

# JT-UM120

JOY-it





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# 1. PRODUCT DESCRIPTION

The JT-UM120 is the digital all-round multimeter. USB ports often differ greatly in their quality and available power. With the JT-UM120, you can conveniently keep track of all measured values and also have a quick-charge trigger for mobile communication devices. The versatile display modes, such as overview measurements, detailed measurements and real-time graph view, offer a particularly wide range of analysis options.

Additional functions such as evaluation via separate PC software, automatic, orientation-controlled display rotation, cable resistance measurements round off the overall package.

## 2. PRODUCT SPECIFICATIONS

|                              |  |
|------------------------------|--|
| <b>MEASUREMENT FUNCTIONS</b> | Current, voltage, energy, power, voltage waveform, protocol, cable resistance, ripple                                  |
| <b>USB-PORTS</b>             | Inputs: USB-A, USB-C, Micro-USB<br>Outputs: USB-A, USB-C<br>PC interface: Micro-USB                                    |
| <b>POSSIBLE DATA GROUPS</b>  | 10   |
| <b>SUPPORTED PROTOCOLS</b>   | QC2.0, QC3.0, Huawei FCP, SCP, Samsung AFC, PD2.0, PD3.0, VOOC/WARP, SuperVOOC 1.0, Super VOOC 2.0, MTK-PE, Apple 2.4A |
| <b>VOLTAGE PARAMETERS</b>    | Measuring range: 4 - 28 V<br>Resolution: 0, 00001 V<br>Accuracy: $\pm 0,02\% + 2$ digits                               |
| <b>CURRENT PARAMETERS</b>    | Measuring range: 0 - 7 A<br>Resolution: 0, 00001 A<br>Accuracy: $\pm 0,05\% + 2$ digits                                |
| <b>POWER PARAMETERS</b>      | Measuring range: 0 - 120 W<br>Resolution: 0, 00001 W<br>Accuracy: $\pm 0,05\% + 2$ digits                              |

**LOAD EQUIVALENT  
INTERNAL RESISTANCE  
PARAMETERS**

Measuring range: 0 - 9999,9  $\Omega$   
Resolution: 0,0001  $\Omega$   
Accuracy:  $\pm 0,05\%$  + 2 digits

**CAPACITY  
PARAMETER**

Measuring range: 0 - 9999,99 Ah  
Resolution: 0,00001 Ah

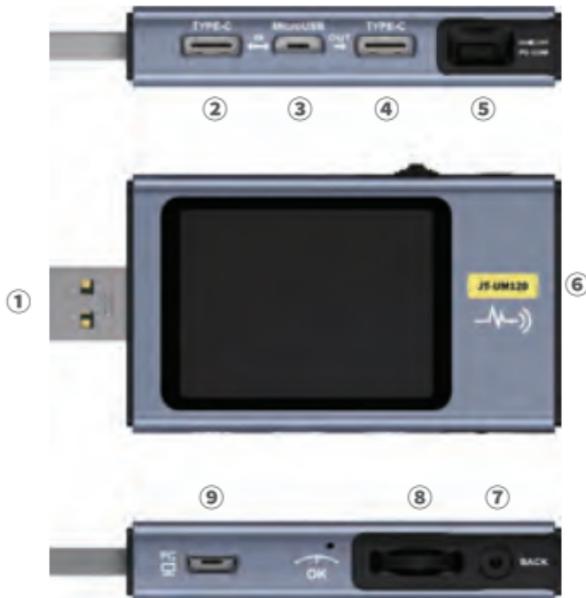
**CONSUMPTION  
ENERGY PARAMETERS**

Measuring range: 0 - 9999,99 Wh  
Resolution: 0,00001 Wh

**CABLE RESISTANCE  
PARAMETERS**

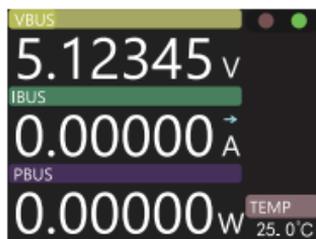
Measuring range: 0 - 9999,99  $\Omega$   
Resolution: 0,00001  $\Omega$

## 3. OVERVIEW



1. Input monitoring - USB-A
2. Input monitoring - USB-C
3. Input monitoring - Micro-USB
4. Output monitoring - USB-C
5. PD communication switch
6. Output monitoring - USB-A
7. Back button
8. Multifunction switch
9. PC connection - Micro-USB

## 4. MAIN VIEW



**MAIN VIEW:** Only the 3 main parameters (voltage, current & power), as well as the current temperature, are displayed here.

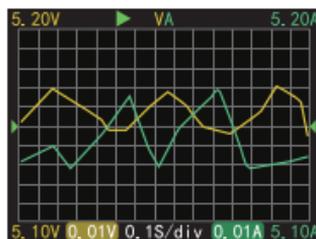
Press the multifunction switch to pause or resume the measurement.

By turning the multifunction switch to the left or right, it is possible to switch between the individual views.



**DETAIL VIEW:** Further information and statistics are displayed here.

Press the multifunction switch to open the function menu. Here you can switch between the individual groups, as well as start and reset recordings.



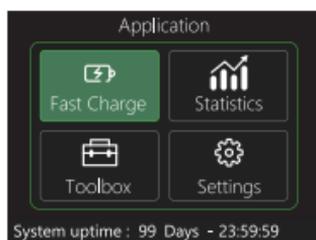
**WAVEFORM VIEW:** Here the measurements are displayed in a waveform.

Press and hold the multifunction switch to the left to decrease the time base.

Press and hold the multifunction switch to the right to increase the time base.

Press the multifunction switch briefly to pause or resume the curve.

Press and hold the multifunction switch to switch between the individual modes.



**APPLICATION VIEW:** Here you can open the various applications such as Fast Charge, Statistics, the Toolbox and Settings.

## 5. FAST CHARGE

```
Detection V1.0                               Finish
PD-> PD3.0 45.00W PDO:7
APPLE-> 5V 2.4A                               PE+1.1
BC1.2-> DCP 5V 1.5A                            PE+2.0
SAMSUNG AFC-> 9V 12V
HUAWEI FCP-> 5V 9V
HUAWEI SCP-> NONE
QC2.0-> 5V 9V 12V
QC3.0-> 20.84V MAX
VOOC/DASH/WARP-3.3-> NONE
SuperVOOC-> NONE
```

**AUTOMATIC DETECTION:** Here the device tries to trigger different protocols. After the test process is completed, an overview of the supported or unsupported protocols is automatically displayed.

As an alternative to automatic detection, it is also possible to select between different PD protocols, QC2.0, QC3.0, FCP, SCP, AFC, VOOC/WARP and SVOOC 1.0/SVOOC 2.0. Individual voltages can also be selected in the individual protocols with which the protocol is to be triggered.

Attention! Beware of high voltages at the output of the device! Avoid direct contact with the output to reduce the risk of electric shock or injury.

Please note that during automatic detection, the corresponding voltage is also present at the output of the device. Therefore, disconnect all connected devices to avoid a defect at your device.

## 6. STATISTICS

In the statistics menu you can choose between energy statistics, battery capacity calculation and offline recording.

| List of statistics |         |         |             |
|--------------------|---------|---------|-------------|
| No.                | CAP/Ah  | NRG/Wh  | Time        |
| 01                 | 0.00000 | 0.00000 | 00D00:00:00 |
| 02                 | 0.00000 | 0.00000 | 00D00:00:00 |
| 03                 | 0.00000 | 0.00000 | 00D00:00:00 |
| 04                 | 0.00000 | 0.00000 | 00D00:00:00 |
| 05                 | 0.00000 | 0.00000 | 00D00:00:00 |
| 06                 | 0.00000 | 0.00000 | 00D00:00:00 |
| 07                 | 0.00000 | 0.00000 | 00D00:00:00 |

**ENERGY STATISTICS:** The individual recording groups are listed here. These can each be either selected as the active group or reset.

| Battery CAP Calculation |                 |
|-------------------------|-----------------|
| Group:                  | 01              |
| Time:                   | 0 Days 00:00:00 |
| CAP:                    | 0.00000 Ah      |
| NRG:                    | 0.00000 Wh      |
| BATT Vol:               | 3.7V (3.0-5.0)  |
| Conv Eff:               | 90% (80-100)    |
| Results:                | 0.00000 Ah      |

**BATTERY CAPACITY CALCULATION:** To determine the battery capacity, first select a recording group, as well as the battery voltage (3.0 V to 5.0 V possible) and the efficiency (80% - 100% possible). The measurement starts automatically.

**OFFLINE RECORDING:** Press the multifunction switch here to start or delete an offline recording.

## 7. TOOLBOX

Additional functions are available in the toolbox:

**CABLE RESISTANCE DETECTION:** Measures the internal resistance of a cable - Must be performed under a constant current load.

**PD DETECTION:** Monitors the PD communication. The PD switch must be set to ON. Furthermore, 2 USB-C cables (Type-C IN & Type-C OUT) must be used.

**PD CONVERTER:** Enables PD communication with QC2.0 chargers. Set The PD switch must be set to ON here. First set the maximum packet power here. Make sure not to exceed the maximum power of your charger here.

**USB-C CABLE:** Requires a Type-C cable with an E-Marker chip. If your interface does not contain this chip, the packets cannot exceed a current of 3 A.

**DASH CABLE:** Reads out the data from the DASH chip.

**SIMULATE DASH:** Can be used to use VOOC/WARP over a normal cable. Instead of a USB-A to Type-C DASH cable, a Type-C to Type-C cable can now be used here.

**ANALOG APPLE 2.4 A:** Allows charging at 5 V and 2.4 A.

# 8. SETTINGS

## 1. GENERAL

**BRIGHTNESS:** Sets the display brightness.

**STANDBY BRIGHTNESS:** Sets the display brightness in standby mode.

**STANDBY TIME:** Defines the time to automatically switch to standby mode.

**REFRESH RATE:** Sets the refresh rate to Slow, Medium, or Fast.

**TEMPERATURE:** Sets the temperature unit to Celsius or Fahrenheit.

**SYSTEM LANGUAGE:** Switches the system language between English and German.

**G-SENSOR:** Enables automatic display alignment based on rotation.

**SYSTEM LANGUAGE:** Switches the system language between English and German.

**START PAGE:** Enables/disables the boot logo when the device starts.

**TOUCH-TONE:** Enables/disables the key tones.

## 2. RECORD

**CURVE REC TIME:** Sets the recording time of the voltage and current curve.

**LOWEST REC CUR:** When the current exceeds the set threshold, statistics of capacity, energy and time are automatically performed.

**ENERGY REC TIME:** Stops the statistics automatically when the set time is exceeded.

**CLEAR ALL RECORD:** Deletes all recorded data, including offline curves and energy statistics.

## 3. TRIGGER

**TRIG TIME:** Sets the time for manual triggering of the log.

**MASK PD CRC:** When monitoring the PD log, CRC messages can be automatically masked.

**BOOT ANALOG DASH:** Activates the analog DASH cable simulation automatically with the system start.

**BOOT APPLE 2.4A:** Activates the analog Apple 2.4A function automatically with the system start.

## 4. SYSTEM

**FACTORY RESET:** Resets all settings to the default settings

## 5. ABOUT

Contains information about the model & serial number, as well as the currently installed software version.

## 9. PC-SOFTWARE

Connect the device to your computer via the PC interface using a micro USB cable. After you have started the software, the main view should open automatically.



**RECORDING:** The voltage (VBUS), current (IBUS), power (PBUS), data signals (D+ and D-), and capacitance (CAP) and energy (NRG) can be recorded, and the recording conditions such as start and stop current and sampling rate can be configured.

Press the "Create" key to start a new recording.

**PROTOCOL:** Here you can trigger QC2.0, QC3.0, Huawei FCP, Huawei SCP, and Samsung AFC protocols directly from your PC.

You can also create a smart trigger where you can configure and add different triggers as you like.

# 10. OTHER INFORMATION

## OUR INFORMATION AND TAKE-BACK OBLIGATIONS UNDER THE GERMAN ELECTRICAL ACT (ELEKTROG)



### **SYMBOL ON ELECTRICAL AND ELECTRONIC EQUIPMENT:**

This crossed-out trash can means that electrical and electronic equipment does not belong in the household trash. You must hand in the old equipment at a collection point. Before handing in, you must separate used batteries and accumulators that are not enclosed in the old device from the old device.

### **RETURN OPTIONS:**

As an end user, when you purchase a new device, you can return your old device (which essentially fulfills the same function as the new one purchased from us) for disposal free of charge. Small appliances with no external dimensions larger than 25 cm can be returned in household quantities, regardless of the purchase of a new appliance.

### **POSSIBILITY OF RETURN TO OUR COMPANY LOCATION DURING OPENING HOURS:**

SIMAC Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn

### **POSSIBILITY OF RETURN IN YOUR AREA:**

We will send you a parcel stamp with which you can return the device to us free of charge. To do this, please contact us by e-mail at [service@joy-it.net](mailto:service@joy-it.net) or by phone.

### **PACKAGING INFORMATION:**

Please pack your old device securely for transport. If you do not have suitable packaging material or do not wish to use your own, please contact us and we will send you suitable packaging.

# 11. SUPPORT

We are also there for you after the purchase. If any questions remain or problems arise, we are also available to assist you via email, phone and ticket support system.

E-Mail: [service@joy-it.net](mailto:service@joy-it.net)

Ticket-System: <http://support.joy-it.net>

Phone: +49 (0)2845 9360 – 50 (Mo - Thurs.: 9 - 17,  
Fri.: 9 - 14:30)

For more information, visit our website:  
[www.joy-it.net](http://www.joy-it.net)

[WWW.JOY-IT.NET](http://WWW.JOY-IT.NET)

