

## INSTRUCTIONS FOR USE

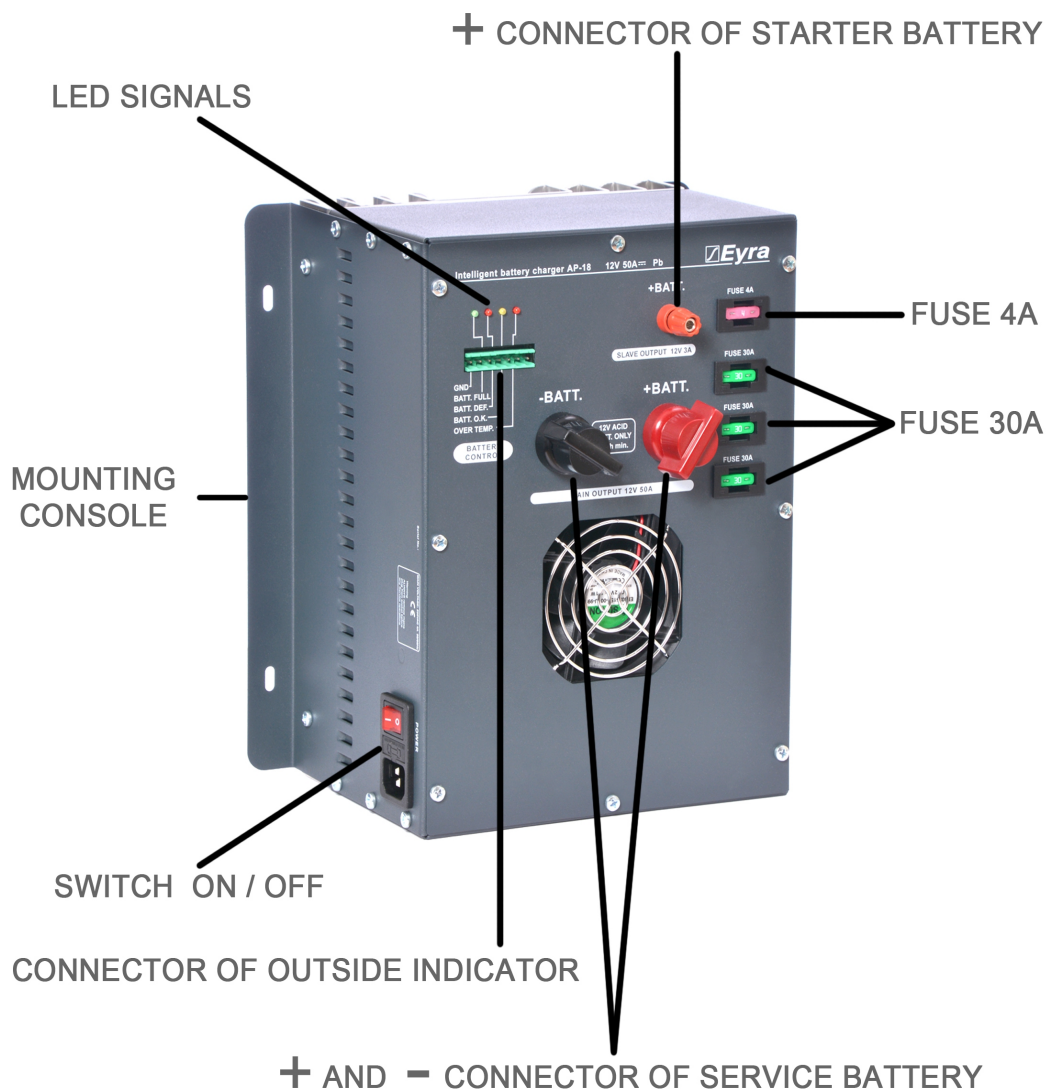
# Pulse battery charger AP-18 12V 50A + 12V 3A



### CHARGER CHARACTERISTICS

- **Pulsed charge current**
- configurable mode of operation; **charger or buffer**
- **4 charging phase: bulk charge, absorption, equalization, float charge**
- Charger that can "listen" to the chemistry of the battery
- **Fast, smooth and battery friendly charging**
- Battery determines charging current by itself under supervision of Intelligent microprocessor pulse charging system
- **4 charging programs, UNI (universal), AGM, GEL, CaCaWET starter battery**
- There is no warming up effect, which reduces battery life at overcharge
- Regenerate cells majorly, when they were charged improperly- desulfatization
- **Pulse-charging prolong the battery life**
- Safe against short-circuit
- **Allows charging the starter battery**
- Automatic battery detection (yellow led)
- Precise full charge indicator (green LED)
- **External indicator connector**
- Working temperature range from 0° to +35°C
- Charging is independent of oscillations in the supply voltage (PWM technology)
- Console for mounting

## CHARGER OVERVIEW



## CONNECTING CABLE AND CLIPS



Cable with plug 230V AC



Connecting cable with (option)



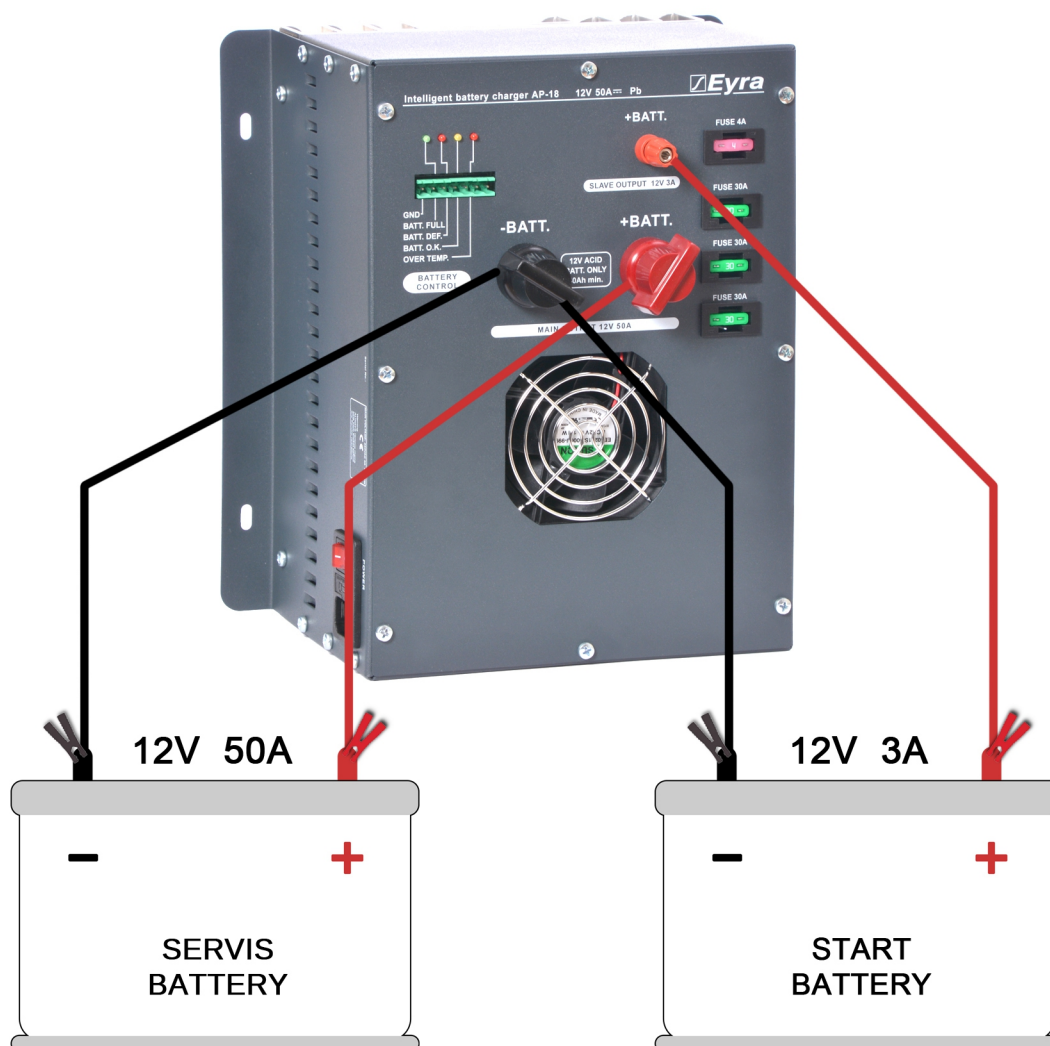
Connecting cable with crocodile clips (option)

## INSTRUCTIONS FOR CONNECTING THE CHARGER WITH BATTERY

Battery charger AP-18 is suitable for charging only 12V lead (Pb) batteries from all together capacity of min. 50Ah. Max. capacity of charged battery is not limited. Battery charger is for (we recommend that the charging time is not too long) battery systems up to 1000Ah total capacity.

Connect battery and charger polls with a wire of at least 16mm<sup>2</sup> for distances to 2m and with a wire of at least 25mm<sup>2</sup> for distances to 4m.

- ▶ Plug the charger (230Vac cable) into the mains.
- ▶ Switch on the main supply switcher (POWER) on the left side of the charger.
- ▶ All three LEDs flash briefly, the charger is ready to charge.
- ▶ **BLACK** on - poll of the battery
- ▶ **RED** on + poll of the battery
- ▶ At correct connection YELLOW LED indicator lights on. The battery is charging.
- ▶ When the battery is full, GREEN LED indicator lights on.



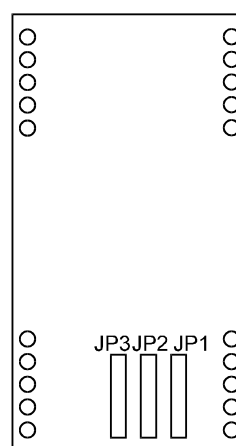
## CHARGING PROGRAMS

There are 3 jumpers inside the device, which are used to set charging programme. To do that, we first unplug the device from socket. On bottom of the case, we unscrew 4 bolts and remove cover. There are 3 jumpers on the smaller power circuit board, which we use for setting charging programme and device operation mode. Charger has **4 charging programmes**: universal programme - **UNI**, programme for wet hermetic start battery **CaCaWET**, programme for **AGM** battery and programme for **GEL** battery. Setting the charging mode enables the device to operate either as **charger** (it charges battery until it is full) or as a **battery-buffer** (battery is constantly connected to charger and is providing power for load, such as light, refrigerator in case of caravan, boat or sailboat).

Mode	JP3	JP2	JP1	Type of battery
<b>Charger</b>	Conect (1)	Conect (1)	Conect (1)	<b>UNI (Universal)</b>
<b>Charger</b>	Conect (1)	Conect (1)	Disconnect(0)	<b>CaCaWET</b>
<b>Charger</b>	Conect (1)	Disconnect(0)	Conect (1)	<b>AGM</b>
<b>Charger</b>	Conect (1)	Disconnect(0)	Disconnect(0)	<b>GEL</b>
<b>Buffer</b>	Disconnect(0)	Conect (1)	Conect (1)	<b>UNI (Universal)</b>
<b>Buffer</b>	Disconnect(0)	Conect (1)	Disconnect(0)	<b>CaCaWET</b>
<b>Buffer</b>	Disconnect(0)	Disconnect(0)	Conect (1)	<b>AGM</b>
<b>Buffer</b>	Disconnect(0)	Disconnect(0)	Disconnect(0)	<b>GEL</b>

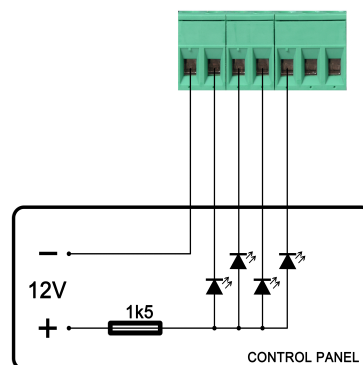
### Illustration of jumpers in the battery charge controller.

With the proper jumpers adjustment, we select the filling profile and the charging method »**charger**« or as a »**buffer**«.



## CONNECTION OF OUTSIDE INDIKATOR

- Mount the control plate and connect it with coaxial cable as shown on picture right.
- Connect main supply to one of the fuse on the distribution plate.
- Interface for connection of outside indicator is galvanic separated and does not influence on the activity of the charger.



## LEGEND OF LED SIGNALS WHILE CHARGING THE BATTERY

LED	LED activity	Charge phase	battery charge level
<b>RED, YELLOW, GREEN</b>	short blink all LEDs	charger is ready (Ready)	/
<b>YELLOW</b>	blinks	bulk charge (Bulk)	< 65%
<b>YELLOW</b>	continuously lit	absorption I charge (Abso1)	65%...75%
<b>GREEN</b>	blinks	absorption II charge (Abso2)	75%...85%
<b>GREEN</b>	2x fast blink	equalization charge (Equal)	85%...90%
<b>GREEN</b>	continuously lit	float charge (Float)	>90%
<b>RED</b>	continuously lit	temperature off (Error)	/

## CHARGING PHASE

Charge phase:		Description:
<b>Bulk</b>	<b>BULK CHARGE</b>	Charges the battery up to 65%, delivering a lot of energy to the battery in a short time.
<b>Abso 1</b>	<b>ABSORPTION I</b>	The charge is slowed down so that the battery absorbs more energy. The battery reaches 65..75% of the capacity.
<b>Abso 2</b>	<b>ABSORPTION II</b>	Charge current is gradually reduced. The battery reaches 75..85% of the capacity.
<b>Equal</b>	<b>EQUALIZATION</b>	At this phase, levels between different filled cells are equalized. The battery reaches 90..95% of the capacity.
<b>Float</b>	<b>FLOAT CHARGE</b>	Keeps the battery at 100% of the capacity without causing damage to the battery. Also, can not over-charge the battery.

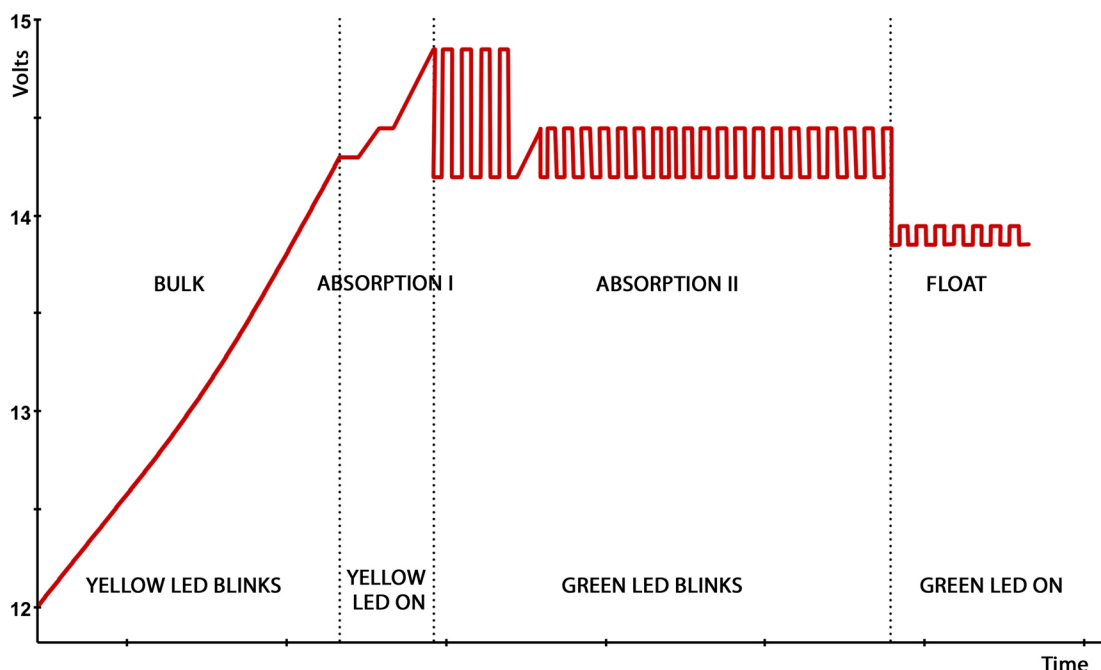
## DESCRIPTION OF THE PULSE BATTERY CHARGING TECHNOLOGY

Pulse charging system is electrode specific charging system; it is new technology of battery charging. It presents a small revolution on this area, because the results in practice are drastically better. With this technology is possible very fast and very precise charging, because only electrochemical condition of battery "dictates" the charging phase and charging current, which is momentarily correctly for the battery.

**When charging with pulse charger AP-18, does not come to the gasification of the electrolyte and warming up, that destroys (breaks) cell lead-acid batteries. So as a result, pulse charging majorly prolong battery life and shortens the charging time.**

We can say that pulse charging technology works as transformer between battery chemistry and signals that commands the charge. Each battery is treated individually. Your experience with this charging method please send to [info@eyra-elektronika.si](mailto:info@eyra-elektronika.si).

## CHARGING DIAGRAM



## TECHNICAL DATA

<ul style="list-style-type: none"> <li>- type of battery:</li> <li>- charge phases:</li> <li>- capacity of battery:</li> <li>- battery voltage:</li> <li>- nominal charging current (max):</li> <li>- charging mode:</li> <li>- extra output:</li> <li>- main voltage:</li> <li>- main voltage frequency:</li> <li>- max. Power:</li> <li>- activating the output voltage:</li> <li>- ambient temperature:</li> <li>- short contact output:</li> <li>- wrong polarity output (main output):</li> <li>- main input fuse:</li> <li>- cooling:</li> <li>- dimensions:</li> <li>- weight:</li> <li>- signals:</li> <li>- IP protect:</li> <li>- housing grounding:</li> <li>- recommended battery capacity:</li> <li>- field of use:</li> </ul>	<p>Pb battery, UNI (Universal), AGM, GEL, CaCaWET                  bulk / absorption I / absorption II / equalization / float                  min 50Ah, maximum is not limited                  12V, extra battery (slave) 24V                  50A (pulse)                  pulse charging system 20Hz                  12V 3A output for start battery (slave)- fuse 4A                  195V – 242VAC                  40 – 60Hz                  900VA                  minimum battery voltage at 6V                  from 0 °C to +35 °C                  save, no voltage on output if battery is not connect                  fuse 3x 30A (fuse burn)                  T 6,3A                  fan controlled with thermostat                  280 mm x 255mm x 190mm                  6,0 Kg                  red, yellow and green LED indicator                  IP20                  housing grounded, Class I                  50...1000Ah                  movable traffic signalization, campers &amp; caravans, yachts &amp;                  sailboats, el. vessels, emergency vehicles, fire trucks, workshops, ...</p>
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## TROUBLESHOOTING

Error	Cause	Solution
The charger is connected to the mains, power switch is ON. LED signals not blinks.	- there is no mains voltage 230Vac	- ensure supply voltage 230Vac
Red LED is on.	- devices has overheated - to high ambient temperatures - fan error	- reduce the ambient temperature - service intervention - clean up fan

## WARNING!

- **The charger is designed for indoor use (do not expose the charger to rain).**
- **Polarity + and - must not be confused!**
- **During charging ensure adequate ventilation!**

**SERVICE AND GUARANTEE**

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**GUARANTEE STATEMENT**

**Guarantee conditions:**

1. The guarantee is valid for 24 months from the date of sale.
2. The guarantee repairs are carried out exclusively by an authorized service center.
3. The guarantee applies only to the charger, and not to any other device connected to this module.
4. The guarantee and liability does not include any fees, postal costs, damages and any costs related to the failure of this device.
5. The guarantee does not apply to batteries, mechanical damage or lightning strikes.
6. The guarantee does not apply if the device was mounted or used in violation of the instructions.
7. The guarantee does not apply if an unauthorized person interferes with the device.
8. If, during the guarantee period the device is not repaired within 45 days from the date of receipt in our service center, we are obliged to replace it with a new one.
9. The guarantee period shall be extended for the period of repair.
10. The original invoice must be submitted for the enforcement of the guarantee.

seller :

**company:**  
.....

**name and surname of the seller:**  
.....

**signature of the seller:**  
.....

**date of sale:**  
.....

**stamp:**  
