LILYGO T-Display Keyboard Shell Kit

LILYGO T-Display Keyboard Shell Kit User Manual

Model: T-Display Keyboard Shell Kit

1. PRODUCT OVERVIEW

The LILYGO T-Display Keyboard Shell Kit is an integrated development board featuring an ESP32 WiFi and Bluetooth wireless module, a 1.14-inch LCD display, and a functional keyboard, all housed within a 3D printed casing. This kit is designed for various development projects requiring wireless connectivity, a compact display, and user input capabilities. It includes a 500mA battery for portable operation.

Figure 1.1: Front view of the LILYGO T-Display Keyboard Shell Kit. This image displays the device's compact form factor, with the LCD screen showing a colorful 'TTGO' logo and the numeric keypad clearly visible.

2. WHAT'S IN THE BOX

Carefully unpack the contents and ensure all items are present:

- 1 x LILYGO T-Display Keyboard with Shell (integrated LCD Display Controller and TTGO Development Board)
- 1 x Type-C USB Cable
- 1 x 500mA Battery (pre-installed or included for installation)

Figure 2.1: Kit contents. This image shows the assembled T-Display Keyboard with its shell and the included Type-C USB cable, labeled for clarity.

3. SETUP INSTRUCTIONS

Follow these steps to set up your LILYGO T-Display Keyboard Shell Kit:

1. **Initial Inspection:** Before assembly or use, inspect all components for any visible damage.

2. **Battery Connection:** If the 500mA battery is not pre-installed, carefully connect it to the designated battery connector on the TTGO Development Board. Ensure correct polarity.

3. **Assembly (if required):** If you received the components separately, carefully place the TTGO Development Board with the LCD and keyboard into the 3D printed shell. Secure it according to the design, ensuring all buttons and ports align correctly.

4. **First Charge:** Connect the device to a 5V USB power source using the provided Type-C USB cable. The device will begin charging. It is recommended to fully charge the battery before first use.

5. **Connect to Computer:** For programming and initial configuration, connect the device to your computer using the Type-C USB cable. Your computer should recognize the device as a serial port.

Figure 3.1: Side view showing the Type-C USB port. This port is used for both charging the internal battery and for data communication with a computer for programming and debugging.

4. OPERATING INSTRUCTIONS

The LILYGO T-Display Keyboard Shell Kit is a versatile development platform. Its operation largely depends on the firmware loaded onto the ESP32 module. Below are general guidelines:

1. **Power On/Off:** The device typically powers on automatically when connected to USB or when the battery is charged and connected. Some models may have a small power button on the side.

2. **Programming:**
   - Connect the device to your computer via the Type-C USB cable.
   - Install the necessary ESP32 development environment (e.g., Arduino IDE with ESP32 board support, PlatformIO).
   - Refer to the official LILYGO GitHub repository for example code, libraries, and detailed programming guides: github.com/Xinyuan-LilyGO/T-Display-keyboard.
   - Upload your custom firmware to the ESP32.

3. **Using the LCD Display:** The 1.14-inch LCD display can be programmed to show text, graphics, and

sensor data. Libraries for display control are available in the GitHub repository.

4. **Using the Keyboard:** The integrated keyboard provides input for your applications. Firmware examples will demonstrate how to read key presses.

5. **Wireless Connectivity (WiFi/Bluetooth):** Utilize the ESP32's built-in WiFi and Bluetooth capabilities for network communication, data transfer, and IoT applications.

5. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your device:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. For the LCD screen, use a microfiber cloth. Avoid abrasive cleaners or solvents.
- **Battery Care:** To prolong battery life, avoid fully discharging the battery frequently. Store the device in a cool, dry place if not used for extended periods.
- **Environmental Conditions:** Operate the device within its specified temperature and humidity ranges. Avoid exposure to extreme temperatures, direct sunlight, or moisture.
- **Firmware Updates:** Regularly check the official LILYGO GitHub repository for firmware updates or improvements that may enhance functionality or address issues.

6. TROUBLESHOOTING

If you encounter issues with your LILYGO T-Display Keyboard Shell Kit, refer to the following common troubleshooting steps:

- **Device Not Powering On:**
  - Ensure the battery is correctly connected and charged.
  - Verify the Type-C USB cable is securely connected to a working power source.

- **Display Not Working:**
  - Check if the device is powered on.
  - Ensure your uploaded firmware correctly initializes and drives the LCD. Test with a known working example from the GitHub repository.

- **Keyboard Not Responding:**
  - Verify that your firmware includes the correct code to read input from the keyboard matrix.
  - Check for any physical obstructions or damage to the keys.

- **Computer Not Recognizing Device:**
  - Ensure the Type-C USB cable is functional and properly connected.
  - Install the necessary USB-to-serial drivers for the ESP32 chip (e.g., CP210x or CH340 drivers, depending on the specific board revision).
  - Try a different USB port or computer.

- **WiFi/Bluetooth Connectivity Issues:**
  - Confirm that your firmware correctly configures and initializes the WiFi or Bluetooth module.
  - Check network credentials (SSID, password) for WiFi connections.
  - Ensure the device is within range of the access point or Bluetooth device.

7. SPECIFICATIONS

Feature	Detail
Model Name	T-Display Keyboard Shell Kit
Processor	Espressif ESP32 (1 processor)
RAM	LPDDR2, LPDDR3
Display	1.14-inch LCD Display Controller
Connectivity	Wi-Fi, Bluetooth
Operating System	FreeRTOS (supported)
Battery	500mA (integrated)
Dimensions (Approx.)	Length: 110mm, Width: 59.5mm, Height: 28mm

Figure 7.1: Approximate dimensions of the device. This image provides a visual representation of the kit's physical size, indicating its length, width, and height.

8. WARRANTY INFORMATION

Specific warranty details for the LILYGO T-Display Keyboard Shell Kit are typically provided by the retailer or manufacturer at the time of purchase. Please retain your proof of purchase for any warranty claims. For the

most accurate and up-to-date warranty information, it is recommended to contact LILYGO directly or refer to the documentation included with your product.

9. SUPPORT

For further assistance, technical documentation, example code, and community support, please refer to the following resources:

- **Official LILYGO GitHub Repository:** This is the primary resource for software, firmware, and detailed technical information.
  github.com/Xinyuan-LilyGO/T-Display-keyboard
- **Manufacturer Contact:** For product-specific inquiries or issues not covered in the documentation, you may contact LILYGO directly through their official channels.
- **Online Forums and Communities:** Engage with the ESP32 and LILYGO user communities for peer support and project ideas.