MakerHawk TC66

MakerHawk TC66 USB Power Meter User Manual

Model: TC66

1. Introduction

The MakerHawk TC66 USB Power Meter is a versatile and precise Type-C USB voltage and current tester designed for monitoring the charging status of various electronic devices. Featuring a 0.96-inch IPS color LCD display, it provides real-time data on voltage, current, capacity, energy, power, equivalent impedance, and temperature. This device supports multiple fast-charging protocols, including USB PD, QC2.0/3.0, Samsung AFC, and Huawei FCP, making it an essential tool for testing chargers, data cables, power banks, and other USB-C compatible products. Its compact design and intuitive interface make it suitable for both professional and hobbyist use.

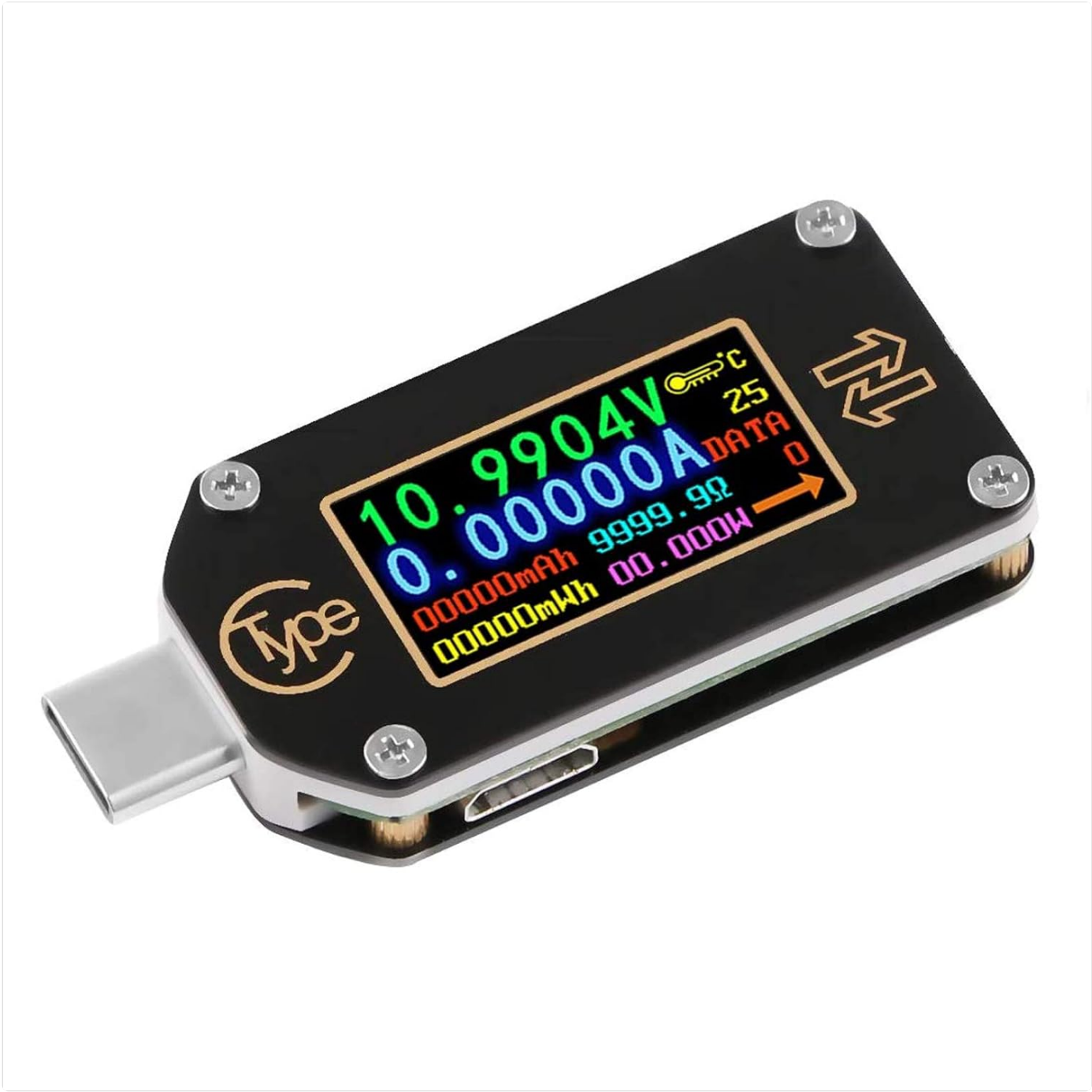

Figure 1: MakerHawk TC66 USB Power Meter. This image shows the compact device with its vibrant color display, indicating voltage, current, and other measurement parameters.

2. Product Overview

2.1 Physical Components

The TC66 USB Power Meter is designed with user-friendly components for easy operation and connectivity.

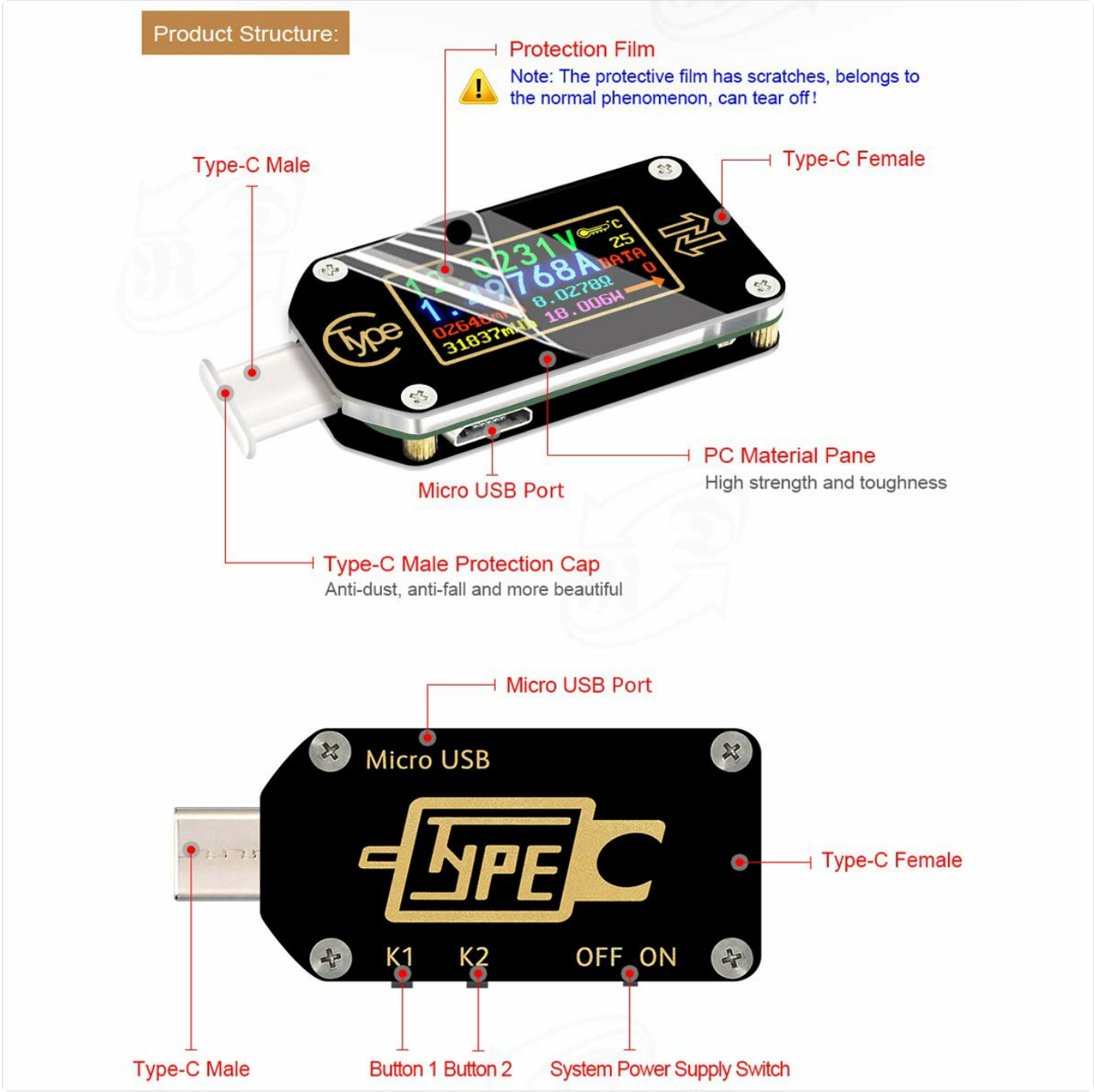

Figure 2: Product Structure Diagram. This diagram labels the key physical components of the TC66, including the Type-C Male connector, Type-C Female port, Micro USB port for PC connection, and control buttons (K1, K2, OFF/ON switch).

- **Type-C Male Connector:** Connects to the power source (charger, power bank, PC USB-C port).
- **Type-C Female Port:** Connects to the device being tested (phone, tablet, laptop).
- **Micro USB Port:** Used for connecting to a PC for software control, data logging, and firmware updates.
- **K1 Button:** Multi-functional button for navigation and selection.
- **K2 Button:** Multi-functional button for navigation and selection.
- **OFF/ON Switch:** System power supply switch, allowing the device to be powered independently or from the measured line.
- **Protection Film:** A protective film is applied to the screen; please remove it before use for optimal display clarity.

2.2 Display Interface

The 0.96-inch IPS HD color LCD screen provides a clear and comprehensive view of all measurement parameters.

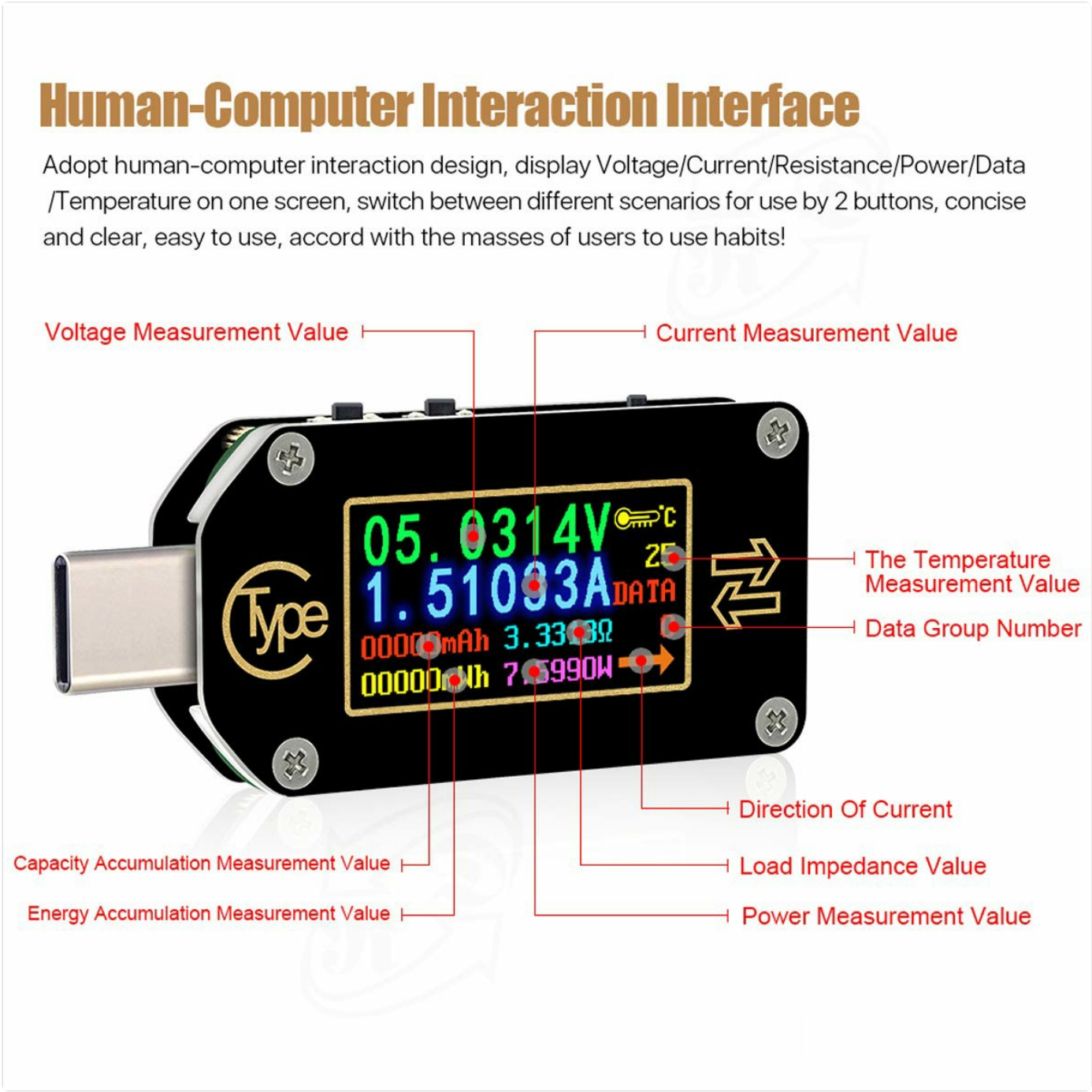

Figure 3: Human-Computer Interaction Interface. This image highlights the various data points displayed on the TC66 screen, such as Voltage Measurement Value, Current Measurement Value, Temperature, Data Group Number, Direction of Current, Load Impedance Value, Power Measurement Value, Capacity Accumulation Measurement Value, and Energy Accumulation Measurement Value.

- **Voltage (V):** Displays the real-time voltage.
- **Current (A):** Displays the real-time current.
- **Capacity (mAh):** Accumulates the total charge transferred.
- **Energy (mWh):** Accumulates the total energy transferred.
- **Power (W):** Calculates the real-time power (Voltage x Current).
- **Equivalent Impedance (Ω):** Displays the calculated load impedance.
- **Temperature (°C):** Shows the internal temperature of the device.
- **Data Group Number:** Indicates the currently selected data group for storage.
- **Direction of Current:** An arrow indicates the direction of current flow.

3. Setup

Setting up your TC66 USB Power Meter is straightforward. Follow these steps to begin monitoring your USB-C devices.

1. **Connect to Power Source:** Plug the Type-C Male connector of the TC66 into your USB-C power source (e.g., wall charger, power bank, computer's USB-C port).
2. **Connect Device Under Test:** Plug your USB-C device (e.g., smartphone, tablet, laptop) into the Type-C Female port of the TC66.
3. **Power On (Optional):** If you wish to power the TC66 independently without drawing power from the measured line, ensure the OFF/ON switch is in the 'ON' position and connect a Micro USB cable to the Micro USB port, supplying external power. Otherwise, the device will draw power from the connected Type-C source.
4. **Observe Display:** The IPS color LCD display will immediately light up and begin showing real-time measurement data.

4. Operating Instructions

4.1 Basic Measurement

Once connected, the TC66 automatically begins displaying real-time voltage, current, power, and other parameters. The main interface provides an immediate overview.

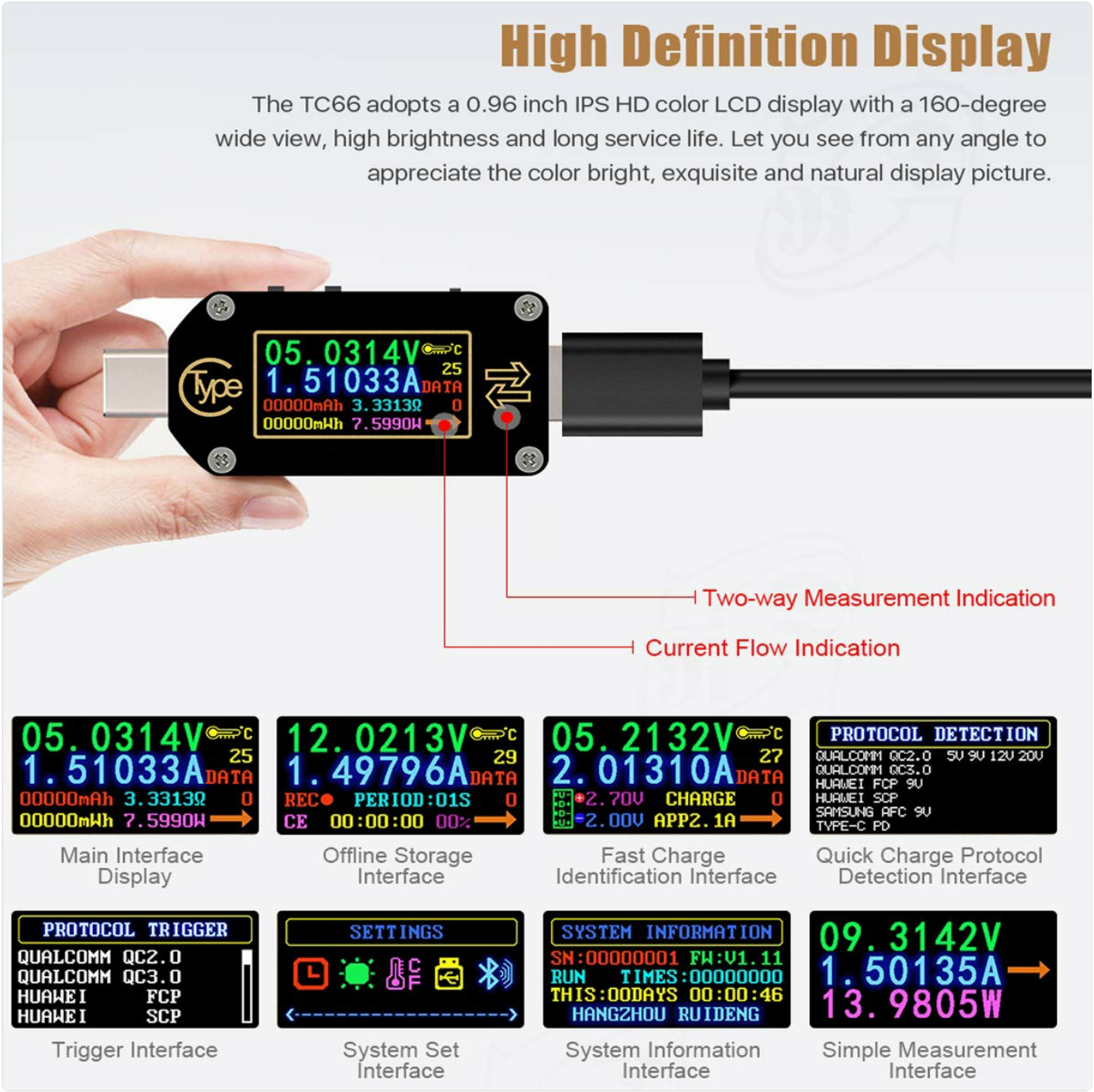

Figure 4: High Definition Display Modes. This image illustrates various display screens available on the TC66, including the Main Measurement Display, Offline Storage Interface, Fast Charge Identification Interface, Quick Charge Protocol Detection Interface, Trigger Interface, System Settings, System Information, and Simple Measurement Interface.

- **Real-time Data:** The primary screen shows voltage, current, power, capacity, and energy accumulation.
- **Two-way Current Measurement:** The TC66 supports measuring current flow in both forward and reverse directions, indicated by an arrow on the display. This is particularly useful for devices that can both supply and receive power.

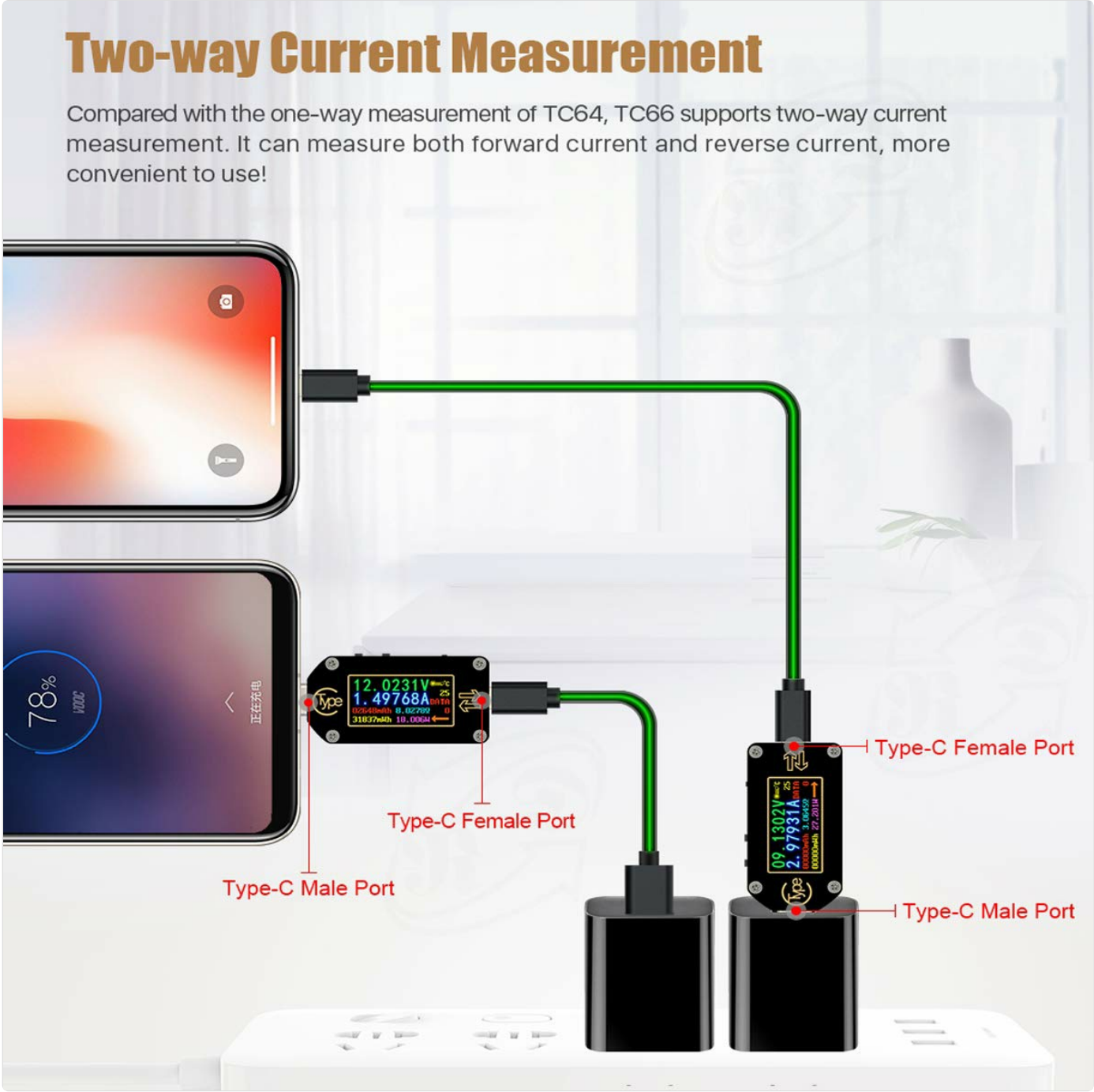

Figure 5: Two-way Current Measurement. This diagram demonstrates how the TC66 can measure current flowing in both directions, for example, from a charger to a phone, or between two devices capable of power delivery.

4.2 Advanced Features and Navigation

Use the K1 and K2 buttons to navigate through different display interfaces and access advanced functions.

- **Switching Screens:** Short press K1 or K2 to cycle through various display screens (e.g., main display, offline storage, fast charge identification, protocol detection, settings).
- **Fast Charge Protocol Detection:** The TC66 can automatically detect and display the fast charging protocol in use (e.g., PD, QC2.0/3.0, AFC, FCP).
- **Protocol Triggering:** The device can trigger specific fast charge voltages (5V/9V/12V/20V) to test charger performance. Refer to the detailed user guide (PDF) for specific button sequences for triggering.
- **Offline Data Storage:** The TC66 can temporarily store measurement data when not connected to a PC. This data can be retrieved and analyzed later using the PC software.
- **System Settings:** Access settings to configure display timeout, backlight brightness, and other parameters. (Note: Setting display timeout to '0' will keep the display on continuously).

4.3 PC Software Connection

The TC66 supports connection to a PC for enhanced control, real-time data viewing, and firmware updates.

1. **Software Download:** Download the official PC software from the MakerHawk website. (Note: Software typically supports Windows 7 64-bit and above).
2. **Connect via Micro USB:** Use a Micro USB cable to connect the TC66's Micro USB port to your computer.
3. **Launch Software:** Open the PC software. It should automatically detect the connected TC66.
4. **Features:** Through the software, you can view real-time voltage, current, power, and other data, operate most of the tester's functions, and manage stored data.

5. Maintenance

Proper maintenance ensures the longevity and accuracy of your TC66 USB Power Meter.

- **Cleaning:** Use a soft, dry cloth to clean the device. Avoid using abrasive cleaners or solvents.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Protection:** When not in use, consider using the provided protective cap for the Type-C male connector to prevent damage.
- **Avoid Drops:** While robust, avoid dropping the device, as this can damage internal components or the display.

6. Troubleshooting

If you encounter issues with your TC66 USB Power Meter, refer to the following common troubleshooting tips.

Problem	Possible Cause	Solution
Display does not light up.	No power supply; incorrect connection; device under test not drawing power.	Ensure the Type-C male connector is fully inserted into a working power source. Ensure the device under test is connected and actively drawing power (some Type-C sources require a load to output 5V). Try powering the TC66 via its Micro USB port with an external 5V source.
Inaccurate readings.	Poor connection; high resistance in cables; environmental factors.	Ensure all connections are secure and clean. Use high-quality, short USB-C cables. Avoid extreme temperatures during measurement.
PC software not connecting.	Incorrect driver; incompatible OS; faulty Micro USB cable.	Verify your operating system is Windows 7 64-bit or above. Ensure the correct drivers are installed (usually part of the software package). Try a different Micro USB cable. Restart both the TC66 and your computer.

For more detailed troubleshooting and advanced features, please refer to the official User Guide PDFMakerHawk TC66 User Guide (PDF).

7. Specifications

Key technical specifications for the MakerHawk TC66 USB Power Meter.

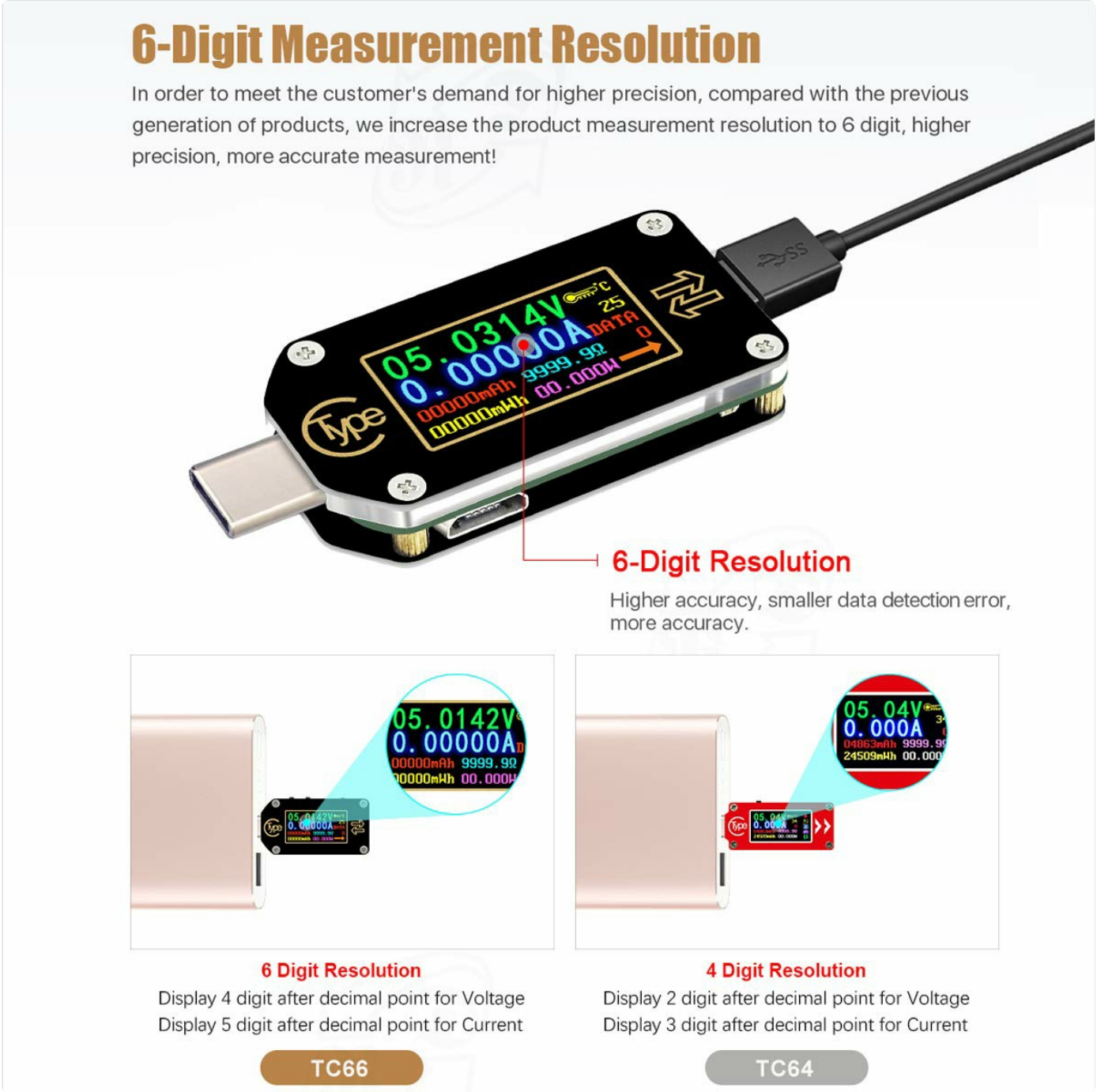

Figure 6: 6-Digit Measurement Resolution. This image highlights the high precision of the TC66, showing its 6-digit resolution for voltage and current measurements compared to older models.

Feature	Detail
Model	TC66
Display Screen	0.96 inch IPS HD Color LCD
Measurement Resolution	6-digit (Voltage, Current)
Voltage Measurement Range	0-30V (approx.)
Current Measurement Range	0-5A (approx.)
Supported Protocols	USB PD, QC2.0/3.0, Samsung AFC, Huawei FCP, Apple

Feature	Detail
Current Measurement	Two-way
PC Software Support	Windows 7 64-bit and above
Product Dimensions	1.93 x 0.87 x 0.31 inches
Item Weight	0.28 ounces (7.9 Grams)

8. Warranty and Support

MakerHawk products are designed for reliability and performance. For warranty information or technical support, please contact MakerHawk customer service through their official channels or the retailer where the product was purchased.

- **Online Support:** Visit the official MakerHawk website for FAQs, software downloads, and contact information.
- **Retailer Support:** For purchase-related inquiries, contact the seller (e.g., MakerHawk-US on Amazon).
- **User Guide:** A comprehensive user guide in PDF format is available for download, providing detailed instructions and advanced usage scenarios.