

PAG ™

 **PAGlink™**
PL16+ CHARGER



Instruction Manual





Instruction Manual

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SECTION 1

SAFETY

- 1.1 This manual contains important safety and operating instructions. Please read these fully and note all warnings before using the charger. Please follow all instructions and retain this manual for future reference.
- 1.2 This charger is not intended for any use other than the charging of batteries as detailed in Section 2, Specification, Range of Batteries Charged.
- 1.3 **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.
- 1.4 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.
- 1.5 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.
- 1.6 **WARNING:** Indoor use only. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- 1.7 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.
- 1.8 **WARNING:** This appliance must be earthed.
- 1.9 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.
- 1.10 Do not use the apparatus if it has been damaged in any way, such as the supply cord or plug is damaged, liquid has been spilled, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. In this event you should seek advice from your nearest PAG Dealer, or direct from PAG Ltd., London, by telephoning +44 (0)20 8543 3131.

SPECIFICATION

2.1 Features of the PAGlink PL16+ Charger:

- Simultaneous charging for up to 32 batteries.
- Four fast-charging positions.
- Intelligent Parallel Charging (iPC).
- Automatic Recovery Charge Program.
- Illuminated Liquid Crystal Display.
- Lightweight design.

2.2 Range of Batteries Charged:

Model 9711 features 4 x V-Mount battery connectors and is designed for parallel charging the following PAGlink V-Mount Li-Ion batteries, individually or linked (up to 8 batteries can be linked for charging):

- PAGlink PL96e Model 9303
- PAGlink PL96T Model 9304

It is also suitable for parallel charging the following non-linking PAG V-Mount Li-Ion batteries:

- PAG L96e Model 9310
- PAG L96T Model 9305

Model 9711A features 4 x Gold Mount battery connectors and is designed for parallel charging the following PAGlink Gold Mount Li-Ion batteries, individually or linked (up to 8 batteries can be linked for charging):

- PAGlink HC-PL94T Model 9306

It is also suitable for parallel charging the following non-linking PAG Gold Mount Li-Ion batteries:

- PAG L96e Model 9310A
- PAG L96T Model 9305A

2.3 Main Charge Program:

Li-Ion Intelligent Parallel Charging program: maximum output 6A at 16.8V (100W approx.).

2.4 PAGlink Charging:

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

2.5 Recovery Charge Program:

The charger will automatically recover a battery that has become over-discharged. Additionally, the charger will automatically recover a Li-Ion battery where the output has been shut down.

2.6 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.

2.7 Mains Input:

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

2.8 Output Protection:

Charger protected against short circuit and excess battery voltage.

2.9 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.

2.10 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.

2.11 Safety:

Designed to comply with electrical safety standard BS EN 60065 and UL6500.
NOTE: UK AC power leads are fitted with a 1" fuse to BS1362 rated 5A as standard.

2.12 European Union Directives:

Complies with the following EU Directives:
EMC Directive 89/336/EU.
Low Voltage Directive 73/23/EU.

2.13 Operating Temperature Range:

0°C to +40°C (+32°F to +104°F).

2.14 Overall Dimensions:

Height:	Width:	Depth:
67mm (2.6")	217mm (8.5")	315mm (12.4")

2.15 Weight:

1.6kg (3.5lbs).

2.16 Typical Battery Charging Times:

No:	Configuration:	Charge Time:
1		2 hrs 30 mins
2	(1 / 1)	3 hrs
4	(1 / 1 / 1 / 1)	6 hrs
8	(2 / 2 / 2 / 2)	11 hrs 45 mins
16	(4 / 4 / 4 / 4)	24 hrs
32	(8 / 8 / 8 / 8)	48 hrs

Charge times given are for 94/96Wh PAGlink batteries, from fully-discharged to fully-charged and are estimated only. Charge times will vary depending on the condition and state of charge of batteries.

INTERNATIONAL PATENTS APPLY

Gold Mount is a registered trademark of Anton/Bauer.

SECTION 3

INSTALLATION

- 3.1 The charger is fitted with an mains input socket conforming to CEE22 (IEC socket). Mains supply connection to the charger should be made using only the standard lead supplied with this equipment.
- 3.2 The charger has been designed for use on AC mains supplies worldwide, and automatically accept supplies in the range 100V to 265V. AC mains supply frequency must be in the range 50-60 Hz.
- 3.3 For technical information contact PAG on +44 (0)20 8543 3131 or your nearest PAG Authorised Service Centre. Visit the PAG Web Site at www.paguk.com to find out more.

SECTION 4

OPERATING INSTRUCTIONS

- 4.1 **IMPORTANT:** Note section 4.16 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.
- 4.2 Connect the charger to a suitable supply using the standard lead. The red LCD screen will illuminate.
- 4.3 On power-up, the charger will automatically run a self test program. With no batteries connected, the display will indicate 'ABST' on all four channels.



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

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



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

- 4.5 Li-Ion batteries are charged simultaneously, using PAG's Intelligent Parallel Charging program (see 'Typical Battery Charging Times' Section 2.16).
NOTE: Older generation PAG Li-Ion batteries will be charged sequentially.
- 4.6 Up to 8 PAGlink batteries per channel may be charged. Batteries can be in any state-of-charge. The most-discharged batteries will be given a higher charge priority. The charge status of each PAGlink battery is indicated by its own display. Fully-charged batteries stop accepting charge automatically and independently of other batteries.
- 4.7 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) DONE 2) DONE
3) DONE 4) DONE

- 4.8 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.
- 4.9 Batteries may be removed, and others connected at any time, without affecting the operation of the charger.
- 4.10 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'.



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1) FAIL 2) CHRG
3) DONE 4) ABST
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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.

- 4.11 The charger incorporates a program that will automatically recover deeply-discharged batteries for charging.
- 4.12 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.
- 4.13 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.
- 4.14 If the internal protection circuit of a battery should turn-off, for any reason, the battery display will not operate, and there will be no voltage at the battery terminals. Connecting the battery to the charger will automatically turn the protection circuit back on again.
- 4.15 If the charger should detect a fault during operation, it will shut down to a safe condition. See Section 5.4 'Servicing and Repairs'.
- 4.16 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.

SERVICING & REPAIRS

- 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 mains 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 a mains supply and the display is not functioning, it may be that a supply fuse has become open circuit. Equipment supplied for use in the UK is supplied with a standard UK mains cordset, 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 2.12). **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. Seek advice from your nearest PAG dealer or direct from PAG Ltd., London, by telephoning +44 (0)20 8543 3131.
- 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 PAG dealer or direct from PAG Ltd., London, by telephoning +44 (0)20 8543 3131.
- 5.5 Unqualified personnel should not attempt further investigation (see paragraph 5.1 above). Any such interference would invalidate the guarantee and invariably cause more damage than the original fault.

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.

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EU DECLARATION OF CONFORMITY

We **PAG Ltd.**
London, England.

hereby declare that the products described below conform to the relevant requirements of the appropriate EU Directives. This declaration shall cease to be valid if modifications are made to the products without our approval.

PRODUCT: PAGlink PL16+ Charger Models 9711 & 9711A.

APPLICABLE EU DIRECTIVES: EMC DIRECTIVE 89/336/EU
LOW-VOLTAGE DIRECTIVE 73/23/EU
CE MARKING DIRECTIVE 93/68/EU

HARMONISED STANDARDS APPLIED: GENERIC:
EN 50081 - 1 (EMISSIONS)
EN 50082 - 1 (IMMUNITY)

PRODUCT SPECIFIC: EN 55022 - B EN 60555 - 2/3
IEC 801 - 2/3/4 EN 60335 - 1
EN 60335 - 2 - 29

Signed for and on behalf of PAG Ltd.

Alan Lavender
Chief Executive

Date: 20.10.15