Dockley System & DISCHARGER

■Battery Charge/Discharge data

Cell Balancer Adapter L-AL Type(MCL-AL)
Cell Balancer Adapter L-2S Type(MCL-2S)
DC Input wire
Docking connector for Power Master Legend
Micro Magnet thermo sensor

Delta peak

1~1.2C

■Exterior of Cell Master Legend and accessories

Control voltage

 $\bigstar$ Charge current will be changed from battery maker. Please check the battery manual

Max, charge voltage level

Max, discharge voltage level

Towel for finger print cleaning

ntrol por

NiCd

Delta peak

0.8v/cell

1~1.2C

NiMh

1,2v/cell

1~1,2C

MCL-PQ MSB-MCC

Delta peak

LiPo

3,7v/cell 3,3v/cell

4.2v/cell 3.6v/cell

under 3C under 4C

0

0.90v/cell 3.0v+/cell 2.5v+/cell 2.9v+/cell 1.76v+/cell

Cell Balancer Adapter L-PQ Type

Display (Blue LCD)

Input (DC12V) port

2.0v/cell

under 1C under 0.4C

Button2 (forward/start to charge/discharge/End)

Output wire

2.47v/cell

4.1v/cell

CTX-CL INTELLIGENT BALANCE CHARGER & DISCHARGER

●Individual Lithium Cell balance circuit Individual cell voltage balance circuit work for the perfect Lithium batteries charging without extra outside cell balancer Independent battery balance function is only for use Cell Master Legend ●Individual Cell voltage realtime Monitoring Through the each Lithium batteries connector, you can check each

cell's voltage when you charge/discharge You can check each Lithium cell's charge/discharge data and check the each voltage at the same time. So can find out poor cell ● Lithium batteries RACE charge/Storage Mode
You can charge Lithium battery for special purposes
'Race' charge reduces the charging time of Lithium battery (save time for prepair the race) and 'Storage' mode controls the final voltage of the battery to be suit for long time storage ● Lithium Battery Conditioning
This function has only for Much More Racing Cell Master Legend,
You can check entire battery voltage, each cell's voltage, battery present condition,
This is very useful that check charged battery or empty battery ● Cycling Charge/Discharge

● Compact User Interface and Program
For the precise and perfect charge of NiMh battery, Cell Master Legend adapt Super Linear Charge program and simple NiMh/
NiCd charge mode.
For the charge of Lithium battery, Every kinds of Lithium battery will be charged through the Cell Master Legend without any trouble or problem Do cycles of charge ▶ discharge or discharge ▶ charge continually for battery refreshing and check the battery condition

● Designed for perfect charge
Output wire consist of original Much More Racing voltage wire and current wire (separate each other)
Designed to low current flow when higher current charge/discharge, Ultra high RPM dual cooling fan going to help in high
temperature condition Arrow state indicator Arrow state indicator is original designed by Much More Racing R&D Team, This is unusual type of arrow indicator During the charge blue LED light (up arrow) will be on, during the discharge red LED light (down arrow) will be on Arrow state indicator will show you many errors and other operation, Also you can check your Cell Master Legend status far from your pit table through the Arrow state indicator LED Docking system for beautiful pit area

Cell Master Legend designed to be docked with Much More Racing New 'Power Master Legend' Charger (don't need any input wires) Attach Euro connector (box included) to bottom of Cell Master Legend (use 1,5mm Hex wrench) and put on the Much More Racing Power Master Legend's docking hole. ●I/O Port for software upgrade and Much More Racing future products.

Keep on upgrade software and future products from Much More Racing without case separation through I/O port on the front right side of charger I/O port will use for control Much More Racing future products (Battery warming tray, battery cooling fans) ■ Maximum satery
When charging NiCd or NiMH ,you can set the upper limit of charge current to avoid damage or explosion from high current
feeding The temperature of the battery on charging will rise by its internal chemical reaction If you set the limit of temperature
the process will be expired forcibly when the limit has reached To protect the car battery using as DC input power from being
damaged the voltage of it always monitored When you do short−circuits between the output charge lead, LCD screen will let you

know. INTELLIGENT BALANCE CHARER & DISCHARER Muchmore Racing 1

"Delta Peak" is short hand for " The peak voltage that is reached as a battery is fully charged", Delta Peak is short hand for The peak voltage that is feached as a battery is tally charged.

As the battery charges, its voltage level goes up, and when the battery is fully charged, the voltage level goes down.

This increase and decrease in voltage are called positive and negative delta V respectively.

Cell Master Legend has a precision converter which perfect detects the voltage decrease and terminates the charge at 3mv drop. Delta peak charge is the best way of the NiMh battery charging.

Cell Master Legend can Delta peak setup to 3mv/pack. It means battery voltage drop 0.003v from the peak, charge will be

...... Up arrow will be turn on (long term)

can check present state from bottom line of LCD display. You can easy to

Discharge ...... Down arrow will be turn on (long term) 

Charge done ...... Up arrow will be turn on (short term)

3.Button1 +2seconds→USER SET UP MODE Press left button more then 2 seconds in Main Menu, you can entered USER SET UP MODE Go back to Main Menu, press left button more then 2 seconds, same as enter the Main Menu Please setup the basic function in USET SET UP MODE, before use Cell Master

If you setup to 3mv/cell, when you charge 6cell battery, delta peak value will be 18mv (3mv X 6cell)

Charge ·······

UP(BLUE)

Select Menu S-linear → On Off Ni-Mh → On Off Ni-Cd → On Off Lithium → On Off Select On/Off each menu

1. About Delta peak for NiCd/NiMh charging

2.Arrow Indicator

Select On/Off each menu
Customize charge function that consist of Main display
You can do on/off to usual function
Use Scroll Wheel for On/Off selection, and press Right button 
to move next Condition  $\rightarrow$  On Off Pb(lead)  $\rightarrow$  On Off Output control pin 2 pin port from right side of Cell Master Legend You can connect Much-More Fan Stand or Battery Warmer through this port, And Cell Master Legend can be control these devices

Select Cooling fans (use Scroll Wheel) and press but

This is about, when Cell Master Legend in rest, Cooling fans work or not If you select On, cooling fans will operate at all times, If you select Off, In super linear mode cooling fans will be operated when the temperature reached a target temperature (you can setup cooling fans operations).

Setup the time what you want, and press START button. Charge will start after

Have to Setup the time before setup the Long Lock Out time and press button

(If you want charge right now (during the countdown) just press button

■Battery voltage on the charging (If you connect Thermo sensor, alternate display temperature and voltage)

INTELLIGENT BALANCE CHARER & DISCHARER

check where you are in Menu

Output control pin use : cooling fans Output control pin use : cooling fans On in rest: On Off Output control pin

Select Battery Warmer (use Scroll Wheel) and press button use: battery warmer This is about, when Cell Master Legend in rest, Battery Warmer work for target temperature or not Battery warmer's temperature start at 25°C, You can adjust Output control pin temperature by use Scroll Wheel Battery warmer selephanure start at 25°, 100 Battery warmer will be on during the Cell Master Legend in rest If you select Off, battery warmer will be off at all time (Battery warmer setup range: 25°C~40°C, Recommend: 35°C)

On in rest: On Off Muchmore Racing

use: battery warmer

**▼**Charging screer

6cell 3400mA

**9**.035

5 5A

\*Delta peak will not be detecting on Long Lock Out . So you have to use this function for fully discharged battery and use with Thermo sensor (included) Attach close to the battery Operate with Thermo sensor can prevent battery over charging
We recommend this function to very old battery (long time storage), high internal resistance battery and very sensitive delta

3

Ps12 00 **%**S-linear **%** You can use and control Much-More Cooling fans connect through Output control pin (right side of Cell Master Legend)
You can adjust operation temperature. This is very useful for hot weather 6cell 0000mA 5 5A ∡10 Ыn ം Ы50ം 00:00 condition (recommend Temp: 40'C) Info display **●**50 Charge termination temperature setup, temperature reached to target temperature, when you use Micro-magnet Thermo sensor (box included) You can adjust the value according to battery type. We recommend 45~50°C (When charging the battery, Thermo sensor has to adhere closely to battery)

Setup auto charge start time

★You can start to charge anytime just press button 1 second where you in menu And Keep on press® button till pass the end of selection, charge will start,

ore then 3 seconds

●00:00

⊿10 Jn ℃ J50℃ 30:12 Present charging capacity Charging... ●30:12 The time elapsed ▼Charge is over 8.230 **%S-linear** resent battery voltage ★You can check out peak voltage just scrolled up& down (use Scroll Wheel) (If you connect Thermo sensor, alternate display temperature and voltage) 5120mA 6cell 5 5A ⊿10 dn ℃ d50℃ 50:30 ●5120mA Charge done→PEAK cut Charged capacity

●50:30

●5.4V

■40

Discharging current

●50.50
Total charging time
★You can check out passing time (after charge was over) just scrolled up&down (use Scroll Wheel) ●Charge done→PEAK cut charge is done ■S-linear Discharge ● \* S-linear > **%**S-linear **%** Ps12.00 Present status 5.4V 6cell 5.5A Display present input power supply voltage, but during the charge/discharge, screen will display present battery voltage
If you connect Thermo sensor, alternate display temperature and voltage, 40°c Info display ●6cell Define number of cell

Max, discharge voltage Recommend: NiMh-1,0V/cell, NiCd -0,8V/cell

You can use and control Much More Racing Cooling fans connect through Output control pin (right side of Cell Master Legend)

On the charging, screen will display same as \*\*S-Linear\* charge mode On the discharging , discharge character will blink On the charging, charge character will blink

Battery voltage on the charging (If you connect Thermo sensor, alternate display temperature and voltage)

Select chare/discharge (use Scroll Wheel) and press ■ button

INTELLIGENT BALANCE CHARER & DISCHARER

You can adjust operation temperature. This is very useful for hot weather condition (recommend Temp :  $50^{\circ}\text{C}$ ) **Muchmore Racing** 5 ▼S-linear DCH→CHG screen 8.102 **%S-linear %** 

5 5A

00:12

★Ni-Mh/NiCd mode is covered all kinds of NiMh/NiCd battery

Ps12 00

Discharge

0020mA

212mΩ

Discharge → Charge

■Ni-MH / Ni-Cd - set up

※Ni-MH CHG
※
■
9.035

3400mA

**5**0℃

Check Cell Number

% Po 2S CHG % ■7 800

A:3 90V B3 90V

600mA

C:0.00V

2S(7.4V)

2S(7.4V)

Confirm

20:20

C:0.00V

C:0.00V

EQU SET:

USER SET: Cancel

▼Charging screen

3 0A

C:0,00V

6cell

**⊿**LOW

Charging...

6cell

450°c

%Ni-MH%

Charge

■ Ni-MH / Ni-Cd Charge ● \* Ni-MH CHG \* \*Ni-MH CHG\* Ps12.00 5.5V 2S(7.2V) ●Ps12,00 Display present input power supply voltage but during the charge/discharge, screen will display present battery voltage
If you connect Thermo sensor, alternate display temperature and voltage. **⊿**LOW **50℃** Info display

\*Ni-MH CHG\* Ps12.00 Charge current, Normal sub-c type battery, we recommend 1C charging (3000mAh battery - charge 3,0A) 5.5V 2S(7,2V) **5**0℃ **⊿**LOW ●2S(7.2V) Set up battery cell number
If you change the cell number,
battery pack's voltage will be changed automatically Info display

● ▲LOW
Delta peak value for charge termination
In NiMh/NiCd menu, there is 3 step of delta peak value (LOW, MEDIUM, HIGH)
Value is goes high, charging time will increase,
Give MEDIUM or HIGH value to cold weather or poor battery,
Give Low value to good condition or hot weather If the Battery temperature is too low (below 25°C) in spite of charge was over, give more higher value  $\,$ ■ 50 Charge termination temperature setup, Temperature reached to target temperature, when you use Micro-magnet Thermo sensor (box included) You can adjust the value according to battery type. We recommend 45~50°C (When charging the battery, Thermo sensor has to adhere closely to battery) **▼**Charging screen

● #9,035

●3400mA

5.5A

30:12

● #8.230 \*Ni-MH CHG\* ■8.230 ●用5,≾30 Present battery voltage ★You can check out peak voltage just scrolled up& down (use Scroll Wheel) 3400mA 6cell 5.5A **⊿**LOW **50℃** 30:12 ●5120mA Charged capacity Charging... ●50:30 Total charging time  $\bigstar$  You can check out passing time (after charge was over) just scrolled up&down (use Scroll Wheel) Charge doneCharge done Muchmore Racing INTELLIGENT BALANCE CHARER & DISCHARER 7

Present charging capacity

\*Li-Po CHG\* Ps12.00 Charge current. Normal sub-c type battery, we recommend 1C charging (3000mAh battery - charge 3,0A) 2S(7.4V) 5.5A Normal 5000mA ●2S(7,4V) Info display Set up battery cell number If you change the cell number, battery pack's voltage will be changed automatically (Cell Master Legend is automatically define the battery cell number by calculate through the input voltage (this input voltage means coming from the battery)

In Lithium mode, there is 3 kind of charging program Select program use Scroll Wheel \*LIPO, LiFe, Lilo charge mode

Normal: basic charging type of LiPo, LiFe, Lilo battery, In Normal we recommend this mode Storage: have plan to storage LiPo, LiFe, Lilo battery more then 2 weeks, We recommend this mode, Because over discharged (normally battery is discharge everyday just little bit) cause breakdown everyday just little bit) cause breakdown Race: this mode only for LIPo race battery (1S or 2S), LiFe, Lilo battery's voltage drop (after charging) is different from LiPo (depend on discharge rate and internal resistance). This mode will make LiPo's 8.4V (fully charged) condition until running. Select Race mode and press button, you can select VL (Volt Level) 1 to 5

> Auto detect Cell number and Voltage (from Cell Master Legend IC) ●USER SET: 2S(7,4V) Actual Cell number and Voltage ★If detecting voltage and actual voltage are same, press ▶ button, and start to charge But, If the actual cell number is different from detected cell number, please adjust the cell number in manual (Mismatch cell number will cause battery or device damage) ● \*\* Po 2S CHG \*\* Present status Po means LiPo, 2S means 2 cell ● 87,800
> Battery voltage on the charging
> (If you connect Thermo sensor, alternate display temperature and voltage)

Balancing screen for individual cell voltage If you want to use cell balancing function, you have to connect cell balancer plug to Cell Master Legend's cell balance port before charge Without connection of cell balancer, individual cell voltage will not be display, and Charge..., Discharge mark will be on the Info display

INTELLIGENT BALANCE CHARER & DISCHARER

level level If you increase VL value , battery final voltage will keep high, 
★ Give suitable VL value after many testing

After all selection is done, press button

Battery Cell condition check

●EQU SET: 2S(7,4V)

●3.0A Charge current ●600mA

Present charging capacity

•A:3,90V B3,90V C:0,00V C:0,00V C:0,00V C:0,00V

●20:20 Charging time elapsed

Setup value of charge capacity limit When the charge capacity is reached the setup capacity (target capacity), charge will be terminate,

charge will be terminate, This is very useful for battery storage or prevent over charging Basically set capacity value up to 10% higher than battery capacity (ex-battery capacity is 4600, setup to 5100) 0000mA is turn off

Muchmore Racing ■Lipo, LiFe, Lilo Auto balancing ★Auto balancing mode is Do balancing when the Cell Master Legend in not on the charging or discharging, Make the cell deviation value to 0.02V, This is very useful that battery has big cell deviation and use without balancing keep on long time if the cell deviation value is too high, Auto balancing time will take long time. Please use this function only for LiPo, LiFe, Lilo battery

ion

Ps12.00

Ps12,00

Ps12.00

ion

3.7V/cell

**2**8.400

100%

3.7V/cell

Discharge

Select battery (use Scroll Wheel ) type for auto balancing, and press button (If you select battery, battery full name and battery voltage will be display on the screen)
(Be careful of battery select, Incorrect selection cause battery and device

ect balancing plug to battery and cell balance port (in Cell Master Legend) connection, press button (Auto balancing start)

Select Auto balancing (use Scroll Wheel ) and press button

Stop Start ▼Auto balancing scree \*Auto bal\* **2**7.060 A:3,46V B3,60V C:0,00V C:0.00V C:0.00V C:0.00V Balancing... ■ Condition  $\bigstar \text{For simply check of each cell voltage, total voltage, voltage level (Only Lipo, Life, Lilo battery)} \\ \text{Useful for check of cell deviation, entire voltage and charged/discharged.}$ 

Fe

Lithium - Polymer

A:4,20V B4,20V C:0,00V C:0,00V C:0,00V C:0,00V

--Auto balance--

Lithium type select

Lithium - Polymer

Fe

%Li−Po%

Charge

Select menu

%Auto bal

**%Condition** 

**▼**Condition screen

Voltage rate:

▼Discharging screen

Discharging...

Discharge done

※Pb 4S DCH
※ ■7.168

2120mA

50:30

■ Maximum charge/discharge current current limited

▼Discharge is over

2.0A

5.5A

\*Po 2S\*

Po

Auto balancing

▼Auto balancing stand by screen

Connect balancing plug to battery and cell balance port (in Cell Master Legend) Connect to main output alligator clip to the battery Select battery type (use Scroll Wheel) and press button

•A:3,46V B3,60V C:0,00V C:0,00V

Display each cell's present voltage

■Pb(lead) - set up Muchmore Racing

> %Pb 4S DCH% ₫7.800 1000mA 20:20 ●1000mA Present discharging capacity

Discharge current No. of cells Nominal voltage Charge current 1 1.2 10.0 10.0 2 2.4 10.0 10.0 3 3.6 10.0 10.0 4 4.8 10.0 10.0

NiC d/NiMH 9.6 10.0 6.5 9 10.8 10.0 6.0 10 12.0 9.9 5.5 11 13.2 8.2 5.0 14.4 12 14 16.8 6.3 3.5 18 3.7 10.0 2S 7.4 16.0 10.0 3S 11.1 11.5 6.0 LiPo 4S 14.8 8.8 4.5 5S 18.5 7.0 3.5 6S 22.2 5.8 3.0 18 3.3 16.0 10.0 28 6.6 16.0 10.0 38 9.9 13.5 7.0 LiFe 48 13.2 10.0 5.0 16.5 5S 9.0 4.0 19.8 6.5 6S 3.5 1.5 3.6 16.0 10.0 2S 7.2 16.0 10.0 38 10.8 12.0 6.0 LiIo 14.4 48 9.0 4.5 18.0 5S 7.0 3.5 6S 21.6 6.0 3.0 Muchmore Racing 13

INTELLIGENT BALANCE CHARER & DISCHARER Muchmore Racing 2 ◆Long lock out
In S-linear Mode, batteries that have been fully discharged or stored long time can cause false peak for several minutes
Long Lock Out charge will cure this problem.
During the Long Lock Out, charging will not be cut off even if the charger detects the delta peak of the battery
Set Long Lock Out time in this mode (setup range - 1~30 minutes, Recommended time - 10 minutes) Long lock out Select target time (Use Scroll Wheel) and press button time: 20:00 min ●Key tones Select key tone of Scroll Wheel and buttons Key tones Select Key tone (Use Scroll Wheel) and press button off 1 2 3 4 •Error & end sound Setup Error sound and sound of operation terminate Select time ( Use Scroll Wheel) and press button
Select Off - Only work arrow indicator without any sound when operation
terminated or an error)
Select 1: 1 time
Select 5: 5 time
Select 5: 5 time
Select Forever: Keep make a sound forever. Error & end sound off 1 3 5 Forever Select Forever: Keep make a sound forever ●When all setup are done ,press @ button or ● button more then 2 seconds . You can go back to Main Menu ■S-linear - set up Super linear Mode is created for charge of NiCd,NiMh batteries, For more performance, Please use this function only NiCd,NiMh battery. Do not charge/discharge any other battery in this mode **%S-linear** Ps12,00 Discharge Charge  $\mathsf{CHG} {\rightarrow} \mathsf{DCH}$ DCH→CHG ■S-linear Charge **%S-linear** Ps12.00 Display present mode 0000mA 6cell 5.5A Prsiz, ou Display present input power supply voltage, but during the charge/discharge, screen will display present battery voltage If you connect Thermo sensor, alternate display temperature and voltage. ∡10 dn ℃ d50℃ 00:00 Info display

> Define number of cell ●0000mA

●0000mA
Setup value of charge capacity limit
When the charge capacity is reached the setup capacity (target capacity),
charge will be terminate,
This is very useful for battery storage
Basically set capacity value up to 10% higher than battery capacity (ex-battery

Present battery voltage on discharging (If you connect Thermo sensor, alternate display temperature and voltage)

● \$\textit{B}\_8,230
Present battery voltage
\*\*You can check out AV (average voltage) just scrolled up& down (use Scroll
Wheel)

■ Berak time - 05:00
Break time between discharge and charge
Usually, after discharge - battery will heat up. So give enough delay time in here
After all setup is done, press ■ button. Cycle will start

●Use Long Lock Out press START button more then 3 seconds Long Lock Out time will display too. Also the place of delta peak value on the screen, value will replace to & mark. Later, when Long Lock Out time is expired, & mark return to delta peak value.

(If you connect Thermo sensor, alternate display temperature and voltage)

Select battery type use Scroll Wheel and press button (If you select battery, battery full name and battery voltage will be display on the screen) (Be careful of battery select, Incorrect selection cause battery and device damage)

●FSIZ.OU Display present input power supply voltage, but during the charge/discharge, screen will display present battery voltage if you connect Thermo sensor, alternate display temperature and voltage,

Select battery type use Scroll Wheel and press **■** button (If you select battery , battery full name and battery voltage will be display on the screen)

(Be careful of battery select, Incorrect selection cause battery and device

Prsiz, vo Display present Input power supply voltage but during the charge/discharge, screen will display present battery voltage and detected cell number If you connect Thermo sensor, alternate display temperature and voltage.

●2S(7.4V)
Set up battery cell number
If you change the cell number, battery pack's voltage will be changed automatically

Present battery voltage on discharging (If you connect Thermo sensor, alternate display temperature and voltage)

After all selection is done, press button

INTELLIGENT BALANCE CHARER & DISCHARER

Select charge (use Scroll Wheel) and press button

INTELLIGENT BALANCE CHARER & DISCHARER

(internal resistance will be on the screen after 2 minutes pass, Before 2 minutes, internal resistance will display '0m  $\Omega$ )

capacity is 4600, setup to 5100) 0000mA is turn off this function ●5.5A Charge current, Normal sub-c type battery, we recommend 1C charging, (3000mAh battery - charge 3,0A ) Setup delta peak value 10means 10mv, normally start to charge with 2mv (If 6cell - 6cell X 2mv = 12mv) If the battery's temperature is too low when charge is done, you can increase delta peak value for suitable situation All batteries have own battery internal resistance and character, This function very useful to charge, for many kinds of battery manufacture. Use Long Lock Out (Long Lock Out is work on only S-linear charge mode) If the voltage Keep on drop from charging start (after30~60 seconds ), press START button more then 3 seconds, Long Lock Out function will be on If the Long Lock Out function is work on, Long-Lock Out will be display on the And Long Lock Out time will display too. Also the place of delta peak value on the screen , value will replace to  $\delta$  mark, Later , when Long Lock Out time is expired ,  $\delta$  mark return to delta peak value. Muchmore Racing INTELLIGENT BALANCE CHARER & DISCHARER 4 ★You can start to discharge anytime just press button 1 second where you in menu And Keep on press 
button till pass the end of selection, discharge will start,

**9**.035

8.230

30:12

5.5A

● ≜9,035

●3400mA

●123mQ

Present discharging capacity

nternal resistance value

• 30:12 Discharge time elapsed

▼Discharging screen

**ა**50℃

Discharging...

▼Discharge is over

6cell

**%S-linear %** 

3400mA 123mΩ

5120mA

**5**0℃ 123mΩ 50:30 ●5120mA Discharged capacity Discharge done ●50:30 Total discharging time ★You can check out passing time (after discharge was over) just scrolled up&down (use Scroll Wheel) Discharge done Discharge done ■S-linear CHG→DCH & DCH→CHG Sycle In Super Linear mode, you make charge/discharge order and do cycling (charge—discharge or discharge—charge)
This is very useful for balance of brand new battery and old battery conditioning
Also, charge—disCharge step will be helped to check out the battery performance current, delta peak, cut-off, temperature, fan start temperature will use in this cycle menu according to defined value from the Charge, Discharge program ★Charge data value and discharge data value will store in memory after operated charge & discharge.

So, If you want to store data value, charge & discharge You have operate at least one time charge & discharge, after set up the charge & discharge data. **%S-linear** CHG→DCH Present cycle mode Delay time: 05:00 ●Delay time: 05:00 Break time between charge and discharge ★Please set delay time more than 15min for Battery cooling CHG → DCH delay time After all setup is done, press button Cycle will start ●Use Long Lock Out press START button more then 3 seconds Long Lock Out time will display too, Also the place of delta peak value on the screen, value will replace to \$mark.

Later, when Long Lock Out time is expired, \$mark return to delta peak value. ▼S-linear CHG→DCH screen 9.035 0400mA On the charging, screen will display same as %S-linear% charge mode On the charging, charge character will blink
On the discharging, discharge character will blink 5.5A ⊿10 dn ℃ d50℃ 30:12 Charge → Discharge ▼S-linear DCH→CHG setup screen ● \*\*S-linear \*\* DCH→CHG Present cycle mode %S-linear % CHG→DCH

6

Muchmore Racing ■Ni-MH / Ni-Cd Discharge ● \*Ni-MH DCH\* Ps12,00 \*Ni-MH DCH\* 5.5A 2S(7.2V) ●Ps12.00 ●Psiz,u0
Display present Input power supply voltage,but during the charge/discharge, screen will display present battery voltage
If you connect Thermo sensor, alternate display temperature and voltage. Info display ●5.5A Discharging current ●2S( 7,2V) Set up battery cell number

If you change the cell number, battery pack's voltage will be changed automatically

▼Discharging screen

6cell

6cell

■Lithium - set up

\*Ni-MH DCH\* ■9,035

3400mA

123mΩ

Delay time: 05:00

 $CHG \rightarrow DCH$  delay time

Discharging... rnal resistance value (internal resistance will be on the screen after 2 minutes pass, Before 2 minutes, internal resistance will display 'OmQ') ●30:12 Discharge time elapsed ▼Discharge is over ● 88,230
Present battery voltage
You can check out AV (average voltage) just scrolled up&down (use Scroll Wheel) \*Ni-MH DCH\* ■8.230 5120mA 5 5A ●5120mA 123m0 50:30 Discharged capacity Discharge done Total discharging time
★You can check out passing time (after discharge was over) just scrolled
up&down (use Scroll Wheel)

Discharge doneDischarge done

★Lithium Mode is only suitable for charging and discharging Lithium batteries Do not use this mode to other battery

● % Li-Po CHG % Present stauts

●Ps12.00

●3400mA

●58:20

Charged capacity

Total charging time Charge done Charge done

9.035

●3400mA Present discharging capacity

5.5A

30:12

■Lipo, LiFe, Lilo Charge %Li−Po% Discharge Charge Auto balancing Select menu %Li-Po CHG% Ps12,00 2S(7 4V) 5 5A 5000mA Normal Info display Muchmore Racing

Lithium type select

Fe

Lithium - Polymer

ion

3.7V/cell

▼Charge is over ● #8.385 \*Po 2S CHG\* **2**8,385 Present battery voltage
You can check out peak voltage just scrolled up&down (use Scroll Wheel)

8

■Lipo, LiFe, Lilo Discharge Lithium type select Lithium - Polymer 3.7V/cell %Li−Po% Ps12,00 Discharge Charge Auto balancing Select menu

Info display

2S(7,4V)

3400mA

3.0A

Charge done

5.5A

▼Discharge is over

Discharge done

5.0A

Muchmore Racing

% Pb(lead) \*

Charge

%Po 2S DCH% **₫**6,400

3400mA

123mΩ

30:12

50:30

Ps12.00

Discharge

58:20

Select Discharge use Scroll Wheel, and press button Connect battery to discharge If you want to use cell balance function , plug cell balancer too, \*Li-Po DCH\* Ps12,00

● \*\*Li-Po DCH\*\* ●Ps12 00

●5.5A

● #7.000

●3400mA

Present discharging capacity

●A:3,50V B3,50V C:0,00V C:0,00V C:0,00V C:0,00V

nternal resistance on discharging

10

●50:30 Total discharging time Discharge done

●0000mA

47,120

●1,0A Presen

● 7,120

●3400mA

●55:30

Charged capacity

Total charging time

Set up battery cell number (voltage)

●Charge done Charge done

automatically

esent charge current ●1100mA Present charging capacity

●20:30 Charging time elapsed

After all selection is done, press button

Present status Pb means battery type, 3S means 6,0V battery

Discharging time elapsed

▼Discharging screen % Po 2S DCH% ₫7.000 3400mA 30:12 5.0A C:0,00V A:3,50V B3.50V C:0.00V C:0,00V C:0,00V

Balancing screen for individual cell voltage If you want to use cell balancing function, you have to connect cell balancer plug to Cell Master Legend's cell balance port before charge Without connection of cell balancer, individual cell voltage will not be display, and Charge..., Discharge mark will be on the Info display Present battery voltage

\*You can check out AV (average voltage) just scrolled up&down (use Scroll Wheel) ●3400mA Discharged capacity ●123mΩ

INTELLIGENT BALANCE CHARER & DISCHARER

Select Charge or Discharge (use Scroll Wheel) and press button Select menu ■Pb(lead) Charge Connect the battery to charge Select Charge (use Scroll Wheel) and press subtton \*Pb CHG\* Ps12,00 3S(6.0V) 2.0A ● \*\* Pb CHG\* 5000mAh Present status ●Ps12.00 Info display Display present Input power supply voltage.but during the charge/discharge, screen will display present battery voltage and detected cell number If you connect Thermo sensor, alternate display temperature and voltage. **\*Pb CHG\*** Ps12.00 2.0A 3S(6.0V) 5000mAh Info display

%Pb 3S CHG% ₫7.120

※Pb 3S CHG※ ■7.200

3400mA

1100mA

20:30

55:30

Ps12,00

3S(6,0V)

1.0A

Charging...

Charge done

\*Pb DCH\*

2.0A

■Pb(lead) Discharge

©2.0A Charge current, Normal Pb battery, we recommend 1C charging, (3000mAh battery - charge 3.0A) Set up battery cell number (voltage) If you change the cell number, battery pack's voltage will be changed a natically utomatically (Cell Master Legend is automatically define the battery cell number by calculate through the input voltage (this input voltage means coming from the battery) If the actual cell number is different from detected cell number, please adjust the cell number in manual)

●0000mA Setup value of charge capacity limit When the charge capacity is reached the setup capacity(target capacity), charge will be terminate, This is very useful for battery storage or prevent over charging Basically set capacity value up to 10% higher than battery capacity (ex-battery capacity to 4600, setup to 5100) 0000mA is turn off this function

Battery voltage on the charging (If you connect Thermo sensor, alternate display temperature and voltage)

Present battery voltage (If you connect Thermo sensor, alternate display temperature and voltage)

Info display **Muchmore Racing** ■ Error and Warning

!!! WARNING !!!

BATTERY

**REVERES** 

CONNECTION

Battery clip check

Battery high voltage

Battery low voltage

Balance clip check

■ Product Warranty

expiration of the 120 days warranty

Muchmore Racing

● \*\*Pb DCH\*\* ●Ps12,00 Display present input power supply voltage, but during the charge/discharge, screen will display present battery voltage if you connect Thermo sensor, alternate display temperature and voltage. ●2,0A Discharging current ●3S(6,0V)

If you change the cell number, battery pack's voltage will be changed

This will be displayed in case of detecting an interruption of the connection between battery and output Check the battery charging/discharging wire

★Cell Master Legend incorporates a various functions of protective and monitoring the system to verify functions and the state In any case of occurring error, the screen displays the cause of error that is self-explanatory with audible sound and stop operation The output is connected to a battery with incorrect polarity

The processor detects the voltage is higher than you set at Lithium program Please check the cell count of the battery pack

The processor detects the voltage is lower than you set at Lithium program Please check the cell count of the battery pack

INTELLIGENT BALANCE CHARER & DISCHARER

This will be displayed in case of detecting an interruption of the connection between cell balancer connector Check the cell balancer connector or wire MUCHMORE RACING warrants their Cell Master Legend Charger to be free from defects in material and workmanship for a period worf 120 days Round warrants interfect master Legency Charger to be need from detects in of 120 days from the date of purchase. This warranty applies only to the original purchaser MUCHMORE RACING (or their associated distributors) will repair or replace without charge refund the purchase price of any product which fails during the warranty period by reason of defect in material workmanship found upon examination by MUCHMORE RACING to have been the cause of failure.

This warranty does not cover any failures attributable to abuse, mishandling, failure to follow operating instruction, alteration or

To make a claim under this warranty, the purchaser must return the product to MUCHMORE RACING (or the relevant Countries

All claims must be accompanied by a sales slip or other written proof of date of purchase.

The maximum repair costs for any failure caused by the purchaser are 50% of retail price (original purchase price). Since we cannot supervise the proper use of our products, we can not accept any liability for direct or indirect damage of any type arising from their use or occurring to the property of the user and/or third parties. Therefore, any use of this product shall take place at the user's own risk. The warranty claim may not exceed the value of this product in any case.

By putting this product into operation you accept the above conditions and assume full responsibility for use of this product.

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This applies among other things on Cut off/changed original input— and/or output—wires, Mechanical damage of the case, Humidity/Water inside the case

Mechanical damage of electronical components/PCB, Soldered on the PCB, Any modification of the charger done by the

associated distributors) at the address shown below properly packed and with shipping charges prepaid.

All claims must be made within thirty (30) days from the product failure and, in any event, within thirty (30) days of the

All claims must be accompanied by a sales slip or other written proof of date of purchase

127-1, Poongdong, Ilsan-gu, Goyang-city, Gyeong-gi do, 411-842, KOREA http://www.much-more.co.kr http://www.muchmore.co.jp

accident, result of normal wear, misuse or improper maintenance,

INTELLIGENT BALANCE CHARER & DISCHARER

● \*\*Po 2S \*\*
Present battery type and cell number ● 8.400 Present battery voltage Present battery voltage level (useful for check the charged or discharged) ●A:4,20V B4,20V C:0,00V C:0,00V C:0,00V Each cell's present voltage 11 Present battery voltage (If you connect Thermo sensor, alternate display temperature and voltage) ●20:20 Discharging time elapsed ● 7.168 esent battery voltage ●2120mA Discharged capacity ●50:30 Total Discharging time

\*This is programmed for charging Pb (Pb, lead-sulphuric acid, lead-gel) battery with nominal voltage from 2 to 20V.

Pb batteries are totally different from NiCd or NiMH batteries

They can only deliver relatively lower current compare to their capacity, and similar restrictions definitely apply to charge

So the optimal charge current will be 1/10 of the capacity ,Pb batteries must not be charged rapidly. Always follow the instruction is supplied by the manufacturer of battery INTELLIGENT BALANCE CHARER & DISCHARER

Cell Master Legend Charger has Charge/Discharge current limit by battery cell number.

Battery is more than 10V, the actual amount of charge current delivered to the battery might automatically be limited Also, for the battery having more than 8,6V, the discharge current delivered to the battery might be limited Maximum charge/discharge current (DC12,5V Input) 6.0 10.0 5 10.0 7.2 10.0 10.0 8.4 10.0 7.5

INTELLIGENT BALANCE CHARER & DISCHARER