

# OptiMate III SP

[www.optimate3sp.com](http://www.optimate3sp.com)



Automatic charger for 12V lead-acid batteries of from 2 to 32 Ah. Not for charging dry cell or NiCad batteries.  
Input supply : 220-240V~. Output current : 0.6A, 12W (max.).

# Instructions for Use :

## IMPORTANT : Read before charging.

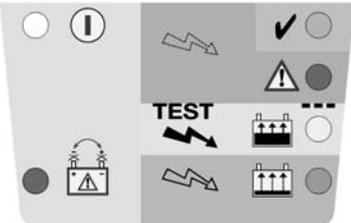
**SAFETY WARNING and NOTES** Batteries emit *EXPLOSIVE GASES* - prevent flame or sparks near batteries. Disconnect AC power supply before making or breaking DC/battery connections. Battery acid is highly corrosive. Wear protective clothing and avoid contact. In case of accidental contact wash immediately with soap and water. Check that the battery posts are not loose; if so, have the battery professionally assessed. If the battery posts are corroded, clean with a copper wire brush; if greasy or dirty, clean with a rag damped in detergent. Only use the charger if the input & output leads and connectors are in good, undamaged condition. If the input cable is damaged, it is essential to have it replaced without delay by the manufacturer, his authorised service agent or a qualified workshop, to avoid danger. Protect your charger from damp and humidity, acid and acid fumes both during use and in storage. Damage resulting from failure to do so is not covered by warranty. Distance the charger from the battery during charging to avoid acid contamination. Place the charger on a hard, flat surface, but NOT on plastic, textile or leather. An optional wall mounting bracket is available.

**EXPOSURE TO LIQUIDS** : When placed on a horizontal flat surface this charger is designed to withstand exposure to liquids accidentally spilled or splashed onto the casing from above, or to light rainfall. However, prolonged exposure is inadvisable and longer service life will be obtained by minimizing such exposure. Failure of the charger due to oxidation resulting from the eventual penetration of liquid into the electronic components is not covered by warranty.

**CONNECTING TO BATTERY** : To connect the battery to the charger, 2 sets of interchangeable connection sets are supplied, the one with crocodile clamps for charging the battery off-vehicle, the other with metal eyelets for permanent connection to the battery posts for easy connection to maintain the battery on-vehicle. When charging a car battery, or if using the battery clamps, first disconnect & remove the battery from the vehicle and place it in a well ventilated area.

**NOTE** : If the battery is deeply discharged (and possibly sulphated), it is essential to disconnect the battery from the vehicle before connecting the charger for recovery. The recovery mode circuit will not engage if it senses that the battery is still connected in a vehicle wiring circuit effectively offering a lower resistance than the battery on its own. If the posts are solid, consult a professional service agent for assistance in attaching the metal eyelets to the battery posts. Distance the polarised two-pole connector (for connection to the charger) as far as possible from the battery and make sure it cannot foul any moving part of the vehicle and cannot be damaged by sharp edges. To prevent grime, dirt & damp from entering the polarised connector, firmly close its resealable rubber protective capsule each time you disconnect the charger at the two-pole connector. Replace any burnt fuse only with a similar new fuse of identical type and rating, T 7.5A.

### LED (light emitting diode) indicator information panel

<b>AC Power ON</b>		<b>GREEN.</b> Battery charged and ready for use (GOOD BATTERY).
	<b>TEST</b>	<b>RED.</b> WARNING condition : read RED LED clause below.
<b>INVERSE POLARITY</b> Wrong battery connections.		<b>YELLOW.</b> Battery discharged, but charging normally (CHARGING).
		<b>ORANGE.</b> Battery badly discharged/slightly sulphated; RECOVERING.

## Using the OptiMate

- 1)** Connect the charger to the battery : RED clamp to POSITIVE (POS, P, +) terminal and BLACK clamp to NEGATIVE (NEG, N, -) terminal.
- 2)** Connect the charger to a mains supply socket providing AC supply of 220 to 240V. The «POWER ON» LED should illuminate. If not, check your AC supply and the connection to it. If the «INVERSE POLARITY» LED indicates, your battery connections are inverted. The charger is protected against this error; no damage will result and it will automatically de-activate. Disconnect clamps and reconnect correctly.
- 3)** The orange RECOVERING LED (bottom right on LED panel) will light when all correct connections are made and if the battery voltage is above 2 Volts. If the battery is very flat (deep-discharged or sulphated) the orange LED may continue to indicate for up to 2 hours while a special high voltage (about 20V maximum) is applied to force a very small fixed current (200mA) into the battery in a recovery attempt. After 2 hours maximum, or, as soon as the battery can accept the normal charging programme, (which for most batteries will occur immediately on connection) the orange RECOVERING LED will be replaced by the yellow CHARGING LED.

**NOTE** : A battery left deep discharged for an extended period which may result in permanent damage to one or more cells, may heat up considerably during charging. Stop charging immediately if the battery casing temperature becomes uncomfortably hot to touch.

**4) a)** The CHARGING stage (yellow LED) delivers a constant current of 0,6 Amps into the battery, whose progressively rising impedance will cause the charging voltage to increase until 14,3V, when the *OptiMate* will start the absorption and verification stage.

b) The charging voltage is now limited at 13,6V during 30 minutes. Should the monitored voltage reduce by 300mV or more, or the current drawn by the battery exceed 200mA during these 30 minutes, the programme reverts immediately to the main CHARGING stage & 4) a) is repeated. If for whatever reason the battery voltage falls below 12,3V during the verification stage, the red warning LED will indicate.

c) Self-discharge test : Once the current has remained below 200mA for a full 30 minutes (this is indicative of a battery that has accepted as much charge as its basic condition allows), a test period of 30 minutes automatically follows, to check for excessive self-discharge. The yellow LED will flash during the first such test period, but not during subsequent 30 minute test periods which follow provided the green LED continues to indicate. During test periods the circuit offers no current to the battery whose voltage it nonetheless continuously monitors to check if this consistently remains at least 12,3V, a level consistent with  $\pm 50\%$  of theoretical capacity for filler cap and  $\pm 40\%$  for AGM / GEL batteries, the absolute minimum to crank an engine at normal temperature. In this case the green OK LED will indicate after the test, but if the voltage falls below 12,3V the red WARNING LED will immediately indicate. See clause 6 below. Note that this test is an indicative, not a conclusive test of battery condition, which can be more exactly established by using a *miniTestMate*<sup>®</sup> which tests on-vehicle battery voltage during cranking as well as the charging system operation, or by contacting a workshop equipped with a *BatteryMate*<sup>®</sup> 150-9 or *TestMate*<sup>®</sup> digital battery tester.

**5)** During the maintenance cycle (with green OK LED or red WARNING LED indicating), at a voltage limited at 13,6V, a current of up to 600mA, according to the battery's requirement, is available to maintain it at full charge and support any in-circuit accessories such as an electronic anti-theft device, or losses due to deteriorating wiring. The support current is available for 30 minutes with a 'rest' period of 30 minutes, to ensure safe maintenance of filler cap & sealed batteries. During the "rest" period the self-discharge test described in (4c) occurs. These 2x30 minute cycles continue for as long as the green OK LED is indicating and the voltage remains above 12,3V. If for any reason the voltage even momentarily drops below 12,3V, the red WARNING LED will indicate, the "rest" / self-discharge test periods cease, but the circuit then continues to offer support current to the battery until disconnected.

**6) RED LED** : the red WARNING LED means that after being charged the battery's voltage is not being sustained or that despite recovery attempts the battery was irrecoverable. This may be due to a defect in the battery itself, such as a short-circuited cell or total sulphation, or, if the battery was still connected to the vehicle's wiring system, the red LED may be signalling a loss of current through deteriorating wiring or a degraded switch or contact, or in-circuit current-consuming accessories. A sudden load such as the headlights being switched on while the charger is connected, can also cause the battery voltage to dip below 12,3V. Always remove the battery from the vehicle, reconnect the *OptiMate* and allow it to proceed through its programme once more. If the green LED then indicates, the cause is to be traced on the vehicle. If the red LED indicates, it is the battery which is suspect and should be taken to a professional workshop for load testing on a *BatteryMate* diagnostic load-tester/charger. It is important to note that even if the red LED does indicate, the battery will continue to receive float charge support at 13,6V until disconnected, so as to protect it from deterioration as far as feasible.

**7) Maintaining a battery for extended periods** : After activating the charger you should observe the LED indications every few hours until either the green GOOD or red WARNING battery LED indicate. If the red WARNING LED indicates, disconnect and remove the battery from the vehicle then reconnect it to the charger for a fresh trial. If the red WARNING LED indicates for a battery which is not connected to the vehicle or other wiring system, or the battery temperature is hot to the touch, disconnect the battery from the charger and get it professionally tested using an accurate electronic tester specifically designed for that type of battery. At least once every two weeks, check that the connections between the charger and battery are secure, and, in the case of batteries with filler caps on each cell, disconnect the battery from the charger, check the level of the electrolyte and if necessary, top up the cells with distilled water, then reconnect. When handling batteries or in their vicinity, always take care to observe the SAFETY WARNINGS above.

**8)** Disconnect the *OptiMate* first from the AC mains supply and then from the battery. Always disconnect from the AC mains before reconnecting to the same or another battery.

**9) CHARGING TIME** : The time required for the *OptiMate III SP* to complete a charge on a normally discharged battery is roughly equal to the battery's Ah rating. For example, a normally discharged 12Ah battery should take no more than 12 hours to progress to the self-discharge check (flashing yellow LED followed by the  $\Delta$  or  $\surd$  LED indication). Deep-discharged batteries will take longer.

## AVAILABLE ACCESSORIES

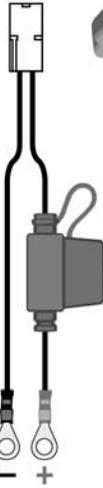
TM72



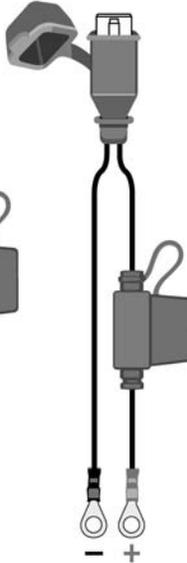
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TM76



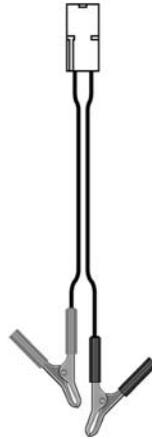
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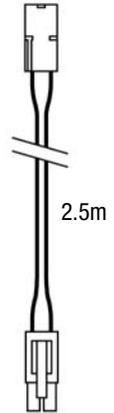
TM77



TM74



TM73



TM70



TM75

## LIMITED WARRANTY

**TecMate (International) SA, Sint-Truidensesteenweg 252, B-3300 Tienen, Belgium**, makes this limited warranty to the original purchaser at retail of this product. This limited warranty is not transferable. TecMate (International) warrants this battery charger for two years from date of purchase at retail against defective material or workmanship. If such should occur the unit will be repaired or replaced at the option of the manufacturer. It is the obligation of the purchaser to forward the unit together with proof of purchase, transportation or mailing costs prepaid, to the manufacturer or its authorized representative. This limited warranty is void if the product is misused, subjected to careless handling, or repaired by anyone other than the factory or its authorized representative. The manufacturer makes no warranty other than this limited warranty and expressly excludes any implied warranty including any warranty for consequential damages. THIS IS THE ONLY EXPRESS LIMITED WARRANTY AND THE MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES ANYONE TO ASSUME OR MAKE ANY OTHER OBLIGATION TOWARDS THE PRODUCT OTHER THAN THIS EXPRESS LIMITED WARRANTY. YOUR STATUTORY RIGHTS ARE NOT AFFECTED. If you think there may be something wrong with the device or do not understand the operation, contact [tecmate@skynet.be](mailto:tecmate@skynet.be) or go to [www.tecmate-int.com](http://www.tecmate-int.com) for advice, before claiming on warranty.