

EPOWER INDUSTRIAL

MULTI STAGE BATTERY CHARGER



Operation & Owner's Manual

24V, 36V & 48V Models

Rev: 1.2



PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCE

For safe and optimum performance, the Enerdrive ePOWER Industrial Battery Charger must be used properly. Carefully read and follow all instructions and guidelines in this manual and give special attention to the CAUTION and WARNING statements.

Disclaimer

While every precaution has been taken to ensure the accuracy of the contents of this guide, Enerdrive assumes no responsibility for errors or omissions. Note as well that specifications and product functionality may change without notice.

Important

Please be sure to read and save the entire manual before using your Enerdrive ePOWER Industrial Battery Charger. Misuse may result in damage to the unit and/or cause harm or serious injury. Read manual in its entirety before using the unit and save manual for future reference.

Product Numbers - ePOWER Industrial Battery Charger Series

EPI-2430	ePOWER Industrial Battery Charger 24V / 30Amp
EPI-3620	ePOWER Industrial Battery Charger 36V / 20Amp
EPI-4815	ePOWER Industrial Battery Charger 48V / 15Amp

ePOWER Industrial Battery Charger Owners Manual Rev. 1.2. This Manual applicable to all units with serial number prefix EPI.

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1. INTRODUCTION

Thank you for purchasing the Enerdrive ePOWER Industrial Battery Charger. With our state of the art, easy to use design, this product will offer you reliable service for providing a multistage battery charger to charge the different types of batteries you have installed in applications such as electric vehicles, fork lifts, floor cleaning machines, golf carts, and electric mobility scooters. This manual will explain how to use this unit safely and effectively. Please read and follow these instructions and precautions carefully.

IMPORTANT SAFETY INFORMATION:

This section contains important safety information for the Enerdrive ePOWER Industrial Battery Charger. Each time, before using the Enerdrive ePOWER Industrial Battery Charger, READ ALL instructions and cautionary markings on or provided with the battery charger, and all appropriate sections of this guide. The Enerdrive ePOWER Industrial Battery Charger contains no user serviceable parts. Opening up the charger will void product warranty. See Warranty section for how to handle product issues.



WARNING

FIRE AND/OR CHEMICAL BURN HAZARD

- Do not cover or obstruct any cooling fins and/or install in a zero-clearance compartment.



WARNING

SHOCK HAZARD. KEEP AWAY FROM CHILDREN!

- Avoid moisture ingress. Never expose the unit to snow, water, etc.



WARNING: EXPLOSION HAZARD!

- DO NOT use the Enerdrive ePOWER Industrial Battery Charger in the vicinity of flammable fumes or gases (such as gas bottles or large engines).
- AVOID covering the cooling fins. Always operate unit in an open and well ventilated area.
- Prolonged contact to high heat or freezing temperatures will decrease the working life of the unit.



WARNING

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH OR SERIOUS INJURY

- When working with electrical equipment or lead acid batteries, have someone nearby in case of an emergency.
- Study and follow all the battery manufacturer's specific precautions when installing, using and servicing the battery connected to the charger.
- Wear eye protection and gloves.
- Avoid touching your eyes while using this unit.
- Keep fresh water and soap on hand in the event battery acid comes in contact with eyes. If this occurs, cleanse right away with soap and water for a minimum of 15 minutes and seek medical attention.
- Batteries produce explosive gases. DO NOT smoke or have an open spark or fire near the system.
- Never attempt to re-charge a damaged, frozen or non-rechargeable battery.
- Keep unit away from moist or damp areas.
- Avoid dropping any metal tool or object on the battery. Doing so could create a spark or short circuit which goes through the battery or another electrical tool that may create an explosion.
- Battery charger must be plugged in to an earthed and Australian Standards compliant mains supply. If the units power cable is damaged, replace the cable immediately.



LIMITATIONS OF USE

- Do not use in connection with life support systems or other medical equipment or devices.
- Charger is not to be used by persons with reduced physical or mental capabilities or lack of knowledge and experience. Not to be operated or used by children.



WARNING

- Enerdrive recommends that all wiring be done by a skilled technician to ensure adherence to the best practice standards for on-board DC electrical installations. Failure to follow these instructions can damage the unit and could also result in personal injury or loss of life.



CAUTION

- Before Beginning Your Unit Installation, Please Consider The Following:
- The unit should be used or stored in an indoor area away from direct sunlight, heat, moisture or conductive contaminants. Do not install the ePOWER Industrial Battery Charger in corrosive environments.
- When placing the unit, allow a minimum of 75mm of space around the unit for optimal ventilation.

2. PRODUCT DESCRIPTION

The Enerdrive ePOWER Industrial Battery Charger package includes the items listed below.

- ePOWER Industrial Battery Charger
- IEC 240Vac Power Lead
- Waterproofing grommet for Power Lead
- Owner's manual

3. OPERATION ILLUSTRATION

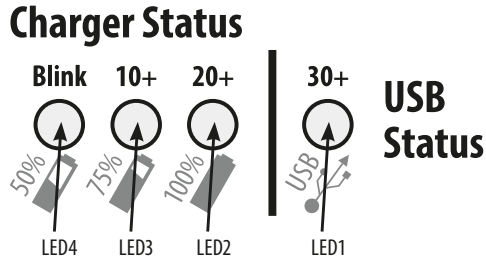
LED Indicators and Fault Signals

LED Indicators during start up:

In order to find out the installed charging profile in the unit, please follow the steps below.

1. Make sure the DC cables are not connected to the battery.
2. Connect the AC input to the charger and switch on.
3. The charger LED display panel will indicate the battery charge algorithm profile installed.

Battery Capacity Indicators:



Capacity	LED2 (100%)	LED3 (75%)	LED4 (50%)
<50%	○	○	★ (Blinking)
<50%	○	★ (Blinking)	●
<75%	★ (Blinking)	●	●
100%	●	●	●

LED will be showing Battery Charging Profile as below:

LED 1	LED 2 (100% Indicator)	LED 3 (75% Indicator)	LED 4 (50% Indicator)
Algorithm 30+	Algorithm 20+	Algorithm 10+	Algorithm 1 - 9

For example;

If the charging profile has been selected to #35, LED 1 will be on to represent the charging profile is 30, and LED 4 will blink 5 times to indicate algorithm #35, while LED 2 and LED 3 will remain off.

If the charging profile has been selected to #18, LED 3 will be on to represent the charging profile is 10, and LED 4 will blink 8 times to indicate algorithm #18, while LED 1 and LED 2 will remain off.

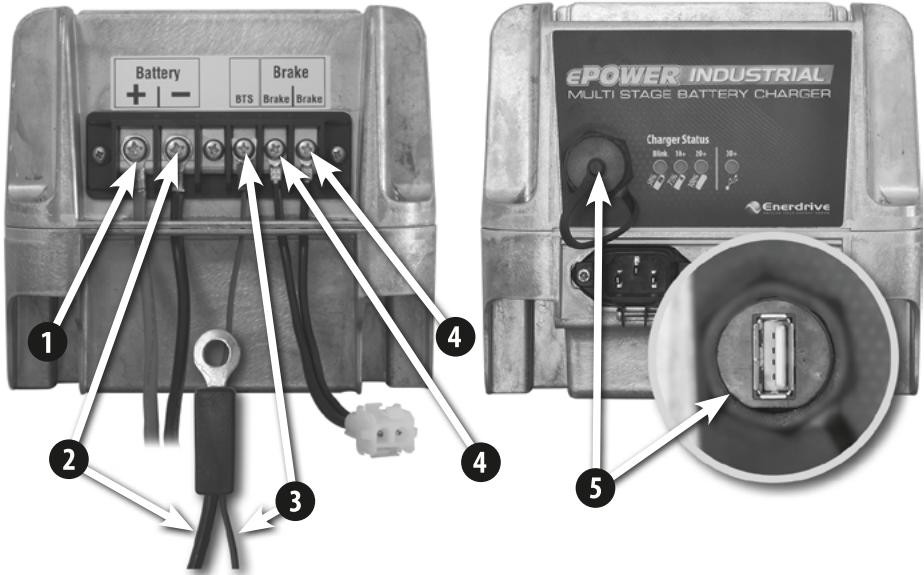
4. MAINTENANCE INSTRUCTIONS

1. Do not expose the charger to oil, dirt, mud or direct heavy water spray when cleaning vehicle.
2. The enclosure of the charger has been tested successfully to EN60529, meeting IP66 compliance.
3. If the detachable AC input power supply cable is damaged, replace with a cable that is a safety approved detachable cable, 3 conductor, 1.5 mm² minimum, and rated appropriate for use in the country of destination. AC input type to the charger is, type IEC 60320 C14 plug.



WARNING

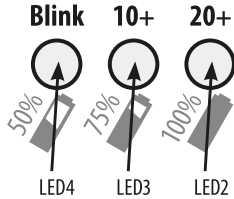
- Please make sure the battery connection cables are correctly connected to the charger terminals before operating the charger



1	Connect to the positive terminal of the battery
2	Connect to the negative terminal of the battery
3	Connect to the Battery Temp Sense (BTS)
4	Interlock Cable (When charger is charging, the interlock cables will form an open circuit with no voltage. When charger is not charging, the interlock cable will form a short circuit with no voltage)
5	USB Terminal for Charge Profile settings

5. FAULT INDICATOR

When a fault occurs, LED2(100%)/LED3(75%)/LED4(50%)will blink at the same time.



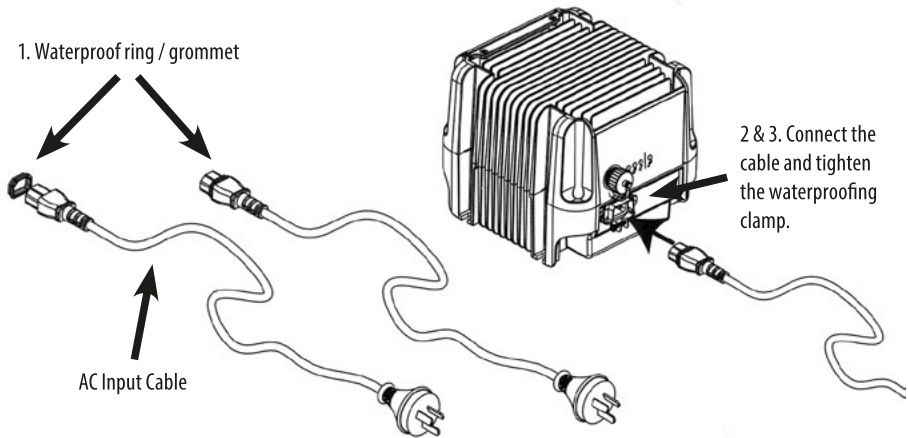
Blinking Frequency (Every 4 sec)	Fault Cause	Solution
1	The battery is not connected or the battery voltage is too low	1) Check battery connection is correct. 2) Check charger connection is correct. Check each battery is good.
2	Abnormal AC Power Input (Voltage)	1) Check AC input cord is connected between charger and AC outlet. 2) Make sure AC plug is tightly inserted into AC outlet.
3	Charger High Temperature Protection	1) Charger shuts down and enters protection mode due to charger/environmental temperature is too high. Please place the charger in a well-ventilated environment. 2) Disconnect the charger and wait for 15-20mins before reconnecting.
4	Battery High Temperature Protection	1) Charger will reduce output current and stop charging when the battery temperature exceeds 50°. 2) Disconnect the charger and wait for 15-20 mins before reconnecting for charging.
5	Output Current is too large	Return to the factory for repair.
6	Battery voltage is too high	Check and assure that the correct output battery voltage is connected.
7	Battery voltage is too low	Check that the correct output battery voltage is connected.

6. WATERPROOFING INSTALLATION

Waterproofing ring installation of the AC input cable.

1. Slip waterproof ring or grommet over the AC input cable
2. Connect the AC input cable into the charger ensuring the waterproofing ring is seated correctly
3. Firmly tighten the waterproofing clamp using a Phillips head screw driver

***NOTE:** Take care to not overtighten the waterproof clamp.



7. SPECIFICATIONS

Model:	EPI-2430	EPI-3620	EPI-4815
DC Output			
Voltage-nom(V)	24V	36V	48V
Voltage-max (V)	38V	57V	76V
Current-max (A)	30A	20A	15A
Applicable to Battery	AGM, Flooded, GEL(12 Cell, 40Ah Min)		
Reverse Polarity	Electronic protection - auto - reset		
Short Circuit	Electronic protection - auto - reset		
AC Output			
Voltage Range (V)	100 - 240V		
Frequency (Hz)	45 - 65Hz		
Current-max (W)	850W		
Full Load AC Power Factor	>0.98		
Dimensions:	20.7x18.0x16.0 cm		
Weight	4.6kg		
Operating Temperature:	- 30C ~ +50C		
Storage Temperature	- 40C ~ +70C		

Note: Specifications are subject to change without notices.



8. CHARGE PROFILE

Charge Profile Instructions:

Changing the Charge Profile on the Enerdrive ePOWER Industrial Charger

The ePOWER Industrial charger has the ability to be programmed with a charge profile (algorithm) to suit any battery. The default charge profile that comes installed on the charger is b02. This charge profile is suited for Trojan T105 batteries. You can change the charge profile installed on the charger at any time via the USB port on the front of the charger.

NOTE: You will require a formatted (FAT32) USB memory stick with a capacity of 1024KB or larger.

Please carefully follow the steps below to change the charge profile: -

1. Download and save the Battery Algorithm Listing from the download link **www.enerdrive.com.au/Algorithm/ePOWER-algorithm.xlsx**
 2. Select a charge profile that matches the batteries you are using from the "Charge Profile Listing" tab in this spreadsheet.
 3. Right click on the selected Charge Profile in the "Charge Profile" column and click "Copy".
 4. Now "Paste" the copied charge profile to your formatted USB memory stick.
 5. Make sure the charger is NOT connected to the battery or AC power.
 6. Unscrew the round cap covering the USB port on the front of the charger and insert the USB memory stick.
 7. Plug the AC power cord into the charger and switch ON AC power.
 8. Please allow up to 1 min for programming. Programming is complete once USB status LED is "SOLID".
 9. Switch OFF AC power to the charger.
 10. Remove USB memory stick and screw USB cap back on.
 11. Switch ON AC power to the charger and check the charge profile you selected has been installed. The charger will display the installed charge profile as a series of flashes of the Battery Capacity LED's. See user manual for explanation.
 12. Switch OFF AC power to the charger.
 13. Connect the charger to the DC battery.
 14. Switch ON the AC power to the charger to begin charging with the installed charge profile.
- The ePOWER Industrial charger can also be programmed with a custom (user defined) charge profile for batteries that are not listed. If you cannot find a suitable charge profile for your batteries please contact Enerdrive.

PLEASE NOTE: *ALL relevant battery charging specifications MUST be supplied in order for us to be able to create a custom charge profile for you. See following page for the Charge Profile Table.*

Charge Profile Table:

Algorithm No.	Manufacturer	Model	Batt Type	Ah_C20
b38	Custom Setup	Custom Setup	Custom	Custom
b01	Common	Common type of flooded	Flooded	300
b02	Trojan	TROJAN T105	Flooded	225
b04	Discover	Discover AGM	AGM	250
b05	US	US battery Flooded	Flooded	250
b06	Trojan	Trojan 30XHS	Flooded	130
b07	Trojan	Trojan T125	Flooded	240
b08	Trojan	Trojan J305	Flooded	330
b10	Trojan	Trojan T145	Flooded	260
b11	Trojan	Trojan T1275	Flooded	150
b12	Discover	Discover DGC6A-220D AGM	AGM	220
b13	Trojan	Trojan T605	Flooded	210
b18	Trojan	Trojan T875 Flooded	Flooded	170
b19	US	US2000 Flooded	Flooded	216
b20	US	US2200 Flooded	Flooded	232
b21	US	US250hc Flooded	Flooded	280
b25	Fullriver	Fullriver DC224-6 AGM	Flooded	224
b27	Trojan	Trojan L16P-AC Flooded	Flooded	420
b28	Common	Generic 200-370Ah AGM	AGM	300
b29	US	US.8VGCXC2 Flooded	Flooded	170
b30	US	US. 12VXC2 Flooded	Flooded	155
b31	US	US 305XC Flooded	Flooded	310
b32	US	US 125 XC2 FLA	Flooded	242
b33	US	US 145 XC2 FLA	Flooded	251
b34	Crown	Crown CR-235 FLA	Flooded	235
b35	Crown	Crown CR-245 FLA	Flooded	245

9. WARRANTY



2 Year Limited Warranty:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The limited warranty program is the warranty that applies to all Enerdrive products, and it sets forth all the responsibilities of Enerdrive. There is no other warranty, other than those described herein. Any implied warranty of merchantability of fitness for a particular purpose of the Enerdrive product is limited in duration to the duration of this warranty.

This Enerdrive product is warranted, to the original purchaser only (proof of purchase is required), to be free of defects in materials and workmanship for two years from the date of purchase* without additional charge. The warranty does not extend to subsequent purchasers or users other than OEM applications.

This Enerdrive product is not intended for commercial use. This warranty does not apply to damage to units from misuse or incorrect installation/connection. Misuse includes wiring or connecting to improper polarity power sources.



3 Year Pro Rata Support Program:

In addition to our standard 2 years warranty, we offer a further 3 years of support with our pro-rata service program. In the event of an out of warranty product issue we can upgrade you with a new product for a fraction of the new price. With repair on many products becoming harder and harder these days, this program provides our customers with the greatest peace of mind possible.

Return and/or Repair Policy:

If you are experiencing any problems with your unit, please contact our customer service department at support@enerdrive.com.au or Phone 1300 851 535 before returning product to retail store. After speaking to a customer service representative, if products are deemed non-working or malfunctioning, the product may be returned to the purchasing store within 30 days of original purchase. Any defective unit that is returned to Enerdrive within 30 days of the date of purchase will be replaced free of charge.

If such a unit is returned more than 30 days but less than two years from the purchase date, Enerdrive will repair the unit or, at its option, replace it, free of charge. If the unit is repaired, new or reconditioned replacement parts may be used, at manufacturer's option. A unit may be replaced with a new or reconditioned unit of the same or comparable design. The repaired or replaced unit will then be warranted under these terms for the remainder of the warranty period. The customer is responsible for the shipping charges on all returned items back to Enerdrive.

Limitations:

This warranty does not cover accessories, such as adapters and batteries, damage or defects result from normal wear and tear (including chips, scratches, abrasions, discolouration or fading due to usage or exposure to sunlight), accidents, damage during shipping to our service facility, alterations, unauthorized use or repair, neglect, misuse, abuse, failure to follow instructions for care and maintenance, fire and flood.

If your problem is not covered by this warranty, contact our Support Team at support@enerdrive.com.au or phone 1300 851 535 for general information if applicable.