Ripmax

PRO-PEAK

TAURUS

INSTRUCTION MANUAL

Part No: O-IP3001

THE TAURUS CHARGER

The Taurus is an innovative multi function charger far superior to existing conventional chargers. This unit is especially designed to maximize charge efficiency using its own unique algorithm. The integral 2 line, 16 character LCD screen displays various information relating to the operating modes and adjustment parameters, as well as key functions - such as the battery charge state, which shows the percentage of capacity remaining.

Taurus is very user friendly - even for beginners - thanks to its 2 automatic & 10 intelligent selectable “battery parameter” manual memories. The manual 10 memories, containing factory pre-set battery parameters, can be re-programmed to store your own standard battery pack parameters so that you can obtain the same precise results whenever you charge.

Features

- Designed to fast charge/discharge 1~30 cell Nickel Cadmium (NiCD) & Nickel Metal Hydride (Ni-MH) battery packs, 1-6 cell (2~12 volt) Lead Acid (Pb) batteries, 1 - 12 cells (3.6~37.0 volt) Lithium Ion/Lithium Polymer and 1 - 12 cells (3.3~39.6 volt) Li-Fe batteries.
- Uses either 12 volt Lead Acid battery or 10-15 volt DC power supply input (Not supplied).
- The most outstanding feature of the Taurus is its 10 user definable intelligent manual battery memories, numbered 0 to 9. These enable individual cell or pack parameters to be memorised and stored, i.e. battery type, number of cells, battery capacity, charge current and discharge current. As a result of this, up to 10 different battery packs can have their individual charge/discharge requirements set. Additionally there are 2 automatic settings in the memory area.

  NOTE: The Taurus is supplied with the 10 memories already programmed. Unless these programs exactly match your requirements, it will be necessary to modify them to suit the battery packs being charged.
- To protect the charger and batteries, the maximum charge and discharge currents are automatically limited - 180W charge and 80W discharge.
- When discharging battery packs, the discharge cut off voltage level can be set to between 0.1 and 1.2v per cell for Ni-Cd or Ni-MH batteries, 2.7 to 3.6v per cell for Lithium Ion/Lithium Polymer and 2.7 to 3.3v per cell for Li-Fe batteries. Lead acid discharge cut off voltage level is fixed at 1.8v per cell.
- Zero Current Voltage Check prevents incorrect delta peak auto cutoff caused by high connection resistance or high resistance/old/faulty batteries.
- Low and over voltage input battery warning function-input voltages outside the range 9.5 to 15.5 volts causes a warning message “Input Power” to be shown on the display, together with an audible warning.
- Automatic initial charge stage checks the condition of the battery being charged. If the battery is not in a condition suitable for charging, the display shows a warning message “Output Battery Connector Error” along with an audible warning.
- In the event of the battery being charged becoming disconnected from the charger the display shows a warning message “Output Battery Connector Error” along with an audible warning.
- Reverse polarity protection. The display will show “Output Battery Reverse Polarity” if the battery being charged is connected in reverse along with an audible warning.

LITHIUM ION/POLYMER BATTERY SAFETY WARNINGS

Vitally important safety information

Ensure that the charger and battery are placed on a non-flammable surface whilst charging and ideally charge outdoors wherever possible. **NEVER** charge a Lithium ION/Polymer battery inside a vehicle whatever the circumstances.

Ensure that the charger is correctly set for the battery being charged, checking both voltage and capacity. Be particularly careful if using a series/parallel battery pack, or if using packs of different specifications with the same charger.

Never charge at a rate higher than that recommended by the cell manufacturer, this can be very dangerous.

DO NOT leave Lithium ION/Polymer batteries unattended whilst they are charging. Monitoring the batteries during charging is very important.

If the temperature sensor is not being used monitor the temperature of the battery being charged every few minutes. If the battery becomes hot to the touch, disconnect it from the charger immediately and allow to cool. Do not recommence charging until the battery and charger have been checked for compatibility and the charger settings have been confirmed as being correct.

In the unlikely event of the Lithium ION/Polymer battery catching fire **DO NOT** use water to attempt to put the fire out, instead use sand or a fire extinguisher designed for electrical fires.

If used correctly, Lithium ION/Polymer battery packs are as safe as any other type of rechargeable battery pack. However they do require different charge regimes to the longer established Nickel Cadmium and Nickel Metal Hydride technologies and do have to potential of catching fire if severely mistreated.

If Lithium Polymer battery packs are short-circuited or severely over-charged elemental Lithium may be deposited internally, and if the battery pouch is damaged this can escape from inside the battery. If this occurs a fire may be caused, as elemental Lithium is highly reactive when exposed to water or moisture, producing flammable hydrogen gas and corrosive fumes. Elemental Lithium is not produced unless the battery pack is severely mistreated, so in normal usage there is no likelihood of explosion or fire.

LITHIUM ION/POLYMER/FE BATTERIES

USAGE:

Lithium battery packs must NEVER be discharged below 3 volts per cell as this will result in damage to the cells. If the voltage is allowed to drop below 3 volts per cell the battery voltage may seem to recover following a charge, but the battery may not then give its full nominal capacity and a reduction in performance is likely – allowing the voltage to drop below 3 volts per cell will invalidate all warranty claims.

Never charge Lithium ION/Polymer battery packs at greater than 4.2 volts per cell, as this will cause irreversible damage to the cells and will invalidate all warranty claims.

Do not use discharge rates in excess of those specified with the battery pack as this will result in a significant drop in voltage under load and will dramatically reduce the number of charge/discharge cycles the battery pack will give.

Do not attempt to charge Lithium battery packs whilst the input 12 volt battery is being charged, as the voltage supplied to the Lithium Polymer charger may be too high.

If disposing of Lithium battery packs ensure that the pack is fully discharged by using a light bulb, electric motor or similar to completely discharge the pack.

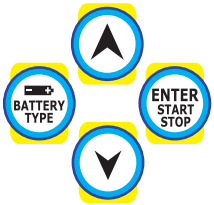
DO NOT allow any Lithium battery pack to short-circuit as this is likely to result in a minor explosion and consequent fire.

BEFORE charging any Lithium battery packs they should be closely inspected for any damage, such as punctures in the sleeving or if the battery has swollen or expanded in size. If any such damage is detected **DO NOT** charge, even if the battery otherwise appears to be brand new.

Before commencing charging always double check the settings on the charger to ensure it is set correctly for the battery pack to be charged. Using the wrong settings is likely to result in damage to the battery pack being charged and could result in the battery catching fire.

TAURUS INSTRUCTIONS

1. Button structure



Parameter	NiCd / NiMH	Li-Ion / Polymer	Pb	Li-Fe
Battery cells	1 ~ 30 cells	1 ~ 12 cells	2, 4, 6, 8, 10, 12V pack	1~12 cells
Capacity	100 ~ 20000mAh	100 ~ 20000mAh	0.50 ~ 50.00 Ah	100 ~ 20000mAh
Charge current	0.1 ~ 10.0A	0.1 ~ 10.0A (Capacity 2C limited)	0.1 ~ 10.0A	0.1 ~ 10.0A
Discharge current	0.1 ~ 10.0A	0.1 ~ 10.0A	0.1 ~ 10.0A	0.1 ~ 10.0A
Discharge voltage	0.1 ~ 1.2V/cell	2.7 ~ 3.6V/cell	1.8V/pack FIXED	2.7 ~ 3.3V/cell
Cycle direction	CHG→DCH, DCH→CHG	x	x	x
Temperature cut-off	10 ~ 55ºC 1ºC/step	10 ~ 55ºC 1ºC/step	10 ~ 55ºC 1ºC/step	10 ~ 55ºC 1ºC/step
Trickle charge current	0 ~ 500mA, Auto	x	x	x
Delay between chg/dch	1 ~ 30 min	x	x	x
Cycling	1~5 TIME	x	x	x

* Requires temperature sensor – **0-IPTS – TEMPERATURE SENSOR WITH LEAD**

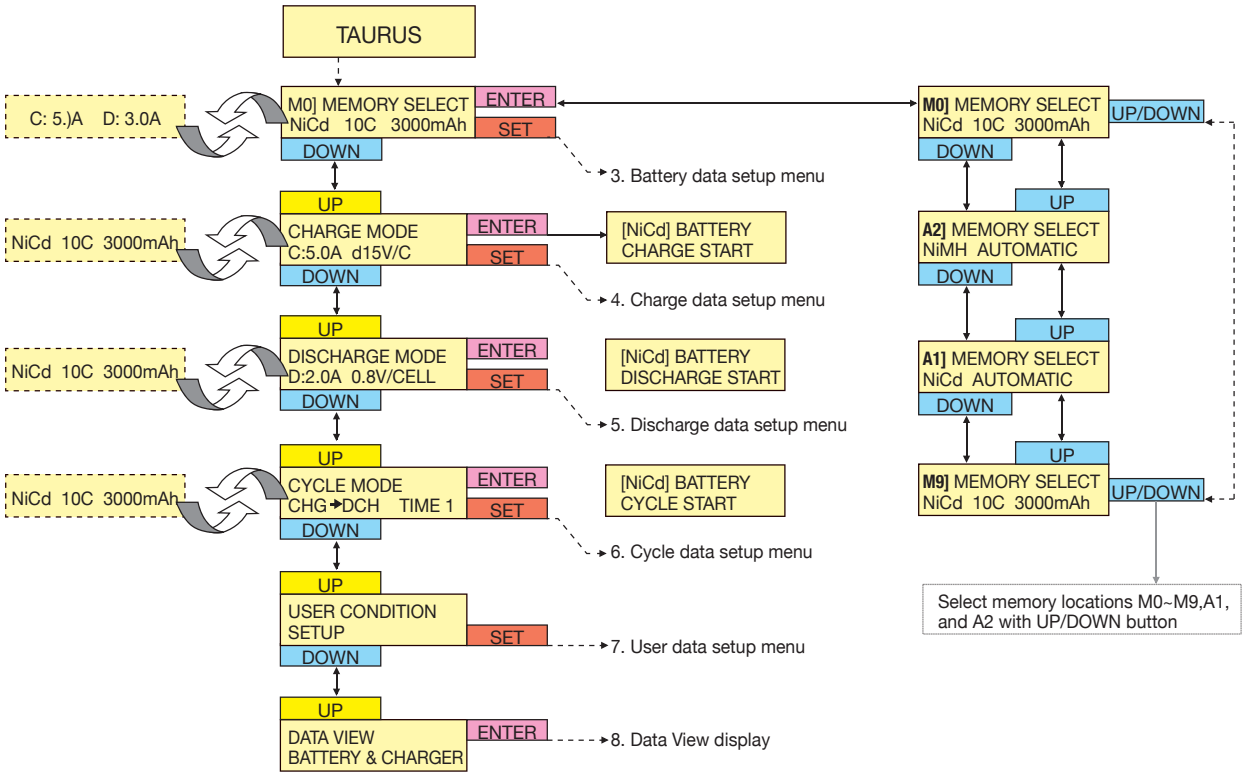
Connection to Power Supply

The Taurus charger is designed to operate using either a 12 volt Lead Acid (Pb) battery or a suitable 10-15 volt power supply.

Connect the red wire with the large crocodile clip/4mm connectors from the charger to the + terminal of the power source, the black wire to the – terminal, ensuring the correct polarity of the connections.

Connect the battery to be charged to the Taurus charger using appropriate charge leads - again being particularly careful to ensure correct polarity.

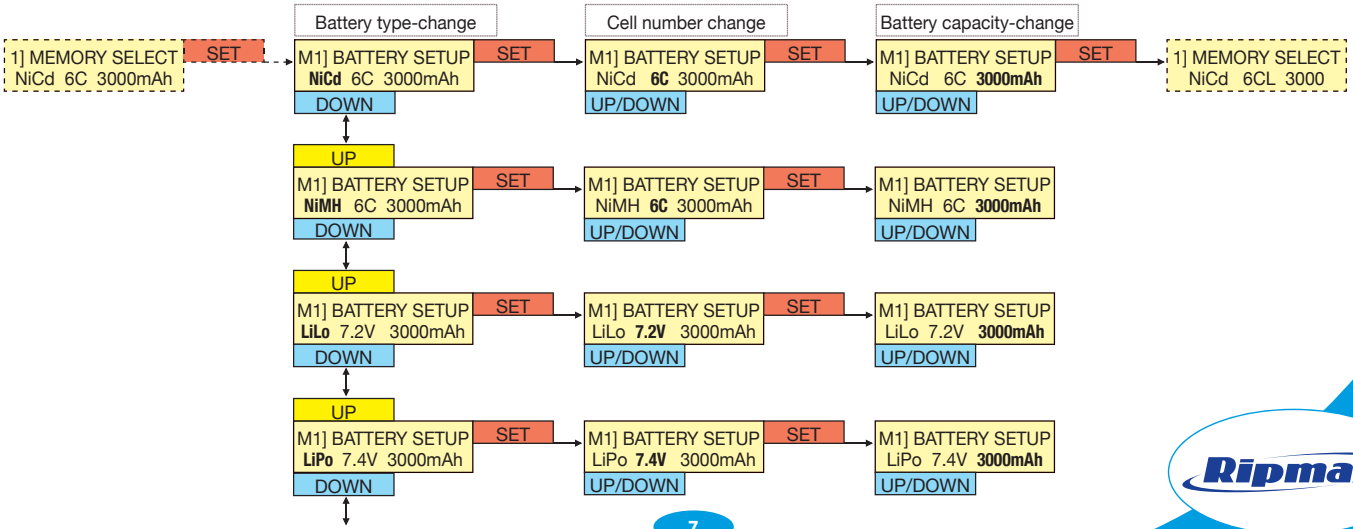
2. Main Menu Flow Chart

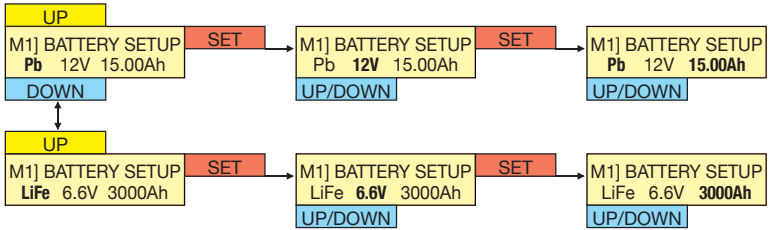


3. Battery Data Setup Menu

In this mode, you can set each battery type / cell number / battery capacity in a memory. Adjust the desired parameters with UP & DOWN buttons. Factory default parameters of each battery type in memories.

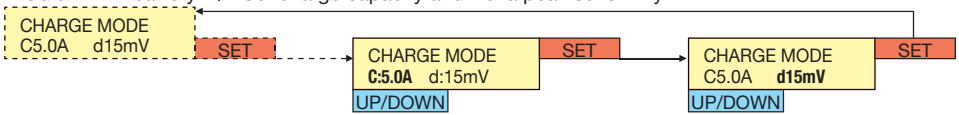
	CELL	CAPACITY	CHARGE	DISCHARGE	DELTA	DCH VOLT	CYCLE DIR	CYCLE TIME
NiCd	6CELL	3000mAh	3.0A	3.0A	5mV	0.8V/CELL	CHG→DCH	1TIME
NiMH	6CELL	3000mAh	3.0A	3.0A	5mV	0.8V/CELL	CHG→DCH	1TIME
LiPo	7.4V	3000mAh	3.0A	3.0A	X	3.0V/CELL	X	X
Li-Ion	7.4V	3000mAh	3.0A	3.0A	X	3.0V/CELL	X	X
Pb	12V	15.00Ah	3.0A	3.0A	X	X	X	X
Li-Fe	6.6V	3000mAh	3.0A	3.0A	X	3.0V/CELL	X	X



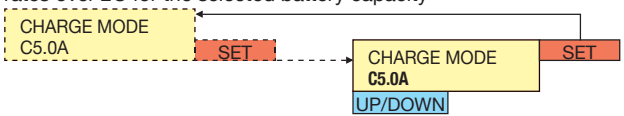


4. Charge Data Setup Menu

NiCd & NiMH battery ➔ Set charge capacity and Delta peak sensitivity.

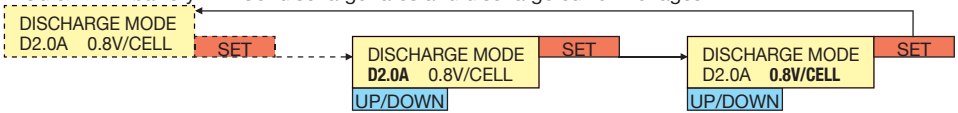


Li-Ion/Po & Pb/LiFe battery ➔ Set the charge capacity. Note: In case of charging Lithium Ion/Polymer batteries, it is NOT possible to set charge rates over 2C for the selected battery capacity

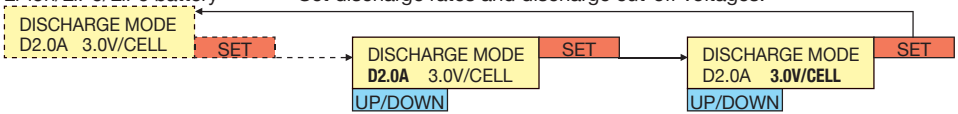


5. Discharge data Setup Menu

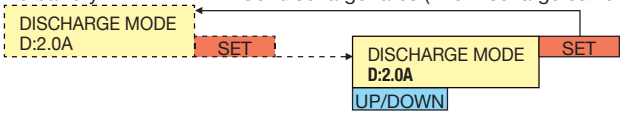
NiCd & NiMH battery → Set discharge rates and discharge cut-off voltages.



Li-Ion/LiPo/LiFe battery → Set discharge rates and discharge cut-off voltages.

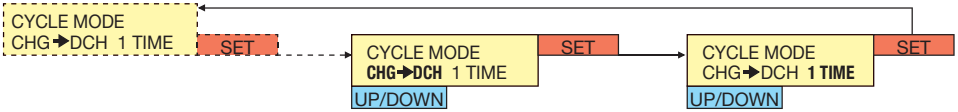


Pb battery → Set discharge rates (The Discharge cut-off voltage is fixed at 1.8V per cell)



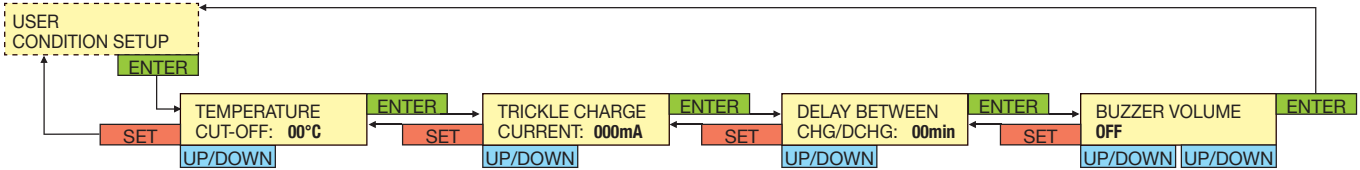
6. Cycle Data Setup Menu

NiCd & NiMH battery only → Set cycle direction and cycle times.



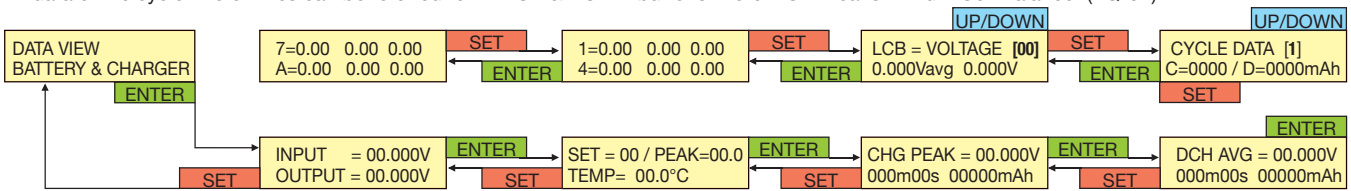
7. User Data Setup Menu

Each user setup data is separately stored in each memory.



8. Data View Display

All data of the cycle 1 to 5 times can be referred to with UP & DOWN buttons. Note: LCB means Lithium Cell Balancer (EQ-6+).



1. Input voltage
2. Output voltage

1. Setting temperature
2. Peak temperature
3. Now temperature

1. Charge peak voltage
2. Charge time
3. Charge capacity

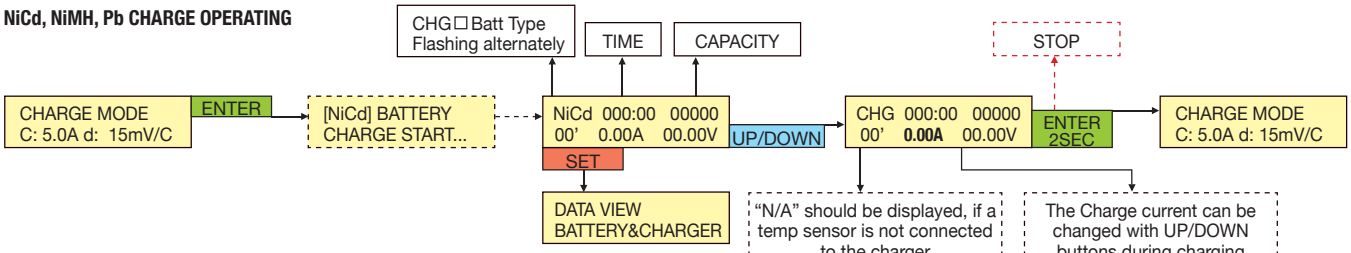
1. Discharge average voltage
2. Discharge time
3. Discharge capacity

9. Operating Display

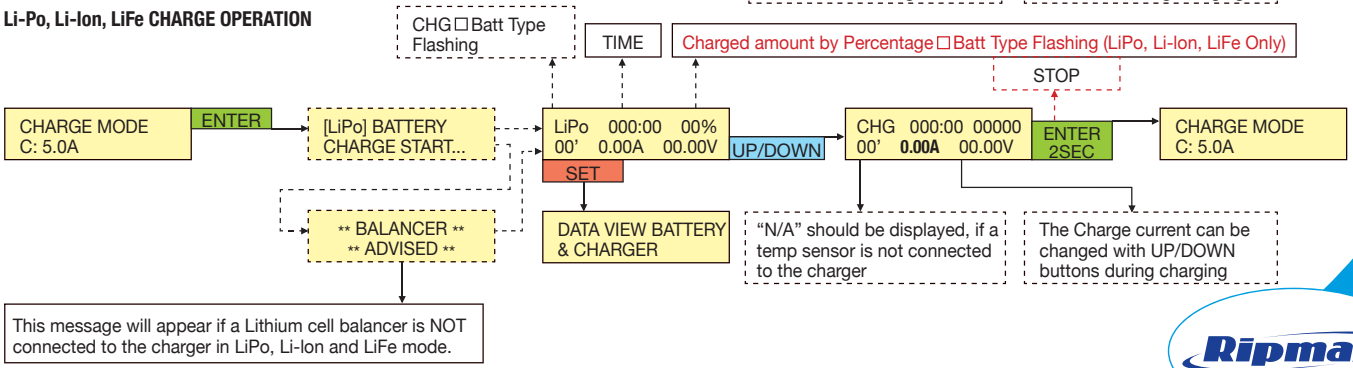
If the ENTER button is pressed at Charge, Discharge, or Cycle displays, the selected mode is activated.

It is possible to change charge rates with the UP & DOWN button during operation, however, the charge rates can not be adjusted in Auto mode, or during CV (Constant Voltage) charge.
If the ENTER button is pressed again during operation, the operation will stop and revert to the main display.
While the charger is being operated, the DATA VIEW screens can be shown by pressing the SETUP button.

NiCd, NiMH, Pb CHARGE OPERATING

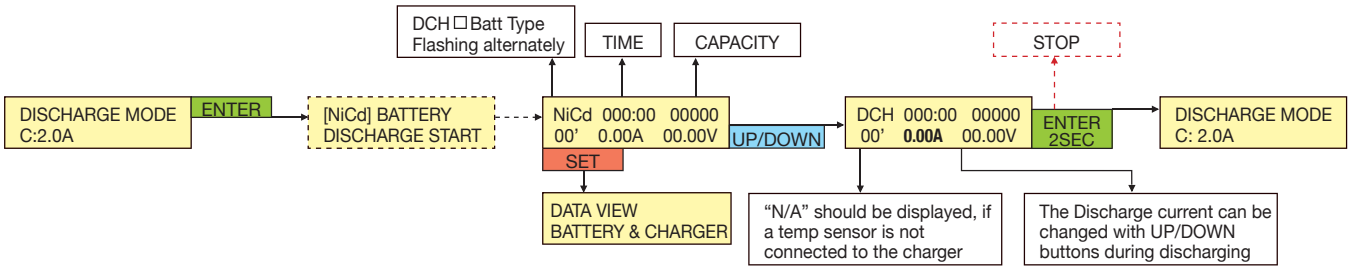


Li-Po, Li-Ion, LiFe CHARGE OPERATION

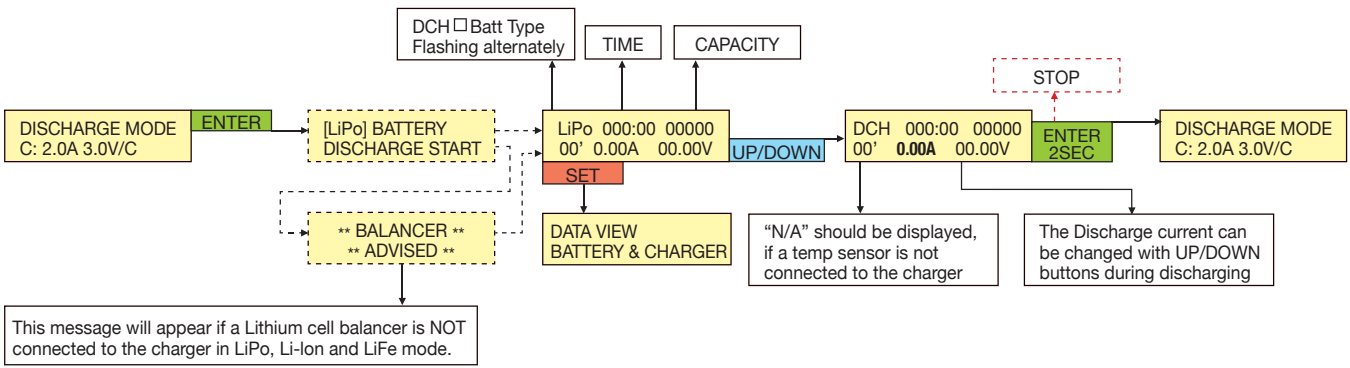


Note : In this Lithium mode, the charged amount can be shown as a percentage. So, you can stop charging and disconnect the Lithium battery pack if this percentage is indicated 80% ~ 90% as you should be able to use this 80%~90% charged battery pack already if you want.

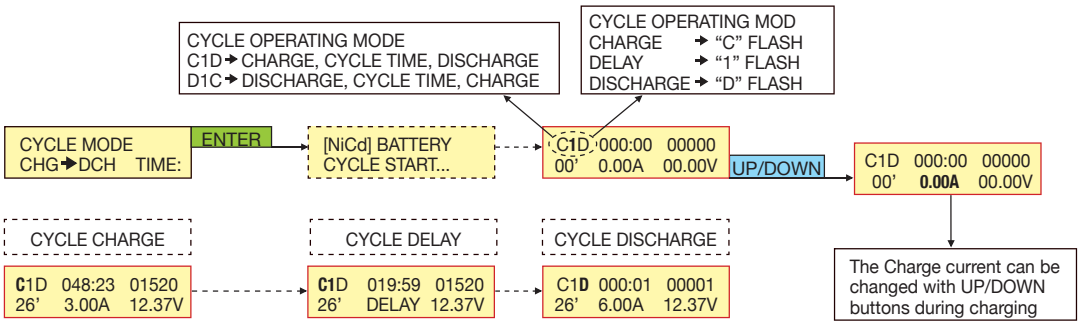
NiCd, NiMH, Pb DISCHARGE OPERATION



Li-Po, Li-Ion and LiFe DISCHARGE OPERATION

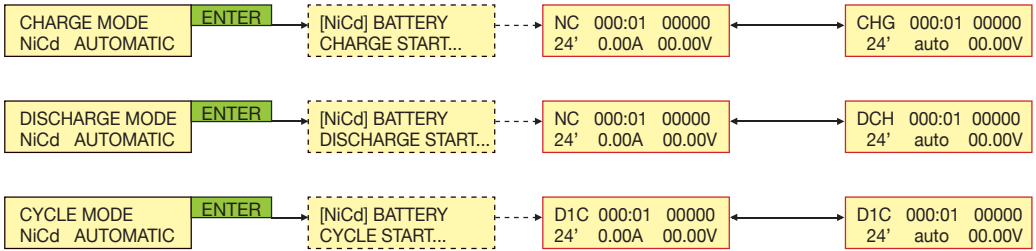


CYCLE OPERATING



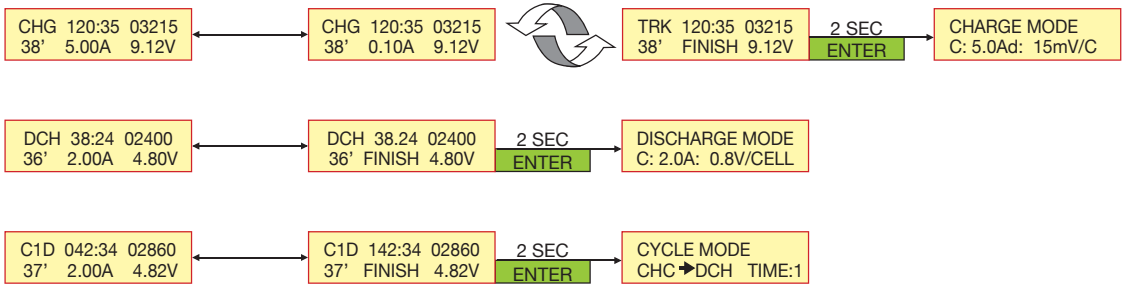
AUTOMATIC OPERATING

While Auto mode is being activated, "auto"⇔current is alternately displayed.
AUTO cycle operation is fixed as discharge → charge once.
Delay time is fixed as 10 minutes in Auto mode.



END OPERATION

If the ENTER button is pressed for 2 seconds in the END display, it reverts to the main display.
(If the ENTER button is briefly pressed or the battery pack is disconnected, it won't revert to the main display.)
Operating data can be referred to the above "8. Data View Display"
During trickle charging, the parameters of "CHG, TRK, FINISH, trickle current" flash.



Trickle charge

- If trickle currents are set to 100~500mAh at "USER CONDITION SETUP", the trickle charge proceeds with the selected trickle currents.
  The trickle charge proceeds with 1/20 currents of the selected capacity in Auto mode, however, there is NO trickle charge in cases of lower than 100mAh.
- Even if the trickle currents are set, if a charge process is stopped due to the optional temperature or safety-timer function, the trickle charge won't work at all.

10. Message Display

INPUT VOLTAGE ERROR 0.00Vi	When the input voltages exceed the range of 11~15V.
OUTPUT BATTERY CONNECT ERROR	When the charger starts without connecting to the battery pack.
OUTPUT BATTERY REVERSE POLARITY	When the charger starts without connecting the battery pack in reverse.
OUTPUT BATTERY OPEN CIRCUIT	When the battery pack is disconnected during operation.
OUTPUT CIRCUIT PROBLEM	When the battery terminals short-circuit for a while.
PAUSE... CHARGER TOO HOT	When the temperature of the charger rises over 115°C, the charger stops temporarily until the temperature drops lower than 70°C.
OUTPUT VOLTAGE TOO HIGH 0.00V	When the output voltages are too high.
OUTPUT VOLTAGE TOO LOW 0.00V	When the output voltages are too low.
TEMPERATURE SENSOR ERROR	When the thermal probe is incorrectly connected, or the probe is defective.
BATT. TEMPERATURE TOO HIGH 00.0°C	When the temperature of the battery pack is higher than the selected temperature, this message is shown. The previous operation should resume when the temperature of the battery pack becomes 2°C lower than the selected temp.
INTERNAL TEMP SENSOR ERROR	When the temperature of the charger rises over 125°C.
DATA COMMUNICA- TION ERROR	When the internal interface of the charger is defective.

Please retain this information for future reference

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