



**Professional Broadcast Equipment**

**PAG NPH**

Ni-Mh NP1 Battery

Model No. 9323

Instruction Manual

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**SECTION 1**

**SPECIFICATION**

- 1.1 **Description:** Model 9323 PAG NPH Ni-Mh Professional Broadcast NP1 type Battery.
- 1.2 **Construction:** PAG NPH batteries have welded cell interconnections of low-resistance nickel strap. The case for these models consists of high-impact injection mouldings designed to protect the cells from impact damage. The batteries are sealed and non user-serviceable.
- 1.3 **Cells:** Premium grade Nickel-Metal Hydride sealed rechargeable cylindrical cells.
- 1.4 **Voltage:** 13.2V nominal (11 cells connected in series, nominal voltage 1.2V per cell).
- 1.5 **Capacity:** 2.2Ah, measured at the one-hour rate.
- 1.6 **Output Current:** Rated maximum output 10A continuous.
- 1.7 **State of Charge Indication:** An LED-array charge indicator is incorporated.
- 1.8 **Output Protection:** The PAG NPH battery is protected against short circuit and excessive currents by means of a self-resetting protection device. The battery is also protected against over-temperature by means of a non-resetting thermal fuse rated 98°C.
- 1.9 **Operating Temperature Range:** Optimum discharge efficiency is achieved within the temperature range +10°C to +40°C.
- 1.10 **Weight:** 730gm (1.6lb approx.)
- 1.11 **Size:** 182mm (H) x 71mm (W) x 25mm (D).

## SECTION 2

### CARE & MAINTENANCE

- 2.1 Store in a cool, dry place at a temperature between  $-30^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$ . Long-term storage at temperatures above  $+35^{\circ}\text{C}$  will reduce the battery's life because of deterioration of organic materials such as the gasket and separator. Excessively low storage temperatures (below  $-30^{\circ}\text{C}$ ) are also to be avoided since the electro-lyte may freeze, resulting in permanent cell damage.
- 2.2 If the battery has not been in operation for a while, it may require several cycles of charge and discharge in order to restore its maximum available capacity.  
After prolonged storage, users with AR Series chargers may find the following procedure beneficial: Charge the battery until the charger indicates that it is charged. Disconnect the battery from the charger, and then re-apply it, using the 'Recovery' program. Allow this program to run until the charger again indicates that the battery is charged.
- 2.3 Ensure that the battery is fully charged before use. Even after one week in storage, it is advisable to give the battery a top-up charge before use.
- 2.4 Use only a PAG charger that has been designed to charge PAG NMH batteries.
- 2.5 For maximum output, use within the temperature range  $0^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ . Never operate outside of the temperature range  $-20^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$ .
- 2.6 The battery is designed for a maximum continuous output of 10 amperes. Battery output is protect-ed by means of a self-resetting over-current protection device and a thermal fuse.
- 2.7 The battery is sealed, and contains no user-serviceable components. If any attempt is made to open the case, it is probable that the damage will disrupt the digital circuitry, which will then cease to function. In order to maintain the quality standard for which you first chose this product, return it to a PAG Dealer or the PAG Service Department for servicing.

## SECTION 3

### INSTRUCTIONS FOR USE

- 3.1 The battery should be in a fully charged state before use.
- 3.2 **IMPORTANT:** THIS BATTERY MUST BE CHARGED ONLY FROM A PAG ACS CHARGER THAT IS DESIGNED TO CHARGE PAG NMH BATTERIES. Other types of charger must never be used as the battery may be damaged irreparably; there is also the danger that the cells may disrupt forcibly, presenting the risk of personal injury.
- 3.3 When the battery has been discharged at a high current it will become warm, and it is advisable to let it cool before charging it. For the best results the battery should be charged within the temperature range  $+10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ . If the battery is too hot to be charged safely, charging will be inhibited and the charger will indicate 'C'. The battery should be left connected to the charger, which will automatically initiate charging as soon as the temperature is within the correct range. NOTE: In order to prevent abuse of batteries which are too hot to charge, a circuit is incorporated which prevents the battery from being charged while still allowing a PAG ACS charger to recognise that it is connected. If such a battery is removed from the charger and re-applied while it is still too hot, the charger may fail to recognise it, and indicate 'Faulty'.
- 3.4 An LED-array type state of charge indicator is incorporated. It is activated by pressing the button that is located next to the LEDs.

## SECTION 4

### SAFETY

- 4.1 When used correctly, Nickel-Metal Hydride batteries are a rugged, safe, clean and trouble-free method of storing power. Offering an extremely high energy density, the cells do not deteriorate when left in a discharged state, thereby making them ideally suited to applications where reliable portable power is required. However, the user should be aware that incorrect treatment can present a hazard. In the interest of safety, and the protection of our environment, please read and observe the following health and safety information.
- 4.2 **GENERAL:** Do not put in fire or mutilate - cells may burst or release toxic material. Do not short-circuit as this may cause burns. Batteries should be discharged for transit.
- 4.3 **CORROSIVE ELECTROLYTE:** The electrolyte is a strong alkaline solution, which can cause chemical burns to human tissue if leakage occurs. Wear protective gloves when handling all contaminated materials. In the event of contact with the skin, flood copiously with clean water. Seek immediate medical attention if significant amounts of electrolyte are involved, or if any has touched the eyes.
- 4.4 **ACCIDENTAL SHORT-CIRCUITING:** Nickel-Metal Hydride cells can deliver power at very high rates. PAG NPH batteries are protected at their output connections by self-resetting overload protection devices and thermal fuses, but severe mechanical abuse of a battery could result in damage to cells, and short-circuit internal to the battery. Arcing, excessive heat and the liberation of combustible gas could result, with the potential for personal injury or ignition of adjacent flammable materials.
- 4.5 **DISPOSAL:** Expired Nickel-Metal Hydride batteries are classified as controlled waste, and must be disposed of in accordance with the appropriate regulations or legislation.

**WARNING:** Do not mutilate or incinerate batteries. Do not dispose of batteries or cells in a charged condition (see 4.4 above).

PAG Ltd. offers a recycling service for expired PAG batteries, which results in the materials being recovered for re-use.

Return batteries by prior arrangement to:

PAG Limited  
565 Kingston Road  
Raynes Park  
London SW20 8SA

Tel: +44 (0)20 8543 3131  
Fax: +44 (0)20 8540 4116  
E-mail: sales@paguk.com

Batteries must be in a discharged state, and clearly marked: "FOR RECYCLING".

## SECTION 5

### WARRANTY

- 5.1 Notwithstanding any provision of any agreement the following Warranty is exclusive: PAG Limited warrants each NPH Battery it manufactures to be free of defects in material and workmanship under use and service for 18 months from the date of purchase. This warranty extends only to the original purchaser. This warranty 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 warranty, PAG Ltd. will repair and calibrate equipment returned to an authorised Service Facility within the period of the warranty, provided the warrantor's examination discloses to its satisfaction the product was defective. The warrantor 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 Warranty is in lieu of all other warranties, express or implied, including but not limited to any implied warranty 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.