



# AR SERIES 2 + PULSAR

## All-chemistry charging systems

- > Compact, and lightweight
- > Automatic Charge Rate Selection
- > Charge PAG Li-Ion batteries
- > Charge Ni-Cd & Ni-Mh batteries
- > Fast, efficient sequential charging
- > Analytic Discharge/Charge Program
- > Recovery Charge Program
- > Worldwide Operation





# AR SERIES 2 + PULSAR



## Charge Adaptor for PAG V-Mount Li-Ion batteries

Slides onto the battery and plugs into the PP90 socket of any PAG AR2 or Pulsar charger (can also be used with any Quasar charger).

Model 9617

## AR24PLD

### Model 9792

4 x PAGlok connectors  
4 x PP90 connectors

### Extended Battery Life

The key to maximising battery life lies in the charging. PAG AR Series 2 and Pulsar chargers are the most advanced microcomputer-controlled battery management systems available for users of ENG batteries. Operating under the control of PAG ACS, the world's most Advanced Charging System, these chargers extend the working life of your batteries beyond anything that can be achieved using other systems.

### Cell-Chemistry, Voltage and Capacity

The variety of batteries available to the camera operator, in terms of cell-chemistry, voltage and capacity has never been greater. PAG has acknowledged this fact by incorporating revolutionary software within AR2 and Pulsar chargers that provides the easiest and most efficient way of managing battery stocks. The Auto Charge-Rate Selection software detects the battery's cell-chemistry, state-of-charge, capacity, condition and cycle history using only the battery's negative and positive terminals. The charger then applies the correct regime to achieve a fully charged battery with the maximum capacity and cycle life. This technology was developed by engineers at PAG Ltd. and is unique to PAG chargers.

### Sequential vs Simultaneous Charging

AR2 and Pulsar chargers employ sequential charging, which presents one fully charged battery in half the time it takes a simultaneous charger. PAG chargers are so efficient that in many cases two batteries can be sequentially charged faster than they can with simultaneous chargers of other manufacturers.

### Discharge/Charge Program

The analytic Discharge/Charge Program greatly benefits batteries which have been repeatedly subjected to partial discharge in use. The true available capacity of any battery is displayed on the large backlit LCD. This user interface also provides information such as the current loaded and status for each channel, as well as discharge capacity and terminal voltage.

### Recovery Charge

All models provide a manually selectable Recovery Charge program which can be activated to recover capacity lost as a result of extended storage, or use under adverse conditions.

## PAG AR Series 2 + Pulsar Specifications

### Range of Batteries Charged

- > PAG Lithium-Ion batteries.
- > Nickel-Metal Hydride batteries of reputable manufacture having nominal voltages of between 4.8V and 14.4V, and nominal capacities of between 1Ah and 10Ah.
- > Nickel-Cadmium batteries having nominal voltages of between 4.8V and 14.4V, and nominal capacities of between 1Ah and 10Ah.

### Battery Connections

- > PAGlok Connector: patented, professional connector compatible with all PAGlok batteries. Incorporates self-cleaning military-type beryllium-copper leaf contacts.
- > NP1: Polarised connector suitable for Ni-Cd and Ni-MH NP1-type batteries. Incorporates superior blade-type beryllium-copper contacts.
- > PAG Snap-on compatible: PAG patented sliding connector



## ARI24NPD

**Model 9793**  
4 x NP1 pockets  
4 x PP90 connectors



## PULSAR

**Model 9795**  
4 x Snap-on connectors  
4 x PP90 connectors

suitable for PAG Li-Ion batteries (Models 9366 & 9383) and most Anton-Bauer batteries (not Dionic).

> PP90 connectors: polarised connector suitable for 2.1mm coaxial DC power connectors. NOTE: centre pin negative.

### Main Charge Program

> Auto Mode: automatically selects correct charge current.

> Manual selection: 2A, 3A or 4A charge current.

> Li-Ion voltage-charge program: only available with PAG intelligent batteries or suitable PAG intelligent adaptor. PAG intelligent batteries automatically over-ride the Auto Mode or Manual selection, and control their own charge regime.

### Discharge-then-Charge Program

This program discharges the battery, automatically determining the fully-discharged condition, and then fully charges it. The discharge capacity and the subsequent

charge loaded into the battery can be displayed on the screen.

### Recovery Charge

This special program conditions the battery for a period of one hour. The charger will then automatically enter the main charge program, which will run until the battery is fully charged. This program also recovers PAG Li-Ion batteries which have been over-discharged to the point where the internal safety protection circuit has tripped.

### Maintenance Charge

A self-adjusting Maintenance Charge may be automatically entered after charging (not applied to PAG Li-Ion batteries).

### Self Test Program

The internal microcomputer constantly monitors the battery under charge or process 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.

### Mains Input

90-139V or 140-270V ~ autoselected. Frequency 47-63 Hz. Maximum power consumption 120W.

### Output Protection

Charger protected against short circuit, open circuit, excess battery voltage and reverse battery voltage.

### 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.

### Safety

Designed to comply with electrical safety standard BS EN 60065. NOTE: U.K. mains leads are fitted with a 1" fuse to BS1362 rated 5A as standard.

### European Union Directives

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

# AR SERIES 2 + PULSAR



## Maintenance Charge

Once any of the main charging programs has been completed, batteries are monitored continually, and a maintenance charge is applied, where necessary, to keep them at full charge, ready for immediate use.

## Battery Connections

PAG AR124PLD (Model 9792) incorporates PAGlok connectors, for the direct connection of all PAGlok battery packs. PAG AR124NPD (Model 9793) incorporates four NP type pockets, for the direct connection of any PAG NP type battery and specified NP batteries of other manufacturers. The PAG Pulsar (Model 9795) incorporates PAG patented sliding Snap-on compatible connectors for the connection of PAG Li-Ion Time Batteries (Models 9383, 9310A and 9335A) and some Anton-Bauer batteries (not Dionic). PAG AR Series 2 and Pulsar

chargers incorporate PP90 (2.1mm) sockets suitable for the connection of a range of PAG charging adaptors. They will charge PAG V-Mount Li-Ion batteries via Charge Adaptor Model 9617.

## Talk Circuits

PAG Talk-Circuits in the Pulsar's Snap-on compatible connectors provide access to data stored in the internal computer of the PAG L95 batteries. The charger's screen can then display information such as date of purchase and number of cycles. This information is essential when managing large stocks of batteries, and for warranty tracking.

## Power Supply

All models incorporate the latest high frequency switch-mode power supply which adjusts automatically to enable worldwide operation.

## Safety Features

AR2 and Pulsar charges incorporate many safety features and comply with all relevant directives for EMC and Safety.

## RFI Standards

All models are designed to high electrical standard, with RFI certification suitable for use in all broadcast environments.

## Upgrades

A Li-Ion Chip-Upgrade Kit is available for AR Series 2 chargers with green labels. It will enable you to charge all PAG Li-Ion batteries and it also features the Automatic Charge Rate Selection capability.

## Specification Continued

### Typical Battery Charging Times

Battery Capacity	Charge Time 2A	Charge Time 3A	Charge Time 4A
1Ah	30mins	20mins	15mins
2Ah	60mins	45mins	30mins
4Ah	120mins	90mins	60mins
5Ah	150mins	105mins	75mins
7Ah	-	150mins	105mins
10Ah	-	-	150mins

*These times are approximate only, and assume the battery is fully discharged. Charging times will be less if the battery is already partially charged.*

*NOTE: PAG intelligent batteries communicate with the charger, and automatically optimise the charging output (independently of the manual selection) to enhance performance and safety. The above charging times do not apply to these batteries.*

### User Interface

The LCD screen has a display area of 94mm x 18mm, which displays 2 lines of text, with 24 characters per line.

The screen incorporates electro-luminescent backlighting with on/off control via the front panel soft function switch. This switch also provides for the selection of programs and interrogation of charge and discharge data.

### Operating Temperature Range

0°C to 40°C (+32°F to +104°F).

	Model	Dimensions	Weight	
	AR124PLD	9792	82 x 168 x 240mm	1.23kg
	AR124NPD	9793	78 x 142 x 240mm	1.07kg
	PULSAR	9795	82 x 168 x 240mm	1.23kg



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