



THE INTELLIGENT V-MOUNT BATTERY SYSTEM



INTERNATIONAL PATENTS APPLY

PAGLINK FOR BROADCAST, PRODUCTION & CINEMA

PAGlink is a system of smaller, lighter 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.

PAGlink batteries are the smallest and lightest in the industry; they have the highest energy density of any V-Mount batteries available.

PAGlink is the only system that allows you to link multiple batteries, in any state of charge. Up to 8 batteries can be linked for charge or discharge. Linking enables you to keep the camera running at vital moments, it allows capacities to be combined, greatly extending run-time, and provides a high-current draw of up to 12A, ideal for powering a camera and multiple accessories simultaneously. PAGlink batteries incorporate heavy duty contacts, engineered for high-load applications.



LINK MULTIPLE INTELLIGENT BATTERIES

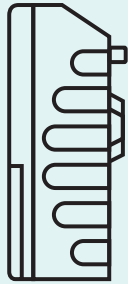
PAGlink batteries are available in 96 Watt-hour or 150 Watt-hour capacities. Even though they have 50% greater capacity, PL150 batteries are identical in size to the PL96 range. The different models can be linked for charge or discharge.

Two or more batteries can be linked on your camera. Three linked batteries, with an individual capacity of 150Wh, weighing less than 2.4kg, create a single power source of 450Wh. Batteries can be hot-swapped for continuous power, which means no more time-wasting camera reboots.

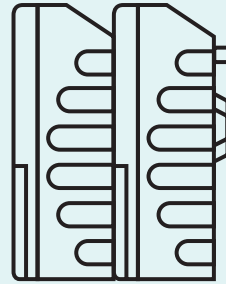
Patented PAGlink Technology

When linked, the intelligent batteries form a high-speed network, allowing them to communicate with each other, as well as the camera or charger. The battery that is directly connected to the camera becomes the 'master' and automatically determines which batteries are most suitable to bring on-line for discharge, according to their charge status. Output is managed safely and efficiently by the system; batteries do not discharge into one another.

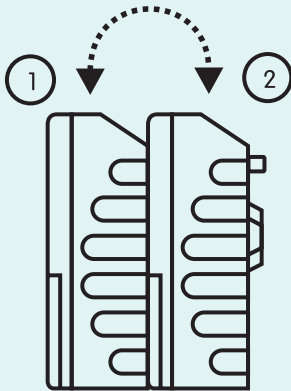
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One Battery
96Wh 8A

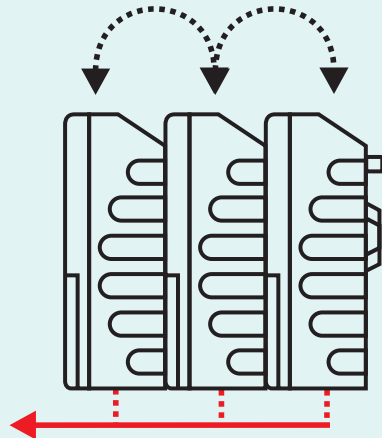


Two Batteries
192Wh 12A



The batteries communicate digitally at high-speed and report their state of charge

The battery with one or more on its tail becomes The Master (1) and controls all other connected batteries



The Master sees the load and then decides which batteries to connect to the bus bar to meet the demand
Note: the batteries do not discharge into one another

CAMERA 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 automatically communicates with 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, or they can be easily programmed by the user for specific systems, such as the one used by Red cameras.

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

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 battery power that you need. PAG offers 96Wh batteries that can be transported on passenger aircraft, without quantity restriction.

For those who demand more power from fewer batteries, PAG has introduced 150Wh batteries that offer 50% more capacity, but with no increase in battery size. These are restricted in quantity to 2 units per person, when you fly.

Remember, Li-Ion batteries must not be checked in with your hold luggage, they must be carried in your cabin 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 their relevant UN Test Number and a copy of the Test Report can be obtained from PAG, if required by the carrier.

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



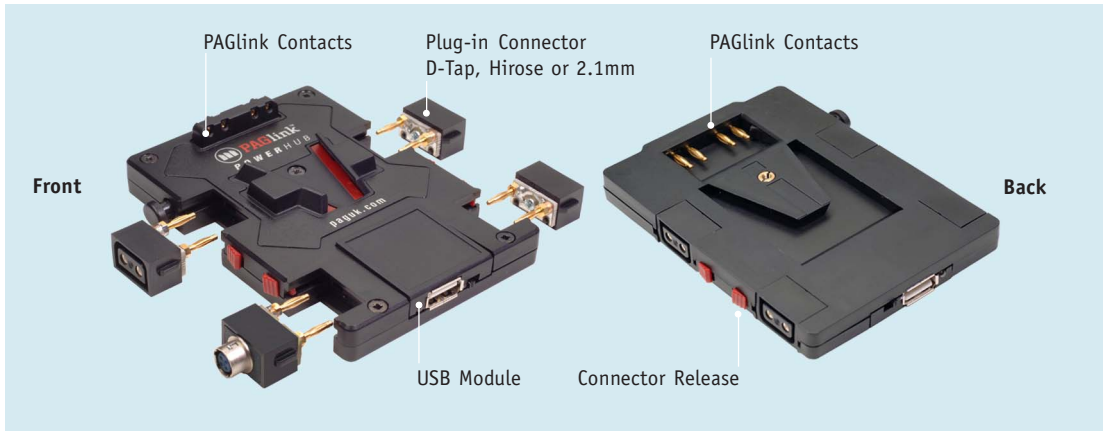
e-series
battery

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

MORE OUTPUTS FOR ACCESSORIES

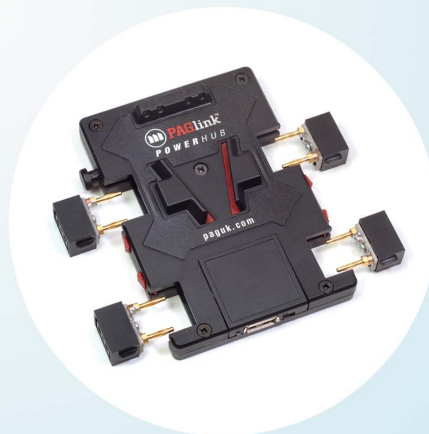
PAGlink batteries provide power from their linking contacts that can be accessed via the **PAGlink PowerHub**. This low-profile unit can be used to power 12V DC camera accessories such as a camera light. The PowerHub sits between two PAGlink batteries to maintain the hot-swap capability. It provides four outputs via D-Tap connectors that are interchangeable with Hirose or 2.1mm (PP90) options. The plug-in connectors allow you to reposition the output to the left or right side of the camera. A USB module (1 Amp) is incorporated for 5V accessories or for charging your smartphone.



PAGlink PowerHub Model 9709 ▶

Dimensions (W x H x D): 83 x 112 x 12mm deep (between batteries)

Weight: 100g



FAST, EFFICIENT, LINKED BATTERY CHARGING

Linked battery charging is an industry first, developed by PAG, and unique to the PAGlink system. PAGlink batteries are intelligent; they control their own charging and discharging. PAGlink chargers will charge simultaneously up to 8 PAGlink batteries, from any state of charge, on each position. The 2-position **PAGlink PL16** will charge up to 16 batteries, and the 4-position PL16+ will charge up to 32 , without user intervention. 8 fully-discharged batteries will be fully-charged in less than 12 hours. Now all your batteries can be charged overnight without you having to wake-up to swap them over.



The charge status of each battery is shown on its individual capacity indicator. The most discharged batteries are given priority. When charging batteries that have a numeric display, the characters can be rotated for legibility with a single press of the display button. Over-discharged batteries can be recovered prior to charging. PAGlink batteries can also be charged, individually or linked, using the V-Mount Li-Ion chargers of other reputable manufacturers.

PAGlink PL16 Charger Model 9707 ▶

Overall dimensions (H x W x D): 75 x 210 x 190mm Weight: 1.4kg



ULTRA-COMPACT AND LOW-COST TRAVEL CHARGER

The **PAGlink Micro Charger** is the world's first single-position, multi-battery, V-Mount charger, that will fit in your coat pocket. When you want to charge PAGlink batteries on location and travel light, the Micro Charger is the answer.

The charger clips over the battery contacts, and is connected to a plug-in power supply unit that features interchangeable plug adaptors for use worldwide (AC input 100-240V).

Up to 4 linked PAGlink batteries can be charged using the Micro Charger. It is also suitable for charging non-linking V-Mount Li-Ion batteries manufactured by PAG and Sony.

1 fully discharged 96Wh battery will be 80% charged in approximately 3 hours. 2 fully discharged linked batteries will be fully charged in approximately 7 hours. The charge status of each battery is shown on its individual capacity indicator.

PAGlink Micro Charger Model 9710 ►

Overall dimensions (boxed): 110 x 87 x 58mm, Weight: 0.2kg



MANAGE YOUR BATTERY INVENTORY WITH EASE

Managing your batteries efficiently requires knowledge of their condition and history. Information such as the number of charge/discharge cycles, date of manufacture and the software version is vital. PAG has made this easier for you with the compact and lightweight PAGlink Battery Reader, which displays the following data stored in the battery microprocessor:

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

The Battery Reader can also be used to read data stored in PAG's latest non-linking V-Mount Li-Ion batteries as well as Sony Professional Info batteries.

PAGlink Battery Reader Model 9647 ▶

Size: 77 x 52 x 28mm, Weight: 50g



PAGLINK BATTERY SPECIFICATIONS & CHARGE TIMES

Battery Connection System:

V-Mount.

Cells:

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

Construction:

The casing consists of high-impact polycarbonate injection mouldings. The cells have welded interconnections of low-resistance nickel strap. The batteries are sealed.

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.

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), with a charge voltage of 4.2V per cell.

Capacity (PL150 Batteries Models 9308 & 9303):

Nominal 10 Ampere-hours (150 Watt-hours), with a charge voltage of 4.2V per cell.

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.

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 the following safety shutdown systems:

- 3 over-current shutdown systems.
- 2 over-voltage shutdown systems.
- 2 under-voltage shutdown systems.

- 3 thermal shutdown systems, including a non-resetting thermal fuse.
- The battery circuits are coated with Parylene, the premier conformal coating, and designed to withstand the effects of electrolyte leakage.

Charging:

PAGlink chargers will charge up to 8 linked batteries, from any state of charge, on each position. Charge times will vary depending on the capacity, condition and state of charge of the batteries.

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	3 hrs	15 mins
2	7 hrs	15 mins
3	11 hrs	15 mins
4	15 hrs	

PAGlink Batteries can also be charged using a V-Mount Li-Ion charger from any reputable manufacturer. Linked batteries may need to be within 40% state of charge 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.

Dimensions (all models):

133mm (high) x 84mm (wide) x 50mm (deep)

Weight (9303 & 9304):

0.726kg

Weight (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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