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› [TecMATE](#) /

› [TecMATE OptiMATE 7 Select 12V 10A Battery Charger User Manual \(Model TM257\)](#)

TecMATE TM257

TecMATE OptiMATE 7 Select 12V 10A Battery Charger User Manual

Model: TM257

1. INTRODUCTION

Thank you for purchasing the TecMATE OptiMATE 7 Select 12V 10A Battery Charger. This advanced charger is designed to maintain and recover various 12V lead-acid batteries, including AGM, liquid, EFB, spiral cell, and gel types. It features patented Ampmatic technology for automatic current adjustment, multi-stage recovery charging, and a power supply mode for vehicle electronics. Please read this manual thoroughly before use to ensure safe and optimal performance.

2. SAFETY INFORMATION

- Always connect the charger to the battery terminals before plugging it into the AC power outlet. Disconnect from AC power before disconnecting from the battery.
- Ensure the charger is compatible with your battery type and voltage (12V lead-acid only). This model is not suitable for 24V batteries.
- Do not attempt to charge frozen, damaged, or non-rechargeable batteries.
- Avoid charging batteries that have reached the end of their life or have internal short circuits, as the charger cannot revive them.
- Use in a well-ventilated area. Batteries can produce explosive gases.
- Keep out of reach of children and pets.
- Do not expose the charger to rain or excessive moisture.
- If the connection between the charger and cables feels tight, especially when new or in cold weather, gently warm the connector with a hairdryer to ease insertion.

3. PRODUCT OVERVIEW

The TecMATE OptiMATE 7 Select (Model TM257) is a high-performance 12V 10A battery charger designed for a wide range of lead-acid batteries. It incorporates several advanced features to ensure efficient charging, recovery, and long-term maintenance.



Image 1: TecMATE OptiMATE 7 Select charger with M8/M10 ring terminal and alligator clip cables.

Key Features:

- 12V Lead-Acid Battery Compatibility:** Charges 12V AGM, liquid, EFB, spiral cell, and gel batteries from 3Ah to 240Ah.
- 10A Output:** Provides a robust 10 Amp charging current.
- Ampmatic Technology:** Patented technology that automatically adjusts the charging current based on battery size and condition.
- Multi-Stage Recovery Charging:** Features a powerful 3-stage desulfation function to recover deeply discharged batteries.
- Battery Diagnostic Function:** Easy-to-understand LED indicators (red, yellow, green) provide clear battery health status.
- 24/7 Maintenance Mode:** Safely maintains the battery when left connected for extended periods, preventing overcharge.
- Power Supply Mode:** Provides a stable 13.6V (max 8A) power supply, useful for vehicle diagnostics, tuning, or maintaining vehicle settings during battery changes.
- Temperature Compensation:** Automatically adjusts charging voltage based on ambient temperature for optimal performance.

4. SETUP

Before connecting the charger, ensure your vehicle is turned off and the ignition key is removed. Identify the battery terminals (positive '+' and negative '-').

Included Accessories:

- M8/M10 Ring Terminal Cable: For permanent connection to battery terminals.
- Alligator Clip Cable: For temporary connection to battery terminals.
- Japanese Instruction Manual (refer to this translated version for English instructions).

Connection Steps:

- Connect to Battery:** Choose either the ring terminal cable for a semi-permanent connection or the alligator clip cable for temporary use. Connect the red (+) clamp/ring to the positive (+) battery terminal and the black (-) clamp/ring to the negative (-) battery terminal. Ensure a secure connection. The battery can remain in the vehicle during charging.
- Connect Charger to AC Power:** Plug the charger's AC power cord into a standard wall outlet (100-240V, 50-60Hz).



Image 2: Connection diagram for the OptiMATE charger. Connect to battery first, then to power outlet.

Note on Cable Connection: The connection point between the charger and the accessory cables (alligator clip or ring terminal) is designed to be tight for safety, preventing accidental disconnection. If you find it difficult to connect, especially when new or in cold conditions, gently warm the rubber part of the connector with a hairdryer for a few seconds to make it more pliable.

5. OPERATING INSTRUCTIONS

Once connected, the OptiMATE 7 Select will automatically begin its charging program. The LED indicators on the charger will display the current stage of the charging process.

Automatic Charging Process:

- **Diagnosis:** The charger first assesses the battery's condition, including voltage and internal resistance.
- **Recovery (Desulfation):** If a deeply discharged or sulfated battery is detected, the charger will initiate a powerful 3-stage desulfation process using high-voltage pulses (up to 22V, limited to 16V when connected to a vehicle for protection) to break down lead sulfate crystals. This can recover batteries with as low as 0.5V.
- **Bulk Charge:** The main charging phase where the battery receives the majority of its charge at maximum current (up to 10A). The Ampmatic function automatically adjusts the current based on the battery's capacity and condition.
- **Absorption Charge:** The voltage is held constant while the current gradually decreases, bringing the battery to a full charge.
- **Verification:** The charger checks if the battery can retain its charge.
- **Maintenance (Float Charge):** Once fully charged, the charger switches to a long-term maintenance mode, delivering small currents as needed to keep the battery at optimal charge without overcharging. This mode is safe for 24/7 connection.



Image 3: OptiMATE's automatic adjustment technologies, including temperature compensation and Ampmatic current adjustment.

Power Supply Mode:

The OptiMATE 7 Select features a Power Supply mode, providing a stable 13.6V output (maximum 8A). This is useful for:

- Powering vehicle diagnostic equipment.
- Maintaining vehicle electronics settings during battery replacement.
- Supporting vehicle systems during tuning or software updates.

To activate Power Supply mode, refer to the detailed instructions in the full manual (often indicated by a specific LED pattern or button press). Connection to the battery is required when initiating this function.



Image 4: OptiMATE 7 Select in Power Supply mode, providing stable power to a vehicle.

6. MAINTENANCE

The OptiMATE 7 Select is designed for long-term battery maintenance. Its 24/7 maintenance mode ensures your battery remains optimally charged without risk of overcharging, extending its lifespan.

Long-Term Connection:

You can leave the charger connected to your battery indefinitely. The charger will automatically cycle between charging and rest periods, keeping the battery healthy. This is particularly beneficial for vehicles stored for extended periods, such as motorcycles, classic cars, or RVs.

車両メーカーにも認められています 長期乗らない間も安心! 繋げっぱなし充電が可能!



うれしい
バッテリー診断
機能付き

充電・休息を繰り返し
バッテリーに優しい!

Image 5: The OptiMATE charger provides safe, continuous charging and battery diagnosis.

Charger Care:

- Keep the charger clean and dry.
- Inspect cables and connectors regularly for any signs of damage.
- Store the charger in a cool, dry place when not in use.

7. TROUBLESHOOTING

This section addresses common issues you might encounter.

Common Issues and Solutions:

- Charger does not start or LEDs do not light up:
 - Ensure the AC power cord is securely plugged into a live outlet.
 - Check that the battery connections are secure and correct (red to +, black to -).
 - Verify the battery voltage is above 0.5V. The charger cannot initiate charging for batteries below this threshold.

- **Green LED lights up, but engine does not start:**

- This may indicate a microscopic internal short circuit within the battery. While the surface voltage may appear normal, it drops sharply during engine startup.
- The OptiMATE's battery health diagnosis is a guideline; it may not detect all internal battery abnormalities.
- Internal battery short circuits cannot be repaired by a charger; battery replacement is necessary in such cases.

- **Charging does not proceed beyond LED 4 (blue) for more than 24 hours:**

- This can occur if the vehicle's electrical system temporarily activates during charging.
- Unplug the charger from the AC outlet, wait a few seconds, and then plug it back in to restart the charging cycle.
- If it restarts from red LED 3, leave it connected for about 5 minutes (with power on), then disconnect and reconnect the battery leads to confirm charging starts from LED 4 (blue).
- If it still restarts from LED 3 (red), connect the charger to the battery in Power Supply mode (LED #2 lights up) for 5 minutes. This may help it start from LED 4 (blue) more easily.

- **Charger indicates an error (e.g., specific red LED flashing):**

- Refer to the LED indicator guide in the full manual for specific error codes. Common errors include reverse polarity, short-circuited battery, or an unrecoverable battery.

8. SPECIFICATIONS

Feature	Specification
Model Number	TM257
Brand	TecMATE
Input Voltage	100-240V, 50-60Hz
Output Voltage	12V
Output Current	10A
Battery Capacity Range	3Ah - 240Ah
Compatible Battery Types	12V Lead-Acid (AGM, Liquid, EFB, Spiral Cell, Gel)
Power Supply Mode Output	13.6V (Max 8A)
Dimensions (L x W x H)	27 x 17 x 13 cm
Weight	1.45 kg
Color	Blue

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official TecMATE website or contact your local distributor. Keep your proof of purchase for warranty claims.

Official product information can be found at: <https://tecmate.co.jp/om7select/> and <https://www.optimize1.com/om7select>

