AccuPower AccuManager606P

Operation Manual

Thank you for purchasing AccuManager606P. This is a rapid charger for Industrial, professional and hobby use with build-in balancer, computerized with microprocessor and specialized operating software, which provides optimized battery charging routines for all popular types of battery.(LiPo cell voltages on same level(balancing), variable charge/discharge current, comprehensive set of cables..:) Please read this entire operating manual carefully before using.

Funktionen

- Dual power supply, can be used, in the car (12V DC) and in the house (~ 230)
- Integrated Balancer ensures safe charging of LiPo batteries → longer battery life.
- Delta-Peak cut-off - the final charge voltage of NiCd / NiMH battery is determined by the delta-peak method. Technical users can customize the delta peak voltage to your needs (5-20mV/Cell, 1mV steps)
- Adjustable charge limitation. As a security measure or for special loading techniques (form, refresh, targeted shop ...) is a programmable charge limitation. The charging process is terminated with notification on the LCD when the set capacity is loaded and the function is activated in the menu. (Adjustable in steps 10mAh)
- Temperature monitoring internally and externally: as another switch-off condition, a maximum battery temperature can be set, the necessary sensor (sold separately) is provided with a magnetic contact. The cut-off is adjustable from 30 ° C to 60 ° C in 1 ° C increments. This temperature switch can be switched off, a permanent internal device temperature control is integrated as an additional safety measure.
- Sleep Timer: You can also enter a time (10-720min in 10min increments) after which the charging process should be aborted. (Disabled)
- Input Voltage Monitoring: To find no margins for mobile use, you might consider using the built-in battery power monitoring. You can select any voltage between 10-11V, which must never fall below the supply battery. When a low voltage is detected the charging is canceled with a appropriate information on the LCD.

Powerful electronics in a compact format

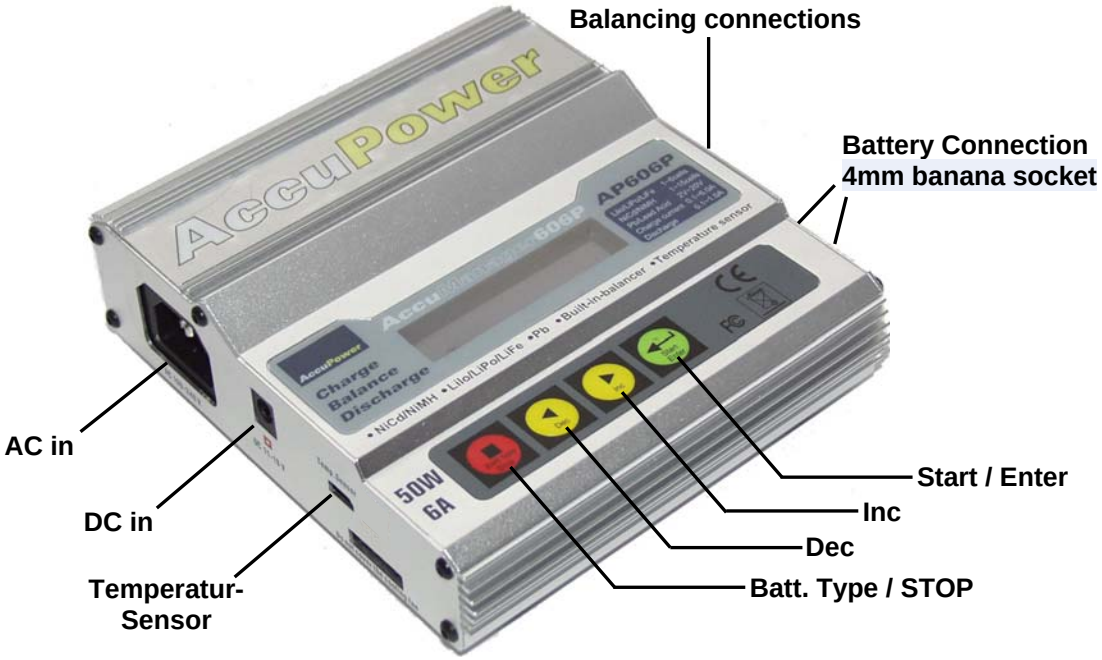
AP606P provides a loading capacity of up to 50 watts. Thus the handling of NiCd / NiMH batteries is possible until 15 cells with a maximum current of 6A. (LiPo types → up to 6 Series)

Note: The maximum charge / discharge current depends on the maximum charge power (50 W) and discharge power (5 W) of the device. If necessary, the device regulates the power back independently, if the adjusted current exceeds the capabilities of the device.

Technical data

- Supply Voltage: 11.0 - 18.0V DC or 230V, 50Hz AC
- Loading capacity: max. 50W
- discharge power: max. 5W
- Charge current: 0.1 - 6A
- Discharge: 0.1 - 1A
- Resilience of the balancing module: 300mA/Zelle
- Area of NiCd / NiMH: 1-15 cells
- Field of Li-Ion / Polymer: 1-6 cells
- Range of lead / lead batteries: 2 to 20V
- Weight: 590g
- Dimensions: 150X135X45 mm

Structure of the device



Connecting the battery

CAUTION:

Although AP606P is equipped with an electronic reverse pole protection, please consider always the polarity of the battery connected and the supply lines. It comes with connection cables for different types of batteries and a cable for connection to banana jacks on the charger.

Connection of Li-Ion batteries

When charging Li-Ion batteries it is recommended to use the integrated balancer, this is only possible with Li-Ion batteries, which are equipped with an appropriate balancing plug. The socket for connecting the plug of balancing Li-Ion batteries can be found on the right side.

Operating the menu

AP606P provides comfortable LCD-based menus available for input are four buttons:

Batt. Type / Stop:

One point move on the main menu (next battery type) / Stop charging.

Dec:

A point back in the main menu (for the previous battery type) / decrease selected value.

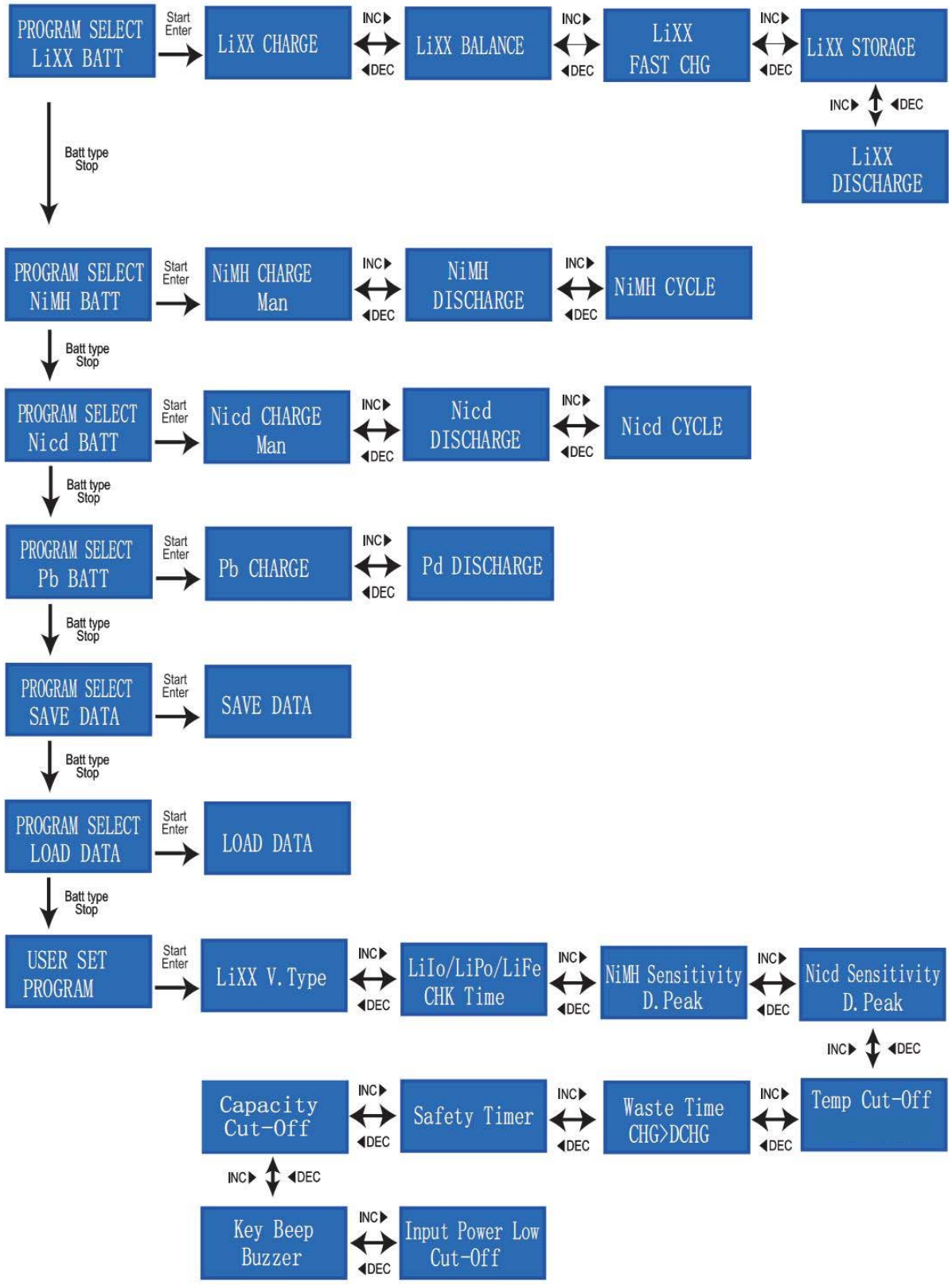
Inc:

Increase the selected value.

Start / Enter:

Selected function select / value confirmation
Press and hold to start charging.

Flow chart of the menu



The options menu

Here you can change the default settings.
Press ENTER to get into the options menu, with DEC and INC to change the selection and press ENTER to confirm.

- **V.Type**

This unit have the possibility to charge various lithium battery types.
There are Li-Ion (3.6 V / cell) LiPo (3.7 V / cell), and LiFe (3.3 V / cell) types, please set the right type in front of the charging process. (If you are unsure, please contact the seller or manufacturer of the battery)

- **CHK Time**

In order to minimize an error when entering an incorrect number of cells with lithium batteries by the user the device automatically recognize the cell number before the start of charging or discharging. (R: denotes the detected number of cells, S: denotes the set number of cells).

The cell number of exhausted batteries can be incorrectly detected. Therefore, it is possible the time for the confirmation of the number of cells changed. Usually it takes 10 minutes to detect the correct number of cells. For batteries with large capacity, it may be necessary to increase the amount of time. If the period is set too large for batteries with low capacity, then the loading or unloading can be terminated before the interval is over, with an incorrectly configured cell number.

This can have fatal consequences!
If the unit automaticaly recognizes the false nummber of cells at the beginning of the loading or unloading, you may need to increase the amount of time. Otherwise, it can use the wrong setting.

- **NiMH Sensitivity**

The recognition of a full NiMH / NiCd batterie, is reached by Delta Peak detection. Technical users can trigger the delta peak voltage in the range 5-20mV/Zelle change. For NiCd and NiMH batteries, this setting is carried out separately.

- **Temp Select**

In this menu the selection of the following functions is performed (only one of the two functions can be active at the same time):

a) Temperature shutdown:

If this function is activated, the maximum temperature at which you want to interrupt the charging process is set.

The temperature protection is only available with the external sensor. This magnet holder is attached directly to the battery pack. If the battery pack reaches during the charging process once the set temperature, the charging process is completed to protect the battery pack.

Note: The external temperature sensor is not included!

- **SAFETY TIMER**

As a security measure, the safety timer can be activated. When activated, the timer is running with the charging process and stops responding if none of the other SHUT DOWN conditions were achieved. The time should be matched to the capacity of the battery to ensure a full charge.

Example:

When adjusting the safety timer, it must be taken into account the efficiency of the battery. For NiMH or NiCd it must be about 130% - 140% of rated capacity charged into an empty battery to be fully charged.

Capacity of the battery: 2600mAh

Required charging current: 1,3A (≙ 0,5C)

$$\text{Safety Time} = \frac{\text{C (in mAh)}}{\text{I (in mA)}} \cdot 60\ \text{min/h} \cdot \eta = \frac{2600\ \text{mAh}}{1300\ \text{mA}} \cdot 60\ \text{min/h} \cdot 1{,}4 = 168\ \text{min}$$

or

$$\text{Safety Time} = \frac{\text{C (in mAh)}}{\text{I (in A)}} \cdot \frac{60\ \text{min/h}}{1000} \cdot \eta = \frac{2600\ \text{mAh}}{1{,}3\ \text{A}} \cdot \frac{60\ \text{min/h}}{1000} \cdot 1{,}4 = 168\ \text{min}$$

$$\text{Safety Time} = \frac{\text{C (in mAh)}}{\text{I (in A)}} \cdot \frac{1}{11{,}9} = \frac{2600\ \text{mAh}}{1{,}3\ \text{A}} \cdot \frac{1}{11{,}9} = 168\ \text{min}$$

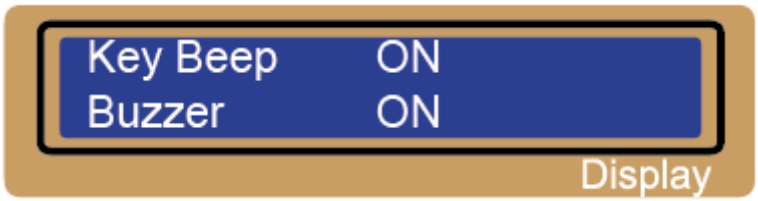
- **CAPACITY CUT OFF**

This menu controls the charging limit (the charge is determined from the product of current charge and time). This is an optional switch-off and must not be used.

- **Key Beep und Buzzer**

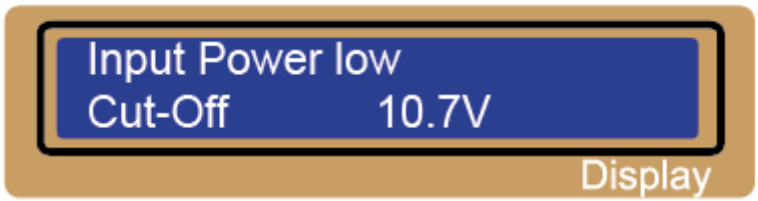
Key Beep is a beep when a button is pressed and can be disabled.

Buzzer beeping means the end of the charging process and can be disabled.



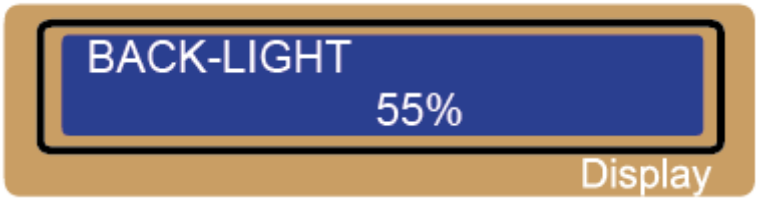
- **Input Power low**

In the mobile use of the AccuManager 606P a battery is used for power supply(car battery…). In order to avoid over discharge of the battery it has a adjustable supply voltage monitoring. Bei unterschreiten der Cut-Off Spannung wird AP606P kontrolliert ausgeschalten. For less then the cutt-off voltage the AP606P is turned off.



- **BACKLIGHT**

Here, the brightness of the backlight can be set in %.



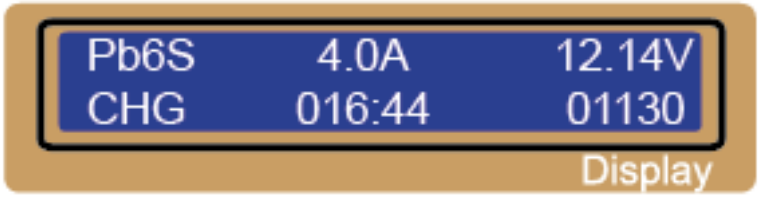
- **Waste Time**

If the function of cyclic loading is used, there should be a break between the loading processes, to allow the chemical regeneration of the battery.

This interval can be varied. (Default: 2min)

Lead / lead batteries charge

Select Pb BATT in the main menu with STOP/DEC buttons and confirm with ENTER. You are now in charge menu for lead acid batteries, with INC/DEC the loading or unloading operation can be selected. Now, the maximum current is set. (Is adapted continuously during the charging process). Charging is started with a long press on the START button.



After end of charge, some charging data (Battery voltage, maximum charge current, duration of charging, charged capacity) is displayed on the LCD.

A press of the STOP button, acknowledges this message.

NIMH/NiCd batteries charging

The menu structure for charging NiMH batteries and NiCd batteries is the same. the charging of a NiMH battery is explained, for charging NiCd batteries choose NiCD in the menu option.

Select NiMH BATT in the main menu with STOP/DEC and confirm with ENTER. You are now in the charge menu of the NiMH batteries, with INC/DEC you can select if the battery should be charge (CHARGE) or discharged (DISCHARGE) or repeatedly charged and discharged. (In this mode you can choose to start with charging or discharging and how often these operations should be repeated). Now the maximum current is et. The charging process is started with a long press of the START button.

After completion of the chosen charging function, the following information screen is displayed. You will be informed of the charge current, terminal voltage, charging time and the charged capacity.

Lithium polymer battery charge / discharge

Since there exist different variants of lithium cells, the used version (Lilo/LiFe/LiPo) must previously be set in the options menu.
(See "Options" menu → "V type") The best results are achieved when using batteries, which provide a balancing connector. (See "Connecting Li-Ion Battery")

With STOP/DEC buttons in the main menu, choose the LiXX BATT and confirm with ENTER. You are now in the charge menu of the selected Battery.

- LiIon CHARGE

Here, at first the maximum charging current can be entered as for the other battery types. The number of cells will be determined automatically and must be confirmed with a long press of the “Start” button. For deep discharged batterys, the cell number can be entered manually.

- LiIon BALANCE

This is the recommended option for charging LiXX batteries. Here, each cell is monitored by the charger and supplied with a deviation from the average cell voltage as necessary with more or less power.

Connect the battery cable and the balancing connector with the appropriate socket on the charger before charging the battery.

- LiIon DISCHARGE

The AP606P is able to discharge LiXX Batteries with a current of max. 1A. You can enter the discharge in 100mA steps and select the discharge voltage.

- LiIon FAST CHG

In fast charge mode the charge current is adapted to the needs of the battery pack, but not so sensitive. The charging process is completed faster, but this can bad for the charged capacity, especially in old batteries.

- LiIon STORAGE

With this option, the battery charge is brought into a state in which it has the lowest self-discharge and can be stored optimally.

He can always be with a normal charging process reactivated for use.

Overview of possible error messages

The battery is connected with wrong polarity.

Is displayed when battery is disconnected while charging.

Output short circuit, check cable.

The supply voltage has dropped below the limit.

The False LiXX cell type has been configured / wrong number of cells found.

General Error

The connected battery is discharged / set too high number of cells.

Excessive voltage at the battery / cell number was set too low.

Internal error

The device reports using overheating, use only fire-proof and smooth surfaces!

The balancing plug is not connected correctly.

A cell of the battery LiXX has risen too high.

A cell of the LiXX battery has low voltage.

Safety

- Please do not leave the switched on charger unattended. If an error occurs immediately disconnect the charger and battery charger from the power supply and follow the steps mentioned in the instructions.
- Keep the unit away of dirt, heat, wet direct sunlight and vibrations away. Please do not drop.
- Only operate on a 11-18V DC power source (eg car battery).
- Only operate on hard and fireproof flat. Do not operate on the car seat, carpet etc.
- Please be familiar with the operations befor use and only connect to the selected battery type.
- To prevent short circuits it is recommended to connect the battery first to the charging cable.
- Always connect only one battery pack.
- Please only load NiCD, NiMH, Li-, Li-Polymer, LiFe and lead-acid batteries. Loading other battery types could destroy the device and can go off the warranty.

Warranty

We provide a 1 year warranty on manufacturing defects in workmanship and materials that are not caused by user settings effect.

Except for the incorrect use. (Outside of the technical specifications)

Notes:

Dealer stamp:

www.accupower.at