

**Digital Two-Way Radio**  
USER'S MANUAL

**R1**

Digital System Solutions Supplier



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**Digital Two-Way Radio**



**WARNING**

Our RUGGED RADIOS radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as “Occupational Use Only” ,meaning it must be used only during the course of employment by individuals aware of the hazards, and the ways To Minimize Such hazards.

This radio is NOT intended for use by the “General Population” in an uncontrolled environment. This radio has been tested and complies with the FCC RF exposure limits for “Occupational Use Only” .In addition, our RUGGED RADIOS radio complies with the following Standards and Guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

---IEEE Std. 1528:2013 and KDB447498, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.

---American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

---American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields-RF and Microwave.



**CAUTION**

The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to as-sure that this radio operates with the FCC RF exposure limits of this radio.

**Electromagnetic Interference/Compatibility**

During transmissions, RUGGED RADIOS radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

#### Occupational/Controlled Use

The radio transmitter is used in situations in which persons are exposed as consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

#### **Attention:**

This radio complies with IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 50% and is authorized by the FCC for occupational use only. An appropriate warning label is affixed to all units. In order to comply with RF exposure requirements, a minimum distance of 2.5cm must be maintained when held-to-face, and body-worn operations are restricted to the approved original accessories (belt clip) a minimum distance of 0 cm. Do not use this device when antenna shows obvious damages.

This product is compliance to FCC RF Exposure requirements and refers to FCC website <https://apps.fcc.gov/oetcf/eas/reports/GenericSearch.cfm> search for FCC ID: 2AWYH-H1RB to gain further information include SAR Values.

## **To customers**

Thank you very much for using our two-way radios. This product has a newly developed function menu and humanism operation design, making it easy to use. It will meet your requirement by the compact size and reasonable price.

## Welcome to use our two-way radio

Professional FM Transceiver

- PTT ID
- FM radio
- Password
- CTCSS/DCS
- Call prompt
- Call detection
- Torch function
- Firmware update
- End-tone detection
- 5 watt output power
- DTMF encode/decode
- Contact view and edit
- Call info view and edit
- Message view and edit
- Dual time slot for repeater
- PC programmable function
- Programmable CTCSS/DCS
- Dual time slot for point to point
- Wide band/narrow band selectable
- Remote monitor/Emergency alarm
- SN、Equipment Identitly Code for device verification



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**User's Manual**

**Getting familiar  
Safety and Overview  
Button part  
Overview**

Professional FM Transceiver

## Getting familiar

### LED indicator light

The indicator light turns red when transmit, turns green when receive. It blinks red when the battery capacity is low, and blinks green

### Antenna

with threaded head, for transmitting and receiving

### PTT

### Side key 1

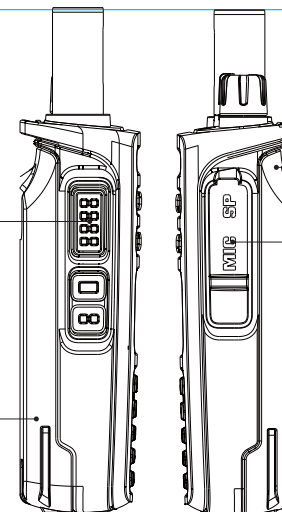
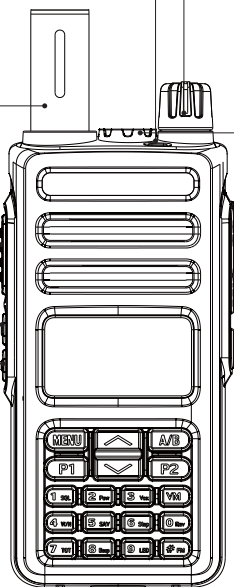
Side key 2/  
Flashlight on or off

### Power/Volume knob

To power on/off and adjust the volume. Rotate it clockwise, a "click" sound is heard and a "Du" tone prompts the radio power on, continue to rotate it to adjust the volume. Rotate it counter-clockwise until a "click" sound is heard, it powers off.

### Flashlight

Programming connector  
Microphone connector



### PTT switch

### Li-ion battery

For charging the radio.

### Belt clip

You can clip the radio in the belt and is easy to take.

### Mic/speaker jack/programming port

Used to connect headset or external programming cable, Programmable via PC programming software.

Note: Short-press or Long-press of Side Key 1/long-press of Side Key 2 can be programmed by software for following functions: 1, unassigned 2, All Alert Tone on/off 3, Emergency On 4, Emergency Off 5, High/Low Power 6, Monitor 7, Nuisance Delete 8, One Touch Access 1 9, One Touch Access 2 10, One Touch Access 3 11, One Touch Access 4 12, One Touch Access 5 13, One Touch Access 6 14, Repeater/Talkaround 15, Scan On/Off 16, Privacy On/Off 17, Vox On/Off 18, Zone Select 19, Battery Indicator 20, Lone Work On/Off 21, Phone Exit.

## Safety and Overview

Product safety and RF Exposure for handheld two way radio .



Before using this two way radio, please read the manual which contain important operating instructions for safe usage, RF Energy Awareness control information and operational instructions for compliance with R Energy Exposure limits in applicable national and international standard Also read the operational instructions for safe use.

**NOTE:** To get the best range from the external whip antenna(50Ω) should be used.  
Ant gain : 0-1.2dBi (Max). The use of non-original antennas is prohibited.

## Button Part

### PTT button (transmit button)

The transfer button for transmitting and receiving, press this button when transmitting, and speak to the microphone; when receiving, release this button

### Side button 1

- A. Short press this button and release it, open the function of short press setting, short press and release again, function is turned off.
- B. Press and hold this button for a long time to open the long press setting function, press and release again, the function is turned off.

### Side button 2

- A. Short press this button to turn on/off flashlight
- B. Press and hold this button for a long time to open the long press setting function, press and release again, the function is turned off.

### VFO/MR key (P2 key)

In the main interface, switch VFO mode and MR mode

### A/B button (P1 key)

In the main interface, switch the primary/secondary channel, and the channel pointed by the arrow is the main channel.

### Function keyboard

Menu selection / confirmation button: OK (MENU)

- A. Main interface mode, short press to enter the menu, enter the menu and use this button to confirm the selection.
- B. Press and hold for a long time to quickly enter the radio nearest menu Settings.



**Exit/clear key: BACK**

- A. In the input state, clear the entered information
- B. Under the DTMF function, the D code word is represented.

**▲ key:**

- A. Move up, change the scanning direction when scanning
- B. Under the DTMF function, it means A code word
- C. SMS editing interface, move up

**▼ key:**

- A. Move down and change the scanning direction when scanning
- B. Under the DTMF function, it means B code word
- C. SMS editing interface, move down

**P1 key:**

- A. Move to the left.
- B. Under the DTMF function, it means C code word
- C. SMS editing interface, move left

**P2 key:**

- A. Move to the right.
- B. Under the DTMF function, it means D code word
- C. SMS editing interface, move right

**Number keys 0 to 9**

- A. Default: 0 to 9 digits
- B. Under DTMF function, indicate DTMF [0~9] code
- C. If you assign number keys as shortcut keys, long press this button to jump to the

corresponding contact.

**\* key**

- A. Long press this button, the keyboard lock;to unlock, press the quick key combination Menu/ OK and \*
- B. Under edit box such as SMS, press this button to clear the data.
- C. Under the DTMF function, indicate \* code

**# key**

- A. Under main interface of digital mode, short press # key to enter manual dialing interface
- B. In the analog mode, press and hold the PTT to send DTMF function, indicating # code
- C. Under main interface of analog mode, short press # key to pop up DTMF dial code box. At this time, you can manually input DTMF code. After input, press PTT to start DTMF dialing function.
- D. Under the input method interface, short press the # key to switch the input method mode.

**Glossy flashlight Key: Side button 2 short press**

- A. Short press first time to open the glare flashlight.
- B. Short press second time yo open photoelectric alarm SOS.
- C. Short press third time to close.

## Overview

### Power/volume switch

Turn the power of walkie-talkie when turning clockwise; turn it to the end counterclockwise, turn off the power of walkie-talkie when you hear “click”; turn clockwise to increase the volume, and vice versa

### Status Indicator

Transmit - red light

Receive - green light

Scan - green light flashes

### External interface

For external headphones or read/write, software upgrades are also available.

## LCD Icon

The corresponding function icon will be displayed on the display during operation. This display gives you a quicker idea of what the indicator means and how to set it up.

Icon	Explanation
	Signal strength indication, the smaller the number of cells, the smaller the signal
<b>HL</b>	Current transmit power is high (H) or low (L)
	: digital non-dual capacity direct mode
	: Digital mode, dual capacity direct mode is on and works in time slot 1
	: Digital mode, dual capacity direct mode is on and works in time slot 2
	: Analog and no CT/DCS setting
CT	CT: Analog and CT setting
DCS	DCS: Analog and DCS setting
	Speaker is turned on, effective reception
N	N:analog mode, working in narrowband mode.
	:Digital mode, unread SMS, means there is currently unread SMS, press MENU to view. when no unread SMS, the icon disappears
	Indicates that VOX function is enabled, and the transmission is started when the sound pressure of the microphone reaches the set value. This feature can be configured via VOX of radio set in menu
	Indicates that the transmission frequency is the reception frequency plus a frequency deviation

	<p>— Indicates that the transmission frequency is the reception frequency minus one frequency deviation, and the frequency difference can be set in the walkie-talkie configuration of the menu item</p> <p>I-  Talkaround function, in the different frequency mode, enter the menu setting to display the icon when the network is off</p>
◀	monitor mode
S	S means that the dual-band standby function has been set, and it can simultaneously wait for the two frequency bands displayed on the screen.
	<p>Z: :normal scanning, Z: :priority 1 channel scanning,</p> <p>Z: :priority 2 channel scanning, and 2 priority channels at this time.</p> <p>🔒 :Lock the icon for the keyboard lock icon</p>
	Display the remaining battery power of the current battery. When the battery power is about to run out, the icon is , indicating that the battery needs to be charged.
→ <sup>D</sup>	Point to the main digital mode, press the A/B button to switch the main channel up and down. When the dual standby is turned on and works on the digital subchannel, the icon is → <sup>D</sup>
→ <sup>A</sup>	Point to the main analog mode, press the A / B button to switch the main channel up and down, when the dual standby is turned on, when working on the analog subchannel, the icon is → <sup>A</sup>
001	channel mode, the current channel number is displayed, ranging from 001 to 128

### Menu info

Press OK to enter the menu; press up, down, left, and right to select, press OK to confirm; press BACK to return

First level menu	Second level menu	Third level menu	Option	Setting description	Remarks	
Contact	Contact	Contact list	view contact	Check contact name and number	Only support digital mode	
			quick key	The contact configuration number is 0-9, and choose empty to turn off quick key.		
			delete	Delete current contact		
	New contact	Input num	xxxx	Enter the contact number, maximum 16777214, press OK to confirm, press BACK to delete		
			Alias	Abcd		Enter name, support upper and lower case letters and special character input
			Tone	off Tone1-10		There are 10 kinds of tones to choose from. When the caller chooses to enable the call prompt and the caller's own number is the new contact, the unit will send the tone. Choose Off to turn off tone.

	manual dial	Enter the number manually, press BACK button to delete or return, press the OK button to choose corresponding operation. Press PTT to call the single-call contact for dialing, up to 16777214 (16777215 full call number)			
Message	Inbox	Inbox	Inbox	Unread mark, read mark, press OK to edit the content, then press OK to reply / forward / delete	Only support digital mode, can set in Menu-programming software
		Delete All	Yes/No	Yes: delete all, No: don't delete	
	New Message	Editing interface		Support upper and lower case letters and special character input, press # key to switch input method, press OK to select send / save / clear	
		Outbox	Outbox	List...	
	Delete all			Yes: delete all, No: don't delete	
	Draft	Draft	List...	Press OK button to edit the content, then press the OK button to send/edit/delete	
		Delete all		Yes: delete all, No: don't delete	

	Quick Text	List...		Press the OK button to edit the content, then press the OK button to send / save / clear			
Call logs	Outgoing	Outing	List...	Dialed private call, press OK to view/add contact/delete, add to contact to enter alias to store in contact list	Only support digital mode, can set in Menu-programming software		
		Delete all		Yes: clear dialed call list, No: Do not delete			
	Answered	Answered	List...	Received private call, press OK to view/add contact/delete, add to contact to enter alias to store in contact list			
		Delete all		Yes: clear received call list, No: Do not delete			
	Missed	Missed	List...	Missed private call, press OK to view/add contact/delete, add to contact to enter alias to store in contact list			
		Delete all		Yes: clear missed call list, No: Do not delete			
	Set	Radio Set	CTCSS/DCS	C CTC/DCS		Change the encoding and decoding of CTC/DCS. Press OK to enter, Press the	

				* key to select OFF / DCS, and press the up and down keys to choose CTCSS in the OFF interface. In DCS mode, press “#” key to switch between normal phase (N) and reverse phase (I). You can also manually input non-standard CTCSS / DCS by keyboard, press OK key to confirm, press BACK key to return	Only support analog mode
		R CTC/DCS	Change the decoding of CTCSS / DCS. Setting method is the same as above		
		T CTC/DCS	Change the encoding of CTCSS / DCS. Setting method is the same as above		
	Squelch	Level 0-9	Level 0-9		can set in gramming software
	TX Power	High	Transmit on about 5W		can set in gramming software
		Low	Transmit on about 1W		
	Talkaround	On	This function will only work if the current channel of programming software is		can set in gramming software

				“Allow Talkaround”.	
		Off	Off		
	Band	Narrow	work on narrow band		Only support analog mode
		Wide	N/A		
	Busy lock	Off	Can transmit even the channel is occupied		
		Carry	forbidden to transmit after press PTT when there is carrier		
		QT/CC	forbidden to transmit when Match CTCSS/DCS/color code		
	TOT	OFF	Off, no transmit restrictions		
		15~495S	There is a warning 10 seconds before transmission limit time. limit is reached, and it is time to prohibit transmitting. For example, set 60 seconds and issue a warning for 10 seconds at the 50th second. If you continue to trasnmit, the transmit is prohibited at 60 seconds		
	Vox	Off	turn off VOX		

			1~10	Do n't press PTT when you turn it on, you can just shout and you can transmit. The sound control sensitivity can be set from 1 to 10. Level 1 is the most sensitive level, level 10 is the least sensitive level	can set in programming software
		Double Wait	Off	Turn off dual standby, the radio enters single band mode	can set in programming software
			Double Wait	The main channel and the sub-channel are scanned alternately, and the call is locked when receiving effectively. Press PTT to talk to the other party.	
			Single Wait	The upper and lower channels are switched by the keyboard. The radio works on the main channel, and the secondary channel cannot transmit or receive.	
		Encrypt	Off	Turn off Encryption	can set in programming software ; Only
			On	Encryption is turned on. Both parties on the call	

				must match the key to make a normal call.	support digital mode
		Power Save	Off	Turn off power save	
			On	Turn on power saving mode, power saving ratio is 1: 4	
		Beep	All Tone	Options: off / on. Select to turn off all beeps when off, but exclude emergency alert beeps	can set in programming software
			Call Permit	Options: Off / Digit/ Analog / Both. After pressing the PTT button to transmit a signal through the channel, this alert tone will sound, which can prompt the user to start speaking. Off: Turn off call permit Digital: Enable this tone only for digital channels Analog: Enable this tone only for analog channels Both: Enable this tone for both digital and analog channels	

			Key Beep	Options: off / on. No beep sound when the close button is selected	
	Backlight	Always On	Always On	can set in programming software	
		Always Off	Always Off		
		5/10sec	Time to automatically turn off the backlight		
	Keypad Lock	Manual	Long press * to lock, then press OK and * Key unlock	can set in programming software	
		5/10/15 sec	Auto lock, set time to auto lock, then press OK and * Key unlock		
	Indicator	Off	Lights (transmit light, receive light, power-on light, etc.) do not work when turn off	can set in programming software	
		On	On by default		
	Passwd Lock	Input Password	Enter correct password to use radio.. The password can be configured by default on programming software Options: Turn on / off / change password Turn on or off: It can be turned on when it is currently off, and it can be	can set in programming software	

				turned off when it is currently on. When On is selected, the radio can only be turned on by entering the correct password and pressing OK Change the power-on password: you can enter a new password of less than 6 digits, please remember it after changing	
	Mode	CH No.	Channel mode is displayed as channel number	can set in programming software	
		CH Name	Channel mode is displayed by channel name		
		CH Freq	Channel mode is displayed by frequency		
	Screen	Picture	Display based on pictures provided by customers	can set in programming software	
		Character	Two lines, editable by programming software		
	Radio Info	Radio ID	12345678	Press OK to modify. Digital mode displays radio ID, the maximum is 16777215 ; Analog mode displays the local DTMF's own ID number,Max99999999	


	Dev. Info	Radio	model		
		S/N:	radio unique alphanumeric characters		
		CPS-Version	Read and write software version		
		H-version	Hardware board version		
		Soft-Version	Software version of the internal hardware components of the radio		
		DSP-version	Digital processing chip DSP software version number		
		Program Date and Program Time	last programmed date and time of radio		
	Radio Cfg	Rx_Freq	Receiving frequency settings, press * to clear them all, press BACK to delete them individually		
		TX_Freq	Transmission frequency setting, press * to clear all, press BACK to delete them individually		
		Ch-Name	Channel name settings, press * to clear all, press BACK to delete them individually		
		Color Code	Options: 0 ~ 15 optional, only digital mode is valid		
Slot		Options: 1 ~ 2 optional, only digital mode is valid			




		Shift Freq	000000 ~ 50,00000K, the minimum step value is 50K.	
		Shift Dir	Options: Off / + / - Off: In frequency mode, there is no difference between transmitting and receiving frequencies +: In frequency mode, the transmitting frequency is equal to the receiving frequency plus the difference frequency -: In frequency mode, the transmitting frequency is equal to the receiving frequency minus the difference frequency	
		Freq Step	Options: 2.5K / 5.0K / 6.25K / 10K / 12.5K / 25K / 30K / 50K. In frequency mode, press the up and down keys to adjust the frequency step value, and the frequency mode scans in this step.	
		Ch Type	analog / digital. Switch between analog and digital modes in frequency mode	
Zone	Zone list			
Scan	On/Off (Note:cannot open Sacn in double wait mode)			
	Scan List	Channel list		
Append	FM			



## Common operation

### 1. Dual band double wait(dual standby)/single wait switch

Press the P1 key to switch the main channel up and down, and the solid arrow  points to the main channel.

The dual band working mode can be selected through menu, flow: menu-set-radio set-double wait(off/double wait/single wait). When "single wait" is selected, the radio only works on the main channel and the subchannel does not receive the signal; when "double wait" is selected, the icon bar displays the "S" icon, and the radio main channel and the sub-channel receive by turns scanning. When the valid receiving signal is scanned, the radio locks and works. If locked the channel is not the primary channel, at this time,  it points to the temporary working channel. When the time is up, the  disappears. The main channel is transmitted by the PTT  without the temporary identification status.

Note: Since the double wait mode is in the primary and secondary channel scanning by turns, the DTMF signaling system and auto scan do not work.

### 2. VFO / MR mode switch

In the main interface, press P2 to switch between VFO mode and MR mode. There is no channel number display in VFO mode. The receiving frequency can be input manually. The parameters can be changed through menu. Press the up and down keys to adjust the frequency up and down according to step.


MR mode displays the current channel number. You can manually input the channel number. The parameters can be changed through menu. Use the up and down keys to switch channels up and down.

## 3. Digital communication

The digital call channel can be configured with an encryption through programming software, and the encryption switch can also be set by menu -set-radio set -encrypt.

### 3.1 Group call

Initiation: Set group call contact of the current channel by programming software or manually select the group call contact in the contact list of the menu of radio, press PTT to initiate the group call. The interface displays: the first line displays the call type: group call. The second line displays the contact alias and the third line displays the group call number.


Receive: To receive a call from a Rx group, the walkie-talkie must configure the current channel to belong to the RX group. When receiving a group call, the LED indicator lights up in green. In the display area: the first line displays "Group Call", "Call Group Alias" is displayed in the middle, and the Caller ID and Incoming Icon  are displayed at the bottom. Hold the walkie-talkie in a vertical position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth. Press the [PTT] button to reply to the call and the LED indicator lights up in red. Release the [PTT] button to answer. If there is no voice activity within the predetermined time period, the call is terminated.

### 3.2 All cal

All call is a call made by an individual walkie-talkie to all walkie-talkies on the channel. It is used to publish important announcements that require special attention from users.

Initiation: The contact of the current channel configured by programming software sets all call number or manually selects all call contact through the contact list of the menu of radio, presses the PTT to initiate all call, and the interface displays: the first line displays the call type: all call; The second line displays the contact alias and the third line displays

all call number.

Receive: The LED indicator lights up in green. In the display area: the first line displays “all call”, the middle displays “all call”, and the bottom shows the caller ID and the incoming call icon . After the call is terminated, the walkie-talkie returns to the screen before receiving all call. If the “channel Freq indication tone” function is enabled, when the transmitter releases the [PTT] button, the receiver will hear a short beep indicating that the channel is currently in use but cannot answer all call.

Note: When you receive a all call, if you switch to another channel, the transceiver stops receiving all call. During all call, you will not be able to use any pre-programmed buttons until the call ends.


### 3.3 Private call

Private call is a call from one individual walkie-talkie to another individual walkie-talkie. There are two types of private call: the first type, the walkie-talkie presence detection is performed before the call is prepared (press # key to enter the number input box, press the OK key to select the call alert or radio check), and the other type is ready immediately to call.

Initiation: Set private call number of the current channel's contact configured by programming software, or manually select private call contact through the contact list of the machine's menu, or manually dial (press # to enter the number input box and enter the other party's number) . Press PTT to initiate private call. The interface displays: the first line displays the call type: private call, the second line displays the contact alias, and the third line displays the private call number.

Note: If programming software is configured with the “private call confirmed” function of the current channel, the PTT will first handshake with the other party after the PTT is pressed.

After the handshake is successful, the call can be initiated normally.

Receive: The LED indicator lights up in green. In the display area: the first line displays “private call”, the middle displays “private call”, and the bottom line displays the caller ID and the incoming call icon . Hold the walkie-talkie in a vertical position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth. If the “channel Freq indication tone” function is enabled, when the transmitter releases the [PTT] button, the receiver will hear a short tone indicating that the channel is idle and waiting for a reply. Press the [PTT] button to reply to the call and the LED indicator lights up in red. Release the [PTT] button to answer.

### 4. Emergency call

An emergency alert is used to indicate an emergency, and you can make an emergency call at any time or on any screen, even if there is activity on the current channel. Only digital alarms are supported.

**Digital emergency call** (The side button is set to Emergency on/off and the alarm type is set to regular).

Initiator: Press sidekey set as emergency on to enter the alarm mode (interface display: the first line displays Alert, the second line displays the alarm group call contact alias, the third line displays the group call number), local alarm And wirelessly send alarm commands, alarm mode (emergency alarm or emergency alarm W/call or emergency alarm w voice to follow) can be set. Press set as emergency off or the maximum number of attempts to send an alarm to exit the alarm mode.

Remark: Only programming software is equipped with the “emergency system” of the current channel, and contact of the reply channel(revert channel) of the emergency system is a group call, then the alarm system can function.

Receiver: After receiving the alarm command, the alarm message is displayed (interface display: the first line shows Recv Alert, the second line displays group call, the third line displays the alarm party alias or ID number) and sounds local alarm tone, press the PTT button drop out.

## **5. Digital instruction**

### **5.1 Message**

Initiate: In the digital mode, press OK to enter the menu, select message, select the corresponding item, press OK to select Send and confirm, select contact or manual dial, press OK to send short message, and display "message send success" after successful transmission and return. display "message send fail" when failed and return.

Receive: After receiving the SMS, send a prompt tone and stop the display interface. Press OK to view, press BACK to exit. If there is no view, the icon will be displayed in the icon bar. Only all the messages will be viewed and the icon will be cleared.

### **5.2 Call Alert**

Initiate: In the digital mode, select private call contact (press OK to enter menu, select private call contact or main interface press # key to enter private call number), select "call alert", press OK button to start, display "call alert success" when success, displays "call alert fail" when failed.

Receive: After receiving the call alert command, ring (the caller's contact of menu contact list has the tone function enabled) and pause the display interface, press BACK to exit.

### **5.3 Radio Check**

Initiate: In the digital mode, select private call contact (press OK to enter menu, select private call contact or main interface press # key to enter private call number), select

"radio check", press OK button to start, display "radio check success" when success, displays "radio check fail" when failed. After radio is successfully checked, you can call the other party by PTT.

Receive: Automatically reply after receiving radio check command.

### **5.4 Remote monitor**

Initiate: In the digital mode, select private call contact (press OK to enter menu, select private call contact or main interface press # key to enter private call number), select "remote Mon.", press OK button to start, display "remote mon. success" when successfully, displays "remote mon. fail" when failed. The radio can monitor the background sound and speech of the other party after successfully remote monitor.

Receive: After receiving the remote monitor command, it automatically starts the Remote Monitor duration configured by the transmitting host computer, and the transmission time is automatically exited. During remote monitoring, the user automatically exits the remote monitoring state by pressing PTT.

Note: This function only works if software has this function enabled.

You need to set in software:

TX Radio: Menu-Contact-choose Remote Monitor

Rx radio: Signaling Basic-choose Radio Monitor Decode

### **5.5 radio active**

Initiate: In the digital mode, select the single call contact (press OK to enter the menu, select the single call contact or press # key on the main interface to enter the single call number), select "Radio active", press OK to start, and show "radio active success" when successfully, "radio active fail" when failed.

Receive: After receiving activation command of the radio, it will send out a activation reminder and turn off and then on again. It can also be activated by writing in software.

Note: This function only works if software has this function enabled.

You need to set in software:

TX radio:Menu-Contact-choose Radio Enable

Rx radio: Signaling Basic-choose Radio Disable Decod

### 5.6 radio kill

Initiate: In the digital mode, select the single call contact (press OK to enter the menu, select the single call contact or press # key on the main interface to enter the single call number), select "Radio kill", press OK to start, and show "radio kill success"when successfully, "radio kill fail" when failed.

Receive: After receiving kill command of the radio, it will send out a kill reminder.After being killed, press PTT and show display "transmit failed killed." It can be activated by writing in software or activation.

Note: This function only works if software has this function enabled.

You need to set in software:

TX radio:Menu-Contact-choose Radio Disable

Rx radio: Signaling Basic-choose Radio Disable Decode

## 6. DTMF

### 6.1 DTMF call

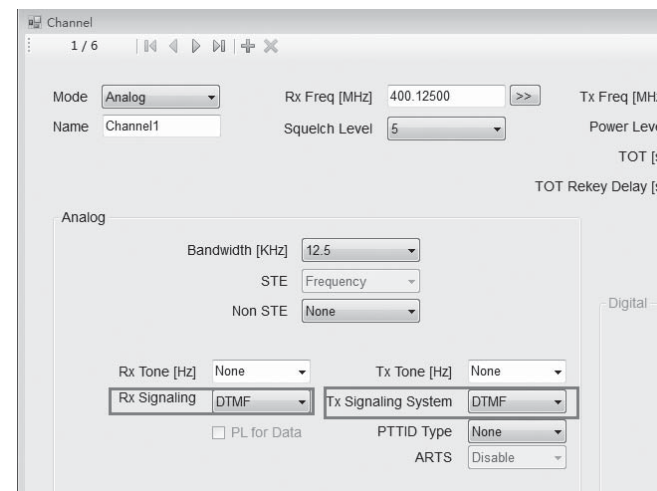
Initiation: In analog mode, press and hold PTT and press the numeric keys on the panel to dial or press # on the main interface to enter the DTMF self ID, and short press PTT to

initiate a DTMF call.

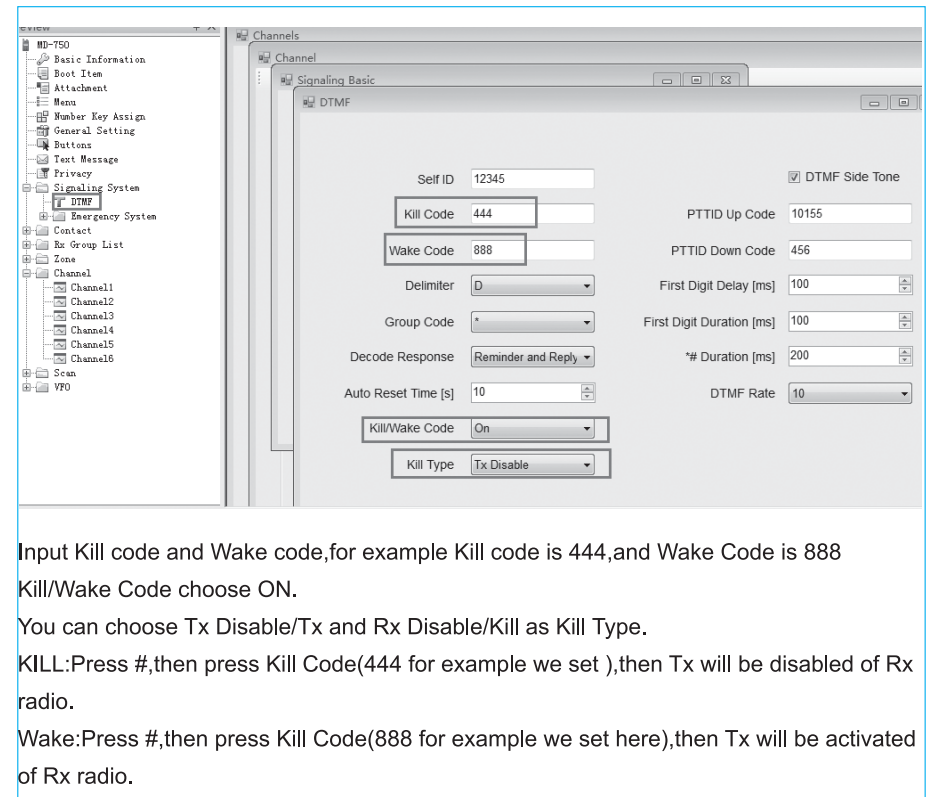
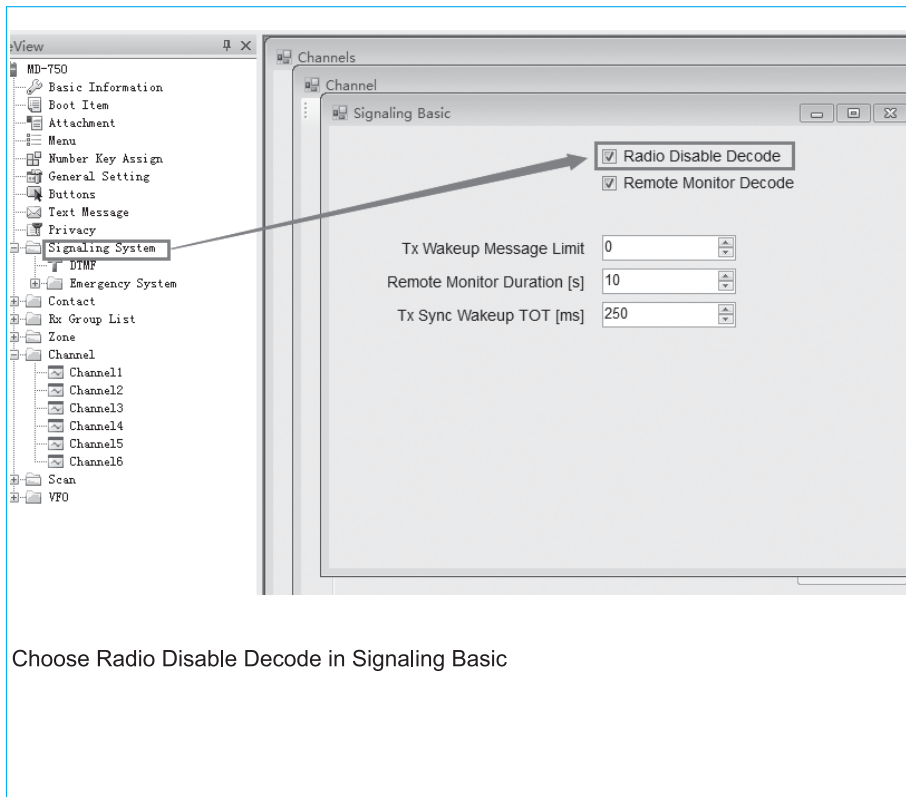
Receiving: When software configures the RX signaling of the current channel as DTMF, when the codeword solved is the DTMF Self ID, the decoding is successful, and you can talk with the other party within the reset time. When the reset time is up, you need to decode again. If the coded word is kill code or wake code, radio will be killed or waked.

Setting as following

Analog channel: Turn off radio Double Wait first



RX Signaling and Tx Signaling system choose DTMF



## 6.2 PTT ID

Initiation: In the analog mode, you can configure the DTMF up code and down code through software. The analog channel enables up code and down code. Each time the PTT is pressed, up code is sent, and the PTT is released, down code is sent.

## 7. Scan

### Scan On/Off

Method 1: The software configures that the current channel is enabled for Auto Scan, and switches to the channel, it will scan automatically. (you cannot select double wait).

Method 2: The scan list of the current channel configured by software is valid, and you can enter the menu to scan and start the scan

Method 3: The side key sets the scan switch to enable or disable scanning (you cannot select double wait)

### 8. Menu configuration options

When your radio does not want some menus, you can set whether it is open through the menu items of software. The configuration items are as follows

- ◆ Basic (Menu hang time/Information)
- ◆ Scan (Scan/Edit list)
- ◆ Contact (Call alert/Edit/Manual dial/Radio check/Remote monitor/Radio enable/Radio disable/One key dial)
- ◆ Basic (Talkaround/Tones/Alerts/Power/Backlight/Intro Screen/keypad lock/LED indicator/Squelch/Privacy/Vox/Password and lock/Channel display/double standby)
- ◆ Call log (Missed/Answered/Outgoing Radio) .

## 9. Special function

### FM radio

Press OK to enter the menu, select append and press OK to enter.

1. Power-on channel: enter the channel programmed by software. It can also be stored manually without editing by software. If the current channel is empty, press OK to confirm, then press the shift key: ▼ 2. Enter the frequency will display 108.0, please directly enter the desired frequency or press the \* key to scan. Click OK to confirm the frequency and store it in the channel.

2. If there are channels stored, you can directly choose to enter the frequency you want.

## Specification

### General

Frequency range	136-174/400-480MHz
Channel	1024
Frequency stability	±1ppm
Operating temperature	-30°C~+60°C
Voltage	7.4V DC

### Receiver

Analog sensibility	0.2 μ V @ 12dB SINAD
Digital sensibility	0.25uV(BER:5%)
Adjacent channel selectivity	≤ -60dB@12.5KHz
Co-channel rejection	≥ 65dB
Spurious response	≥ 70dB
Audio response	+1 ~ -3dB
Rated audio distortion	<5%
Audio power	1W
Modulation noise	≥ 40dB @12.5KHz

### Transmitter

Power	High:5W Low:1W
Transmit current	Analog≤1.6A Digital≤0.9A
Standby current	0.15A
FM modulation mode	11K0F3E @ 12.5KHz
4FSK digital mode	12.5KHz Data only: 7K60F1D 12.5KHz Data and voice: 7K60F1W
Modulation distortion	<5%
Hum and noise	≥ 40dB@12.5KHz
Adjacent channel power	≤ -60dB@12.5KHz
Audio response	+1 ~ -3dB
Antenna port spurious	9KHz-1GHz: ≤ -36dBm 1GHz-12.75GHz: ≤ -30dBm
Digital protocol	ETSI-TS102 361-1, -2, -3
Digital Data rate	9600bps