BATTERY CHARGER INDUSTRY

OPERATING AND MAINTENANCE INSTRUCTIONS FOR SINGLE-PHASE BATTERY CHARGERS
EXTREME SERIES

INTRODUCTION

The EXTREME battery charger is totally controlled by microprocessor and it is suitable for being used in particularly dirty or damp conditions, with high temperatures. To ensure maximum safety and proper use, the operator is required to read, follow and keep these instructions carefully; the manufacturer is not responsible for any damage due to improper use. This device has been developed for professional use.

BATTERY

This battery charger can recharge lead acid or gel/AGM batteries according to the selected programming. The battery voltage has to correspond to the rated battery charger voltage (see rating data, for example 24V).
The correctly rechargeable battery type is indicated on an external label attached to the EXTREME. Check that it matches the features of your battery. If necessary, it is possible to modify the programming in order to adapt the EXTREME to your battery. Make contact with the supplier in order to carry out this change.

INSTALLATION

To ensure maximum safety, installation has to be carried out as indicated by the manufacturer. Installation and any maintenance operation on the battery charger must be carried out by qualified technical personnel, after having disconnected both the mains input cable and the battery exit cables. After unpacking, be sure the device is in perfect condition. In case of doubt, do not use the device and contact the supplier.
This charger can be used both mobile, on board a vehicle, and fixed at the charging site. In both cases follow the suggestions indicated in FIG.1. Always select the position that is best suited to dissipate heat. In the event of overheating of the device due to an unfavourable position, the internal thermal protection will reduce the charging current thereby limiting the performances of the charger.
Use M8 screws for fixing and ensure the hole spacing is in accordance with FIG.2.
Install the device so that the frontal panel is completely accessible. This allows the signalling LEDs to be seen and access to the control card for maintenance. In case this is not technically possible, install the auxiliary (optional) display VISLED in order to position the LEDs in a visible place (FIG.3).
Connect the EXTREME cables directly to the battery poles; never use cables belonging to the vehicle equipment. Any non-compliance with this rule can cause malfunction or damage which cannot be attributed to the manufacturer.

AUXILIARY CONNECTIONS (only for on-board applications)

The control card is equipped with 2 auxiliary floating contacts essential for the on-board use of the battery charger.

1. supply presence contact: the contact is normally closed; it opens when the battery charger is on line. It stops the vehicle during the recharging phases, in order to avoid damaging the cables. (contacts 1 and 7 of the auxiliary connector to be seen in FIG.3).
   WARNING: the connection of this contact is compulsory for safety reasons.
2. minimum block contact: the contact is normally closed; it opens when the battery voltage is lower than the minimum value programmed on the control card. It will partially or totally stop the vehicle functions when the battery has reached the maximum discharge (contacts 3 and 5 of the auxiliary connector to be seen in FIG.3).

MAINS SUPPLY

Be sure that the rating data of the battery charger corresponds to the mains power supply (single-phase, voltage, frequency, power). Plug into a socket equipped with protections that comply with local regulations. If you have to use an extension cable, contact the manufacturer for correct technical information. The replacement of the supply cable has to be carried out only by qualified personnel. The use of generators is not allowed as a source of supply.

BATTERY CONNECTION

Respect the polarity while connecting the battery (red wire to +, black wire to -). Reverse polarity is protected by the fuse F2 (Fig. 4) which has to be replaced with one of the same value. If extension cables are required contact the manufacturer.
Connection to the battery at every charging cycle is only necessary for mobile use; in fact, if the battery charger is carried on-board the battery is always connected to the battery charger.
No LED turns on (PAN.1) when connecting only to the battery EXTREME is unable to activate the charging if the battery voltage is lower than 1V/Cell (for example: lower than 12V for a 24V battery).

CHARGING OPERATION

Insert the plug into a line outlet and after some seconds the recharging begins (CHARGE LED turned on - PAN.2). The length of the charge can vary from 30 minutes to 14 hours according to the discharge level of the battery. The necessary time is automatically

calculated by the inner microprocessor.
At the end of charge, the CHARGE LED goes off and the STOP LED turns on (PAN.3). Disconnect the supply cable (PAN.1) and use the vehicle. If the battery charger is fitted on-board it will be only possible to move the vehicle by disconnecting the supply cable.
IMPORTANT: to have the highest vehicle efficiency and the longest life of the batteries, never interrupt the recharge. Only if strictly necessary, interrupt the charge by disconnecting the supply cable (PAN.1). Always recharge batteries, even if only a little discharged; the inner microprocessor automatically avoids overcharging.
WARNING: during charging, the battery charger gets warmer. The temperature that can be reached is within standard limits and is not therefore dangerous for the operator. The charger should not be touched during the charging cycle as it can run to high temperature.

HOLDING

Leaving the battery charger connected even during long inactive periods, it is possible to maintain 100% charge. At the end of a charge cycle the holding starts: the charger supplies a small charge to the battery in order to compensate its self-discharge (PAN.3).
It is definitely advisable to let the holding operate while the vehicle is not used.
If the charger is fitted on board, it is compulsory to leave the charger on line if you plan not to use the vehicle for more than 2-3 days. Non-compliance with this rule involves the risk of dangerously discharging the battery and completely stopping the charger.

DISCHARGING OPERATION (only for on-board applications)

During the use of the vehicle, the microprocessor checks the battery discharge level.
If more than 80% of the energy is used, the BLOCK LED will turn on (PAN.5) and, if the “minimum block contact” has been connected to the vehicle, it will be stopped (see the AUXILIARY CONNECTIONS section). At this point, only a complete recharge will unblock the vehicle. When the BLOCK LED lights up (PAN.5), even if the vehicle keeps on working, it is recommended to immediately proceed with the recharge: an excessive discharge causes irreparable damage to the battery.

ALARM SIGNAL

In case the CHARGE and the STOP LEDs begin to flash together (PAN.4), it means that a malfunction has been detected. To determine the cause it is necessary to read the memory data (see following section).
In case the two CHARGE and STOP LEDs begin to flash alternately and the BLOCK LED turns on (PAN.6), call the customer assistance service.

DATA MEMORY READING

The inner microprocessor can store a remarkable quantity of information about the charge carried out and discharge cycles. This information is fundamental in order to understand if everything is working correctly and to prevent or solve problems related to the battery and charger system. To read this information it is necessary to be equipped with the “MULTIPROGRAMMER-CLIENT” and to connect it to the “PROG” cable.

PROGRAMMING

The programmable functions are: battery type and capacity, maximum recharge voltage for GEL/AGM batteries, discharged battery voltage, rental days. Changes to the programming can only be carried out by qualified personnel, equipped with the proper tools.

GENERAL RECOMMENDATIONS

Do not let the battery run down completely: this will help it to last longer and it also lightens the work of the battery charger. Keep the battery contacts free of oxidation. Never disconnect the battery if the charger is supplying current, as the break-off spark could ignite the gases produced by the battery. Keep the charging area ventilated. Always recharge the discharged battery: leaving a battery discharged even only for one day reduces its capacity.

MAINTENANCE

Periodically disconnect the supply cable and clean the battery charger with a brush and water. Excess dirt prevents the correct dissipation of heat and therefore reduces the charging current.
Use only original spare parts.

PAN.1

PAN.2

PAN.3

PAN.4

PAN.5

PAN.6

LED:

○ = OFF

● = ON

☼ = FLASH

FIG. 1

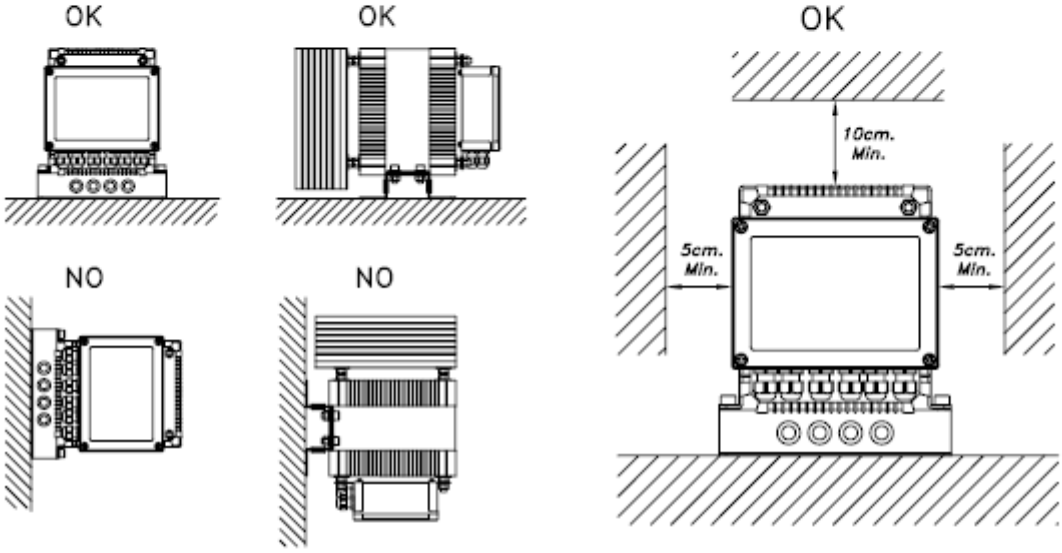
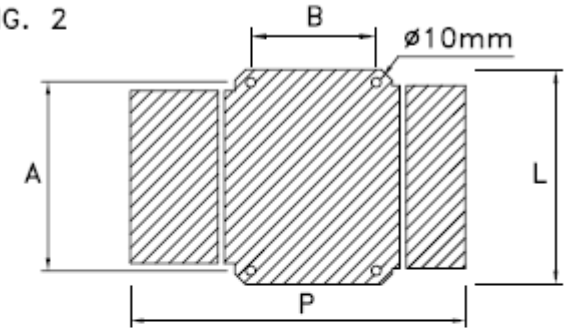


FIG. 2



	A	B	P	L
EX2430	180	120	320	205
EX3625	180	150	350	205
EX4825	180	170	370	205

FIG. 3

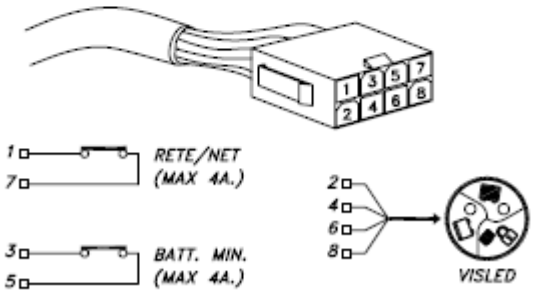


FIG. 4