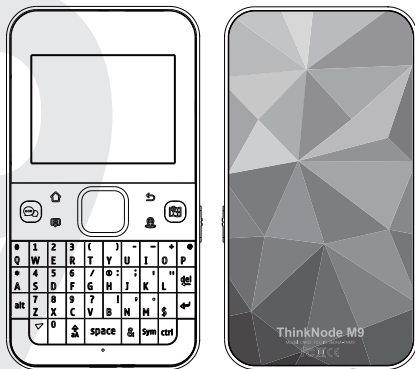
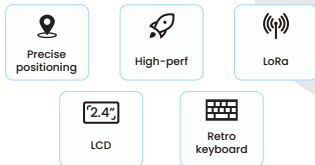


# ThinkNode M9 — User Manual

A phone purpose-built for offline,  
long-range communications



Version: V1.0 Date: 260904

FCC ID: 2BDNA-TNM9 Model: CM02

Powered by  
**Meshtastic**

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## Overview

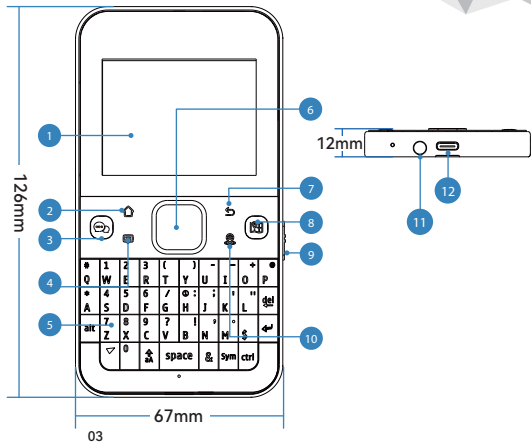
The M9 is a standalone wireless communication device designed in the form factor of a mobile phone, completely eliminating the cumbersome process of connecting a mobile phone to an external receiver via Bluetooth, a common feature in traditional solutions. It highly integrates display, input, communication, and positioning functions into a mobile phone-sized body, achieving a complete "single-device, ready-to-use" experience.

## Features

- **All-in-one portability:** A smartphone-like design integrating communication, input, and display. No external devices are required; it's ready to use right out of the box, with zero learning curve.
- **Immediate activation:** Pre-installed with Meshtastic firmware. It connects to decentralized mesh networks immediately upon startup, supporting various built-in functions such as message sending and receiving, and location sharing.
- **Powerful performance:** Equipped with an ESP32-S3 dual-core processor (240MHz), 512KB SRAM + 16GB Storage, ensuring smooth and stable operation.
- **Versatile wireless:** The Semtech LR1110 achieves long-range LoRa communication, integrates Bluetooth & Wi-Fi, and features a built-in optimized antenna for reliable signal strength.
- **Retro keyboard + clear display:** A 2.4-inch color LCD paired with a physical full keyboard provides efficient and tactile input.
- **Precise positioning:** Built-in high-precision GPS and ceramic antenna, supporting BeiDou, GPS, Galileo and GLONASS positioning, and with a magnetic compass sensor, navigation and location sharing are more intuitive.
- **Long battery life:** 2300 mAh battery with deeply optimized power consumption, supporting 2~3 days of use(standby mode), easily handling outdoor and emergency scenarios.

## Hardware Overview

- 1 2.4-inch LCD
- 2 Home Key
- 3 Chat key
- 4 Messages
- 5 Keyboard
- 6 Navigation key
- 7 Back Key
- 8 Map key
- 9 Power Switch
- 10 Positioning key
- 11 Reset key
- 12 USB-C port



## Main Specifications

| Product Name           | ThinkNode M9                        |
|------------------------|-------------------------------------|
| Mesh Network           | Meshtastic                          |
| MCU                    | ESP32-S3R8                          |
| System Memory          | 512KB SRAM、 8M PSRAM                |
| Storage                | 384KB ROM                           |
| Flash                  | 128 Mbit(Already built-in)          |
| Wireless communication | LR1110 LoRa, WiFi, Bluetooth        |
| Frequency Band         | US 915MHz/EU 868MHz                 |
| Display                | 2.4 inch TFT-LCD                    |
| Resolution             | 240(RGB)x320                        |
| Input Method           | Full keyboard (with backlight)      |
| Power Input            | 5V/1A(USB-C)                        |
| Battery Capacity       | 2300 mAh                            |
| Dimension              | 126*67*12 mm                        |
| Operating Temperature  | -10~60°C                            |
| Other                  | GNSS、 Magnetic compass、 Buzzer、 RTC |

## Button & Functional Interaction

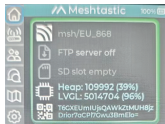
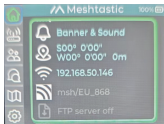
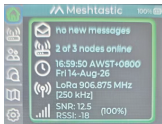
### Meshtastic:

| Functional Button  | Function Description                                                                                                                                       |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Home Button        | Single-click to return to the home page                                                                                                                    |
| Chat Button        | Single-click to enter the chat page                                                                                                                        |
| Messages Button    | Single-click to open the chat dialog box                                                                                                                   |
| Navigation Button  | Single-click the Up/Down/Left/Right keys to move the cursor on the interface;Single-click the center key to confirm                                        |
| Back Button        | Single-click to return to the previous level                                                                                                               |
| Map Button         | Single-click to enter the map page                                                                                                                         |
| Positioning Button | Single-click to send a temporary ping of the device location to the network;Press and hold for 3 seconds to enable or disable the GPS positioning function |
| Reset Button       | Single-click to restart the device                                                                                                                         |
| Keyboard           | Input text messages, press Enter to send messages                                                                                                          |

# Meshtastic Operation and Use

## 1.Interface Description

### 1.1 Home Page:

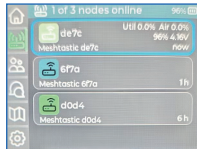


-  Envelope: Displays unread messages. Single-click to enter the chat interface.
-  Node: Displays online node devices with previous communication records. Single-click to enter the Filter interface.
-  Time: Single-click to switch between current time and usage duration.
-  Frequency band: Displays the LoRa frequency band.
-  SNR: Signal-to-Noise Ratio, RSSI: Received Signal Strength Indicator.
-  Notification: Single-click to switch the message alert mode.
-  Coordinate: Displays GPS coordinate information. Press and hold to enable or disable GPS.
-  WiFi: Press and hold to enable or disable WiFi. The WiFi connection interface pops up. The map will be automatically downloaded once connected.
-  MQTT: Press and hold to enable or disable MQTT.

-  FTP: Press and hold to enable or disable FTP.
-  SD Card: Displays the SD card status.
-  Heap/LVGL Information: Single-click to show/hide data.
-  QR Code: Single-click to display the QR code.

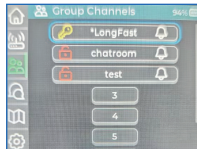
## 1.2 Node List:

Single-click to view more information;  
press and hold to send a direct private message.



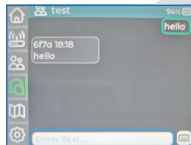
## 1.3 Group Channels:

Displays joined groups. Single-click to enter the group chat window.



### 1.4 Chat Window:

Shows ongoing chat history.



### 1.5 Map:

Maps are preloaded on the SD card at the factory. Maps will also be downloaded automatically when WiFi is connected.

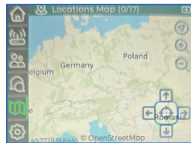
Navigation Button controls cursor movement;

Zoom In: Key combination "Sym" + "O";

Zoom Out: Key combination "Sym" + "I";

Press and hold the center key of the Navigation Button to pop up map settings.

- Top Bar: Brightness adjuster
- Bottom Bar: Contrast adjuster



## 1.6 Settings & Tools:

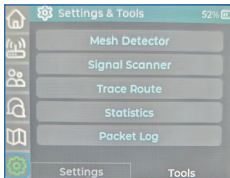
Settings: The Settings tab contains configuration options, allowing users to customize device behavior directly on the user interface.

\*All modifications take effect only after single-clicking "OK".



## Tools :

- MeshDetector: Periodically send node information requests to detect nearby nodes.
- Signal Scanner: Monitor signal strength between selected nodes to assist with node placement.
- Trace Route: Perform route tracing for the selected node.
- Statistics: Break down received data packets by type.
- Packet Log: Record of transmitted and received data packets.

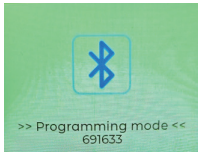
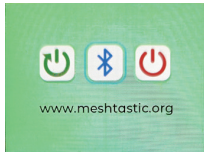


## 2.Connect to Meshtastic APP

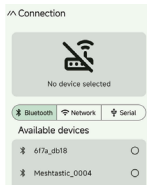
1. Download the Meshtastic APP from the Apple App Store or Google Play Store.
2. Select "Reboot/Shutdown" under the "Settings" menu.



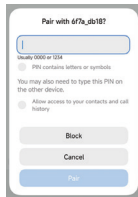
3. Select the Bluetooth icon. "Programming mode" will appear after automatic reboot.  
(\*Press and hold the center key of the Navigation Button to exit Bluetooth mode)



4. Launch the Meshtastic APP and locate the device.



5. Enter the Programming mode number shown on the device.



6. Complete pairing.

## FAQ

### 1.No Nodes Are Found

- Confirm that both devices use the correct Region and compatible modem preset/frequency settings.
- Confirm that the antennas match the hardware band and are firmly attached.
- Place the devices nearby for the initial test and wait for periodic node-information packets.
- Confirm that neither device is in Bluetooth programming mode or shut down.
- Check Statistics and Packet Log for received traffic, RSSI, and SNR changes.

### 2. Node is visible but messages cannot be received

- Public / private channel: check the channel key, Radio, and Scope;
- Verify the primary/secondary channel slot, name, and key on both devices.
- Confirm compatible Region, modem preset, and frequency slot/override.
- Try a short message to the primary channel at close range.
- Do not treat an old node-list entry as proof that the node is currently online.
- Review Packet Log and Trace Route, but avoid repeated diagnostics on a busy channel.

### 3.Bluetooth Pairing Fails

- Re-enter Bluetooth programming mode from `Reboot / Shutdown`.
- Use the new number displayed on the M9; old pairing numbers expire.
- Remove the old M9 record from the app and the phone's Bluetooth settings.
- Grant the Meshtastic app the Bluetooth/nearby-device permissions required by the phone OS.
- Restart Bluetooth or reboot both devices, then retry at close range.

## 4.Map Is Blank

- Confirm that the SD card is detected and contains the expected map files;
- Connect to a working Wi-Fi network if the firmware downloads map tiles automatically;
- Check map coverage, zoom level, directory structure, and free storage space;
- Remember that a missing GNSS fix affects centering on the current position but should not prevent browsing existing tiles.

## 5.The SD Card Is Not Detected

- Power down before reseating the card. Test a known-good card of a supported capacity and file system. Back up data before reformatting. If custom firmware is used, also confirm that SD\_CS is GPIO48 and that the shared SPI chip-select signals are managed correctly.

## Part List

- ThinkNode M9 x1
- User Manual x1
- USB-A to USB-C Cable x1

## Wiki

For more instructions, schematic diagrams, advanced configuration and FAQs, scan the code or refer to the official Wiki.

Meshtastic



## FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction

## Customer Support

If you have any questions, customer support is always standing by.



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Manufacturer: Elecrow Technology Development Co.Ltd.