

PL16 & PL16+ CHARGERS

V-MOUNT & GOLD MOUNT

USER GUIDE



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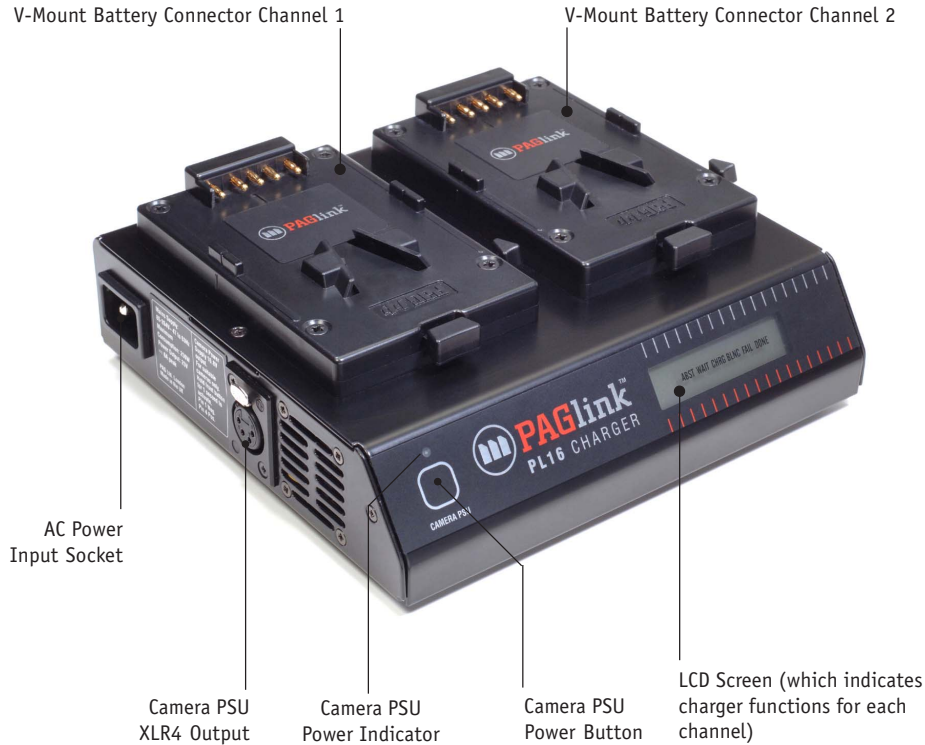
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*Thank you for choosing the PAG PL16 Charger.
Please read the important safety information
and instructions before using your charger.*

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1. Key Features



The charger shown is:

Model 9707 PL16 Charger

- 2 x V-Mount battery connectors
- Camera Power Supply

Other models feature the following variations:

Model 9707A PL16 Charger

- 2 x Gold Mount battery connectors
- Camera Power Supply

Model 9711 PL16+ Charger

- 4 x V-Mount battery connectors

Model 9711A PL16+ Charger

- 4 x Gold-Mount battery connectors

Patents Apply: paguk.com/patents

2. Safety Information

- 2.1 When used correctly, the PL16 Charger is a safe method of charging Li-Ion batteries within the range specified in Section 3.2. However, incorrect treatment of the charger could present a safety hazard. Please read these important safety and operating instructions before using the PL16 Charger.

WARNING:



- 2.2 **IMPORTANT:** Use only on AC supplies 100-265V, 50/60Hz. Supply connection to the unit should be made using only the standard lead supplied with this equipment.
- 2.3 Protect the power cord from being walked on or pinched, particularly at plugs. Unplug this apparatus during lightning storms or when unused for long periods of time.
- 2.4 Ensure that the ventilation slots are not obstructed when in use, e.g. do not site the charger on a carpet, and ensure that nothing covers the charger when it is in use.
- 2.5 **INDOOR USE ONLY.** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- 2.6 Although the charger is short circuit protected, extreme care should always be taken not to short circuit the battery itself. Rechargeable

batteries can deliver power at a very high rate, and short circuiting even a partially charged battery could result in a fire or personal injury.

2.7 **THIS APPLIANCE MUST BE EARTHED.**

- 2.8 Users who are not qualified electronics technicians must not attempt to disassemble the charger. There are no user-serviceable parts inside, and incorrect reassembly may result in a safety hazard.
- 2.9 Do not use the charger if it has been damaged in any way, for example: the supply cord or plug is damaged; liquid has entered the casing; it has been exposed to rain or moisture; it does not operate normally or it has been dropped. In these circumstances, seek advice from your nearest authorised PAG Service Centre (see Section 5 Servicing).



ELECTRIC SHOCK: This symbol appears where the information relates to the risk of electric shock.



WARNING: This symbol appears where the information relates to an issue of personal safety.

3. Specifications

3.1 Chargers covered by these instructions:

9707	PAGlink PL16	V-Mount	2 charging positions
9707A	PAGlink PL16	Gold Mount	2 charging positions
9711	PAGlink PL16+	V-Mount	4 charging positions
9711A	PAGlink PL16+	Gold Mount	4 charging positions

3.2 Range of Batteries Charged:

9707 PL16 & 9711 PL16+ V-Mount Chargers:

- Parallel charging, individually or linked:
PAGlink PL96 Batteries (Models 9303 & 9304)
PAGlink PL150 Batteries (Models 9308 & 9309)
- Parallel charging, individually:
PAG L90 Slim Battery (Model 9307V)
PAG L95e, L96e & L96T Batteries (Models 9310V & 9305V)
Sony V-Mount Li-Ion Batteries
- Sequential charging, individually:
PAG L95 Model 9360, PAG L110 Model 9302V & PAG ZL-50 Model 9315V
- Individual charging:
PAG ZL-150 Model 9316V & PAG ZL-125 Model 9317V

9707A PL16 & 9711A PL16+ Gold Mount Chargers:

- Parallel charging, individually or linked:
PAGlink PL94 Batteries (Model 9306)
PAGlink PL150 Batteries (Model 9313)
Mini PAGlink MPL50 Batteries (Model 7141)
Mini PAGlink MPL99 Batteries (Model 7241)
- Parallel charging, individually:
PAG L96 Batteries (Models 9310A & 9305A)

3.3 Main Charge Programs:

Li-Ion Intelligent Parallel Charging program: maximum output 6A at 16.8V (100W approx.). V-Mount Models only: PAG ACS Ni-MH sequential charge program, output 3A.

3.4 PAGlink Charging:

Up to 8 PAGlink batteries can be charged on each position. Batteries can be of any rated capacity and in any state of charge. The most discharged batteries will be given priority. Fully charged batteries stop accepting charge automatically and independently. Batteries may be left on the charger when fully-charged and will be maintained in a ready-for-use condition.

3.5 Recovery Charge Program:

A battery that will not accept charge, and is indicated as ABST on the charger display, can be given a Recovery Charge, initiated by two presses of the front panel button on PL16 Chargers (Models 9707 & 9707A). Normal charging will follow after a few seconds. Recovery

3. Specifications

Charge will be applied automatically in the case of PL16+ chargers (Models 9711 & 9711A). Additionally, all chargers will recover automatically a Li-Ion battery where the output has been shut down.

3.6 Self Test Program:

The internal microcomputer constantly monitors the battery under charge, as well as the operation of the charger's own functions, which will be shut down to a safe condition should any of the tests fail.

3.7 Mains Input:

100V to 265V AC. Frequency 50-60 Hz. Maximum consumption 220W.

3.8 Output Protection:

The charger is protected against short circuit and excess battery voltage.

3.9 AC Mains Failure Protection:

Should mains failure occur during a charging program, or whilst the charger is connected, it will shut down to a safe condition.

3.10 User Interface:

The charge status of each PAGlink battery is indicated by its own display. The different stages of the charging process are indicated for each channel on the charger's LCD screen. The charger is fully automatic in operation.

3.11 Safety:

Designed to comply with electrical safety standard BS EN 60065 and

UL1564. NOTE: UK AC power leads are fitted with a 1" fuse to BS1362 rated 5A.

3.12 European Union Directives:

Complies with the following EU Directives:
EMC Directive 2004/108/EC.
Low Voltage Directive 2014/35/EU.

3.13 Operating Temperature Range:

0°C to +40°C (+32°F to +104°F).

3.14 Overall Dimensions & Weight:

9707 PL16 V-Mount:

H 75mm (3.0") W 210mm (8.3") D 190mm (7.5") 1.4kg (3lbs).

9707A PL16 Gold Mount:

H 75mm (3.0") W 220mm (8.6") D 190mm (7.5") 1.4kg (3lbs).

9711 PL16+ V-Mount:

H 75mm (3.0") W 217mm (8.5") D 315mm (12.4") 1.6kg (3.5lbs).

9711A PL16+ Gold Mount:

H 75mm (3.0") W 217mm (8.5") D 315mm (12.4") 1.6kg (3.5lbs).

3. Specifications

3.15 Typical Battery Charging Times:

The charge times given are for **96Wh** PAGlink batteries, from fully-discharged to fully-charged. Charge times will be less if the batteries are only partially discharged, and will vary depending on the condition of the batteries. Charge times for 150Wh batteries will be approximately 50% longer.

Total:	Configuration:	Time:
1		2 hrs 30 mins
2	(1 / 1)	3 hrs
4	(2 / 2) or (1 / 1 / 1 / 1)	6 hrs
6	(3 / 3) or (2 / 2 / 1 / 1)	9 hrs 30 mins
8	(4 / 4) or (2 / 2 / 2 / 2)	11 hrs 45 mins
16	(8 / 8) or (4 / 4 / 4 / 4)	24 hrs
32	(8 / 8 / 8 / 8)	48 hrs

The current is shared between charging channels. To fast-charge an individual battery in the fastest time it is best to connect only that battery to the charger.

As Li-Ion batteries near full charge, the charge current is reduced. The final 10% therefore takes longer than at any other stage of the

process. Customers can remove the battery at 90% charged to reduce the overall charge time significantly.

3.16 Camera Power Supply (Models 9707 & 9707A only):

Suitable for powering cameras that can accept a 16.8V input.

3.17 Operation:

The camera power supply function is operated by pressing and holding the Camera PSU button on the charger's front panel for 1 second. Charging is suspended whilst the power supply is in use.

3.18 Output:

16.8V DC. Maximum current 5.5A (90W).

3.19 Output Connector:

XLR4F connector (Pin 1 Neg, Pin 4 Pos).

4. Operating Instructions

- 4.1 PAGlink PL16 Chargers are fitted with an AC input socket conforming to CEE22 (IEC socket). AC supply connection to the charger should be made using only the standard lead supplied with this equipment.
- 4.2 PAGlink PL16 Chargers have been designed for use on AC supplies worldwide, and automatically accept supplies in the range 100V to 265V. AC supply frequency must be in the range 50-60Hz.
- 4.3 **IMPORTANT:** Note Section 4.17 Supply Failure. PAGlink PL16 Chargers may be disconnected from the supply at any time in complete safety and without damage to the charger or any batteries connected.
- 4.4 Connect the charger to a suitable supply using the standard lead. The red LCD screen will illuminate and display the software version.
- 4.5 On power-up, the charger will automatically run a self test program.
- 4.6 With no batteries connected, the display will indicate 'ABST' on each channel:



1> ▾
ABST WAIT CHRG BLNC FAIL DONE
2> ▲

PL16 Display



1) ABST 2) ABST
3) ABST 4) ABST

PL16+ Display

- 4.7 Before connecting a battery to the charger ensure that the battery is not in **Sleep Mode** by pressing the battery display button twice, so that the battery display illuminates.

When batteries are connected, charging will commence automatically and the charger display will indicate 'CHRG' on the appropriate channels:



1> ▾
ABST WAIT CHRG BLNC FAIL DONE
2> ▲

PL16 Display



1) CHRG 2) CHRG
3) CHRG 4) CHRG

PL16+ Display

- 4.8 Up to 8 **PAGlink Batteries** per channel may be charged. Batteries can be of any rated capacity and in any state of charge. The charge status of each PAGlink battery is indicated by its own display. The most-discharged batteries will be given priority until all the batteries are in a similar state of charge. The batteries will then fully-charge simultaneously, making the most efficient use of the current available. Fully-charged batteries stop accepting charge automatically and independently of other batteries. Fully-charged batteries can be left connected to the charger until they are needed.
- 4.9 The charger display will indicate 'DONE' when all the batteries connected to that channel have received as much charge as they can safely accept:



1> ▾
ABST WAIT CHRG BLNC FAIL DONE
2> ▲

PL16 Display



1) DONE 2) DONE
3) DONE 4) DONE

PL16+ Display

4. Operating Instructions

- 4.10** As Li-Ion batteries near the end of charge, the charge current is reduced. This is perfectly normal for the 'constant voltage' phase of the charge cycle.
- 4.11** Batteries may be removed, and others connected at any time, without affecting the operation of the charger.
- 4.12** The charger will continue to monitor the status of all charging channels. It will not attempt to charge batteries which the charger indicates are 'DONE' or faulty (indicated as 'FAIL'). When there are no batteries connected the charger display will indicate 'ABST':



PL16 Display



PL16+ Display

If a new battery is connected to the free channel, the charging sequence will be initiated automatically. The order in which batteries are connected is therefore immaterial; the charger will ensure that all batteries are charged in as short a time as possible.

- 4.13** If the charger detects a faulty battery while the charging program is running, the display will show 'FAIL'. This could be caused by one of several conditions, such as a very old or damaged battery, a short circuit battery, or an excessively high or low voltage battery.

- 4.14** The charger will not recognise the connection of a battery which has a voltage substantially outside of its range or one of unsuitable chemistry type.
- 4.15** If the internal protection circuit of a PAG or Sony Li-Ion battery should turn-off, for any reason, the battery display will not operate, and there will be no voltage at the battery terminals. The PL16 incorporates a Recovery Charge program which will automatically turn the protection circuit back on again.
- 4.16** If the charger should detect a fault during operation, it will shut down to a safe condition. See Section 5.4 'Servicing'.
- 4.17** If the AC mains power fails during operation, the charger will shut-down safely; no damage will occur to either the charger or the batteries. When the mains power is restored the charger will default to the main charge program.
- 4.18** PL16 Chargers, Models 9707 & 9707A, feature a built-in **Camera Power Supply** that enables you to power your camera from an AC mains supply, using the charger. Connection to the camera can be made using an XLR4 male to female lead (PAG Model 9450). The power supply is operated by pressing the button on the front panel of the charger, and holding it in for 1 second. The blue LED above the button will light to indicate the power supply is in operation. When the camera power supply is in use, charging is suspended.

5. Servicing

- 5.1** WARNING: To reduce the risk of electric shock, do not attempt any servicing or repairs unless you are qualified to do so. Refer all servicing or repairs to qualified servicing personnel. The charger contains advanced electronics that do not require periodic maintenance. Consequently there are no user-serviceable parts inside.
- 5.2** Qualified electronics engineers who wish to gain access to internal assemblies should note that parts of the power circuit retain a high voltage even after the power supply has been disconnected. Wait for a period of five minutes following disconnection before commencing disassembly, and be aware of charged capacitors.
- 5.3** When the charger is correctly connected to an AC supply and the display is not functioning, it may be that a supply fuse has become open circuit. Equipment for use in the UK is supplied with a standard AC power lead, complete with a moulded, fused plug. If this fuse has become open circuit it should be replaced by another of the correct rating (see Specification Section 3.11). **USE ONLY A FUSE OF THE CORRECT RATING.** If the replacement of the fuse fails to correct the above symptoms, do not attempt further fuse replacement, it is likely that a fault has developed. Contact your nearest authorised PAG Service Centre:

The Americas:

PAG America, 18 Center Street, Ramsey, NJ 07446, USA
T: +1 631 300 8215, E: sales@pagamerica.com

Europe & Middle East:

Aspectra BV, Spoorhaven 78, 2651 AV, Berkel en Rodenrijs, Netherlands
T: +31 10 514 06 80, E: info@aspectra.nl

United Kingdom and Rest of the World:

PAG Ltd. Epsom Downs Metro Centre, Units 9 & 10, Waterfield, Tadworth, Surrey KT20 5LR, UK
T: +44 (0) 20 8543 3131, E: support@paguk.com

- 5.4** The chargers feature a fail-safe shutdown mode. In the unlikely event of an internal malfunction, an error message will be displayed on the screen. This could be the result of any number of undesirable situations from which the system is protecting itself, such as the obstruction of ventilation slots, causing inadequate cooling, or the microcomputer's detection of an internal fault. In these cases the charger should be disconnected from the supply, any obstruction of the air vent system removed, and the unit allowed to cool before reconnecting to the supply. Should the charger re-enter the fail-safe shutdown mode, more detailed investigation is required. Make a note of the error message and seek advice from your nearest authorised PAG Service Centre.
- 5.5** Unqualified personnel should not attempt further investigation (see paragraph 5.1 above). Any such interference would invalidate the guarantee and could cause more damage than the original fault.
- 5.6** For technical information contact an authorised PAG Service Centre.

6. Guarantee

- 6.1** Notwithstanding any provision of any agreement the following guarantee is exclusive: PAG Limited guarantees each PAGlink PL16 charger it manufactures to be free of defects in material and workmanship under use and service for **TWO YEARS** from the date of purchase. This guarantee extends only to the original purchaser. This guarantee shall not apply to fuses or any product or parts which have been subject to misuse, neglect, accident or abnormal conditions of operation.
- 6.2** In the event of failure of a product covered by this guarantee, PAG Limited will repair and calibrate equipment returned to an authorised service facility within the period of the guarantee, provided the guarantor's examination discloses to its satisfaction the product was defective. The guarantor may, at its option, replace the product in lieu of repair. With regard to any equipment returned within this period, said repairs or replacements will be made without charge. If the failure has been caused by misuse, neglect, accident or abnormal conditions of operation, repairs will be billed at a nominal cost. In such a case, an estimate will be submitted before work is started, if requested.
- 6.3** The foregoing guarantee is in lieu of all other guarantees, express or implied, including but not limited to any implied guarantee or merchantability, fitness or adequacy for any particular purpose or use. PAG Limited shall not be liable for any special, incidental, or consequential damages, whether in contract, tort, or otherwise.