

Chargetek TPRO-220

Lead-Acid Battery Charger Specification

1 INTRODUCTION

This document establishes the performance of the Chargetek TPRO-220 two output Lead-Acid Battery Charger.

2 DESCRIPTION

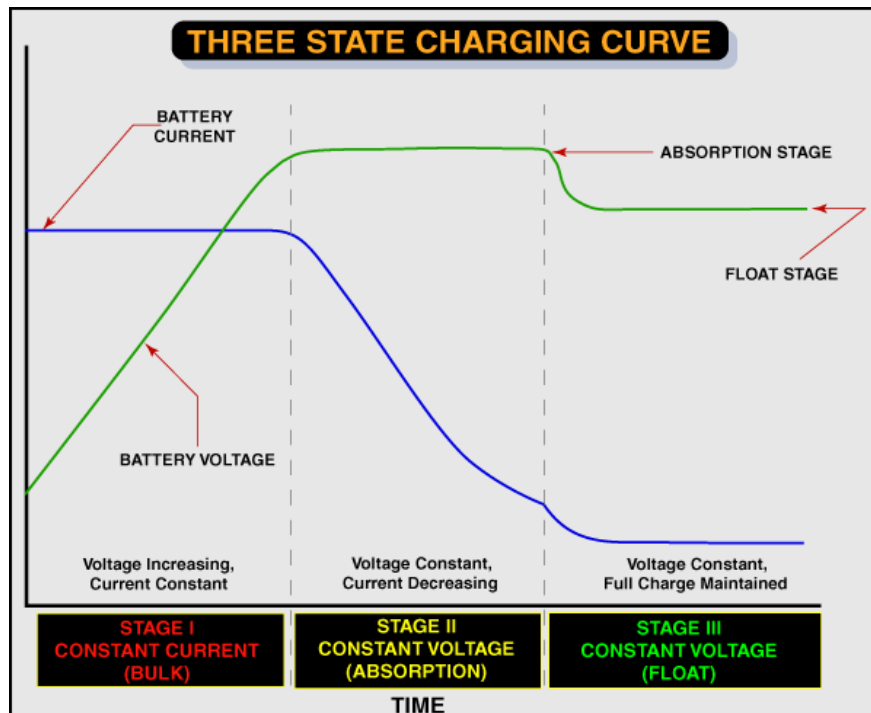
The TPRO-220 is an intelligent two bank lead acid battery charger with two fully isolated outputs. The charger is intended for use with 12/24/36V battery systems and operates from 120VAC 50-60Hz service. LED indicators are provided for state of charge, charging current and other information.

The charger is hermetically sealed, completely waterproof and extremely vibration resistant. The TPRO-220 is convection cooled and has thermal regulation to phase back the charging current in high ambient temperature environments. Charging is implemented with a three state algorithm insuring 100% returned capacity.

3 CHARGE ALGORITHM AND INDICATORS

Fast charge: Supplies I_{FAST} in a constant current mode until the battery voltage reaches $V_{FASTTERM}$. Charging mode changes to absorption mode.

Absorption mode: Regulates battery voltage at $V_{FASTTERM}$ until charger current drops to $I_{ABSORBTERM}$ at which time the charging mode changes to float charge.



Float charge: Regulate battery voltage at V_{FLOAT} . If the output current increase to $I_{\text{FLOATTERM}}$ the charger will begin charging in the fast charge mode.

The following LED indicators are provided:

- Charging Mode:** Individual LEDs for Fast (Red), Absorption (Yellow) and Float (Green) modes.
- Charging Current:** Three LEDs are provided to indicate output current; 0-6A(green), 7-13A(Yellow), 14-20A(red)
- Output On:** Green LEDs, one for each output, illumination indicates the outputs are connected correctly.
- AC On light:** Indicates AC power is applied

4 PROTECTION AND SAFETY FEATURES

The following protection features are incorporated into the TPRO-220:

Reverse Polarity: Battery leads may be reversed without damage to the charger or battery.

Short Circuit: The output may be short-circuited without damage to the charger.

Over Voltage: In the event of a component failure resulting in loss of regulation, the charger will automatically shutdown to prevent damage to the battery.

Over Temperature:Over temperature protection is provided to lower the output current until the unit's temperature drops to an acceptable level.

Vibration Resistant:The TPRO-220 is encapsulated an UL approved, flame retardant material providing rigid support for all internal components.

Waterproof: The encapsulation provides complete waterproofing.

Wire Insulation: AC power cord is SJTOWA: weather and oil resistant insulation.

Charge Balancing: Each battery in the stack is charged independently providing equal charging for each battery and eliminating stack imbalances.

5 ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	Conditions
V_{AC}	AC Supply Voltage	100-132	VAC	47Hz – 63Hz
I_{ACFAST}	AC Current	7.0	Amps AC	100VAC
T_{OPR}	Operating Temperature	-10 to 50	°C	Ambient

T _{STG}	Storage Temperature	-30 to 80	°C	
	Operating Humidity	99	% RH	

6 DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Minimum	Typical	Maximum	Unit	Conditions
V _{FASTTERM}	Fast charge termination voltage	14.6	14.7	14.8	V	25 °C
V _{FLOAT}	Float voltage	13.4	13.5	13.6	V	I _{OUT} < 1.0 A, 25°C
I _{FAST}	Fast charge current	20	21	22.5	A	V _{BATTERY} = 12V
I _{ABSORBTERM}	Absorption mode charge termination current	1.5	1.8	2.2	A	
I _{FLOATTERM}	Float charge termination current	3.3	3.5	3.7	A	
I _{STANDBY}	Standby Current		10		ma	AC Off

7 PHYSICAL CHARACTERISTICS

Size: 8" x 7" x 3.5" – see Figure 1
 Weight: 13 lbs.
 AC Cord length: 6'
 DC Cord length: 6'
 DC Cord termination: Ring terminals (can be changed upon request)

Figure 1 – TPRO-220 Physical Dimensions

