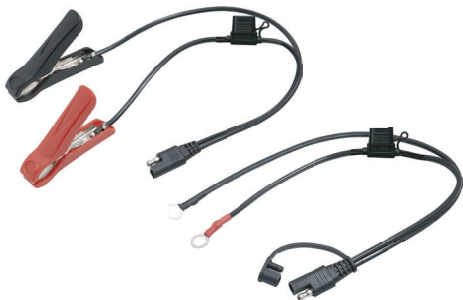


AE1000E

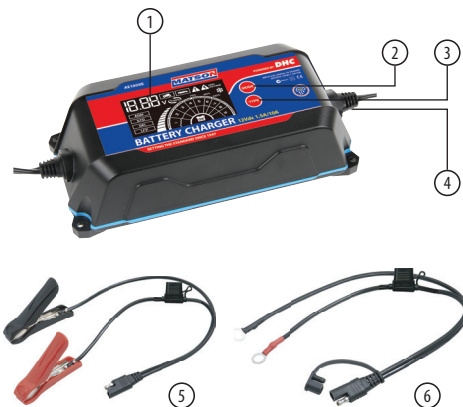


MULTI-USE SMART BATTERY CHARGER

OWNER'S MANUAL



READ ENTIRE MANUAL BEFORE USING THIS PRODUCT



	EN	FR	DE	ES
1	LCD monitor	Ecran LCD	(LCD-Monitor	Pantalla LCD
2	Mode Button	Mode Bouton	Modus-Taste	Botón de Modo
3	Type Button	Type de Bouton	"Typ"-Taste	Botón de Tipo
4	AC socket Plug	Prise AC	WS-Stecker	Conector AC
5	Clamp set	Jeu de pinces	Klemmen-Set	Set de abrazaderas
6	Ring terminal set	Terminal de réseau	Ringkabelsatz	Set de terminal de anillo.

IMPORTANT SAFETY INSTRUCTIONS :

READ AND SAVE THIS SAFETY AND INSTRUCTION MANUAL

1. This manual contains important safety and operating instructions for this battery charger/maintainer. Please read, understand and follow these instructions and precautions carefully.
2. Use this charger only on 12 volts, SLI, AGM SPIRAL, AGM FLATPLATE, GEL, VRLA, CAL/CAL and START-STOP LEAD ACID battery & LFP batteries. Do not attempt to use on other voltages and types of batteries (DRY CELL, NICKEL CADMIUM, NICKEL METAL HYDRIDE, etc.) commonly found in small home appliances. This may cause chargers and batteries to burst, resulting in damage or injury to person and property.
3. Do not expose this charger to direct sunlight, rain or snow.
4. If the battery is installed, please make sure that the vehicle is turned off and no loads are presented.
5. Do not use attachments to this charger that are not recommended and approved.
Non-recommended attachments may result in injury, electric shock, or fire and voids the warranty.
6. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
7. If it is necessary to use an extension cord, it should be properly grounded cord. Use of improper extension cord could result in a risk of fire and electric shock.
 - a) That pins on plug of extension cord are the same number, size, and shape as those of plug on charger;
 - b) That extension cord is properly wired and in good electrical condition;
 - c) That wire size is large enough for ac ampere rating of charger as specified in Table.

AWG size of cord			
Length of cord, feet (m)			
25 (7.6)	50 (15.2)	100 (30.5)	150 (45.6)
18	18	16	14

8. Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
9. Do not operate charger if it receives a sharp blow, been dropped, or otherwise damaged in any way; take it to an authorized service center for repair.
10. Do not disassemble charger; take it to an authorized service center for repair when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire and void the warranty.
11. Don't replace any components / wires by yourself. If there is something broken, take it to an authorized service center for repair when service or repair is required and void the warranty.
12. To prevent injury during cleaning or maintenance, disconnect all

charger from the wall outlet. Use a slightly damp cloth to clean the housing and lead sets. Do not use solvents or soaps.

13. Place the power cords in a location where will not be stepped on, tripped over, or subjected to stress or abuse of any kind.
14. Never attempt to charge a frozen battery. Allow the battery to return to room temperature before connection. Suggested operation range 0 C (32 F) to 50 C (122 F) in ambient temperature.
15. Never use this charger in or on any boat or watercraft directly. You must remove the battery from the boat or watercraft and charge the battery at the properly installed location of this charger.
16. It is not suggested to expose the charger to moisture and should not be subjected to inclement weather.
17. **WARNING – RISK OF EXPLOSIVE GASES**
 - a) **WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GAS DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.**
 - b) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery.
18. **RISK OF EXPLOSIVE GASES MIXTURE**
 - a) Connect and disconnect battery leads only when the unit is not on.
 - b) For a battery installed in a vehicle, first connect red clamp charger output lead to the positive “+” battery post and then connect the black clamp charger output lead to suitable ground away from battery preferably the chassis; do not connect to carburetor or fuel lines. Disconnect the black clamp charger output lead first.
 - c) Do not overcharge battery.
19. **PERSONAL PRECAUTIONS**
 - a) Someone should be within range of your voice or close enough to come to your aid when you work near a lead acid battery.
 - b) Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
 - c) Wear complete eye protection and protective clothing.
 - d) Avoid touching eyes while working near battery.
battery. It could spark or short-circuit the battery or other electrical parts and could cause an explosion.
 - f) Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. It can produce a short circuit current high enough to weld a ring or the like to metal causing a severe burn.
 - g) 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.
 - h) Children should be supervised to ensure that they do not play with the appliance.

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- i) If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.
- j) NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- k) Use the AE1000 for charging SLI, AGM SPIRAL, AGM FLATPLATE, GEL, VRLA, CAL/CAL and START-STOP LEAD ACID & LFP batteries only. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
- l) NEVER charge a frozen battery.

20. PREPARING TO CHARGE

RISK OF CONTACT WITH BATTERY ACID. BATTERY ACID IS A HIGHLY CORROSIVE SULFURIC ACID.

- a) Be sure the area around the battery is well ventilated while battery is being charged. Gas can also be forcefully blown away by the use of a fan or a non-metallic piece of material.
- b) Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- c) Inspect the battery for cracked or broken case or cover. If battery is damaged, do not use charger.
- d) If the battery is not sealed maintenance free, add distilled water in each cell until battery acid reaches level specified by the manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
- e) If necessary to remove the battery from vehicle to charge, always remove ground terminal from battery first. Make sure all accessories in the vehicle are off to ensure you do not cause any arcing.
- f) Review all battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- g) Determine voltage of battery by referring to car owner's manual and make sure it matches output rating of battery charger.
- h) If the battery and terminals have a white or bluish material on them, the charging system performance should be checked. Any performance issues should be corrected prior to the battery being replaced after charging.

21. CHARGER/MAINTAINER LOCATION

RISK OF EXPLOSION AND CONTACT WITH BATTERY ACID.

- a) Locate charger as far away from battery as DC cables permit.
- b) Never place the charger directly above battery being charged. Gases from battery will corrode and damage charger.

- c) Never allow battery acid to drip on charger when reading specific gravity or filling the battery.
- d) Do not operate charger in a closed area with restrict ventilation in any way.
- e) Do not set a battery on top of charger.

22. SETTING UP & OPERATIONS

- a) Mount this charger away from any vehicle repair or service. Make sure never to start or run an engine near the batteries being charged.
- b) Be sure the total amperage used by this charger does not exceed the amperage capacity of the supply source. If you do not know how to determine this, have a qualified electrician determine the capacity for you.
- c) Connect and disconnect DC output clips only after setting any charger switches to the off position and remove AC cord from the electric outlet. Never allow clips to touch each other.
- d) Make sure the battery terminals are clean. Wire brush them if necessary. Clamp the black end (NEG, -) to the negative battery terminal. Clamp the red end (POS, +) to the positive battery terminal.
- e) Connect the charger to a grounded power receptacle that is wired in compliance with local electrical codes.

Note that side mounted batteries will require the insertion of a lead post adapter. Plain bolts are not good conductors or safe. They will not allow for an accurate reading and should not be used.

23. AC CONNECTIONS

- a) This battery charger is for use on 220-240 Vac. Check your AC voltage and make sure the version you take is correct.
- b) The input lead must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- c) The plug pins must fit the receptacles. Do not use with an ungrounded system.
- d) Never alter the AC cord or plug provided. If it does not fit the outlet, have a properly grounded outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock or electrocution.

24. DC CONNECTION PRECAUTIONS

- a) Connect and disconnect DC output clips only after removing AC cord from the electric outlet. Never allow clips to touch each other.
- b) FOR A CHARGER HAVING AN OUTPUT VOLTAGE SELECTOR SWITCH, REFER TO THE CAR OWNER'S MANUAL IN ORDER TO DETERMINE THE VOLTAGE OF THE BATTERY AND TO MAKE SURE THE OUTPUT VOLTAGE IS SET AT THE CORRECT VOLTAGE. IF AN OUTPUT VOLTAGE SELECTOR SWITCH IS NOT PROVIDED, DO NOT USE THE BATTERY CHARGER UNLESS THE BATTERY VOLTAGE MATCHES THE OUTPUT VOLTAGE RATING OF THE CHARGER.

25. CHARGING WHEN BATTERY IS INSTALLED IN VEHICLE A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION TO REDUCE RISK OF A SPARK NEAR BATTERY:

- a) Position the AC and DC cables to reduce the risk of damage by the hood, door and moving or hot engine parts.
- b) NOTE that if it is necessary to close the hood during the charging process, ensure that the hood does not touch the metal part of the battery clips or cut the insulation of the cables.
- c) Stay clear of fan blades, belts, pulleys and other parts that can cause injury.
- d) Determine which post of the battery is grounded (connected) to the chassis. If the negative post is grounded to the chassis (as in most vehicles), see item (e). If the positive post is grounded to the chassis, see item (f).
- e) FOR A NEGATIVE-GROUNDED VEHICLE, connect the POSITIVE (red) clip from the battery charger to the POSITIVE (POS, +) ungrounded post of the battery. Connect the NEGATIVE (black) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- f) FOR A POSITIVE-GROUNDED VEHICLE, connect the NEGATIVE (black) clip from the battery charger to the NEGATIVE (NEG, -) ungrounded post of the battery. Connect the POSITIVE (red) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- g) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -)post.
- h) When disconnecting charger, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.

26. CHARGING WHEN THE BATTERY IS OUTSIDE VEHICLE
A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF ASPARK NEAR BATTERY:

- a) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -)post.
- b) Connect the POSITIVE (red) charger clip to the POSITIVE (POS, +) post of the battery and the NEGATIVE (black) charger clip to the NEGATIVE (NEG, -) post of the battery.
- c) Then, connect the AC supply cord to the electrical outlet.
- d) POSITION YOURSELF AND THE FREE END OF CABLE AS FAR AWAY FROM BATTERYAS POSSIBLE, AND THEN CONNECT THE NEGATIVE (BLACK) CHARGER CLIP TO FREE END OF CABLE.
- e) Do not face battery when making final connection.
- f) When disconnecting the charger, always do so in the reverse order of the connecting procedure and break the first connection while as far away from the battery as practical.
- g) A marine battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

HOW TO CHARGE :

	<p>1. At first, connect the charger to the wall socket. The LCD monitor shows the defaults of battery types/output modes.</p>
	<p>2. Press the Mode/Type button to select the charging program. AE1000E has 3 charging modes and 4 battery types. (Both can be selected only if the device isn't connected to the battery)</p>
	<p>3. Connect the clamps (+/-) to the battery for charging</p>
	<p>4. The error (Exclamation mark) icon will illuminate or flash if the battery clamps are incorrectly connected. Also, the reverse polarity protection will ensure that the battery or charger will not be damaged.</p>
	<p>5. Stop charging at any time by disconnecting AC Plug from the wall socket.</p>

HOW TO REPLACE BATTERY USING THE POWER SUPPLY FEATURE

	<p>1. Connect the charger/power supply to the wall socket. The LCD monitor shows the defaults of battery types/output modes.</p>
	<p>2. Press the Mode/Type button to select the Power supply program. Then it will count down automatically for 5 seconds.</p>
	<p>3. Connect AE1000 & Car's ECU to an active accessory outlet or clamping directly to the battery terminal.</p>
	<p>4. The error (E5) icon will illuminate if the battery voltage is too low. Please refer to the troubleshooting guide to solve the problem.</p>

	<p>5. After making sure AE1000 & Car's ECU is actively connected, disconnect the battery terminal from the old battery and remove the old battery. The AE1000 will supply power to maintain car's ECU memory during this process.</p> <p>Note: 1. Please don't let the battery terminal (+) (-) touch any metal part of the car, or it could disrupt or damage the circuits in the vehicle. 2. Please don't let the battery terminal (+) (-) touch together, or it could disrupt or damage the circuits in the vehicle.</p>
	<p>6. Install a new (good) battery. After connecting the new battery and connecting the battery terminals, you can stop the power supply function by disconnecting AC Plug from the wall socket.</p> <p>Note: 1. Please don't let the battery terminal (+) (-) touch any metal part of the car, or it could disrupt or damage the circuits in the vehicle. 2. Please don't let the battery terminal (+) (-) touch together, or it could disrupt or damage the circuits in the vehicle.</p>

OPERATION GUIDE

To select your suitable charging setting, please refer to the following table:

LCD Indicator	Application
	AGM SPIRAL, AGM FLATPLAT batteries
	SLI(Flooded), EFB, CAL/CAL, VRLA and most of MF batteries
	GEL batteries
<p>RISK OF DAMAGE!</p>	LFP(LiFePO4) batteries CAUTION: Please don't select AGM/STD/GEL to charge LFP battery. This may cause batteries to burst, resulting in damage or injury to person and property.
	Small battery mode Output: 1.5A for 12V batteries Use for smaller batteries. 2.3Ah to 30Ah
	Large battery mode Output: 10A for 12V batteries Use for large batteries. 30Ah to 200Ah



RISK OF DAMAGE!

Power supply function: 13.6V – 10A
 This function is used to keep vehicle-computer's memory active while the battery is being changed or whenever the battery is disconnected from the vehicle's circuit.
CAUTION: IN THIS FUNCTION, THE BATTERY CHARGER IS NOT PROTECTED AGAINST POLARITYREVERSAL.

CHARGING INDICATION



Voltage display
 The charging voltage will be shown on the display



Low-temp function
 It will start up once the ambient temperature is lower than 10°C/ 50 °F automatically.



Charging-error function
 Please refer to the troubleshooting guide below.



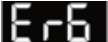



Incorrect battery voltage.
 Please refer to the troubleshooting guide below.

TROUBLESHOOTING

In case of faults, the LCD indicator will display the following indications:

DISPLAY INDICATION	PROBLEM	SOLUTIONS
	Short circuit	Check for poor connection at battery or clamps.
	Battery unrecoverable after a complete desulfation cycle.	It is a bad battery, please replace it.
	a) Battery capacity excessive	Use a battery charger with greater charging capacity.
	b) It is a bad battery which can't accept a charge.	It is a bad battery, please replace it.

	<p>Bad power storage capability</p>	<p>It is a bad battery, please replace it.</p>
	<p>The battery voltage is too low during Power supply mode.</p>	<p>Please check if AE1000E is connected correctly with a 12V battery (not a 6V battery). If you still want to use the function under abnormal situation after checking, please press and hold the type button for 3 seconds to activate the power supply function MANUALLY.</p>
	<p>The Charged LFP battery is less than 10V</p>	<p>It is a bad battery, please replace it.</p>
	<p>Wrong battery voltage.</p>	<p>(You are attempting to charge 24V or more battery). The AE1000E is for 12V battery only. Please use a battery charger with correct voltage output.</p>
<p>Connect the clamps (+/-) to the battery for charging.</p> <p>The LCD monitor just stays in the Standby mode.</p>	<p>a) Circuit open or Clamps are not making a good connection.</p> <p>b) The battery's voltage is lower than 2V.</p>	<p>Check for poor connection at battery and frame.</p> <p>Contact your nearest battery service center or charge the battery with a manual charger to a OCV of 2V or more.</p>
<p>The LCD monitor can't be lit</p>	<p>AC end is not making a good connection.</p>	<p>Check for poor connection at AC side.</p>

INTELLIGENT 9-STAGE CHARGING PROGRAMS
(for 12V Lead-acid battery)



- **Desulfation:** Recovers a deeply discharged or a lightly sulfated battery.
- **Soft start:** Tests that the battery is in a suitable condition to receive a charge.
- **Fast Charge (ready to use):** Charges the battery to 75% in the fastest and most efficient manner.
- **Repair:** If the battery's charged storage capability is weak, it will detect and start the Repair function to recover battery automatically.
- **Absorption:** When the battery reaches 75% charge, the charger output is constant with high voltage small current to 90% in a safe manner.
- **Pulse:** When the battery reaches 90% charge, the charger starts a charge pulse with a smaller current to fully charge in the safest manner.
- **Analysis:** Tests that the battery is retaining the charge that has been delivered.
- **Top off:** Fully charge the battery without overcharging the battery.
- **Maintenance:** Maintains the battery in a full state of charge.

INTELLIGENT 6-STAGE CHARGING PROGRAMS
(for 12V LiFePO4 battery)



Specification

Charger model	AE1000E
Rated voltage AC	220-240VAC, 50-60Hz
Battery type	All types of 12V LEAD ACID Batteries, (AGM, GEL, STD,VRLA, MF, CAL/CAL and START-STOP) & LFP batteries
Min battery voltage	Lead-acid: 2V LFP: 10V (for safety concerns)
Ambient temp.	-20°C to +50°C
Dimensions	210 (L) X 98 (W) X 60 (H) mm
Weight	880 g