

MP7423 6V / 12V 4A Electronic Smart Charger

Instruction And Information Manual

In order to ensure correct and safe usage of your battery charger, you should read these instructions carefully. Please store these instructions for future reference.

SAFETY

Ensure that cables are regularly inspected and kept in good condition.

Never use the battery charger if the mains lead or plug is damaged.

Never use the battery charger if the output leads or crocodile clips are damaged.

Never use the battery charger if it has been dropped or damaged in any way.

WARNING: Battery charging produces explosive gases. Prevent flames and sparks. Provide adequate ventilation during charging.

Keep the charging area completely clear of combustible materials.

For indoor use only, **do not** expose to rain or any other forms of liquid or moisture.

The charger must not be used as a continuous DC power source or for any purposes other than those listed.

The charger is designed to charge Lead-Acid & AGM batteries only and must not be used for the charging of non-rechargeable batteries.

Replacement of the mains cable should only be carried out by the manufacturer, its service agent or a suitably qualified electrician / electrical technician in order to avoid a hazard. There are no user-serviceable parts in this product other than the fuse in the output and input leads.

GENERAL SAFETY

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Cleaning and user maintenance shall not be made by children without supervision.

GASES

The charging process produces flammable and explosive gases - the area in which charging takes place should be kept well ventilated. Only connect and disconnect the battery leads when the mains supply is disconnected. Avoid flames or sparks! Do not smoke!

GENERAL INFORMATION

1. Retain these instructions for future use.
2. Store this product in a dry place to avoid moisture damage.
3. There are no user-serviceable parts in this product. Opening the case is dangerous and should therefore only be carried out by qualified persons. Resultant damage to the product will result in the loss of your guarantee.
4. Do not use this product if it is damaged in any way.
5. Only use this product for the purposes described in this instruction booklet. Failure to do so will result in the loss of your warranty. The manufacturer will not accept liability for damage to the charger, persons or property resulting from incorrect usage.

SAFETY

The use of safety goggles and gloves when working with lead acid batteries is strongly advised. Avoid contact with the electrolyte as this is acidic and is likely to cause burns to the skin or clothes. If this occurs you should rinse the affected area with plenty of water immediately. In the event of burns to the skin, medical advice should be sought if the symptoms persist.

DISPOSAL

In the event that this product must be disposed of, an authorised place for the recycling of electrical and electronic appliances must be sought. Contact your local authority for information concerning local Household Recycling Centres with applicable facilities.

This product must not be disposed of with general domestic waste.

RECOMMENDED USES

This product is suitable for charging 6V and 12V lead acid, sealed lead-acid, maintenance-free and AGM batteries of capacities 1.2Ah to 120Ah (Ampere hours). Check with your device manufacturer if you are unsure about the suitability of this charger for use with your device.

BATTERY CHARGING INSTRUCTIONS

Please read your vehicle manufacturer's instructions for further information and advice regarding the disconnection of the battery for charging purposes.

IMPORTANT: This model will only recover 12V batteries with a minimum residual voltage of 7.5V, or 6V batteries with a minimum residual voltage of 4V. If the residual voltage is lower than above figures, the charger will not operate. **NOTE:** This charger operates automatically and will change operating status without warning.

Maintain as much distance as is practical between the battery and charger. Monitor the temperature of the battery during charging. If the temperature of the battery exceeds 40°C cease charging until the battery has cooled to a safe temperature. Failure to do so may result in the battery exploding.

Batteries store large amounts of energy. Avoid short circuits which could result in a dangerous electrical discharge that could result in personal injury and / or damage to equipment and property. The charger will automatically detect the voltage (6V or 12V) and diagnose the condition of your battery, the first stage of the 5 Step charging cycle (as listed in part 4).

1. PREPARATION OF THE BATTERY

In the case of lead-acid batteries, firstly remove the caps from each cell and check the level of liquid. If it is below the recommended level, top up with ionized or distilled water.

UNDER NO CIRCUMSTANCES SHOULD TAP WATER BE USED

To avoid battery acid splashing, the cell caps should be replaced but not tightened until charging is complete. This allows any gases formed during charging to escape. It is inevitable that some minor escape of acid will occur during charging. If your battery is permanently sealed it is unnecessary to carry out these checks.

2. CHARGING LEAD SELECTION

Interchangeable ring terminal and fully-insulated battery clip charging leads are supplied. Select the appropriate lead for your application and attach to the charger output lead using the quick-fit connector fitted to each, before connecting the charger to either the mains supply or to the battery. **NOTE:** Quick fit ring terminal leads are useful for applications where the battery is not easily accessible, as with some motorcycles.

3. CONNECTION

To avoid sparks which could cause an explosion, the mains supply should always be disconnected before making or breaking battery connections. Connect the battery clips or ring terminals to the battery in the following order:

- 1) Connect the positive charging lead (RED) to the positive post of the battery (marked + / +ve or P).
- 2) **For vehicles with the battery still installed:** Connect the negative charging lead (BLACK) to the vehicle chassis (marked - / -ve or N), well away from the battery, fuel line, and hot or moving parts.
For batteries removed from the vehicle: Connect the negative charging lead (BLACK) to the negative post of the battery (marked - / -ve or N).

After connecting the clips, rotate them slightly so as to remove any dirt or oxidization, thus ensuring a good contact.

4. CHARGING

WARNING! DO NOT ATTEMPT TO START THE VEHICLE WITH THE CHARGER CONNECTED TO THE BATTERY. THIS MAY DAMAGE YOUR BATTERY CHARGER.

- 1) Switch on the mains power supply. For 12V batteries select the charging mode appropriate for your battery by pushing the **MODE** button. The display will cycle through the available options (12V STD, 12V AGM, WINTER). The charger will now automatically measure the voltage of your battery and diagnose its condition. Providing the battery is in an acceptable condition the charge cycle will now commence and the LCD display will now show charging information. For 6V batteries the charger will automatically commence the 6V STD charging program.
- 2) When the battery is fully charged with 5 bars shown on the display, the charger will switch to provide a maintenance float charge and may be left connected to the battery.

The 5 step charging program is:

- 1) Battery condition diagnosis & recovery with pulse charging
- 2) Battery preparation with soft start
- 3) Automatic current selection & bulk charging - charging with constant current
- 4) Constant voltage absorption charging, after which charging ceases automatically for 1 minute.
- 5) Maintenance float charging - When the battery is fully charged the charger will maintain the condition of your battery automatically through voltage monitoring and pulse charging.

5. WHEN CHARGING IS COMPLETE

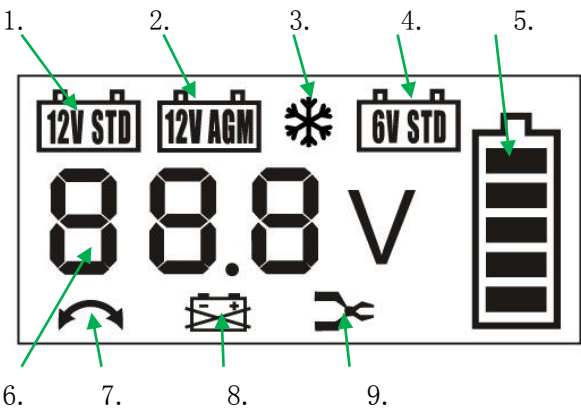
Switch off the mains supply, unplug the charger & disconnect the clips from the battery, negative (BLACK lead) first. Then disconnect the (RED) positive lead from the battery. Or, if used, disconnect the ring terminal charging lead in the same way. The lead can be left permanently attached to a vehicle battery **but the end-cap must be fitted at all times to prevent short circuit, sparks or dirt/water entry.** When not in use the charger should NOT be left connected to this lead.

For non-sealed lead-acid batteries: Inspect the liquid levels in each cell and top up if necessary, using the correct fluid. Now push home or tighten the caps. Any surplus fluid around the cell tops should be wiped off (this should be done with extreme care as it is acidic). If the battery has been removed for charging, replace it and re-connect the cables.

FAULTY CELLS – NON-SEALED LEAD-ACID BATTERIES

Batteries are usually made with six cells. One of these cells can deteriorate or get damaged. If after several hours charging your battery is still flat, you should test the battery. Take hydrometer readings from each cell in the battery. If one reading is lower than the others, this could indicate a faulty cell. The battery will require replacement if one or more cells are faulty.

LCD Display



During charging the LCD display backlight will be red, when charging is finished it will turn green.

LCD Display Key :

- 1. 12V standard lead-acid battery mode.
- 2. 12V AGM battery mode.
- 3. Winter mode for 12V STD battery and 12V AGM batteries. Suitable for 5°C or less.
- 4. 6V standard lead-acid battery mode.
- 5. Battery level indicator. Each bar represents approximately 20%. The outline border flashes during charging. When the battery is full & during float charging the border and all five bars will be visible.
- 6. Battery voltage indicator, accurate to 0.1V.
- 7. Reverse polarity indicator – disconnect and re-connect correctly.
- 8. Bad battery indicator – battery will require replacement.
- 9. Clamp connection indicator – indicates poor connection.

TECHNICAL SPECIFICATIONS

Protection class	Input voltage	Input current	Output	Max lead-acid battery capacity
IP65	230V 50Hz	0.6A	12V : 4A 6V : 4A	1.2-120Ah

CAR BATTERY MAINTENANCE

It is essential to keep your battery regularly charged up throughout the year, especially during the winter months. In the winter the effectiveness of your car battery is reduced by the cold. Oil is thick, engines are difficult to start and the heater, windscreen wipers and lights are all draining power. It is at this time that batteries have to be at peak power. If your battery is not regularly maintained and kept fully charged, it can cause problems and a possible breakdown.

SUMMARY OF OPERATION:

Mode Selection (select on connection)	Step 1 Battery condition diagnosis & recovery with pulse charging	Step 2 Battery preparation with soft start	Step 3 Automatic current selection & bulk charging	Step 4 Constant voltage absorption charging	Step 5 Maintenance float charging
12V Standard Mode 	On connection to the battery, the charger will automatically measure the battery's voltage ; (1) if a voltage of more than 7.5V is found the charger recognizes the battery as 12V. (2) if a voltage of 7.5V -10.5V is found, recovery charging is activated (0.8A pulse charging) until the voltage exceeds 10.5V; (3) if the voltage doesn't reach 10.5V within 30 minutes a battery fault is indicated. 	Charges at 1A until the voltage reaches 12.8V	Charges progressively through 2A/3A/4A until the voltage reaches 14.4V.	Charges at a constant voltage of 14.4V or 14.8V (depending on originally selected Mode) until the charging current falls back to 1A, at which point charging will cease.	After 1 minute the charger will then measure the battery's voltage again : (1) if the voltage falls below 12V a battery fault is shown ; (2) if the voltage is 12-13.2V the charger will switch to maintenance float charging ; (3) if the voltage is more than 13.2V the charger will wait for the voltage to fall below 13.2V. It will then start maintenance float charging, a small pulse charge which maintains the battery's voltage & condition.
12V AGM Mode 			Charges progressively through 2A/3A/4A until the voltage reaches 14.8V.		
Winter Mode 			Charges progressively through 2A/3A/4A until the voltage reaches 14.8V.		
6V Standard Mode (automatically selected if battery is recognized as 6V) 	On connection to the battery, the charger will automatically measure the battery's voltage ; (1) if a voltage of less than 7.5V is found the charger recognizes the battery as 6V. (2) if a voltage of 1.5V-5V is found, recovery charging is activated (0.8A pulse charging) until the voltage exceeds 5.25V; (3) if the voltage doesn't reach 5.25 V within 30 minutes a battery fault is indicated. 	Charges at 1A until the voltage reaches 6.4V	Charges progressively through 2A/3A/4A until the voltage reaches 7.2V.	Charges at a constant voltage of 7.2V until the charging current falls back to 1A, at which point charging will cease.	After 1 minute the charger will then measure the battery's voltage again : (1) if the voltage falls below 6V a battery fault is shown ; (2) if the voltage is 6 -6.6V the charger will switch to maintenance float charging ; (3) if the voltage is more than 6.6 V the charger will wait for the voltage to fall below 6.6V. It will then start maintenance float charging, a small pulse charge which maintains the battery's voltage & condition.

TROUBLESHOOTING

Display	Fault	Action
Battery polarity reversal symbol displayed.	Battery clamps reversed	Disconnect & reconnect correctly
Clamp indication and voltage symbols displayed	Dirty or oxidized battery terminals. Low or unstable charging current	Clean terminals
No Display	Mains supply not connected	Check socket
Display back light on, display showing 0.0V and clamp symbol.	Battery not connected	Check clamps, replace battery
Output lead fuses should be checked and replaced as necessary (5A blade) in connection with all faults. Also check the fuse in the mains plug, which should only be replaced with a 3A BS1362 fuse. Persistent fuse replacement may indicate a fault with the charger or leads. Check these before each use and do not use if worn or damaged.		

DECLARATION OF CONFORMITY

We declare that this product conforms to the following standards EN60335-1, EN60335-2-29, EN55014, EN61000, and the following Directives 73/23 CEE, 93/68 CEE, 2004/108/EC, 2002/95/EC (ROHS)



Technical Manager

Maypole Ltd

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EMAIL : sales@maypole.ltd.uk

WEB : www.maypole.ltd.uk