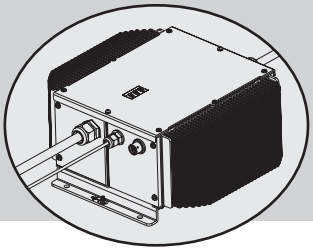
EAGLE CHARGER

Owner's Manual

EAGLE 48V-22A
EAGLE 36V-25A

Version status B .2012-03-06



Warning & Danger

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

This manual contains important safety and operating instructions read before using charger.

Warning: Use charger only with an algorithm selected that is appropriate to the specific battery type. Other usage may cause personal injury and damage. Lead acid batteries may generate explosive hydrogen gas during normal operation. Keep sparks, flames, and smoking materials away from batteries. Provide adequate ventilation during charging. Never charge a frozen battery. Study all battery manufacturers specific precautions, ie. maximum charge rates and if cell caps should be removed while charging.

Danger: Risk of electric shock. Connect charger power cord to an outlet that has been properly installed and grounded in accordance with all local codes and ordinances. A grounded outlet is required to reduce risk of electric shock – don ot use ground adapters or modify plug. Do not touch uninsulated portion of output connector or uninsulated battery terminals. Disconnect the AC supply before making or breaking the connections to the battery. Do not open or disassemble charger. Do not operate this charger if the AC supply cord is damaged or if the charger has received a sharp blow, been dropped, or otherwise damaged in any way – refer all repair work to the manufacturer, or qualified personnel. 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.

INFORMATIONS IMPORTANTES DE SÉCURITÉ

Ce manuel contient des instructions importantes concernant la sécurité et le fonctionnement.

Attention: Utiliser le chargeur seulement avec un algorithme approprié au type spécifique de batterie. D´autres types de batteries pourraient éclater et causer des blessures ou dommages. Les batteries peuvent produire des gaz explosifs en service normal. Ne jamais fumer près de la batterie et éviter toute étincelle ou flamme nue à proximité des batteries. Fournissez une ventilation adéquate du chargement. Ne jamais charger une batterie gelée. Prendre connaissance des mesures de précaution spécifiées par le fabricant de la batterie, p. ex., vérifier s´il faut enlever les bouchons des cellules lors du chargement, et les taux de chargement.

Danger: Risque de chocs électriques. Ne pas toucher les parties non isolées du connecteur de sortie ou les bornes non isolées de la batterie. Toujours connecter le chargeur à une prise de courant mise à la terre. Déconnectez la source AC avant de faire ou défaire les connections à la batterie en chargement. Ne pas utiliser le chargeur si le cordon d'alimentation AC est endommagé ou si le chargeur est abîmé suite à une chute ou autre indicent. Ne pas ouvrir ni désassembler le chargeur – référer toute réparation aux personnes qualifiées. Cet appareil n'est pas destiné à un usage par des personnes (dont les enfants) avec des facultés motrices, sensorielles ou mentales réduites, ou ayant une expérience et des connaissances insuffisantes, à moins qu'elles sont sous la supervision ou reçoivent les instructions sur l'utilisation de l'appareil d'un répondant garant de leur sécurité. Les enfants devraient être surveillés afin qu'il ne jouent en aucun temps avec l'appareil.

Operation illustration

I Inspection of the charger acquiescent charging category

Entering display charge category mode :

1) Disconnect AC input wires.
2) Disconnect between the charger output and battery.
3) Connect AC input wire, display continues to show b** (acquiescent charging category) 10 seconds, exit the acquiescent charging mode, display shows E02.
4) Disconnect AC input wires. If there is no need to change the charging category setting, the positive(Red)/ negative (Black) terminals of output wires should be connected to the battery positive(Red)/ negative(Black) terminals. After connecting the AC grid power, the charger can start charging the battery.

II. Change the charger default setting :

1) Connect charger output negative wire, disconnect output positive wire, connect to AC grid power. Enter the battery selection mode ;
2) When the display shows the default charging category, Use the charger output wire positive ring terminal to touch the battery positive terminal for 3 seconds (+/-0.5 second) Remove the ring terminal. The display shows the addition of battery category (eg. b02adding to b18 Remark: If the charger output wire positive ring terminal is removed, the display shows the battery charging category without addition. This illustrates that the touching time is not sufficient for 3 seconds. Please repeat the operation);
3) If this continues to increase, steps 2 should be repeated. (Remark: If the operation stop time exceeds 30 seconds during the operation process, the display will show E02. Please disconnect the grid power until nothing shown on display. Then, connect to grid power again and repeat the setting);
4) If the current setting needs to be stored, the charger output wire positive ring terminal should be used to touch the battery positive terminal for more than 10 seconds. When the relay activation sound is heard and the display flashes, then the new setting is successfully stored ;
5) Disconnect the grid power until nothing shown on display. Then, re-connect the grid power, and inspect if the charger charging category is correct.
6) After the inspection confirms correct, the grid power should be disconnected until nothing shown on display. The charger output wire positive terminal (red) should be properly connected to the battery positive terminal. Then, connect to the grid power, and start charging.

Installation Instructions

Red wire: charger positive terminal output wire, connected to battery positive terminal.

Black & white wires: charger battery temperature sensing wire and negative terminal output wire, connected to battery negative terminal.(Remark: must connect to battery negative terminal block to facilitate charger capable of measuring battery temperature properly.)

Green wire: charging brake wire (user standby)

When this charger is connected to battery without AC grid power connection, this wire will output a high level signal same as the battery voltage.

When this charger is connected to battery with AC grid power connection, this wire will output a 0V voltage level signal. User can control the vehicle based on the voltage level signal of this wire. The vehicle cannot be driven during charging process (green wire output at low voltage level signal). The vehicle can only be driven after removing the AC grid power (green wire output at high voltage level signal).

Notes: During fixed the output terminals please make sure that the temperature sensor is close to the battery negative terminal. Then, the charger can be operated to sense the battery internal temperature. ***See right picture:***

During charger operation, MCU will monitor the internal temperature relative to the ambient temperature and adjust the output power accordingly.

Charging display process

TRE → BUL → Constant voltage → Float charge → Fully charged

LED display

1	Red LED steady on: charger damage (E06);
2	Red LED flashing: error occurred, see 'Alert and error display';
3	Orange LED flashing: alert, see 'Alert and error display';
4	Green LED flashing (Slow): <80% Charger;
5	Green LED flashing (Frequent): >80% Charger;
6	Green LED steady on: battery fully charged.

Alert and error display

Statrs	LED flashing	Display Code	Reason	Solving method
Charging (Red LED flashing & Red LED steady on)		E01	No charging function	Inspect if the connecting terminals are in proper connection.
			Battery temperature is too high or too low	Check if the battery temperature is in the range of -20℃ to 50℃.
		E02	No battery connection ; battery voltage too high or too low	48V: Inspect if the battery voltage is in the range: 12V to 55.2V. 36V: Inspect if the battery voltage is in the range: 12V to 41.4V.
		E03	Battery is not fully charged for long time (overtime charging)	Inspect if the battery connecting terminals are loose or rusted.
		E04	Battery cannot have TRE charging, charging to the least normal voltage, that means voltage unable to be charged up	Inspect if the battery is shorted or individual battery cell damaged.
		E05	Charger internal temperature high	Ensure that the surrounding temperature is not too high, and ventilation is good, and the charger should be turned off.
		E06	Charger internal damage	Turn off the charger and send it to service dept for repairing
		E07	Grid power voltage low	Inspect the grid power
Discharging (Red LED flashing)		E08	During the process of using electric car, battery voltage is too low, electric car stops operation.	Charge the battery
Charging (Orange LED flashing)		AL1	Grid power voltage alert	Inspect the grid power
Discharging (Orange LED flashing)		AL2	During the process of using electric car, battery voltage alert, operation of electric car decelerates.	Charge the battery

Discharging Protect

When the battery voltage is below 43.2V(48V: 43.2V, 36V: 32.4V) for 15 seconds during the electric vehicle driving process, the charger LED will flash orange color. The electric vehicle will be driven with decelerated speed to remind user to charge battery as soon as possible. If the user continues to drive and the battery voltage drops below 40.8V(48V: 40.8V, 36V: 30.6V) for 5 seconds, the charger LED will flash red color. The electric vehicle will stop operation. Please charge the battery.

Product Specifications

DC OUTPUT	EAGLE 48V-22A	EAGLE 36V-25A
Voltage-nom(V)	48	36
Voltage-max(V)	67	50.3
Current-max(A)	22	25
Battery Type	Applicable to: Lead acid battery	
Reverse Polarity	Electronic protection-auto-reset	
Short Circuit	Electronic current limit	
AC Input		
Max Voltage Range(V)	90~265V	
Frequency(Hz)	47~63Hz	
Current-max(A)	12A@104VAC	
Full Load AC Power Factor	>0.98	
Dimensions(cm)	27.0 x 26.5 x 12.5	
Weight	5.7 Kg (12.5 lbs)	
Operating Temperature	-30°C～+50°C (-22°F～122°F),	
Storage Temperature	-40°C～+70°C (-40°F～158°F)	

Note: If the unit is continuously supplying rated output current for long time, the rated output current may be reduced at higher operating temperature.

Safety Certification: **UL CE FCC**

Maintenance Instructions

1. Dot expose charger to oil, mud or direct heavy water spray when cleaning vehicle.
2. The enclosure of the charges has been tested successfully to EN60529, meeting IP46. The AC supply inlet is rated to Ip20, which is suitable for indoor use only. Keep all AC connections clean and dry.
3. If the detachable input power supply cord set is damaged, replace with a cord that is a safety approved detachable cord, 3 conductor, 1.5mm² minimum, rated appropriately for industrial use. The cord set must be terminated on one end with a grounding type input connector appropriate for use in the country of destination and, on the other end, an output grounding type IEC 60320 C14 plug.

Battery category and program code contrast table

Warning:

Before charging, user must fully understand the voltage and category of the battery to be charged. User must only start the charging process after confirming that the battery category are properly matching with the charger displayed battery category settings. If not, the battery may be damaged leading to unnecessary loss.

Code	Battery type
b02	Trojan T105
b18	Trojan T875
b19	US 2000
b20	US 2200
b21	US 250HC
b22	HOPPECKE 6TB-170