

# Smart Beauty instrument

## MD-CTWL

### Users Manual

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# 1. Introduction

MD-CTWL is a high-end smart backup battery designed for mobile digital product. It could also test skin moisture and body temperature. With Android and iOS APP, smart phone receive the result of the test through Wi-Fi and save it. Charging circuit adopts Power Management ASIC and the output end adopts High Efficiency DC-DC Boost Converter. The circuit design support Over Charging Voltage Protection, Over Discharging Voltage Protection and Output Over-voltage Protection. This product has following features.

- (1) Multiple Protection
- (2) High Power Efficiency
- (3) Standard Micro USB Interface
- (4) Lightning & Micro Dual Output Interface
- (5) 4 High Brightness Blue LED Battery Indicators
- (6) Fashionable Design

## 2. Design and Structure

### 2. 1. Design and Layout



No.	Item	Material & Craft	Note
①	Body Temperature Test Button	PC+ABS/ Fruit Green painted, Silver Glitter (PT 396 C) + UV Dull(70%)	
②	Mid Frame	PC+ABS/ Fruit Green painted, Silver Glitter (PT 396 C) + UV Dull(70%)	
③	Power Button	PC+ABS/ Fruit Green painted, Silver Glitter (PT 396 C) + UV Dull(70%)	
④	Power Indicator	Transparent PC ( Blue transparent)	
⑤	Thermometer Decoration	ABS/ Champagne painted, High brightness vacuum plated ( Non-conductive)	
⑥	Battery Indicator	Transparent PC/ Texture haze 3 color transparent internal	
⑦	Up Case	PC+ABS/ White painted ( Apple white) +High Brightness UV	
⑧	USB Cable	PVC/ (65 Hardness) Fruit green painted (PT 396 C) PU Dull (50%)	
⑨	Moisture Detector	Stainless Steel/ Cr plated	
⑩	Charging Interface	Standard Micro USB	

<input type="checkbox"/>	Bottom Case	PC+ABS/ White Painted (Apple white) +High Brightness UV	
<input type="checkbox"/>	Bottom Case Decoration	Aluminum Plate/ Silver texture,Laser carved Characters (PT Warm Gray 8 C)	

## 3. Functions

### 3. 1. Power Bank

With universal Micro USB Interface as connector, Power Bank could be charged by adapter or PC. When charging, the quantity of LED turned on indicate the state of charge. All 4 LED are on when it is fully charged. The whole charging process generally lasts for 3-5 hours. Charging voltage is 5.0V and charging current is 1.5A.

When Charging smart phone with this product, connect the phone to it with USB cable. The 4 LED indicates the charging status, the quantity of lightened LED indicates the capacity left. Discharging voltage is 5V and discharging current is 1.0A. Conversion efficiency  $\geq 85\%$

### 3. 2. Body Thermometer

This product adopts high accuracy intelligent Bluetooth IR thermometer module. It receives IR signal from human body passively to measure body temperature. There is no radiant damage to human body. The deviation between 32°C to 42°C is  $\pm 0.3^\circ\text{C}$ . And the deviation between 36°C to 39°C is  $\pm 0.2^\circ\text{C}$ .

Keep pressing test button for 3s to finish the test. Easy to operate. This is fast and stable compared with conventional thermometer. The system could automatically judge and display if the result is *Normal*, *Low Fever* or *High Fever*. So the user could know the result immediately.

### 3. 3. Skin Moisture Tester

This product is able to test skin moisture, supports Bluetooth 4.0 data

transmission. The data is saved in real-time by APP for review, comparison and analysis. Let users know the skin status easily.

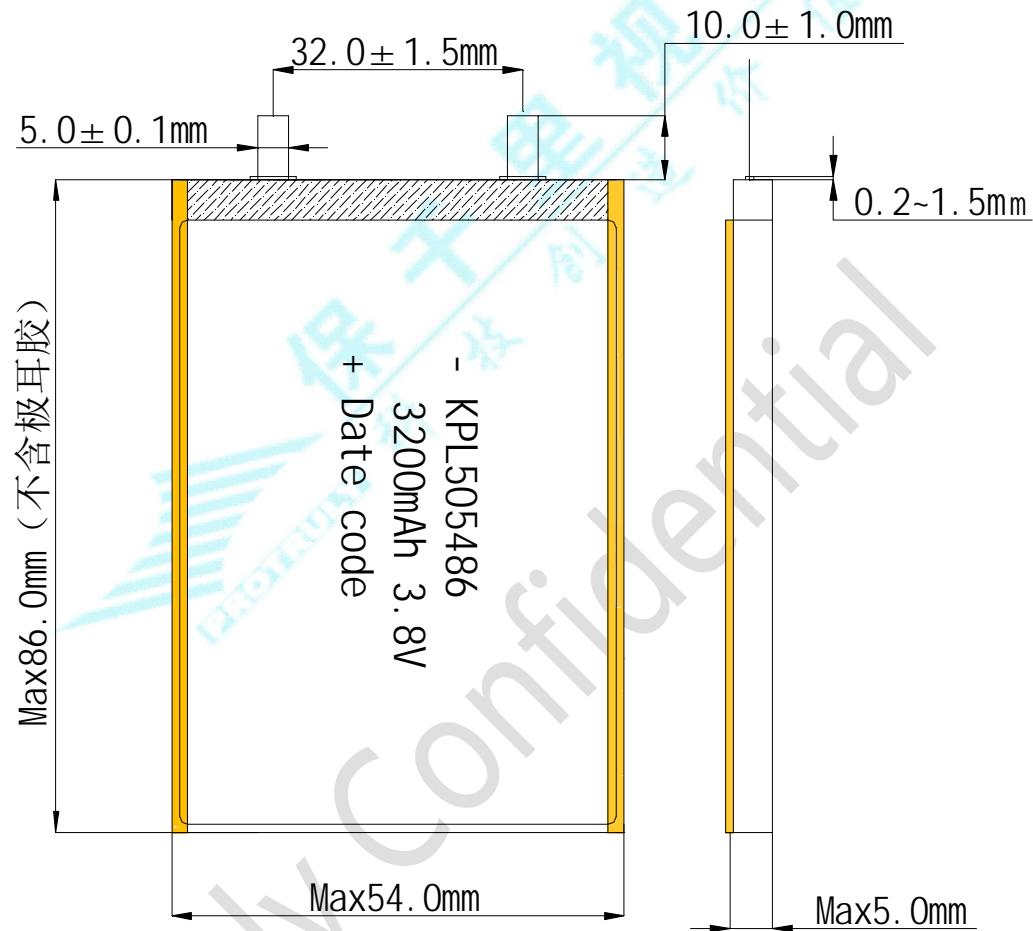
## 4. Cell Specification

### 4. 1. Cell performance

No.	Item	Rated Performance		Remark
1	Rated Capacity	Typical	3200mAh	Discharge at 0.2C after standard charge fully.
		Minimum	3150mAh	
2	Nominal Voltage	3.8V		Mean operation voltage during standard discharge.
3	Voltage at end of Discharge	3.0V		Discharge cut-off voltage.
4	Charging Voltage	4.35±0.05V		
5	AC (1KHz) Impedance New Cell Max.(mΩ)	≤50mΩ		
6	Standard Charge	Constant Current 0.2C Constant Voltage 4.35V 0.01C cut-off	Charge time : Approx 6.5h.	
7	Standard Discharge	Constant current 0.2C end voltage 3.0V		
8	Fast Continuous Charge	Constant Current 0.5C Constant Voltage 4.35V 0.01C cut-off		
9	Fast Continuous Discharge	Constant current 1.0C end voltage 3.0V		
10	Maximum Charge Current	1.0C		23±2°C is recommend Operation Temperature, 60±25%RH Bare Cell.
11	Maximum Discharge Current	1.0C		23±2°C is recommend Operation Temperature, 60±25%RH Bare Cell.
12	Operation Temperature Range	Charge:5~45°C		0.2C 5~15°C Max to 4.35V
				1.0C 16~35°C Max to 4.35V

			36~45 °C Max to 4.35V	0.2C
		Discharge: -20~60 °C	23± 2 °C is recommend Operation Temperature, 60±25%RH Bare Cell	
13	Storage Temperature Range	Less than 1 year: -20~25 °C	23± 2 °C is recommend Operation Temperature, 60±25%RH Bare Cell	
		Less than 3 months: -20~40 °C		
14	Storage Humidity Range	60±25%RH.		
15	Product Dimension	Length : Max86.0mm	Initial dimension	
		width: Max54.0mm		
		Thickness: Max5.0mm		

## 4. 2. Cell size



## 5. Working & Storage Condition

No.	Item	Specification	Unit	Note
1	Working Temp.	-20~65	°C	15~35 Recommended
2	Storage Temp.	-5~35	°C	
3	Relative Humidity	75%	RH	
4	Cooling	Natural Cooling		

## 6. FCC Regulatory Compliance

### FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Modifications not authorized by the manufacturer may void the user's authority to operate this device. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.