

THE BATTERY CHARGER 03.024.31 SMART 400 / 03.024.32 SMART 1000 ENGLISH

The new SMART battery charger has a **double charging mode CAR/BIKE** for car and motorcycle batteries, **AGM Start/Stop program** (specifically designed for the battery maintenance on veichles with Start&Stop system) and **Power Supply program for battery replacement**.
03.024.31 SMART 400 and 03.024.32 SMART 1000 are also equipped with an **automatic temperature compensation system: an integrated sensor measures the room temperature and adjusts the executed algorithm to maximize the charging performance under every condition**.
03.024.31 SMART 400 and 03.024.32 SMART 1000 are internally controlled by a microprocessor, which monitors in real time the battery parameters and executes automatically the following 8 charging cycles.

Phase 1 - Initialization: the device checks if one or more cells are shorted, to verify that the battery is in a proper condition to be recovered/recharged.
Phase 2 - Recovery: if the battery is deep discharged (starting from 1.25V), the device tries to recover it, taking it back to a higher voltage, necessary for the execution of the following step.

Phase 3 - Soft Charge: if the battery is in significantly discharged, the device provides a light pulsing current to the battery, to overcome the critical phase.

Phase 4 - Bulk Charge: during this phase, the device provides full current to the battery, recovering about 85-90% of the battery capacity.

Phase 5 - Absorption / Absorption: during this phase the device provides a "controlled overcharge" to recover the remaining 15-20% of the battery capacity, through the desulfation/recovery of the lead-acid cells (for low or medium sulfation).

Phase 6 - Battery Analysis: the device stops providing current to the battery for a short time, in order to verify whether the battery is able to retain the charge received during the previous phases. This test is periodically repeated during the maintenance.

Phase 7 - Maintenance: the device keeps your battery in the best charge conditions for very long periods when your vehicle is left unused, without any possible drawback (battery overcharge/overheating, electrolyte loss...).

Phase 8 - Equalization: every 30 days during long term maintenance, the device executes an equalization charge in order to balance the battery lead-acid cells, avoiding electrolyte stratification within the cells.

03.024.31 SMART 400 & 03.024.32 SMART 1000 - FEATURES

- **Four programs: "BIKE MODE" to charge motorcycle batteries, "CAR MODE" to charge car batteries, "AGM START/STOP" to charge the batteries of vehicles with start&stop system, "POWER SUPPLY" to safeguard the data storage of the devices onboard while replacing the battery.**

- Couple of green/red LED diodes to indicate the charging cycle executed and any error.

- Green LED diode (CHARGE): it shows the current charging cycle (Charge, Desulfation, Maintenance...);

- Red LED diode (ERROR): it notifies any occurring problem (polarity inverted, short circuit, battery not connected...).

For further information on the LED diodes, please refer to "Working Mode" section.

- Real time monitoring of the main battery parameters during every charging cycle.

- Battery Overcharge Protection, which triggers in case the microprocessor detects a voltage level higher than a given fixed threshold: no risk of bubble production for all batteries (lead-acid traditional, MF, VRLA, Gel, AGM).

- 4-LEDs bar indicating the charging level (50%, 65%, 80%, 100%) or the executed charging program (Bike Mode, Car Mode, AGM Start/Stop, Power Supply).

Upon conclusion of every cycle, the device switches automatically to the next one, without any external intervention: **THE CHARGER CAN BE LEFT ALWAYS CONNECTED TO THE BATTERY WHEN THE VEHICLE IS LEFT UNUSED**. The battery charger has been designed, manufactured and tested according to the current norms in force in the European Union in order to comply with all the requirements for electronic equipments (i.e. device safety, electromagnetic compatibility, etc). Please read carefully this manual and follow all its recommendations before using and installing the device.

DIRECTIONS

This device has to be used according to the working conditions it has been designed for. Any other use is to be considered either dangerous or improper. Do not use the device for NiCd, NiMH, Li-Ion or non-rechargeable batteries. The manufacturer is completely exonerated from whatever responsibility for possible damages due to either wrong or improper use of the device. It is important to remember that the following basic usage principles have to be considered whenever using the device:

- Do not touch the device with wet hands (or wet feet).

- Do not touch the device barefoot.

- Do not expose the device to the atmospheric agents (rain, water, saltiness...).

Please verify that the input and output cables are in good conditions before using the device. If the input cable is damaged, do not use the device: ask the dealer for repair or replacement. Before executing any cleaning/maintenance operation on the device, please check the device is not connected to the power outlet. In case the device does not work properly, do not attempt to repair it; please ask your local dealer for support. Any attempt to open unduly the device shall cause the withdrawal of the warranty.

SAFETY

The battery charger is not intended for use by children or persons with reduced physical, mental or sensory capabilities, or lack of enough experience and knowledge to understand the instructions on this manual, except in the presence of a responsible person who can ensure the safe use of the device. Keep out of reach of children and ensure that they can not play with it. The device is designed and manufactured in accordance with the norms and regulations in force in the European Union and provided with the following set of active guard mechanisms:

1. Protection from battery polarity inversion.

2. Protection from output lines short circuit (even for an indefinite time).

3. Over-temperature protection: the current supplied to the battery gets limited in case of device overheating.

In order to prevent any accident, please respect the following guidelines:

1. Always wear protective goggles when operating in proximity of the battery.

2. Do not try to recharge a frozen battery.

3. During the charge of a battery, avoid generating flames or sparks in its proximity since it might produce explosive gases. If the battery is out of the vehicle, place it in a well ventilated area.

4. Do not put the battery charger device on top of the battery during its charge.

5. Batteries contain a corrosive electrolyte. In case the battery electrolyte gets in touch either with your skin or with your eyes, rinse them immediately and abundantly with fresh water and ask for a doctor.

The charger is specifically designed to provide a long-term maintenance in order to prevent the slow self-discharge of the battery. If the device does not complete the Bulk Charge phase after a time-out period that is about three times the one indicated in this manual (see "Performance" table), disconnect it manually. One of the following problems might have been occurred: the battery is definitely worn out; there are electronic devices connected to the battery (alarm, radio, on board computer...) that drain too much current.

CONTENT OF THE PACKAGE

1. 03.024.31 SMART 400 or 03.024.32 SMART 1000 battery charger, with supply cable and battery connection cable directly coming out of the battery charger, consisting of two high insulation grade red and black wires (length: 2 meters).

2. Waterproof battery connector with eyelets, to be connected to the battery + saver cap.

3. Battery connector with clamps.

4. Battery connector with 12V cigar socket adapter.

BATTERY CONNECTOR WITH EYELETS INSTALLATION PROCEDURE

When charging a battery in a vehicle, it is advisable to install the battery connector with eyelets, which allows to perform the following procedure just once. The user is kindly requested to execute the installation with maximum care (see "Directions" and "Safety" sections). If necessary, please entrust qualified personnel with the execution of the steps reported here below:

- Connect the eyelets to the battery: the black wire to the (-) negative battery terminal, the red wire to the (+) positive battery terminal.

- Fix the connector in a stable and easy-to-reach place on board (for example, under the saddle).

BATTERY CONNECTOR WITH CLAMPS INSTALLATION PROCEDURE

If the battery is out of the vehicle, just connect the black clamp to the (-) negative battery terminal and the red clamp to the (+) positive battery terminal. If charging the battery in a vehicle, connect first to the battery terminal not connected to the chassis (usually the positive one, red clamp to the + battery pole), and then connect the other clamp to the chassis, far from the battery and the fuel line. After using the device, disconnect in reverse sequence.

BATTERY CHARGER CONNECTION PROCEDURE

- Remove the connector saver cap from the cable with eyelets and connect the charger to the cable. Otherwise, connect the charger to the battery through the clamps (see previous section) or the cigar socket adapter. The red LED (ERROR) turns on, showing that the device is not connected to the power outlet.

- Connect the device to the power outlet. The red LED diode (ERROR) will turn off. The green LED diode (CHARGE) will turn on, blinking or with fixed light according to the cycle executed (for further information, please refer to "Working Mode" section).

MODE SELECTION - BIKE MODE, CAR MODE, AGM START&STOP MODE, POWER SUPPLY

To select the product's working mode, please follow the instructions on the back of this handbook.

LED BAR - VOLTMETER AND MODE INDICATOR

The LED bar on the battery charger indicates the charging level reached by the battery (50, 65, 80, 100%), according to the number of LED diodes on. If the battery state of charge is below 50%, the first LED (yellow - 50%) blinks. Moreover, when the device is connected to the power outlet and not to the battery, the LED bar indicates the selected charging program.

WORKING MODE - BATTERY CHARGER (BIKE MODE, CAR MODE, AGM START&STOP MODE)

During normal operation, after the initialization, the device indicates the executed charging cycles by the green LED (CHARGE), as follows:

- Green LED diode slowly blinking and 50% yellow LED diode (on the LED voltmeter) blinking as well: Recovery and Soft Charge cycles (phases 2 and 3).

- Green LED diode slowly blinking: Bulk Charge cycle (phase 4).

- Green LED diode quickly blinking: Desulfation cycle (phase 5) or Equalization cycle (phase 8) executed.

- Green LED diode on (fixed light): Maintenance cycle (phase 7) executed.

- Red LED diode (ERROR) off.

For more details about the charging steps, please refer to the "Charging Algorithm" section on this manual.

Possible occurring anomalies are indicated by the device as follows:

- Red LED diode on (ERROR): it means the input power is missing or the device is not connected to the power outlet.

- Red LED diode slowly blinking: the battery is not connected.

- Red LED diode swiftly blinking: polarity inversion or short circuit.

- Green LED diode (CHARGE) + Red LED diode (ERROR) alternatively blinking: the Battery Analysis (phase 6) failed. The battery is not able to retain the charge received, it may be necessary to substitute it.

In case of wrong installation or functioning, please disconnect the device following the procedure reported in the "Disconnection Procedure" section.

WORKING MODE - POWER SUPPLY FOR BATTERY REPLACEMENT

- Connect the device to the socket and select the "Power Supply" mode, following the procedure described on the back of the handbook.

- Connect the device to the positive and negative poles of the vehicle by the clamps provided. Then disconnect the battery to be replaced and install the new battery. After connecting the battery to the vehicle, disconnect the battery charger.

BATTERY CHARGER DISCONNECTION PROCEDURE

Please follow the following steps to disconnect the battery charger from the battery:

- Disconnect the battery charger from the power outlet.

- Disconnect the battery charger from the cable with eyelets and put the saver cap on cable connector. Otherwise, disconnect the clamps from the battery or the cigar socket adapter from the cigar socket.

- Put the battery charger back in its box to minimise its exposure to atmospheric agents.

BATTERY TYPES

The battery chargers 03.024.31 SMART 400 and 03.024.32 SMART 1000 are specifically designed for the maintenance of all 12V lead-acid batteries on the market (wet, Gel, MF, AGM, VRLA, etc). Please refer to the "Technical Data" for indications about the battery capacity range to which your battery charger is addressed.

MAINTENANCE

In order to ensure a regular functioning, it is suggested to periodically check the correct and stable connection of the eyelets to the battery and to remove dust and oil from the battery poles with a metallic brush. Please read the "Safety" section before. The device has been specifically designed to be maintenance-free. Please remove possible dust which may get accumulated on the cover of the device using a delicate detergent to avoid damaging the stickers. In case any item of the kit does not work correctly, please contact your local dealer asking for item repairing or substitution. Any attempt to open the device shall imply the warranty becomes no longer valid.

WARRANTY

A 36 months warranty to covers the device malfunction or failure due to improper assembly/manufacturing or breakage of any internal component. Parts, whose deterioration is because of the usage, are not covered by the warranty. Any repairing right under manufacturer's warranty decays in case of: improper use of the device; unduly opening of the device; repairing performed by unauthorised personnel. This warranty is limited to the original buyer of the device and it can not be transferred to third parties. This warranty excludes implicit forms of warranty, including possible damages due to the usage of the battery charger: Spin s.r.l. is exonerated from any damage to either persons or goods due to the usage of its products. The transportation expenses to return the defective device are to be paid by the purchaser.

SELEZIONE PROGRAMMA / SÉLECTION DU PROGRAMME / PROGRAM SELECTION / SELECCIÓN PROGRAMA / PROGRAMMAUSWAHL

SELEZIONE PROGRAMMA - BIKE MODE / CAR MODE / AGM START&STOP MODE / POWER SUPPLY

Una volta collegato il caricabatteria alla presa di corrente, un LED mostrerà la modalità di carica attiva. Per cambiare la modalità di carica, si prega di seguire la procedura sottoindicata:

- Con il caricabatteria disconnesso dalla presa di corrente e dalla batteria, collegare le pinze al caricabatteria e mettere a contatto la pinza rossa e la pinza nera (creando un corto circuito permanente).

- Collegare il caricabatteria alla presa di corrente, sempre tenendo le pinze in corto circuito. Ogni volta che il dispositivo viene scollegato e ricollegato alla presa di corrente, il programma di carica cambia e viene indicato dal LED corrispondente. Si raccomanda di non utilizzare mai le modalità "Car" o "AGM Start&Stop" per batterie con capacità inferiore a quella indicata nella scheda tecnica.

- Scollegare il caricabatteria dalla presa di corrente e separare le pinze. La modalità di carica sarà tenuta in memoria finché non si ripeta questa procedura.

SÉLECTION DU PROGRAMME - BIKE MODE / CAR MODE / AGM START&STOP MODE / POWER SUPPLY

Une fois que vous avez connecté le chargeur de batterie à la prise de courant une LED vous indiquera le mode de charge active. Pour changer le mode de charge, s'il vous plaît suivez cette procédure :

- Avec le chargeur débranché de la prise électrique et la batterie, connectez le câble avec pinces au chargeur et mettre en contact la pince rouge avec la pince noire (en créant un court-circuit permanent).

- Connectez le chargeur à la prise de courant, toujours avec les pinces en court-circuit. Chaque fois que l'appareil est déconnecté et reconnecté à l'alimentation électrique, le programme de charge va changer et il sera affiché par la LED correspondante. Ne jamais utiliser le "Car Mode" ou le "AGM Start&Stop Mode" pour charger des batteries avec une capacité inférieure à celle indiquée dans les caractéristiques techniques.

- Débranchez l'appareil de la prise de courant et séparez les pinces. Le mode de charge sélectionné sera conservé en mémoire jusqu'à ce que vous répétez cette procédure.

PROGRAM SELECTION - BIKE MODE / CAR MODE / AGM START&STOP MODE / POWER SUPPLY

Once you connected the battery charger to the power outlet, a LED will show you the active charging mode. To change the charging mode, please follow this procedure:

- With the device disconnected from the battery and from the power outlet, connect the clamps to the device and put the red and the black clamps together (creating a permanent short circuit).

- Connect the device to the power outlet. The active charging mode will change and it will be displayed by the correspondent LED. We recommend not to use the "Car Mode" or "AGM Start&Stop Mode" for charging batteries with a capacity lower than the one indicated in the technical data.

- Disconnect the device from the power outlet and separate the clamps. The selected charging mode will be kept in memory until you repeat this procedure.

SELECCIÓN DEL PROGRAMA - BIKE MODE / CAR MODE / AGM START&STOP MODE / POWER SUPPLY

Una vez que ha conectado el cargador a la toma de corriente, un LED le mostrará el modo de carga activo. Para cambiar el modo de carga, siga este procedimiento:

- Manteniendo el dispositivo desconectado de la batería y de la toma de corriente, conecte las pinzas al dispositivo y ponga en contacto la pinza roja y la pinza negra (creando un cortocircuito permanente).

- Conecte el dispositivo a la toma de corriente. El modo de carga activo cambiará y será mostrado por el LED correspondiente. Se recomienda no utilizar el modo Car o el modo AGM Start&Stop para cargar baterías que tienen una capacidad inferior a la indicada en los datos técnicos.

El programa de carga seleccionado se mantiene en memoria para usos futuros.

PROGRAMMAUSWAHL - BIKE MODE / CAR MODE / AGM START&STOP MODE / POWER SUPPLY

Sobald Sie das Ladegerät an die Netzsteckdose anschließen, wird eine LED Ihnen das aktive Aufladungsprogramm zeigen. Um das Programm zu ändern, folgen Sie bitte diesem Verfahren:

- Halten Sie das Gerät von der Batterie und vom Stromnetz getrennt und verbinden Sie die Klemmen am Gerät. Setzen Sie die rote Klemme in Kontakt mit dem schwarzen Klemme (Schaffung eines permanenten Kurzschluss).

- Schließen Sie das Gerät an die Steckdose. Das aktive Programm wird ändern, und es wird durch die entsprechende LED angezeigt werden. Es wird empfohlen, niemals das "Car Mode" oder "AGM Start&Stop Mode" zum Laden einer Batterie mit niedrigere Kapazität als in Technische Daten angeben zu benutzen.

- Trennen Sie das Gerät vom Stromnetz und trennen Sie die rote und schwarze Klemmen. Das ausgewählte Programm wird im Speicher gehalten werden, bis Sie dieses Verfahren wiederholen.

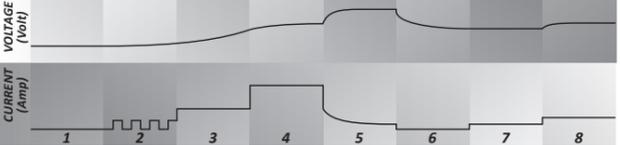
CONTENUTO / CONTENU / CONTENT / CONTENIDO / INHALT

		
CARICABATTERIA CHARGEUR DE BATTERIE BATTERY CHARGER CARGADOR DE BATERÍAS BATTERIELADEGERÄT	CAVO CON OCCHIELLI CÂBLE AVEC OEILLETS CONNECTOR WITH EYELETS CABLE CON OJALES KABEL MIT ÖSEN	CAVO CON MORSETTI CÂBLE AVEC PINCES CONNECTOR WITH CLAMPS CABLE CON PINZAS KABEL MIT KLEMMEN
	SPINA ACCENDISIGARI UNIVERSALE ADAPTATEUR ALLUME-CIGARE CIGAR SOCKET ADAPTER ADAPTATOR ENCKENDOR CIGARROS ZIGARETTENANZÜNDER-ADAPTER	

SCHEDA TECNICA / CARACTÉRISTIQUES TECHNIQUES / TECHNICAL DATA / DATOS TÉCNICOS / TECHNISCHE DATEN

MODELLO	PRODUIT	MODEL	MODELO	PRODUKT	03.024.31 SMART 400	03.024.32 SMART 1000
Tensione Ingresso	Tension CA	Input Voltage	Tensión CA	Eingangsspannung	220+240V ac, 50-60Hz	220+240V ac, 50-60Hz
Tensione Carica	Tension de charge	Output Voltage	Tensión de carga	Ausgangsspannung	13.8V/14.4V - nom. 12V	13.8V/14.4V - nom. 12V
Corrente Carica	Courant de charge	Charging Current	Corriente de carga	Lade-Strom	1 A max (BIKE MODE) 4 A max (CAR/AGM MODE)	1 A max (BIKE MODE) 10 A max (CAR/AGM MODE)
Protezione inversione polarità	Protection inversion polarité	Battery Poles Protection	Protección polaridad invertida	Schutz Vorzeichenumkehr	X	X
Protezione corto circuito	Protection court-circuit	Short Circuit Protection	Protección cortocircuito	Schutz Kurzschluss	X	X
Protezione sovraccarica	Protection surcharge	Overcharge Protection	Protección sobrecarga	Schutz Überladung	X	X
Protezione surriscaldamento	Protection surchauffe	Overheating Protection	Protección sobrecalentamiento	Schutz Überhitzung	X	X
Algoritmo di ricarica	Algorithme de charge	Charging Algorithm	Algoritmo de carga	Ladealgorithmus	Automatic 8 cycles	Automatic 8 cycles
Tipi di batterie	Types des batteries	Battery Types	Tipos de baterías	Batterie-Typen	12 V Lead-Acid (Gel, Wet, MF, AGM, VRLA, Ca/Ca...)	12 V Lead-Acid (Gel, Wet, MF, AGM, VRLA, Ca/Ca...)
Capacità batterie	Capacité des batteries	Battery Capacity	Capacidad batería	Batterie-Kapazität	3 - 60 Ah (BIKE MODE) 15 - 150 Ah (CAR/AGM MODE)	3 - 60 Ah (BIKE MODE) 40 - 200 Ah (CAR/AGM MODE)
Temperatura oper.	Température ambiante	Oper. Temperature	Temperatura func.	Betriebstemperatur	-20°C - +50°C	-20°C - +50°C

CHARGING ALGORITHM



PERFORMANCE

Battery Capacity (Ah)	Recharging Time BIKE MODE (h)*	Battery Capacity (Ah)	Recharging Time CAR/AGM MODE (h)*	SMART 400	SMART 1000
3	< 2	15	< 5	< 3	< 3
10	< 7	40	< 15	< 6	< 6
20	< 22	60	< 20	< 9	< 9
40	< 48	100	< 30	< 15	< 15

* Bulk Charge Duration (Phase 4)

CARICABATTERIA 03.024.31 SMART 400 / 03.024.32 SMART 1000 ITALIANO

Il nuovo caricabatteria SMART è dotato di **doppia modalità di carica CAR/BIKE** per batterie auto e moto, **programma AGM Start/Stop** (specificamente studiato per la manutenzione delle batterie in uso sui veicoli con sistema Start&Stop) e **programma Power Supply** per la **sostituzione della batteria**. Il caricabatteria è inoltre dotato di un sistema di **compensazione automatica della temperatura: un sensore integrato misura la temperatura ambiente e adatta l'algoritmo eseguito per ottimizzare le performance di carica in ogni condizione**. I modelli 03.024.31 SMART 400 e 03.024.32 SMART 1000 sono internamente controllati da microprocessore che monitora in tempo reale lo stato della batteria ed esegue automaticamente i seguenti 8 cicli di carica.

Fase 1 - Inizializzazione: verifica che una o più celle non siano in corto circuito e che quindi la batteria sia in condizione di essere ricaricata/recuperata.

Fase 2 - Recupero: se la batteria è in condizioni di scarica estrema (a partire da 1,25V), il dispositivo tenta un recupero, per riportarla a tensioni più elevate compatibili con la fase successiva.

Fase 3 - Carica Leggera: se la batteria è significativamente scarica, il dispositivo eroga una corrente leggera ad impulsi alla batteria, per superare la fase critica.

Fase 4 - Carica Principale: durante questa fase il caricabatteria eroga piena corrente alla batteria, la quale può recuperare fino all'85-90% della sua capacità.

Fase 5 - Desolfatazione / Assorbimento: in questa fase viene fornita alla batteria una "sovraccarica controllata" in grado di ripristinare il rimanente 10-15% della capacità della batteria, mediante la desolfatazione/recupero delle celle piombo-acido (per livelli di soffiatazione lieve o media).

Fase 6 - Analisi Batteria: il dispositivo interrompe per qualche decina di minuti l'erogazione di corrente e verifica che la batteria sia in grado di conservare la carica ricevuta durante i precedenti cicli di ricarica. Il test viene periodicamente ripetuto ad intervalli regolari.

Fase 7 - Mantenimento: grazie ad un circuito elettronico appositamente progettato, il dispositivo mantiene la carica della batteria nei periodi di inutilizzo, senza surriscaldamento, sovraccarica e perdita d'acqua/elettrolita.

Fase 8 - Equalizzazione: durante il mantenimento di lungo periodo, il dispositivo ogni 30 giorni esegue una carica di equalizzazione per riequilibrare le celle della batteria, evitando fenomeni di stratificazione dell'elettrolita.

03.024.31 SMART 400 E 03.024.32 SMART 1000 - CARATTERISTICHE

- **Quattro programmi: "BIKE MODE" per ricarica batterie moto, "CAR MODE" per ricarica batterie auto, "AGM START/STOP" per la ricarica di batterie di veicoli dotati di sistema start & stop, "POWER SUPPLY" per salvaguardare le memorie dei dispositivi di bordo durante la sostituzione della batteria.**

- Coppia di LED verde/rosso per indicazione della fase di carica e di eventuali errori (per dettagli si veda il paragrafo "Modalità di Funzionamento").

- LED verde (CHARGE): ciclo in esecuzione (Carica, Desolfatazione, Mantenimento...);

- LED rosso (ERROR): problema di diagnostica rilevato (inversione poli, corto circuito, batteria non collegata...).

- Barra a 4 LED che indica il livello di carica raggiunto (50%, 65%, 80%, 100%) o il programma di carica in uso (Bike Mode, Car Mode, AGM Start/Stop, Power Supply).

- Monitoraggio in tempo reale dei parametri di batteria durante tutti i cicli di carica.

- Protezione sovraccarica batteria: scatta quando il microprocessore rileva una tensione superiore ad una predeterminata soglia; nessun rischio di formazione di bolle per tutte le batterie in commercio (anche MF e Gel).

Al termine di ogni ciclo, il dispositivo commuta automaticamente passando alla fase successiva, senza alcun intervento esterno: **SI CONSIGLIA DI LASCIARE IL CARICABATTERIA SEMPRE COLLEGATO ALLA BATTERIA NEI PERIODI DI INUTILIZZO DEL VEICOLO**. I prodotti sono costruiti e collaudati secondo le normative vigenti per rispettare tutti i requisiti di sicurezza e compatibilità elettromagnetica. Si prega di leggere attentamente il presente manuale e di attenersi alle istruzioni prima di utilizzare il dispositivo.

AVVERTENZE

Questo apparecchio dovrà destinarsi solo all'uso per cui è stato espressamente progettato. Ogni altro uso è da considerarsi improprio e quindi pericoloso. Non utilizzare il dispositivo per ricaricare batterie NiCd, NiMH, Li-Ion o batterie non ricaricabili. Il costruttore è del tutto esonerato da responsabilità per eventuali danni causati da usi impropri, erronei o irragionevoli. L'uso di ogni apparecchio elettrico richiede l'osservanza di regole fondamentali, tra cui:

- Non toccare