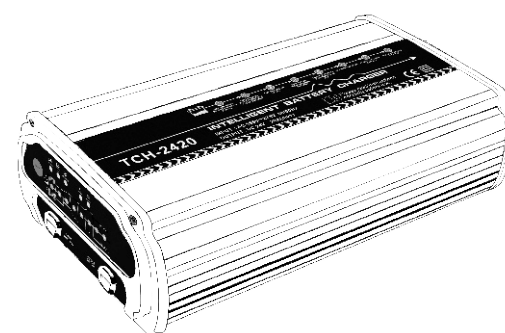


USER'S MANUAL

Intelligent Battery Charger



MODEL: TCH-1220 TCH-2420

MOBILE POWER

Introduction

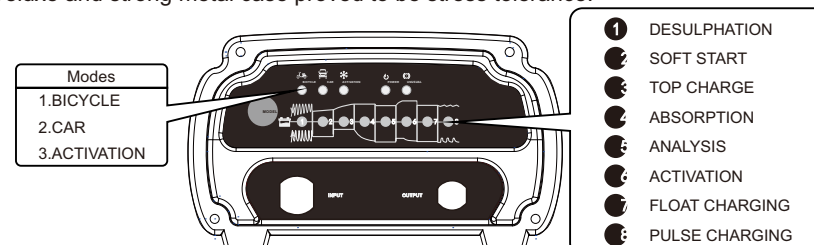
1. TCH series is an Intelligent Battery Charger with EIGHT charging stages. It is small, light and efficient with intelligent charging technology for the purpose of changing batteries efficiently and extending the battery's life.
2. TCH series is suitable for most battery type, including Lead Acid Batteries (Wet/MF/AGM /GEC).It helps to restore drained and sulphate batteries. If the terminal voltage drops below a certain limit, the charger will return to the original charging point automatically.

※ Please read the user manual carefully before operating the charger.

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Features

1. Smart 8 Charge Steps.
2. 3 Charging mode function by optional.
3. Reviving battery to extend battery life cycle.
4. Wide charging voltage for missing used battery voltage.
5. Anti-polarity protection, high temperature protection, and short circuit protection.
6. Low consumption loss if no battery charging.
7. Capable to determine if the battery is good or not.
8. Deluxe and strong metal case proved to be stress tolerance.



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3 modes

"3 Modes" are "BICYCLE", "CAR", "ACTIVATION". They are interchangeable if pressing "MODE" button after connecting to mains. Mode feature is unchangeable while charging the battery.

•BICYCLE

"BICYCLE" mode is default mode once turning on the charger. The LED light will turns green after short flashing. It is used to charge 14Ah-100Ah battery. At this mode, the charging voltage is 13.7V, and the charging current is less than 20A ($\leq 20A$).

•CAR

Switch to "CAR" mode, press "MODE" button once and then LED light of "CAR" mode turns green after short flashing. "CAR" mode is used to charge 30Ah-300Ah battery. At this mode, the charging voltage is 14.2V, and the charging current is less than 20A ($\leq 20A$).

•ACTIVATION

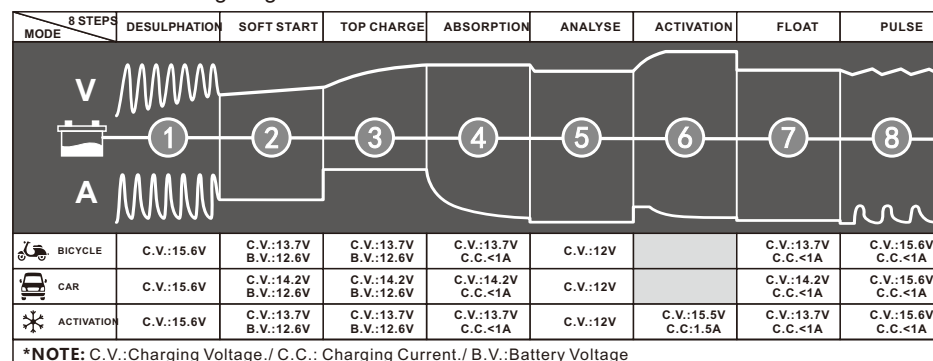
"ACTIVATION" mode is suggested to be started once a year or every half a year to activate the battery, which is to extend the battery's life.

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Switch to "ACTIVATION" mode, press "MODE" button until LED light of "ACTIVATION" mode turns green. At this mode, the charging voltage is 15.6V.

8 steps

"8 Steps" is a process of charging. The charger works step by step according to 3 different modes. At "BICYCLE" and "CAR" modes, the charger works from step ① to step ⑤, then to step ⑦ and step ⑧. At "ACTIVATION" mode, the charger works from step ① to step ⑧. Refer to the following diagram and details:



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① DESULPHATION

Remove the sulfate from the lead plate of the battery with pulse current and voltage in order to restore the battery capacity.

② SOFT START

Test whether the battery can be charged, which is to avoid charging a faulty battery.

③ TOP CHARGE

Charge the battery until 80% of the battery capacity with the maximum current.

④ ABSORPTION

Charge the battery until 100% of the battery capacity.

⑤ ANALYSIS

Analyze and test whether the battery can storage the electric power. The battery which can not storage the electric power should be replaced.

⑥ ACTIVATION*

When choose "ACTIVATION" mode, the charger will work step ⑥, automatically after step ⑤, during the charging process. At this process, the charging voltage increases, and it will be gassing in the battery. The gassing can be mixed with electrolyte in the battery to restore the battery capacity.

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⑦ FLOAT CHARGING

Maintain the battery at 100% without overcharging or damaging the battery. Battery charger can be left connected to battery indefinitely. This stage is generally used for good batteries.

⑧ PULSE CHARGING

Maintain the battery at 95%-100% capacity. The charger monitors the battery voltage and gives a pulse when necessary to keep the battery fully charged. This stage is usually used for defected batteries.

Specification

Model Type	TCH-1220	TCH-2420
Charger Type	8-Stage Intelligent Battery Charger	
Input Voltage	155-275V, 50/60Hz	
Maxiam Power	240V	480V
Output Voltage	12V	24V
Output Current	20Ah	20Ah
Fuse	3A	5A
Battery Types	Lead-Acid Battery (WET, MF, Calcium, AGM, GEL.....)	
Battery Range	20Ah-400Ah	
Efficiency	Max. 90%	
Ambient Temperature	-5° C+65° C	
Protection	Polarity Misconnection/No-Battery Output/High Voltage/Short Circuit Protection	

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Operating Procedure

1. Make sure choosing the right type of battery before connecting to the battery charger.
2. Before charging, place the charger and batteries in a clean, dry, ventilated environment. Failure to do so may result in higher temperature of the charger as well as bad heat dissipation.
3. Connect charger with mains, then choose the appropriate mode "BICYCLE, CAR, ACTIVATION" that is suitable for electrical appliances. For long-time usage batteries, choose "Car" mode.
4. Then using attached battery clip (red="+", black="-") and connects them with proper point of the battery. If single battery is less than 20Ah, choose "BICYCLE" mode.
5. After connecting to batteries, mode selection is locked and remains unchangeable. If switching to different mode, we need to disconnect battery.
6. While battery is being charged, no need for further action. Charger itself will estimate the most updated status of the battery. If "UNUSUAL" light is ON during charging process, it means battery is defected and needs replacement.
7. Fan will be automatically ON if temperature is more than 55°C.

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Caution

The following matters need special attention for uses in order to guarantee your safety and protect the product in a proper way. Please read before using and strictly occupy the rules.

- * Battery charger must be operated and maintained by trained and qualified persons only.
- * Please check if the battery charger is in good condition before charging. If it is broken, make sure to replace another one.
- * Polarity clips must not be rusted before using. Also, make sure to connect proper pole with the battery contact point before charging.
- * Before installation and maintenance, be sure to cut off input power to avoid electric shock.
- * It is forbidden to use corrosive cleaning detergent or coating dissolution solvent to clean the charger.
- * When not using, please disconnect from power source.

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Warning

The following matters would be met when charging. Please read before using and strictly occupy the rules.

- * The indicator of step ② and the indicator of UNUSUAL are lighted up, it refers to the battery cannot be charged and should be replaced.
- * The indicator of step ① and the indicator of UNUSUAL are lighted up, it refers to the step ①, DESULPHATION failed, the voltage of battery cannot reach 12V. The battery should be replaced.
- * The indicator of step ⑤ and the indicator of UNUSUAL are lighted up, it refers to the battery, cannot save the electric power. The battery should be replaced.
- * If the indicator of UNUSUAL is lighted up, it refers to the two poles of the battery, "+" and "-" are polarity misconnection.

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