

THANK YOU!

We are grateful that you chose our radio for your land mobile radio applications.

We believe this easy-to-use digital dual band radio will provide dependable and reliable communication to personal operating at peak efficiency. The radio incorporates the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product!

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UNPACKING AND CHECKING EQUIPMENT

We recommend that you identify the following items listed in the table below before discarding the packing material.

If any of these items are missing or damaged during shipment, file a claim with the carrier immediately.

Packing Lists

Description	Quantity
Radio	1
Battery Pack	1
Desktop Charger	1
Adapter	1
Antenna	1
Belt Clip	1
Handstrap	1
User Manual	1

Charging the Battery Pack

1. Using the Battery Pack.

The battery pack is not charged at the factory. Please charge it before use. To extend the battery life, please power off the transceiver and remove the battery pack when not in use.

2. Battery Pack Characteristics.

Leaving the battery in a very hot or cold place will reduce its capacity and lifespan. Overcharging may also shorten the battery life.

3. Charging the Battery Pack.

After repeating the charging cycle for two to three times, the operating capacity will resume to its normal level.

Please charge the battery pack as follows:

- Slide the battery pack or transceiver with a battery pack into the desktop charger.
- 2. Make sure the battery pack contacts are aligned with the contacts of the charger.
- 3. When LED light is red, it means charging begins.
- 4. After charging for several hours and LED light turns to green, it means the battery pack is fully charged.
- Then you can take off the battery pack or transceiver with the battery pack and use it.

Attaching/Removing the Antenna

- Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.
- 2. Turn the antenna counter clockwise until you can remove it.

Installing/Removing the Battery Pack

- 1. To install: Fit the extensions at the top of the battery into the slots at the top of the transceiver's body. Press the bottom part of the battery towards the transceiver until you hear a click.
- 2. To remove: Lift upward the battery lock button, then lift the bottom part of battery pack from the transceiver.

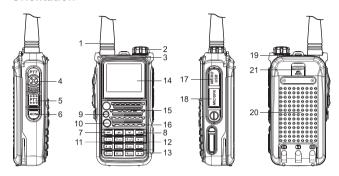
Installing the Belt Clip

If necessary, screw the belt clip at the back of the transceiver.

Installing the Earphone

Insert the earphone plug into the speaker/microphone jacks.

Orientation



No.	Part Name	No.	Part Name
1	Antenna	13	Keypad
2	Power/Volume Switch	14	LCD Display
3	LED Indicator 1&2	15	Speaker
4	PTT A Key	16	Internal Microphone
5	PTT B Key	17	Charging Micro USB
6	MONI Key (SK1)	18	Earphone/Data Cable Jack
7	Menu Key	19	Hand Strap Hook
8	Exit or A/B Key	20	Battery Pack
9	VFO/MR/CH/Torch Key	21	Battery Lock
10	Contact/SOS Torch Key		
11	UP Key		
12	Down Key		

Programmable Auxiliary Functions

Your dealer may program the [SK1] (long press or short press) with one of the following auxiliary functions respectively.

Shortcut key	Function
None	No function.
Emergency On	Allows the user to set up an emergency call.
Emergency Off	Allows the user to terminate an outgoing emergency call.
Squelch On Momentary	To always unmute the speaker no matter whether carrier is present or not.
Zone Up	To increase the Zone number.
Zone Down	To decrease the Zone number.
Scan	Allows the user to toggle the scan feature between on or off.
Noise Ch Del	Allows the user to temporarily remove an unwanted channel from the scan list, except the selected channel. The nuisance deleted channel will be restored into the scan list, for instance, when radio is powered off and back on again.
Adjust Power Level	Quickly switch between high/middle/low power.
Adjust Squelch Level	Allows the user to access squelch level setting list.
Home Channel	When the activity in other channels or interface, press to quickly switch to the set waiting channel.

Shortcut key	Function
Squelch On	To always unmute the speaker no matter whether carrier is present or not.
Monitor	Enable monitor function.
Talk Around	To directly communicate with other radios.
Small Call 1	To make corresponding service.
Small Call 2	To make corresponding service.
Small Call 3	To make corresponding service.
Small Call 4	To make corresponding service.
Small Call 5	To make corresponding service.
Lone Work	Working alone to open the key. Press this button to turn on or off individual job functions.
VOX	Hands-free transmission.
FM Radio	To activate the FM radio.

Note:

- ◆ You can set the time of pressing long key from 1.5~5.0 seconds (default: 2.0 seconds) with programming software, when you press any of [SK1] key, the time of pressing is over your setting time, then it's a long time key, otherwise, it's a short key.
- ♦ Squelch On feature should be enabled only for analog channels.

LCD Icons

Indicator	Icon	Descirption		
RSSI	Y Y. Y., Y.,	More bars indicate better signal strength.		
Battery Strength Icon		More bars indicate more battery power.		
	G	Scanning is in progress.		
Scan Icon	G	Scanning pauses on a non-priority channel.		
Pi		Scanning pauses on Priority Channel 1.		
Talk Around	DM	Direct mode.		
Icon	RM	Talk around feature is actived.		
Emergency Icon	Δ	The Emergency mode (other than secret emergency) is actived.		
TV Dawer	L	Low Tx power for the current channel.		
TX Power Icon	M	Middle Tx power for the current channel.		
10011	Н	High Tx power for the current channel.		
Message Icon	\square	New message/unread message.		
	À	Analog channel.		
Channel Type	D	Digital channel.		
	M	Mixed channel.		
FM Radio	FM	Turn on the FM radio.		
VFO Channel	VFO	In the VFO mode.		

LED Indicator

The top LED indicator will help you easily identify the current radio status.

LED Indication	Radio status
LED glows red	Transmitting
LED flashes red	Low battery
LED glows green	Receiving
LED flashes orange	Scanning
LED glows orange	Within the call holding time

Switch Power On/Off

- Power ON: rotate the [Power/Volume Switch] knob clockwise until a click is heard.
- Power OFF: rotate the [Power/Volume Switch] knob counterclockwise until a click is heard.

Adjusting the Volume

After turning the radio on, rotate the [Power/Volume Switch] knob clockwise to increase the output sound volume, or counterclockwise to decrease it.

Select Working Band

In standby mode, you can press [A/B] key to select working band, the highlighted area on LCD display means the current working band you are select, the grey area on LCD display means you don't select. The PTT operation, programmable keys, keypad etc. only work under working band.

Select Display Mode

In standby mode, you can press [VFO/MR/CH] key to select one of VFO/MR/CH mode cyclically.

- VFO mode: You can change frequency through keypad.
- MR mode: To display current memory channel information.
- CH mode: To display alias of current channel, this alias can be edited by user.

Selecting a Zone

A zone is a group of channels and is programmed by your dealer. The radio supports 100 zones, each with a maximum of 200 channels. You may select a zone through any of the following method:

- Go to the menu "Zone", and use the [→]/[→] key to select your desired zone.
- 2) You can select through the zone programmable key.

Selecting a Channel

You can use [➤]/[➤] to select the desired channel.

Battery Save

The battery save function decreases the amount of power used when signal is not being received and no operations are being performed (no keys are being pressed and no switches are being turned); While the channel is not busy and no operation is performed, battery save function activates. When a signal is received or an operation is performed, battery save is disabled.

Low Battery Alert

For extra convenience, if the battery level runs low, when press PTT to transmit, the transceiver will sounds "Please charge the battery" at setting time to alert the user to recharge the battery.

Press the Menu Key to access menu items. There are various menu options according to the working mode in use. You may request your dealer to program the list of menu options.

Contacts

To access this menu, press the Menu key in the home screen and then select "Contacts".

1. Contact List

You can view details of each contact, such as contact alias, ID number.

2. New

You can create a new contact to the contact list. You can edit such as alias name, contact type, ID number.

3. View ID

There are up to maximum 160,000 IDs in the list, you can check the list and the relevant details, or search your desired ID to call. If someone who already in your contact list transmits a call to you, then his/her ID will appear on your LCD display.

Message

To access this menu, press the Menu key in the home screen and then select "Message".

1. New

You can create a new message and send it out or save it to draft. You can send it to a single user or to a group of uers.

2. Quick Text

Users can access quick text messages from the pre-stored messages, user can edit or send these text messages directly.

3. Inbox

The Inbox can save up to 16 received messages. When the Inbox is full, the earliest message will be overwritten by the latest one automatically. For each message, you can choose to perform any of these operations: Resend, Forward, Save as New, Delete. To delete all messages in the Inbox, select "Message -> Inbox -> Delete All"

4. Outbox

The Outbox can save up to 16 sent messages. When the Outbox is full, the earliest message will be overwritten by the latest one automatically. For each message, you can choose to perform any of these operations: Resend, Forward, Detail Save as New, Delete. To delete all messages in the Outbox, select "Message -> Outbox -> Delete All"

5. Draft

The Drafts can save up to 16 draft messages. When the Drafts are full, the earliest message will be overwritten by the latest one automatically. For each message, you can choose to perform any of these operations: Send, Save as, Delete. To delete all messages in the Drafts, select "Message -> Drafts -> Delete All".

Call Logs

To access this menu, press the Menu key in the home screen and then select "Call Logs". The radio can save up to 16 call entries in the Outgoing/Incoming/Missed list respectively. To delete all entries in the Outgoing/Incoming/Missed list at a time, select "Call Logs -> Outgoing/Incoming/Missed -> Delete All".

Scan

Press the Menu key in the home screen and then select "Scan". Scan allows you to listen to communication activities on other channels so that you can keep a close track of your team members.

Setting

1. FM Radio

You can turn on/off FM radio through programmable key or menu of "Setting" - "FM Radio".

There are 20 memory channels and VFO mode, you can toggle the VFO and MR mode through [VFO/MR/CH] key. Memory channels can be programmed through direct input by keypad.

- In MR mode, no frequency shown on LCD display means idle channel, you can input the frequency directly to save to current channel, then press [~]/[~] key select the MR channel you saved.
- 2) In VFO mode, you can input frequency directly, or use [→]/
 [→] key to select the frequency.

2. Location (Optional)

If you buy this radio version with GPS feature, to turn it on, press the Menu key in the home screen and then select "Setting" - " Location". " ③ " will be appeared on LCD display, if " ③ " to be appeared, it means the radio successfully positioned and the relevant position information will be shown.

(Note: Please use GPS feature in an open area.)

3. Digital Monitor

You can turn on/off this feature through "Setting" - "Digital Monitor" menu in menu system. When turn on this feature, your radio will monitor current channel and show out the relative infos (DMR ID, color code) on "Channel Infos" menu. You can set only to monitor the channel of the same ID or anyone of ID, the same color code or anyone of color code in your list, when select anyone of ID or color code, it means to monitor all digital channel call.

4. Radio Set

To access this menu, press the Menu key in the home screen and then select "Setting" - "Radio Set".

- 1) Sound
- 1- Volumes: There are 3 levels of volume (Low/Middle/High) for selection. You can select the proper volume level based on your actual needs and preferences.
- 2- Key Tone: This option allows you to configure an alert tone each time a button is pushed.

- 3- Power Tone: This option allows you to configure an alert tone whenever a radio is turned ON/OFF.
- 4- Voice Prompt: This option allows you to configure a recorded voice message in some radio features.
- 2) Display
- 1- Brightness: Allows the user to adjust the brightness level of the LCD display.
- 2- Backlight: Allows you to set the backlight that can illuminate the LCD display and the keypad. It offers the following selections: Infinite/5s/15s/30s/60s
- 3- Menu Reset: Allows you to reset the menu for a predefined time period that will automatically return to home screen. It offers the following selections: None/5s/10s/15s/20s/25s/30s/ 60s/120s
- 3) Zone

The radio supports up to 100 zones. You can use this menu to select your desired zone and you may request your dealer to program zone number or alias.

4) Power Level

This option allows you to set transmit power level (Low/Middile/ High). Alternatively, you can also change the power level by pressing the programmable side key for Adjust Power Level in the home screen

5) Kev Lock

Press [Menu] key and then press [*] key to lock the keypad. To unlock the keypad, press [Menu] key and then press [*] key again. There are 2 modes of keypad lockout:

Keypad: Only lockout of keypad.

All: Lockout of all keypad, button and switch except [PTT] button.

6) VOX With VOX switched on, this allows hands-free voice transmission. You may also set the VOX Gain Level and the VOX Delay Time.

7) MIC Gain

There are 3 microphone gain levels (Low/Middle/High) for selection, you can select proper level based on your actual needs.

- 8) Frequency Step
- In VFO mode, you can select the right frequency step size from one of following (5.00K/6.25K/10.00K/12.50K/25.00K/50.00K/ 100.00K).

The purpose of TOT is to prevent any user from occupying a

9) TOT (Time-Out Timer)

channel for an extended period. If the preset timer expires, radio will automatically terminate transmission and keep beeping. To stop beeping, please release the PTT key. You must wait for a certain time period (preset by your dealer) before initiating another transmission.

You can set the TOT timer from the following selections: Infinite/ 30s/60s/90s/120s/150s/180s/210s/240s and set the alert timer before TOT. 17

10) Power Save

To turn on/off battery power saving feature.

11) Work Mode

To set the radio on/off on the working modes at Channel A, Channel B and POC.

Program

You can edit channel settings and the side keys features.

1. Edit Channel

You can edit the current channel in the list or create a new channel and edit it, new channel will automatically be added in the current channel list.

2. Buttons

There are 1 programmable side key [SK1] to set your desired feature.

Radio Info

You can view basic information of your radio.

Call System

1. Private Call

You may initiate a Private Call through any of the following methods.

- Initiating a call to the preset contact: In the home screen, hold down the PTT key to initiate a Private Call to the Private Call contact preset for the current digital channel.
- Initiating a call through Contact List or Call Logs.
- 1. Go to "Contact -> Contact List", or go to "Call Logs" access the Outgoing/Incoming/Missed list.
- 2. Use the [\frown]/[\smile] key to select the Private Call contact you want to call.
- 3. Hold down the PTT key to initiate the Private Call.
- Initiating a call through Manual Dial: Input a Private Call number you want to call, Hold down the PTT key to initiate the Private Call.

2. Group Call

You may initiate a Group Call through any of the following methods.

- Initiating a call to the preset contact: In the home screen, hold down the PTT key to initiate a Group to the Group Call contact preset for the current digital channel.
- Initiate a call through Contact List: Go to "Contact->Contact List", use the [→]/[→] key to select the Group Call contact you want to call, Hold down the PTT key to initiate the Group Call.

 Initiating a call through Manual Dial: Input a Group Call number you want to call, Hold down the PTT key to initiate the Group Call.

3. All Call

You may initiate an All Call through any of the following methods.

- Initiating a call to the preset contact: In the home screen, hold down the PTT key to initiate a Group to the Group Call contact preset for the current digital channel.
- Initiate a call through Contact List: Go to "Contact->Contact List",
 Use the [→]/[→] key to select the All Call contact you want to call. Hold down the PTT key to initiate the All Call.
- Initiating a call through Manual Dial: Input a All Call number you want to call, Hold down the PTT key to initiate the All Call.

4. Small Call

Small call access feature allows you to operate according to the preset key setting function, this function can be set through the radio side key function.

Digital Emergency

In case of an emergency, you can use this function with a partner or a control center to seek for help. Start the alarm function which can be activated by the emergency alarm.

This radio supports 3 kinds of emergency mode, you can select one of the following:

- Emergency: The radio sends an emergency alarm and exits the emergency mode. This alarm is non-voice signal that triggers an alert indication on another radio.
- 2) Emergency Call: An emergency alarm is sent, after which an emergency call can be transmitted by pressing the PTT button.
- 3) Urgent Call: This option enables the Hot Microphone feature that has been programmed by your dealer, i.e. Hot Mic Duration. An emergency alarm is sent and the microphone is activated for an urgent call. Voice is transmitted without the need to press the PTT button.

Lone Work

This radio feature can trigger an emergency alarm when Lone Work time has expired and there is no response on the user or has been inactive for a period of time.

Radio Check

This feature allows you to determine if a target radio is active and capable of receiving calls and acknowledging back to the digital channel. Radio Check enables the originating radio to recognize that a call using the digital channel has been received by the target transceiver.

NOTE: Only private call has this function.

Encrypt

This is a unique feature of digital channels. The Encrypt feature allows the radio to automatically encrypt transmitted voice or data. This prevents eavesdropping and ensures communication privacy.

Radio Disable

You can use this feature if you want to prohibit a radio from transmitting and receiving messages/calls from you.

Remote Monitor

Use the Remote Monitor feature to remotely activate the microphone of a target radio. This way you can monitor or detect secretly any voice messages coming from the target radio.

Transmit Interrupt

This is a feature that will enable you to clear channels and interrupt ongoing calls to be able to transmit your urgent message to a user or group of users in case of an emergency.

Digital & Analog Converter

When the current channel is in a mixed mode, your radio is capable of receiving signals of both digital and analog calls. In this mode, you should set the CTCSS of the receiving analog.

• For more features and function settings, please ask your dealer for more information and assistance.

CTCSS/DCS

TROUBLESHOOTING

Standard CTCSS Tones Table

1 - 67.0	11 - 94.8	21 - 131.8	31 - 171.3	41 - 203.5
2 - 69.3	12 - 97.4	22 - 136.5	32 - 173.8	42 - 206.5
3 - 71.9	13 - 100.0	23 - 141.3	33 - 177.3	43 - 210.7
4 - 74.4	14 - 103.5	24 - 146.2	34 - 179.9	44 - 218.1
5 - 77.0	15 - 107.2	25 - 151.4	35 - 183.5	45 - 225.7
6 - 79.7	16 - 110.9	26 - 156.7	36 - 186.2	46 - 229.1
7 - 82.5	17 - 114.8	27 - 159.8	37 - 189.9	47 - 233.6
8 - 85.4	18 - 118.8	28 - 162.2	38 - 192.8	48 - 241.8
9 - 88.5	19 - 123.0	29 - 165.5	39 - 196.6	49 - 250.3
10 - 91.5	20 - 127.3	30 - 167.9	40 - 199.5	50 - 254.1

Standard DCS Codes Table

023	071	143	225	266	356	452	532	703
025	072	145	226	271	364	454	546	712
026	073	152	243	274	365	455	565	723
031	074	155	244	306	371	462	606	731
032	114	156	245	311	411	464	612	732
036	115	162	246	315	412	465	624	734
043	116	165	251	325	413	466	627	743
047	122	172	252	331	423	503	631	754
051	125	174	255	332	431	506	632	
053	131	205	261	343	432	516	654	
054	132	212	263	346	445	523	662	
065	134	223	265	351	446	526	664	

Phenomena	Analysis	Solution
	Battery may be installed improperly.	Remove the battery and reinstall it.
Power-on	Battery power may have run out.	Recharge or replace the battery.
Failure.	• Battery may be poorly connected caused by dirt buildup or damaged battery contacts.	If the problem cannot be solved, contact your dealer or authorized service center
	Low battery voltage.	for inspection and repair. Recharge or replace the battery.
During receiving, the	• Low volume level.	Increase the volume by rotating the Volume Control knob.
	• The antenna may be loosened or improperly installed.	Reassemble the antenna after turning off the radio.
inactive.	• The speaker may be blocked or damaged.	Clean the surface of the speaker. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.

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Phenomena	Analysis	Solution
Unable to communicate with other members.	 The frequency or signaling may be inconsistent with that of other members. The channel type (digital/analogue) may be set inconsistently. You may be too far away from the group members. 	Set your TX/RX frequency and signaling to the same as that of other members. Make sure all members are on the same digital/analogue channel. Move towards other members.
Irrelevant communication or noise is heard on the channel.	,	Change the frequency, or adjust the squelch level. Set signaling for all member radios to avoid interference at the same frequency. And change the signaling settings for all portable radios at the same time.

Phenomena	Analysis	Solution
The noise is too loud.	 You may be too far away from other members. You may be located in an unfavorable position. For example, your communication may be blocked by high buildings or by thick barriers in the basement or underground areas. 	Move towards other members. Move to an open and flat area, and restart the radio to try again.
	 You may suffer from external disturbance (such as electromagnetic interference). 	Stay away from equipment that may cause interference.

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