

# USER MANUAL

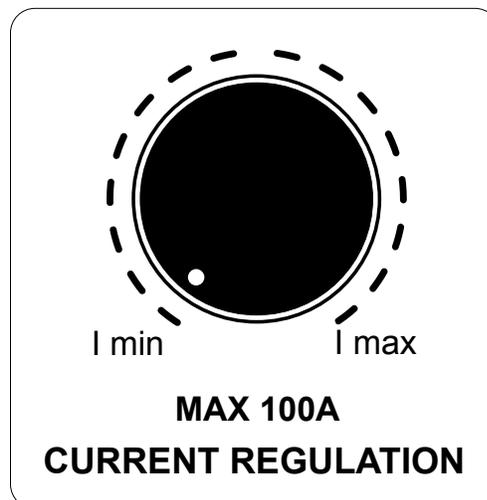
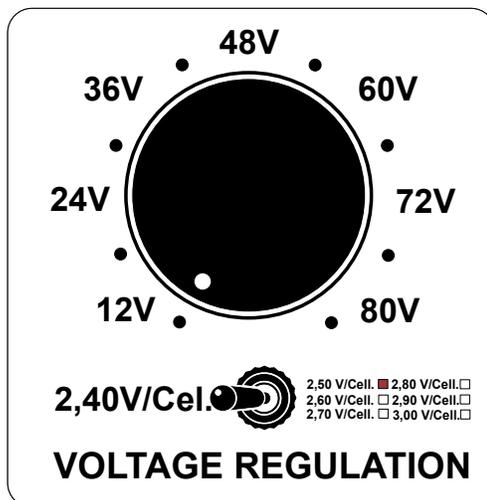
## SHOP EQUIPMENT - MVC - MVD - XD



# MVC CHARGER

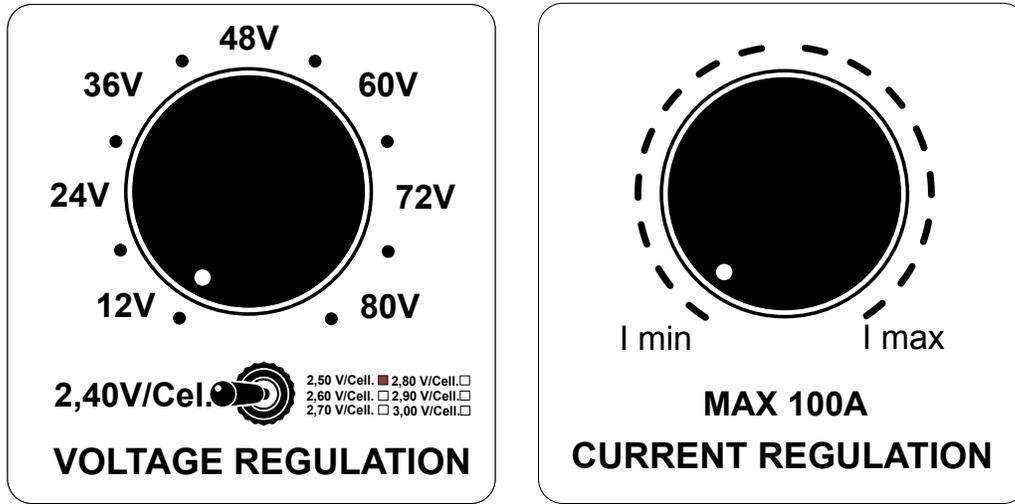


# HOW TO USE THE MVC CHARGER

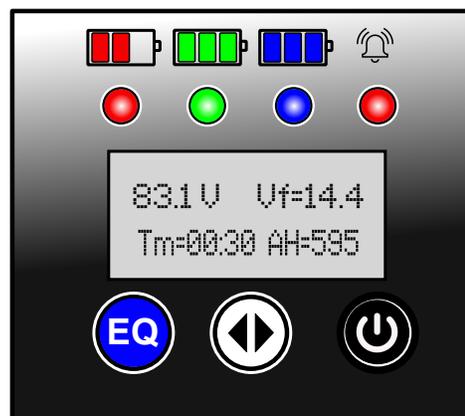


## Operation instructions:

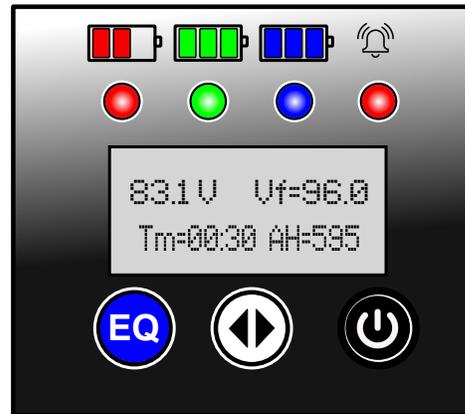
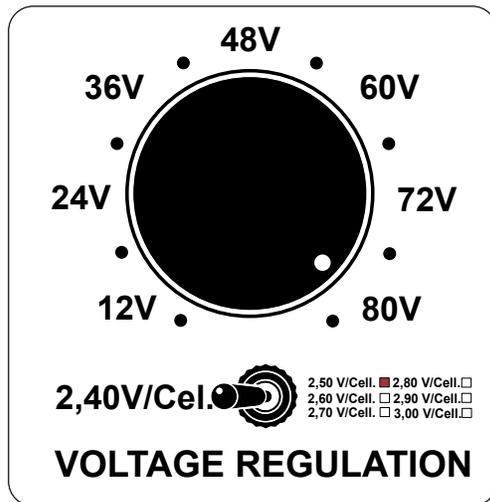
1. With charger "ON", make sure that both knob are turned at minimum before battery connection.



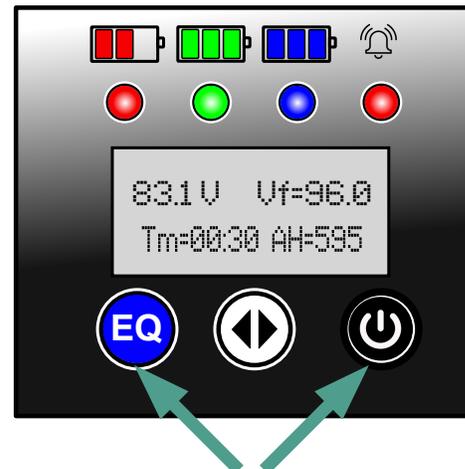
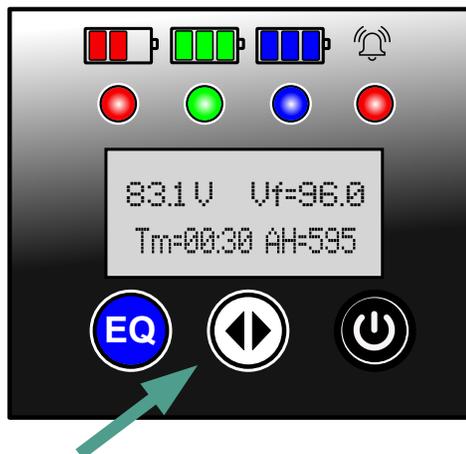
2. Have the battery connected and confirm on display: (Example of a 80 volts battery connected). Please remark that "Vf" on display shows the Final voltage to recharge.



- Turn the voltage regulation knob until matching battery voltage to recharge. (In this case we will turn until 80V):

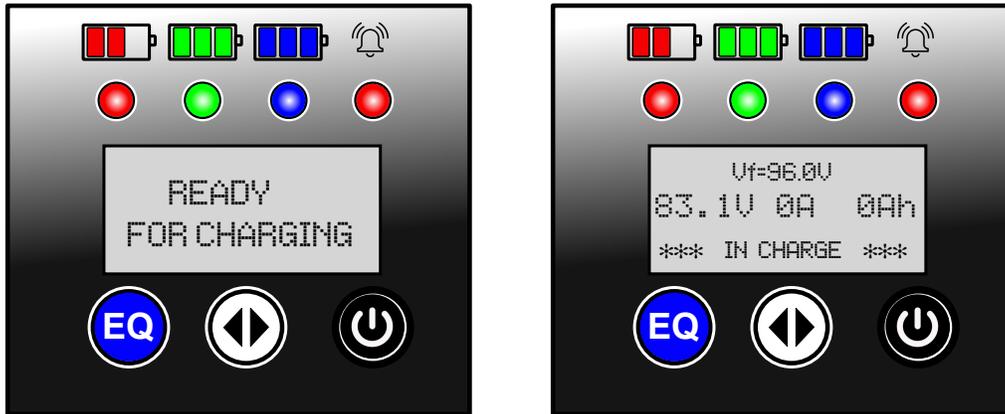


- Set "Tm": Charge time maximum you want to allow and "AH": the battery capacity to be recharged by pressing and holding the 2 arrows button:

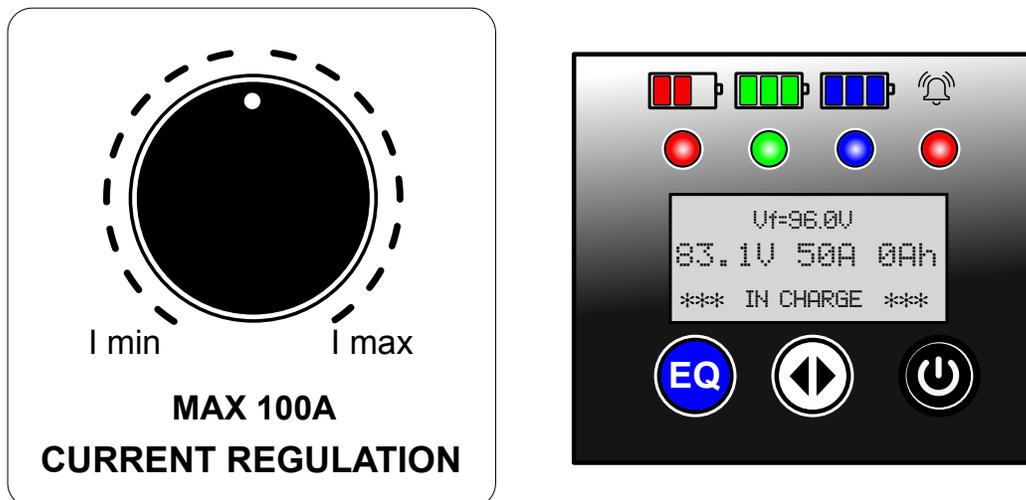


- A cursor will flash on the value to be changed, press the left or right button to change value and the 2 arrows center button to confirm. Hold again the 2 arrows center button to confirm and exit.

6. Charger is now ready to start, press left and right button together to have the unit starting, the display will show:



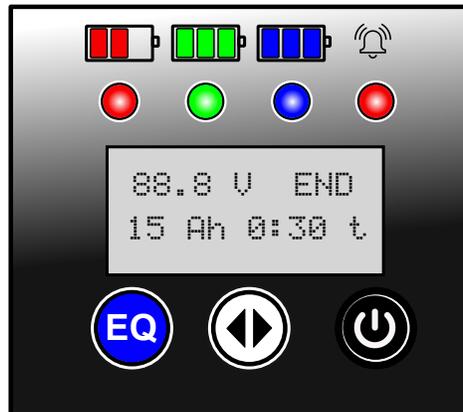
7. Slowly turn current regulation knob to the desired recharge current and display will show the matching value:



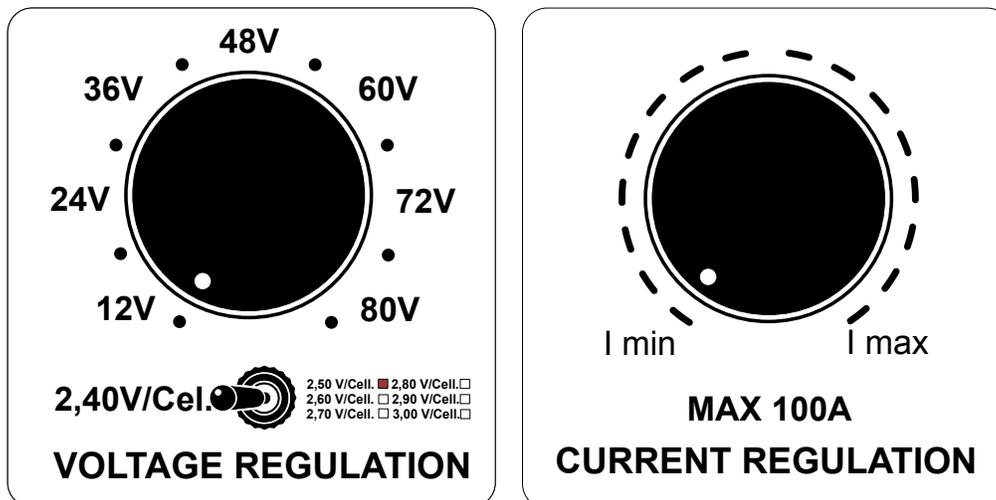
8. The recharge will keep going until maximum time setup earlier is reached or if it is stop manually.

Note that the display will show charge progression with the most left red LED flashing and current slowly increasing.

9. At end of charge, display will show present voltage on battery, quantity of capacity returned (Ah) and charge duration:



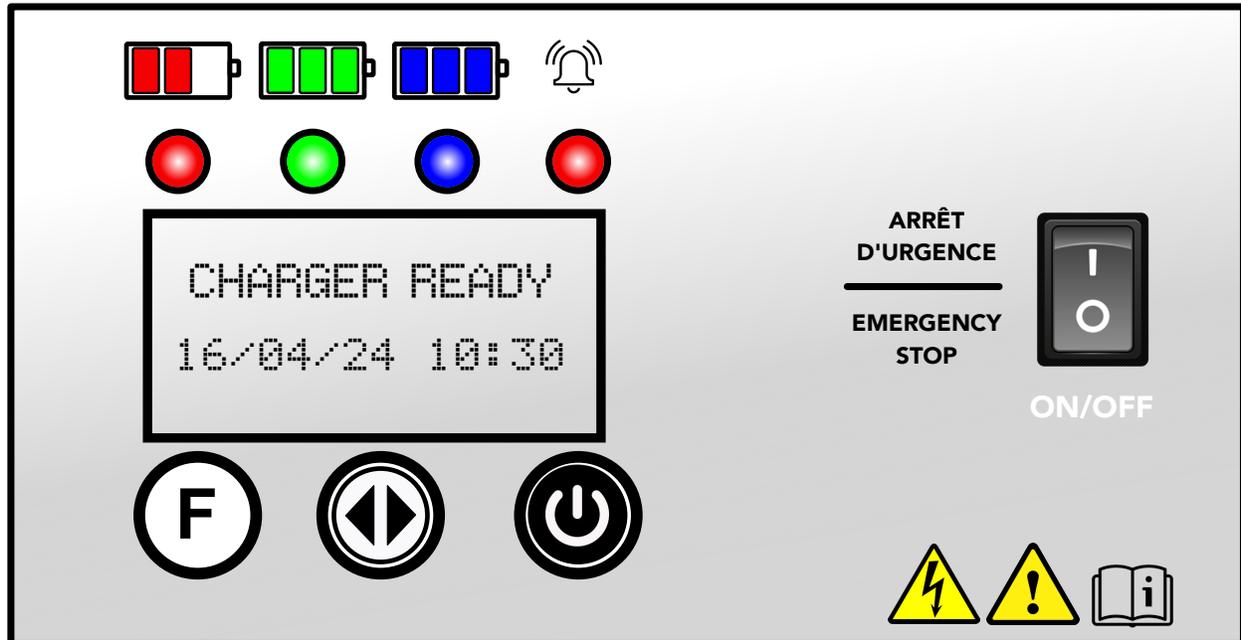
10. **IMPORTANT:** after complete recharge and before the next recharge, make sure to return both knobs (Voltage and Current) to their minimum value.



# MVD CHARGER

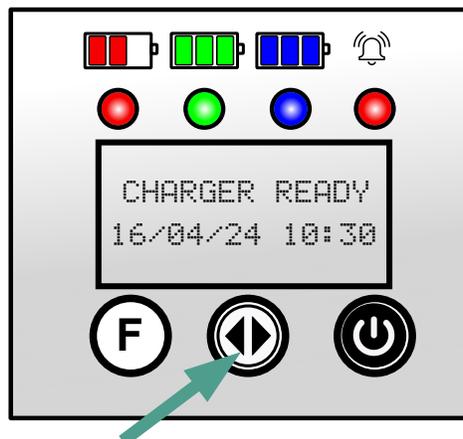


## HOW TO USE THE MVD CHARGER

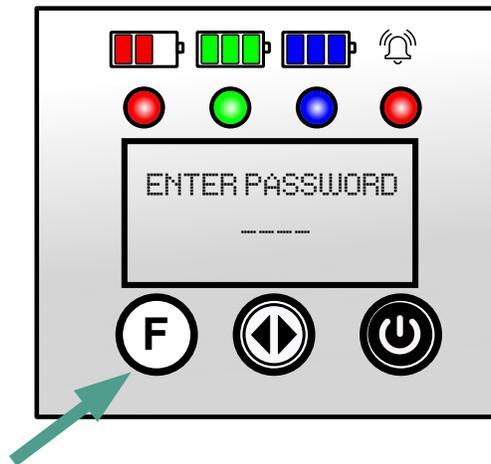


### Operation instructions:

1. When display shows "Charger Ready", battery to be recharge can be connected to it.
2. You may want to setup some values before recharging and using a user password, you will be able to do so, start by holding on the 2 arrows center button:



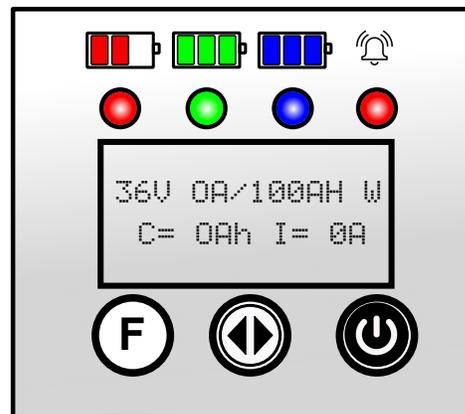
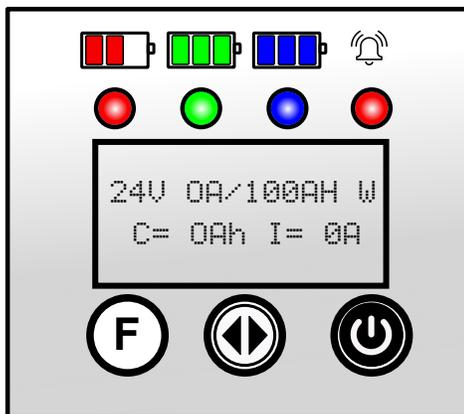
3. Enter user password: Password is left "F" arrow 4 times.



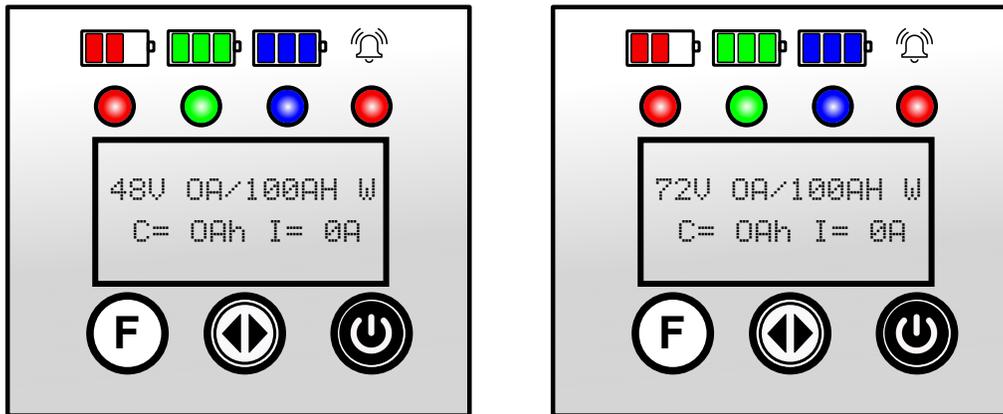
4. You may now setup values for batteries to be recharged:

Display will show:

and by pressing "F":

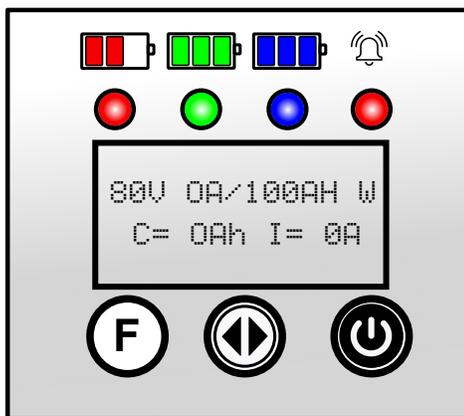


and holding the 2 arrows button, and by pressing "F" or "Start", you will be able to change values of charging current, capacity to match battery to be recharge at 24, 36, 48, 72 and 80 volts.

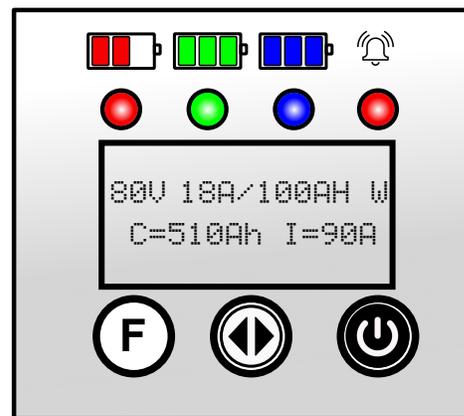


and using the 2 arrows button to confirm and keep the modification, you may look at something like this as an example for an 80 volts battery:

Before:



After:

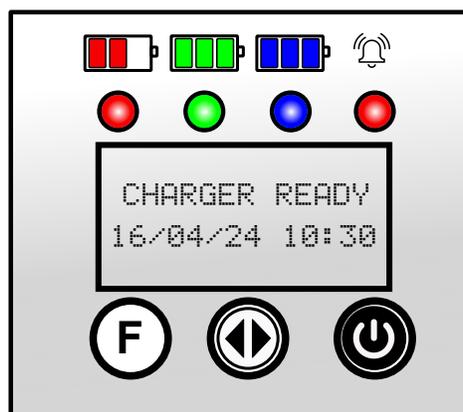


means: everytime an 80 volts battery connected to the charger from now, it will be recharge at 90 Amps max.

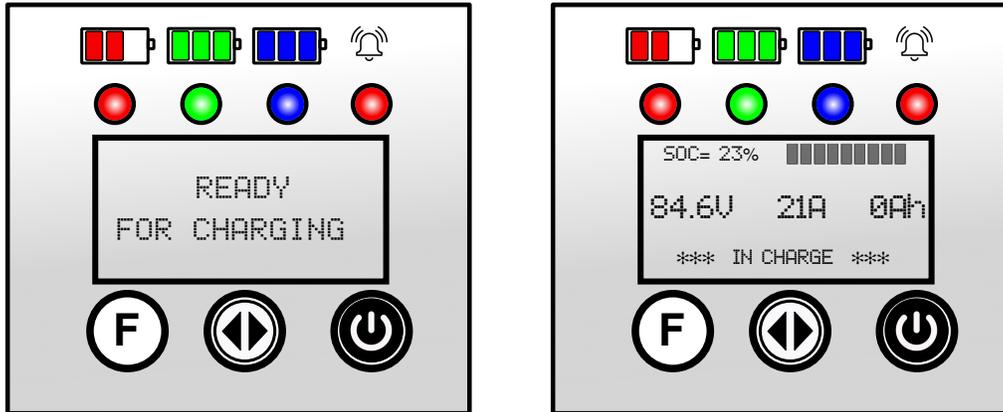
Naturally, with the user password, you may return and change values for a different 80 volts battery (or any other voltage) to be recharge.

Note: All the values set previously for all battery type and values will stay in memory.

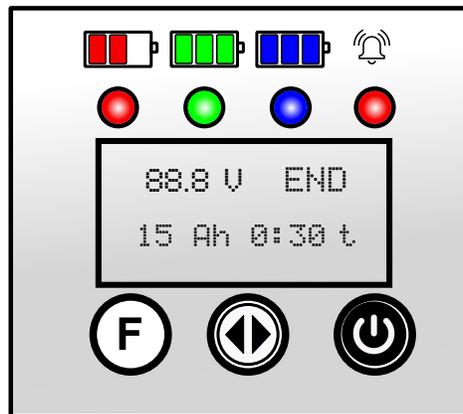
5. After the 80 volts choice window, keeping pressing “F”, you will have access to these parameters that can be left as is or modified using same procedure than the previous.
- V.GAS-GAS LIMIT 2.40V/Cel
  - V.MAX-MAX LIMIT 3.00V/Cel
  - MAX TEMPERATURE 60C
  - FOLDBACK CURRENT 2.5 Amps/100Ahrs
  - EQUALIZE MODE 6H
  - DD/MM/YY hh:mm 16/04/24 10:30
  - DAYLIGHT SAVING GMT+6 CN.AMERIC
  - ON.CH START\STOP 00:00 23:59
  - OVERC START\STOP 00:00 23:59
  - EQUAL.START ON SAT 20:00
  - EQUAL.START OFF SUN 12:00
  - BATTERY MODULE VOLTAGE RECOGN.
6. At any time after change made and confirm, you may press the”F” and “Start” button at same time to get back to this window:



7. Now, you may have a battery connected and automatically the recharge will slowly start until reaching the maximum current preset value.



When recharge is complete, the display will show:

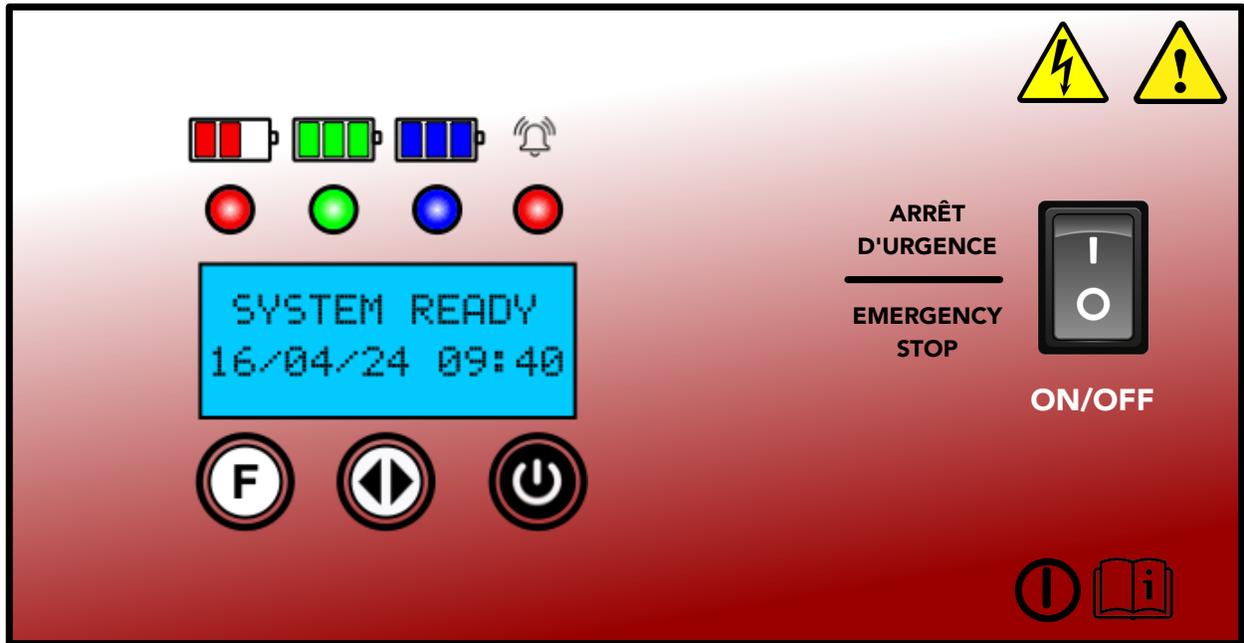


You may now disconnect and recharge another battery. At any point, during the charge, you may press the “Start” button to stop the charger.

# XD BATTERY DISCHARGER

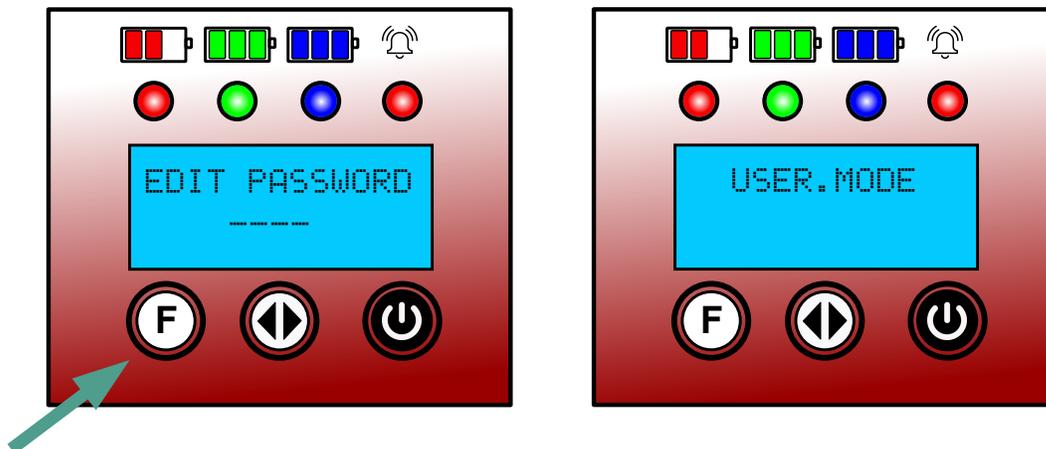


## HOW TO USE THE XD DISCHARGER



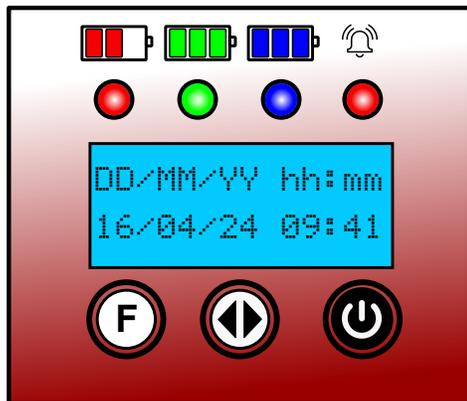
### Operation instructions:

1. With display showing "SYSTEM READY", press the 2 arrows to edit password and entering the user password: "F" arrow 4 times, will verify some parameters;

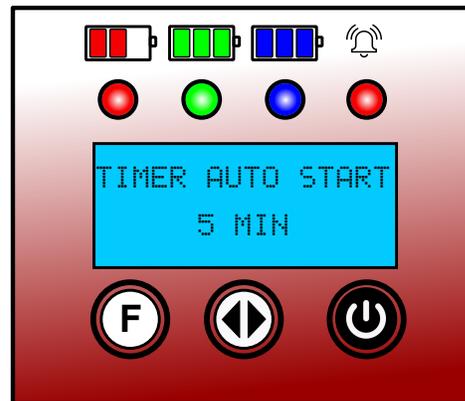


2. First window will ask for date and time settings, note that from now, you need to press the 2 arrows button to enter in a window, use "F" or "Start" buttons to modify settings, then confirm with the 2 arrows button after and press "F" to access the next window.

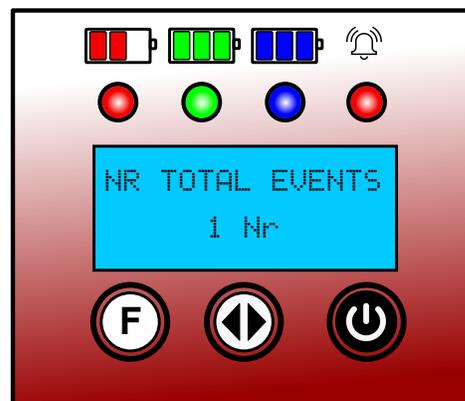
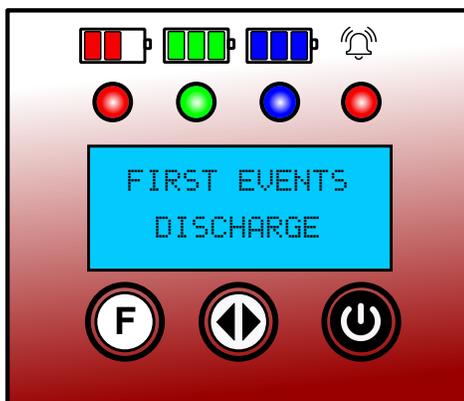
Date/Time

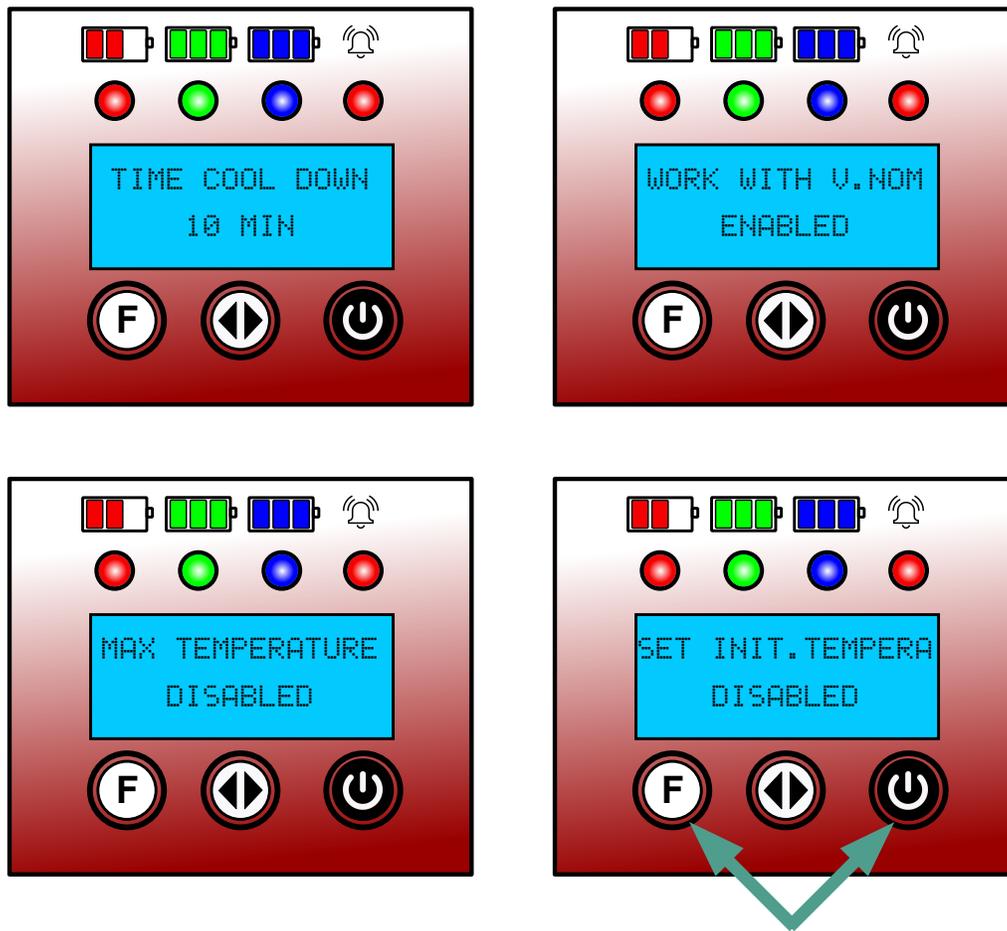


Timer Auto Start



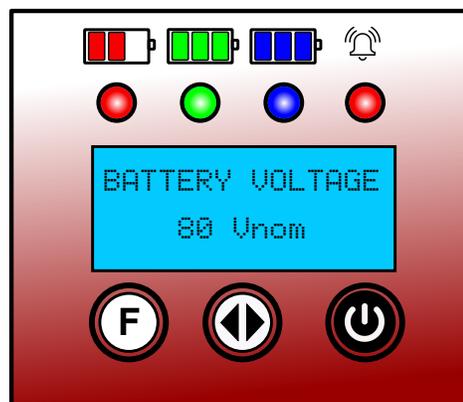
3. To discharge a battery for testing, please verify and/or do the following settings:



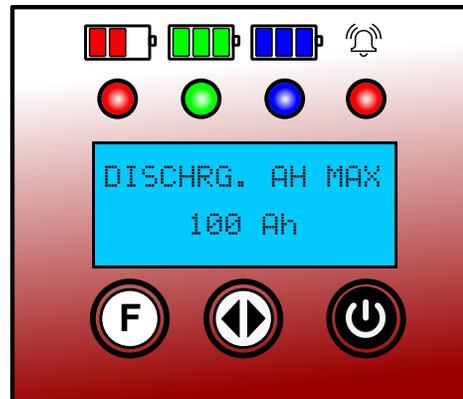


And press the "F" and "Start" button at same time to exit.

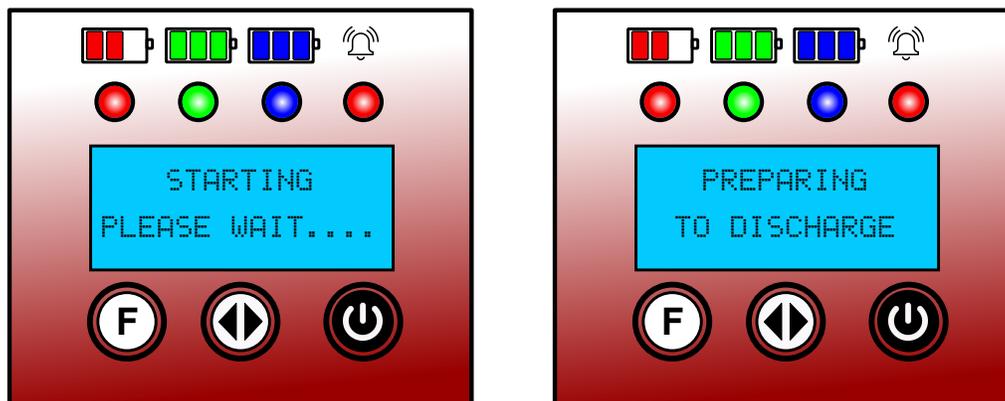
4. Connect a battery to the XD to start discharge: (see this example with an 80 volts battery connected)

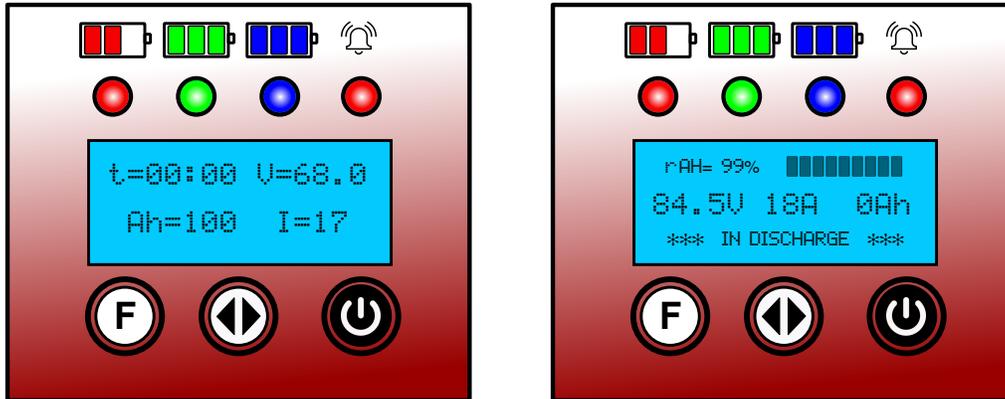


5. Now we need to set the discharge amps settings related to the battery capacity to be discharged (this value is normally equal to AH/6 or AH/5 according to battery manufacturer). Press the 2 arrows button to enter, use "F" or "Start" to do changes and press the 2 arrows button to confirm.



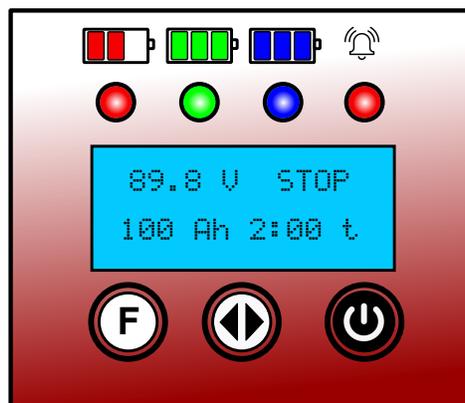
6. Discharger is now ready to start, press left and right button together to have the unit starting, the display will show:





Note that the discharger will pre-calculate the minimum voltage value by himself when a battery is connected to it (like here 68V for an 80V battery)

7. When the battery will reach this minimum voltage, the unit stop and show, the battery voltage now, the total amount of Ah and the discharge time.



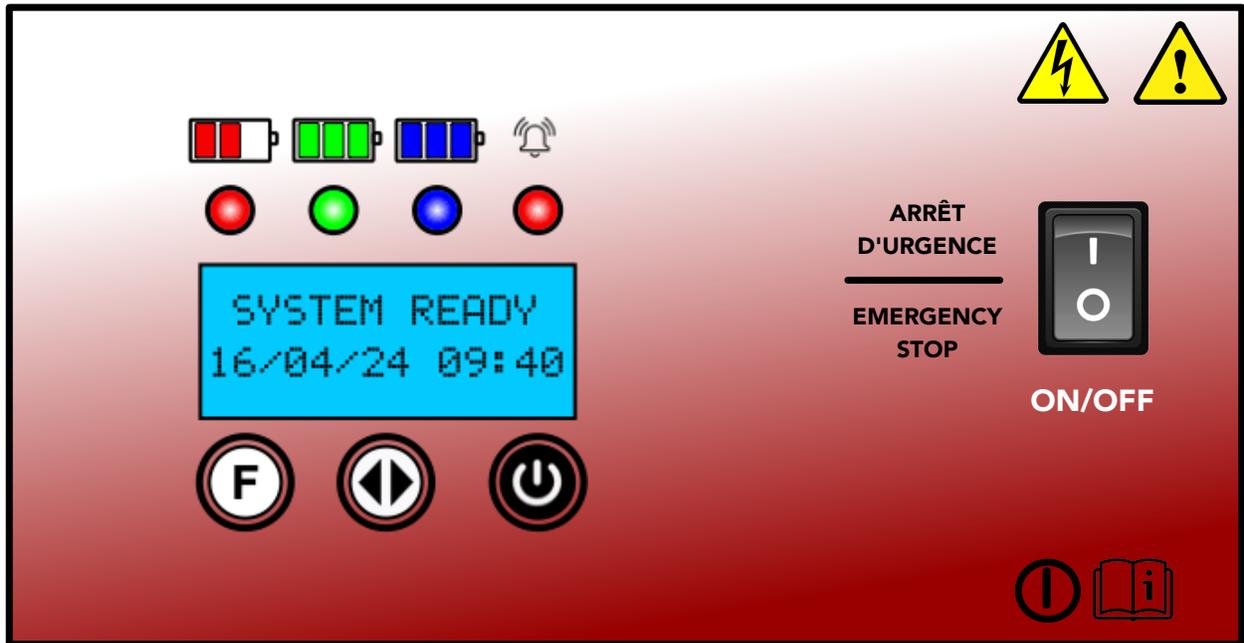
Note that these values could be different depending of battery status before discharging process.



# MVD CHARGER AND XD DISCHARGER ON CYCLING PURPOSE

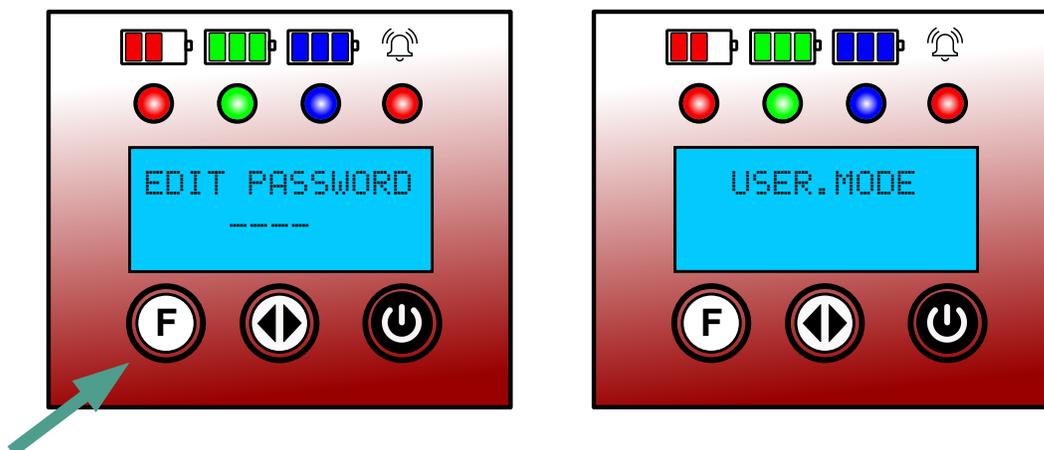


## HOW TO USE THE XD DISCHARGER AND MVD CHARGER ON CYCLING PURPOSE



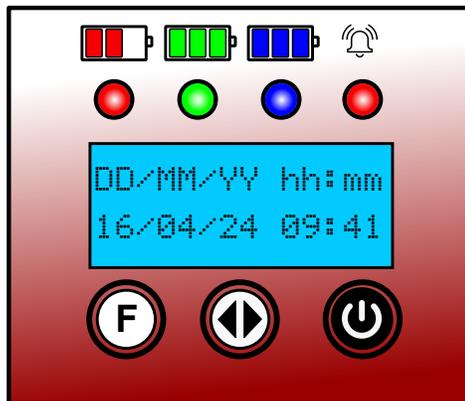
### Operation instructions:

1. With display showing "SYSTEM READY", press the 2 arrows to edit password and entering the user password: "F" arrow 4 times, verify some parameters;

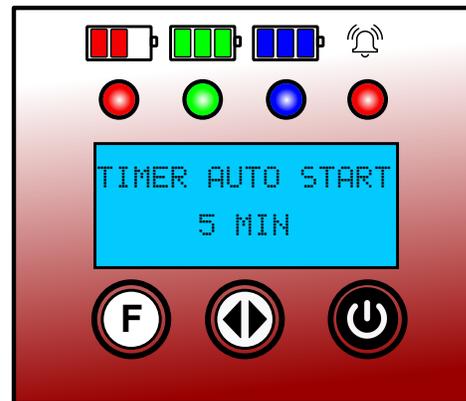


2. First window is for date and time settings, note that from now, you need to press the 2 arrows button to enter in a window, use "F" or "Start" buttons to modify settings, then confirm with the 2 arrows button after and press "F" to access the next window.

Date/Time

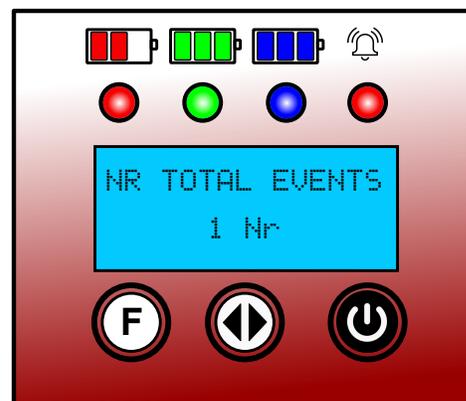
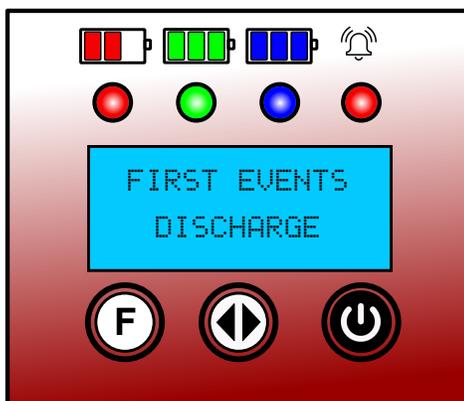


Timer Auto Start

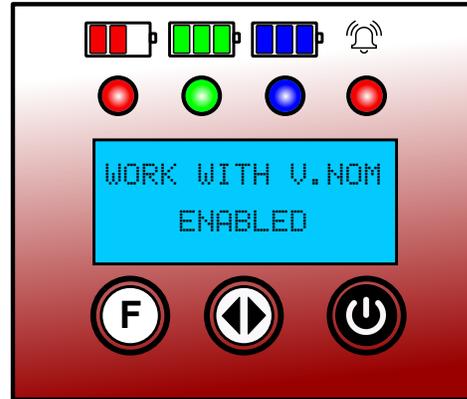
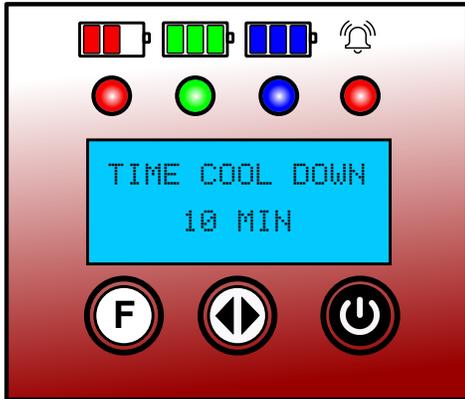


3. To discharge a battery for testing, please verify and/or do the following settings:

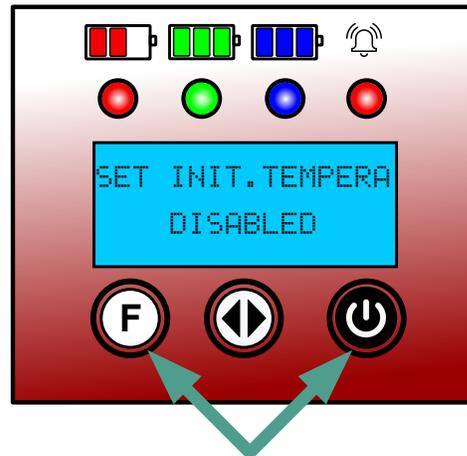
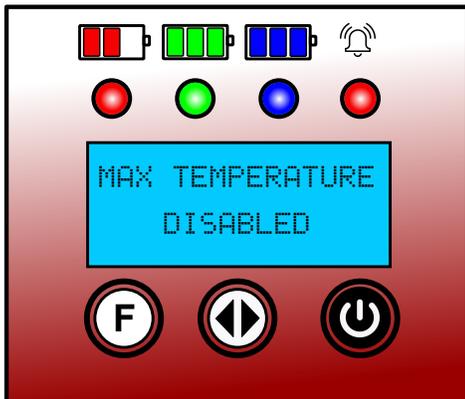
Note: First Events choices are Charge or Discharge, every event is either a charge or discharge, so if number of total events is 4; means a recharge and a discharge 2 times. Set up your preference in these 2 windows:



Note: Time cool down is required and minimum is 10 min.

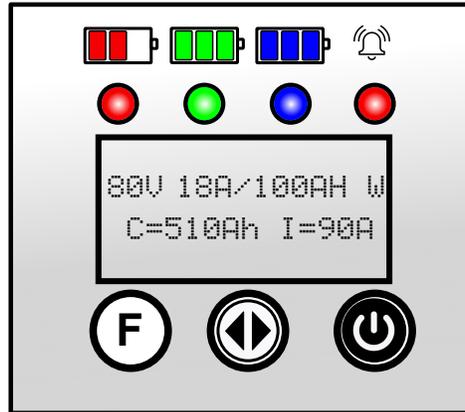


Note: no need to set initial or max temperature.

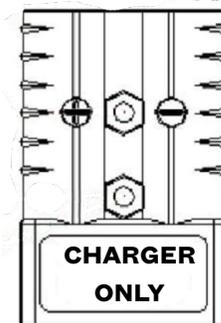


And press the "F" and "Start" button at same time to exit.

- Following the MVD settings procedures with password, make sure to put the battery values to be cycled onto the matching screen.

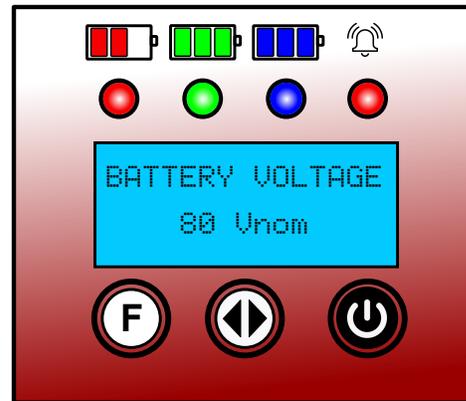
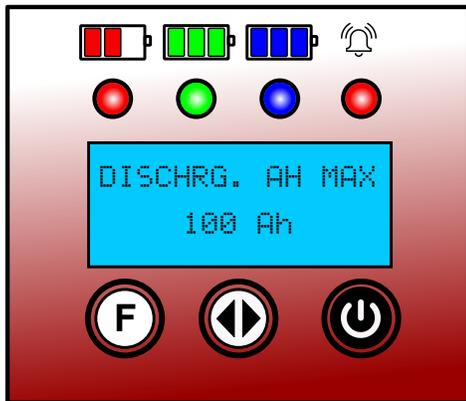


- When it is done, have the charger connector, inserted to the front of the XD, where it shows "CHARGER ONLY"

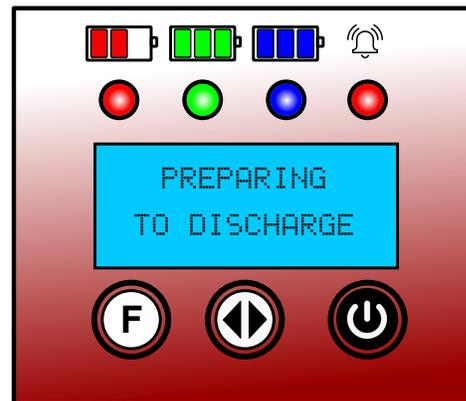
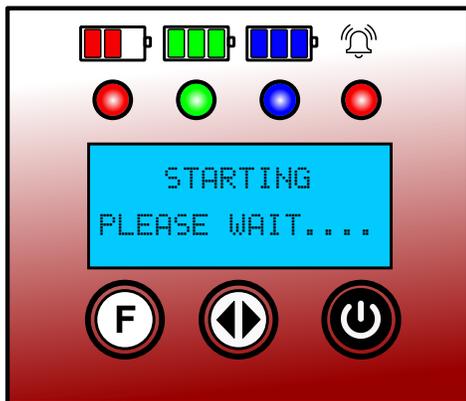


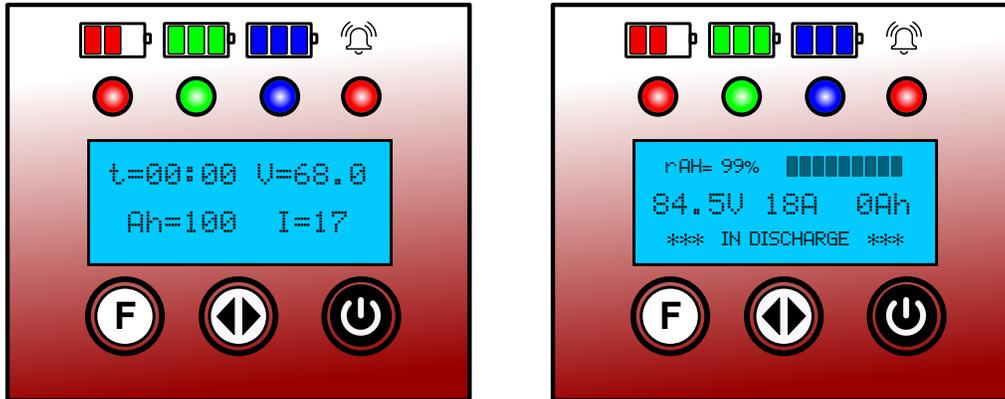
- Now, battery to be discharged can be connected to the discharger.

7. Next step is to set the discharge amps settings related to the battery capacity to be discharged (this value is normally equal to AH/6 or AH/5 according to battery manufacturer). Press the 2 arrows button to enter, use "F" or "Start" to do changes and press the 2 arrows button to confirm.



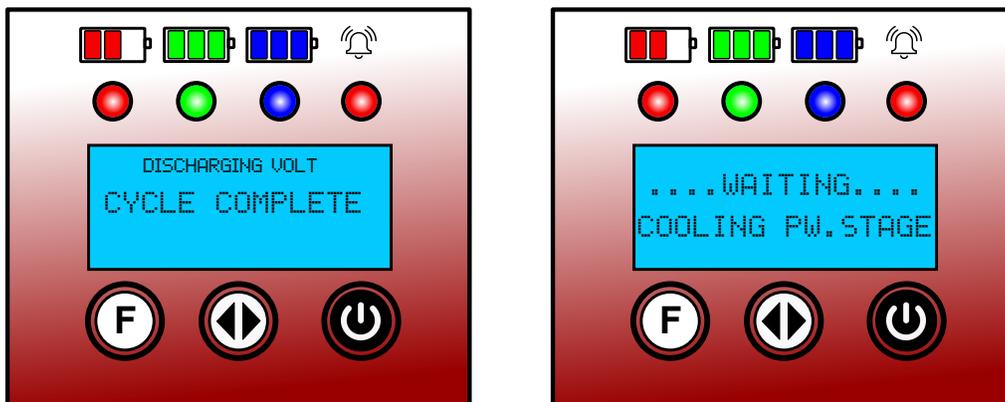
8. Discharger is now ready to start, press "F" and "Start" button together to have the unit starting, the display will show:





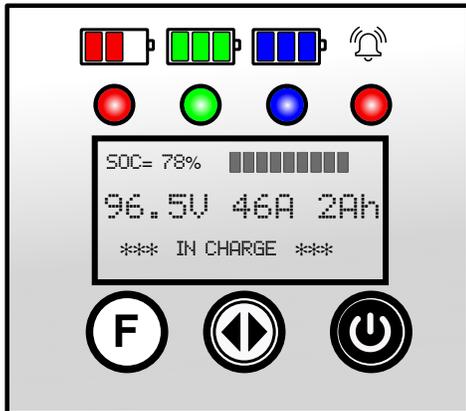
Note that the discharger will pre-calculate the minimum voltage value himself when a battery is connected to it (like here 68V for an 80V battery)

9. When the battery will reach this minimum voltage, the unit stop and show, the first event completed and the 5 min. cooling power stage period.

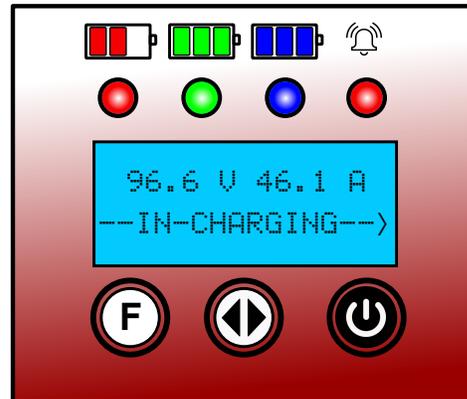


10. The 2nd event will then start with the discharger transferring the connectivity to the charger with preprogram informations set on MVD and also displayed on both charger and discharger (see example below)

MVD window

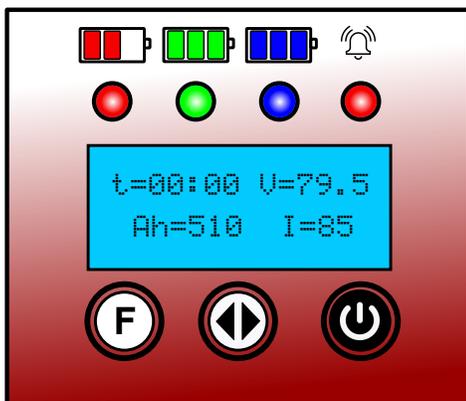


Discharger window

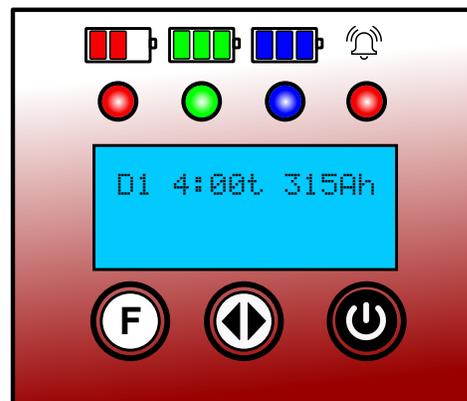


11. During the charge process, by pressing the 2 arrows button on the discharger, you may have access to the previous discharge report:

First window

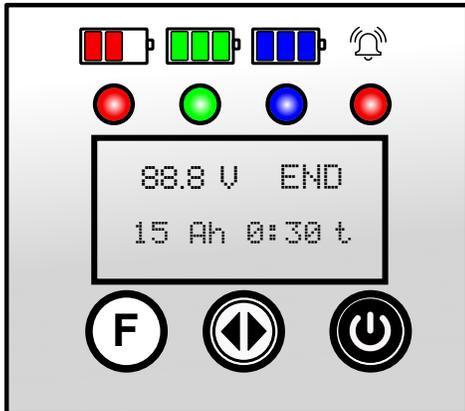


Discharge report window

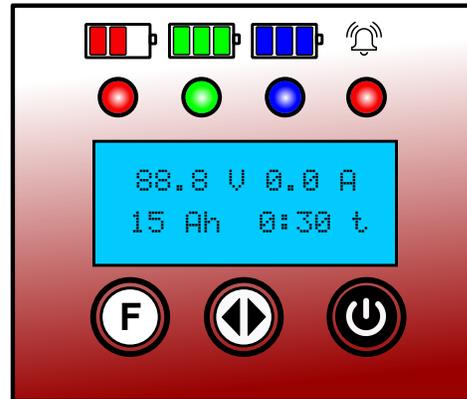


- 12. When recharge is complete, charger stop and the discharger will stay in cooldown period of 15 min. then will start the 3rd events (discharge) automatically.

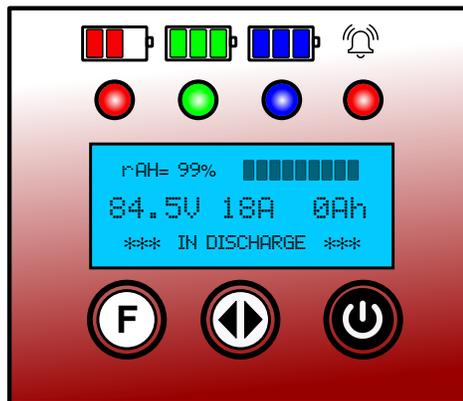
MVD window



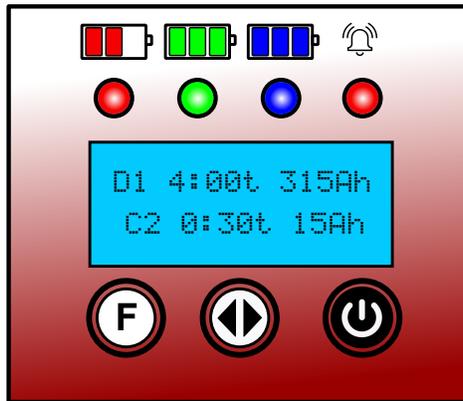
Discharger window



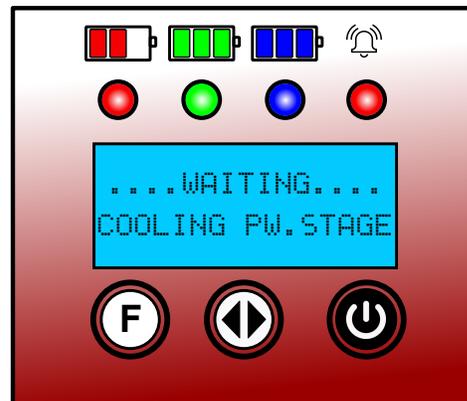
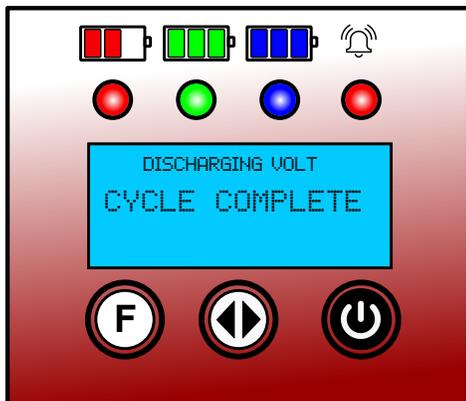
After 15 minutes, automatically:



13. If the 2 arrows button is press during event #3, event #1 and #2 will be displayed on the report screen:

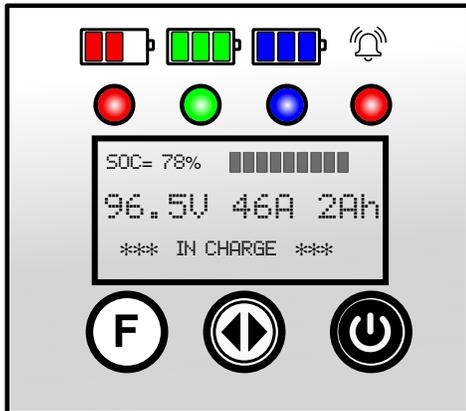


14. When the battery will reach this minimum voltage, the unit stop and show, the first event completed and the 5 min. cooling power stage period.

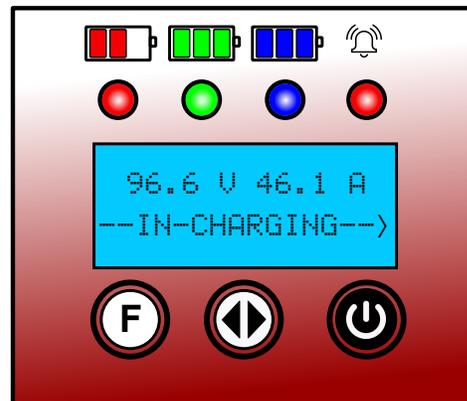


15. The 4th event will then start with the discharger transferring the connectivity to the charger with preprogram informations set on MVD and also displayed on both charger and discharger (see example below)

MVD window

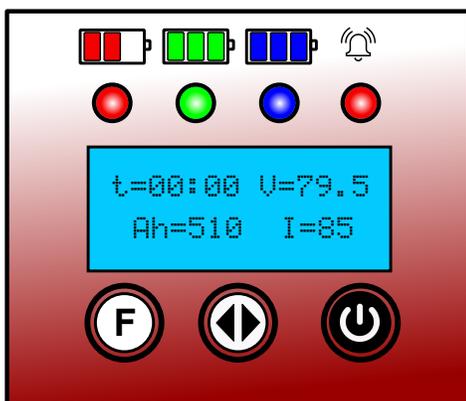


Discharger window

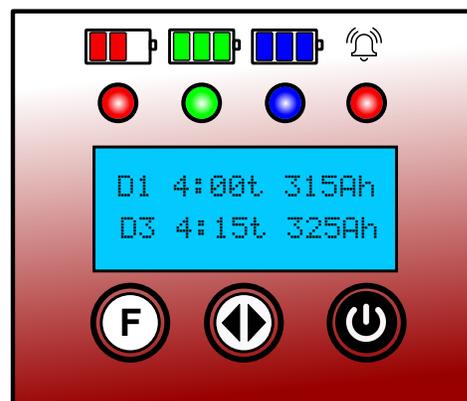


16. During the charge process, by pressing the 2 arrows button on the discharger, you may have access to the 2 previous discharge report events:

First window



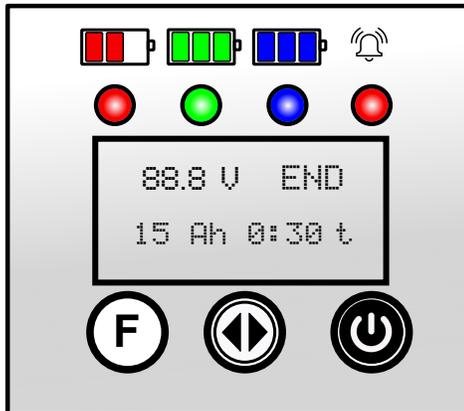
Discharge report window



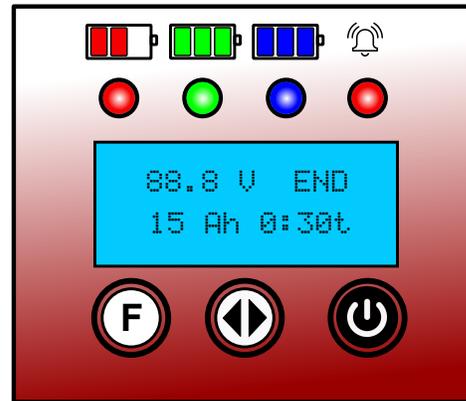
17. When recharge is complete, charger stop and the discharger will stay in cooldown period as long as battery stay connected.

The displays will show something similar to this:

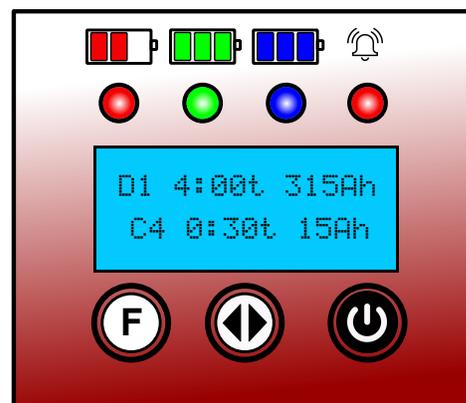
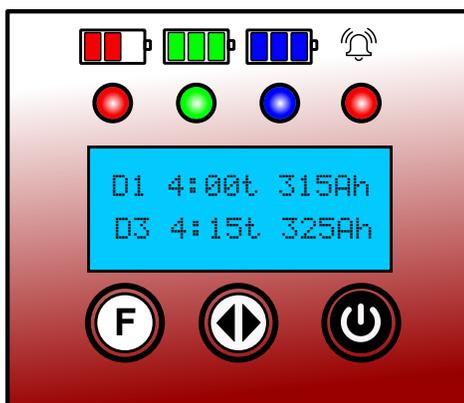
MVD window



Discharger window



18. When unit is stop and the **battery still connected (important)**, if the 2 arrows button is press, the report value will be displayed on screen similar to this:



Note: All windows, cycle period and report will be based on the previous number of events settings done. Events can be start also with discharge but operations described earlier will work the other way and reports too.