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SPECIFICATIONS – 604CC Super Charger **Totally Automatic Switch-Mode Battery Chargers**

"Suitable for Wet-lead-acid, Sealed lead, Gel & Absorbed Mat Batteries"

Summary:

6 Volts, 2 Amp Constant Current

(Equivalent to 4 Amp tapered charger in charging time)

-Input 115 VAC (range 90 VAC to 132 VAC)

- Suitable for U.S., Canada, other 115VAC countries & Japan (100VAC).

-Automatic Cut-off and then true Float.

-Can be left connected indefinitely without harming the battery.

- De-sulfation of battery. Increases battery life.

- UL and cUL (CSA) Listed.

- Meets FCC Class B. High level of electro-magnetic interference filtering.

- Suitable for off-board application. Optional on-board inhibit can be provided.

- Many advance features described in these specifications.

- Size, only 3 ½" x 2 ¼" x 1 ½", and very lightweight, only 7 ounces.

Explanation of the Features:

The advance technology of the Super Charger Battery Chargers manufactured by ACI is fundamentally different from all other battery chargers. The conventional linear battery charger is an electrical device whereas the 604CC is a light weight sophisticated electronic device.

Model 604CR is available for 230VAC applications.

1. Switch-Mode Technology:

Most Battery Chargers use linear technology, which convert the 115VAC to 6 VDC at 60 Hz. This requires a large transformer, which has the disadvantage of lower efficiency resulting in higher heat generation, larger size and weight.

Super Charger transforms the 115 VAC into 6 VDC at about 100,000 Hz (1667 times faster than conventional charger), which requires a much smaller transformer and this results in a unit of smaller size, low weight and improved efficiency.

The 604CC uses sophisticated electronic circuitry with microchips. All present day computers use switch-mode technology.

2. International Safety Approvals & Listing:

Both UL & cUL listed.

3. **Input Requirements:**
 a) 90VAC to 132VAC
 b) 47 - 63 Hz
 Input AC tolerance +/- 20%. This means Super Charger will operate satisfactorily in areas where the input voltage is low.
 This charger is also **suitable for every part of the world** where 115 VAC is used as well as Japan where input is 100 VAC.
4. **Output:**
 2 Amps Constant Current @ 6 Volts DC
 (Equivalent to 4 Amps tapered charger in charging time)
 a) Line Regulation @ Full Load 1%
 b) Load Regulation @ 4%
 c) **Ripple Voltage:** Very low @ 1%
 The peak to peak ripple voltage into a resistive load is less than 200mV for the output voltage above 6 VDC.
5. **Charging Cycle:**

The charging curve is attached. The explanation of the charging cycle is as following.

Stages	Condition	Mode*	Current	Voltage	LED Indication
Stage 1	Charging Pulse mode	Pulse mode	2A Pulsing	0.5V to 2.0V	Flash
Stage 2	Constant Current mode	CC mode	2A	2.0V to 7.3V	Yellow
Stage 3	Constant Voltage mode	CV mode	Reduces from 2A***	Holds at 7.3V	Yellow
Stage 4	Standby Voltage mode	Standby CV mode	Reduces to zero	Maintains 6.9V	Green
	Recharging mode	CC mode	2A	6.0V	Yellow

* CC mode = Constant current charge

* CV mode = Constant voltage charge

*** See Stage 3 description below

Stage 1: De-Sulfation - Deep Discharge Charging Pulse Mode: LED Flash

The charger starts charging at 0.5V and gives a pulse current up to 2V. This has an effect of removing loose sulphation formed during the deep discharge state of the battery.

Stage 2: Constant Current Mode (CC): LED Yellow

The charger changes to constant current 2A. When the battery voltage reaches up to 7.3V, the charging stage changes from CC (Constant Current) to CV (Constant Voltage) mode.

Stage 3: Cell Equalization -Constant Voltage Mode (CV): LED Yellow

The charger holds the battery at 7.3V and the current slowly reduces. When the current reaches 50% of CC, this point is called the Switching Point at which time the charger goes into "True float" mode. The Switching Point is one of the most unique features of this battery charger. It can adjust the current automatically according to battery capacity. Other chargers are not capable of adjusting the current automatically.

Stage 4: True Float - Standby Voltage Mode: LED Green

The charger maintains the battery voltage at 6.9V as the current slowly reduces to zero. Super Charger Plus can be left connected indefinitely without harming the battery.

Recharging: LED Yellow

If the battery voltage drops down to 6.0V, charger changes from the current mode to Constant Current mode and restarts charging. The charging cycle will go through Stage 2 to Stage 4.

Super Charger Plus will charge Wet-Lead-Acid, Sealed Lead, Gel and Absorbed mat Batteries without the use of any switch.

6. **Two colours and function in one LED:**

LED is used to show the charging status. When the LED is Yellow, the charger is in charging or recharging mode and the current is 2 A constant. When the LED turns Green, the charger is in Standby mode and no current (zero) is flowing.

7. **Protection:**

- a) **Reverse polarity protection** - provided
- b) **Short circuit protection** - provided
- c) **Over-Voltage Protection** - provided
- d) **Over current protection** - provided
- e) **AC Surge Protection** - provided
- f) **Soft start and stop:** Starts and stops gradually.
No sudden in-rush of current. This protects both the battery and all other circuits connected to the charger.

8. **De-sulfation of battery:** The charger will remove loose sulfation, which increases battery life. (Hard sulfation cannot be reversed).

9. **Electromagnetic Interference (EMI):**

The charger will not generate excessive radiated or conducted emissions. No interference with TV, radio, computer or other electronic equipment.
Meets FCC Class B.

10. **On-board Feature:** Optional

The optional model has a third output wire, which provides an Inhibit signal that will prohibit the operation of the vehicle's motor controller whenever the charger is plugged to an AC source.

Inhibit signal: The Inhibit signal is an open circuit output, leakage of less than 5 microAmp, when the charger is not connected to an AC source. This signal will be less than 50 mV DC while sinking 10 mA when the charger is connected to an AC source.

11. **Size & weight:** 3 ½" L x 2 ¼" W x 1 ½" H **Weight : 7 ounces**

Ref: SPEC604CC(RevA00).013105

CHARGING CURVE MODEL 604CC

ACI 6V/2A CONSTANT CURRENT CHARGER
(Equal to 4A tapered charger in charging time)

