Chargetek RTIC-1405
Lead-Acid Battery Charger Specification

1 INTRODUCTION

This document establishes the performance of the RTIC1405 Lead-Acid Battery Charger.

2 DESCRIPTION

The RTIC1405 is a single 48V-output waterproof, convection cooled lead-acid battery charger utilizing a three-state charge algorithm. The RTIC1405 is intended for use with 48V battery systems and operates from 120VAC 50-60Hz service. Spark free hook-up is provided as long as AC power is off.

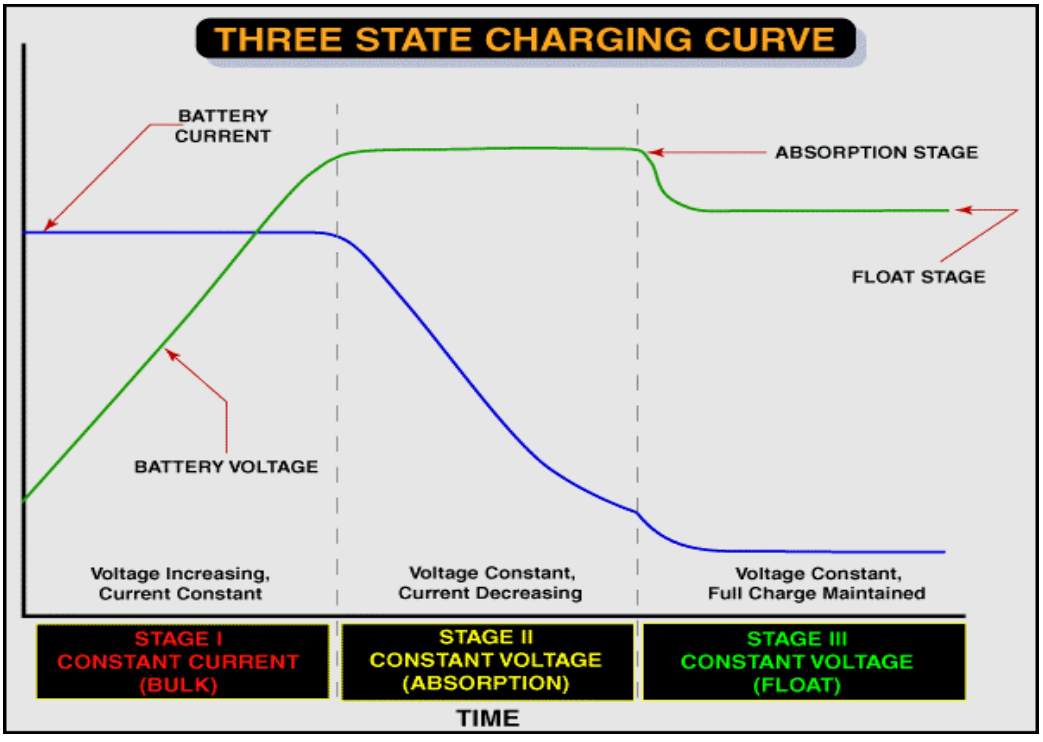
3 CHARGE ALGORITHM AND INDICATORS

The charge algorithm is as follows;

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 $I_{FLOATTERM}$ 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; 0-2.0A(green), 2.0-3.5A(Yellow), 3.5-5.0A(red)

Output On: Green LED, when illuminated indicates the output is connected correctly.

AC On Light: Indicates AC power is applied

4 PROTECTION AND SAFETY FEATURES

The following protection features are incorporated into the RTIC-1405:

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.

Waterproof: The RTIC-1405 is completely waterproof.

Vibration Tolerant: The RTIC1405 is encapsulated an UL approved, flame retardant material providing rigid support for all internal components.

5 ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	Conditions
V_{AC}	AC Supply Voltage	100-132	VAC	47Hz – 63Hz
IAC_{FAST}	AC Current	6.0	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
$V_{FASTTERM}$	Bulk termination voltage	58.9	59.2	59.4 (factory set per request)	V	25 °C
V_{FLOAT}	Float voltage	54.0	54.3	54.5	V	I_{OUT} < 0.3 A, 25°C
I_{FAST}	Bulk charge current(adjustable)	5.0		6.0	A	$V_{BATTERY}$ = 48V
$I_{ABSORBTERM}$	Absorption mode charge termination current	0.8	1.0	1.2 (factory set per request)	A	Voltage at $V_{FASTTERM}$
V_{absfl}	Absorption Mode Reactivation after Float	45.1	45.3	45.6	V	Load applied in float discharging battery
$I_{STANDBY}$	Standby Current		2		ma	AC Off

7 PHYSICAL CHARACTERISTICS of RTIC-1405

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)