

AUTOMATIC BATTERY CHARGER



Switch Mode Battery Charger

Model No.

Champ 12-30

Champ 24-20

OWNER'S MANUAL

Please read this manual before operating your charger

Manual

- Read this instruction before the charger is taken into use
- Keep this manual within easy reach for the user of this battery charger
- Hydrogen gas will be produced when charging lead-acid batteries and hydrogen gas is explosive
- Open flames and sparks should be kept away from batteries they may produce explosions
- The charger should be switched off before the charger/battery plug is disconnected.

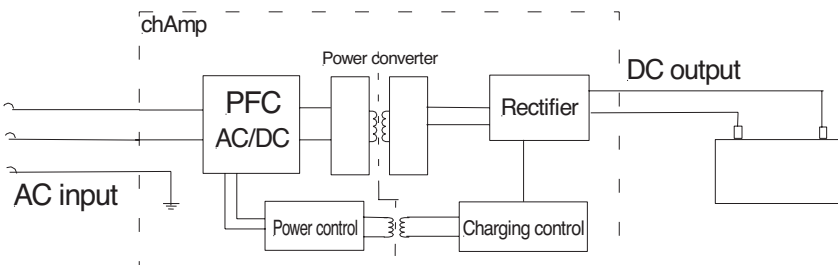
Introduction

This charger is made for all types of lead-acid chargeable batteries including GEL-batteries. It is a fully automatic charger with an UI charging characteristic. The charger can permanently be connected to the battery without the risk of overcharging.

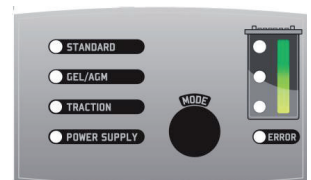
The charger is small and very compact and can therefore easily be fitted close to the battery.

The input AC voltage is feed through a passive PFC stage and converted into a DC Voltage of approx 325V. A high frequency switch into a low dc voltage does the power conversion. This voltage is controlled by the internal electronics and rectified to a correct charging voltage on output.

Block Diagram



The built in micro controller controls the charging process according to the chosen charging algorithm. The charging phases are displayed with the bar in the battery symbol on the right side of the display sticker.



Installation

Mount the charger with LED panel facing up and cable downwards by using 4 screws or bolts. This will maintain an efficient cooling and a maximum output current during the whole charging cycle. Do not extend charging cables. That may negatively affect the charging result.

Connect the RED wire to the POSSITIVE BATTERY TERMINAL and the BLACK wire to the NEGATIVE BATTERY TERMINAL. Connect the mains cable to a 230Vac mains voltage outlet. The charging starts after a few seconds, the charging phases are displayed with the bar in the battery symbol on the right side of the display sticker:

The bulk phase (STEP 1) is indicated with the first yellow LED (this indication is kept through STEP 2 and 3). When the current is below $-I_2$ the charger switches into STEP 4 and the next yellow LED is lit up. When the reach the final charging step the top LED turns on with green light and the battery is fully charged. This indication will remain until the charger is disconnected from the mains.

Temperature control

The charger is equipped with a temp-sense. The sensor is located in the minus (black) battery connector. This feature ensures a correct charging voltage throughout the whole temperature range. The output will be compensated with $3mV/cell/degree@25$ degrees.

The charger has a build in over temperature protection. The surface of the charger housing limits to exceed a temperature of $65^{\circ}C$. When the charger is installed on a place where the airflow is reduced this function may reduce the output current of the device.

Powersupply

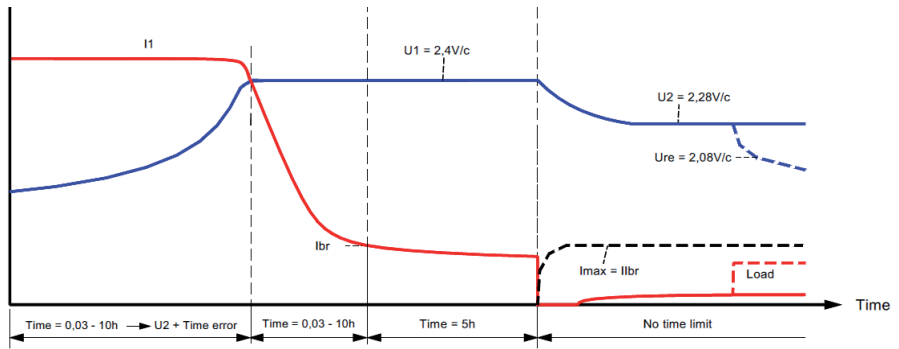
The CHAMP can also be used as a powersupply when this mode is selected. The output is fixed to either 13.7 or 27.5Vdc depending on the model and allows 85% of full output current. There is no time limit in this mode. The polarity protection is void in this mode, wrong connection may cause damages.

Charging algorithms

The CHAMP charger is designed for freely ventilated and valve regulation. The standard programming is suitable for Lead Acid batteries –open or sealed- in all applications

The charger is polarity and over current protected by internal electronics. No fuse in the output wires.

Standard open Lead Acid

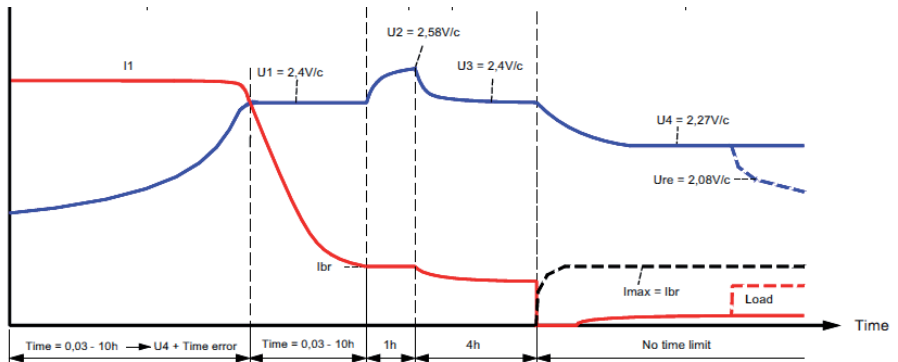


Normally used with open lead acid batteries, automotive and marine starter batteries

Levels for "Standard regim"

Charger	I1	U1	Ibr	U2	Ure
12V 15A	15A	14,4V	1,5A	13,7V	12,5V
12V 30A	30A	14,4V	3,0A	13,7V	12,5V
24V 12A	12A	28,8V	1,5A	27,4V	25,0V
24V 20A	20A	28,8V	2,0A	27,4V	25,0V

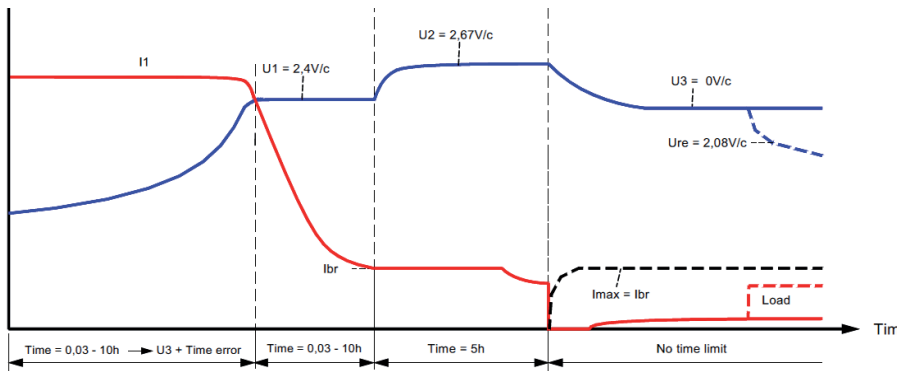
GEL / AGM



Levels for "Gel/AGM"

Charger	I1	U1	Ibr	U2	U3	U4	Ure
12V 15A	15A	14,4V	2A	15,5V	14,4V	13,6V	12,5V
12V 30A	30A	14,4V	1,5A	15,5V	14,4V	13,6V	12,5V
24V 12A	12A	28,8V	2A	31V	28,8V	27,2V	25,0V
24V 20A	20A	28,8V	1A	31V	28,8V	27,2V	25,0V

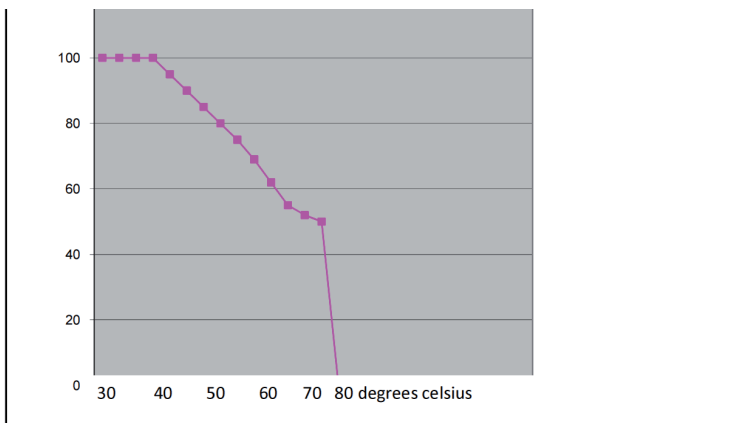
Traction, Open Lead Acid



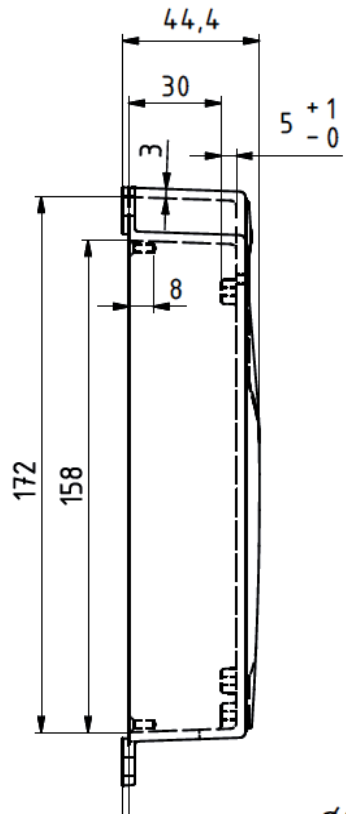
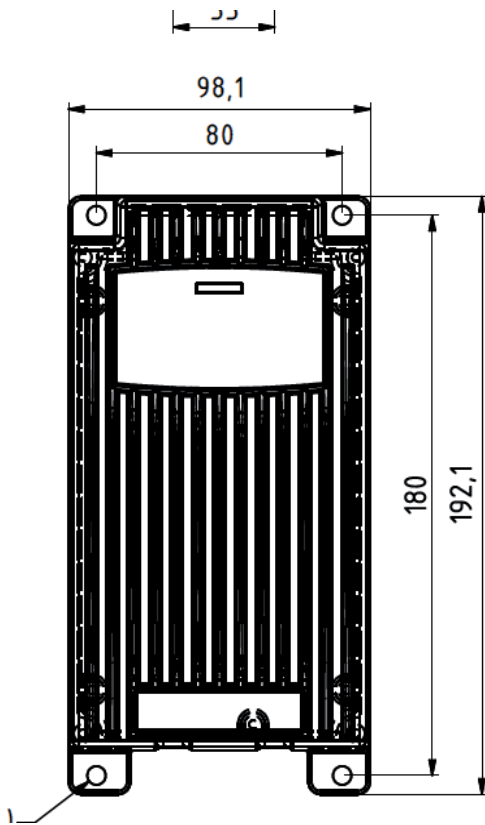
Normally used with cyclic applications, forklifts, cleaning machines
Levels for "Traction"

Charger	I_1	U_1	I_{br}	U_2	U_3	U_{re}
12V 15A	15A	14,4V	5A	16V	0V	12,5V
12V 30A	30A	14,4V	7A	16V	0V	12,5V
24V 12A	12A	28,8V	5A	32V	0V	25,0V
24V 20A	20A	28,8V	7A	32V	0V	25,0V

Ambient temperature deration curve



Housing





SAMLEX EUROPE[®] B.V.

DECLARATION OF CONFORMITY



IMPORTER : Samlex Europe B.V.
ADDRESS : ARIS VAN BROEKWEG 15
1507 BA ZAANDAM
The Netherlands

Declares that the following products:

PRODUCT TYPE : Battery Charger
BRAND : Samlex

CHAMP 12-30, CHAMP 24-20

Standards to which conformity is declared:

- EMC Dir. 2004/108 including amendments by CE marking Directive 93/68EEC
- EN60335-1 Intertek SMEKO electrical safety
- EN60335-2-29, SS 4330770 Intertek SEMKO electrical safety
- EN61204-3:2000 Intertek SEMKO EMC emission
- EN61204-3|:2000 Intertek SEMKO EMC immunity
- EN50366:0003+A1 Intertek SEMKO EMF magnetics
- LVD 2006/95EC

Signed : Marcel van Veen

Date: 08 July 2013

Authority: Managing Director



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