

# Chargetek TPRO-320 Lead-Acid Battery Charger Specification

## 1 INTRODUCTION

This document establishes the performance of the Chargetek TPRO-320 three output Lead-Acid Battery Charger.

## 2 DESCRIPTION

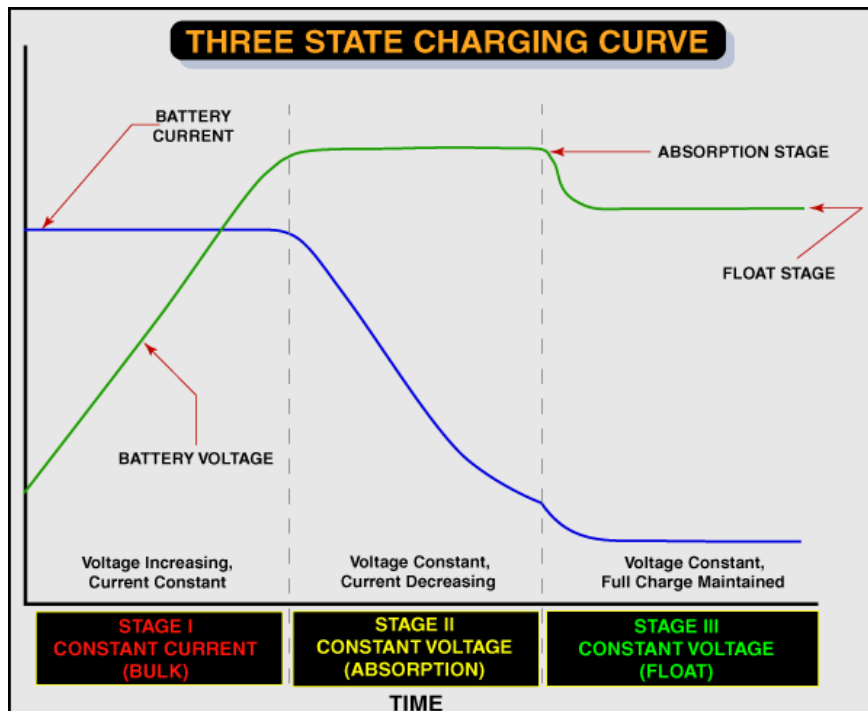
The TPRO-320 is an intelligent three bank lead acid battery charger with three fully isolated outputs. The charger is intended for use with 12/24/36V battery systems and operates from 120VAC 50-60Hz service. LED indicators are provided for state of charge, charging current and other information.

The charger is hermetically sealed, completely waterproof and extremely vibration resistant. The TPRO-320 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  $V_{\text{FLOAT}}$ . 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-320:

**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-320 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
$V_{\text{AC}}$	AC Supply Voltage	100-132	VAC	47Hz – 63Hz
$I_{\text{ACFAST}}$	AC Current	7.0	Amps AC	100VAC
$T_{\text{OPR}}$	Operating Temperature	-10 to 50	°C	Ambient

T <sub>STG</sub>	Storage Temperature	-30 to 80	°C	
	Operating Humidity	99	% RH	

## 6 DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Minimum	Typical	Maximum	Unit	Conditions
V <sub>FASTTERM</sub>	Fast charge termination voltage	14.6	14.7	14.8	V	25 °C
V <sub>FLOAT</sub>	Float voltage	13.4	13.5	13.6	V	I <sub>OUT</sub> < 1.0 A, 25°C
I <sub>FAST</sub>	Fast charge current	20	21	22.5	A	V <sub>BATTERY</sub> = 12V
I <sub>ABSORBTERM</sub>	Absorption mode charge termination current	1.5	1.8	2.2	A	
I <sub>FLOATTERM</sub>	Float charge termination current	3.3	3.5	3.7	A	
I <sub>STANDBY</sub>	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-320 Physical Dimensions

