



User Manual



GMRS-RPT50

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Preparation

Foreword

This manual introduces the installation and instruction for repeater forwarding and dispatching radio products.

Safety and RF radiation introduction

Please refer to the detail introduction of "Installation requirement for meeting RF radiation safety standard" on page 1.

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Disclaimer

All information in this manual is checked carefully to make sure it is reliable, strives to achieve accuracy and completeness of this manual, but no warranty of accuracy or reliability is given. All the specifications and designs are subject to change without notice due to continuous technology development. No part of this

manual may be copied, modified, translated, or distributed in any manner without the express written permission .

■ Installation requirement for meeting RF radiation safety standard

Note:

- This repeater is only applied to occasions for extending communicating coverage and dispatching, during using, you have to acquaint entirely the possibility of RF radiation, and take measures to control the radiation to comply with relevant regulations.

To ensure compliance with the RF radiation safety standard:

- Please install our approved antenna and accessories only! The minimum distance must be 114 cm. Before operating the repeater, the operator must be acquainted with the accessories and RF energy information & safety instruction on RF radiation manual to ensure compliance with RF radiation limitation.

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Installation requirement

Proper installation can ensure optimum performance and reliability of the repeater. It is better to make preinstallation plan, which contains requirement for installation location, input power and antenna, as well as environment condition of working field, detailed installation and necessary tools and equipment.

Prompting: If it is the first time to install such equipment, please read the installation and notes contents carefully before installation.

■ Installation overview

The overview for installing the repeater is as following:

- Before installation, please pay special attention to the environment condition of working field, ventilation requirement, and grounding and anti-thunder protection.
- Unpack and check devices carefully.
- Make mechanical installation for the equipment.
- Make electrical and cable connections, including following:
 - ◆ AC input cable
 - ◆ Connect coaxial feeder to TX and RX antenna.

- After installation, make functional test to verify it is installed correctly.

- Set repeater parameter according to user requirement (such as, working frequency, code, color code, etc).

■ Environment condition of working field

If the environment condition doesn't exceed the equipment specification (temperature, humid and air quality), the repeater can be installed at any field suitable for electrical equipment.

Working temperature range

Temperature range is from -30°C(-22°F) to +60°C(+140°F)

- This temperature is measured nearby the repeater
- For example, if the repeater is installed inside a cabinet, the temperature is measured in the cabinet.

■ Humid

- The humid can not exceed 95% at 50°C(122°F).

■ Air quality

- If the repeater is operated in suitable environment condition, the air particles level can not exceed 25μg/m³.

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- If the repeater is operated in improper environment condition, the air particles level can not exceed $90\mu\text{g}/\text{m}^3$.

Note:

If the environment condition for installing the repeater is dirty or dusty or not conforms to air quality requirement, the proper filtration system must be used to cool the air for repeater, as dirt or dust accumulated on the inner PCB and mould is hard to clear, which may result in failures like over-heating and electricity intermittently connected, etc.

Equipment ventilation

There is cooling fan for the repeater connective cooling. Please comply with the following ventilation notes during installing:


- There must be ventilation slot or opening on the front panel (air in) and rear panel or side panel (air out) of the installed cabinet. If several repeaters are installed in one cabinet, make sure there is ventilation opening around each repeater to ensure sufficient cooling.
- There must be at least 20CM opening space between ventilating opening and any wall panel or other object.

- If several repeaters are installed in a cabinet at closed region, there must be proper ventilation, air condition or other environment devices should take into account to meet temperature requirement listed in this manual.

Requirement for AC input power

The repeater is provided with a power supply with working voltage range from 110V-240V (47-63HZ AC input power). Besides, a standard 3 pins cable is provided for connecting to the AC power.

Prompt: Grounded socket with standard 3 pins is recommended to use for connecting to the AC power.

 Caution: The repeater should be better to install nearby the AC power socket.

The socket should be able to connect to AC power with maximum 280W power. For nominal 110/120VAC power input, the AC power must be 5A, and have breaker protection with 15A rated current. And for nominal 220/240VAC power input, the AC power must be 3A, and have breaker protection with 10A rated current.

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■ Circuit overload

The overload on over-current protection device and power supply circuit should be taken into account. To solve such problem, the rated value for the device should be considered properly.

■ Installation method

The repeater can be installed on the rack or in the cabinet.

■ Grounding and anti-thunder protection

 **Caution:** Grounding and anti-thunder protection during installation is necessary and important. Improper anti-thunder protection may cause permanent damage to the repeater.

Warning: One of the most important notes during installation is grounding and anti-thunder protection. Correct grounding technology is closely related to anti-thunder protection, there are two parts for common grounding:

● Electrical grounding

The grounding line for transmitting current from on-site circuit or equipment is electrical grounding. Such as AC or DC power cord for on-site equipments, circuits or cable connecting on-site alarming or sensor.

● RF grounding

This grounding refers to useless RF energy grounding. Such as, use the shield to keep out the harmful RF energy from the communication equipment and cable or to make the harmful RF energy to be smallest.

● Anti-thunder protection

Enough anti-thunder protecting is crucial to safety and reliable communication on-site. RF transmitting cable, AC and DC power cord must be protected to avoid the thunderstrike at the working field.

Although grounding technology and anti-thunder protection are not stated in this manual, there are many excellent industrial power supply conformed to requirement of grounding and anti-thunder protection at the communication field.


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● Equipment grounding

On the repeater side, there is screw hole for connecting to the field ground. All antenna, AC & DC power cord should be anti-thunder protected correctly and properly to meet above referring regulation and notes. Improper anti-thunder protection may cause permanent damage to the repeater.

Mechanical installation

This chapter introduces unpacking and steps for mechanical installation. Installation method is changeable based on the selected the rack or cabinet (if any) for fixing.

 **Caution:** If you must disassemble any mould from the repeater, please make sure you comply with correct precaution for ESD (Electronic Static Discharge).

■ Unpacking the equipment

The following items are included in the packing:

- Repeater

- AC power cord

- User manual for repeater

Note: after unpacking, please check if the equipment is intact; any damage, please report the situation to the transporting company and your dealer.

■ Move the repeater from carton to the rack or cabinet

The repeater is packed in a carton for transportation, for installation, you need to move it out from the box to the rack or cabinet.

Note: The cabinet or rack provided for installing the repeater should equip with guide rail and span, which conforms to EIA general specification 48.3CM (19 inches). Besides, the cabinet must equip with enough ventilation (please refer to Environment Condition Of Working Field), and comply with minimum standard as following:

- Depth: 36.6CM (14.4 inches)
- Width: 48.3CM (19 inches)
- Height: 8.8CM (3.5 inches)

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■ LED indicators and keyboard & connectors

■ Front panel











LED indicator instruction

LED indicator	Status	Description
POW	Solid RED	Power on
	OFF	Power off or outage
T2	OFF	The transponder has no digital function indication
A	Always ON	Repeater operating in Analog Mode
D	OFF	The transponder has no digital function indication
T1	OFF	The transponder has no digital function indication
S/A	OFF	The transponder has no digital function indication
	OFF	The transponder has no digital function indication
UHF	Always ON	Repeater operating in UHF
VHF	OFF	The transponder has no VHF function indication
ST1	Always ON	Repeater working
	OFF	Repeater turn off
ST2	Always ON	Repeater sending Morse ID
	OFF	Repeater not sending Morse ID
IP	OFF	IP feature is unavailable
N	Always ON	Repeater function disabled
	OFF	Repeater in normal operational mode

Preparation

■ Keyboard / knobs / socket operation and function statement

Keypad	Instructions	Indicators
		
	Enter into main menu after press one time	Menu enter key
	Confirmation key at function setting or option	Enter key
	To receive voice landing at timeslot 1	LED-ST1 keeps on
	To receive voice landing at timeslot 2	LED-ST2 keeps on
	To receive voice landing at timeslot 1 & 2	LED-ST1 & ST2 keep on
	RE is for repeater priority	Indicating arrow shows "RE"
	CL is for initiative call priority	Indicating arrow shows "CL"
	Programmable key	Refer to detail on programmable keys
	Programmable key	Refer to detail on programmable keys
	Work as Back key with short pressing	Back to previous menu list
	Work as channel mode switch key with long pressing	Digital / Analog / Digital & Analog mode switch
	Fast exit key	Exit quickly to home screen
SELECT	Enter into Menu and confirmation after pressing	Menu enter key & Enter Key
	In menu mode, rotate the knob to browse menu options and select setting items	Browse and set options key
	In standby mode, rotate the knob to select channel No.	Channel No. selecting key
VOL	Rotate the knob to adjust the volume for voice landing	Adjustment for speaker output volume
	Work as Back key with short pressing	Back to previous menu list
	Work as channel mode switch key with long pressing	Digital / Analog / Digital & Analog mode switch
MIC	Speaker microphone socket for initiative call	Speaker microphone (accessory)
	Data editing socket for the repeater	For PC cable
USB	Data editing socket for the repeater	Based on models(USB PC cable)

Preparation

■ Back panel



Parts on back panel

Marks	Items	Explanation
RX-IN	RX antenna N type (Hole pattern)	Connect single RX antenna (working without duplexor)
ON/OFF	AC power input switch	Turn on/off AC power for repeater
AC110-240V-IN	Connector for main power (AC power input)	Jack for AC power in
EXT-1	Extending port -1	Be available based on model
EXT-2	Extending port -2	Be available based on model
IP	Ethernet Interface	Ethernet Interface(100 Base-TX/RJ45) (Be available based on models)
DC13.8V-IN	External DC power jack	For reserve battery providing power to repeater, battery is optional accessory (Be available based on models)
TX-OUT	TX antenna N type (Hole pattern)	Connect single TX antenna (working without duplexor)
TX/RX	TX & RX antenna N type (Hole pattern)	Connect RX & TX antenna (working with duplexor)

Note: The accessories interfaces are depended on real model and attached accessories.

Preparation

■ Electrical connection

After mechanical installation of the repeater, you need to start electrical connection to make it work.

Connection includes the following:

- AC power cord
- Coaxial line

Power supply connection

AC power supply input connection

1. Each repeater is equipped with a 3-pin power cord for connecting to 110/120/220/240V AC power.

2. Insert the 3-pin plug to the 110/120/220/240V socket.

Caution: please don't power on at this moment, you should make sure the circuit breaker for connecting related AC power socket is disconnected.

Notes:

- ◆ The AC power supply should be easy to operate and installed nearby the repeater
- ◆ Please purchase proper antenna cable (with impedance 50 Ω) from qualified electrical parts supplier, and use the connector audited by National Security Testing Institution's auditing.

Grounding connection

On the side of the repeater, there are screw holes for grounding connection. Connect the repeater to the ground cable with provided screws.

RF antenna connection

Connect to the single RX and TX RF antenna with two separate ports. Coaxial line of RX and TX antenna should connect to N type (RX-IN) and N type (TX-OUT) ports. To make repeater to have better performance, there must be enough space between antennas. If equipped with a TX & RX antenna, the external or internal of the antenna must comply with TX & RX frequency of the duplexer, and make sure there is enough space between RX and TX ports.

■ Duplexer selection


Selection of the duplexer is crucial for repeater performance. This duplexer must be able to work continuously at minimum 50W. To have best system performance, the insertion loss should be less than 2dB. It is recommended to use band-pass and band-

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stop duplexor if the repeater is working in high RF and high density place.

■ Antenna selection

Selection of the duplexor is crucial for repeater performance. It is necessary choose a antenna with $50\ \Omega$ impedance and at least 50W capacity. You can use gain antenna to expand the working coverage. When you choose gain antenna, please note there may be limitation for antenna gain or system EPR in some service and area. It must use $50\ \Omega$ advanced transmission line (hard wire) to connect to antenna and duplexor, where the interfaces on the line and antenna / duplexor must match to each other. The antenna must be mounted at least 114cm above the body.

 **Note:** it is very important that all antennas must be grounded to the building.

■ Checking after installation

After mechanical installation and electrical connection, please connect to the power to check if the repeater can work correctly.

■ Powering on

- Before powering on, please check if all interfaces


are well and correctly fixed and all RF cables are firmly connected.

- Connect the circuit breaker of controlling AC socket to supply power to repeater power module.

■ Check if it is working correctly

You can check the working condition of the repeater thru following steps:

- Check the power LED and related mode indicator status on front panel.
- Advective cooling fan on back panel is working normally or not.
- Display on LCD is correct or not.
- Operate the repeater to see if TFT LCD instruction is changed accordingly.

 During working, the repeater may be very ho. After turning off, it is better to touch it after it is cool completely to avoid being injured.

Software Programming


You can program the channel data and related parameter for the repeater at your computer with specialized CPS.

Preparation

■ How to use this manual

This manual introduces basic operation of our compatible Analog repeater. However, your dealer or system administrator may already preset features of this radio based on your working type and requirement. Please consult with your dealer or system administrator about the details.

For your convenience and easy familiar with this radio, the icons below are used for distinguishing operable and available features for analog mode .

 This icon indicates the function is only available in Analog mode

Identify icon for repeater forwarding



Indicates the repeater is in forwarding status.

Content (II)

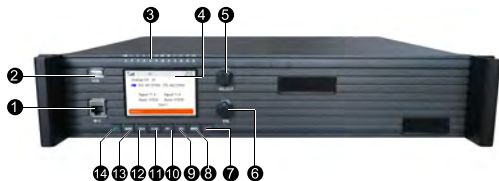
Please review the following subdirectory firstly:

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Study repeater's control setting

■ Acquaintance

■ Repeater front control panel



1. MIC

Please plug the equipped microphone into the jack. To convenient to initiate a call, users can plug qualified microphone to the MIC jack.

To plug the programming cable into the jack if required. (General)

2. USB

To plug the programming cable into the jack if required. (Depending on products model)

3. LED

To indicate the working status.

4. 3.5' TFT screen display

To display repeater working mode and relative information etc.

5. Selector (360° adjustment control knob)

Rotate the knob to do options for operating frequency or memory channel, change scan direction etc. To choose menu items if enter to menu mode.

Once press the knob, it is used as menu and confirmation key.

6. Volume adjustment

Once open voice landing working mode, users rotate the knob clockwise to increase volume level; vice versa. Short press is to work as Back or Exit key.

Long press is to switch the current channel mode.

7.

Exit quickly to home screen.

8.

Short press it to work as back key.

Long press it to switch current channel mode.

9.

Definable key.

10.

Definable key

11.

RE — To priority repeater.

Study repeater's control setting

CL — To priority initiative call.

12. **TS1/2**

Choose receiving voice landing — Timeslot 1

Choose receiving voice landing — Timeslot 2

Choose receiving voice landing — Timeslot 1 and 2

13.

Press one time to enter into menu interface.

If to program setting or do options, it is used as confirmation key.

14.

Long press it before power ON, then power it ON, repeater will get into upgrade mode.

1. RX-IN

To connect to receiving antenna. (N type)

2. ON/OFF

Turn ON or OFF the repeater power.

3. AC-110-240IN

Connect to AC power wire outlet.

4. EXT1 and EXT2

Reserved for future function increased. (Depends on product model)

5. IP

Ethernet interface

6. DC 13.8V-IN

When you connect to external power, please double check the power polarity (+Positive,-Negative) and rated power voltage value DC13.8V/±15%. (Depends on product model)

7. TX-OUT

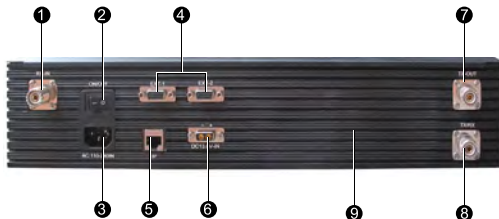
Connect to transmitting antenna jack. (N type)

8. TX/RX

Connect to RX and TX antenna jack. (N type)

Note: Only when the repeater with duplexer, the jack can be used.

■ Repeater back control panel



Study repeater's control setting

9. Cooling fan

When repeater to be power ON, the cooling fan will be activated to cool down the temperature, to prevent damage equipment relevant part.

■ Microphone



1. PTT switch

Press the button to do voice transmission from microphone.

2. Keyboard

Users can issue DTMF call, input frequency or characters through these keypads.

3. PF-A

Users can define desired function through software.

4. PF-B

Users can define desired function through software.

5. PF-C

Users can define desired function through software.

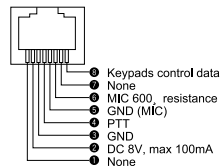
6. PF-D

Users can define desired function through software.

Microphone Jack

1. MIC

Plug the equipped microphone into the jack (on the repeater front control panel). To convenient to disconnect the repeater main board to front panel board, users can connect the microphone wire to the MIC jack.



Note:

4pcs definable key on microphone: [PF-A], [PF-B] (MICPF-B) and [PF-C](MICPF-C), [PF-D](MICPF-D). Users can define their desired function to the keys.

■ Programmable keys

You dealers can pre-set the programmable keys based on the length of a button press.

Study repeater's control setting

Pre-setting can be shortcuts of radio functions.

◆ Short press — Pressing and Releasing quickly
(programmable range is from 50ms-750ms)

◆ Long press — pressing and holding for programmed length(programmable range is from 500ms-5000ms)

Note: The programmable duration for a key press can be used for all radio functions / utility functions or setting, except Emergency Call feature.

Other settings and utility functions can be pre-set by programmable keys

High / Low power selection — switch transmit power level between high and low

LED Backlight ON /OFF — turn display LED backlight ON or OFF

Keypad Backlight ON /OFF — turn display keypad backlight ON or OFF

Key up — Move to "Up" under menu operation.

Key down — Move to "Down" under menu operation.

Key Mi And Back — Used as Menu back key and * key under menu operation.

Key Right — Move to "Right" under menu operation.


Key Lock ON/OFF — switch key lock between ON and OFF.

■ Access to features preset

You can access to the different repeater features through one of the following ways:

◎ Short pressing or long pressing related preset keys.
OR

◎ Using the following menu button [MENU] or press [Select] button:

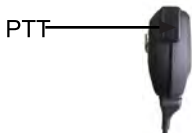
1. For accessing to Menu list, press [MENU] key or press [Select] button, then rotate [Select] button to access the menu features.
2. Press [MENU] key or press [Select] button to select the needed feature or enter into the needed submenu.
3. Press [MODE] key or press [VOL] button to return to the previous Menu or screen.
4. Press [] key, the radio returns to the home screen.

Note: If the radio is inactivity after a period of time, the radio will not automatically exit the menu and will stays in operation screen.

Study repeater's control setting

■ PTT button

There are two basic functions of PTT button:
Transmitting and Receiving.



- ⦿ Press PTT button to transmit the signals to other radios
- ⦿ Release PTT button to receive signals from other radios
- ⦿ If the Individual /Group Call or Prompt Tones is activated, the PTT Sidetone will be heard when you press or release PTT button.

⦿ If the Prompt Tone of Group Call is activated, you will hear the PTT Sidetone when you pressing the PTT button.

Note: You can use programming software to turn off all radio alert tones and prompt tones or just disabled partial radio alert tones and prompt tone.

■ Lock Screen Setting

When you turn on repeater, the screen displays a password prompt. You can use MIC to enter numbers

'123456' and enable password resetting.

Process

1. Enter 123456 through MIC to enable password resetting
2. Enter the password you want to set, then press [Confirm] to confirm, and remember the password
3. If you forget the password, enter 123456 to enable the password resetting

■ Repeater status indicators

The repeater adopt 3.5' TFT colorful display and will show radio status, character input and Menu items.

The below icons appears on LCD display.

- ⦿ Receiving signals strength indicator.(RSSI)
 - ∩ Indicates weakness or no signal is received
 - ▬▬▬▬ The Number of signal strength bars indicates the signal strength of your repeater. Five bars indicate the strongest signal. This icon is only appeared in receiving.
- Power level
 - "L" means the repeater is set at low power
 - "H" means the repeater is set at high power
- ⦿ Ringing tones are disabled.
- 🔇 Tones are turned off. I

Study repeater's control setting

© DC voltage

Indicates currently connected battery level.

© CTCSS

"QT" means CTCSS is activated

* In standby mode, "QT" appearing means CTCSS is available in receiving.

* In transmitting, "QT" appearing means CTCSS is available in transmitting

* In standby or transmitting, "QT" appearing means CTCSS is available in transmitting and receiving.

© CDCSS

"DQT" means DCS is activated

* In standby mode, "DQT" appearing means DCS is available in receiving.

* In transmitting, "DQT" appearing means DCS is available in transmitting

* In standby or transmitting, "DQT" appearing means DCS is available in transmitting and receiving.

Content (III)

View the setting of menu function and operation

Use this directory to familiar with more function menu:

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View the setting of menu function and operation

■ Ancillary

Users can view some general information from the Ancillary menu

Note:

◆ Some information of the radios only support to view if the radio with the optional functions.

📖 View attachment information

Procedure:

1. Press [Menu] key or [Select] knob to access menu.
2. Rotate [Select] knob to select Ancillary and press [OK] key or [Select] knob.
3. Rotate [Select] knob to select Date and press [OK] key or [Select] knob.
4. The display shows the current date.
5. Press [Back] key to return to previous menu.

■ Settings

If your dealer or system administrator allows you to set and check the radio basic operations and functions, you can set the following functions via menu.

- ◎ You can carry out the following tasks in settings

under the menu:

- ◎ Parameter
- ◎ Date & Time
- ◎ Prompt Tone
- ◎ Repeater Data Setting
- ◎ Factory Reset
- ◎ W / N Band Setting
- ◎ Fm Morse Code
- ◎ Hang Time

📖 Parameter

If your dealer or system administrator allows you to set the radio, you can set the menu and other operation settings to set high/low power, time slot and voice landing.

📖 High / Low power

If it is allowed by dealer or system administrator, users can set the repeater high/low power through menu display, to enlarge the working distance.

Note:

- ◆ High power could ensure the communication with

long-distance target radio.

◆ Lower power could sure the communication with short-distance target radio.

Procedure:

Press the preset [High/Low] key to switch the high/ low power.

Or:

Through the menu display to set the power level, as below:

1. Press [MENU] or [Select] knob key to access the menu.
 2. Rotate [Select] knob to select Settings, and pres[OK] key or [Select] knob.
 3. Rotate [Select] knob to select Parameter Setting, and press [OK] key or [Select] knob.
 4. Rotate [Select] knob to select High/low power, and press [OK] key or [Select] knob.
- ◆ Rotate [Select] knob to select High power, and press [OK] key or [Select] knob.

◆ The display shows "saved" and returns to the previous menu.

OR

◆ Rotate [Select] knob to select Low power, and press [OK] key or [Select] knob.

◆ The display shows "saved" and returns to the previous menu.

5. Press [Back] key to return to the previous menu.

 **Date & Time**

If it is allowed by dealer or system administrator, users can set and check the date, time, and date format through menu display.

Procedure:

Setting the time,date and date display format.

Procedure:

1. Press [Menu] key or [Select] knob to access the menu.
2. Rotate [Select] knob to select Setting then press [OK] key or [Select] knob.
3. Rotate [Select] knob to select Date & Time then press [OK] key or [Select] knob.
4. Rotate [Select] knob to select the desired sub menu.

■ Rotate [Select] knob to select Date, and press [OK] key or [Select] knob.

■ The display shows year/month/day (depending on

View the setting of menu function and operation

the date format).

■ Rotate [Select] knob and then input the date with keypad.

■ The display shows Date Saved when the date is set. Please press [Back] to return to the previous menu.

OR

■ Rotate [Select] knob to select "Date Format" and press [OK] key or [Select] knob.

■ The display lists different date formats, Y/M/D, M/D/Y, D/M/Y.

■ Rotate [Select] knob to select the desired date format, and press [OK] key or [Select] knob.

■ The display shows "Date Format Saved" and returns to the previous menu.

5. Press [Back] key to return to previous menu.

Prompt Tone

Users can set or check the prompt of the radio through the menu, if it is allowed by the distributor or system administrator.

You can set or check the prompt of following functions.

- Profiles
- Keytone
- Low Battery Alert

Profile Setting

There are 4 profiles available on your radio:

- Standard — turn on all prompts.
- Silent — turn off all prompts.
- Vibrate — vibrate but without prompts. (optional)
- Vibrate on Ring — vibrate with prompts on. (optional)

Note:

Those profiles with "-!" are optional or not available at present.

Procedure:

1. Press [Menu] Key or [Select] knob to access the menu.
2. Rotate [Select] knob to select Settings, then press [OK] key or [Select] knob.
3. Rotate [Select] knob to select Prompt Tone, then press [OK] key or [Select] knob.
4. Rotate [Select] knob to select Profiles, then press [OK] key or [Select] knob.

View the setting of menu function and operation

5. Rotate [Select] knob to select the desired option.

- Rotate [Select] knob to select Standard.
- Press [OK] key or [Select] knob, the display shows Profile Saved. Please press [Back] to return to the previous menu.

OR

- Rotate [Select] knob to select Silent.
- Press [OK] key or [Select] knob, the display shows "Profile Saved" Please press [Back] to return to the previous menu.

OR

- Rotate [Select] knob to select Vibrate.
- Press [OK] key or [Select] knob, the display shows Profile Saved. Please press [Back] to return to the previous menu.

OR

- Rotate [Select] knob to select Vibrate on Ring.
- Press [OK] key or [Select] knob, the screen shows "Profile Saved" Please press [Back] to return to the previous menu.

6. Press [Back] to return to the previous menu.

Note:

- You cannot operate or set those profiles that are optional or not available.

Keytone Setting

If it is allowed by dealer or system administrator, users can set and check the keytone operation through menu display.

Procedure:

1. Press [Menu] Key or [Select] knob to access the menu.
2. Rotate [Select] knob to select Settings, then press [OK] key or [Select] knob.
3. Rotate [Select] knob to select Prompt Tone, then press [OK] key or [Select] knob.
4. Rotate [Select] knob to select Keytone, then press [OK] key or [Select] knob.
5. Rotate [Select] knob to select the Keytone control, then press [OK] key or [Select] knob.
 - Rotate [Select] knob to select On/Off, then press [OK] key or [Select] knob.

View the setting of menu function and operation

■ Rotate [Select] knob to select ON, then press [OK] key or [Select] knob.

■ Screen displays "saved"

■ Then return to the previous menu.

OR

■ Rotate [Select] knob to select OFF, then press [OK] key or [Select] knob.

■ Screen displays "saved"

■ Then return to the previous menu.

OR

■ Rotate [Select] knob to select keytone Volume, then press [OK] key or [Select] knob.

■ Rotate [Select] knob to select desired volume level, then press [OK] key or [Select] knob.

■ Screen displays "saved"

■ Then return to the previous menu.

6. Press [Back] to return to the previous menu.

■ Repeater Data Setting

If permitted by your dealer or system administrator, users could set or check the call prompt tone via screen menu.

◎ Users can program or check the following basic functions:

■ Key lock

■ Backlight

■ Version

■ Display mode

■ Channel changing switch

📄 Key Lock

If it is allowed by your dealer or system administrator, users could set or check the repeater key lock mode via screen menu, avoiding accident key input.

◎ Users could choose the following one mode to lock their keypads.

■ ON — If there is no operation within one minute, the keypad will be locked automatically.

■ OFF — When you want to lock keypad, press [Menu], and then press [*] to lock.

Procedure:

1. Press [Menu] key or [Select] knob to access menu list.
2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.

View the setting of menu function and operation

3. Rotate [Select] knob to select "Basic Setting" then press [confirm] key or [Select] knob.

4. Rotate [Select] to select "Key Lock" then press [confirm] key or [Select] knob.

5. All key lock modes will be listed on screen.

6. Rotate [Select] to select a desired mode, then press [confirm] key or [Select] knob.

■ Rotate [Select] to choose "ON" then press [confirm] key or [Select] knob.

■ Screen shows "Selected mode saved"

■ And then back to previous menu.

Or

■ Rotate [Select] to select "OFF" then press [confirm] key or [Select] knob.

■ Screen shows "Selected mode saved"

■ Screen back to previous menu.

7. Press [Back] to return to previous menu.

Note:

◆ Press [confirm] key, and then press [*] to unlock keypads.

Backlight setting

If it is allowed by your dealer or system administrator, users could set or check the backlight mode for repeater screen, keypads and knobs via screen menu.

Backlight model and lightness

If required, you could choose the repeater screen and keypad backlight mode and lightness to suit for your working environment, and makes it better user-friendly..

◎ You could choose of the following modes for backlight:

◎ ON — the backlight remains solid on.

◎ OFF — Turn off backlight. (Dim light status)

◎ Auto — the backlight will be off automatically when there is no operation for more than 1 minute. And it will light when you press the key or there is signal received

Procedure:

Press definable key [backlight switch], backlight will be switched between ON and OFF.

Or to operation via menu as below:

1. Press [Menu] key or [Select] knob to access menu list.

2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.

3. Rotate [Select] knob to select "Basic Setting" then

View the setting of menu function and operation

press [confirm] key or [Select] knob.

4. Rotate [Select] to select "Backlight setting" then press [confirm] key or [Select] knob.

5. Rotate [Select] to select a desired sub-menu, then press [confirm] key or [Select] knob.

■ Rotate [Select] to select backlight switch, and then press [confirm] key or [Select] knob.

■ Screen shows all backlight modes.

■ Rotate [Select] to select a desired backlight mode, and then press [confirm] key or [Select] knob.

■ Screen shows "Selected mode saved" and then back to previous menu.

Or

■ Rotate [Select] to select backlight lightness, and then press [confirm] key or [Select] knob.

■ Rotate [Select] to select a desired lightness level, and then press [confirm] key or [Select] knob.

■ Screen shows "Set saved" and then back to previous menu.

Or

■ Rotate [Select] to select light switch, and then press [confirm] key or [Select] knob.

■ Screen display all key light modes.

■ Rotate [Select] to select a desired mode, and then press [confirm] key or [Select] knob.

■ Screen shows "Selected mode saved" and then back to previous menu.

Or :

■ Rotate [Select] to select light lightness, and then press [confirm] key or [Select] knob.

■ Rotate [Select] to select a desired lightness level, and then press [confirm] key or [Select] knob.

■ Screen shows "Set saved" and then back to previous menu.

6. Press [Back] key to return to previous menu.

Version

If it is allowed by your dealer or system administrator, users could check your current repeaters version via screen menu.

Checking Version

If required, you could check the relevant version for your current repeater.

Procedure:

View the setting of menu function and operation

1. Press [Menu] key or [Select] knob to access menu list.
2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.
3. Rotate [Select] knob to select "Basic Setting" then press [confirm] key or [Select] knob.
4. Rotate [Select] to select "Version" then press [confirm] key or [Select] knob.
5. The radio version data will be displayed on screen.
6. Press [Back] to return to previous menu.

Display Mode

If it is permitted by your dealer or system administrator, you could set or check the home screen display mode via screen menu.

Selecting display mode

- ◎ You could choose one of the following display mode:
- ◎ Channel No. & Name — Channel number and preset contact name will be displayed on screen.
- ◎ Channel No. & Freq — Channel number and frequency will be displayed on screen.
- ◎ Channel No. — Channel number to be displayed

on screen

◎ Procedure:

1. Press [Menu] key or [Select] knob to access menu list.
2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.
3. Rotate [Select] knob to select "Basic Setting" then press [confirm] key or [Select] knob.
4. Rotate [Select] to select "Display mode" then press [confirm] key or [Select] knob.
5. All display modes will be listed on screen.
6. Rotate [Select] to select a desired mode, and then press [Confirm] key or [Select] knob.
7. Screen shows "Set saved" and then back to previous menu.
8. Press [Back] to return to previous menu.

Channel changing switch

If required, you can select channel switching Process

1. Press the [MENU] key or the [SELECT] knob to access the menu.
2. Turn the SELECT knob to Set, then press the Confirm key or press the SELECT knob.

View the setting of menu function and operation

3. Rotate the SELECT knob to basic Settings, then press the Confirm key or press the SELECT knob.
4. Turn the SELECT knob to the channel switch, then press the Confirm key or press the SELECT knob.
5. You can SELECT "On" or "Off" and then press the "Confirm" key or press the "Select" knob
6. Press [Back]. The screen returns to the upper-level menu.

To restore factory default

If it is allowed by your dealer or system administrator, users could set or check the factory default setting via screen menu.

Restoring factory default operation

If required, you could restore the current repeater's setting to factory default.

Procedure:

1. Press [Menu] key or [Select] knob to access menu list.
2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.
3. Rotate [Select] to select "Factory default" then press [confirm] key or [SELECT] knob.

4. Screen shows "The operation can NOT be retrieved, are you sure to do?"

5. Press [confirm] or [SELECT] knob to confirm to restore factory default.

■ Then screen back to previous menu.

Or

■ Press [Cancel] to cancel the current operation.

■ Screen back to previous menu.

6. Press [Back] to return to previous menu.

W/N Band Setting

You could program some common function via screen menu.

Wide / Narrow band

If required, you could preset the working band (Wide/Narrow) for radio.

Procedure:

1. Press [Menu] key or [Select] knob to access menu list.
2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.
3. Rotate [Select] to select "Function setting" then press

View the setting of menu function and operation

[confirm] key or [Select] knob.

4. Rotate [Select] to select "Wide/Narrow band" then press [confirm] key or [Select] knob.

■ Rotate [Select] to select RX Wide/Narrow band, then press [confirm] key or [Select] knob.

■ Rotate [Select] to select RX Wide band, then press [confirm] key or [Select] knob.

Or

■ Rotate [Select] to select RX Narrow band, then press [confirm] key or [Select] knob.

■ Screen shows "Set saved", and back to previous menu.

■ Rotate [Select] to select TX Wide/Narrow band, then press [confirm] key or [Select] knob.

■ Rotate [Select] to select TX Wide band, then press [confirm] key or [Select] knob.

Or

■ Rotate [Select] to select TX Narrow band, then press [confirm] key or [Select] knob.

■ Screen shows "Set saved" and back to previous menu.

5. Press [Back] to return to previous menu.

Signaling setting

You could preset the repeater CTCSS or CDCSS under analogue mode via screen menu, to avoid useless signal interference.

CTCSS/CDCSS

If required, you could preset the signaling type and code to prevent useless signal interference or activate repeater.

Procedure:

1. Press [Menu] key or [Select] knob to access menu list.
2. Rotate [Select] to select "Settings", then press [confirm] key or [Select] knob.

3. Rotate [Select] to select "Signaling Setting" then press [confirm] key or [Select] knob.

4. Rotate [Select] to select a required "CTCSS/ CDCSS" then press [confirm] key or [Select] knob.

■ Rotate [Select] to select CDCSS, then press [confirm]key or [Select] knob.

Or

■ Rotate [Select] to select CTCSS, then press [confirm]key or [Select] knob.

View the setting of menu function and operation

5. Rotate [Select] to select TX code, then press [confirm] key or [Select] knob.

Or

■ Rotate [Select] to select RX code, then press [confirm] key or [Select] knob.

6. Rotate [Select] to select a desired code, then press [confirm] key or [Select] knob.

7. Screen shows "Set saved"

8. And then back to previous menu.

9. Press [Back] to return to previous menu.

Note:

■ Repeater under analogue mode, only it will be activated when signaling preset.

Fm Morse Code

If your distributor or system administrator allows it by default, you can set up or view some of the common basic features of the walkie-talkie through the on-screen menu.

© You can set or view the following basic features:

- Send Type

- Morse Code

- Interval

- WPM

- Hand time

Send Type

If in need, you can choose the Morse ID Send Type. Process

1. Press the [MENU] key or the [SELECT] knob to access the menu.

2. Turn the SELECT knob to Set, then press the Confirm key or press the SELECT knob.

3. Turn the SELECT knob to FM Morse Code, then press the Confirm key or press the SELECT knob.

4. Rotate the [SELECT] knob to Send Type, then press the [Confirm] key or press the [SELECT] knob.

5. The screen displays a list of Send Type methods

OR

Turn the [SELECT] knob, SELECT Off, then press the [Confirm] key or press the [Select] knob

■ The Setting Complete character prompt is displayed.

View the setting of menu function and operation

■ The screen returns to the upper-level menu.

OR

■ Turn the [SELECT] knob, SELECT "launch", then press the [Confirm] key or press the [Select] knob.

■ The Setting Complete character prompt is displayed.

■ The screen returns to the upper-level menu.

OR

■ Turn the SELECT knob, SELECT "Timer", and then press the Confirm key or press the Select knob.

■ The Setting Complete character prompt is displayed.

■ The screen returns to the upper-level menu.

6.Press [Back],The screen returns to the upper-level menu.

Morse Code

If your distributor or system administrator allows it by default, you can set or view the forwarder's Morse code through the on-screen menu.

Input Morse Code

You can input the Morse Code as your need

Process

1.Press the [MENU] key or the [SELECT] knob to access the menu.

2.Turn the [SELECT]knob, go to [Settings], then press the[Confirm] key or press the [SELECT] knob.

3.Turn the [SELECT]knob to FM Morse Code, then press the [Confirm] key or press the [SELECT] knob.

4.Enter the number + letter of the desired setting through the microphone, then press the [Confirm] key or press the [SELECT] knob.

5.The "Setting Complete" character prompt is displayed. The screen returns to the upper-level menu.

8.Press [Back]. The screen returns to the upper-level menu.

Interval

If your reseller or system administrator allows it by default, you can set or view the transponder Morse password interval through the on-screen menu.

Choose Interval

If in need, you can select the time interval for the transponder Moss ID.

View the setting of menu function and operation

Process

- 1.Press the [MENU] key or the [SELECT] knob to access the menu.
- 2.Rotate the [SELECT] knob to Set, then press the [Confirm] key or press the [SELECT] knob.
- 3.Rotate the [SELECT] knob to [FM Morse Code] , then press the [Confirm] key or press the [SELECT] knob
- 4.Rotate the [SELECT] knob to the interval, then press the [Confirm] key or press the [SELECT] knob.
- 5.The screen displays a list of intervals.
- 6.Rotate the [SELECT] knob to the [time interval] you want to set, then press the [Confirm] key or press the [SELECT] knob.
- 7.The "Setting Complete"character prompt is displayed. The screen returns to the upper-level menu.
- 8.Press [Back]. The screen returns to the upper-level menu.

☐ WPM

If your distributor or system administrator allows it by default, you can set or view the WPM of your transponder Moss ID through the on-screen menu.

☐ Choose WPM

If in need, you can select the transponder Morse Code WPM

Process

- 1.Press the [MENU] key or the [SELECT] knob to access the menu.
- 2.Turn the [SELECT] knob to [Set], then press the [Confirm] key or press the [SELECT] knob.
- 3.Turn the [SELECT] knob to [FM Morse Code], then press the[Confirm] key or press the [SELECT] knob
- 4.Rotate the [SELECT] knob to [Speed], then press the [Confirm] key or press the [SELECT]knob.
- 5.The screen displays a list of WPM
- 6.Rotate the [SELECT] knob until you want to SELECT the[WPM], then press the [Confirm] key or press the [Select] knob
- 7.The "Setting Complete" character prompt is displayed. The screen returns to the upper-level menu.
- 8.Press [Back]. The screen returns to the upper-level menu.

☐ Hang Time

View the setting of menu function and operation

If your distributor or system administrator allows it by default, you can set or view the transponder hang-up time mode through the on-screen menu

□ Select Hang Time

If in need, you can select the repeater Morse ID hang time mode.

Process

1. Press the [MENU] key or the [SELECT] knob to access the menu.
2. Turn the [SELECT] knob to [Set], then press the [Confirm] key or press the [SELECT] knob
3. Turn the [SELECT] knob to [FM Morse ID], then press the [Confirm] key or press the [SELECT] knob
4. Rotate the [SELECT] knob to [Hand Time], then press the [Confirm] key or press the [SELECT] knob.
5. The screen displays a list of the Hang time
6. Rotate the [SELECT] knob until Hand time that you want to SELECT , then press the [Confirm] key or press the [Select] knob
7. The "Setting Complete" character prompt is displayed. The screen returns to the upper-level menu
8. The screen returns to the upper-level menu.

View the setting of menu function and operation



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.

