Walfront WALFRONTkwp3xfor62

Walfront Smart Energy Monitor WALFRONTkwp3xfor62 User Manual

Real-Time Electricity Usage Tracking for Single Phase Systems

1. Introduction

This manual provides detailed instructions for the installation, setup, and operation of your Walfront Smart Energy Monitor. This device is designed to monitor electricity consumption and generation in single-phase systems, integrating with the Tuya or Smart Life application for real-time data tracking and automation.

2. Safety Information

WARNING: Electrical installation should only be performed by qualified personnel. Ensure power is disconnected at the main circuit breaker before any wiring is attempted. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Always disconnect power before installation or maintenance.
- Verify voltage and current ratings are compatible with your electrical system.
- Do not operate the device if it appears damaged.
- Keep the device away from water and excessive moisture.

3. Package Contents

Verify that all items are present in your package:

- 1 x Smart Energy Meter (Main Unit)
- 2 x 120A Current Transformer (CT) Clamps
- 1 x User Manual (This document)

Image 3.1: Overview of the Walfront Smart Energy Monitor, showing the main white unit, two black current transformer (CT) clamps, and their connecting wires.

4. Product Specifications

Feature	Specification
Item Type	Smart Energy Meter
Clamp Rating	2 x 120A
Support System	Compatible with Tuya Smart Home
Wi-Fi Standard	802.11B/G/N20/N40 at 2.4GHz
BLE	BT 4.2 low energy
Operating Frequency	2.4GHz (built-in antenna)
Operating Voltage	AC 90~250V 50/60Hz
Measuring Current Range	0.2A~80A (per clamp)

Feature	Specification
Calibration Accuracy	≤100W (within ±2W); >100W (within ±2%)
Report Period	Every 15 seconds
Temperature Range	-20~55℃
Humidity Range	≤90% (Non-condensing)
Mounting Method	35MM DIN rail
Item Weight	10.2 ounces
Model Number	WALFRONTkwp3xfor62

5. Installation

Follow these steps carefully for proper installation of the Smart Energy Monitor.

5.1 Wiring the Main Unit

1. **Disconnect Power:** Before starting, ensure the main power supply to your electrical panel is completely shut off at the circuit breaker.
2. **Mount the Device:** Mount the Smart Energy Monitor main unit onto a 35MM DIN rail within your electrical panel.
3. **Connect Power Input:** Connect the Live (L) and Neutral (N) wires from your main power supply to the corresponding 'L' and 'N' terminals on the energy monitor. The input voltage range is AC 90-250V.

Image 5.1: Close-up view of the main unit's terminal block, showing connections for Live (L), Neutral (N), and the two CT clamp circuits (Circuit 1: 1+, 1-; Circuit 2: 2+, 2-).

5.2 Connecting CT Clamps

The device includes two 120A Current Transformer (CT) clamps for monitoring two separate circuits or phases.

1. **Identify Circuits:** Determine which circuits you wish to monitor. Each CT clamp will monitor one live wire.
2. **Open CT Clamp:** Open one CT clamp and place it around the live wire of the first circuit you want to monitor. Ensure the clamp is fully closed and secured. The arrow on the CT clamp should point in the direction of current flow (e.g., from the grid towards the load for consumption monitoring, or from solar inverter towards the grid for generation monitoring).
3. **Connect CT Wires:** Connect the wires from the first CT clamp to the 'Circuit 1' terminals (1+ and 1-) on the energy monitor. Pay attention to polarity if indicated on the clamp or wires.
4. **Repeat for Second Clamp:** Repeat the process for the second CT clamp, connecting its wires to the 'Circuit 2' terminals (2+ and 2-).

Image 5.2: A single black 120A Current Transformer (CT) clamp with its red and black connecting wires. The clamp has an arrow indicating current direction and model number JCT16K.

5.3 Wiring Diagram Example

Refer to the following diagram for a typical wiring configuration. This diagram illustrates how to connect the

energy monitor and CT clamps within a single-phase electrical system.

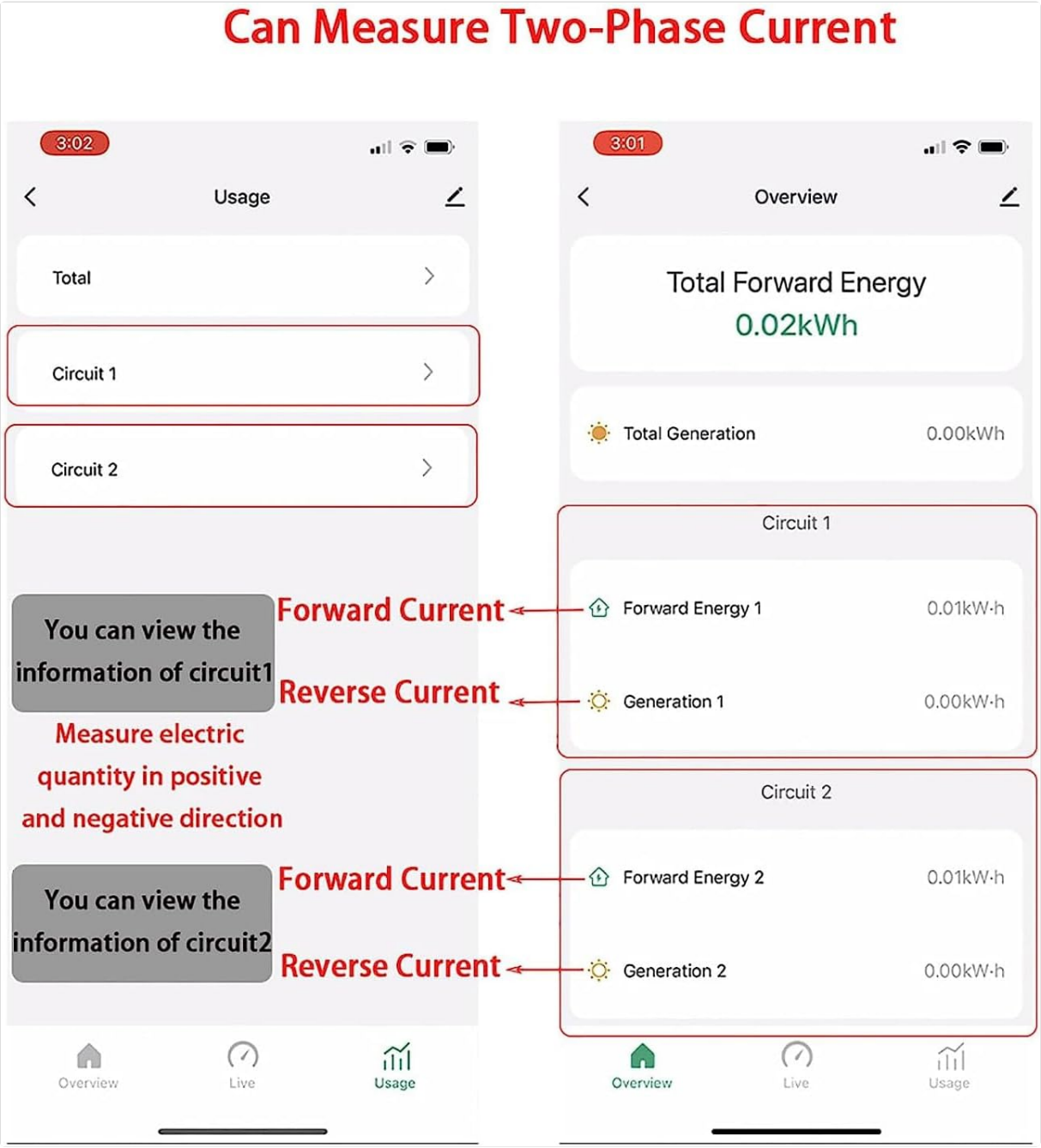

Image 5.3: A schematic wiring diagram showing the Smart Energy Monitor connected to a circuit breaker (L and N lines) and two separate loads (Load1 and Load2) via the two CT clamps. Arrows indicate current flow.

Note on 220V Split Phase Wiring: For 220V split-phase circuits, ensure that the CT clamps are correctly oriented. If monitoring two legs of a 220V line, one set of wires should connect to the monitor with one polarity (e.g., red to 1+, black to 1-) and the other set with reversed polarity (e.g., black to 2+, red to 2-) to ensure correct total value calculation. Incorrect polarity may result in negative readings for one circuit, leading to inaccurate total consumption.

6. App Setup and Connectivity

The Walfront Smart Energy Monitor integrates with the Tuya Smart or Smart Life application. Download the app from your mobile device's app store.

1. **Download App:** Search for "Tuya Smart" or "Smart Life" in the App Store (iOS) or Google Play Store (Android) and install it.
2. **Register/Log In:** Open the app and register a new account or log in with an existing one.

3. **Add Device:** Tap the '+' icon in the top right corner of the app to add a new device.
4. **Select Device Type:** Choose the appropriate device category, typically under "Electrical" or "Energy Monitor."
5. **Connect to Wi-Fi:** Follow the in-app instructions to connect the energy monitor to your home Wi-Fi network. **Important:** The device only supports 2.4GHz Wi-Fi networks. Ensure your phone is connected to a 2.4GHz network during the pairing process.
6. **Pairing Mode:** The device may need to be put into pairing mode (often indicated by a blinking light). Refer to the specific instructions within the app for this step.
7. **Device Discovery:** The app will search for and discover your energy monitor. Once found, you can rename it and assign it to a room.

7. Operation

Once installed and connected to the app, you can begin monitoring your energy usage.

7.1 Monitoring Energy Consumption

The app provides detailed insights into your electricity usage and generation.

- **Total Energy:** View the accumulated total energy consumption (kWh).
- **Circuit-Specific Data:** Access detailed information for each monitored circuit (Circuit 1 and Circuit 2).
- **Forward and Reverse Current:** The app can display both forward (consumption) and reverse (generation, e.g., from solar) current, allowing for comprehensive tracking.

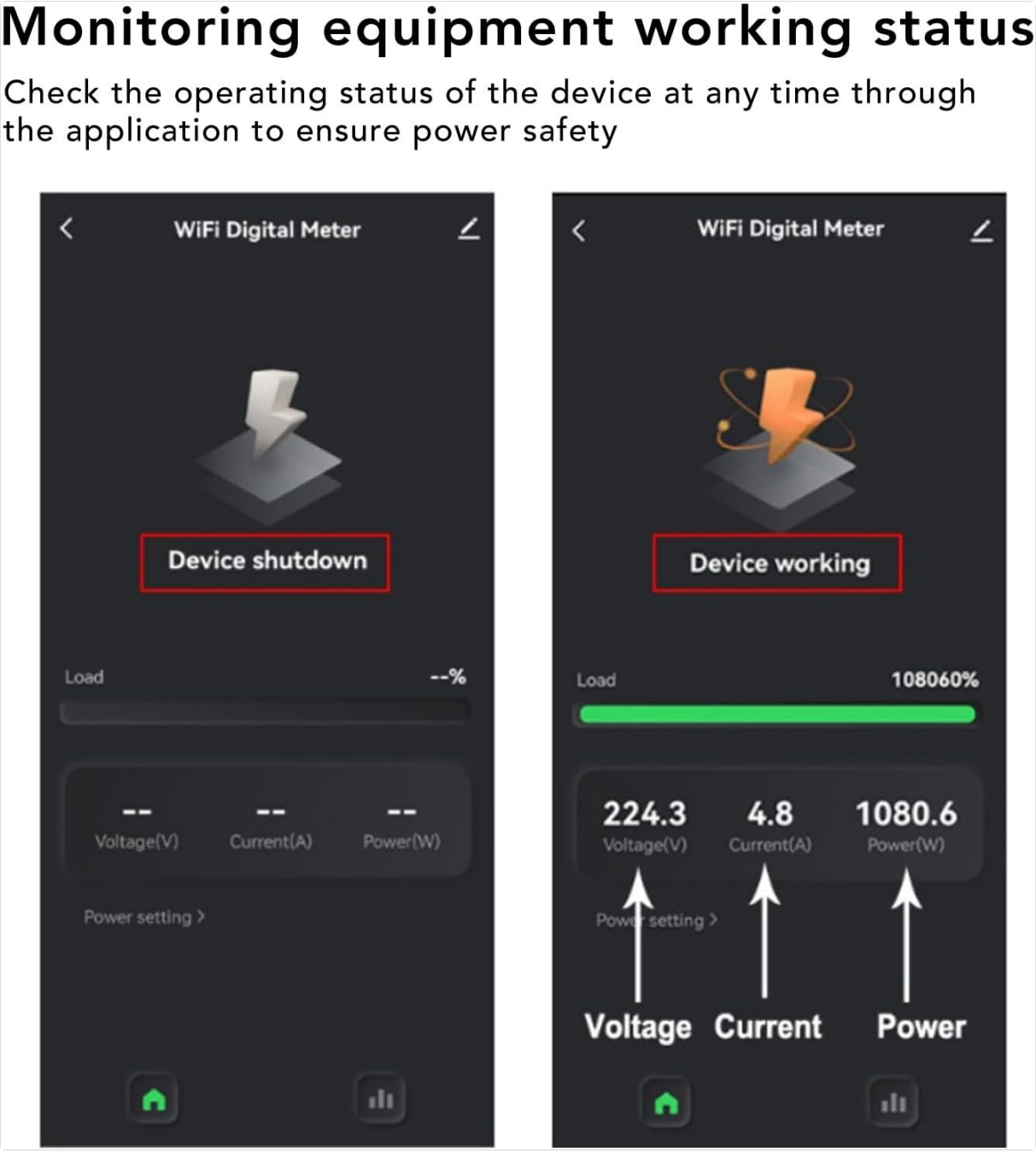

Image 7.1: App interface displaying total energy, and detailed usage for Circuit 1 and Circuit 2, including forward energy (consumption) and generation (reverse current).

7.2 Real-Time Monitoring

The app allows you to check the operating status of the device and view real-time electrical parameters.

- **Device Status:** See if the device is active or shut down.
- **Real-time Values:** Monitor voltage (V), current (A), and active power (W) in real-time. The device also monitors power factor and frequency.

Image 7.2: App interface showing the device's operational status (e.g., 'Device shutdown' or 'Device working') and real-time measurements for Voltage, Current, and Power.

7.3 Historical Data and Reports

The app stores energy consumption records for over a year, allowing you to review historical data.

- **Hourly, Daily, Monthly, Yearly:** View energy consumption trends over various timeframes.
- **Kilowatt-hour Statistics:** Access detailed kilowatt-hour (kWh) statistics for better energy management.

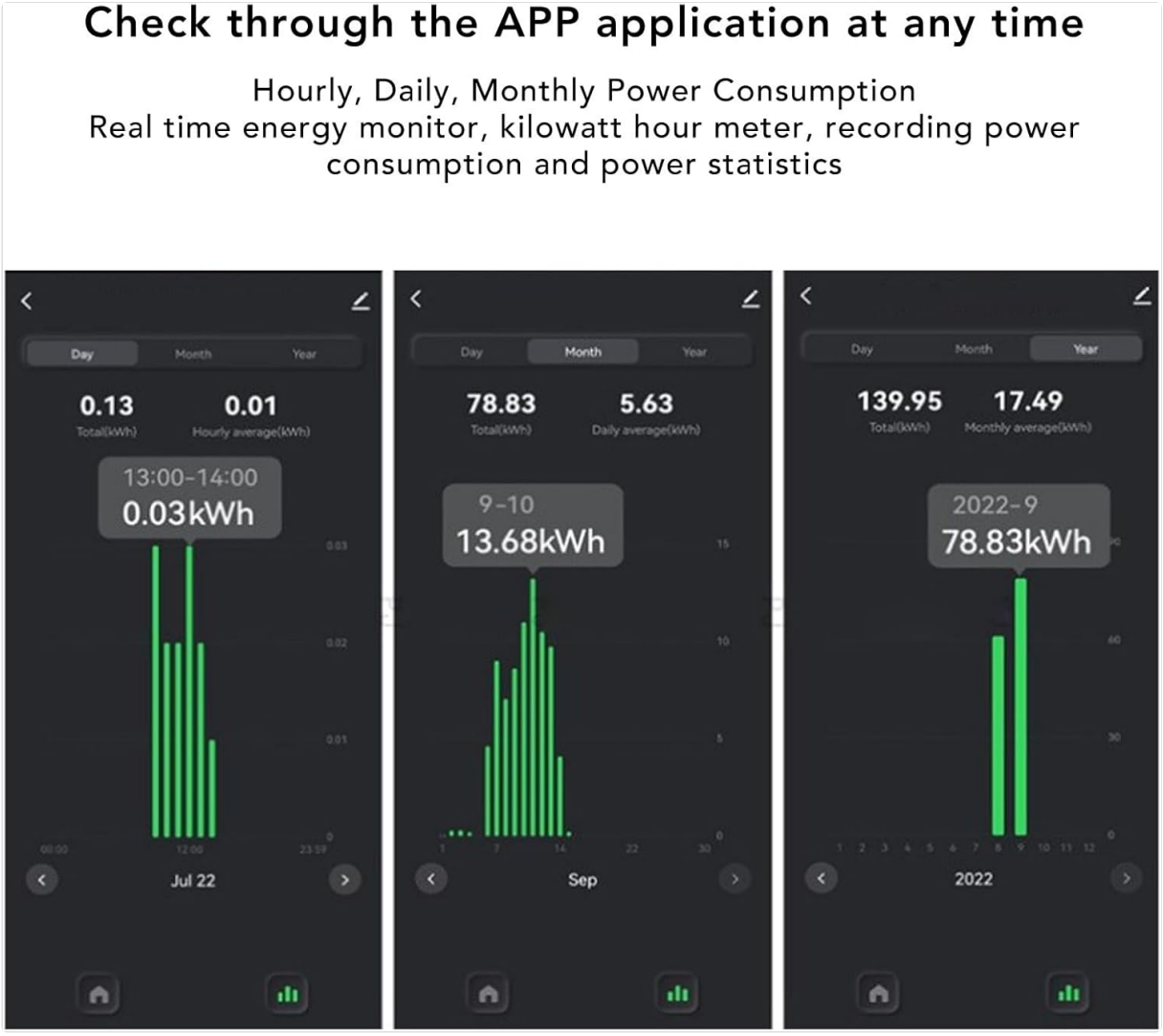

Image 7.3: App interface showing graphical representations of energy consumption data for hourly, daily, and monthly periods, including total kWh and average usage.

7.4 Automation Functions

Leverage the app's automation features to create smart scenarios based on your energy data.

1. **Power/Current Thresholds:** Set specific power or current values in the app. The device can then trigger actions or notifications if these values are exceeded.
2. **Notifications:** Configure the app to send notifications when the device stops running or when certain energy events occur.

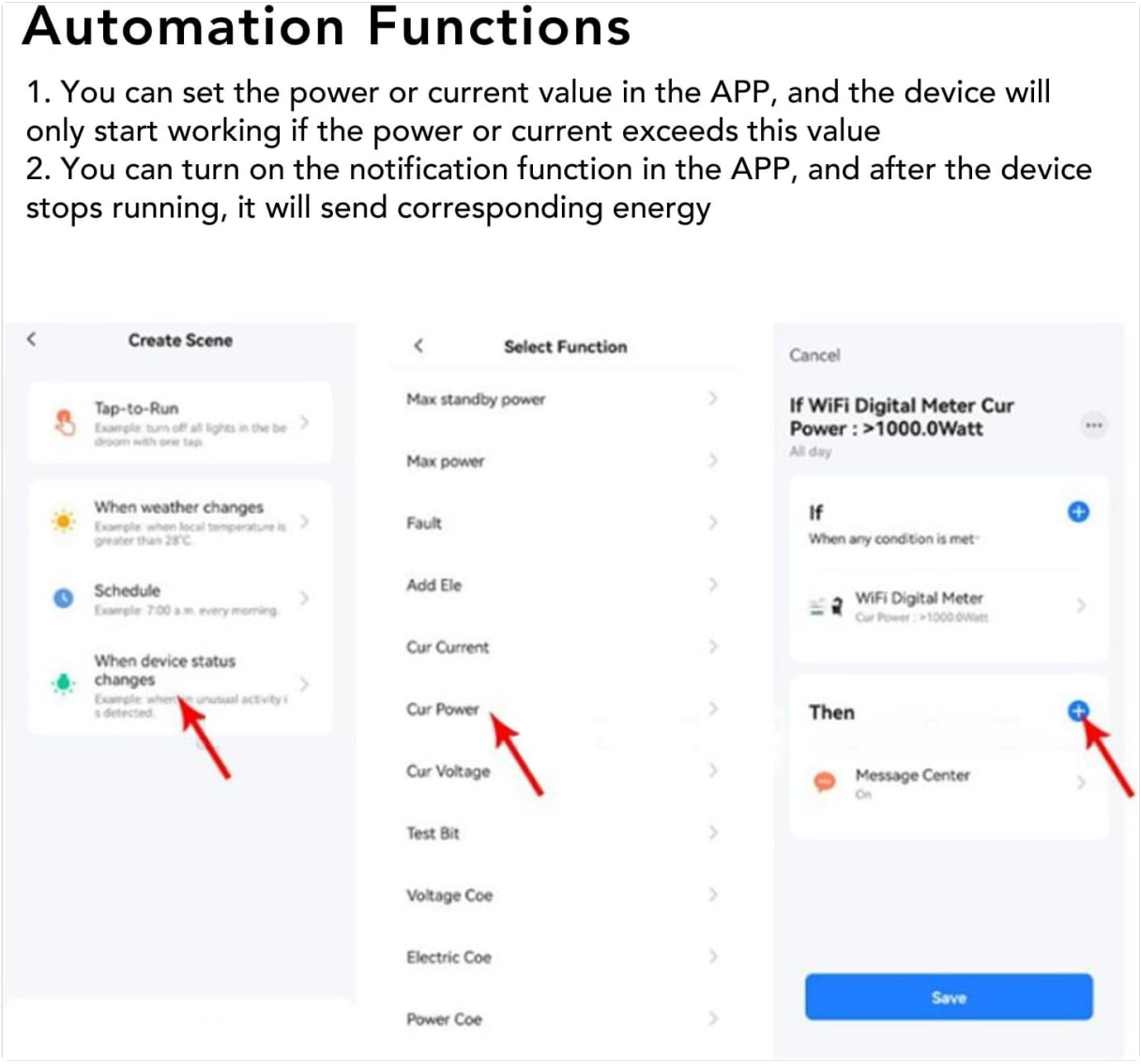

Image 7.4: App interface demonstrating the 'Automation Functions' section, where users can create 'Scenes' and set conditions (e.g., 'If WiFi Digital Meter Cur Power > 1000.0 Watt') to trigger actions or notifications.

8. Troubleshooting

If you encounter issues with your Smart Energy Monitor, refer to the following common solutions:

- **Device Not Connecting to Wi-Fi:**
  - Ensure your Wi-Fi network is 2.4GHz. The device does not support 5GHz networks.
  - Verify your Wi-Fi password is correct.
  - Move the device closer to your Wi-Fi router.
  - Restart your router and try pairing again.
- **Inaccurate Readings:**
  - Check that CT clamps are correctly installed around the live wires and fully closed.
  - Ensure the arrow on the CT clamp points in the correct direction of current flow.
  - For 220V split-phase systems, verify CT clamp polarities are correctly configured as described in Section 5.3.
- **No Data in App:**
  - Confirm the device is successfully connected to Wi-Fi and shows as online in the app.
  - Check the physical wiring connections (L, N, and CT clamps) are secure.
  - Ensure there is active current flowing through the monitored circuits.
- **App Functionality Issues:**
  - Ensure your Tuya Smart or Smart Life app is updated to the latest version.

- Clear the app's cache or reinstall the app.
- Some advanced features or consistent data logging may require a gateway for optimal performance, especially with iOS devices, as noted by some users.

9. Maintenance

The Walfront Smart Energy Monitor requires minimal maintenance.

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Do not use liquid cleaners or solvents.
- **Firmware Updates:** Periodically check the Tuya Smart or Smart Life app for available firmware updates for your device. Updates can improve performance and add new features.
- **Environmental Conditions:** Ensure the device operates within the specified temperature and humidity ranges to prolong its lifespan.

10. Warranty and Support

For warranty information and technical support, please refer to the documentation provided at the point of purchase or contact Walfront customer service. Keep your purchase receipt as proof of purchase.

Related Documents - WALFRONTkwp3xfor62

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