

CL919 Battery Fuel Gauge User Manual

Dongguan Leyi Intelligent Technology Co., Ltd.

1. Warning

- The product must be installed and wired correctly, otherwise it will not work properly.
- Do initial settings following the instruction, otherwise the capacity and SoC (Stage of Charge) of the battery fuel gauge will not be displayed properly.
- The battery fuel gauge needs to be used in conjunction with a shunt sampler, and shunts of different specifications are forbidden to be mixed with the gauge.
- The current level of CL919's Shunt is 100A, which withstands current no more than 100A. Otherwise it will lead to accidents and safety hazards.



2. Package Contents

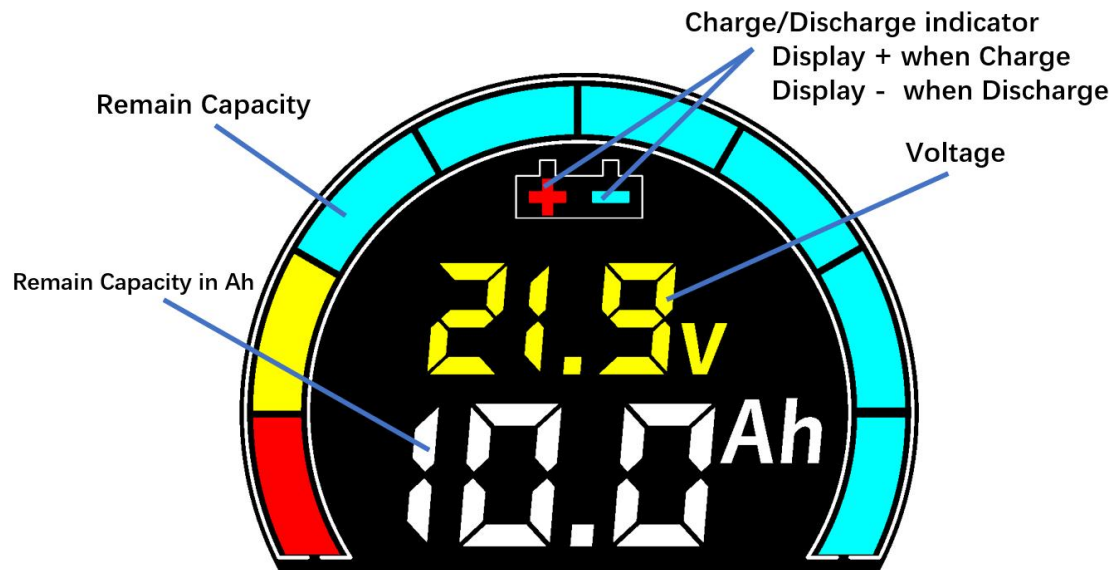
Inside Package		
Content	Quantity	Specification
Gauge	1	Shielded wire length 9.84 feet
User manual	1	
Shunt	1	100A
Voltage sampling wire	1	Wire length 9.84 feet
Bracket	1	
Nut	1	

3. Abbreviation

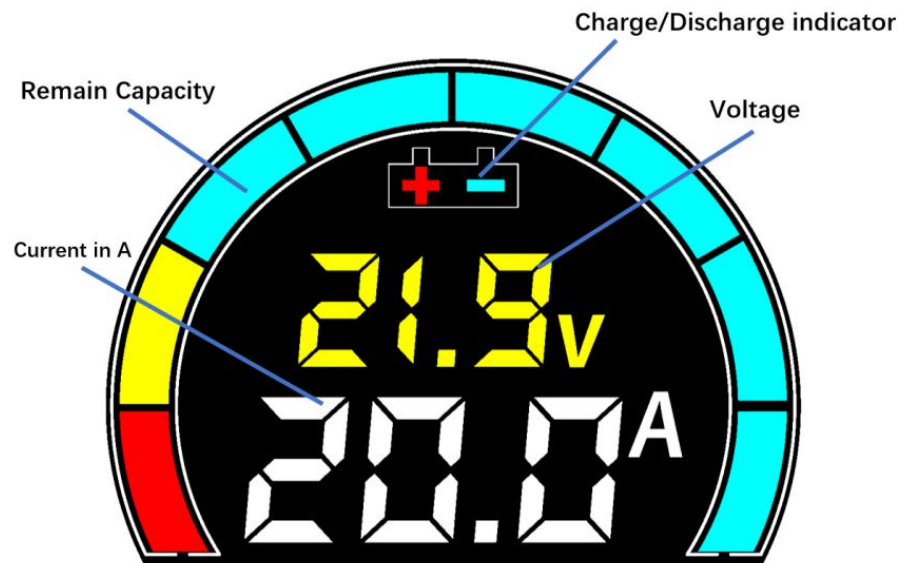
SoC	State of Charge
B+	Battery +
B-	Battery -
P+	Load +
P-	Load -

4. Product display Diagram (main page)

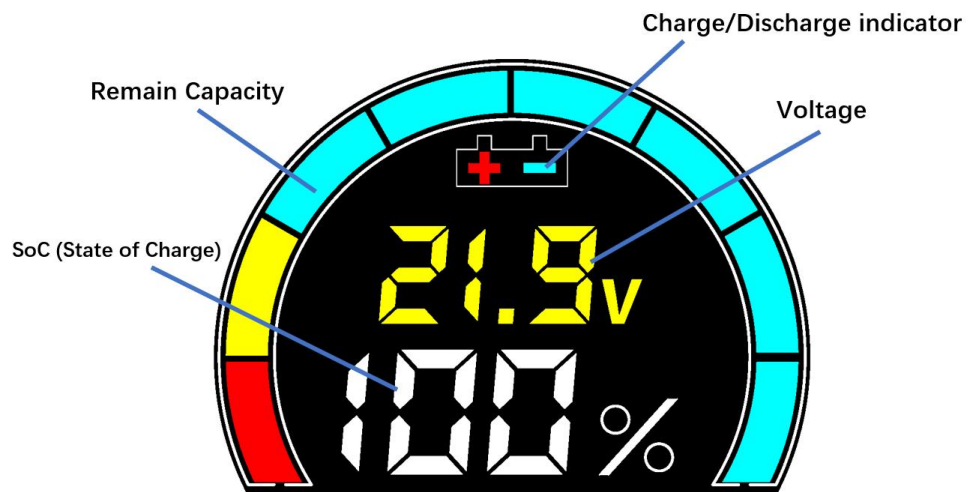
4.1 Ah display Page



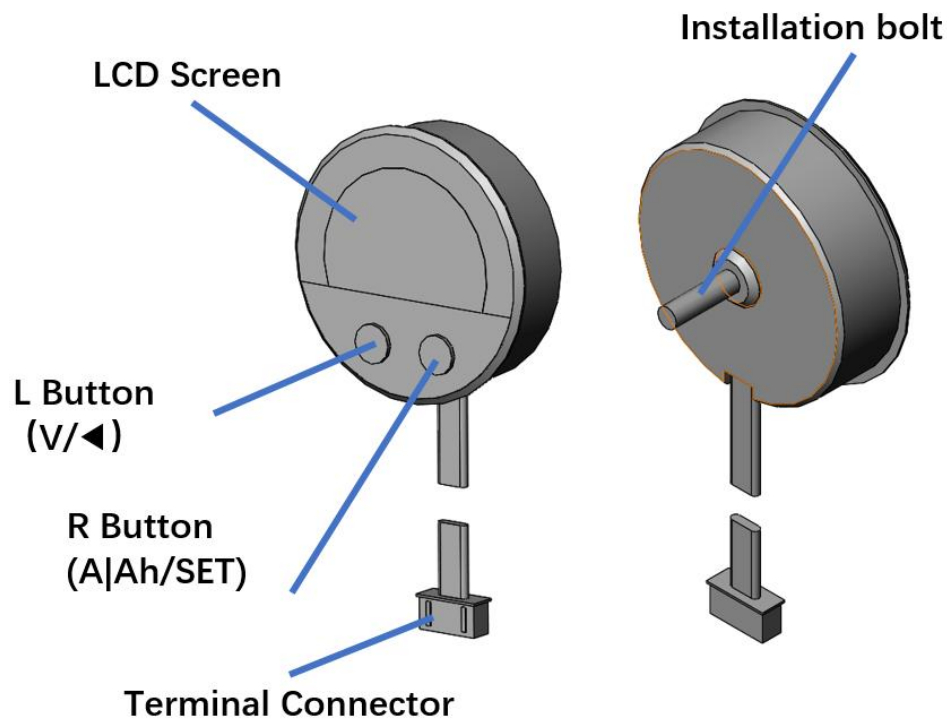
4.2 Current display Page



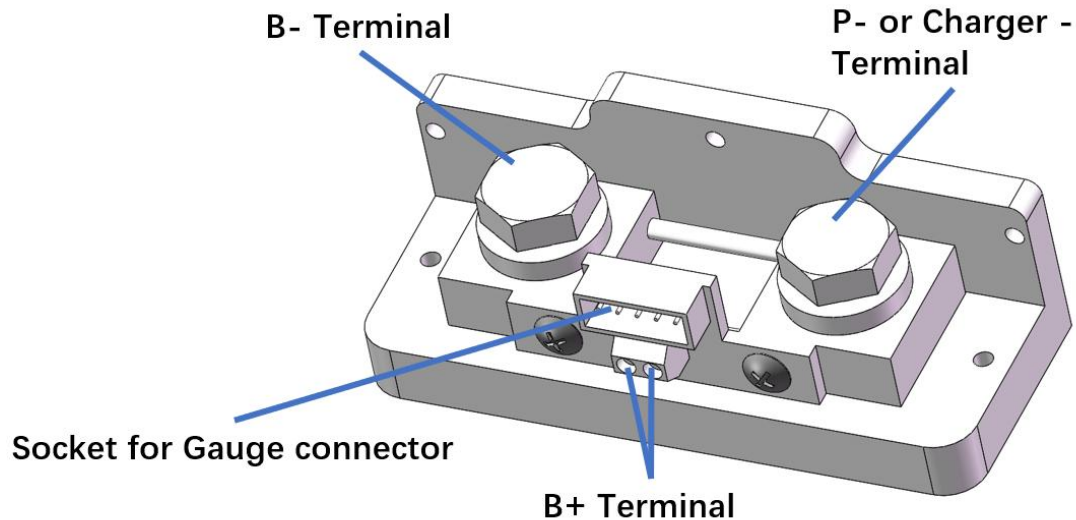
4.3 SoC display Page



5. Product Function Diagram



Gauge Schematic Diagram



Shunt Schematic Diagram

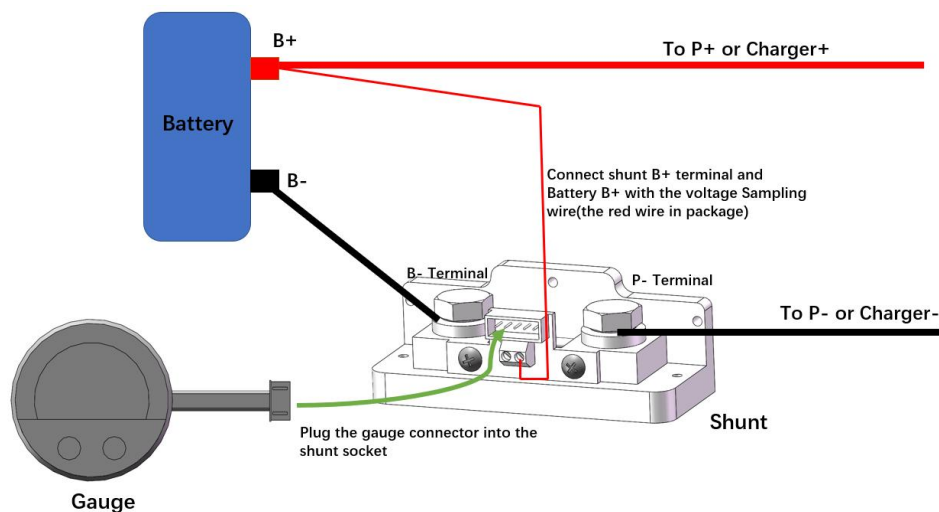
6. Product Wiring

Safety Precautions for Wiring

- Disconnect the battery circuit before wiring.
- The shunt sampler is a heat-generating component, and it must be installed in a well-ventilated area. It is strictly forbidden to wrap or cover it. When using it for a long time at maximum current, please ensure proper heat dissipation.
- Keep the shunt dry and avoid getting it wet or submerged in water to prevent short circuits.
- Ensure that the shunt is connected in series to the circuit negative side, and strictly prohibit connecting it to the circuit positive side.
- The power cord must be matched to the current level. The appendix lists the correspondence between power cord and relative maximum current.
- Consider using cable lugs for wiring, select cable lugs based on the used power cord.



6.1 Product Wiring Instruction



Step 1. Split the negative side power cord of battery supply to connect a shunt.

Step 2. As shown by the “**Black Wiring**” in the graph, connect the battery B- to the shunt B- terminal. (Please refer to Appendix to prepare a suitable power cord)

Step 3. Connect the shunt P- terminal to the negative terminal P- of the load. (Please refer to Appendix to prepare a suitable power cord)

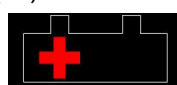
Step 4. As shown by the “**Red Wiring (thin line)**” in the graph, Use the red voltage sampling wire included in the package to connect the shunt B+ to the battery B+.

Step 5. As shown by the “**Green Wiring**” in the graph, insert the connector of battery gauge into the socket of the shunt.

Step 6. Connect Battery B+ to load P+ and conduct a power-on check.

6.2 Wiring Check

- When there is no charging or load, the current should be 0A, and the battery voltage should be displayed.
- If there is no display, disconnect the power and check whether the wiring is correct (especially the voltage sampling wire between B+ and shunt B+ terminal).
- Charge or discharge the battery to check if the current display value is correct. If not, check to confirm whether all charging and discharging currents are flowing through the shunt (the shunt is connected in series with the negative side of the main circuit).
- When charging the battery, the charge/discharge indicator should display (+). When discharging the battery, the battery symbol should display (-). If the symbols are reversed, please check whether the battery negative terminal (B-) and load/Charge negative(P-) are connected to the right terminal.



Charge State



Discharge State

7. Initial Setting

7.1 Battery Full Charge Capacity Setup

The full charge capacity needs to be setup first time using the battery fuel gauge

Setting Method:



1. **Hold the R Button** on the Ah page of the main screen (as shown in 4.1) to enter the settings page.

2. **Tap the R Button** once on the settings page to enter the battery design capacity setting (as shown in the figure), at which point the tens digit of the capacity value will blink.

3. **Hold the L Button** to switch to the units place, decimal point, and decimal places (when decimal points need to be set, the value digits will blink, but the decimal point will not).

4. When the digit that needs to be set is blinking, **Tap the L Button** to set the value for that digit.

5. After setting the value, **Hold the R Button** to confirm the parameter, exit the settings, and return to the main screen.

7.2 Battery Initial State Setting

After completing the battery full charge capacity (Ah) setting, it is necessary to make the displayed capacity correspond to the actual capacity of the battery. There are two methods, you only need to choose one to setup the initial state of the battery capacity.

Setting Methods:

Method 1: Setting the Initial Capacity Status to Full Charge When the Battery is Fully Charged

1. Fully charge the battery and set the capacity status to full charge in this state.
2. Method to set the capacity status to full charge: **Hold the R Button** on the current display page (as shown in 4.2) to set the battery fuel gauge display capacity to full capacity, with SoC at 100%.

Method 2: Setting the Initial Capacity Status to 0 When the Battery is Fully Discharged

1. Fully discharge the battery and set the capacity status to 0 in this state.
2. Method to set the capacity status to 0: **Hold the R Button** on the SoC page (as shown in 4.3) to set the battery fuel gauge display capacity to 0Ah, with SoC at 0%.

8. Description of Other Functions

8.1 Power-Off Memory

After power-off, the battery fuel gauge will memorize the capacity and settings.

8.2 Low Power Mode

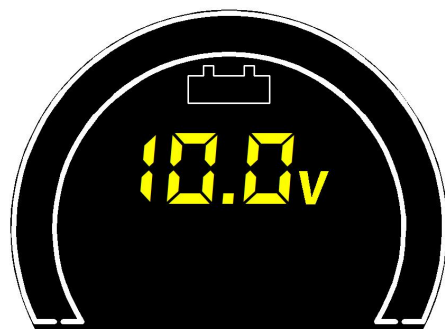
When there is neither charging nor discharging (current is 0), the battery fuel gauge will enter low-power mode within 15 seconds, turning off the screen. The gauge can be re-activated by **Tap the R Button**.

*****Optional Function: Following functions are not mandatory, only need to be set when necessary, and not setting them will not affect normal use.**

8.3 Low Voltage Warning

The battery fuel gauge can setup a low power warning voltage, when the battery voltage is lower than this value, the displayed voltage value will blink.

Setting Method:



1. **Hold the R Button** on the main Ah page (as shown in 4.1) to enter the settings page.

2. **Tap the R Button** twice on the settings page to enter the alarm voltage setting (as shown in the figure), at which point the tens digit of the voltage value will blink.

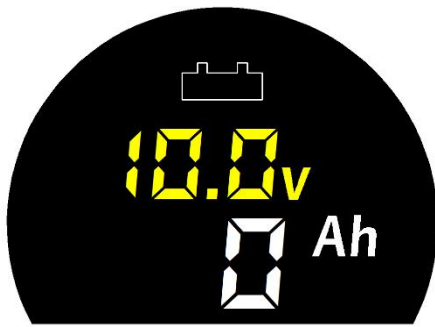
3. **Hold the L Button** to switch to the units place and decimal places.

4. When the digit that needs to be set is blinking, **Tap the L Button** to set the value for that digit.

5. After setting the value, **Hold the R Button** to confirm the parameter, exit the settings, and return to the main page.

8.4 Force Capacity to Zero Voltage

In certain usage scenarios, if the voltage falls below a certain threshold, it is necessary to set the capacity display to 0. The battery gauge supports setting a forced zero voltage. If the battery voltage drops below this designated value, both the capacity (Ah) and SoC displayed by the battery gauge will be 0.

Setting Method :

1. On the main Ah page (as shown in 4.1), **Hold the R Button** to enter the settings page.

2. On the settings page, **Tap the R Button** for three times to enter the forced zero voltage setting (as shown in the figure), at which point the tens digit of the voltage value will blink.

3. **Hold the L Button** to switch to the units place

and decimal places.

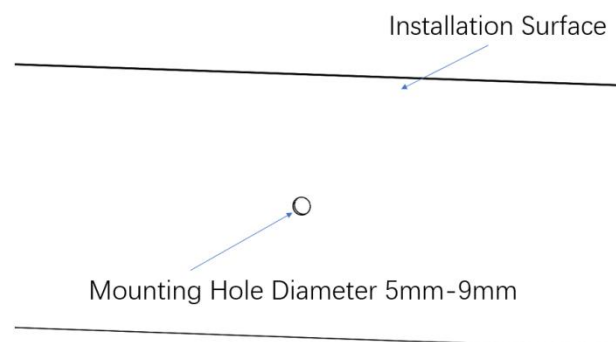
4. When the digit that needs to be set is blinking, **Tap the L Button** to set the value for that digit.

5. After setting the value, **Hold the R Button** to confirm the parameter, exit the settings, and return to the main page.

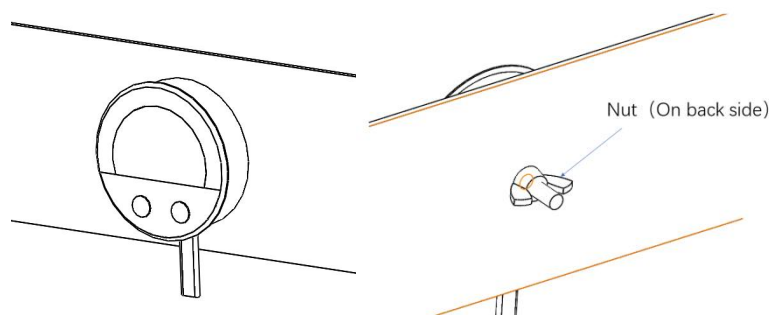
9. Gauge Installation Guide

Direct Installation

1. Drill a hole with diameter of 5-9mm on your panel board or other flat surface you plan to install your battery fuel gauge.



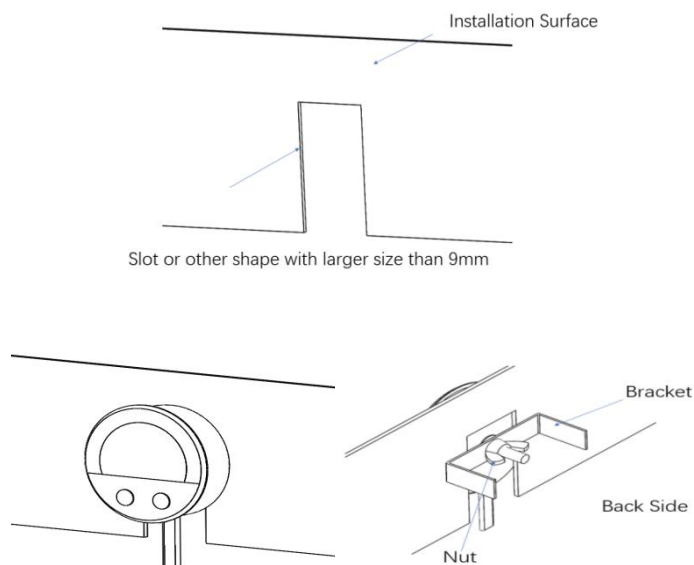
2. Use the nut attached in the package to lock your battery fuel gauge on the installation surface



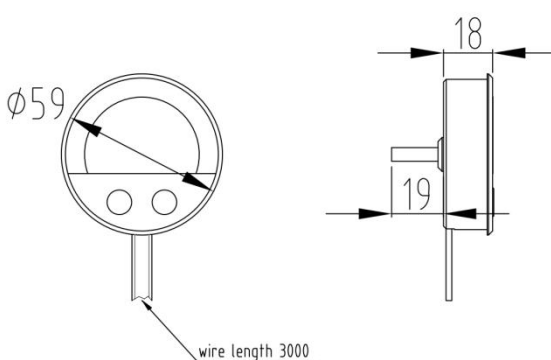
Install Using Nut and Bracket

If you plan to install the battery fuel gauge in your panel board with a slot or a hole with

larger size than 9mm, you could use bracket and nut attached in the package to lock your battery fuel gauge on the installation surface.



10.Parameter Table

Parameters	Value
Sizes	 Units: mm
Model No.	5919
Voltage range	9.5-100V
Current range	0-100A
Operating temperature range	-20℃-60℃ / -4°F - 140°F
Self-consumption (working mode)	≤15mA
Self-consumption (low power mode)	≤1mA
Voltage measurement accuracy	±1%
Current measurement accuracy	±3% when Current < 10A ±1% when Current > 10A
Capacity measurement accuracy	±3% when Current < 10A ±1% when Current > 10A

Appendix-Power Cord and Relative Current Value

label	Outer Diameter		Cross-sectional area	Resistance	Nominal Current	Max Current
AWG	mm	inch	(mm ²)	(W/km)	(A)	(A)
3	5.83	0.2294	26.67	0.66	105.249	120.013
4	5.19	0.2043	21.15	0.84	83.477	95.187
5	4.62	0.1819	16.77	1.06	66.175	75.458
6	4.11	0.162	13.3	1.33	52.488	59.851
7	3.67	0.1443	10.55	1.68	41.645	47.487
8	3.26	0.1285	8.37	2.11	33.025	37.657
9	2.91	0.1144	6.63	2.67	26.175	29.846
10	2.59	0.1019	5.26	3.36	20.767	23.68
11	2.3	0.0907	4.17	4.24	16.453	18.761
12	2.05	0.0808	3.332	5.31	13.057	14.889
13	1.82	0.072	2.627	6.69	10.368	11.822
14	1.63	0.0641	2.075	8.45	8.218	9.37
15	1.45	0.0571	1.646	10.6	6.521	7.436
16	1.29	0.0508	1.318	13.5	5.161	5.885
17	1.15	0.0453	1.026	16.3	4.104	4.68
18	1.02	0.0403	0.8107	21.4	3.248	3.704
19	0.912	0.0359	0.5667	26.9	2.578	2.939
20	0.813	0.032	0.5189	33.9	2.048	2.335

Technical Support:

Please mail to support@hofeinz.com or contact us via Amazon for technical support.

Video Guide:

Please visit <https://www.youtube.com/@HofeinzRetro> for setting guide.

