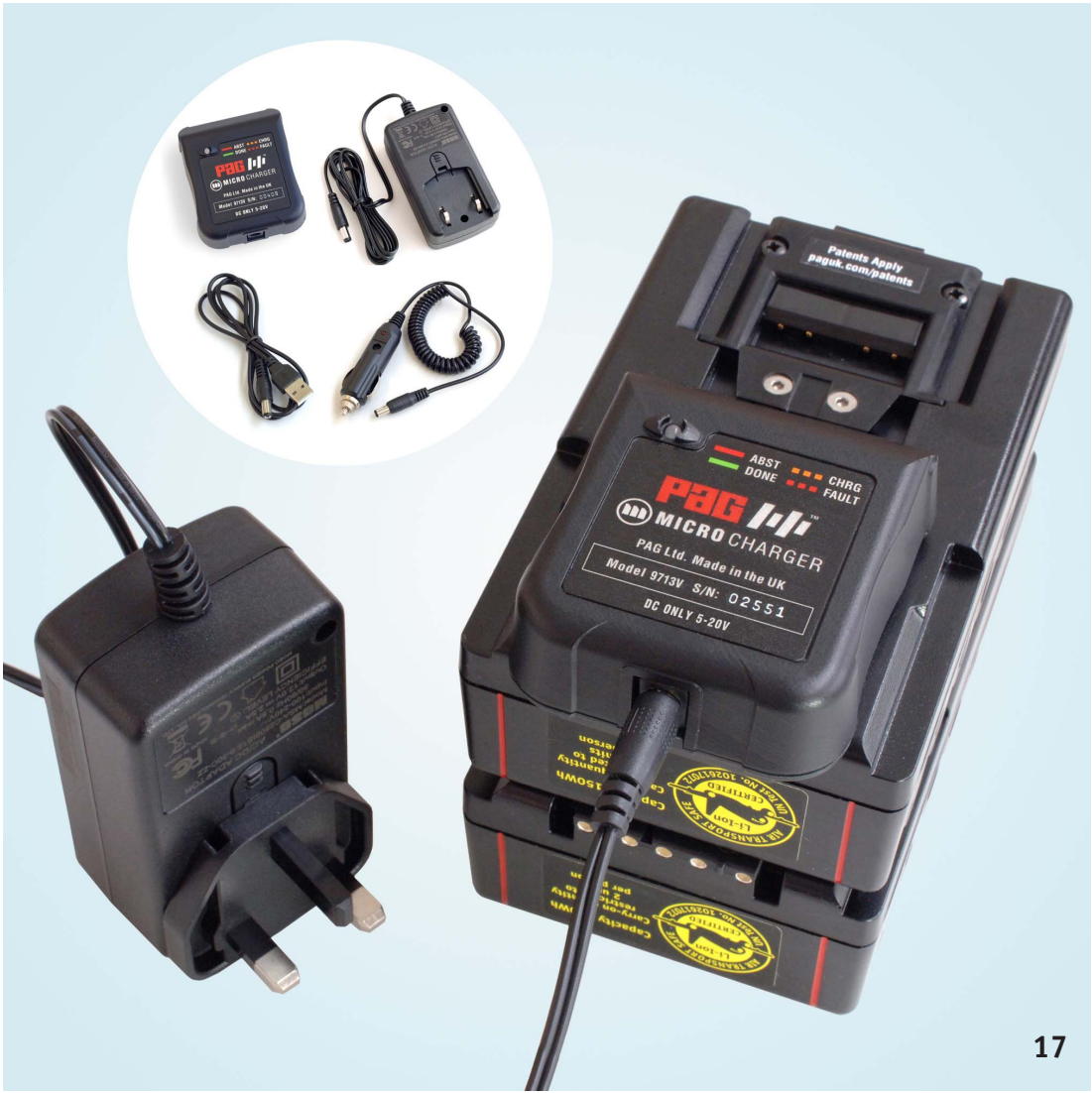

PAGlink™
PL16 CHARGER
CAMERA PSU
ABST WAIT CHRG BLNC FAIL DONE
94
94
63
62
67

ULTRA-COMPACT AND LOW-COST TRAVEL CHARGER

The **PAGlink Micro Charger** is the worlds smallest and most versatile broadcast battery charging kit. When you want to travel really light and charge PAGlink batteries on location, the Micro Charger is the answer.

Up to 4 linked PAGlink batteries can be charged simultaneously using one Micro Charger. One fully discharged 96Wh battery will be fully charged in approximately 4 hours. Two 96Wh batteries will be fully-charged in 8 hours. 150Wh batteries will take 50% longer. Charge times will be less if batteries are only partially discharged. The charge status of each battery is shown on its individual capacity indicator.

The charger can be powered using its plug-in AC Adapter/Power Supply Unit, which features inter-changeable plug adaptors for use worldwide (AC input 100-240V). It is also possible to power the charger from 5-20V DC sources such as a 12V vehicle battery, via the cigarette lighter socket, or a 2A USB charger, using DC power cables that are also supplied in the kit.


ABST
DONE
CHRG
FAULT
PAG
MICRO CHARGER
PAG Ltd. Made in the UK
Model 9713V S/N: 02551
DC ONLY 5-20V
Patents Apply
paguk.com/patents

MANAGE YOUR BATTERY INVENTORY WITH EASE

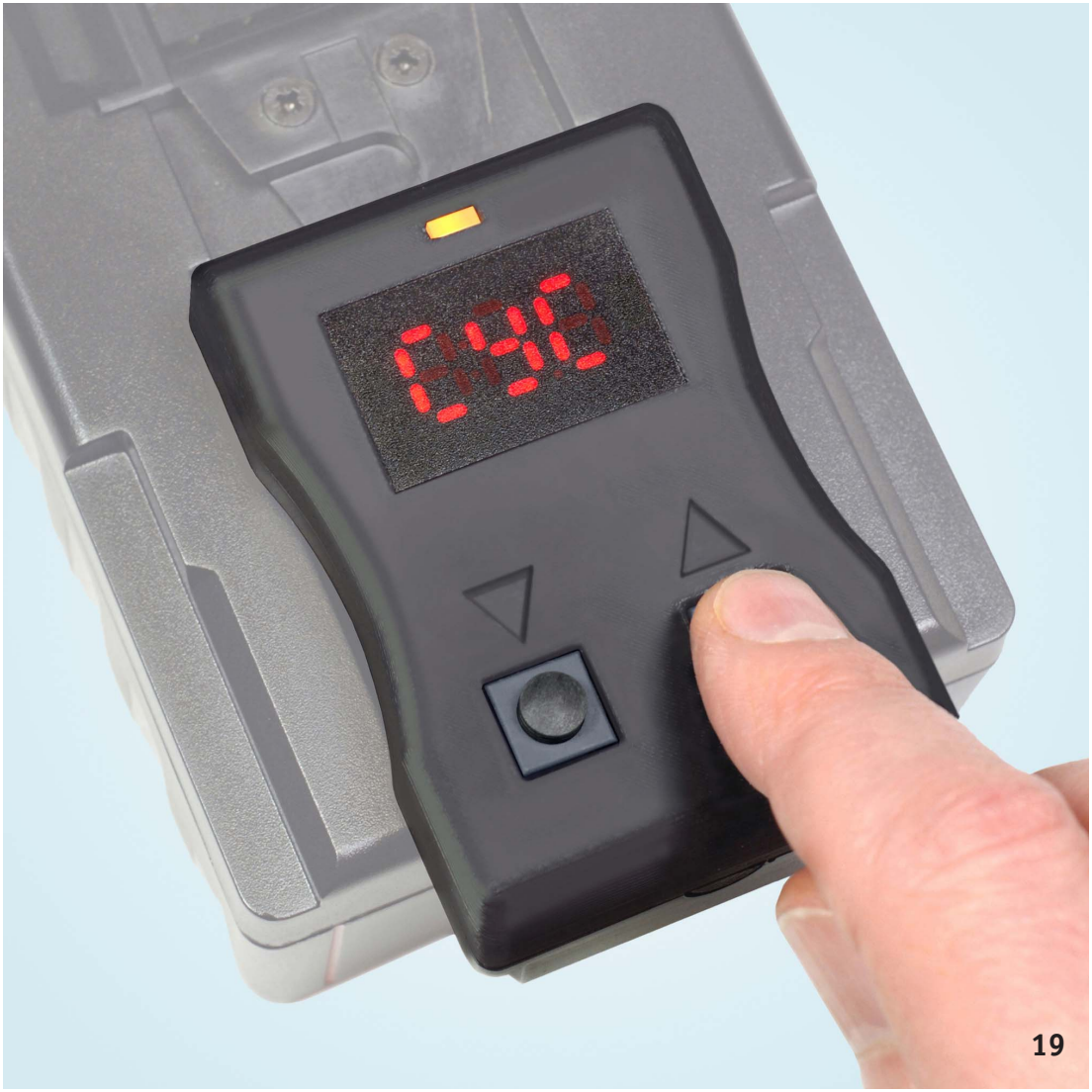
The PAGlink V-Mount Battery Reader enables you to access data stored by the battery's microprocessor. With this knowledge, you can track usage and manage your batteries more efficiently, whatever the size of your inventory.

The Reader is a compact and lightweight tool that you slide onto the contacts of the battery to display data via an easy-to-understand, alphanumeric display. The first menu item is the battery state-of-charge, shown as a percentage. The up and down buttons can then be used to access the other categories. The menu item is displayed on the left and the reading for the battery is displayed on the right. Knowing the number of charge/discharge cycles enables you to use all your batteries equally, ensuring that battery life isn't shortened by lack of use.

The menu items available are as follows:

1. State of charge, as a percentage
2. Available capacity in ampere-hours
3. Cell temperature in degrees Celsius
4. Number of charge/discharge cycles
5. Voltage (potential difference)
6. Full capacity of battery
7. Date of manufacture
8. Battery software version

PAGlink is also available as a Gold Mount system of batteries, chargers and accessories. Visit paguk.com for details.



PAGLINK BATTERY SPECIFICATIONS & CHARGE TIMES

Battery Connection System:
V-Mount.

Voltage:
14.8V nominal. 12 cells connected in series/parallel. Each cell has a nominal voltage of 3.7V.

Capacity (PL96 Batteries Models 9303 & 9304):
Nominal 6.5 Ampere-hours (96 Watt-hours).

Capacity (PL150 Batteries Models 9308 & 9303):
Nominal 10 Ampere-hours (150 Watt-hours).

Output Current:
The rated maximum continuous output current for linked batteries is 12 Amperes. The rated maximum continuous output current for individual batteries is 8 Amperes.

Cells:
Premium-grade, sealed, rechargeable, cylindrical Lithium-Ion cells.

Construction:
High-impact polycarbonate injection mouldings designed to protect the cells from impact damage. The battery case is sealed to maintain the integrity of the UN approved construction.

Latching Mechanism:
The PAGlink contact block and latching mechanism on the rear of the battery are separate to the battery case and can be replaced if damaged.

PAGlink Connection Feature:
The PAGlink connection uses high-current pin contacts.

It is recommended that no more than 3 batteries are linked for use on-camera, although it is possible to link up to 8 batteries off-camera and for charging.

When linked, PAGlink batteries form a high-speed network, allowing the batteries to communicate with each other. They report to the camera or charger as one large battery. The system will automatically select the most suitable batteries for discharge, according to their charge status. Batteries do not discharge into each other.

The PAGlink system ensures that the maximum output from linked batteries is kept to a safe level.

Protection:
The battery incorporates a multi-layered electronic protection system that guards against over-current, over-voltage, under-voltage, over-temperature and under-

temperature. The protection system circuit is conformally-coated to protect it, and ensure operation of the safety systems in the event of damage to the battery.

Charging:
PAGlink PL16 chargers will charge up to 8 linked batteries, from any state of charge, on each position. The charge times given are for fully-discharged 96Wh batteries to fully charged. 150Wh batteries will take 50% longer.

PAGlink PL16 Charger & 96Wh batteries:

	1	2 hrs	30 mins
(1 + 1)	2	3 hrs	
(2 + 2)	4	6 hrs	
(3 + 3)	6	9 hrs	30 mins
(4 + 4)	8	11 hrs	45 mins
(8 + 8)	16	24 hrs	

PAGlink Micro Charger & 96Wh batteries:

1	4 hrs
2	8 hrs
3	12 hrs
4	16 hrs

PAGlink Batteries can also be charged using V-Mount Li-Ion chargers of reputable manufacture. Linked batteries may need to be within 40% state of charge of each other to be fully-charged.

Operating Temperature Range:
Charging: 0°C to +45°C (Optimum +10°C to +40°C)
Discharging: -20°C to +50°C (Optimum +10°C to +40°C)
Storage: -10°C to +40°C (Optimum 0°C to +20°C)

Viewfinder Information Display
PAGlink supports four battery status standards for the communication of capacity data to the camera viewfinder: SMB (Sony), I²C (IDX), reversed SMB (RED) and analogue 0V to 5V (Anton Bauer). The batteries adjust automatically when connected to the camera.

Firmware Updates:
Battery firmware can be updated in the field by the user, in a matter of seconds, via the battery contacts.

Dimensions (all models):
133mm (high) x 84mm (wide) x 50mm (deep)

Weight:
9303 & 9304: 0.726kg
9308 & 9309: 0.766kg

POWER | INNOVATION | **QUALITY**

PAG is one of the broadcast industry's longest established global providers of innovative portable power solutions. Founded in 1968, and based in London, England, PAG is the original designer and manufacturer of the world's most technologically advanced batteries, chargers, power adaptors and on-board camera lights. The company's international customer base includes broadcasting organisations, video production and equipment hire companies, freelancers, cinematographers, professional videographers, the military and civil authorities.

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