



12V
2A Charging Current

User Guide



SHARK INVERTER BATTERY CHARGER

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING

& Warning

1. Prior to use, read and understand product safety information.
2. The CT-2000 is designed for charging batteries of wet (Flooded), Gel, MF (Maintenance-free), CA (Calcium), EFB (Enhanced Flooded Battery), AGM (Absorption Glass Mat) batteries.
3. Before using the charger, carefully read the battery manufacturer's specification precautions and recommended rates of charge for the battery.
4. The CT-2000 has four(4) external holes for mounting. Mount the charger with our screw.
5. The charger has a memory function, when choosing a charging mode, after restart it will automatically going into last charging mode.

>- What's in the Box.

1. One pc of CT-2000 Smart Charger
2. One unit of Battery Clamp Connectors
3. One pc of User Guide
4. One packet of screw

>- Technical Specifications.

Input Voltage AC:	AC220-240V, 50/60Hz, 0.5A
Efficiency:	Approx 85%
Power:	Max 35W
Charging Voltage & Current :	2A(12V), 1A(12V)
Low-Voltage Detection:	3V
Back Current Drain:	<5mA
Ambient Temperature :	0°C-+40 °C
Charger Type:	a Steo. Smart Charger
Type of Batteries:	12V
Battery Chemistries:	Wet, Gel, MF, CA, EFB, AGM
Battery capacity:	4-60Ah
Housing Protection:	IP54
Cooling:	Natural Convection
Dimensions (LxWxH):	15.5x7x4CM
Weight:	400g

> Charging modes

The CT-2000 has 4 made 5 12V NORM /2A, 12V COLO AGM/2A-12V NORM/1A, 12V COLO AGM/1A. Pis pay high attention before choosing any mode.

Mode	Explanation
12V NORM/2A	For charging 12-volt wet cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. When selected, a white LED will illuminate. Battery size 4-60Ah.
12V COLO AGM/2A	For charging 12- volt batteries in cold temperatures below 50°F (10°C) or AGM batteries. When selected, a blue LED will illuminate. Battery size 4-60Ah.
12V NORM/1A	For charging 12-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. When selected, a LED will illuminate. Battery size 2-35Ah.
12V COLO AGM/1A	For charging 12-volt batteries in cold temperatures below 50°F (10°C) or AGM batteries. When selected, a blue LED will illuminate. Battery size 2-35Ah.

>- Battery connection steps

1. Connect the positive (red) battery clamp or eyelet terminal connector to the positive (POS, P,+) battery terminal.
 2. Connect the negative (black) battery clamp or eyelet terminal connector to the negative (NEG, N, -) battery terminal or vehicle chassis.
 3. Connect the battery charger's AC power plug into a suitable electrical outlet.
 4. When disconnecting the battery charger, disconnect in the reverse sequence, removing the negative first
- Remark: Error LED Solid Red, Reverse the battery connections to solve this problem.

>- Begin Charging.

1. Confirm that you have connected the battery clamps or eyelet terminal connectors properly and the AC power plug is plugged into an electrical outlet.
2. All LED will flash once after starting, and will go into last memory mode automatically after 10s.
3. Press the mode button to loggie to the appropriate charge mode.
4. The mode LED will illuminate the selected charge mode and the Charge LEDs will illuminate (depending on the health of the battery) indicating the charging process has started.
5. The charger has four(4) Charge LEDs-25%, 50%, 75% and 100%. These Charge LEDs indicate the connected battery(s) state-of-charge (SOC). See the explanation below:

LED	Explanation
25% 50% 75% 100% ● ○ ○ ○	The 25% Charge LED will slowly pulse "on" and "off", when the battery is less than 25% fully charged. When the battery is 25% charged, the Charge LED will be solid.
25% 50% 75% 100% ●● ○ ○	The 50% Charge LED will slowly pulse "on" and "off", when the battery is less than 50% fully charged. When the battery is 50% charged, the Charge LED will be solid.
25% 50% 75% 100% ●●● ○	The 75% Charge LED will slowly pulse "on" and "off", when the battery is less than 75% fully charged. When the battery is 75% charged, the Charge LED will be solid.
25% 50% 75% 100% ●●●●	The 100% Charge LED will slowly pulse "on" and "off", when the battery is less than 100% fully charged. When the battery is 100% charged, the Charge LED will be solid, and the 25%, 50% and 75% Charge LEDs will be solid also.

>- Error LED Warning

When error LED warning is flashing, it denotes a potential Error Condition. Only could use after solving the error. Pis make it solved by qualified person if user could not do it by yourselves. The reasons denoting LED warning are listed as following:

1. Battery is not connected.
2. Battery voltage is too low.
3. Battery is connected incorrectly.

>- Charging Steps

- STEP 1: DIAGNOSIS (Check if battery has connected with the charger and also check battery voltage)
- STEP 2: DESULPHATION (Low Voltage Repair and Heavy Current Repair, all models have Low Voltage Repair, 3.5A and above have Heavy Current Repair)
- STEP 3: SOFT START (Tests if the battery can accept low current charge. Charging begins if the battery is OK)
- STEP 4: BULK (Charges with maximum current until approximately 80 % battery capacity is reached)
- STEP 5: ABSORPTION (Charges with declining current to maximize up to 100 % battery capacity)
- STEP 6: ANALYSE (It takes 2 minutes to tests if the battery can hold charge. Battery voltage declines quickly when stop charging, which means this battery cannot hold charge and needs to be replaced. Quick Flashing Red Warning! LED Light + Corresponding Battery Charge Mode LED Light)
- STEP 7: TRICKLE (Maintains the battery voltage at maximum level by providing a constant current charge)
- STEP 8: PULSE, MAINTENANCE CHARGING (The charger monitors the battery voltage and gives a pulse when necessary to keep the battery fully charged. Maintains the battery at 95-100 % capacity)

>- Charging Time

The charge time is based on an average depth of discharge to a fully charged battery and is for reference purpose only.

Battery Size /Ah	Approx. Time to Charge In Hours
10	5
20	10
40	20
60	30

>- Guarantee

If there is any quality problem since the purchase date within 1 year. Man-made damage as a result of improper use, natural disasters, or not in accordance with the instructions will not be included.



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