

## User Manual:

This battery charge remaining display module for the general models dedicated rechargeable battery.

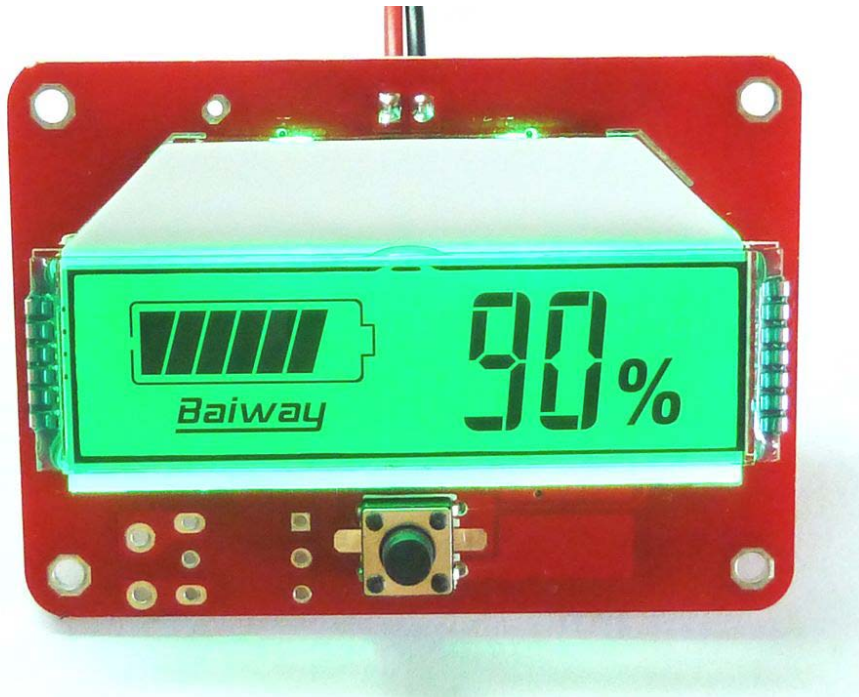
For rapid detection of a variety of instruments, measuring devices,

Mobile portable devices, sweeping machines, balanced car, car batteries and other lithium batteries, lead-acid battery capacity.

Visual battery symbol is displayed coupled with the percentage

Ratio of accurate display.

Using high-contrast LCD screen, can be clearly displayed in the dark for a long time or bright light. Size is fully compatible LYLCD



Bare board power monitor



Effect after loading panel

## Features:

- Can set their own battery specifications and features
- Can be set to automatically turn off the backlight
- Optional sleep function, low power consumption
- Backlight automatically turns on the voltage change function
- Activation keys can be used to display
- Wide input voltage range

Notes: This product are factory default battery: Lead Acid 12V or 12V lithium battery 3 strings.

Battery specifications:

Supports the following battery voltage specifications:

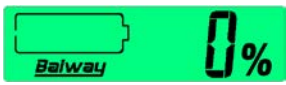
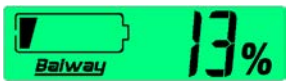







Code:		Nominally voltage
Pb1	Lead-acid	12V
Pb2	Lead-acid	24V
Pb3	Lead-acid	36V
Pb4	Lead-acid	48V

Code:	Lithium number of strings	Nominally voltage
Li2	2	7.2V/7.4V/8.4V
Li3	3	0.8V/11.1V/12V
Li4	4	14.4V/14.8V/15V
Li5	5	18V/19V/20V
Li6	6	21.6V/22V
Li7	7	24V/25.2V
Li8	8	29.6V/30V
Li9	9	33V
LiA	10	36V
Lib	11	41V
LiC	12	45V
Lid	13	48V
LiE	14	52V
LiF	15	56V
"Code" means the specifications when selecting the corresponding English character LCD display.	The meaning of "lithium batteries" as ordinary ternary or soft pack / polymer lithium battery, not including phosphate (iron Li) batteries.	Nominally voltage of the digital voltage

Electrical parameters:

Parameter	Min	Typ	Max	Unit
Operating Voltage Range 1 (General)	8	12	63	VDC
Operating Voltage Range 2 (low pressure type)	5	7.2	12	VDC
Operating power (back light, LCD)	-	4	5	mA
Standby Power (backlight off, LCD)	-	100	120	μA
Sleep Power (backlight off, LCD off)	-	10	20	uA
Voltage Accuracy	-	±1.0	±2.0	%
Backlit trigger voltage (F2 mode)	-	100	300	mV
Operating temperature range	10	25	+40	°C

Voltage parameters:

12V Lead-acid	24V Lead-acid	36V Lead-acid	3 strings lithium	4 strings lithium	7 strings lithium	Screen display	Description
10.5V	21.0V	31.5V	10.2V	13.6V	23.8V		Low Voltage
10.9V	21.7V	32.6V	10.5V	14.0V	24.5V		Remaining 13%
11.2V	22.4V	33.6V	10.8V	14.4V	25.2V		Remaining 26%
11.6V	23.1V	34.7V	11.1V	14.8V	25.8V		Remaining 39%
11.9V	23.8V	35.7V	11.4V	15.2V	26.5V		Remaining 52%
12.3V	24.5V	36.8V	11.7V	15.6V	27.2V		Remaining 65%
12.6V	25.2V	37.8V	12.0V	15.9V	27.9V		Remaining 78%
13.0V	25.9V	38.9V	12.2V	16.3V	28.6V		Remaining 91%
13.2V	26.4V	39.6V	12.5V	16.6V	29.1V		Remaining 100%

\*Input voltage is above the theoretical value of the parameter, the actual product may be biased, the maximum absolute deviation range: ± 2.0%, between each file relative

Deviation range of 0.5%

\*Large volume users can customize special battery specifications, please provide the battery charge and discharge characteristic curve, or the battery voltage and percentage of correspondence between tables.

## Instructions for use:

1. The attached two-core cable (red and black wires) head welded to the use of positive and negative ends of the device's battery, connect the positive red, black, connect the negative; attention shall be reversed, reverse voltage greater than 15V may burn electricity board !
2. Power display module has two pin socket on the back of the two-core cable plugged in a white terminal, note the direction of Jack; At this power display module should work, backlit display lights. If you can not check off the display should immediately eliminate the problem; such as after power always show 0% or 100%, please confirm whether the battery size and power display module specifications matching set.
3. Power display module LCD cell battery icon on the left seven representatives from low to high battery capacity; while the right side shows the percentage value;
4. When the voltage drops below the minimum value, the percentage of 0%, while the backlight is off, enter the power-saving low power state;
5. Check the battery to accurately display the load that is not connected under load conditions. If the battery charge and discharge current is large or larger internal resistance, the battery indicator indicates Remaining capacity of the module and the actual battery capacity may be inconsistent.
6. There are certain work under steady state current consumption when the battery capacity is less than 30Ah, or shut down the power consumption of the devices have current and standby power requirements, does not recommend long-term display module power is turned on, you can use this product button view features, shows the power values that pressing the front button, see F1/F2 function.
7. In nominal voltage greater than 30V applications, such as long battery module is powered micro heat back is normal. If ignition or burning smell occurs when generating use, please stop using and identify the cause.
8. To prevent damage to the device leakage PCB board components, with particular attention being installed equipment or equipment not touch the metal chassis to any metal part of the PCB board, including LCD pin. Another power display module is powered back after not touching any metal part, in order to avoid short circuit; elements try not to touch the PCB by hand.
9. With battery capacity and standby time relational tables (ignoring other power, separate electricity connection available time after the battery is fully displayed)

Battery capacity	10Ah	20Ah	30Ah	50Ah	100Ah	200Ah
Hour	2500	5000	7500	12500	25000	50000
Days	104	208	312	520	1040	2080

## Advanced Settings:

### A. Key Description:

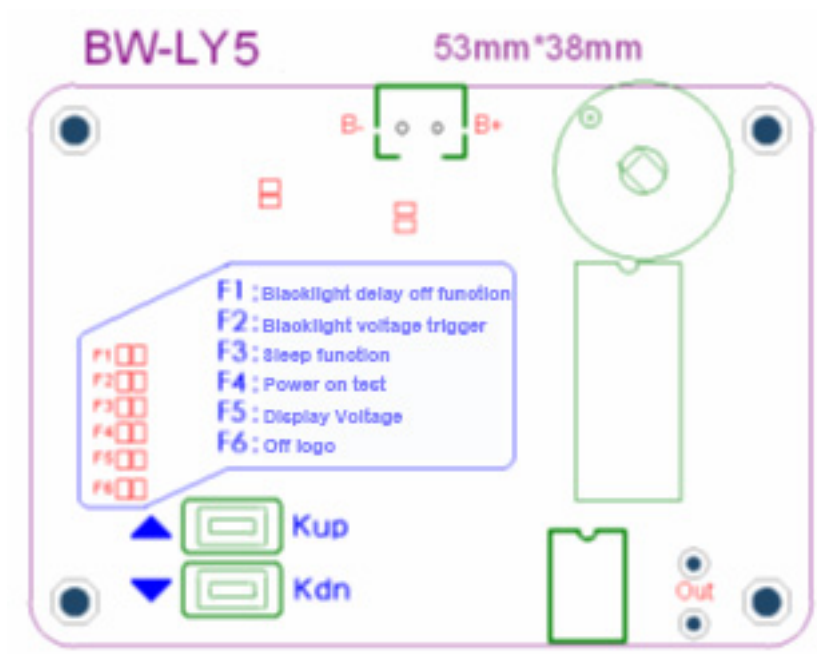
1. Power module to the front of the button OK button, used to illuminate the backlight or sleep to wake up. Note that the keys have a different height, such as the installation of panels requires heightened 2mm. The default configuration is no such switch.
2. Battery indicator on the back of the module were two white buttons ↑ Kup and ↓ Kdn used to select the battery type.

### B. Model Selection:

1. First power display module power off, press and hold the back Kdn key, to give power display module power, release Kdn button on the right to display the English sign: "Pbx" or "Lix" (Pb behalf of lead acid, Li representatives lithium, x is the number of battery strings), followed by Kup or Kdn key to display the following models:
  - Pb1: Pb12V lead-acid batteries
  - Pb2: Pb24V lead-acid batteries
  - Pb3: Pb36V lead-acid batteries
  - Pb4: Pb48V lead-acid batteries
  - Li2: 2 series lithium battery pack
  - Li3: 3 series lithium battery pack
  - Li4: 4 series lithium battery pack
  - Li5: 5 series lithium battery pack
  - Li6: 6 series lithium battery pack
  - Li7: 7 series lithium battery pack
  - Li8: 8 series lithium battery pack
  - Li9: 9 series lithium battery pack
  - LiA: 10 series lithium battery pack
  - Lib: 11 series lithium battery pack
  - LiC: 12 series lithium battery pack
  - Lid: 13 series lithium battery pack
  - LiE: 14series lithium battery pack
  - LiF: 15 series lithium battery pack
2. Find the corresponding model after turning off the power to re-energize power module can be used normally.

### C. Preferences:

1. Function settings to use 20W soldering iron tip will correspond to F1-F6 junction with solder connections shall operate under the power off, the need to re-adjust the power to the rear to take effect.
2. When shipped from the factory default back all not connected, the function is: backlight lit, the percentage displayed, no sleep, no self-test, the display Logo.
3. The following functions F1-F6 is connected to various points as below:



- F1: Backlight delay off function: power display 10 seconds after entering a low-power state (100uA), at this time there is an LCD display, but the backlight off. Press OK again to close the back light 10 seconds. This mode requires the OK button.
- F2: Backlight voltage triggering; displayed for 10 seconds after the power to enter a low-power state (100uA), at this time there is an LCD display, but the backlight off. When the voltage changes automatically turn on the backlight for 10 seconds, or press the OK button to turn off the back light 10 seconds again. This mode requires the OK button.
- F3: sleep function; power display 10 seconds after entering the ultra-low power (<20uA) status, LCD and backlight are turned off; press the OK button to positive. Often displayed for 10 seconds. This mode requires the OK button.
- F4: Power On Test; each time power module is powered LCD display 2 seconds turns strokes, and then displays the selected battery type 1 second, the last normal display power.
- F5: Display voltage; right side shows only the current battery voltage, battery symbol on the left are still displayed in the selected models.
- F6: Close the LCD screen lower left corner Logo.

F1-F3 function key switch requires the module front, the default is no such button.

If you do not bring a positive OK key, the power of positive and negative two wires connected to the device behind the switch, turn on the device after the power switch is always working;

If they bring a positive OK button, the power of positive and negative two wires directly to the battery positive and negative, and then in the back of the power of choice F1/F2 or F3 function to automatically turn off the backlight or automatic sleep function.

## Note:

1. An LCD screen surface with a protective film before mounting, it should be torn off, so as not to affect the contrast and appearance of the liquid crystal display;
2. LCD screen surface of the glass material for fragile items, and therefore may not be subject to the impact of sharp objects!
3. UV-sensitive LCD screen, it is not long in the sun or ultraviolet ray radiation to produce large quantities of the environment (such as welding Machines, welding), otherwise it will shorten the life of the LCD screen.
4. Use or storage conditions, power display module can not be long-term exposure to outdoor sunlight or other ultraviolet stronger occasion, special Do not lower in the winter (below  $-20\text{ }^{\circ}\text{C}$ ) and summer (above  $60\text{ }^{\circ}\text{C}$ ) extreme temperatures will shorten the life of the LCD screen.
5. LCD screen by using the ambient temperature changes more obvious, when used at low temperature ( $10\text{ }^{\circ}\text{C}$ ) or less, may reduce the display contrast lighter, At high temperatures (above  $50\text{ }^{\circ}\text{C}$ ) may occur deep, but the temperature returns to normal, the display is self-healing.
6. In the course and, if found problems, please contact the Division I with a detailed written (e-mail) in the form of instructions or conditions when the problem occurred and those specific process conditions, so that we make accurate judgments to resolve the problem.

## Electricity board Dimensions:

1. PCB Dimensions: (Mm)
2. LCD surface to the height of 6.0mm PCB
3. The total thickness of the front panel is not installed: 9mm
4. After installing the panel bracket total thickness: 13mm

