

VHF/PTT ML-M32



**Dual Mode IP/Analog Radio
VHF / PTT (POC)
Communication**

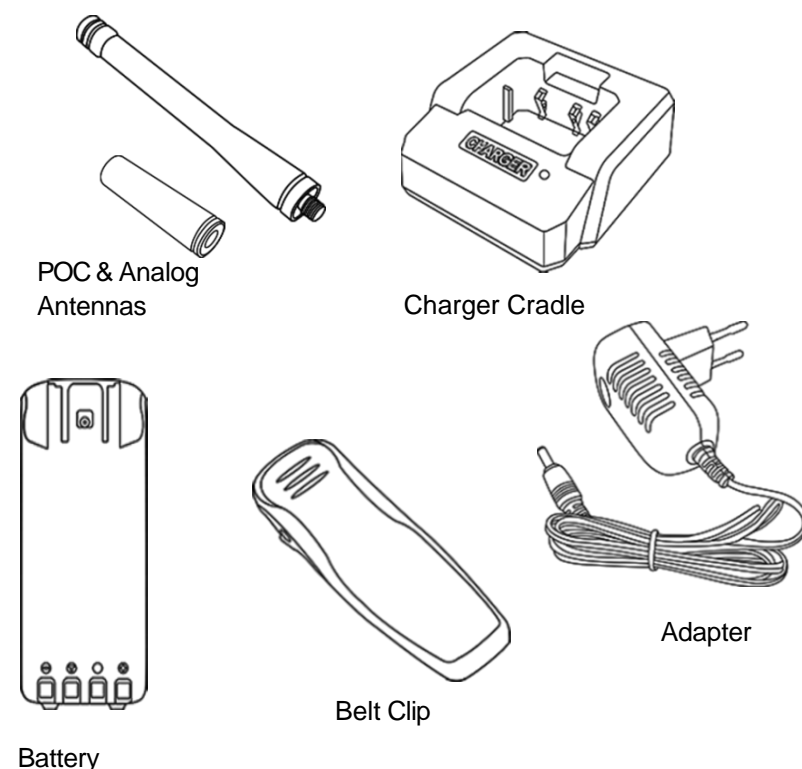
ML-M32

Items in the Package

ML-M32 VHF/PTT DEVICE

The ML-M32 is a state-of-the-art communication device designed for seamless integration of analog and public network functionalities.

It offers robust features, a durable design, and high-performance communication capabilities suitable for various professional applications..



Checking Equipment

Upon receiving the product, carefully open the packaging and verify the contents against the packing list. In case of any missing, damaged, or incorrect items, contact the supplier immediately.

Package Contents:

ML-M32 Main Unit
Power Adapter
Polymer Battery
Belt Clip
Lanyard
Instruction Manual
Product Certificate
Public Network Antenna (PTT/POC)
Analog Antenna (VHF)



TWO WAYS RADIO

General

Operation Voltage	7.4V	
Weight (With Antennas + Battery)	237g	
Dimension (HxWxD) W/out Antennas	125x55x35mm	
Audio Power	≥ 900 mW	
Operating Temperature	-20°C - +55°C	
Frequency range	136-174 MHz	
Step Frequency	5KHz, 6.25KHz, 12.5KHz, 25KHz, 50KHz, 100KHz, 250KHz, 1MHz	
Channel Capacity	200	
Standard Battery	3800mAh	
Antenna Impedance	50Ω	

Transmitter	Broadband	Narrow Band
Modulation type	16K F3E	11K F3E
Pro-Channel Power	≥ 65 dB	≥ 60 dB
Spurious & Harmonics	≤ -36 dBm	≤ -36 dBm
Audio Response	-1 – 3bd	
Maximum Frequency Offset	+/- 5KHz	+/- 2.5KHz
Frequency Stability	+/- 2ppm	
Audio Distortion	$\leq 5\%$	
RF Power Output	≥ 5 W	

Receiver	Broadband	Narrow Band
Adjacent Channel Selectivity	≤ 65 dB	≤ 60 dB
Intermodulation	≤ 65 dB	≤ 60 dB
Spurious Response Rejection	≤ 65 dB	≤ 65 dB
Audio Response	-1 – 3bd	
S/N	≤ -45 dB	≤ -40 dB
Audio Distortion	$\leq 5\%$	
Sensitivity	0.25μV (12dB/SINAD)	
Work time	12 hours	
Standby time	48 hours	

NETWORK DIGITAL / POC RADIO

General

Operating Bands	LTE-FDD Band B1/B3/B5/B7/B8/B20/B28 LTE-TDD Band B38/B40/B41	
Sim Cards	2 x Nano Sim	



Communicate between two or more devices at just the push of a button



PREPARATION

1. Using the Battery Pack

The battery pack is not pre-charged at the factory. Ensure it is fully charged before first use. To maximize battery lifespan, power off the transceiver and remove the battery pack when not in use.

Avoid storing the battery in excessively hot or cold environments, as extreme temperatures can degrade performance.

2. Battery Pack Characteristics

Even when not in use, the battery will gradually lose charge over time. After multiple charge and discharge cycles, the talk time and standby duration may become noticeably shorter, which is a normal occurrence.

Storing the battery in high-temperature conditions will reduce its capacity and overall lifespan. Overcharging the battery may also contribute to a shorter lifespan.

3. Charging the Battery Pack

Use only the approved charger provided for charging the battery.

If the battery has been stored for an extended period (over two months), the initial charge may not reach full capacity.

After two or three complete charge/discharge cycles, the battery will reach its optimal operating capacity.

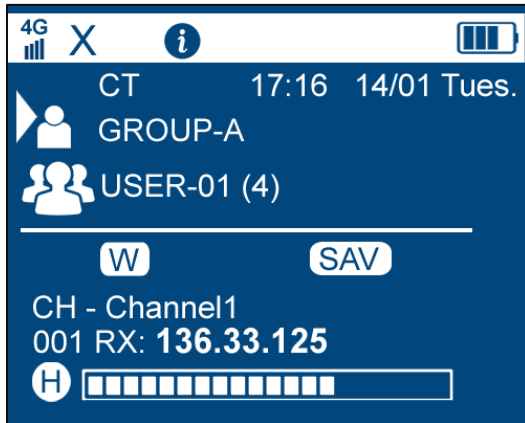
Follow these steps to charge the battery correctly:

- Connect the AC adapter to a **220V power outlet**.
- Insert the **battery pack** or the **transceiver with the battery pack** into the desktop charger.
- Ensure that the battery pack's terminals align properly with the charging contacts.
- The **LED indicator will turn red**, indicating that charging has started.
- After approximately **6 hours**, the **LED indicator will turn green**, signaling that the battery is fully charged.
- Once fully charged, remove the battery pack or the transceiver from the charger and proceed with usage.

Important Notes: Always **power off the radio** before charging, and do not use the device during the charging process.

Refer to the **Safety Information Booklet** before use to ensure compliance with safety guidelines.

GETTING ACQUAINTED

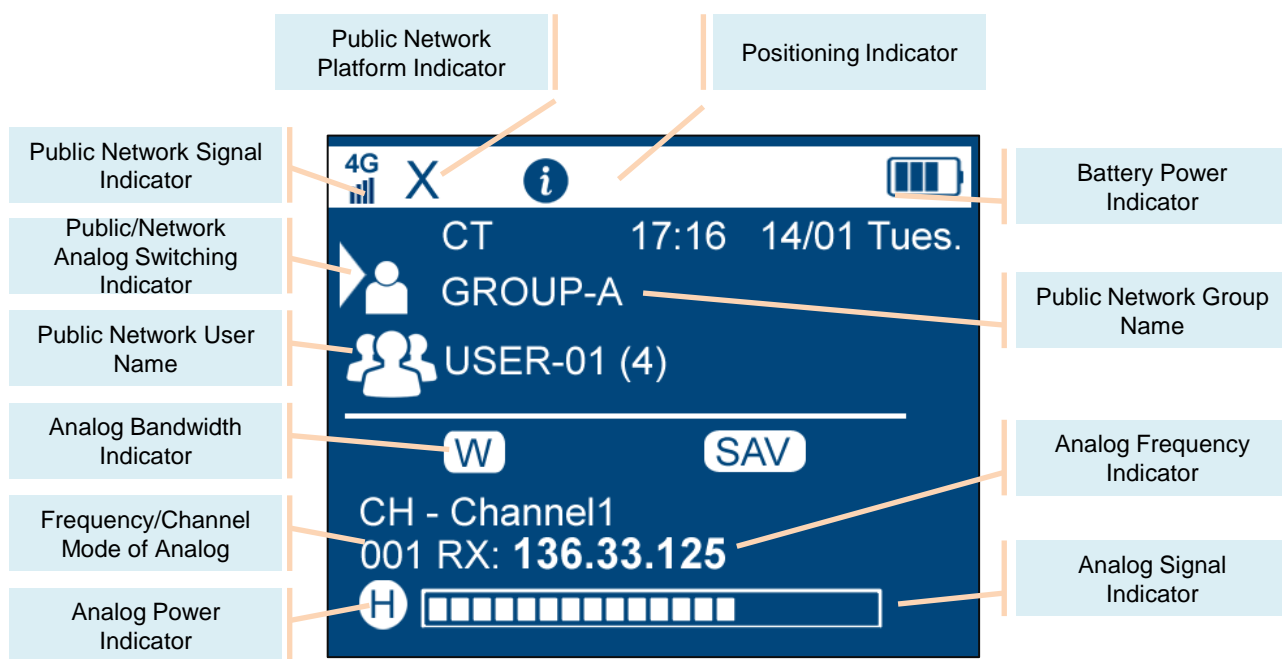


1. Analog antenna (VHF)
2. Public network antenna (PTT)
3. Switch/volume potentiometer
4. "Side button 1" custom button
5. "Side button 2" public network PTT key sends Telephone: Call the other person while holding down,Receive the other person's voice when you let go.
6. "Side key 3" simulates PTT key feeding Telephone: Call the other person while holding down,Receive the other person's voice when you let go.
7. "Sidebutton 4" public network simulation status Column toggle
8. "Side button 5" simulates the listening button
9. Headphone jack.
10. Numeric keypad.
11. Type-c charging port

Digital key description

1. Public network “0” ~ “9” digital keys: used to enter phone numbers or shortcut key operations
2. Analog “0” ~ “9” digital keys: used to enter 400-480 frequency points
3. “#” key long press: keyboard lock and unlock
4. ▲▼ Up and down keys, short press to move up one line, short press to move down one line
5. “C” key to return to the previous menu or delete a character.
6. “C” key to exit the current menu and return to standby mode

LCD Screen



Public Network (PTT/PoC Use): This refers to communication over cellular networks (4G/LTE/3G) or Wi-Fi-based networks rather than traditional radio frequencies. It allows communication similar to walkie-talkies but operates over internet-based services.

Analog Mode (VHF Use): The device also supports analog communication, which operates on VHF frequencies, requiring a separate antenna (referred to as the Analog Antenna in the document).

Frequency Writing Operation

This machine has two modes: Analog intercom (VHF) and Public network intercom (PTT)

1. Public Network Frequency Writing

- Open the **frequency writing software** and log in using your account credentials.
- Configure the required settings according to operational needs.
- Click the "**Public Network Write**" button to upload all configuration information.
- Wait for the "**Network Write Successful**" confirmation before disconnecting the device.

2. Analog Frequency Writing

The **analog frequency writing process** follows the same steps as public network writing.

Ensure that the frequency writing cable remains connected until the configuration is complete.

This device supports **dual-mode communication**, enabling both **analog intercom** and **public network intercom** functionalities.

Indicator	Description
SAV	Analog power-saving mode is activated
+/-	Different frequency mode enabled
CT/DCS	Analog or digital sub-audio function is active
CH/VFO	Indicates Channel mode (CH) or Frequency mode (VFO)
H/L	High-power (H) or Low-power (L) transmission mode
N/W	Narrowband (N) or Wideband (W) operation mode
T	Frequency hopping is enabled
RX/TX	Displays the current Receive (RX) or Transmit (TX) frequency

Ensure all settings are correctly configured before operating the device in the desired mode.

General Operation

1. Powering On the Device

A. Preparing for Power-On

Insert the SIM Card – Select a **compatible SIM card** based on the device model and ensure it is securely installed.

Secure the Metal Cover – Press down firmly to secure the SIM card compartment.

B. Battery Installation & Power Activation

Install the Battery – Properly align and insert the battery pack into the device.

Turn on the Power – Rotate the **volume switch clockwise** to power on the device.

C. Public Network Intercom Mode Initialization

If the **public network intercom mode** is enabled, the device will proceed with the following startup sequence:

The **blue LED indicator** flashes, and the LCD screen displays a **login status prompt**. The device **queries the network connection** and updates the LCD with network status information.

It **logs into the intercom backend account**, a process that typically takes **approximately 30 seconds**.

Upon successful login, a **voice prompt announces** the user's **name and assigned group**.

The system retrieves **group information**. If a **default group** is pre-configured, the device will automatically connect to that group upon startup.

D. Completion of Power-On Process

Once the **blue LED turns off**, the **public network intercom** is fully operational, allowing for communication.

If **only the analog intercom mode** is enabled, communication will be available within a few seconds after powering on.

2. Powering Off the Device

To turn off the device, **rotate the volume switch counterclockwise** until the power is completely off. Ensure the device is fully powered down before removing the battery or SIM card.

Menu function

1. Working Mode Selection

To configure the working mode:

- Press the **OK button** to access the menu.
- Use the **▲ ▼ navigation keys** to select **Working Mode** and press **OK** to confirm.

Choose from the following modes:

A. Public Network Mode – The device operates exclusively on the **public network (PoC/4G/3G/Wi-Fi)**.

B. Analog Mode – The device functions solely in **analog mode**.

C. Dual Mode – Enables simultaneous operation on both **public network** and **analog mode**.

D. Transfer Mode – The device acts as a **signal converter**, bridging **analog signals** to the **public network** and vice versa.

Analog to Public Network: Converts received analog signals and transmits them as public network signals.

Public Network to Analog: Converts received public network signals and retransmits them as analog signals.

2. Group Selection

To join or manage communication groups:

- Press **OK** to enter the menu.
- Use **▲ ▼ keys** to navigate to **Group Selection**, then press **OK** to confirm.

Follow these options:

A. Joining a Group:

- Use the **▲ ▼ keys** to highlight the desired group.
- Press **OK** to enter the selected group.

B. Quick Call Setup for Groups:

- Select the **desired group** and press **OK** to enter.
- Press **▼** to select **Quick Call** and press **OK**.
- Choose a **number (1-9)** for the Quick Call slot.
- Press **OK** to confirm the assignment.
- To initiate a Quick Call, simply **long-press the assigned number key**.

Menu function

3. Member Selection

To select and call specific members:

- Press **OK** to open the menu.
- Use the **▲ ▼** keys to select **Member Selection** and press **OK**.

A. Selective Call (Individual Calls):

- Use **▲ ▼** keys to highlight the member you want to call.
- Press **OK** and select **Mark Selective Call**.
- Once marked, a “+” symbol appears next to the member’s name.
- Press the **PTT button** to initiate a selective call.

(Some platforms allow cross-group member calls.)

B. Quick Call for Members:

- Press **▼** to select **Quick Call** and press **OK**.
- Assign a **number (1-9)** for quick access.
- Press **OK** to confirm the assignment.
- To initiate a Quick Call, **long-press the assigned number key**.

(Note: The same number cannot be assigned for both Group and Member Quick Calls.)

Analog settings

To configure analog communication settings:

- Press **OK** to enter the **menu**.
- Use the **▲ ▼** **keys** to select **Analog Settings**, then press **OK** to confirm.
- Adjust the following **channel configuration** options as needed.

1. Channel Configuration

A. Bandwidth Settings

Navigate to **Analog Settings > Channel Configuration > Bandwidth Settings**.

Select one of the two available options:

- **Broadband (Wideband)** – Offers better audio quality but uses more bandwidth.
- **Narrowband** – Saves bandwidth but may slightly reduce audio clarity.

Important: *If two devices operate on the same frequency but different bandwidth settings, communication may be **intermittent or disrupted**.*

B. Power Selection (H/L)

This function adjusts the **transmission power** of the device.

Navigate to **Analog Settings > Channel Configuration > Power** and select:

- **High Power (H)** – Increases communication range and signal penetration but consumes more battery.
- **Low Power (L)** – Extends battery life but with reduced transmission distance.

Once selected, press **OK** to confirm. The **LCD status bar** will display the current power setting (H/L).

C. Receive Sub-Audio (CTCSS/DCS Settings)

The **sub-audio feature** helps filter unwanted signals and ensures only relevant transmissions are received.

Navigate to **Analog Settings > Channel Configuration > Receive Analog Sub-Audio**, then press **OK**.

Choose from the following options:

- **Disable** – No sub-audio filtering; all signals will be received.
- **CTC (Continuous Tone-Coded Squelch System)** – Analog sub-audio setting, selectable between **63.0Hz to 254.1Hz**.
- **NDCS (N-Code Digital Coded Squelch)** – Digital sub-audio setting, ranging from - **017N to 754N**.
- **IDCS (I-Code Digital Coded Squelch)** – Another form of digital sub-audio filtering, adjustable between **017I to 754I**.

Note: *If the received signal does not match the selected sub-audio setting, the transmission will be blocked to prevent interference. These settings ensure optimal analog communication while preventing unwanted signal disruptions.*

Analog settings (Continued)

D. Transmit Sub-Audio (CTCSS/DCS Settings)

This function configures the **transmit sub-audio** for the current intercom channel. It ensures that only devices with a matching sub-audio setting can receive the transmission, effectively **filtering out unwanted signals** and minimizing interference.

To configure:

- Press **OK** to enter the menu.
- Use the **▲ ▼** keys to navigate to **Analog Settings**, then press **OK**.
- Select **Channel Configuration** and press **OK**.
- Choose **Transmit Analog Sub-Audio** and press **OK**.

Select one of the following options:

- **Disable** – No sub-audio filtering; all signals will be received.
- **CTC (Continuous Tone-Coded Squelch System)** – Analog sub-audio setting (63.0Hz - 254.1Hz).
- **NDCS (N-Code Digital Coded Squelch)** – Digital sub-audio filtering (017N - 754N).
- **IDCS (I-Code Digital Coded Squelch)** – Digital sub-audio filtering (017I - 754I).

Press **OK** to confirm the selection.

Note: The receiving device must have the same sub-audio setting to successfully receive the transmission.

E. Frequency Difference Configuration (For Repeaters)

This function is essential for **repeater operation**, allowing users to define the frequency offset between **transmitting (TX)** and **receiving (RX)** frequencies.

To configure:

- Press **OK** to enter the menu.
- Use **▲ ▼** keys to select **Analog Settings**, then press **OK**.
- Choose **Channel Configuration** and press **OK**.
- Select **Frequency Difference Configuration** and press **OK**.
- Set the **frequency offset**:

Positive Frequency Offset – The transmitting frequency will be **higher** than the receiving frequency by the specified offset value.

Negative Frequency Offset – The transmitting frequency will be **lower** than the receiving frequency by the specified offset value.

Analog settings (Continued)

Example:

RX Frequency: 430.125 MHz

Positive Offset: 10 MHz

TX Frequency: 440.125 MHz

Note: Incorrect frequency offset settings may result in communication failure with the repeater.

F. Channel Alias (Renaming Channels)

This function allows users to assign **custom names** to channels for easier identification.

To configure:

- Press **OK** to enter the menu.
- Use **▲ ▼** keys to navigate to **Analog Settings**, then press **OK**.
- Select **Channel Configuration** and press **OK**.
- Choose **Frequency Difference Rename** and press **OK**.
- Enter a **custom channel name** (e.g., "Channel A").
Press **OK** to confirm.

The updated **channel name** will now be displayed on the main screen.

This feature is particularly useful when managing multiple channels and simplifying user operations.

Analog settings (Continued)

G. Frequency Hopping and Learning Code

This function enables **frequency hopping encryption**, enhancing communication security by preventing unauthorized access.

Learning codes determine the encryption level and require programming via **coding software** on a computer.

If two devices share the same **frequency and sub-tone** but have different learning codes, they **cannot communicate**.

To configure:

- Connect the device to a **computer** with the coding software installed.
- Open the software and navigate to **frequency hopping settings**.
- Assign a **learning code** and save the configuration.
- Ensure that all devices requiring communication use the **same frequency, sub-tone, and learning code**.

2. Squelch Level

The **squelch level** controls the device's ability to filter unwanted background noise and weak signals.

Lower Squelch Level (More Sensitive):

- Allows reception of weak signals from long distances.
- Increases the risk of interference from background noise.

Higher Squelch Level (Less Sensitive):

- Blocks weak signals and only allows strong, clear transmissions.
- Reduces background noise but limits reception range.

To configure:

- Press **OK** to enter the menu.
- Use the **▲ ▼ keys** to select **Analog Settings** and press **OK**.
- Select **Squelch Level** and press **OK**.
- Adjust the squelch level based on operational needs.

Recommendation:

For **long-distance communication**, set a **lower** squelch level.

For **short-range communication** in noisy environments, set a **higher** squelch level

Analog settings (Continued)

3. Transmission Time Limit (TOT - Time-Out Timer)

This function sets a **maximum transmission time** to prevent **overuse of channels** and **device overheating**.

Available settings: 10s, 30s, 60s, 120s, or Unlimited.

If set to **60 seconds**, the device will automatically **stop transmission** if the PTT button is held down for 60 seconds.

If set to **Unlimited**, the device has **no restriction** on continuous transmission.

To configure:

- Press **OK** to enter the menu.
- Select **Analog Settings > Transmission Time Limit**.
- Choose the preferred time setting and press **OK**.

4. Simulated Power Saving

This function optimizes **standby power consumption** to extend battery life.

Power Saving Levels: Off, Level 1, Level 2, Level 3, Level 4

Higher levels reduce battery consumption but may cause **slower response times** in receiving transmissions.

To configure:

- Press **OK** to enter the menu.
- Select **Analog Settings > Simulated Power Saving**.
- Choose a level and press **OK** to confirm.

Recommendation:

- Use **higher levels (3-4)** for extended standby operation.
- Use **lower levels (1-2)** when faster response times are needed.

Analog settings (Continued)

5. Busy Lock

The **Busy Lock (Channel Busy Lockout - BCLO)** function prevents interference by **blocking transmission** when a channel is in use.

When enabled, the device **cannot transmit** if another signal is detected. This prevents overlapping transmissions and **ensures clear communication**.

To configure:

- Press **OK** to enter the menu.
- Select **Analog Settings > Busy Lock**.
- Choose **Enable** or **Disable** and press **OK**.

Note:

Enabled – Prevents interference but may delay urgent communication.

Disabled – Allows transmission at any time, even if the channel is busy.

These settings ensure **efficient communication**, **optimized power usage**, and **improved signal quality** in analog mode.

6. Frequency Step Adjustment

This function allows users to **modify the frequency step size** when manually adjusting frequencies in **frequency display mode**. A **smaller step size** provides more precise frequency tuning, while a **larger step size** allows for quicker adjustments.

To configure:

- Press **OK** to enter the menu.
- Use **▲ ▼** keys to navigate to **Simulation Settings**, then press **OK**.
- Select **Frequency Step** and press **OK**.
- Choose a step size from the following options: **5 kHz, 6.25 kHz, 12.5 kHz, 25 kHz, 50 kHz, 100 Hz, 250 kHz, 1 MHz**
- Press **OK** to confirm the selection.

Note:

Smaller step sizes (e.g., 5 kHz, 6.25 kHz) allow for **precise frequency tuning**, ideal for regulated frequency bands.

Larger step sizes (e.g., 50 kHz, 1 MHz) allow for **quick scanning across frequency ranges**.

Analog settings (Continued)

7. One-Key Frequency Binding

This function enables **automatic detection and synchronization** of an unknown frequency and sub-audio setting from another transmitter. It is particularly useful for **matching frequencies** with an unknown signal source to establish intercommunication.

To configure:

- Press **OK** to enter the menu.
- Use **▲ ▼** keys to navigate to **Simulation Settings**, then press **OK**.
- Select **One-Key Frequency Binding** and press **OK**.
- The device will display "**Binding...**", indicating that it is actively scanning for a frequency match.

On the transmitter you wish to sync with, **press and hold the PTT (Push-To-Talk) button** to transmit.

The **green light on the device will flash**, indicating the frequency-breaking process is in progress.

Once synchronization is complete, the display will show "**Frequency Breaking Successful**", confirming that the unknown frequency and sub-audio settings have been matched.

If you wish to cancel the process before completion, press the **C (Return) button** to exit.

Important Notes:

This function **automatically detects and clones frequencies**, eliminating the need for manual entry.

If the detected frequency is encrypted or uses an incompatible sub-audio tone, communication may not be established.

The feature is useful in cases where the operating frequency of a third-party transmitter is unknown.

These features enhance the **flexibility and adaptability** of the device, ensuring users can efficiently configure frequency settings and establish communication with unknown transmitters when necessary.

Analog settings (Continued)

8. Channel Cloning (Wireless Copying)

This function enables users to **transfer channel configurations wirelessly** between devices **without requiring frequency writing software or a PC**. Channel cloning ensures quick and **consistent configuration** across multiple devices.

A. Receiving Cloning (Copying Data to This Device)

This option allows the device to **receive channel settings** from another unit.

Steps to Clone a Channel to This Machine:

- Press **OK** to enter the **menu**.
- Use **▲ ▼** keys to navigate to **Analog Settings**, then press **OK**.
- Select **Clone Channel to This Machine** and press **OK** to confirm.
- The device will display "**Clone Channel Configuration**".
- Choose the **channel number (e.g., 001 to 016)** that you want to receive.
- Press **Confirm**, and the device enters the **cloning waiting state**.

Once the cloning process is complete, the display will show "**Cloning Successful**", confirming that the channel settings have been received.

B. Transmitting Cloning (Copying Data to Another Device)

This option enables the device to **send its channel settings** to another unit.

Steps to Clone a Channel to Another Machine:

- Press **OK** to enter the **menu**.
- Use **▲ ▼** keys to navigate to **Analog Settings**, then press **OK**.
- Select **Clone Channel to Other Machines** and press **OK** to confirm.
- The device will display "**Clone Channel Configuration**".
- Choose the **channel number (e.g., 001 to 016)** to be transmitted.
- Press **Confirm**, and the device enters the **cloning transmission state**.

Important Recommendations:

First, power on the device that will transmit the cloned settings.

Then, activate the receiver device and set it to cloning mode to receive the channel configuration.

To exit the cloning process manually, press the **C (Return)** key.

Note: This feature is useful for **quickly programming multiple radios** in a fleet without the need for cables or software.

Ensure that both devices are within **close proximity** during cloning to ensure a **successful transfer**.

This function streamlines device setup and ensures **uniform communication settings** across all units.

Public Network Settings

To configure public network settings:

- Press **OK** to enter the **menu**.
- Use **▲ ▼** keys to select **Public Network Settings**, then press **OK**.
- Navigate to the desired function and press **OK** to confirm and adjust settings.

1. Scenario Mode

This function optimizes audio output for different **operating environments**. Users can select from the following modes:

- **Outdoor Mode** – **Loudest sound output**, designed for **noisy outdoor environments**.
- **Standard Mode** – **Balanced sound** suitable for **general use**.
- **Indoor Mode** – **Lower sound level**, ideal for **quiet indoor settings**.
- **Headset Mode** – Optimized for **headphone or external headset use**.

To configure:

- Navigate to **Scenario Mode** and press **OK**.
- Use the **▲ ▼** keys to select the desired mode.
- Press **OK** to confirm.

2. Microphone Mode

This function adjusts the **microphone sensitivity**, allowing users to modify **transmission volume** based on their environment.

Available options:

- High** – Maximum microphone gain for **louder voice transmission**.
- Medium** – Balanced microphone sensitivity.
- Low** – Reduced microphone gain for **quieter environments**.

To configure:

- Navigate to **Microphone Mode** and press **OK**.
- Use **▲ ▼** keys to select **High, Medium, or Low**.
- Press **OK** to confirm.

Public Network Settings (Continued)

3. Power Saving Configuration

This function manages **standby power consumption** to optimize battery life while balancing **communication efficiency**.

A. Power Saving Levels

Users can select from **three power-saving modes**:

High Performance – Maximum power usage, ensuring **uninterrupted operation**.

Best for critical communications.

No reception delay, no signal loss, and no jamming issues.

Standard Mode – Balanced between performance and power consumption.

Moderate power saving.

Slight delay in reception.

Power Saving Mode – Low power consumption, maximizing battery life.

Ideal for **long standby periods**.

May experience delayed reception and signal loss.

To configure:

- Navigate to **Power Saving Level** and press **OK**.
- Use **▲ ▼** keys to select **High Performance, Standard, or Power Saving**.
- Press **OK** to confirm.

B. Sleep Mode

When **enabled**, the device enters **low-power standby mode** after a period of inactivity.

Significantly extends standby time but may result in **slow reception wake-up or missed transmissions**.

To configure:

- Navigate to **Sleep Mode** and press **OK**.
- Select **Enable** or **Disable**, then press **OK** to confirm.

Public Network Settings (Continued)

C. Super Power Saving Mode

This mode is **only available when Power Saving Mode is active**.

Reduces power consumption to an absolute minimum.

Not recommended due to potential issues with **abnormal reception or signal loss**.

To configure:

- Navigate to **Super Power Saving** and press **OK**.
- Select **Enable** or **Disable**, then press **OK** to confirm.

Key Considerations:

For critical communications, use **High Performance Mode** to ensure **instant signal reception**.

For general use, Standard Mode provides a balance between **battery life and performance**.

For extended standby time, Power Saving and Sleep Mode can help, but may cause **delays in receiving transmissions**.

Super Power Saving Mode is not recommended unless **battery conservation is a top priority**, as it may lead to missed transmissions.

These settings allow users to **tailor power consumption and audio performance** to their **specific operational needs**.

4. SIM Selection

This function allows users to **manually switch between two SIM cards** when the device is equipped with dual SIM slots.

If **SIM1 (Telecom)** has a **strong signal** while **SIM2 (Mobile)** is **weak**, the user can **select SIM1** for better connectivity.

Conversely, if **the mobile network is stronger in a different location**, the user can **switch to SIM2**.

To configure:

- Press **OK** to enter the menu.
- Use **▲ ▼ keys** to navigate to **SIM Selection** and press **OK**.
- Select **SIM1 or SIM2** based on signal availability.
- Press **OK** to confirm the selection.

Public Network Settings (Continued)

5. SIM Card Automatic Switching

When **two SIM cards from different network operators** are installed, this function enables **automatic switching** between them when the primary SIM experiences a **signal loss or weak connectivity**.

The device will **detect signal strength** and switch to the **stronger network**.

The **switching time** depends on the **network environment and signal availability**.

To enable automatic switching:

- Press **OK** to enter the menu.
- Select **SIM Card Automatic Switching** and press **OK**.
- Choose **Enable** or **Disable** and confirm with **OK**.

6. Call Prompt Tone

This function allows users to **enable or disable notification tones** when transmitting or receiving a call.

Enabled – A tone will play at the start and end of a transmission.

Disabled – No tones will be heard when initiating or receiving communication.

To configure:

- Press **OK** to enter the menu.
- Navigate to **Call Prompt Tone** and press **OK**.
- Choose **Enable** or **Disable** and press **OK** to confirm.

7. Sound Quality Selection

This function adjusts **audio transmission quality** between **Standard and High-Definition modes**.

Standard Mode – Uses **compressed audio**, reducing bandwidth usage but **slightly lowering sound clarity**.

High-Definition Mode – Delivers **clearer, higher-quality audio**, but **consumes more data**.

To configure:

- Press **OK** to enter the menu.
- Navigate to **Sound Quality Selection** and press **OK**.
- Select **Standard** or **High-Definition** and confirm with **OK**.

Public Network Settings (Continued)

8. PTT Delay (Push-to-Talk Delay)

This function defines how long the device **continues transmitting audio** after the **PTT button** is released.

Prevents **cut-off transmission**, ensuring that the last part of the message is heard. Users can **customize the delay duration** based on their **communication needs**.

Available Delay Options: 10ms, 30ms, 60ms, 90ms, 120ms, 150ms

To configure:

- Press **OK** to enter the menu.
- Navigate to **PTT Delay** and press **OK**.
- Select a preferred delay time.
- Press **OK** to confirm the selection.

Key Considerations:

SIM Selection allows manual switching, while **Automatic SIM Switching** ensures seamless connectivity in fluctuating network conditions.

Call Prompt Tones can be helpful in noisy environments but may be unnecessary in quiet settings.

High-Definition Sound provides superior clarity but may increase **data usage** in public network communication.

PTT Delay prevents **message cut-offs**, ensuring **clear, uninterrupted voice transmission**.

These settings provide **greater control** over **network connectivity, audio clarity, and communication efficiency** for optimal device performance.

Address Book

1. Address Book

The **Address Book** stores **telephone contacts** and corresponding phone numbers within the **intercom phone function**, allowing users to **quickly make calls**.

To access the Address Book:

- Press **OK** to enter the **menu**.
- Use **▲ ▼** **keys** to navigate to **Address Book** and press **OK**.
- Select the desired function and press **OK** to confirm.

Methods for Adding Contacts

Users can **store contacts** in two ways:

Manual Entry – Enter contacts directly from the **handheld device**.

Import via Coding Software – Upload a **contact list** through the **frequency writing software**.

- Select **Public Mode** in the software.
- Navigate to the **Phone List** and add **contact aliases** and **phone numbers**.
- Ensure the **"Write" option** is checked during the frequency writing process.
- The contacts will be saved directly to the device.

Managing Contacts

Export Contacts – The stored contact list can be **exported to a computer** as an **Excel (EXC) file** for future reference or backup.

Import Contacts – Previously saved **contacts from an Excel file** can be **imported back into the frequency writing software** and uploaded to the device.

Delete Contacts – This function removes **all saved contacts** from the device. **Once deleted, they cannot be recovered.**

Call Records

2. Call Records

The **Call Records** function keeps track of all **outgoing and incoming calls**, allowing users to review previous calls.

Call Record Management Options:

- **Redial & Direct Call** – Quickly redial a previous **incoming or outgoing call**.
- **View Call Details** – Displays the **phone number, call date & time, and duration** of past calls.
- **Save a Contact** – If the caller is **not already saved**, the number can be **stored as a new contact** in the Address Book.
- **Delete Call Records** – Removes **specific or all call logs**. Once deleted, the **call history cannot be restored**.

Key Considerations:

Manual entry is useful for quick updates, while **bulk contact management** is best done through the **coding software**.

Exporting contacts to a computer provides a backup for easy restoration.

Call logs help monitor recent activity but should be managed periodically to keep the record clean.

Deleting contacts or call logs is permanent—ensure backups exist if necessary. These features **enhance accessibility and streamline call management**, making communication more efficient.

System Settings

The **System Settings** menu allows users to configure **device functions**, including **screen behavior**, **audio feedback**, and **programmable keys** for improved usability.

To access System Settings:

- Press **OK** to enter the **menu**.
- Use the **▲ ▼ keys** to navigate to **System Settings** and press **OK**.
- Select the desired function and press **OK** to confirm.

1. Backlight Settings

A. Backlight Control (Screen Timeout Settings)

This setting controls how long the **screen remains lit** when the device is idle.

Available Options:

Always On – The screen remains lit indefinitely.

Auto-Off (5s, 10s, 15s, 20s, 25s, 30s) – The screen automatically turns off after the selected time.

To configure:

- Navigate to **Backlight Control** and press **OK**.
- Use **▲ ▼ keys** to select a **timeout duration**.
- Press **OK** to confirm.

Recommendation:

Use **shorter durations (e.g., 5s, 10s)** to conserve battery life.

Use **Always On** if frequent screen visibility is required.

B. Call Backlight Control

This function determines whether the screen **lights up** during an active call (**transmitting or receiving**).

Options:

Enabled – The screen remains lit during a call.

Disabled – The screen stays off during a call.

To configure:

Navigate to **Call Backlight Control** and press **OK**.
Select **Enable** or **Disable**, then press **OK** to confirm.

System Settings (Continued)

2. BEEP Sound Setting

This function controls the **key-press sound feedback** when operating the device.

Options:

Enabled – A sound is heard when pressing buttons.

Disabled – The device operates **silently**.

To configure:

- Navigate to **BEEP Sound Setting** and press **OK**.
- Choose **Enable** or **Disable** and press **OK** to confirm.

Recommendation:

- **Enable BEEP** for better **audio confirmation** of keypresses.
- **Disable BEEP** for **silent operation** in noise-sensitive environments.

3. Programmable Function Keys

This function allows users to **customize buttons** for quick access to frequently used features.

To configure:

- Navigate to **Programmable Function Keys** and press **OK**.
- Select a **button** to customize.
- Choose a function and press **OK** to confirm.

Available Custom Functions:

None – No assigned function.

Battery Indicator – Quickly check battery level.

Group Member Selection – Instantly switch between group members.

Mute – Toggle mute mode.

Quick Call – Assign a key for instant calling.

Backlight Control – Quickly adjust screen brightness.

Group Selection – Switch between communication groups.

Analog Cancel Squelch – Disable squelch filtering in analog mode.

SIM Card Switch – Quickly swap between **SIM1** and **SIM2**.

One-Button Frequency Binding – Instantly match an unknown frequency.

System Settings (Continued)

A. Customizing Key Press Duration

Users can configure the **long-press** and **short-press** durations:

Short Key Press: 0.5 seconds.

Long Key Press: 1 to 2.5 seconds (adjustable via coding software).

Key Considerations:

Assign frequently used functions to keys for quicker operation.

Short-press keys are ideal for **quick actions**.

Long-press keys can be used for **less frequent but important functions**.

Summary:

Backlight settings help **conserve battery** while ensuring visibility.

BEEP settings allow for **silent or audible feedback**.

Programmable function keys improve **efficiency** by allowing users to **assign quick-access functions**.

These configurations enhance **usability, accessibility, and performance**, ensuring a **personalized experience** for every user.

4. Reception Priority

This function determines **which signal type (Public Network or Analog) takes priority** when the device is set to **Dual Mode**.

To configure Reception Priority:

- Press **OK** to enter the **menu**.
- Use **▲ ▼** keys to navigate to **System Settings**, then press **OK**.
- Select **Reception Priority** and press **OK** to enter the settings.
- Choose from the following options:

Reception Priority Options:

A. Order of Precedence – The **first received signal** remains active, and any **subsequent incoming signals** are **blocked and muted**.

B. Public Network Priority – If a **public network signal (PoC/4G/3G)** is detected, the device **immediately switches to it**, regardless of any analog signal present.

C. Analog Priority – If an **analog signal (VHF/UHF)** is detected, the device **immediately switches to analog reception**, regardless of any public network signal.

D. Both are Equal – The device **maintains the first signal received**, whether it is public network or analog.

Important Note: This function is only available when the device is operating in **Dual Mode** (both Public Network and Analog are active).

System Settings (Continued)

5. Relay Volume

This function controls the **outgoing volume level** when the device is operating in **Relay Mode** (signal conversion between Public Network and Analog).

To configure Relay Volume:

- Press **OK** to enter the **menu**.
- Navigate to **System Settings > Relay Volume**, then press **OK**.
- Adjust the volume levels for the following settings:

Relay Volume Options:

A. Public to Private Volume – Adjusts the **public network (PoC/4G/3G) to analog (VHF/UHF) volume level** (range: **1-9**).

B. Private to Public Volume – Adjusts the **analog (VHF/UHF) to public network (PoC/4G/3G) volume level** (range: **1-9**).

Recommendation: If **volume distortion occurs**, adjust to a **mid-range level (4-6)** for balanced transmission.

6. Relay Local Volume

This function **enables or disables audio output at the relay station** while operating in **Relay Mode**.

To configure Relay Local Volume:

- Press **OK** to enter the **menu**.
- Navigate to **System Settings > Relay Local Volume** and press **OK**.
- Choose from the following options:

Enabled – The **relay station** transmits audio, allowing users near the relay station to **hear the transmission**.

Disabled – The relay station operates **silently** without audio output.

Recommendation: **Enable** this setting if **relay station operators** need to **monitor transmissions**.

Disable this setting to **reduce unnecessary noise** in the relay station environment.

Summary:

Reception Priority ensures **automatic switching** between **Public Network and Analog signals** based on priority settings.

Relay Volume adjusts **audio levels when converting between Public Network and Analog**.

Relay Local Volume allows control over **whether the relay station outputs audio or remains silent**.

These settings provide **enhanced control over signal reception and relay functionality**, ensuring **seamless communication and efficient operation**.

Machine Information & Public Network Functions

Machine Information

The **Machine Information** function allows users to **view essential device details**, including software versions, hardware identifiers, and SIM card information.

To access Machine Information:

- Press **OK** to enter the **menu**.
- Navigate to **Machine Information** and press **OK**.
- The following details will be displayed:

Device Information Details:

Account Information – Displays account details **programmed via coding software**.

Software Version – Shows the **software version installed on the module**.

Module Version – Indicates the **hardware module version**.

IMEI Code – Unique **identifier for the device** (used for tracking and authentication).

ICCID (SIM 1) – Displays the **ICCID number of the primary SIM card**.

ICCID (SIM 2) – Displays the **ICCID number of the secondary SIM card** (if installed).

Application Version – Identifies the **software version based on different platforms**.

Simulation Version – Displays the **software version stored in the simulation chip**.

This section provides **important technical and identification details** for **troubleshooting, network verification, and software updates**.

Other Public Network Function Settings

1. Phone Function

The device supports **voice calls** in addition to intercom communication.

When the **Phone Function is enabled**, a **phone icon** will appear in the **LCD status bar**.

Calls can be **made or received** through the device's **dial pad or address book**.

2. Permission Settings

In **public network intercoms**, users are assigned **speaking permissions** to control communication access.

Permission levels include:

High Priority – Can speak at any time.

Medium Priority – Can speak, but may be overridden by high-priority users.

Low Priority – Can only speak when no higher-priority users are transmitting.

Permissions must be configured on the platform website by an administrator.

Machine Information & Public Network Functions (Continued)

3. Intercepting (Priority Override)

High-priority users have the ability to **interrupt or override** transmissions from lower-priority users.

This function is useful in **emergency situations** where **urgent communication is required**.

Configuration:

This feature is **managed through the backend platform**.
Administrators can assign **override permissions** to specific users.

4. GPS Positioning & Track Viewing (Optional Feature)

The **GPS function** allows real-time **location tracking** and **route history monitoring** using **dispatch software**.

To view GPS positioning and track logs:

Open the dispatch software on a computer.

Log in with the **account and password** assigned to your user group. (*Contact your dealer for credentials.*)

Enable the **Positioning, Display Group, and Check Position** functions on the platform.

Select the **User Group** to monitor.

Choose the **specific user** whose location you want to view.

Double-click the user's name and select **View Track**.

The system will switch to a **map display** showing the user's location.

Map Features: The map will show a **user avatar and name** if the **device is online and GPS is active**.

Hovering over a location point will display the **timestamp of the position update**.
Users can **view past movement history** to track the **device's travel route**.

Important Notes: **GPS must be enabled in the device configuration software** for this function to work.

The **platform administrator must activate positioning permissions** for the user account.

Summary: **Machine Information** provides **technical device details** such as IMEI, SIM card status, and software versions.

Phone Function allows users to **make and receive calls** in addition to intercom communication.

Permission Settings define **who can transmit** in public network intercoms.

Intercepting allows **high-priority users to override lower-priority communications** when needed.

GPS Positioning & Track Viewing enables **real-time location tracking and historical movement analysis** via the dispatch system.

GPS Information & Analog Walkie-Talkie Mode

5. GPS Information Viewing

This device has a **built-in GPS function** that allows users to **view real-time coordinates** directly on the device.

To access GPS coordinates:

- Ensure the device has a **GPS-enabled module** and that **GPS is activated**.
- Press **OK** to enter the **menu**.
- Navigate to **GPS Information** and press **OK**.
- The **current location coordinates** will be displayed on the screen.

Note: This function is available **only on models with GPS functionality**.
GPS accuracy depends on **satellite signal strength and environmental conditions**.

Analog Walkie-Talkie Mode

The **analog mode** allows users to **communicate via standard radio frequencies (VHF)** without relying on a **public network (PoC/4G/3G)**.

1. Transmitting Mode (TX)

To **initiate a call**, press the **PTT2 (Push-To-Talk) button** while in **Analog Mode**.
When **transmitting**, the **red light** will turn **ON**.
The recipient will hear the message in **real-time**.

2. Receiving Mode (RX)

When another user **transmits a message**, the **blue light** will turn **ON**.
The **analog signal reception icon** will be visible on the **LCD screen**.

3. Channel Switching

Users can **manually switch channels** in **Channel Mode**:
Use ▲ ▼ keys to cycle through available channels.
Directly input the desired channel number for quicker selection.

4. Frequency Mode Settings

- **Press Side Key 4** to switch to **Analog Mode**.
- **Short-press the "#" key** to enter **Frequency Mode**.
- **Manually input the desired frequency**.

For additional settings such as **sub-audio (CTCSS/DCS)**, refer to **Analog Walkie-Talkie Settings**.

GPS Information & Analog Walkie-Talkie Mode (Continued)

5. Monitoring Function

In some cases, users may need to **temporarily override squelch settings** to **monitor weak signals**.

- Press "**Side Key 5**" to **force the receiver ON** and listen for activity.
- Release the button to **resume normal squelch filtering**.

Additional Analog Mode Functions:

Users can configure **various analog settings** for optimal performance:

Channel Configuration – Adjust frequency and bandwidth settings.

Squelch Level – Set squelch sensitivity to **filter weak signals**.

Transmit Time Limit (TOT) – Prevent **excessive transmission duration**.

Analog Power Saving – Reduce power consumption in **standby mode**.

Busy Lock – Block transmission if the channel is **already in use**.

Frequency Stepping – Adjust the **step value** when changing frequencies.

One-Button Frequency Binding – Quickly detect and match unknown frequencies.

Clone Channel to This Machine – Copy **channel settings** from another device wirelessly.

Key Takeaways:

GPS Information provides **real-time coordinates** on devices with **built-in GPS**.

Analog Mode allows for **traditional radio communication** independent of a **public network**.

Users can **switch channels**, **enter custom frequencies**, and **use monitoring functions** for enhanced flexibility.

Additional analog settings enable better **signal filtering**, **power management**, and **frequency adjustments**.

These features ensure **efficient analog communication**, making the device suitable for **varied operational environments**.

Troubleshooting guide

Issue	Possible Solution
Voice Prompt: "Please insert card"	Ensure the UIM card is properly inserted.
Voice Prompt: "No network signal"	Verify antenna placement and check for network coverage.
GPS function is not working	GPS positioning may take 3-5 minutes. Move outdoors for a better signal.
Voice Prompt: "Login timeout"	Check for network issues, SIM card balance, or incorrect credentials.
Voice Prompt: "No group"	Contact your administrator to reset the group settings.
Voice Prompt: "No selected group"	Restart the device or check group configuration.

1. Public Network Settings

1.1 Scene Mode

This function optimizes the device for different operational environments:

Outdoor Mode – Provides the loudest sound for noisy environments.

Standard Mode – Balanced audio output.

Indoor Mode – Lower volume suited for quiet indoor settings.

Headset Mode – Optimized for use with external headsets.

1.2 Microphone Mode

Adjusts the **microphone sensitivity**:

High – Maximum voice pickup.

Medium – Balanced setting.

Low – Reduced voice pickup for quieter environments.

1.3 Power Saving Configuration

This feature manages the device's **standby power consumption**:

High Performance Mode – Ensures uninterrupted operation but consumes more power.

Standard Mode – Balances power consumption and efficiency.

Power Saving Mode – Maximizes battery life but may introduce reception delays.

Sleep Mode – Reduces power usage in standby mode.

Super Power Saving Mode – Minimizes power consumption but may affect reception reliability.

Troubleshooting guide (Continued)

1.4 SIM Selection

Allows users to switch between **SIM1** and **SIM2**, depending on network strength.

1.5 Automatic SIM Switching

When enabled, the device will **automatically switch** between SIM cards based on network availability.

1.6 Call Reminder Tone

Enabled – Alerts for incoming and outgoing calls.

Disabled – No sound notifications.

1.7 PTT Delay

Configures the **time the device continues transmitting after the PTT button is released**:

Options: **10ms, 30ms, 60ms, 90ms, 120ms, 150ms.**

2. Analog Settings

2.1 Channel Configuration

Allows users to **adjust frequency settings and bandwidth selection.**

2.2 Squelch Level: Adjusts **signal sensitivity** to minimize background noise.

2.3 Transmit Time Limit (TOT): Sets a **maximum duration** for continuous transmission:

Options: **10s, 30s, 60s, 120s, or Unlimited.**

2.4 Analog Power Saving: Reduces **battery consumption in standby mode.**

2.5 Busy Lock: Prevents transmission when the channel is already in use.

2.6 Frequency Stepping: Adjusts the **step value** when changing frequencies:

Options: **5kHz, 6.25kHz, 12.5kHz, 25kHz, 50kHz, 100Hz, 250kHz, 1MHz.**

2.7 One-Button Frequency Binding: Allows automatic detection and synchronization of an **unknown frequency and sub-audio setting.**

2.8 Channel Cloning

Clone Channel to This Machine – Copies settings from another device.

Clone Channel to Other Machines – Sends channel configurations to multiple units wirelessly.

