CellLog 8M

Cell Voltage Monitor

USER'S MANUAL

SHENZHEN JUNSI ELECTRONIC CO.,LTD

Thank you for purchasing the **CellLog 8M**. Please read the entire User's Manual completely and attentively as it contains a wide variety of specific programming and safety information.

Specifications

Lithium (LiPo/LiIo/LiFe) battery cell count:	2 – 8 series
Pack voltage range:	4.0 – 43.0VDC (USB can provide lower voltage 1.0V)
Alarm pack voltage range:	0.1 – 43.0VDC
Cell voltage range:	1.3 – 4.9VDC
Alarm cell voltage range:	1.3 – 4.9VDC
Voltage display resolution:	1mV
Current loading of test:	8mA
Maximum voltage for alarm port:	50VDC
Current drain for alarm port:	<500mA
Weight:	17g
Dimensions (L X W X D):	62X39X12mm
	2.44"X1.53"X0.47"

Special features

- Small size with multiple functions, backlight 128*64 lattices LCD and Buzzer Tone Reminder; the interface can be operated smoothly.

- **CellLog 8M** can not only measure 2-8S Li battery individual voltage, but also measure NiMH, NiCd, Pb battery pack voltage.

- It can be set Individual Voltage Alarm and Pack Voltage Alarm, Overvoltage Alarm, Low Voltage Alarm, Differential Voltage Alarm and Time Over Alarm. What's more, the extra alarm output can be linkage controlled by the users.

- It has 8 sets default monitor alarm settings, which can be selected for different battery packs.

- **CellLog 8M** has been 100% calibrated before it enters to the market, at the same time, it supports the calibration by users themselves.

Unpack inspection

The following items are included in the package. Contact your supplier if any items are missing.

Standard items:

CDROM
85 X 85mm
One copy of the User's manual on CDROM

CW-P220	**CW-C220**
20mm	20mm
One Alarm output line	**One pack voltage measurements line with clips**

Optional items:
See details in "**Optional parts**" (P14)
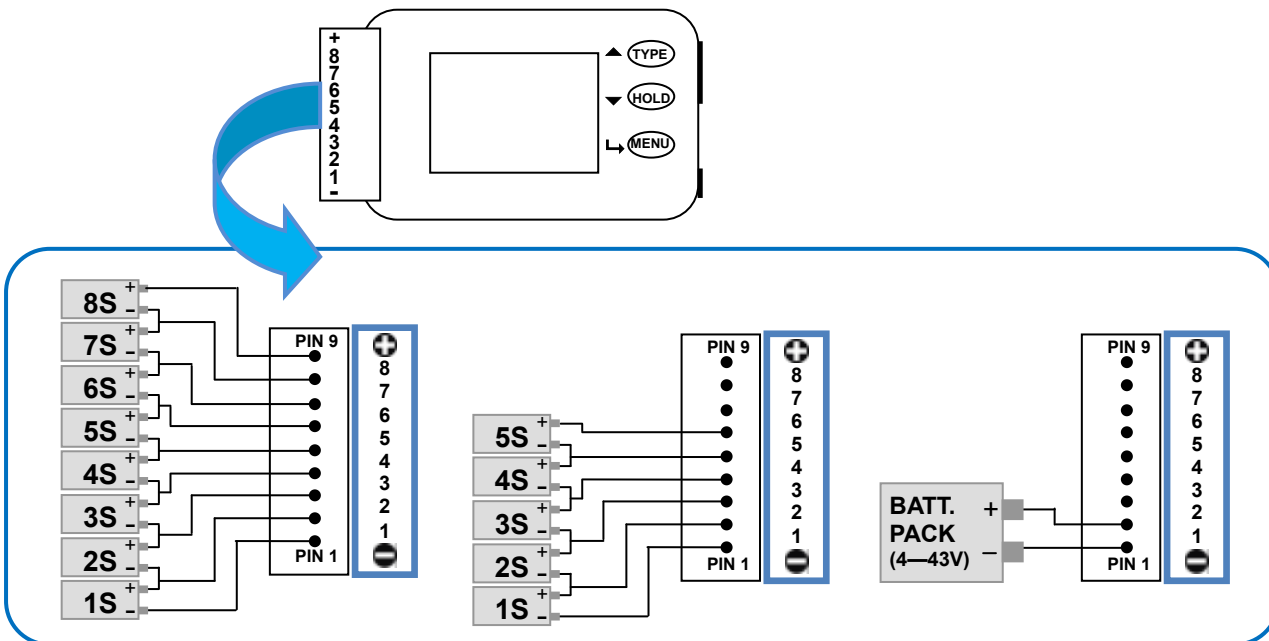
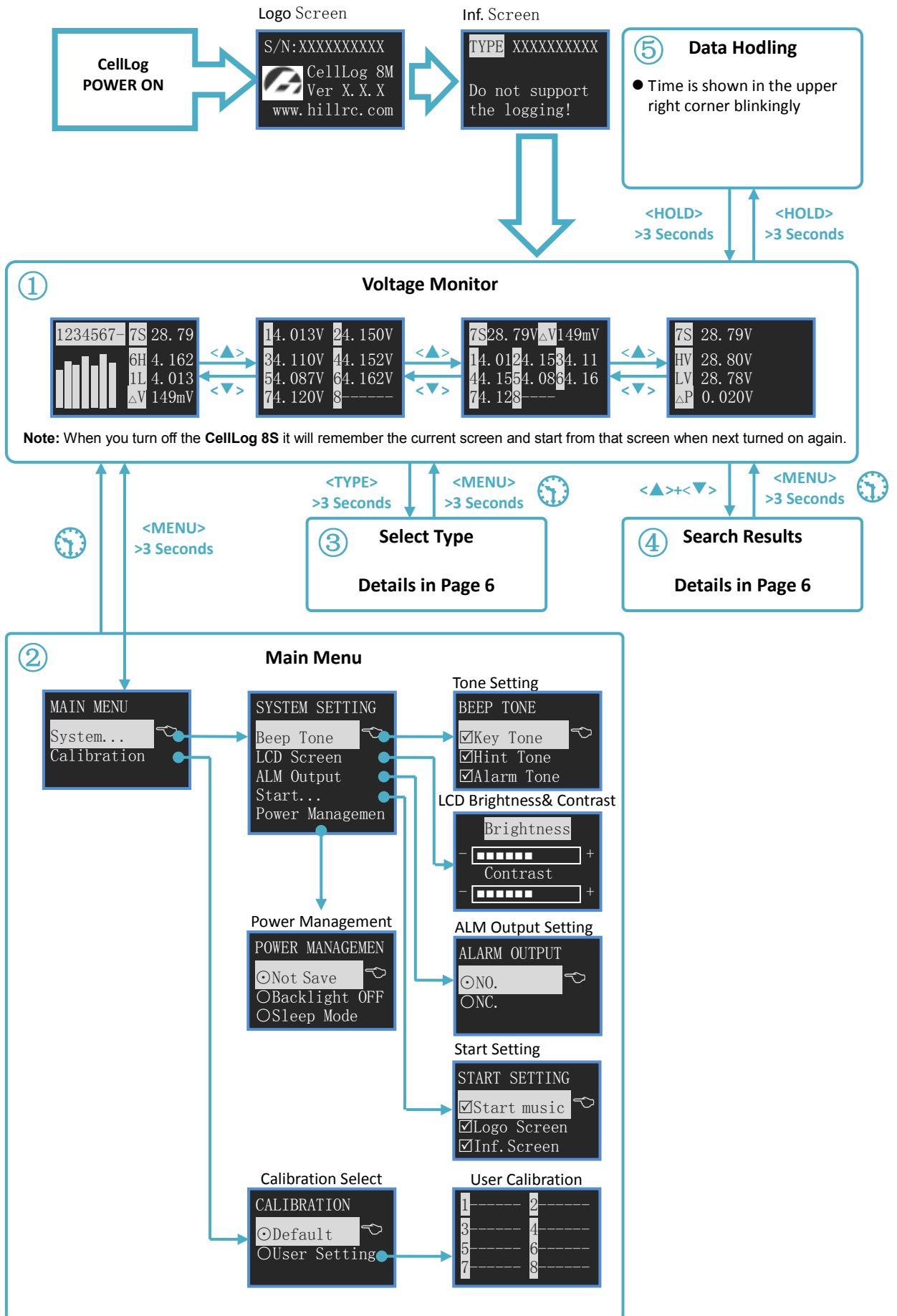## External controls and connections

1. Input plug   2. LCD screen   3. Function button   4. Beep   5. Alarm port
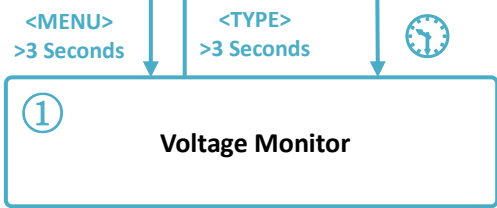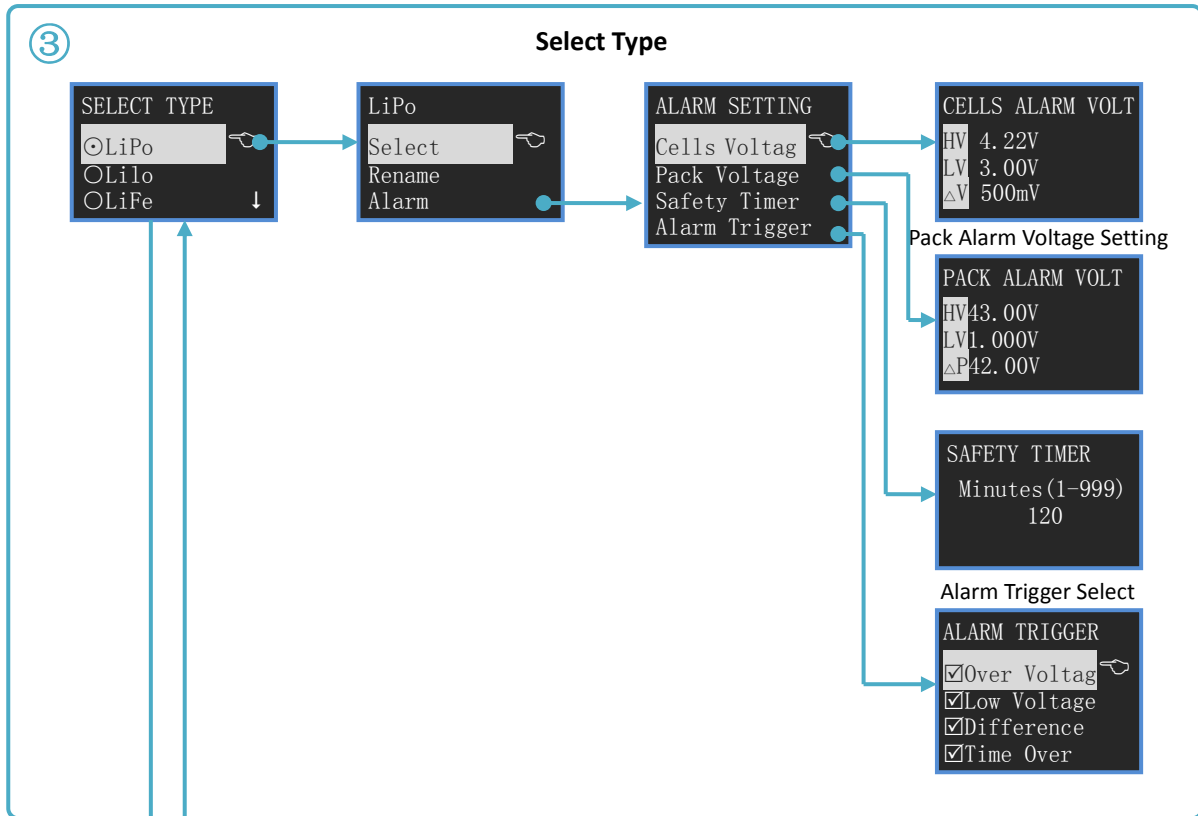

CellLog 8M   Connection   Diagram

Program flow chart

Logo Screen

```
S/N:XXXXXXXXX
     CellLog 8M
     Ver X.X.X
www.hillrc.com
```

CellLog POWER ON

Inf. Screen

```
TYPE XXXXXXXXX

Do not support
the logging!
```

⑤ **Data Hodling**

- Time is shown in the upper right corner blinkingly

<HOLD> >3 Seconds   **<HOLD> >3 Seconds**

① **Voltage Monitor**

```
1234567- 7S 28.79
         6H 4.162
         1L 4.013
         △V 149mV
```

<▲> **<▼>**

```
14.013V 24.150V
34.110V 44.152V
54.087V 64.162V
74.120V 8------
```

<▲> **<▼>**

```
7S 28.79V △V149mV
14.01 24.15 34.11
44.15 54.08 64.16
74.128 ----
```

<▲> **<▼>**

```
7S  28.79V
HV  28.80V
LV  28.78V
△P  0.020V
```

Note: When you turn off the **CellLog 8S** it will remember the current screen and start from that screen when next turned on again.

<TYPE> >3 Seconds   **<MENU> >3 Seconds**

③ **Select Type**

Details in Page 6

<▲>+<▼>   **<MENU> >3 Seconds**

④ **Search Results**

Details in Page 6

<MENU> >3 Seconds

② **Main Menu**

```
MAIN MENU
System...
Calibration
```

```
SYSTEM SETTING
Beep Tone
LCD Screen
ALM Output
Start...
Power Managemen
```

Tone Setting

```
BEEP TONE
☑Key Tone
☑Hint Tone
☑Alarm Tone
```

LCD Brightness& Contrast

```
  Brightness
- ■■■■■■ +
  Contrast
- ■■■■■■ +
```

ALM Output Setting

```
ALARM OUTPUT
⊙NO.
○NC.
```

Start Setting

```
START SETTING
☑Start music
☑Logo Screen
☑Inf.Screen
```

Power Management

```
POWER MANAGEMEN
⊙Not Save
○Backlight OFF
○Sleep Mode
```

Calibration Select

```
CALIBRATION
⊙Default
○User Setting
```

User Calibration

```
1------  2------
3------  4------
5------  6------
7------  8------
```

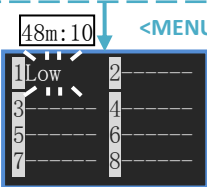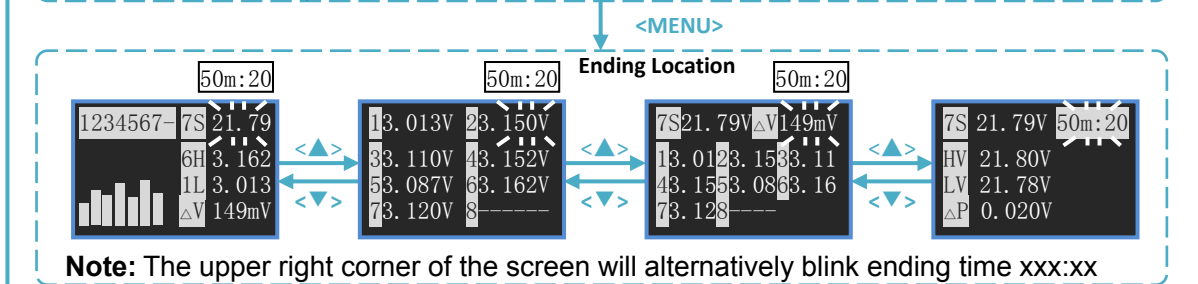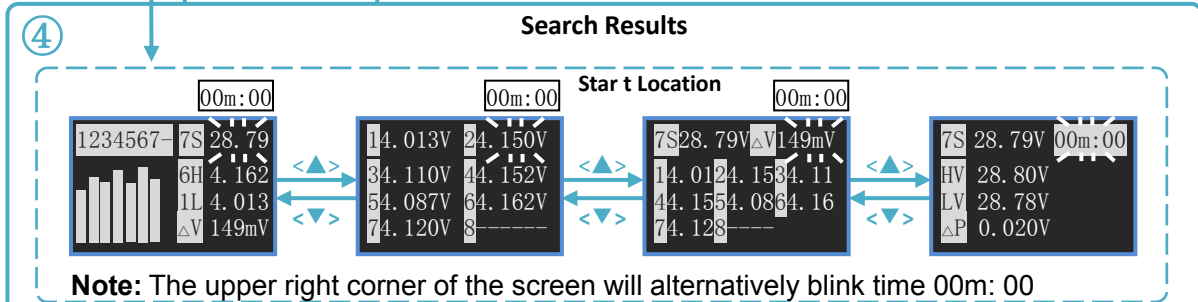**Note:** 🕐 means if no operation on the button for 1 minutes, the system will return to monitor screen automatically.

③ **Select Type**

```
SELECT TYPE
⊙LiPo
○LiIo
○LiFe          ↓
```

```
LiPo
Select
Rename
Alarm
```

```
ALARM SETTING
Cells Voltag
Pack Voltage
Safety Timer
Alarm Trigger
```

```
CELLS ALARM VOLT
HV  4.22V
LV  3.00V
△V  500mV
```

Pack Alarm Voltage Setting

```
PACK ALARM VOLT
HV 43.00V
LV 1.000V
△P 42.00V
```

```
SAFETY TIMER
 Minutes(1-999)
      120
```

Alarm Trigger Select

```
ALARM TRIGGER
☑Over Voltag
☑Low Voltage
☑Difference
☑Time Over
```

<MENU> **<TYPE>**
>3 Seconds **>3 Seconds** 🕐

① **Voltage Monitor**

Note:

🕐 **means if no operation on the button for 1 minutes, the system will return to monitor screen automatically.**

<▲>+<▼>   **<MENU>**
>3 Seconds 🕐

④ **Search Results**

Star t Location

`00m:00`
```
1234567-7S 28.79
         6H 4.162
         1L 4.013
         △V 149mV
```
<▲> <▼>
`00m:00`
```
14.013V 24.150V
34.110V 44.152V
54.087V 64.162V
74.120V 8------
```
<▲> <▼>
`00m:00`
```
7S28.79V△V149mV
14.01 24.15 34.11
44.15 54.08 64.16
74.128    ----
```
<▲> <▼>
```
7S 28.79V 00m:00
HV 28.80V
LV 28.78V
△P 0.020V
```

Note: The upper right corner of the screen will alternatively blink time 00m: 00

<MENU>

Ending Location

`50m:20`
```
1234567-7S 21.79
         6H 3.162
         1L 3.013
         △V 149mV
```
<▲> <▼>
`50m:20`
```
13.013V 23.150V
33.110V 43.152V
53.087V 63.162V
73.120V 8------
```
<▲> <▼>
`50m:20`
```
7S21.79V△V149mV
13.01 23.15 33.11
43.15 53.08 63.16
73.128    ----
```
<▲> <▼>
```
7S 21.79V 50m:20
HV 21.80V
LV 21.78V
△P 0.020V
```

Note: The upper right corner of the screen will alternatively blink ending time xxx:xx

`48m:10` **<MENU>**
```
1Low    2------
3------ 4------
5------ 6------
7------ 8------
```

Alarm time points
If there is alarm, the alarm **events/alarm time** will be shown alternatively at the corresponding battery number place.

Menu Operation:
1. Select the menu items by **<▲>** /**<▼>** buttons, the selected item will be shown in white.
2. Press **<↵>** to the following menu, and hold **<↵>**for more than 3 seconds, it will return to the upper menu.

Symbol Meanings:

Display Symbols	The meaning of the Symbols	Note
nS	total voltage of the pack	n:0-8, the cell count
nH	the highest individual cell voltage	n:0-8, the highest cell number
nL	the lowest individual cell voltage	n:0-8, the lowest cell number
$\triangle V$	the maximum voltage difference between the cells	$\triangle V$ = nH - nL
HV	The voltage maximum value	
LV	the voltage minimum value	
$\triangle P$	the pack maximum voltage difference	$\triangle P$ = HV - LV
mmM:ss **or** hhH:mm	the time entering to logging	ss:second ,mm:minute , hh: hour
⊙/〇	Single choice Do/Do not	
☑/☐	Multiple choice Do/Do not	
T_OVER	Safety time alarm	
LOW	Low voltage alarm	
OVER	Over voltage alarm	
DIFF	Voltage difference alarm	

Button Function
CellLog has 3 buttons, which everyone owns the first and second functions. The first function is trigger after only one click; the second function is trigger after 3 seconds holding of the button.

| Press button	Condition	Button Function Description
<▲>	Click	1. Turns up the menu 2. Increase the value 3. Select the character input
	Hold for 3 seconds	Enter to Alarm type select menu
<▼>	Click	1. Turns down the menu 2. Decrease the value 3. Delete the character
	Hold for 3 seconds	Trigger Open/Close Logging Function
<↵>	Click	Confirmation
	Hold for 3 seconds	Enter to System Setting Menu
<▲>+<▼>	Click	Check holding information
	Hold for 3 seconds	Save users voltage calibrated value

Note：<▲>+<▼> means pressing <▲> and <▼> at the same time.

QUICK START

- **CellLog Power On**

(2 ways: one is connecting the battery through the left 9 Pin socket, the other one is through the USB port), System self-check, and then shows the **SN** and **version number**, the display information are as below:
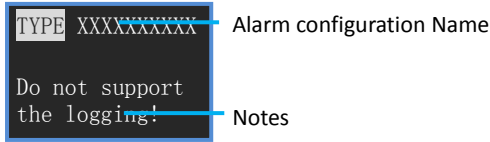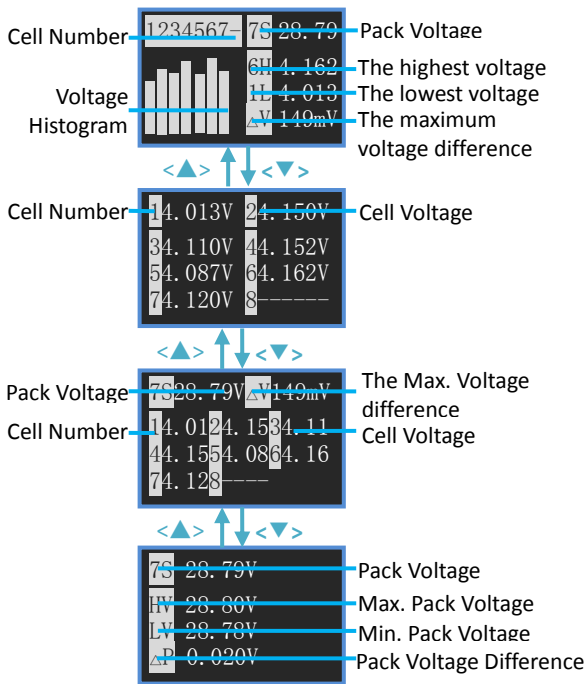
TYPE XXXXXXXXXX ——— Alarm configuration Name Do not support the logging! ——— Notes	The first line is the current selected **Setting Type** (See detail in P10). **Note: CellLog 8M has no Logging function, if it is necessary, please choose CellLog 8S.**

- **Voltage Monitor**

There are 4 interface choices, which can be shifted by **<▲> or <▼>**buttons.

Cell Number —— 1234567— 7S 28.79 —— Pack Voltage
6H 4.162 —— The highest voltage
Voltage —— 1L 4.013 —— The lowest voltage
Histogram —— ΔV 149mV —— The maximum voltage difference

<▲> <▼>

Cell Number —— 14.013V 24.150V —— Cell Voltage
34.110V 44.152V
54.087V 64.162V
74.120V 8------

<▲> <▼>

Pack Voltage —— 7S28.79V ΔV149mV —— The Max. Voltage difference
Cell Number —— 14.0124.1534.11 —— Cell Voltage
44.1554.0864.16
74.128----

<▲> <▼>

7S 28.79V —— Pack Voltage
HV 28.80V —— Max. Pack Voltage
LV 28.78V —— Min. Pack Voltage
ΔP 0.020V —— Pack Voltage Difference

As the left pictures: the '7' in "7S" means cell counts; '6H' means the 6th cell voltage is the highest; '1L' means the 1st cell voltage is the lowest.

If the monitor voltage trigger alarm, the corresponding voltage and alarm display (LOW, OVER or DIFF) shows alternatively.

The cell number and (L, O, D) shows alternatively.

'**LOW**' or '**L**' means: Low voltage alarm
'**OVER**' or '**O**' means: Over voltage alarm
'**DIFF**' or '**D**' means: Voltage difference alarm. They will be displayed at the same time at the highest and the lowest cell voltage interface.

Monitor the pack voltage
Display respectively: Current pack voltage, Max. Pack voltage, Min. Pack voltage, Pack voltage difference. ($\triangle P$ = HV – LV)

- **Data Holding**

When in **Voltage Monitor** status, press **<▼>** button for 3 seconds, after it shows "Start holding…", the calculagraph will be shown alternatively at the upper right corner of the LCD screen.

Press **<▼>** for 3 seconds again, the screen will show "Stop holding!" and then exit.

- **View holding Point**

In the monitor status, press **<▲>** and **<▼>** at the same time to enter the view logging point status.

Three points voltage data can be searched:"Starting holding…"data, "Stop holding!" data, and the data of voltage alarm during this period , which can be shifted by **<↦>** buttons. Press **<↦>** for 3 seconds，it will return to the monitor status.

The saved data can be covered till next logging.

If the logging time is over the users setting safety time,（See **Monitor Safety Time Setting** in P11）, it will trigger Safety Time Alarm, and the screen shows "T_OVER" alternatively in the upper right corner.

● **Alarm Remind**

If **CellLog** detect the alarm events (See **Alarm Trigger Settings** in P11), it will remind as below:

1.   The buzzer beeps every 4 seconds（【Alarm Tone】is selected ☑, See P12）.
2.   The corresponding individual voltage and alarm remind show alternatively.
     Alarm Remind Information: "LOW", "OVER", "DIFF", "T_OVER"
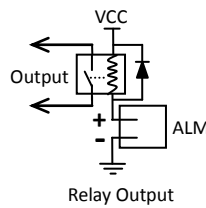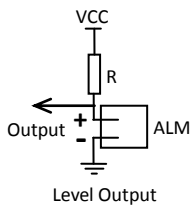3.   ALM port will output the presetting signal.

ALM port signal information:

ALM output port signal is open collector signal, as showed below.
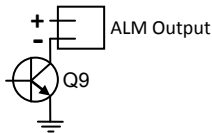
Please pay attention to the port voltage and current limit when you use（<50V,<500mA）

The following are ALM Output typical application.

Level Output   Relay Output

Monitor Alarm Settings

The system can have 8 sets alarm settings, press **<▲>** for 3 seconds to enter **SELECT TYPE** menu.

```
SELECT TYPE
⊙LiPo          ☞
○Lilo
○LiFe          ↓
```
```
<↵>
```
```
LiPo
Select         ☞
Rename
Alarm
```
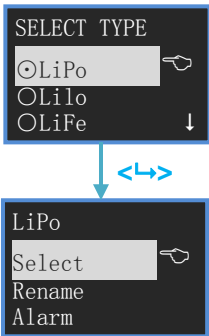
The item with ⊙ is the current setting.
<▲> or **<▼>** to select items and press **<↵>** button.
Defaulted TYPEs are: LiPo, Lilo, LiFe, User1--5

Operate the selected type settings
<▲> or **<▼>** to select the items, press **<↵>** to enter to the next step.
See details below.

Note: **Press<▲> button to power on, it will shift to LiPo Type automatically.**

               Press <▼> button to power on, it will shift to Lilo Type automatically.

               Press ↵ > button to power on, it will shift to LiFe Type automatically.

● **Change Current Alarm Type**: Select【Select】, Press **<↵>** then the item will be with ⊙, and the settings come into effect.

● **Rename Alarm Type**: Select【Rename】, press **<↵>** and the screen shows:

```
LiPo
Rename
New Name
LiPo-1200mAh
```
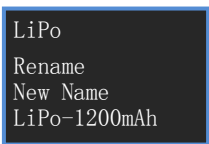
New Name Input Method: **<▲>** to select characters, hold it to trigger continuously; **<▼>** to delete the current character; **<↵>** to confirm the selected character; press **<↵>** for 2 times to confirm the amendment and return; press **<↵>** for 3 seconds to cancel and return.

● **Alarm Parameters Setting**: Select【Alarm】, press **<↵>** and the screen shows:

```
ALARM SETTING
Cells Voltag   ☞
Pack Voltage
Safety Timer
Alarm Trigger
```
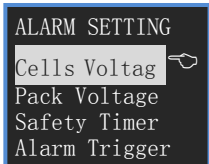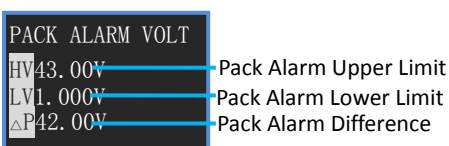
<▲> or **<▼>** to select items, press **<↵>** enter to the next step
See details below.

1) **Individual Cell Voltage Alarm Settings**: Select【Cells Voltage】, press **<↵>** and the screen shows:
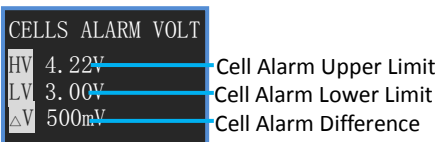
```
CELLS ALARM VOLT
HV  4.22V ——— Cell Alarm Upper Limit
LV  3.00V ——— Cell Alarm Lower Limit
△V 500mV ——— Cell Alarm Difference
```

<▲> or **<▼>** to increase/decrease voltage value, press **<↵>** to shift setting items. Press **<↵>** for 3 seconds to confirm amendment and return.
HV : 1.31V—4.90V   LV: 1.30V—4.89V   △V: 0.01—3.60V

2) **Pack Alarm Voltage Setting**: Select【Pack Voltage】, press **<↵>** and the screen shows:

```
PACK ALARM VOLT
HV 43.00V ——— Pack Alarm Upper Limit
LV 1.000V ——— Pack Alarm Lower Limit
△P 42.00V ——— Pack Alarm Difference
```

<▲> or **<▼>** to increase/decrease voltage value, press **<↵>** to shift setting items. Press **<↵>** for 3 seconds to confirm amendment and return.
HV: 1.05V—43.00V   LV: 1.00V—42.95V   △P: 0.05—42.00V

3) **Monitor Safety Time Setting**: Select【Safety Timer】, press **<↵>** and the screen shows:

```
SAFETY TIMER
 Minutes(1-999)
       120
```
Safety Time
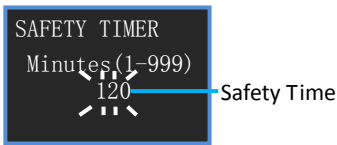
<▲> or <▼> to increase/decrease, press **<↵>** to confirm amendment and return. Press**<↵>** for 3 seconds to cancel amendment and return. Setting range: 1－999 minutes

4) **Alarm Trigger Settings**: Select【Alarm Trigger】, press **<↵>** and the screen shows:

```
ALARM TRIGGER
☑Over Voltag
☑Low Voltage
☑Difference
☑Time Over
```
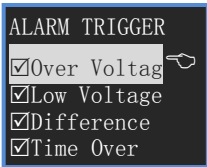
<▲> or <▼> to select items, press **<↵ >** to shift select ☑/□, press**<↵>** for 3 seconds to confirm amendment and return.

Select【Over Voltage】Cell or pack voltage are over HV setting value, then it alarms.

Select【Low Voltage】Cell or pack voltage are lower LV setting value, then it alarms.

Select【Difference】Cell voltage is over △V or the pack voltage difference is over △P setting value, then it alarms.

Select【Time Over】 entering HOLD status time is over setting safety time ,then it alarms.

Parameter Setup

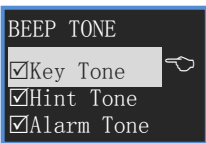Press **<↳>** for 3 seconds, and enter to the **MAIN MENU**, Monitor status.

```
MAIN MENU
System...      ☞
Calibration
```
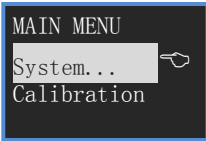
System Settings: Select【System…】, press **<↳>**, the screen shows:

```
SYSTEM SETTING
Beep Tone      ☞
LCD Screen
ALM Output
```
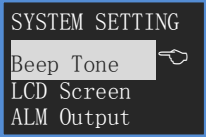
<▲> or <▼> to select items, press **<↳>** to have a select item, press **<↳>** for more than 3 seconds to return.
See details below.

1) **Beep Tone Settings**: Select【Beep Tone】, press **<↳>**, the screen shows:

```
BEEP TONE
☑Key Tone     ☞
☑Hint Tone
☑Alarm Tone
```

<▲> or <▼> to select the items, and press **<↳>** to shift select ☑/□, press **<↳>** for 3 seconds to confirm the amendment and then return.
Select【Key Tone】,the buttons tone open.
Select【Hint Tone】,the status tone open.
Select【Alarm Tone】,the alarm tone open. （"Do" every 4 seconds）

2) **LCD Brightness & Contrast Setting** : Select【LCD Screen】, press **<↳>**, the screen shows:

```
   Brightness
- ▮▮▮▮▮▮    +
   Contrast
- ▮▮▮▮▮▮    +
```
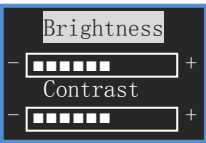
<▲> increase, **<▼>** decrease, and press **<↳ >** to shift Brightness/Contrast, press **<↳ >** for 3 seconds to confirm the amendment and then return.

3) **Alarm Output Signal Type Setting**:【ALARM Output】

```
ALARM OUTPUT
⊙NO.          ☞
○NC.
```
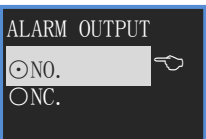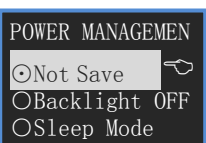
【NO.】: Always On. Two output of ALM, it's open when there is no alarm; It' short circuit with alarm.
【NC.】: Always Close. Two output of ALM, it's short circuit when there is no alarm; It's open with alarm.

4) **Start-up Setting**:【Start…】
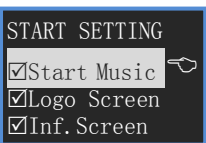
```
START SETTING
☑Start Music  ☞
☑Logo Screen
☑Inf.Screen
```

<▲> or <▼> to select the items, and press **<↳>** to shift select ☑/□, press **<↳>** for 3 seconds to confirm the amendment and then return.
Select【Start Music】, there will be a start music if you turn on
Select【Logo Screen】, it will display Logo Screen if you turn on
Select【Inf. Screen】, it will display Information Screen if you turn on

5) **Power management Setting**:【Power management】

```
POWER MANAGEMEN
⊙Not Save      ☞
○Backlight OFF
○Sleep Mode
```
<↳>
```
SAVE TIME SET
 Minutes(1-240)
    005        — Save Time Set
```

The item with ⊙ is the current setting.
【Not Save】, power save function turns off
【Backlight OFF】, turns off LCD backlight
【Sleep Mode】, turns off LCD backlight & MCU enters to Sleep Mode
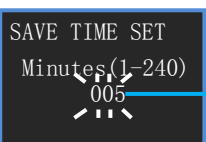
Press **<↳>** to【Save Time Set】
No operation in setting time, the system will enter to the selected Power Save Mode automatically. Press any key to normal Mode.

Calibration Settings: Select【Calibration】, and press <↵>, the screen shows:

```
CALIBRATION
⊙Default
○User Setting
```
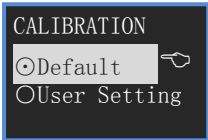
【Default】: Calibration Default.
【User Setting】: See details in P13

User Calibration

The **CellLog 8M** has been calibrated before entering to the markets, but if the users find that there is too much deviation, and then they can calibrate it as the following items:

Before calibration, you need prepare:
● 8s battery pack (the individual voltage ranges from 3.8-4.2V)

● $4\frac{1}{2}$ Digital Multimeter

Calibrating steps:

1. Connect pack balance port to **CellLog 8M** to confirm there are 8 cell voltage display.

2. Press <MENU> for 3 seconds to enter *Main Menu*--【Calibration】-> *CALIBRATION*--【User Setting】,then it shows:

```
14.012V  24.032V
34.018V  44.015V
54.022V  64.017V
74.002V  84.019V
```
,
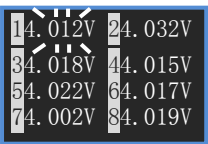
3. The current need-to-be calibrated voltage begins to blink（shows the voltage and calibrated value alternatively）, and use multimeter to measure the individual voltage corresponding to the blinking voltage. If the displayed value is more than the measured value, please press <▼> to decrease the displayed value to the measured value; vice versa, please press <▲> to increase the displayed value to the measured value. Press <↵> and shift to the next voltage calibration. In this way to get 8 sets voltage calibration.

4. Press <▲> and <▼> for 3 seconds to save the amendment and exit; Press <↵> for 3 seconds, it will cancel the amendment and exit.

5. The above is only for 8S individual cell measurement calibration, the methods are same for CellLog 8M measure port 1, 2 to measure pack voltage calibration.
Connect 1, 2 to the battery pack's negative and positive pole respectively, then follow the **Step** 2, 3, 4.

```
132.12V  2------
3------   4------
5------   6------
7------   8------
```
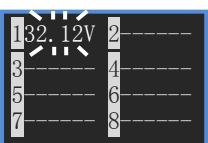
Note:
● **If the user calibrates it in a wrong way, which damage the battery or cause other serious danger, our company will be of no responsibility.**
● **The users' calibrated value will not affect the calibrated before entering to the market. It can be selected by CALIBRATION--【User Setting】or【Default】.**