



Maximum-Power-Point-Tracking  
multiple step charge process  
mini current control for low residual currents  
minimale power consumption  $I_{standb} = 3 \text{ mA}$   
 $\eta < 96\%$ ,  
 $P_{nenn} = 215 \text{ W}$  power 24 V  
SAC50 interface  
flat ribbon cable: information for solar data  
measuring shunt:  
information and control for battery data

## MPT® technology

A charge regulator is used when batteries are charged by solar modules. The important function of a charge regulator is the overcharge protection. In addition the MPT® charge regulator takes care of the almost optimal efficiency of the charging current. The MPT® charge regulator works on the principle of the maximum power point. The operating point of the solar module is really used, because the MPT® charge regulator adjusts and is able to get the maximum of power. The charging current of the battery is increased.

The multiple step charge process and the cyclic gassing control make sure that the battery is charged optimum. The life of the battery is extended.

The operating point of the solar module (for the maximum of power) must be higher than the charging voltage of the battery at the moment. Modules with 72 cells are suitable.



## MPT®215-24-12 24V solar system 12V battery system

### Operating Instructions

Read the instructions, the installation procedure must be understood and complied with

Ser.N°

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## Caution

All instructions should be read and understood before attempting to install, wire and maintain the charge regulator.

The charge regulator should be installed by an authorised technician.

Before connecting the battery to the charge regulator, please take the fuse out of the fuse-socket. Use only fuses according to the connection-scheme.

Install the charge regulator only in dry rooms and protect it from dampness.

Avoid contact with battery-acid.

Follow the mounting indication of the manufacturer of the battery,

do not short circuit the charge regulator.

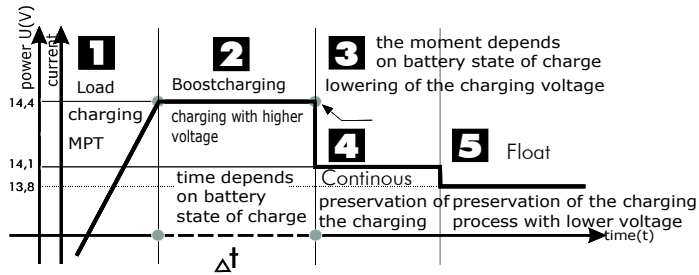
The cable from and to the charge regulator must be  $4 \text{ mm}^2$  or  $6 \text{ mm}^2$

Install further photovoltaic cells inactive (cover PV-modules!)

# Progressive Controlled MULTIPLE STEP CHARGING PROCESS

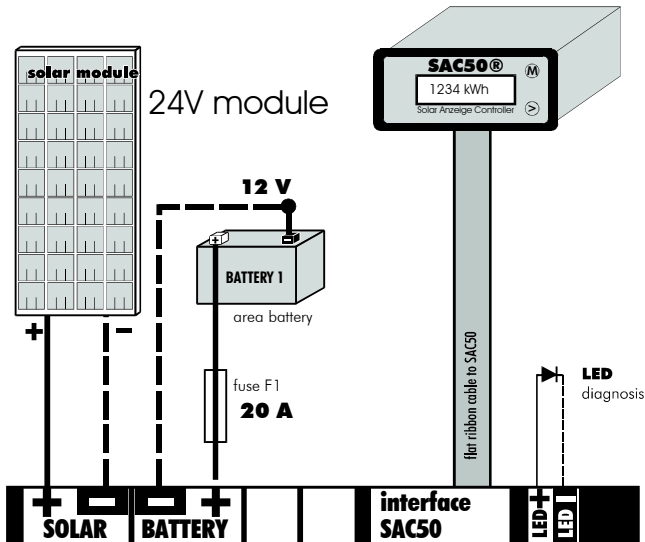
The charging process facilitates the optimal full load of the battery. Stratification and sulfating are removed. The battery has an essential longer life. The charging process is ideal for acid and gel batteries, a differentiation is not necessary anymore.

The multiple step charging process takes its course in 5 steps: cyclical iteration of the 5 steps



## connection diagram

make sure you always check your work.



connection MPT<sup>®</sup>215-24-12

## Technical data MPT<sup>®</sup>215-24-12

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CE conformity EMV  
89/336

solar system	24V
battery system	12V
max. solar input power	215W
max. solar input current	14A
max. battery charging current	20A
max. solar open-circuit voltage	58V
optimal solar operating voltage	20-40V
typical efficiency	90...96%
current through battery	3mA
max. ambient temperature	50°C
weight	0,7kg
size L x B x H	136 x 120 x 75mm
case	aluminium
lead /acid battery	yes / yes
protected against reverse current	yes
charging voltage multiple step charging	13,8-14,4V
final charging voltage	yes
interface for SAC50	yes
limitation of charging current and temperature to max. value	yes

<sup>1</sup> the limitation reduces the current and the temperature to the maximal possible value.

## Diagnosis LED

The diagnosis LED for electronic control

- — LED off retirement / mini-charger is in
- — LED on charging with Maximum-Power-Point-Tracking
- - - slowly flashes undervoltage
- ----fast, violently flashes error voltage > 14,4V

## Mini-current-regulation

For small solar-currents the maximum-power-point-tracking will be switched off and a mini-charger is in function. I solar < 100mA.

The charger goes into retirement - LED out. The solar module power can be used in its optimum, minimal solarpower can be charged.

## SAC50<sup>®</sup> interface

option SAC50X or SAC50E Controller with LCD display to read:  
2 battery voltages

battery current (incl. consumer current)  
battery capacity in Ah und % solarpower  
kilowatt-hour meter

keyboard-controlled the informations can be read.

The MPT215-24-12 and the SAC50 will be connected with a flat ribbon cable and the solardata and battery voltage can be read.

SAC50<sup>®</sup>X and SAC50<sup>®</sup>E must also be connected with a shunt to the battery, so you can read the \* battery data.