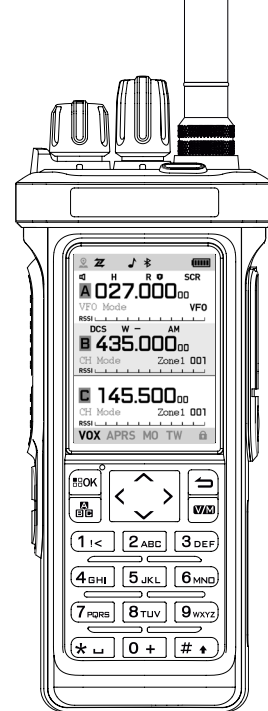




MULTI BAND HANDHELD RADIO

USER'S MANUAL



Disclaimer

Although we have strived to ensure the accuracy and completeness of this manual, omissions or errors may still occur, for which our company assumes no liability. As technology and products continue to evolve, our company reserves the right to modify product designs and specifications at any time without prior notice. Reproduction, modification, translation, or distribution of this manual in any form is prohibited without our company's prior written authorization.

Any third-party product information referenced in this manual remains the property of the respective third parties. Our company makes no warranties regarding the accuracy, validity, or completeness of such content.

Important Information



Unauthorized changes or modifications to this device without explicit permission from our company may void your authorization to operate it. This radio is preset at the factory to transmit compliant modulated signals within designated frequency ranges. Any adjustment of frequencies or parameters beyond this authorized scope is illegal. Modifications to the device's internal settings must be performed by qualified technical personnel.

Before using this radio, please carefully read the following operational instructions regarding RF exposure and product safety to ensure safe usage.

FCC Notice

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
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. 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.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

RF Radiation Information

This product is intended solely for professional use where RF energy radiation requirements can be met. Users must be fully aware of RF radiation hazards and take appropriate measures to comply with RF radiation limits.

RF Radiation Basics

RF (Radio Frequency) refers to electromagnetic frequencies that can radiate into space. It is a technology widely used in fields such as communications, medical, and food processing, and it generates a certain amount of RF radiation during use.

RF Radiation Safety

To ensure the health and well-being of users, experts from the fields of science, engineering, medicine, health, and industry, along with relevant organizations, have jointly developed RF radiation standards and guidelines, as follows:

Title 47, Part 2, Subpart J of the Code of Federal Regulations (CFR) by the Federal Communications Commission (FCC) of the United States.

ANSI (American National Standards Institute) / IEEE (Institute of Electrical and Electronics Engineers) Standard C95.1-1992. IEEE Standard C95.1-1999.

Standards issued in 1998 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

RF Radiation Control and Operating Instructions

To ensure optimal performance and compliance with the radiation limits for occupational or controlled environments as specified in the standards, the transmission time should not exceed a duty cycle of 50% (i.e., a maximum of 50% transmission time). Adhere to the following instructions: RF energy radiation is only generated during transmission (talking), not during receiving (listening) or standby mode. Maintain a minimum distance of 2.5 centimeters between the device and the body during transmission.

Prohibited Usage

The use of this product is strictly prohibited in the following locations or situations to avoid personal injury or property damage:

- Do not use the product or charge the battery in areas with fuels, chemicals, explosive gases, or other flammable/combustible materials. If the product carries relevant explosion-proof certification and remains intact, it may be used in such environments, but disassembly or installation is strictly prohibited.
- Do not use the product within or near blasting zones.
- Do not use the product near medical or electronic equipment sensitive to radio frequency signals.
- Do not hold the product for communication while driving a vehicle.
- Do not use the product in any location where wireless communication devices are explicitly prohibited.
- Turn off the radio before boarding an aircraft; any use of the radio must comply with airline regulations or instructions from the flight crew.

Usage Guidelines

To ensure safe operation and prevent personal injury or property damage, adhere to the following when using this product:

- Do not use uncertified or damaged accessories.
- Keep the radio upright during transmission, with the microphone approximately 3–4 cm from the mouth and the antenna at least 2.5 cm away from the body.
- Avoid prolonged listening at high volume levels.
- Do not place the product on or within the deployment area of an airbag.
- Keep the product and accessories out of reach of children and pets.
- Ensure the product is used within the permitted operating temperature range.
- If the device overheats due to prolonged transmission, suspend use and allow it to cool down.
- Apply moderate pressure when pressing keys; avoid using excessive force.
- Do not disassemble, modify, or repair the product or accessories without authorization.
- When carrying the radio, ensure the device and antenna maintain a distance of at least 2.5 cm from the body during transmission.

Battery Safety Precautions Charger

Charging is strictly prohibited in the following situations to prevent personal injury or property damage:

1. Do not charge or replace batteries in areas with fuels, chemicals, explosive gases, or other flammable/combustible materials.
2. Do not charge the battery or terminal if damp; ensure it is thoroughly dried with a clean cloth before charging.
3. Do not charge the battery if it shows signs of leakage, deformation, overheating, or other abnormalities.
4. Do not use uncertified chargers for charging.
5. Do not charge in humid environments.
6. Do not overcharge the battery, as this may shorten its lifespan.

Maintenance Guidelines

To ensure stable battery performance and extend its service life, follow these precautions:

1. If dust accumulates on the battery contacts, clean them promptly with a clean, dry cloth to avoid charging issues.
2. Charge the battery within an ambient temperature range of 5° C to 40° C. Extremely high or low temperatures may shorten battery life or cause leakage.
3. When charging the terminal with the battery installed, it is recommended to turn off the device for optimal charging.
4. Do not unplug the power or remove the battery during charging to avoid interrupting the process.
5. Do not expose the battery to fire.
6. Do not leave the battery in direct sunlight or near other heat sources for extended periods.
7. Do not crush, puncture, or disassemble the battery casing.

Transportation Guidelines

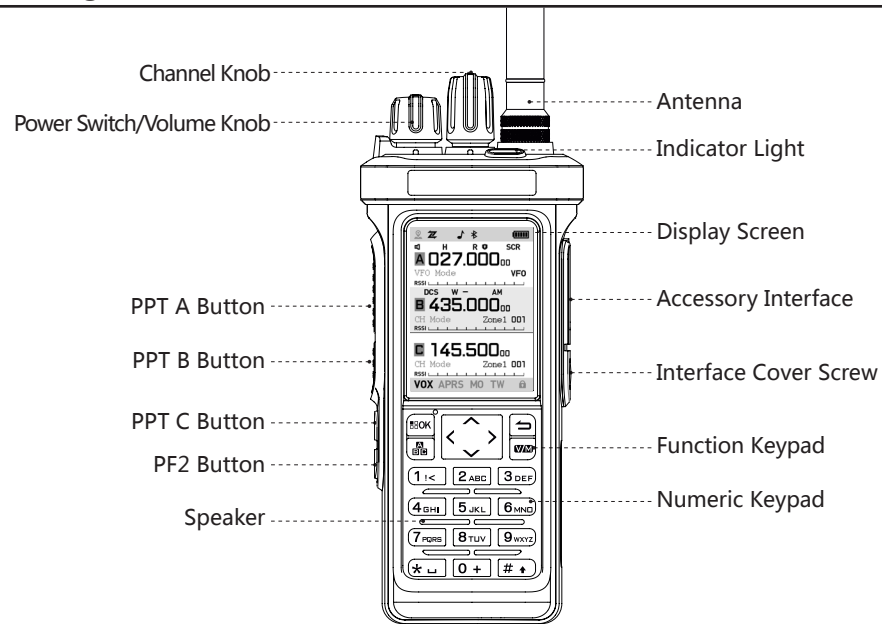
1. Do not transport damaged batteries.
2. Ensure there is no risk of short circuits in the packaging. If multiple batteries are included, each must be individually packaged.
3. If transporting equipment with installed batteries, ensure the device is powered off and take measures to prevent accidental activation.
4. Shipping documents must clearly list batteries, and external packaging must bear battery transportation labels. Consult the carrier in advance for local regulations and transportation requirements.

Recycling and Disposal

All company products (including radios and batteries) have a limited service life. Do not dispose of end-of-life products as household waste. Recycle them in compliance with local regulations.

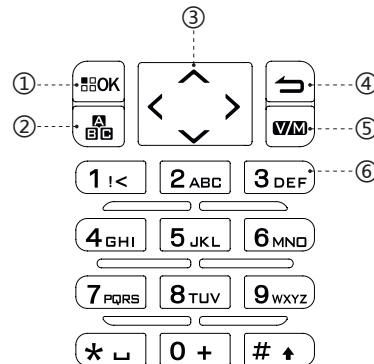
Getting to Know the Device

Structure Introduction



Getting to Know the Device

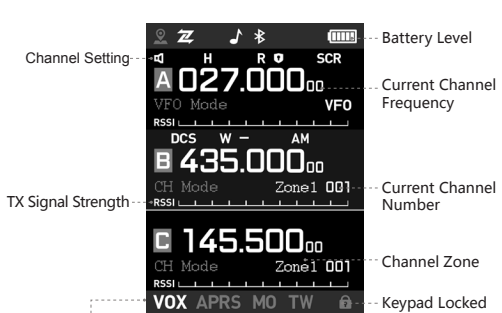
Key Functions



No.	Button	Function
①	OK	Menu Select / Confirm Key. Long press to enter spectrum mode.
②	A/B/C	Short press to switch between A/B/C segments. Long press to enter remote sub-tone scan mode.
③		Direction Keys
④		Short press: Exit / Clear Key. Long press to enter frequency sweep mode.
⑤	V/M	Short press: Switch between Channel Mode and Frequency Mode. Long press to enter the APRS positioning interface.
⑥	Number keys	In standby state: In Frequency Mode, used to set the working frequency; in Channel Mode, used to switch channel. After quick setup, long pressing keys 0-9 allows fast access to the assigned functions.

Interface Explanation

Standby Interface



Enabled Features
VOX:Voice-Activated Transmission
APRS:Automatic Packet Reporting System
MO:Monitor Mode
TW:Tri-Watch – Monitoring 3 channels

Repeater Interface



Currently in Repeater Mode

Icon Description

Icon	Description
	Indicates that the VOX function is enabled. Transmission starts when the microphone's sound pressure level reaches the set threshold.
	Automatic Packet Report System.
	Indicates that the monitor function is enabled.
	Tri-Watch Active, Simultaneously monitors 3 channels.
	Keypad Lock, Appears when the keypad is locked. Long press the # key to unlock.
	Frequency band selection, Band A / Band B / Band C.
	Signal Strength, Indicates the strength of the received signal.
	GPS Switch & Indicator, Toggles GPS positioning with status icon.
	Repeater Mode ON.
	Repeater Mute Enabled, Speaker muted during repeater operation.
	Side Tone Enabled, Indicates that the side tone function is active, producing a tone sound when transmitting DTMF.
	Bluetooth Enabled.
	Battery Status, Displays the remaining battery power. When the battery is nearly depleted, the outer frame of this symbol flashes, and transmission is prohibited.
	Power Save Icon, Energy-saving mode active.

Icon Description

Icon	Description
	Standby Indicator,Indicates the device is in standby/monitoring mode (continuously listening for signals).
CT	Analog Sub-audio Tone Indicator.This symbol indicates that the current sub-audio tone is an analog tone. When this symbol appears during transmission, it signifies that an analog sub-audio signal is being transmitted.
DCS	Digital Sub-audio Tone Indicator. This symbol indicates that the current sub-audio tone is a digital tone. When this symbol appears during transmission, it signifies that a digital sub-audio signal is being transmitted.
H	High Power Indicator. This symbol indicates that the current transmission power is set to high.
M	Medium Power Indicator. This symbol indicates that the current transmission power is set to medium.
L	Low Power Indicator. This symbol indicates that the current transmission power is set to low.
N	Narrowband Mode Indicator. This symbol appears when the channel is operating in narrowband mode.
W	Wideband Mode Indicator. This symbol appears when the channel is operating in wideband mode.
+	Frequency Mode (+ Frequency Offset) This symbol appears in frequency mode, indicating that the transmission frequency is the reception frequency plus a frequency offset.
-	Frequency Mode (- Frequency Offset) This symbol appears in frequency mode, indicating that the transmission frequency is the reception frequency minus a frequency offset.
R	Frequency Invert,Inverts RX/TX frequencies in Frequency Mode / Channel Mode.
T	Configures transceiver to operate on identical transmit/receive frequencies (simplex communication).
	Encryption On,Indicates encryption function is activated.
AM	AM Modulation,This icon indicates the current frequency is operating in AM (Amplitude Modulation) demodulation mode.
SCR	Scrambler Function: Activates voice encryption to prevent unauthorized monitoring of communications.

Basic Operations

Power/Volume Knob

Power On: Rotate the knob clockwise until a "click" is heard.Power Off: Rotate counterclockwise until a "click" is heard.Rotate clockwise to increase volume.Rotate counterclockwise to decrease volume.

Menu Navigation

From the home screen, briefly press the **[OK]** key to enter the menu.Use the arrow Direction keys to navigate.Press **[OK]** again to confirm selections.Press **[↩]** to exit the menu.

Primary/Secondary Frequency Toggle

On the standby screen, briefly press the **[A/B]** key to select the primary frequency highlighted in blue background. Non-highlighted frequencies are secondary.

Channel Mode / Frequency Mode Toggle

On the standby screen, briefly press the **[V/M]** key to switch between frequency mode and channel mode.Note: If no valid channels are stored, switching to Channel Mode is disabled.

Side Key Configuration

Configure via programming software. Supported functions:RADIO/MONI/SCAN/SEARCH/SOS/SPECTRUM/Beacon TX.

Voice-Activated Transmission (VOX) Function

Operation:Menu → VOX .When enabled, the radio automatically enters transmit mode if the microphone detects sufficient sound input.Adjustable VOX sensitivity level via menu settings. VOX delay time must be configured to maintain transmission continuity.

Basic Operations

Sweep Function

Assign the key function as "Sweep" or long-press **【↵】** to quickly enter sweep mode. It detects the transmitter's carrier frequency and CTCSS/DCS (sub-tone) information, displaying them on the screen. Once the carrier frequency is detected, press the **【OK】** key to save the scanned frequency to a specified channel list. Supported Ranges: VHF: 136–174 MHz, UHF: 400–520 MHz.

Repeater Setup

1. Activating Repeater Mode

Menu → Radio → AB RPT-Mode → ON. Standby screen displays repeater icon **【㉞】**.

2. Repeater Requirements

The devices that enable the relay function must operate on different frequency bands.

3. Repeater Direction Logic

Default Standby State, Both primary and secondary frequencies act as receivers. If the primary frequency first receives a valid carrier signal:

Secondary frequency automatically becomes the cross-band transmitter.

If the secondary frequency first receives a valid carrier signal: Primary frequency automatically becomes the cross-band transmitter.

4. Speaker Audio Control

Configurable option: Enable/disable local speaker audio during repeater operation.

Emergency SOS Function

Assign a key as the [Emergency Alarm] button.

Operation: Menu → Radio → SOS Mode.

Local Alarm: The device sounds an alarm tone locally without transmitting any signal.

Transmit Alarm Tone: Broadcasts the alarm tone via signal transmission.

Transmit Alarm Code: Sends the alarm code through signal transmission.

Basic Operations

CTCSS/DCS Settings

Operation: Menu → CTCSS/DCS, Select desired DCS code or CTCSS frequency.

Function: Enables selective call reception by filtering out unwanted noise signals.

Scan Function

Keys Shortcut: Assign a key as the Scan Key.

Configure via: Menu → Radio → Scan Mode.

Channel Mode: Scans the channels listed in the channel memory (requires power-on scan to add). Frequency Mode: Scans frequencies based on the selected step Setting.

- Time Mode: Resumes scanning if no operation is performed within 5 seconds after detecting a carrier signal.
- Carrier Mode: Stops scanning upon detecting a carrier signal and resumes scanning 5 seconds after the carrier disappears.
- Search Mode: Stops scanning immediately upon detecting a carrier signal.

PTT-ID Function

DTMF transmit identity S-CODE or PTT-ID.

Call Codes (15 preset groups): Menu → Signaling → S-CODE. Assign unique call codes to each segment (A/B/C) or signal type.

ID Code Setup: Menu → Signaling → PTT-ID .

Transmission Modes

- Send on Press: After pressing the PTT, the call code/identity code is sent first, followed by the voice signal.
- Send on Release: After releasing the PTT, the call code/identity code is sent, then the transmission ends.
- Send Both: The call code/identity code is sent both when the PTT is pressed and released.

Note: Since the identity code operation is independent of the call code, if there is a conflict between the identity code and the call code settings, the identity code will be sent.

Basic Operations

APRS Operation Manual

- 1.Enable APRS
Configure via: Menu → APRS Set → APRS ON/OFF
2. Enable GPS Positioning
Configure via: Menu → GPS → GPS → ON/OFF
3. Select APRS Source Position
Configure via: Menu → Beacon Setup → Source Position → Fixed Position / GPS Position
4. Assign the PF2 button as the Beacon TX Key
Configure via: Menu → User Key → PF2 (Long Press PF2) → Beacon TX
5. For Fixed Position Mode: Set Fixed Coordinates First
Configure via: Menu → Beacon Setup → My Position Set
After completing the setup, press the customized beacon transmit key that you have defined (PF2) to initiate Beacon TX.
6. For GPS Position Mode:
Long press the V/M key and wait for the GPS position to update. Then, press the customized beacon transmit key to initiate Beacon TX.

FM Radio Function

- Customize the key as a radio shortcut or long pressing number key to enter radio mode.
- 1.Short press **【OK】** to access the radio menu and select modulation mode. Set the radio frequency directly using the numeric keys.
- 2.In radio mode, press**【V/M】**to toggle between Frequency Mode (VFO) and Channel Mode (MR).
- 3.In Frequency Mode, short press the **【#】** key to activate auto-scan for stations.
- 4.Radio Spectrum Scan Function , In radio mode , Long press the **【V/M】** key to enter scanning mode , Use the Up/Down keys to browse through detected signals , Press the **【OK】** key to save the selected frequency.

Menu	Second Menu	Third level menu	Setting
Modulation	FM	FM Memery-CH	CH-01...CH-15
	AM	1.AM MEMCH	CH-01...CH-15
		2.LNA	AGC 0bd,...,-35bd
		3.Frequency Step	LW Band
			MW Band
			SW Band
	LSB/USB/CW	1.FM Memery-CH	CH-01...CH-15
		2.LNA	AGC / 0bd,...,-35bd
		3.Frequency Step	1K,5K,10K,100K,500K,1000K
		4.Bandwidth	0.5K,1.0K,1.2K,2.2K,3.0K,4.0K
		5.BFO	Press the # key to switch between the + / - direction, and the offset value can be manually entered.



Menu Function List

Menu	Second Menu	Setting	Function Description
VOX	1.VOX Switch	OFF/ON	Turn the VOX function of the intercom off or on.
	2.VOX Level	Level 1---Level 9	The sound pressure intensity required to activate VOX. Level 1 is the most sensitive, Level 9 is the least sensitive. Adjust the gain level to an appropriate sensitivity for smooth transmission.
	3.VOX Delay	0.5sec---2.0sec	When VOX is enabled, set the VOX delay to extend transmission time and prevent premature stopping. Adjustable in 0.1-second increments, 16 settings total.
Zone	Zone Or Channel	Zone Mode	In this mode, only the channels stored within the currently selected zone are scanned and displayed.
		Full Channel	In this mode, all channels stored in the transceiver are scanned and displayed, unrestricted by zone.
	Zone Select		Accesses the zone list to view and select a zone. A maximum of 15 zones can be set, with each zone containing up to 64 channels.
VFO&CH (Frequency mode)	1.Step	2.50KHz, 5.00KHz, 6.25KHz, 8.33KHz, 10.0KHz, 12.5KHz, 20.0KHz, 25.0KHz, 50.0KHz, 100.0KHz	In frequency mode, press the up and down keys to change the step of the frequency. Selects the amount of frequency change in VFO/frequency mode when scan or press UP/ DOWN keys.
	2.Direction	None	Enable access of repeater mode, OFF: None repeater shift.
		Plus	In frequency mode, the TX frequency equals the RX frequency plus the frequency difference.
		Minus	In frequency mode, the TX frequency equals the RX frequency minus the frequency difference.
	3.Offset	Manual frequency input	Set the difference between transmit and receive frequencies.
	4.RX Modulation	FM/AM	Select the demodulation mode for the received signal to match the modulation type of the transmission source.
	5.CH-Memory	Zone1---Zone15	When storing a channel, this indicates the channel number to be stored. If "CH-" is displayed before the number, it signifies that the channel already contains stored parameters.
	6.CH-Delete	Zone1---Zone15	Deletes the channel parameters of the specified channel. The absence of the "CH-" prefix indicates the channel has no parameters and does not require deletion.

Menu Function List

Menu	Second Menu	Setting	Function Description
VFO&CH (Channel mode)	1.MDF-A	NAME	In channel mode, channels are displayed by their channel names.
	2.MDF-B	FREQUENCY	In channel mode, channels are displayed by their frequency.
	3.MDF-C	CHANNEL NUM.	In channel mode, display "CH" and the channel sequence number.
	4.CH-Edit Name	Press # to switch Input Method	View and rename the current channel. Input the channel name. Press the # key to switch between uppercase letters, lowercase letters, numbers, and symbols.
	5.RX Modulation	FM/AM	Preset the demodulation mode for received signals for the specified channel.
	6.Scan Add	Delete	Removes the current channel from the scan list. The scanner will skip this channel.
		Add	Adds the current channel to the scan list. The scanner will automatically check this channel for active signals.
	7.CH-Memory	Zone1---Zone15	When storing a channel, this indicates the channel number to be stored. If "CH-" is displayed before the number, it signifies that the channel already contains stored parameters.
CTCSS DCS	8.CH-Delete	Zone1---Zone15	Deletes the channel parameters of the specified channel. The absence of the "CH-" prefix indicates the channel has no parameters and does not require deletion.
	1.RX CTCSS	OFF	None CTCSS.
		67.0Hz---254.1Hz	Standard sequence for analog tones (CTCSS). Standard or non-standard analog tones can also be directly entered via the keypad.
	2.RX DCS	OFF	None DCS
		D023N---D754I	Standard sequence for digital tones (DCS).
	3.TX CTCSS	OFF	None CTCSS
		67.0Hz---254.1Hz	Standard sequence for analog tones (CTCSS). Standard or non-standard analog tones can also be directly entered via the keypad.
	4.TX DCS	OFF	None DCS
		D023N---D754I	Standard sequence for digital tones (DCS).
	5.FHSS CODE	OFF	Disabled. Does not use non-standard digital sub-audible tones.
	6.Encryption	OFF/ON	Voice scrambling function. Encrypts intercom conversations.

Menu Function List

Menu	Second Menu	Setting	Function Description
CTCSS DCS	7.Scan SubCode	CTCSS	Identifies the CTCSS (Analog Sub-audible Tone) used by the currently received signal.
		DCS	Identifies the DCS (Digital-Coded Squelch) used by the currently received signal.
	8.Scan Memory	ALL	Saves the identified tone (CTCSS or DCS) to both the Receive (RX) and Transmit (TX) settings of the current channel.
		DECODER	Saves the identified tone only to the Receive (RX) setting of the current channel.
		ENCODER	Saves the identified tone only to the Transmit (TX) setting of the current channel.
Radio Set	1.Work Band	18-64MHz	Selects the VHF band, suitable for long-distance communication and building penetration.
		64-999MHz	Selects the UHF band, suitable for urban environments and indoor communication.
	2.SQL	OFF	Setting the squelch to off will open up the squelch entirely, Squelch is silences the receiver when there is no signal. The lower level is easier to interfere, and in the higher level, the sensitivity is not as good as lower level, so It is best to set it to middle.
		Level 1-Level 9	
	3.Trans Power	High	Select the transmit power in Frequency Mode. Use the minimum transmit power necessary to achieve the desired communication.
		Middle	
		Low	
	4.Bandwidth	Wide	Wideband(25Khz bandwidth).
		Narrow	Narrowband(12.5Khz bandwidth).
	5.Scramble	OFF	Does not enable the anti-interference (scrambling) function.
		Scram1---Scram8	Uses different scrambling frequencies. The higher the level, the higher the scrambling frequency.
	6.Standby Set	OFF/ON	When set to OFF, it is single watch mode; when set to ON, it is dual watch mode.
	7.Battery Save	OFF	Different levels of Power Saving Mode.
		Normal	
		Super	
		DEEP	

Menu Function List

Menu	Second Menu	Setting	Function Description
Radio Set	8.Busy Lockout	OFF	Allows PTT transmission under any conditions, even when the channel is busy.
		ON	Prohibits transmission when the channel is busy; pressing PTT will trigger a warning tone.
	9.TOT	OFF	Sets the delay time for activating voice-operated transmission.
		30sec---240sec	
	10.TALL	OFF	The radio does not send a squelch tail after releasing PTT. Typically used when operating through a repeater to hear noise and confrm if the signal is being relayed.
		ON	The radio transmits a squelch tail code after releasing PTT to suppress instant noise on the receiving end.
	11.R-TONE	1000hz,1450hz,1750hz,2100hz	Press and hold both the [PTT] button and the PF2 side key to transmit a speciffc frequency tone. A common burst tone frequency used in many amateur radio systems in Europe is 1750 Hz.
	12.Scan Mode	Time	Scanning resumes 5 seconds after a signal is detected.
		Carrier	Scanning pauses when a signal is detected and resumes after the signal disappears.
		Search	Scanning stops when a signal is detected.
	13.ROGRE	OFF	Disable
		BEEP TONE1200	Enables the end-of-transmission tone. Sends a tone to indicate to other stations that the transmission has ended.
	14.RP-STE	OFF	When communicating through a repeater, after the transmitting party releases the PTT button, the radio switches to receive mode. Due to the repeater's delay, it may momentarily receive signals from the repeater, causing noise. Adjust this menu value appropriately until no noise occurs when using the repeater.
		100ms---1000ms	
	15.RPT-RL	OFF	Sets the duration for detecting repeater tail tone.
		100ms---1000ms	

Menu Function List

Menu	Second Menu	Setting		Function Description
Radio Set	16.Cross Band Repea	OFF		Disables cross-band repeat mode. A/B bands work independently.
		ON		Enables cross-band repeat mode. For example, signals received on Channel A will be automatically transmitted from Channel B, achieving cross-band communication or extended communication distance.
	17.RPT-Speaker	OFF		In cross-band repeat mode, the local speaker is muted and does not play received audio.
		ON		In cross-band repeat mode, the local speaker plays audio received on the channel.
	18.SOS Mode	On Site		Only emits a siren sound locally at the alarm site.
		Send Sound		Sends an alarm siren to the group, and the local unit also emits a siren sound.
		Send Code		Sends an alarm code (ANI-ID) to the group, and the local unit emits a siren sound.
	19.Radio Interrupt	ON		Intercom signals and FM radio audio play simultaneously without interrupting each other.
		OFF		When an intercom signal is received, FM radio playback is automatically paused.
APRS Set	20.Mic Gain	Low/Medium/High Gain		Adjusts microphone pickup sensitivity, affecting transmitted voice volume and clarity.
	21.Single Ptt Mode	OFF		Three PTT buttons independently control A/B/C three channels.
		ON		Any PTT button controls the currently selected active channel.
	1.APRS ON/OFF	OFF/ON		Enables or disables the APRS (Automatic Packet Reporting System) function.
	2.GPS	1.GPS	OFF/ON	Enables the GPS function, which will automatically set the internal clock of the radio from GPS satellite signals. For mobile operation, we recommend using the GPS function.
		2.Position	Degrees/Degrees and Minute/Degrees and Minute and Second	Sets the display format for geographical coordinates.
		3.Time Zone	UTC-13---UTC+13	Sets the time zone for the GPS.
		4.Distance Unit	KM/Sae Mile/Mile	Sets the display unit for distance measurements.
		5.Altitude Unit	Meter/Foot	Sets the display unit for altitude.
		6.Speed Unit	Km/h / Kn / MPH	Sets the display unit for speed values.

Menu Function List

Menu	Second Menu	Setting		Function Description	
APRS Set	3.Beacon Setup	1.Callsign		Sets the radio's callsign. Enter the callsign in the letter and number input screen. The callsign can be up to 6 characters.	
		2.SSID	0...15	SSID setting (Secondary Station Identifier). There are 16 types in total, including one without an SSID. Please refer to the SSID appendix for details.	
		3.Path Choose	OFF	Specifies the forwarding path for APRS beacons and data packets. By selecting preset digital repeater aliases, a multi-hop transmission link can be constructed to extend signal coverage.	
			WIDE1-1/WIDE1-1, WIDE2-1/PATH1/ PATH2		
		4.User Path	1.Digi 1 Path 2.Digi 1 SSID 3.Digi 2 Path 4.Digi 2 SSID		Manually configure complete repeater path parameters, including path aliases and corresponding secondary station identifiers (0-15).
		5.Source Position	Fixed Position		Transmission is prohibited when the channel is busy. Pressing PTT will trigger a "beep beep" alarm sound.
			GPS Position		
		6.My Position Set	1.Set Longitude	Degrees/ Minute/ Second	Manually set the longitude value of the position.
			2.Longitude WE Set	W/E	Select the longitude direction: East (E) or West (W).
			3.Set Latitude	Degrees/ Minute/ Second	Manually set the latitude value of the position.
			4.Latitude NS Set	N/S	Select the latitude direction: North (N) or South (S).
			5.Fixed altitude		Manually set the altitude of the position.
		7.Stations Symbol	[/L] People [/b] Bicycle [/>] Car [/R] Vehicle USER User-defined		Sets the symbol to be transmitted by this station.
		8.Custom Icons			Select a specific icon from the predefined symbol table to represent the position on the map.
		9.MIC-E Type	Off duty /En Route/ In Service/Returning/ Committed/Special / Priority/EMERGENCY		Selects a compressed format for APRS data packets.

Menu Function List

Menu	Second Menu	Setting		Function Description
APRS Set	3.Beacon Setup	10.Message	Send Message	ON/OFF
			Message Edit	Manually edit any text message. When enabled, it is sent along with the position beacon.
	4.Repeater Setting	1.DIGI CH	CH/VFO A / B / C	Sets the APRS operating channel to the CH/VFO A, B, or C band.
		2.Routing	OFF	Sets the digital repeater path. Beacons will be forwarded if the path matches.
			WIDE1/WIDE1,WIDE2/PATH1/PATH2	
		3.DIGI Tx Wait	0S---9S	Sets the delay time before forwarding a received packet to prevent channel congestion.
	5.Advanced	1.APRS Channel	CH/VFO A / B / C	Sets the APRS operating channel to the CH/VFO A, B, or C band.
		2.APRS Tx Delay	100ms---1000ms	Sets the delay time before starting the transmission of an APRS data packet.
		3.APRS Mute	OFF	Sets whether to mute the audio during APRS data communication.
			ON	
		4.APRS Ringer	OFF/ON	Sets whether the device emits a prompt tone when receiving or sending APRS data
		5.RX Popup	OFF/ON	Sets whether a notification pops up on the screen when an APRS position beacon is received.
		6.RX Beacon Clear		In the APRS station list screen, select beacon stations that are no longer needed to delete them from the list.
		7.RX Pop-up Time	5sec---60sec / Manual	Can be set to display a pop-up notification when receiving an APRS beacon or message from another station.
		8.TNC Type	OFF/KISS	Selects the Terminal Node Controller operation mode: OFF or KISS protocol mode.
		9.Factory Setting		Restores all APRS-related settings to their factory default state.
	6.Beacon Type	1.Beacon Type	Manual Beacon	Position beacon is sent only by manually pressing a key.
			Timing Beacon	The device automatically sends position beacons at set intervals.
		2.Timing Time	30sec, 1min---60min	
	7.Beacon List	On the APRS message list screen, up to 100 saved received or sent messages can be displayed. The latest messages are shown at the top.		

Menu Function List

Menu	Second Menu	Setting	Function Description
User Key	1.PF1	RADIO/MONI/SCAN/SEARCH/SOS/SPECTRUM/Beacon TX/PTTC	Assigns quick functions to the PF1 side key (corresponding to short press and long press operations).
	2.PF2	RADIO/MONI/SCAN/SEARCH/SOS/SPECTRUM/Beacon TX	Assigns quick functions to the PF2 side key (corresponding to short press and long press operations).
	3.Long Press PF2		
	4.Long Press keys 0-9	NONE/RADIO/VOX/SEARCH/SPECTRUM/NOAA/SCAN QT/SQUELCH/FREQ STEP/TX POWER/CH-MEMORY/ZONE SELECT/STANDBY SET/CTCSS DCS/FREQ OFFSET/FREQ DIR/RX MODULATION/TONE TX/TRANSFER/GPS SWITCH/APRS SWITCH/ROGER	Assigns a long-press quick function to Number Keys 1-9.
Bluetooth	OFF/ON	Optional function. Enables or disables the transceiver's Bluetooth function.	
Signaling	1.S-CODE	CODE1...CODE15	Selects 1 of 15 DTMF codes. DTMF codes are programmed via software, each up to 6 digits.
		OFF	Disables DTMF code sending.
		BOT	Sends DTMF code when PTT is pressed.
		EOT	Sends DTMF code when PTT is released.
	2.PTT-ID	BOTH	Sends DTMF code when PTT is both pressed and released.
		OFF	During transmission, the local unit does not emit the code sound when keys are pressed or codes are sent automatically.
		DT-ST	During transmission, the local unit emits the code sound when keys are pressed to send codes.
		ANI-ST	During transmission, the local unit emits the code sound when codes are sent automatically.
Setting	3.DTMFST	DT+ANI	During transmission, the local unit emits the code sound for both manually keyed and automatically sent codes.
	1.Beep Prompt	OFF	Turns off operation prompt tones.
		ON	Turns on operation prompt tones, providing audible confirmation for key presses.
		OFF	Turns off the voice prompt function.
	2.Voice	ON	Turns on the voice prompt function, providing voice confirmation for key presses.

Menu Function List

Menu	Second Menu	Setting	Function Description
Setting	3.Keypad Lock	OFF	Disables automatic keypad lock. Allows manual keypad lock (press and hold # key to lock/unlock).
		0.5sec---15sec	Automatic keypad lock time.
	4.Back Light	Bright	Backlight stays on continuously.
		0.5sec---3min	Backlight auto-off time.
	5.Menu OutTime	0.5sec---60sec	Auto-exit delay time when no operation is performed in the menu.
	6.Power On Display	Picture	Shows a preset picture at power-on.
		Voltage	Shows battery voltage at power-on.
	7.Language	English/Chinese	Sets the display language of the transceiver user interface, switchable between English and Chinese.
Reset	1.VFO Mode		Restores the frequency mode section to factory state.
	2.Reset All		Restores all settings to factory state.
About Machine	Software		Displays software version, hardware version, and transceiver ID to check radio information.
	Hardware		
	ANI CODE		

SSID Appendix

SSID	Description
NIL	Fixed station capable of exchanging messages.
-1	1200 bps Narrowband to Medium-frequency Digital Repeater.
-2	9600 bps Digital Repeater.
-3	1200 bps Wideband Digital Repeater.
-4	Digital Repeater, Mobile Station, Weather Station, etc.
-5	Operating station using vehicle-mounted equipment (smartphone, etc.).
-6	Operating station for satellite communications, events, etc.
-7	Handheld terminal such as FT3DR.

SSID	Description
-8	Maritime Mobile Station, Land Mobile Station.
-9	Using FTM-400XD, etc., for mobile applications.
-10	I-Gate Station, Internet-connected Station.
-11	Hot Air Balloon, Aircraft, Airship, etc.
-12	One-way Tracking Station (cannot exchange messages).
-13	Weather Station (Weather Observatory).
-14	Tracking Mobile Station.
-15	Digital Repeater, Mobile Station, Weather Station, etc.

Appendix A-Troubleshooting Guide

Issue	Analysis	Solution
Cannot turn on the radio.	The battery may be installed improperly.	Remove and reattach the battery.
	The battery power may be depleted.	Recharge or replace the battery.
	The battery contacts may be dirty or damaged.	Clean the battery contacts or replace the battery.
Voice is weak or intermittent during receiving.	The battery voltage may be low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume.
	The antenna may be loose or installed incorrectly.	Turn off the radio, then remove and reattach the antenna.
	The speaker may be blocked.	Clean the surface of the speaker.
Cannot communicate with other group members.	The frequency or signaling type may be inconsistent with other members.	Verify that your TX/RX frequency and signaling type are correct.
	You may be too far away from other members.	Move closer to other members.
Hear unknown voices or noise.	You may be interrupted by radios using the same frequency.	Change the frequency or adjust the squelch level.
	The radio may be set with no signaling in analog mode.	Change or set signaling for the current channel to avoid interference.
Too much noise and hiss, unable to hear anyone.	You may be too far away from other members.	Move closer to other members.
	You may be in an unfavorable position(e.g., blocked by buildings or underground).	Move to an open and flat area, restart the radio, and try again.
	There may be external disturbances(e.g., electromagnetic interference).	Stay away from equipment that may cause interference.
Radio keeps transmitting.	VOX may be turned on, or the headset is not properly installed.	Turn off the VOX function. Ensure the headset is properly installed.

▲ If the above solutions do not resolve your issues, or if you have other queries, please contact your dealer for further technical support.

Charging Instructions

- 1.Dock Charging (Optional): Insert the battery pack or the radio with the battery pack into the charging dock. Ensure proper contact with the charging terminals of the dock.
- 2.Type-C Charging: Connect the provided charging cable to the power adapter and plug the power adapter into an AC power outlet. Insert the charging cable into the Type-C interface of the main unit's battery.
- 3.When the device is charging, the red indicator light indicates charging in progress. The green indicator light indicates charging is complete.

Cleaning and Maintenance

To ensure optimal performance and extend the lifespan of this product, please follow the guidelines below for daily maintenance and cleaning.

Daily Maintenance:

- 1.Do not pierce or scratch the product with hard objects.
- 2.Do not store the product in environments containing chemical corrosive substances.
- 3.Do not carry or use the product by pulling the earphone cable.
- 4.When not using the earphone jack, cover the interface with the protective cap.

Cleaning Procedure:

Before cleaning, please power off the device and remove the battery:

- 1.Regularly use a dry, clean, lint-free cloth or a soft brush to remove dust from the product surface and charging terminals.
- 2.If the buttons or casing become dirty, use a neutral detergent and a non-woven cloth for cleaning. Do not use detergents, alcohol, sprays, or petroleum-based chemicals as they may damage the surface casing.
- 3.After cleaning, ensure the product is completely dry before use.

Warranty Terms

The warranty period for this product starts from the date of sale (based on the date on the sales invoice). The main unit is covered for 12 months, and the battery and charging accessories are covered for 6 months. The following cases will require paid repair services during the warranty period:

- 1.Failure to present this warranty card and the purchase invoice.
- 2.This card shows signs of alteration or does not match the product.
- 3.Defects and damages caused by using this product under non-standard conditions.
- 4.Defects and damages caused by misuse, accidents, water ingress, or negligence.
- 5.Defects and damages resulting from improper testing, operation, repair, installation, modification, or adjustment.
- 6.Defects and damages caused by unauthorized repairs or disassembly.
- 7.Defects and damages caused by force majeure.
- 8.Normal wear and tear from regular use.

Product Warranty Card

Sales Information	Dealer (Valid with Stamp):
	Contact Number:
	Address:
Product Information	Product Model:
	Serial Number:
	Purchase Date:
User Information	User Name:
	Contact Number:
	Address:

This warranty card serves as an important proof for the end user to enjoy warranty services. It must be stamped and filled out completely by an authorized dealer to be valid. Please keep it safe.