

**Bluetooth**  
**Optical Power Meter**

**Specification**  
**&**  
**User Manual**

2019 VER C

## 1.1 Description:

The Liverage's Bluetooth Power Meter is mainly used for checking the signal output power of the optical communication equipment in fiber optic networks. It measures the average power of a continuous light beam which is emitted from the equipment or other optic sources. It measures power in 850 nm (Multimode) and 1310 nm / 1550 nm (Singlemode) respectively.

The Power Meter consists of a solid state InGaAs photo diode, signal power measurement circuitry, and a 3 Digits LED display. Users just connect a fiber cable between the transmission port of the equipment and the universal interface on the Fiber Meter or connect to other light source. The product will show the exact amount of the received power (in dBm).

The universal connector can be used for all the most common fiber interfaces such as ST / SC / FC and it is suitable to test both Singlemode and Multimode cables. With an optical 2.5 mm to 1.25 mm adapter, users can even test for 1.25 mm fiber interface.

Download the Liverage official Power Meter APP , and get the IOS support version  $\geq 9.0$ , or [Android support version  $\geq 5.0$ ] mobile phone with Bluetooth could allow consumer to display the function of the Power Meter APP.

Power Meter App functions: Reference function 、 switch measurement data for dBm/mW 、 save testing results and upload to Cloud 、 battery of Power Meter.

## 1.2 Features:

- Robust, handy design with LED digital readout.
- Easy to check Multimode 850 nm output power.
- Easy to check Singlemode 1310 nm / 1550 nm output power.
- Universal 2.5 mm to 1.25 mm adaptor for SC / ST / FC to LC or MU
- 3 Digits resolution and Low Voltage Battery warning LED display.
- Measuring power in Multimode 3 Digits 850 nm within -50 dBm ~ +5 dBm ranges.
- Measuring power in Singlemode 3 Digits 1310 nm / 1550 nm within -60 dBm ~ +5 dBm ranges.
- Support APP connection with Bluetooth.

The cross reference of power in dBm and  $\mu$ W can be seen in the following table:

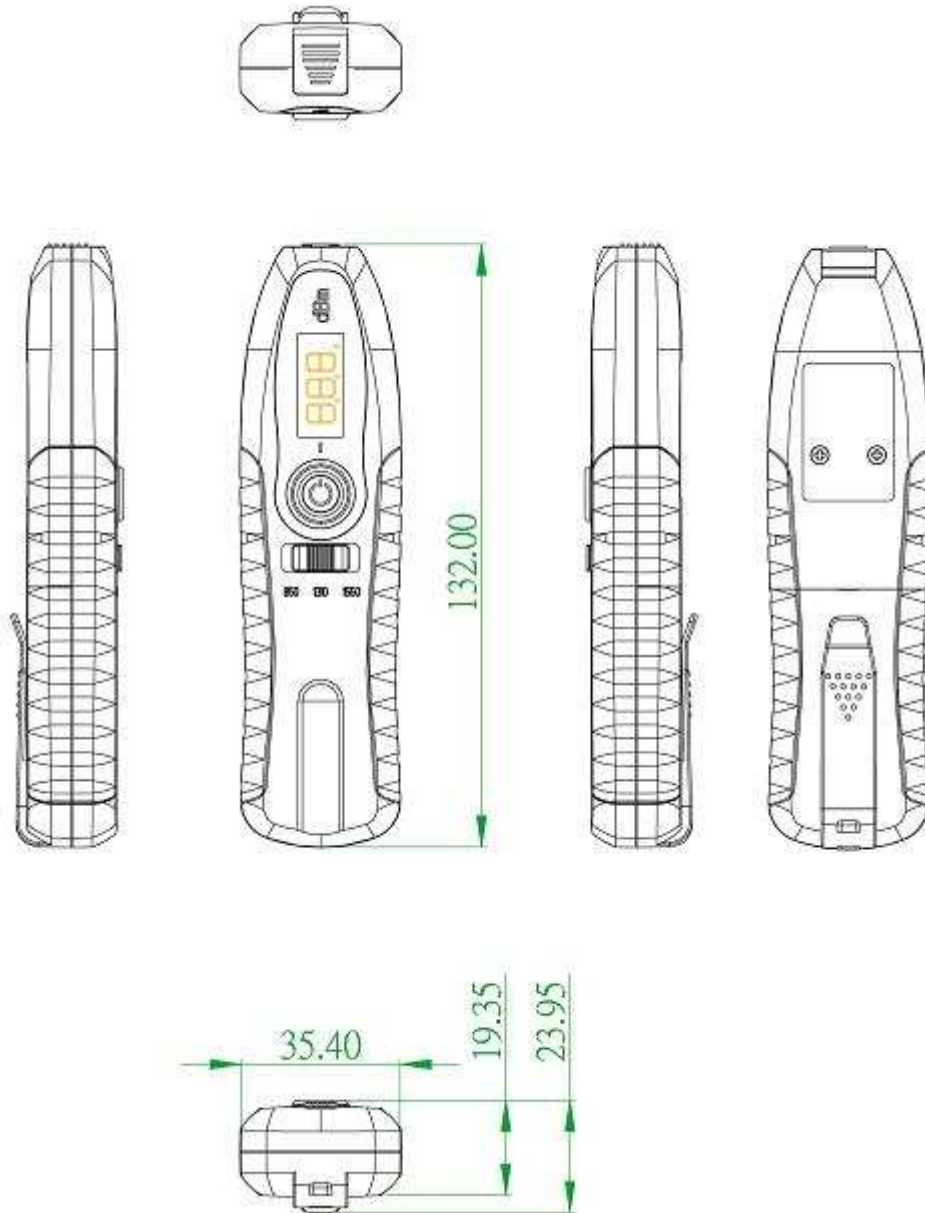
dBm	$\mu$ W	dBm	$\mu$ W	dBm	$\mu$ W	dBm	$\mu$ W
		-30	1.0	-18	15.8	-6	251
		-29	1.3	-17	19.9	-5	316
-40	0.1	-28	1.6	-16	25.1	-4	398
-39	0.126	-27	2.0	-15	31.6	-3	501
-38	0.158	-26	2.5	-14	39.8	-2	631
-37	0.199	-25	3.2	-13	50.1	-1	794
-36	0.251	-24	4.0	-12	63.0	0	1000
-35	0.316	-23	5.0	-11	79.4	+1	1259
-34	0.398	-22	6.3	-10	100	+2	1585
-33	0.501	-21	7.9	-9	125	+3	1995
-32	0.631	-20	10.0	-8	158	+4	2512
-31	0.794	-19	12.5	-7	199	+5	3162

## 2. Specification

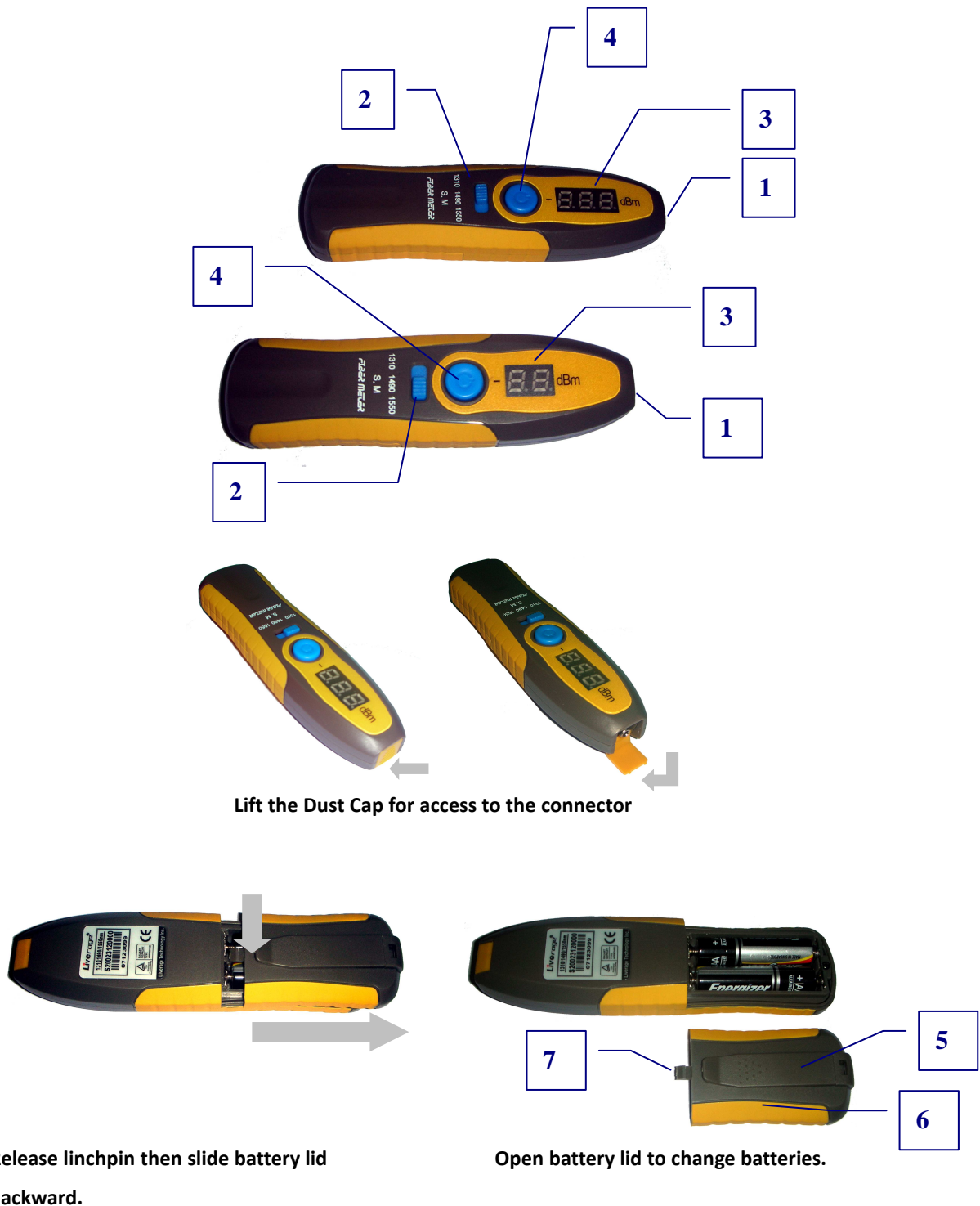
<b>Wavelength</b>	<b>( Multimode)</b>	<b>850 nm</b>
<b>Optical Power Range</b>	<b>( Multimode)</b>	<b>-50 dBm ~ +5 dBm</b>
<b>Accuracy</b>		<b><math>\leq \pm 0.5</math> dBm</b>
<b>Wavelength</b>	<b>( Singlemode)</b>	<b>1310 nm / 1550 nm</b>
<b>Optical Power Range</b>	<b>( Singlemode)</b>	<b>-60 dBm ~ +5 dBm</b>
<b>Accuracy</b>		<b><math>\leq \pm 0.3</math> dBm</b>
<b>Batteries</b>		<b>2 x AAA [1.5V]</b>
<b>Resolution</b>		<b>0.1 dB</b>
<b>Fiber Connector</b>		<b>Universal Type (Diameter: 2.5mm)</b>
<b>Display</b>		<b>3 digits LED</b>
<b>Operating Temp.</b>		<b>0°C ~ 50°C</b>
<b>Storage Temp.</b>		<b>0°C ~ 70°C</b>
<b>Weight</b>		<b>0.06 Kg</b>

Dimension	132 * 32 * 19 mm
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**Dimension ( in mm )**

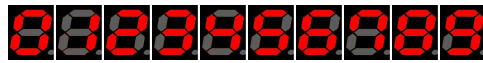


## 3. Operating Instructions



### 1. Dust Cap: to prevent dirt contaminating the PD

2. **Switch:** Modify wavelength by sliding the switch.
3. **LED:** Figures show various readings you may encounter.



0 1 2 3 4 5 6 7 8 9



CA      Cb      Low      -4.0 dBm      +3.0 dBm      High

4. **Button:** press to Turn On / Turn Off the Meter.
  5. **Pen Clip:** to fasten the tool while inside your pocket.
  6. **Battery Lid:** open to change batteries.
  7. **Linchpin:** locks the battery lid.
1. The Power Meter is powered by two 1.5v AAA batteries.
  2. **INITIAL CALIBRATION:** Keep the Dust Cap closed and then turn on the Power Meter by pressing the Button. The LED will show "CA" which means the Initial Calibration is proceeding. After 3 seconds the LED display will show "Lo" which means the Power Meter has completed the Initial Calibration successfully and can now be operated.
  3. Lift the front Dust Cap up and insert one end of the fiber cable into the universal connector or directly insert it into an output connector of a fiber device.
  4. Switch the slide switch to 850 nm position (for measuring Multimode fiber) or to 1310 nm / 1550 nm position (for measuring Singlemode fiber). The LED figure shows the actual receiving input power values.
  5. "Lo" will be displayed when the actual power received is under measuring range. When the input power is higher than the measuring range, "Hi" is displayed on the LED indicator.
  6. To measure the power loss of a fiber cable, you need a steady power source. For example, the light source output power is -20 dBm after a fiber cable transmission and the -10 dBm is read directly from the LD power source. This means there is at least a 10 dB power loss after the fiber transmission.
  7. When the LED shows "Cb"(Check Battery), it means that the batteries are almost drained and in a low voltage state. You need to replace the batteries right away.
  8. Do not touch the fiber's interface in order to avoid dirt contaminating the connector.
  9. Keep the fiber connector capped at all times when the device is not in use.

10. If you use proper tools to clean the fiber before testing, you will obtain accurate test results and ensure longer device service.

## 4. Maintenance & Trouble Shootings

This tool requires no maintenance other than periodic battery changes. Like any piece of electronic equipment, this tool should be kept away from water, high dampness, dust, electricity, and environments of extreme temperature. Do not drop this tool on a hard surface. Modifying any of this tool's internal components can cause a malfunction and will invalidate the manufacturer's warranty.



"CA" means the Initial Calibration is proceeding,



"Cb" means to Check Battery. It is suggested to replace the batteries at that time.

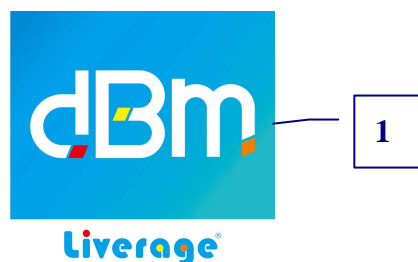


"Hi" means the input power is higher than the measurement range.

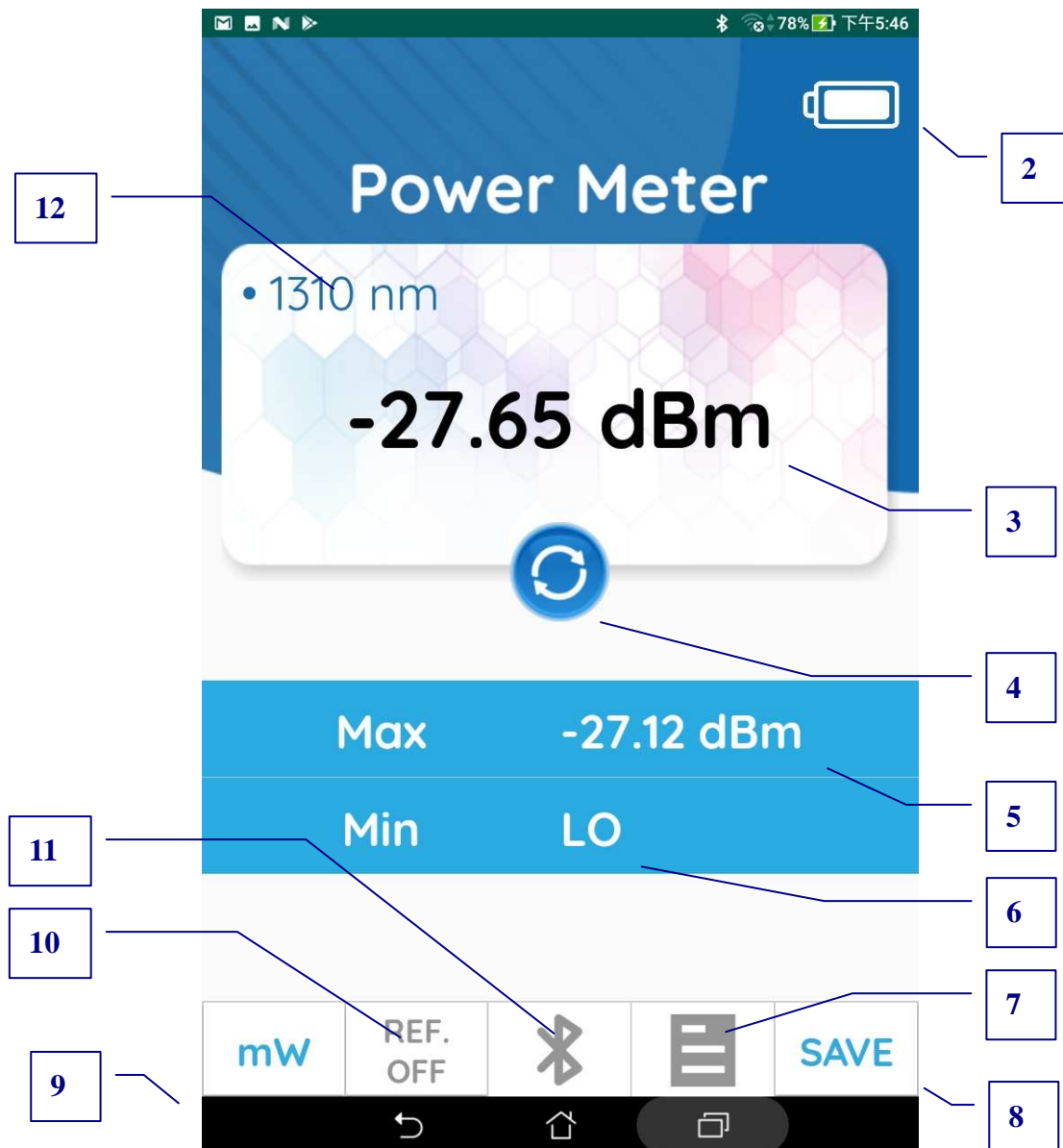


"Lo" means the received power is lower than the measurement range.

## 5. APP ICON & Interface

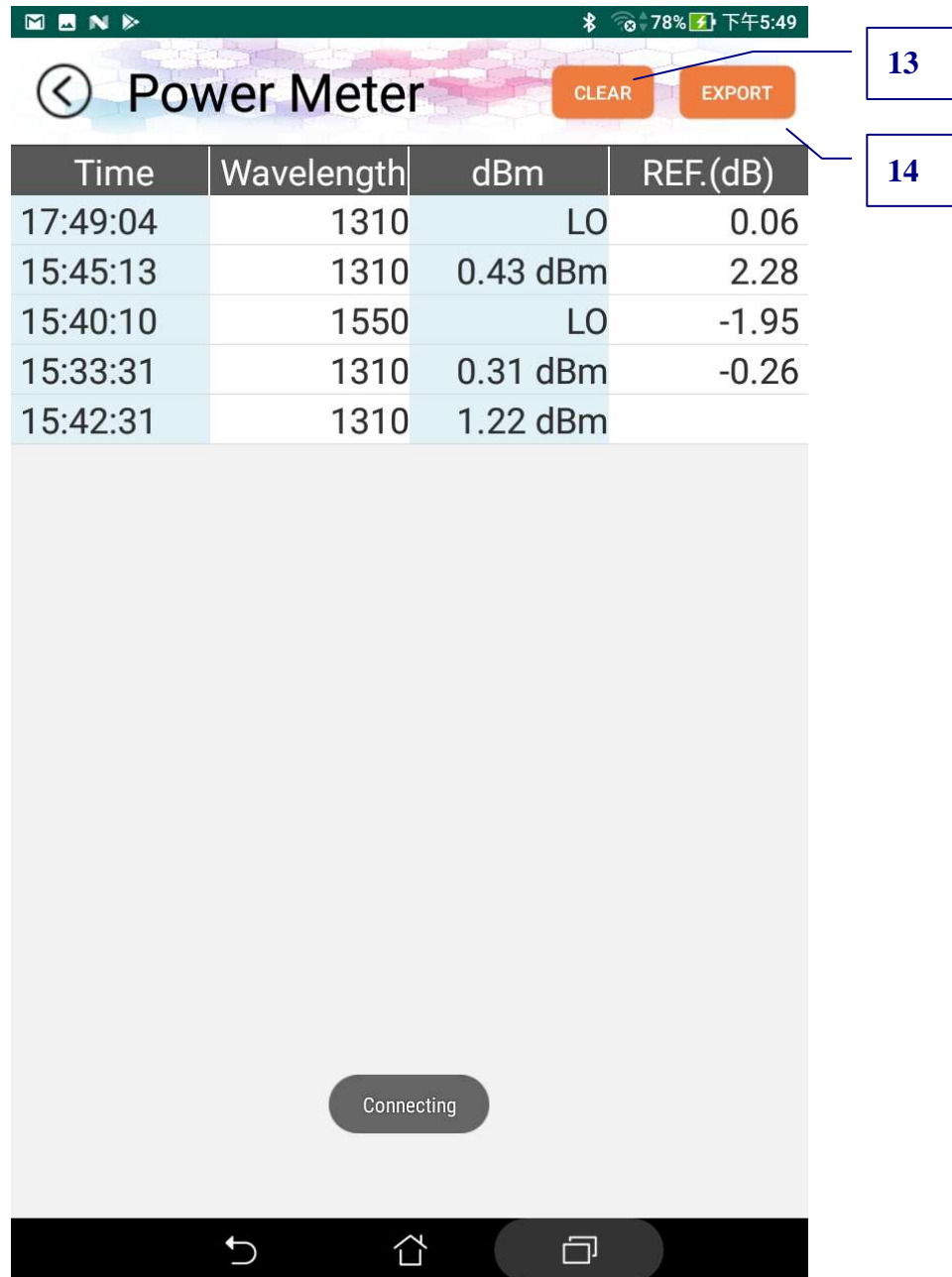


1. Power Meter APP ICON.



2. Battery of Power Meter.
3. Current optical power testing data result.
4. Refresh the current maximum and minimum optical power.
5. Maximum of optical power.
6. Minimum of optical power.
7. Show the saving testing data result.
8. Save data.
9. Switch the units with dBm or mW.
10. Reference function (For Insertion Loss testing data).
11. Search Bluetooth device of the Power Meter.
12. The wavelength of the current Power Meter.





13. Remove data.

14. Output data to the cloud.

## 6. Warranty

The manufacturer warrants this product to be free of defects in workmanship and materials for a period of 1 year after purchase. This warranty (excluding batteries) is solely limited to the repair and replacement of original parts, which are defective in workmanship or materials. All other costs are the sole responsibility of the owner. This warranty does not cover any defects, damage, or deterioration due to misuse, alteration, or negligence.

## 7. Ordering Information:

Part Number	Product Type	Wavelength ( nm )	Range ( dBm )
S2002312-A	3 Digits SM	1310nm / 1490nm / 1550nm	+5 dBm ~ -60 dBm
S2002333-A	3 Digits SM & MM	850nm / 1310nm / 1550nm	+5 dBm ~ -50 dBm (MM) +5 dBm ~ -60 dBm (SM)
S200412	LC adapter		
S200422	MU adapter		

## 8. Service Contact

Please contact us :

**Liverage Technology Inc.**  
3F-5, No. 30 Taiyuan Street,  
Chupei City, Hsinchu County 302,  
Taiwan

TEL: +886-3-5525268

FAX: +886-3-5525388

e-mail: [sales@liverage.com.tw](mailto:sales@liverage.com.tw)

<http://www.liverage.com.tw>