TU13

USB/Type-C 2 IN 1 Multifunctional Color Tester

Standard features:

TU13 comes with an internal core that integrates independent AD, gravity sensing 360° automatic screen rotation, fast charging protocol automatic detection, fast charging protocol high voltage trigger, PD E-mraker detection, cable resistance detection,Type-C charging detection and protocol recognition, voltage and current curve, D+D-CC1CC2 logic curve, high-speed voltage ripple, electronic level, battery capacity and power detection. There are many practical functions such as calculating device battery capacity.

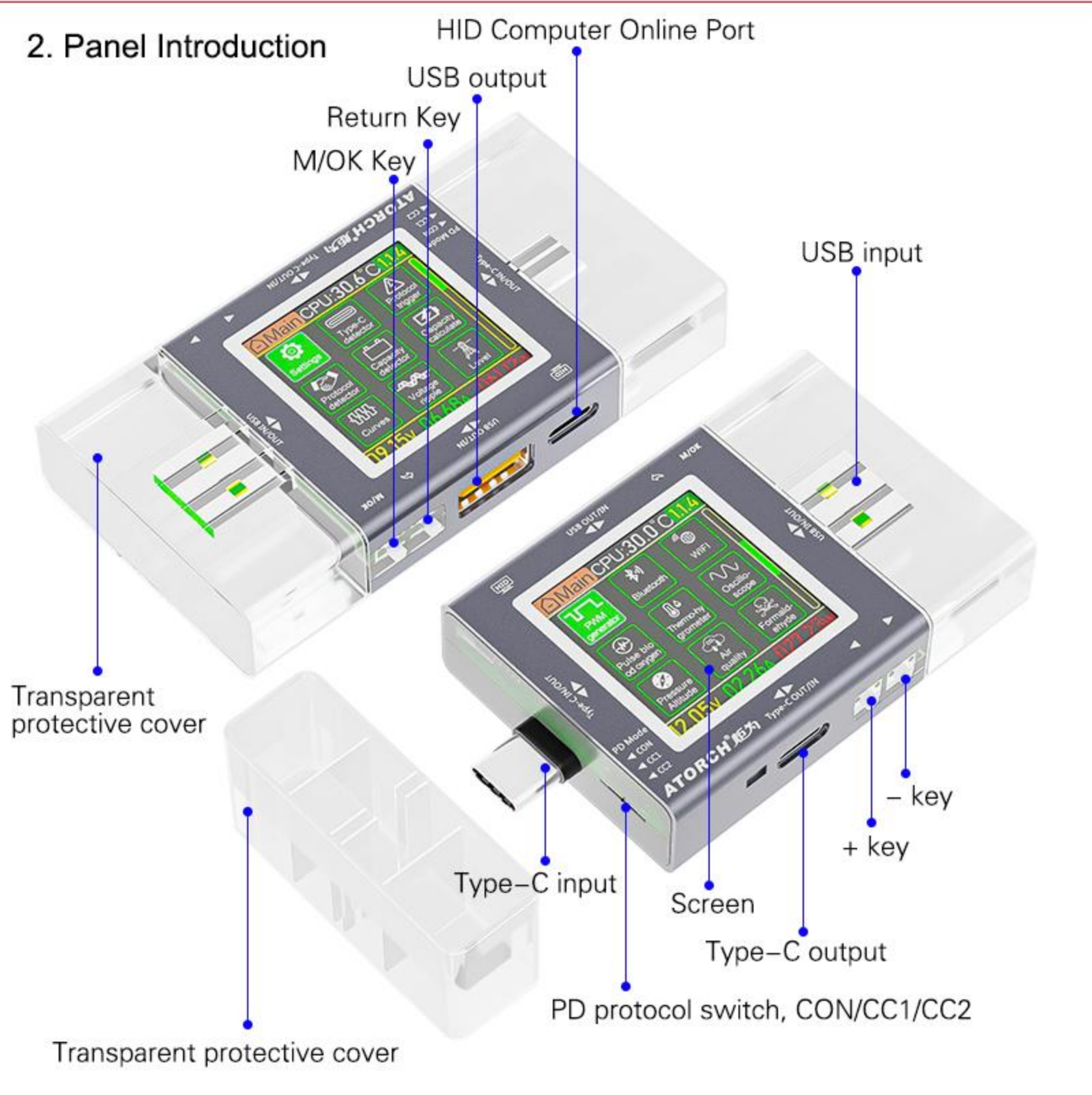
Additional functions:

Inserting additional expansion accessories into TU13 HID digital interface can achieve functions such as pulse oximetry and heart rate detection, digital temperature and humidity monitoring, air pressure and altitude detection, air quality detection, carbon dioxide concentration detection, formaldehyde concentration detection, digital sampling oscilloscope, PWM signal generator, Bluetooth online electrical testing, WiFi online electrical testing, and other application functions. More expansion functions will continue to be explored and added by engineers .....

1. Product Description:

Function	Function Parameter
Voltage range:	0~50V
Current range:	0–6.5A(instant peak 12A)
Power range:	0~325W
Display Screen:	Full view IPS high–definition color screen
High voltage trigger support protocol:	QC2.0, QC3.0, ClassA/B, AFC, FCP, SCP, HISCP, VIVO5V4.5A, VIVO10V2.25A, VIVO11V4A, MTK, PD, PPS,
Fast charging automatic scanning detection support protocol:	APPLE, SS2P0, BC1P2, TYC, QC2A, QC2B, QC3A, QC3B, AFC, FCP, SCP, HISCP, VOOC, SVOOC, VOOC3.0, VOOC4.0, VIVO, VOVO2(Z3 27W), VOVO3(IQOO 44W), MTK, PPS, PD3/PD2.

2. Panel Introduction

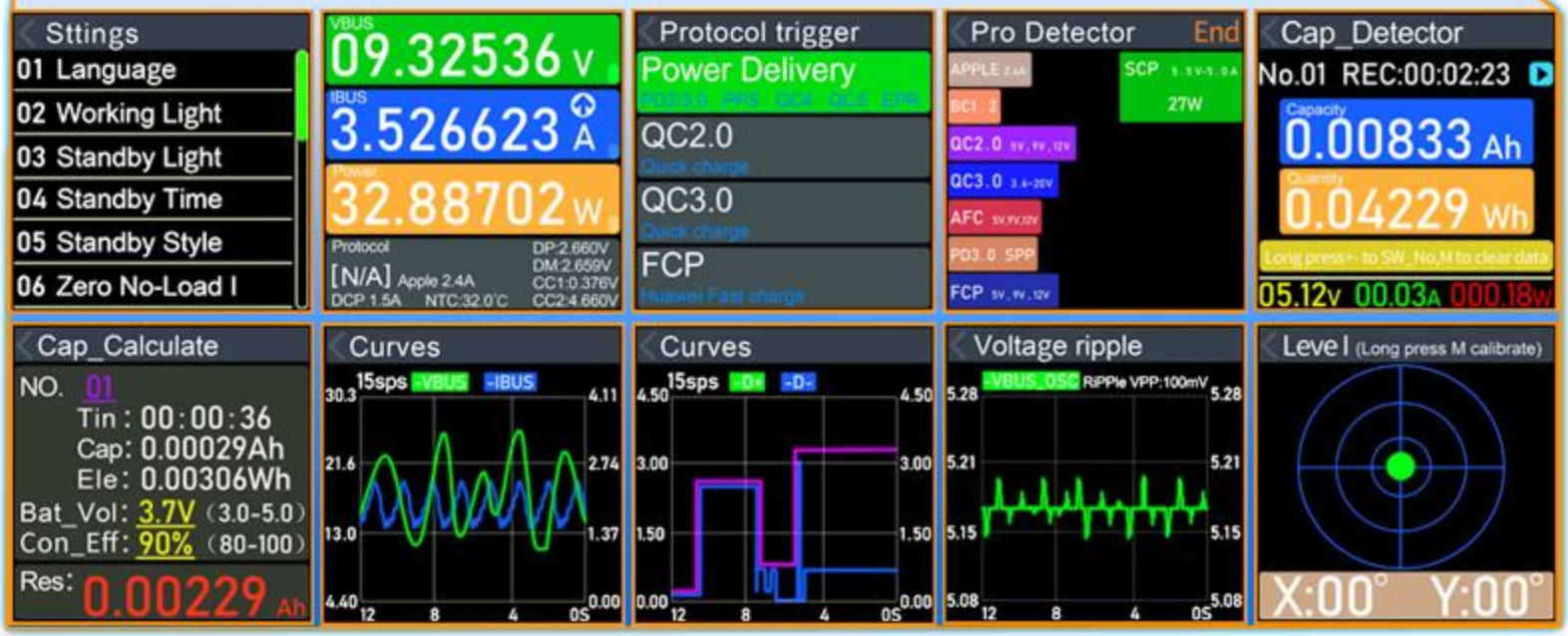


3. Main interface (including extended function interface)

Key instructions:

Return and summon function menu, Press "M/OK" key to confirm, ◄ ► key to switch pages/menus, other key have special instructions.

Basic default functions



【3.1】 Main interface

Display parameters such as voltage/current/power/fast charging protocol
Insert an external temperature probe to display temperature data

【3.2】 Protocol trigger

By pressing return button, select this test page to enter the fast charging protocol detection
QC2.0, QC3.0, ClassA/B, AFC, FCP, SCP, HISCP, VIVO5V4.5A, VIVO10V2.25A, VIVO11V4A, MTK, PD, PPS

【3.3】 Pro Detector

By pressing return button, select this test page to enter the protocol automatic scanning and detection. The supported protocols are:
APPLE, SS2P0, BC1P2, TYC, QC2A, QC2B, QC3A, QC3B, AFC, FCP, SCP, HISCP, VOOC,SVOOC, VOOC3.0, VOOC4.0, VIVO, VOVO2(Z3 27W), VOV03(IQ00 44W) MTK, PPS, PD3/PD2.

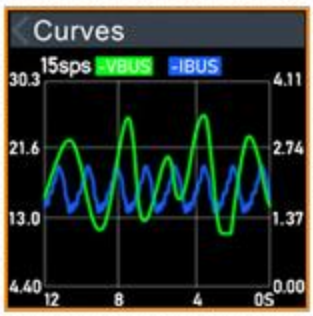
【3.4】 Battery capacity/Energy detection

By pressing return button and select this test page, 10 sets of capacity data can be detected, which are constantly changing. Long press ◀ or ▶ to switch between view10 group different sets of data on 01, 02, 03... Long press the M button to reset the current set of capacity data!

【3.5】 Battery capacity calculation

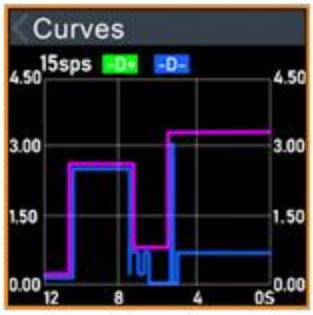
By Pressing back button to enter this page, click M button to set the voltage and battery conversion efficiency, and the capacity value of current group will be calculated! A total of 10 sets of data queries! Click ◀ or ▶ to switch to other group data!

【3.5】 Voltage /Current Curves



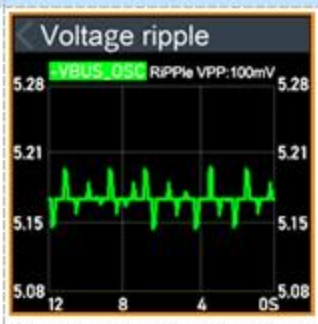
By Press back button and click M/OK M/OK button to enter this page,which displays real-time data curves such as voltage and current

【3.6】 D+ D- Voltage /Current Curves



In the previous(3.5) interface, click M/OK "M/OK" button to switch between D+ / D- voltage and current curves

【3.7】 High speed voltage ripple curve



By Press back button and click M/OK M/OK button to enter this page,Test high-speed Voltage ripple curve

【3.8】 Level

By Press back button and click M/OK M/OK button to enter this page,Can be used as a level tester!

【3.9】 Background

By Press back button and click M/OK M/OK button to enter this page,Enter the system backend settings, confirm with M/OK M/OK key, return to menu with return Key, and switch menus with ◀/▶ key! Press M/OK M/OK button to confirm

4. Introduction to Extended Function Interface

Expand module functionality

Attention:

The following functions require purchasing expansion accessories to achieve

Operation method: For example, Bluetooth module

【4.1】 PWM signal generator Detection Curve

Can achieve PWM signal generator function, suitable for electronic player output Signal to the circuit for testing purposes.

【4.2】 Bluetooth online detection

Application of Bluetooth online detection

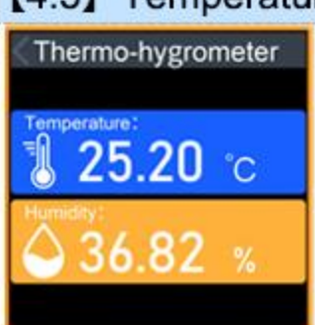
【4.3】 WiFi IoT detection

Application of WiFi IoT detection

【4.4】 Pulse, blood pressure, heart rate detection

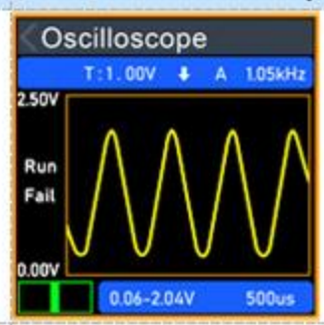
None/developing

【4.5】 Temperature/Humidity Detection



Application of Temperature/humidity detection

【4.6】 Oscilloscope Curve detection



Application of Digital oscilloscope for detection

【4.7】 Altitude/air Pressure detection

Application of Altitude/air pressure detection

【4.8】 TOVC/CO2 carbon dioxide Air Quality

Application of Carbon dioxide Regarding air quality testing

【4.9】 Formaldehyde Curve

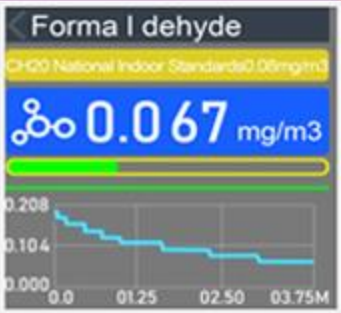
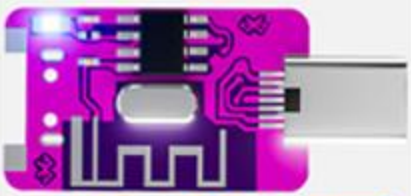
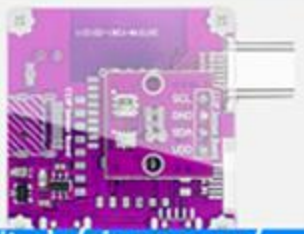
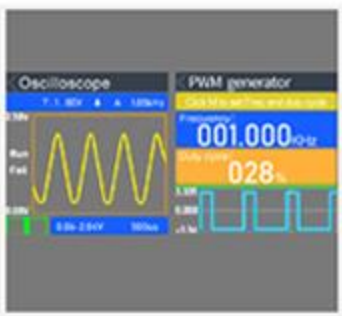
Application of CH20 formaldehyde concentration detection

【5.0】 Internal resistance of cables detection

Application of Measurement of internal resistance of cables

5. Extension module or sensor description

Notes: These extension accessories need to be purchased separately

Accessory name	Functional interface	Accessory name	Functional interface
 CH20 formaldehyde digital sensor		 WiFi IoT digital communication module	
 TOVC/CO2 carbon dioxide Air Quality 2-in-1 digital sensor		 Bluetooth IoT digital communication module	
 Altitude/air pressure/ temperature/humidity 4-in-1 digital sensor		 Temperature sensor	
 Digital Oscilloscope and PWM Pulse Signal Generator 2-in-1 sampling signal line			

6. Connect different extension modules to achieve different functional displays

Combined with extended accessories Following functions can be achieved

Multi port design, one watch for multiple uses, diverse gameplay, and rich functions.

7. Computer online function to read detection data

Powerful PC Software APP

Connect to the HID data interface of TU13 through a USB cable. After the computer automatically recognizes HID protocol, install the upper computer software on the computer (only supports Win7 and Win10 computer systems) to achieve rich curve functions, data measurement, and online control of TU13. It can also generate curve screenshots, control settings, and export charging and discharging data, documents, and other purposes. You can also upgrade firmware for free for life through a computer.

8. PD E-Marker Data Cable detection

PD E-Marker detection:

Supports reading data from PD E-Marker and cables, as well as detecting parameters such as voltage and current.

Cable internal resistance measurement:

pressure difference method measurement

Used in conjunction with constant current loads, it is easy to test the internal resistance value of cables.

9. Gravity sensing function 360 ° rotation

Built in Gravity Sensing Sensor

The gravity sensing sensor integrated into the TU13 core has a display interface that automatically rotates 360 degrees, making it convenient to view data in different directions.

(The gravity rotation switch can be turned on or off in the system settings)

10. Insert the HID port of the instrument into the Bluetooth communication module, which can realize the online connection of mobile APP

Expand accessory functionality

Need purchase Bluetooth IoT digital communication module with TU13 application

Mobile remote wireless remote control setting and measurement function

Apple phone:

Please directly search for "E_test" in the app store to download and install it, then click on the Bluetooth APP icon. After opening the software, click on the Bluetooth icon above the software to enter and select "TU13_SLE" to connect.This will enable remote wireless control settings and measurement functions for the phone,Yes, you can check the charging status anytime on your phone,with clear and visible data such as voltage, current, and power curves for charging ..

Android phone:

Scan the QR code to download the corresponding APP software. After installation, open the software and click on the Bluetooth icon to directly select TU13_SLE for online use.

11. PD Protocol gear toggle switch

CON gear:

This is the direct connection mode before and after the PD protocol, which requires the output to be connected to the device to adjust the voltage and power according to the device protocol. If the output of the PD protocol charger is not connected to the device, this meter cannot light up and run;

CC1/CC2 gear:

This is the PD protocol controlled by the protocol chip in this table, and the output cannot be connected to any device to avoid the risk of burning the connected device during protocol detection and high voltage deception. If it is a Type-C female input, it needs to switch between CC1/CC2 modes until the screen lights up to ensure normal protocol communication and perform protocol detection and deception functions

12. Support bidirectional current detection

The ATORCH TU13 chip integrates a bidirectional current detection sensor, which can accurately detect current values whether you are using it on a charger or a mobile phone. When there is a small current without independent power supply, check the self consumption current of this meter Normal phenomenon, of course, you can also calibrate to zero through the settings menu

13. Background Setting

ATORCH Technology has summarized the feedback and needs of countless users. Engineers have been working in the measurement field for many years, accumulating technical experience, revising and refreshing the industry settings column function in the measurement interface multiple times. Short press the back button to return to the menu options interface, and use the short press left/right button to jump to "System". When the "Unified Settings" icon is green, press the M/OK key briefly to enter the system settings interface, then press the left/right button again to select the up/down column and enter the parameters under the corresponding function settings.