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DMR-6X2 PRO

Digital DMR and Analog
UHF/VHF Two Way Radio

Operating Manual



THANK YOU!

Thank you very much for choosing our  BTECH Dual Band Digital DMR and Analog two way radio.

This radio adopts the latest advances in technology, providing reliable communication in today's demanding communication environment.

This radio offers both DMR digital and analog communication, introduces innovative DMR digital processing system to achieve SMS, high-audio quality and digital encryption. It offers great stability, and reliability, together with long distance communication as well as fashionable design and compact exterior lines. DMR-6X2 PRO has Text Messaging, Recording, Voice Message, Digital Encryption, Emergency Alarm, Man Down Alarm, Work Alone GPS, APRS Location Reporting, Roaming, Vibration, Analog DTMF, 2TONE, 5TONE, CTCSS/DCS encode/decode functions.



NOTE

» **When programming the radio, start by reading the factory software data, and then rewrite this data with your frequency etc., to a new saved code plug, otherwise errors may occur.**

» **You can use the programming cable with a Windows PC to program the frequency, channel type, power etc. your programming must comply with your FCC (or other country) license certification.**

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1. UNPACKING AND CHECKING THE EQUIPMENT

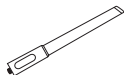
Unpack the radio carefully. We recommend that you identify the items listed in the following table before discarding the packing materials. If any items are missing or have been damaged during shipment, please contact the carrier or the dealers immediately.

1.1 Supplied Accessories

Item	Quantity
Antenna	1
Li-ion Battery Pack	1
Battery Charger	1
AC Adaptor	1
Belt Clip	1
Hand Strap	1
Instruction Manual	1
Programming Cable	1

1. UNPACKING AND CHECKING THE EQUIPMENT

1.2 Standard Accessories



Antenna



Li-ion Battery Pack
(3100mAh)



Charger



AC Adaptor



Belt Clip
(2 pcs included in 2 battery kit)



Instruction Manual



Earphone



USB Programming cable

1.3 Optional Accessories



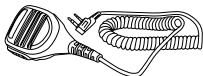
Li-ion Battery Pack
(2100mAh)
(included in 2 battery kit)



Programming Software
Software is available
online for Download:



Car Charger




QHM22
Microphone

2. BATTERY INFORMATION


2.1 Charging the Battery Pack

The Li-ion battery pack is not charged at the factory; please charge it before use.

Charging the battery pack for the first time after purchase or extended storage (more than 2 months) may not bring the battery pack to its normal maximum operating capacity. Best operation will require fully charging/discharging the battery two or three times before the operating capacity will reach its best performance. The battery pack life may be depleted when its operating time decreases even though it has been fully and correctly charged. If this is the case, replace the battery pack.

Please use the specified charger provided by  BTECH. Other models may cause explosion and personal injury. After installing the battery pack, and if the radio displays low battery with a red flashing lamp or voice prompt, please charge the battery.

2.2 Use Caution with the Li-ion Battery

- a. Do not short the battery terminals or throw the battery into a fire. Never attempt to remove the casing from the battery pack, as  BTECH cannot be held responsible for any accident caused by modifying the battery.
- b. The ambient temperature should be between 5°C-40°C (40°F - 105°F) while charging the battery. Charging outside this range may not fully charge the battery.
- c. Please turn off the radio before inserting it into the charger. It may otherwise interfere with correct charging.
- d. To avoid interfering with the charging cycle, please do not cut off the power or remove the battery during charging until the green light is on.
- e. Do not recharge the battery pack if it is fully charged. This may shorten the life of the battery pack or damage the battery pack.
- f. Do not charge the battery or the radio if it is damp. Dry it before charging to avoid damage.

WARNING:

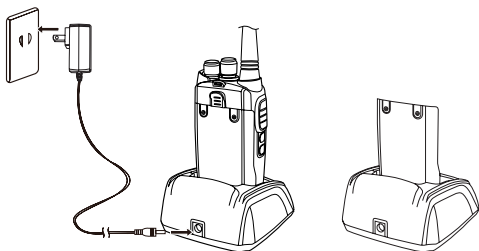
- » **When keys, key chains or other metals contact the battery terminal, the battery may become damaged or injure a human. If the battery terminals are short circuited it will generate a lot of heat. Take care**

2. BATTERY INFORMATION

when carrying and using the battery. Remember to put the battery or radio into an insulated container for storage when not in use. Do not put it into a metal container.

2.3 How to Charge

- Plug the AC adaptor into the AC outlet, and then plug the cable of the AC adaptor into the DC jack located on the back of the charger. The indicator light blinks orange and is then ready to charge a battery.
- Plug the battery or the radio into the charger. Make sure the battery terminals are good in contact with charging terminals. When the indicator light turns to red--- charging begins.
- It takes approximately 2-5 hours to fully charge the battery. When the lamp switches to green, the charging is completed. Remove the battery or the radio unit with its battery from socket




» **When charging a radio (with the battery) the indicating lamp will not turn green to show the fully charged status if the radio is powered on. Only when the radio is switched off will the lamp indicate normal operation and obtain a proper read on the status of the battery. The radio consumes energy when it is powered on, and the charger cannot detect the correct battery voltage while it is in use. So, the charger will charge the battery in constant voltage mode and fail to indicate correctly when the battery has been fully charged.**

2. BATTERY INFORMATION

e. LED Indicator:


STATUS	LED
Standby(No Battery)	None
Precharge	Red light Flashing
Charging	Red Light
Fully Charged	Green Light

 » **Trouble means battery is too warm, battery short-circuited or charger short-circuited.**
NOTE

2.4 Normal Charging Tips

a. Self-Test: When powering on the charger, the red light turns on and then turns off and stays off, which means the charger has passed the self test and it is ready to charge the battery. If the light remains orange or the red light blinks, it means the charger cannot pass its self-test and cannot charge the battery.

b. Trickle Pre-Charging: If red light blinks when the battery is inserted into the charger, it means that the battery voltage is low and the charger is trickle-charging the battery (Pre-Charging Mode). The charger will automatically turn into normal charging when the battery reaches a certain electric charge, and if the red light stops blinking, it means the battery voltage has reached a certain level, and the charger will charge the battery in normal mode.

 » **Trickle charging (Pre-Charging Mode) time should not last beyond 30 minutes. If the indicating lamp still blinks red after 30 minutes of trickle-charging, it means that the charger cannot charge the battery correctly. Please check whether the battery or charger is damaged.**
NOTE

2. BATTERY INFORMATION

2.5 How to Store the Battery

- a. If the battery needs to be stored, keep the level at approximately 80% of full charge.
- b. It should be kept in low temperature and dry environment.
- c. Keep it away from hot places and direct sunlight.



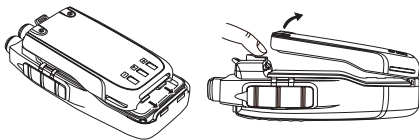
NOTE

- » **Do not short circuit the battery terminals.**
- » **Never attempt to remove the casing from the battery pack.**
- » **Never store the battery in unsafe surroundings, as a short may cause an explosion.**
- » **Do not put the battery in a hot environment or throw it into a fire, as it may cause an explosion.**

3. PREPARATION

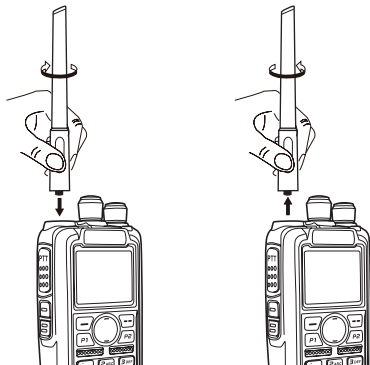
3.1 Installing / Removing the Battery

- a. Match the two bottom grooves of the battery pack with the corresponding guides on the back of the radio and then push it until you hear a click.
- b. To remove the battery pack, slide the release latch at the top away from the battery and remove the pack away from the transceiver.



3.2 Installing / Removing the Antenna

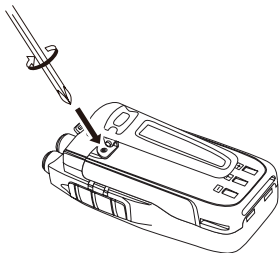
- a. Installing the Antenna: Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.
- b. Removing the Antenna: Turn the antenna counter-clockwise to remove it.



3. PREPARATION

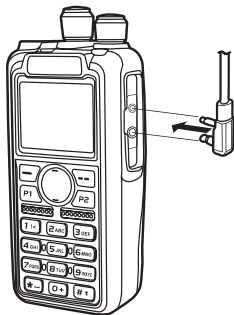
3.3 Installing / Removing the Belt Clip

- a. Installing the Belt Clip: Place the belt clip above the corresponding holes on the back of the radio, and screw it into place clockwise with the two supplied screws.
- b. Removing the Belt Clip: Unscrew counter-clockwise to remove the belt clip.

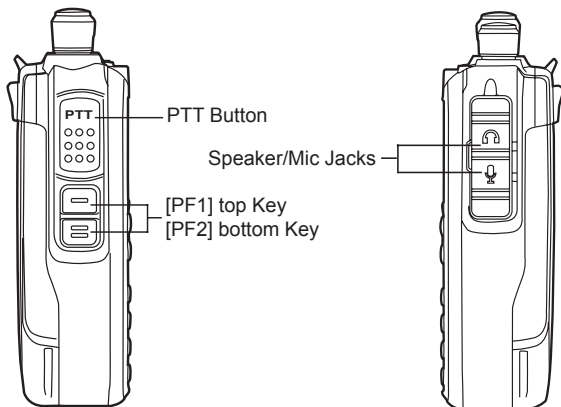
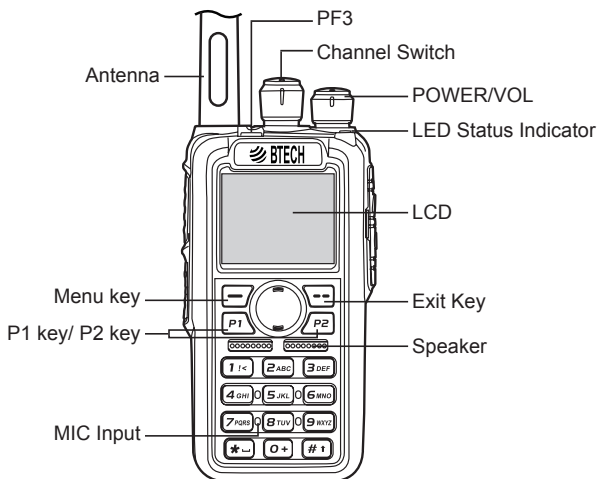


3.4 Installing the Additional Speaker/Microphone (Optional)

Pry open the rubber MIC-Headset jack cover and then insert the Speaker / Microphone plug into the double jack. Push the plug straight in, do not have at an angle, as damage may occur.



4. RADIO OVERVIEW



4. RADIO OVERVIEW

4.1 Status Indications

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

LED Indication	Status
Flashes Red	Low battery voltage
Constant Red	Transmitting
Constant Green	Analog Receiving
Constant Cyan	Digital Receiving
Flashes Green	Scan

4.2 Programmed Key

It is possible to set different functions for [PF1], [PF2], [PF3], **[P1]**, **[P2]** keys.
Method 1: In radio Menu - Settings - Radio Set - Key - PF1, PF2, PF3, P1,P2.
Method 2: In PC software - Public - Optional Setting - Key function.

OFF	No Function
Volt	Check the current battery capacity voltage
Tx Power	Switch the power between super high, high, middle and low power.
TalkAround	Switch between Talk Around and Repeater mode
Reverse	Turn on/off the frequency reverse function.
Encrypt	Choose the digital encryption group for digital channel
Call	In Analog mode, send the DTMF/5TONE/2TONE encode. This function is only valid for analog channel.
VOX	Set up the VOX level
VFO / MR	Switch between VFO mode and memory channel mode.
Sub PTT	Sub channel PTT, press to start the call on sub channel (NOTE: On PF1 - PF2 - PF3 Keys Only)
Scan	Press the key to start or stop scanning the channels in scan list.
FM Radio	FM radio on/off
Alarm	Long press the key to start alarm, short press again to exit the alarm.
Record Switch	Enable/disable the recording function

4. RADIO OVERVIEW

Record	Start/stop recording. When stop recording, the radio will remind repeat or send the record.
Messages	In digital mode, press to enter into SMS messages
Dial	Start the manually dial
GPS Info	Check the GPS position information
Monitor	Monitor the weak signal or the signal with unmatched ID.
Main Choose	Choose channel A or channel B as the main channel
Hot Key 1~6	Selects Hot Keys 1-6 Note: Hot key setup details on next page
Work Alone	Turn on/off the work alone function.
Nuisance Delete	During scanning, press the key to skip the unwanted channel
Digi Monitor	In DMR mode, press the key to turn on/off digital monitor
Sub Ch Switch	Turn on/ off the sub channel
Prior Zone	Switch to Priority Zone
Program Scan	Press the key to start or stop the VFO scan. The VFO scan start and end frequency should be set in CPS -Optional Setting - VFO Scan.
Mic Feature	In digital channel, switch the microphone tone to normal or enhanced mode.
LastCall Reply	In digital channel, press the key to access the last call and press PTT to call back.
Switch ChType	Switch the channel type(Analog, Digital, Ana+Dgi, Dgi+Ana)
Simp Repeater	Enable / disable the simplex repeater function.
Ranging	When the radio receives a call and the suspension time is on, press the key programmed as "Ranging" to obtain the caller's position and distance. (Both party need GPS positioned, or will receive only GPS information.)
CH Ranging	In standby, if the call contact type for a channel is "Private call" , press the key programmed as "Channel Ranging" to turn on this function. The radio will automatically start ranging function when turn to this channel.

4. RADIO OVERVIEW

Max VOL Set	In standby, press the key programmed as "Max Volume", will enable users to set the maximum RX volume.
Slot Set	Choose Slot for current channel, this function is only valid in repeater mode.
Ana SQ Set	Set the squelch level in analog mode.
Roaming	In standby, press the key programmed as "Roaming" to search and lock on the repeater with strongest signal. (Note: After lock on a repeater, the radio will return to last frequency only after channel or frequency is changed. The repeater frequency list must preprogrammed in CPS.)
Zone Select	In standby, press the programmed "Zone Select" key, it will allow you input the zone number and then press confirm key will switch to the zone.
Roaming Set	Sets Roaming Function.
FixTime Mute	Press the key to mute the radio in set time. The mute timing should be set in CPS -Optional Setting - Other -Mute Timing.
CTC/DCS Set	Set the CTCSS/DCS for analog channel.
Aprs Type	Choose Aprs Type for current channel.
APRS Set	Sets APRS Function.
TBST Send	Send the TBST Tone.
BHT On/Off	Enable / disable the bluetooth function.
Gps On/Off	Enable / disable the GPS function.
Ch.Name	Switch between channel name display and frequency display for the current channel.
Aprs Send	Manually transmit the APRS at the current channel.
Ana Aprs Info	Fast access the analog aprs info menu.
GPS Roaming	Enable / disable the GPS roaming function. GPS roaming function allows the radio switches to a zone when GPS positioning is within the preset radiation of coordinates.

4. RADIO OVERVIEW

The Switch operations listed are factory default functions. They can be modified in CPS or by the front panel menus for other functions. If you do not get the operations shown, check to see if function has been changed in CPS by reading the radio and reviewing options.

4.3 Hot Key Setting for PF1, PF2, PF3, P1, P2


Enter radio Menu-Settings-Radio Set-PF1, PF2,PF3,P1,P2,sub menu. Users can choose settings for Hot Keys 1-6.

Hot Key function details must be setup in PC software – Public - Hot key.

Call	Analog	Should edit the analog quick call first, then choose analog in the hot key set. Press the key to transmit 2Tone/5Tone/DTMF to start the analog quick call.
	Digital	It allows to select a contact from the digital contact list, press the key to switch the channel to the contact temporary. It will switch back to the original contact after the group/personal call hold time.
Menu	SMS	Quick access to Messages in the menu
	New Msg	Quick access to New Msg in the Menu - Messages
	Hot Text	Quick access to Quick Text in the Menu - Messages
	Received SMS	Quick access to Inbox in the Menu - Messages
	Send SMS	Quick access to Out box in the Menu - Messages
	Contact list	Quick access to Contact list in the Menu - Contacts
	Manual dial	Quick access to Manual Dial in the Menu - Contacts
	Call Log	Quick access to Call Log in the Menu
	Dialed Calls	Quick access to Dialed Calls in the Menu - Call Log
	Received Calls	Quick access to Answered Calls in the Menu - Call Log
	Missed Calls	Quick access to Missed Calls in the Menu - Call Log
	Zone	Quick access to Zone in the Menu
	Radio set	Quick access to Radio Set in the Menu - Settings

4.4 Combination Key Function

+ number key operation:

Press  key and hold until the LCD display “Next Please Press Dial Key”, press the number key, it will perform the programmed function.

Combination key function shall be setup in PC software-Public-Hot key.

5. BASIC OPERATIONS

5.1 Power on the Radio

Turn on the radio by turning the [Power/Volume] switch clockwise till a click is heard, and the LCD displays will show a start-up message, and you will hear a beep after 7 seconds.

5.2 Adjust Volume

Rotate the [Power/Volume] knob to adjust the volume. Turn clockwise to increase the volume and counterclockwise to decrease the volume. The LCD display will show the volume status during an adjustment.

5.3 Main Band/Sub Band Switch

Press the **[P1]** key to switch the main channel to the other channel if there is 2 channels shown on the display. The channel with bold characters is the main channel.

5.4 VFO/Channel Switch

Press the **[P2]** key to switch between VFO and channel display.

5.5 Set Up VFO Frequency

Turn the radio to VFO mode **[P2]**, then press the **[P1]** key to switch to the main band, the VFO frequency can only be set up when the channel is in the main "bold text" channel.

Operation 1: Input the VFO frequency directly by the keyboard.

Operation 2: Turn the channel selector to adjust the VFO frequency steps.

5.6 Select a Channel

Press **[P2]** key to switch the radio between VFO and Channel mode, **select Channel mode.**

Operation 1: Turn the channel switch to select a channel.

Operation 2: Input the channel numbers by the keyboard. For example, if you want switch to channel 99, input 0+0+9+9 a total of 4 digits, and it will switch to channel 99.

A channel can either be Analog or Digital.



For the analog channels the Push-To-Talk button is always available, and on the Digital Channels the parameters can be set up by the users / system operators by individual channel to allow talk permit.

5. BASIC OPERATIONS


There are four possible settings that can be selected in the CPS channel:

- (1) Always Allow: The user can transmit all the time.
- (2) Channel Free: The radio can transmit only if the channel is free.
- (3) Different Color Code: The radio can transmit if the channel is free, but the color code is mismatch.
- (4) Same Color Code: The radio can transmit only if the channel is free and the color code matches.


5.7 Adding a New channel

- (1) Press  (Menu) to enter main Menu.
- (2) Select "Settings".
- (3) Select "Chan Set".
- (4) Select "New Chan".
- (5) Input the channel number by keypad, press  to confirm.
- (6) Select a zone from zone list, then Confirm To Save. The radio will start channel saving, and saving is completed when it displays "Saved".
- (7) Now select the new channel in the radio and go to Channel Settings menu to set up all the new channel's parameters.


Fast saving a new channel:

Note: Hold  (Menu) until displays "Next Please Press Dial Key", then press [P1] key to create a new channel using steps 5 to 7 above.

5.8 To Delete a Channel

- (1) In channel (MR) mode, press  (Menu) to enter main Menu.
- (2) Select "Settings".
- (3) Select "Chan Set".
- (4) Select "Delete Chan" to delete current channel.

Fast delete a channel:

Note: Hold  (Menu) until displays "Next Please Press Dial Key", then press [P2] key to delete current channel.

5. BASIC OPERATIONS

5.9 Receiving and Responding to a Radio Call

When the radio is in the digital mode, it can receive and respond to a call with the same frequency/color code/ slot. When receiving a call:

- a. If the radio is programmed with callers DMR ID number in the digital contact list, when receiving a call, the radio will ring or vibrate briefly.
- b. The blue LED lights up.
- c. The left top corner of LCD shows the **RSSI** icon, and the LCD display will show DMR ID/name/city/state/country/call type and incoming icon based on what is in the contact list.
- d. When the call is ended, it will display "Call end", and you can press [PTT] to respond the call.




5.10 Making a Call

Method 1: from the Channel switch.

Turn the channel switch to choose a programmed channel.

Method 2: from the Talk Group.

(1) Turn the channel switch to choose a programmed channel;


(2) Press  (exit) key to enter the TG List, press the  /  key to choose a TG.

Method 3: from the keypad.

(1) Turn the channel switch to choose a programmed channel.

(2) Press  (Menu) key to Talk Group, press select to enter TG.

(3) Press  /  key to Manual Dial, press Select.

(4) Input the ID number by keypad, press  key to switch group ID or Private DMR ID.

Hold the radio vertical 2.5-5cm from your mouth, press the [PTT] key to start the call, the red LED lights up.

Release [PTT] key to receive the reply.

5.11 Monitor

In standby, press the [PF2] key to enter Monitor mode. When receiving a matched carrier but the signaling / ID is unmatched or the signal is too weak, this function allows you to monitor the weak signal and signal with unmatched signaling / ID.






Press the [PF2] key again to shut off the speaker and return to standby.

5. BASIC OPERATIONS



» **When in analog mode, if no signal is heard, it will emit noise when you press the Monitor Key. ** The Rx icon is seen when monitor is activated.**

5.12 Man Down Alarm

- a. Press  (Menu) to enter main Menu, press  /  key to Settings.
- b. Select Radio Set, press, press  /  key to other Func to Man Down.
- c. Select Man Down On to turn on the function.

When the function is on, the radio will start an alarm if the radio has moved from vertical (user has fallen to ground), or dropped unit to the ground. Raise the radio to stop the alarm. With Man Down on, do not place radio on side in vehicle or on table or alarm will activate.

Note: When GPS is on and positioning successfully, it will auto send out the GPS information when the radio starts the alarm.




5.13 Battery Voltage Test

Press the key programed as Voltage function to check the current battery voltage, press this key again to return.




6. ADVANCED FEATURES

6.1 Access Advanced Features for Private Call

Method 1: To Access a Private Call from Contact list

- a. Press the  (Exit) key to enter the Contact List, press the  /  key to a private call ID name.
- b. Press Select to View Contact, press Select to see the contact information.
- c. Press Option to access the advanced features.

Method 2: Access from Manual Dial

- a. Press the  (Menu) key to enter Contact List, press  /  key to Manual Dial.
- b. Press Select to enter Manual Dial. Press the Pound Key (#) to switch between Group and Private Call ID.
- c. Input the ID, press Option to access the advanced features.

6.2 Set Up Advanced Features for Private Call

(1) Call Alert

Select Call Alert, it will send out a call alert, the target radio will sound a beep or vibrate when receiving the call alert, and it will return a success call or failed call message to the transmit radio.

(2) Remote Ranging

Select Remote Ranging, and it will send out a signal for the target radio will turn on its microphone and transmit when receiving the signaling, it will send back the voice to the transmit radio. With this feature you can monitor the sound activity near the target radio remotely.

(3) Get GPS info

Select Get GPS info, and it will send out a signal to the target radio which will start the GPS positioning and send a message of its GPS position to the transmit radio.

(4) Check Radio

Select Check Radio, and it will send out a radio check to the target radio which will send back a message if it is available or not available to the transmit radio. With this feature, you can determine if another radio is active and powered on in the system.

6. ADVANCED FEATURES

(5) Kill

Select Kill, and it will send out a kill signaling to the target radio which will be killed (No display, no operation) when receiving the signaling and it will send back a kill successful message to the transmit radio.

(6) Wake

Select Wake, and it will send out a wake signaling to the killed radio and the target radio will return to standby when it receives this signaling and send back a Wake successful message to the transmit radio.

(7) Ranging

If the caller and the receiving radio both have acquired a GPS position on their radios and are in communications range of each other, the caller radio will detect and show the distance and direction to the receiving radio and display it on the callers radio.

7. MAIN MENU FUNCTIONS

7.1 Talk Group

TG List: Will display the talk group list which has been programmed with the PC software. This list is also used as a look-up table to display the contact TG information when receiving a call.

New Contact: Allows user to create a new TG.

Manual Dial: Input the group ID or private ID to access a TG quickly.

Talker Alias: Allows Talker Alias TX/RX Set.

7.2 SMS

New Msg: Create a new message and send to a contact.

InBox: Shows all the received messages, and allows to forward or delete the message.

OutBox: Shows all the sent messages, and allows to resend, forward or delete of the message.

Quick Text: Pre-saved messages, and allows to send, edit or delete the message.

Draft: Draft messages, and allows send, edit or deleting of the message.

7.3 Call Log

Last Call: The Last Call List shows the last caller ID and time information. It allows you to save the last caller as a new contact if it is not in your contact list.

Sent: The Sent List shows sent messages until selected and deleted.



Answered: Shows all the answered calls, and allows deleting the call record or saving the ID as a new contact.

Missed: Shows all the missed calls, and allows deleting the call record or saving the ID as a new contact.


7.4 Zone

7.4.1 Select a Zone

A Zone is a group of channels grouped together. DMR-6X2 PRO DMR radio has 250 Zones. A Zone can have the maximum of 160 analog and/or digital channels.

Operation 1: Press  /  directly to switch the zone, the LCD will display the selected zone number or name.

Operation 2:


(1) Press  (Menu) to enter main Menu.

7. MAIN MENU FUNCTIONS

(2) Select "Zone".

(3) Select a zone from the zone list, radio will change to selected zone.

7.4.2 Add A Zone

(1) Press  (Menu) to enter main Menu.

(2) Select "Zone".

(3) Select "Add Zone".

1. Select "Edit name"

Input zone name by keypad, press  key to delete. After entering the name, press  to confirm and store.

2. Select "Edit Chan"

Select "Add Chan" then select a channel from the list.

3. Select "Save": press  key to store a new zone.

7.4.3 Delete A Zone

(1) Press  (Menu) to enter the main Menu.

(2) Select "Zone".

(3) Select a Zone from the zone list.

(4) Select Delete Zone to delete current the zone.

7.5 Scan

In the PC software – Public – Scan list, it allows you to save 250 scan lists, and to program the required scan lists and write it into the radio.

Switch the radio to channel mode, as the scan list is only valid in the channel mode.

7.5.1 Turn On Scan

a. Press  (Menu) to enter the main Menu.

b. Select "SCAN".

c. Select "Scan ON/OFF".

d. Select "ON", the radio will start to scan, press any key to stop to scan.

7. MAIN MENU FUNCTIONS

7.6 Roaming

The roaming function enables users to search the roaming channel list by locking on the repeater with strongest signal.

(1) Roaming On/Off

Allows you to turn on the roaming manually. After the roaming is finished, it will return to the off state. **** Manually Roaming is a onetime action only.**

(2) Roaming Zone

Select **Roaming Zone**: select a Roaming Zone from the list to set it as active zone. You can also scroll down the list of Zones and select Add Channel to add a new channel to the current Roaming Zone and set the parameters.

Select **Add Channel**: Add a new roaming channel to the current zone.

New Roam Ch: Allows you to modify the RX frequency/TX frequency/CC/TS/CH name for the roaming channel. Also allows you to remove the roaming channel from the zone.

Edit Name: Edit the zone name.

Select Zone: Select the roaming zone for the current channel.

Delete Zone: Delete the roaming zone from the current channel.

(3) Auto Roaming settings

Set the fixed time waiting interval to begin automatic roaming when the repeater cannot be found, roaming will begin at the end of this time.

Fixed Time Set: The roaming will be started at preset fixed time or set to off.

7.7 Settings

7.7.1 Radio Set

1.Voice Func

(1) Key Tone

Beep On: The radio will beep when you press the keypad.

Beep Off: No beep when you press the keypad.

(2) KeyTone Vol

Adjustable: The volume changes with the volume knob.

Level 1-16: Fixed volume

(3) Digi Idle

Set on if you want a tone when the digital channel is free.

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(4) Ana Idle

Set on if you want a tone when the analog channel is free.

(5) Startup Sound

Set On if you want a tone when powering on.

(6) Talk Permit

Select if you want a tone confirming Digital and/or Analog repeater connection at the start of a call.

(7) D-Reset Tone

Select Off or On, digital call has a group call hold time and a private call hold time to prevent voice missing after the call. When set Digi Call Reset Tone is On, it will beep when the hold time terminates.

(8) Max Vol Level

Indoor: Very low volume, suitable for the indoor use.

Level 1-8: Set up the maximum volume level.

(9) Ear Max Vol

Indoor: Very low volume, suitable for indoor use.

Level 1-8: Set up the maximum volume level for earphone. When the radio connect with earphone, it will auto change to earphone maximum volume.

(10) MIC Feature

It will allow you set up the microphone audio pitch.

Normal: Low pitch.

Enhance: High pitch.

(11) SMS Prompt

Different prompt options when receive a new message.

(12) Call Ring

Different prompt options when receive a new call.

(13) DigiMic Level

Digital mic level selection.

(14) AnaMic Level

Analog mic level selection.

(15) Fix Time Mute

With the "Fix Time Mute" function activated (On) it is possible to mute the loud speaker for wished time segment.

7. MAIN MENU FUNCTIONS

The duration of the “Mute Time” may be set by the CPS->Optional Setting->Other->Mute Timing.

2. Display Func

(1) Back Light

LCD backlight intensity is adjustable in 5 steps

(2) Light Time

Always: The backlight is always on.

5 sec. to 5 min. adjustable.

Note: This function is valid when power save is turned off.

(3) Ch. Name

CH name: The radio will work in channel mode and display the channel name.

Frequency: The radio will work in VFO mode and display the frequency, which allows the programmed VFO/MR key to switch the VFO and Memory channels.

(4) Language

Choose Chinese or English.

(5) Menu Exit Time

Programmable from 5 sec to 60 sec: When entering the menu, the radio will stay at the menu in the set time. When the time is reached, the radio will auto exit the menu.

(6) Intro Display

Picture: The radio will display an  BTECH picture when powered on.

Character: The radio will display the characters set up in PC software when powered on.

Customer's Pic: The radio will display the picture uploaded by PC software. In CPS -Tool -Boot Image, it will allow you upload a Power-on Picture.

(7) CH Background

Default Picture: In standby, the radio will display default picture.

Customer's Pic: The radio will display the picture uploaded by PC software. In CPS-Tool-Standby BK Picture, it will allow you upload a standby background picture.

(8) CHG Font Color

White: In standby, the channel and other information will display color in white.

Black: In standby, the channel and other information will display color in black.

7. MAIN MENU FUNCTIONS

Orange: In standby, the channel and other information will display color in orange.

Red: In standby, the channel and other information will display color in red.

Yellow: In standby, the channel and other information will display color in yellow.

Green: In standby, the channel and other information will display color in green.

Cyan: In standby, the channel and other information will display color in cyan.

Blue: In standby, the channel and other information will display color in blue.

(9) CH Color A

Set color for the band A channel display.

(10) CH Color B

Set color for the band B channel display.

(11) Zone Color A

Set color for the band A zone display.

(12) Zone Color B

Set color for the band B zone display.

(13) Main Ch

Channel A: The upper displayed channel will be set to become the main channel.

Channel B: The lower displayed channel will be set to become the main channel.




(14) Sub Ch Switch



Sub Channel On: Turns on the sub channel, and the radio will display both channels.

Sub Channel Off: Turns off the sub channel, and the radio will display the main channel only.

3.Key Func

(1) Key Lock

Manual Lock: Long press the  key to lock the keypad. Press  key, then press the  key to unlock the keypad.

Auto Lock: Radio will auto lock the keypad when in standby for a while. Press  key, then press the  key to unlock the keypad.

Notice: To get the key lock function working, some options should be set ON in CPS -> Optional Setting -> Key function first.

Knob Lock: Set On to lock the knobs.

Keypad Lock: Set On to lock the keypad.

Side Key Lock: Set On to lock the PF1,PF2 and PF3(top blue key).

Forced Key Lock: Set On to prevent the key from unlocked. When this function is ON, the keys are not be able to unlock manually.

7. MAIN MENU FUNCTIONS

(2-11) Key PF1, PF2, PF3, P1, P2

You can program these keys for different functions. (Refer to page 10 & 11)

4. Other Func

(1) Auto Power Off

Allow to set automatic power off when not used for a period of 10 minutes, 30 minutes, 1 hour or 2 hours of inoperation.

Off: Turn off the function.

(2) TX Timer

30S-240S: The TX will be limited in the set time. When this time is reached, the radio will auto stop transmission.

OFF: Turn off the TX time limit, and there is no limit for the transmission time.

(3) TOT (Time Out Timer) Predict

With the "TOT Predict" function activated (On), 5 seconds before the TOT expiring, a beep sound is preventing that soon the transmitting mode will be interrupted.

(4) TxPow ALC (Automatic Level Control)

With the "TxPow ALC" function activated (On), while receiving an extremely strong signal, the TX power will automatically reduce the level of the TX Power proportionally to the strength of the RX signal.

(5) Freq Step

2.5K, 5K, 6.25K, 10K, 12.5K, 20K, 25K, 30K, 50K, total of 9 frequency steps.

(6) Ana SQ Level

Adjusts the squelch level to receive signal with different signal strengths, and a total of 5 levels offered. This function is only valid for an analog channel.

(7) Power Save

Turn on the function to extend the battery life.

Save 1:1, TX/RX 30ms, Standby 30ms.

Save 2:1, TX/RX 60ms, Standby 30ms

When turn on the power save, it may not receive the message in time.

(8) TBST Sel

TBST frequency is used to activate some repeaters, 1000Hz, 1450Hz, 1750Hz, 2100Hz a total of 4 options are offered.

Press PTT and PF1 key together to transmit the TBST tone.

(9) VOX

By enabling the VOX, you can speak into the microphone to start transmitting

7. MAIN MENU FUNCTIONS

instead of pressing the [PTT] key. A total of 3 levels are provided.

(10) VOX Delay

When the VOX is enabled, set up the VOX delay to help to extend the transmission time to avoid stopping a transmission too early. 0.5s-3s, a total of 26 times offered.

(11) Scan Mod

SCM TO: When scanning and stopping for a signal, stays at the channel 5s before resuming the scan.

SCM CO: When scanning and stopping for signal, stays at the channel until the signal disappears, and resumes scan 2s later.

SCM SE: When scanning and stopping for a signal, will terminate the scan. This function is only valid for a VFO scan.

(12) DTMF Speed

Offers DTMF encode speed which will help the receiver decode successfully, 50~500ms are the options.

(13) FM Radio

Turn on or off the FM radio.

(14) FM Radio Moni

Radio Mon On: When the FM radio is used, you can still receive or transmit on the channel.

Radio Mon Off: When the FM radio is used, the radio will not permit a transmission or reception.

(15) Man Down Alarm

When the function is on, the radio will start sending the alarm if the radio is falling to the ground. Raise the radio to stop the alarm.

When GPS is on and positioning successfully, it will auto send out the GPS information when the radio starts the alarm.

(16) Start Up Pwd

On: Set up the password for start up. You need to input the password to power on the radio.

Off: No password is required for the radio power on start up.

The password shall be set up in CPS-Optional Setting-Power on-Power-on Password Char.

7. MAIN MENU FUNCTIONS

(17-18) AuRepeater A or B (For VFO A or B)

Turn on the Auto Repeater function, the TX frequency in VFO mode will auto increase or reduce frequency based on the programmed offset frequency in CPS.

Off: Turn off the function.

Positive: TX frequency= RX frequency + Offset frequency.

Negative: TX frequency= RX frequency - Offset frequency.

(19-22) VFO SC-MinU/MaxU/MinV/MaxV (For VFO scan ranging setting)

VFO Scan is only valid in VFO frequency mode. Press the "VFO Scan" key to turn on/off the VFO scan.

The radio will scan the frequency range between VFO scan start frequency and VFO Scan end frequency, at the frequency step selected in CPS or in Radio Menu.

VFO SC-MinU: Set start frequency for a UHF VFO scan

VFO SC-MaxU: Set end frequency for a UHF VFO scan

VFO SC-MinV: Set start frequency for a VHF VFO scan

VFO SC-MaxV: Set end frequency for a VHF VFO scan

(24) SMS Format

M-SMS: Allows SMS text communication with Motorola DMR radio.

H-SMS: Allows SMS text communication with Hytera DMR radio.

(25) CTC Ste (Squelch Tail Eliminate)

In case of active CTCSS, the STE function will eliminate the noise burst at the end of reception of the transmitted signal.

(26) No-Signal Ste

Normal Squelch Tail Eliminate(STE) setting will be monitored (no signaling).

(27) Time Zone





Set up the time zone of your location.

(28) Time Display

Set On to show the date/time on display.

Set Off to hide the date/time display.

(29) Date Time

Time Set: Allows to set up the date and time manually. Use the  /  key to set the current year. Move to the month by pushing the  key. Set the month, and use the  key to move forward each step. Once done, click the Menu key to save the date and time.

7. MAIN MENU FUNCTIONS

GPS Check: When GPS is positioning successful, enter this menu, select GPS check to do the date & time correction automatically.

7.7.2 Chan Set

Channel set menu: Main Menu- Settings - Chan Set. The channel set menu will change accordingly to the channel type. When the channel type is digital, it will automatically hide the analog menus..

※Chan Set (Digital Channel)

(1) New Chan

Allows creation a new channel and save current set up to the new channel.

- Select "New Chan", then input a new channel number and confirm.
- Input channel name and confirm.
- Select a zone and confirm. The new channel will be saved to the selected zone.

(2) Delete Chan

Allows to delete the current channel.

- Select "Delete Chan",the radio will confirm by asking " Delete? "
- Press confirm, the current channel will deleted.

Note: After deleting a channel, the radio will move to the next channel.

(3) Channel Type

A-Analog : Set up an analog channel

D- Digital : Set up an digital channel

A+D TX A: Mixed analog, allow receive analog and digital signal, TX is analog.

D+A TX D: Mixed digital, allow receive analog and digital signal, TX is digital.

(4) TX Power

Set up the TX power for current channel.

(6) Band Width

Only narrow band 12.5KHz for digital channel. Analog can be Wide band or Narrow Band.

(7) RX Freq

Input the RX frequency by keypad, click the Menu key to save, press P2 key to return.

7. MAIN MENU FUNCTIONS

(8) TX Freq

Input the TX frequency by keypad, click the Menu key to save, press [P2] key to return.

(9) Talk Around

When the TX radio and RX radio both are set up with Talk Around on, they can communicate directly without a repeater. The analog channel will use the RX frequency as TX/RX frequency, the RX CTCSS/DCS decode as TX CTCSS/DCS encode. Also referred to as "Simplex".

(10) Name

Allow entering the channel name, this function is only valid in channel mode.

(11) TX Allow

Always: Always allow transmission

Channel Free: Allow transmission when the channel is free

Different CC: Allow transmission when receiving a matched signal but different color code.

Same CC: Allow transmission when receiving a matched signal and same color code.

(12) TX Prohibit

TX ON: Will allow transmission on the current channel.

TX OFF: Will not allow transmission on the current channel.

(13) Radio ID

On a Digital channel, it will show the DMR ID which must be programmed in the PC software – Digital – DMR ID list – DMR ID. Allows edit and selection an ID for the channel, each channel allows one ID.

In Analog channel, it will show the radio 5Tone Self ID or DTMF self ID which is programmed in PC software – Analog – 5Tone Self ID or DTMF Self ID.

(14) Color Code

The digital channel should have the same color code for communication as defined by the repeater to be used; which can be programmed in the PC software or defined in the Menu.

(15) Time Slot

Set up Slot 1 or Slot 2 for the current channel.

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(16) Digi Encrypt

With the digital encryption, the communication will be confidential. A total of 32 digital encryptions is offered, and it can be programmed in the PC software or defined in the Menu. Not legal for USA Amateur Radio Use.

(17) Encrypt Type

Choose normal encryption or enhanced encryption type.

(18) RX Group List

It will allow user to edit the RX Group List and assign a new RX Group List to the channel.

Select Cur List: Select the current RX Group List.

Add Group: Add a TG to the current RX Group List.

Remove Group: Remove a TG from the current RX Group List.

(19) Work Alone

In the PC software – Public – Alarm settings – Work Alone, you have to set up the response time, warn time and response method initially.

Turn on the work alone function for the current channel. When the radios predetermined time has been reached for the alone working time, the radio will beep a sound and show "Work Alone Predict". The user has to confirm by pushing the programmed work alone key to confirm continuing work alone, otherwise, the radio will start its alarm and send the alarm on the channel when reaching its preset response time.

(20) CH Ranging

In standby, if the call contact type for a channel is "Private call", The radio will automatically start the ranging function when turned to this channel. The other radio's location will be showed on screen at intervals.

(21) APRS Receive

Turn APRS Receive, if both radio GPS positions are valid, the radio will display the other radio's distance and position when radio is receiving.

(23) DataAck Forbid

Set On to ignore the repeater data service request. The radio will not reply to repeater when it receives the call confirmation/SMS confirmation request, etc..

(24) DMR Mode

Simplex: Enable to communicate by frequencies directly with another radio

7. MAIN MENU FUNCTIONS

with opposite TX/RX frequencies.

Repeater: Enable communications via a repeater system.

Double Slot: When TX/RX frequency is same, turn on this function to communicate by the slot set in simplex mode.

Note: If DMR mode not chosen Double Slot, the radio will work on Slot in repeat mode. If choose Double Slot, it is necessary to Double choose a slot by time slot setting.

※ Chan Set

When the channel type is analog, it will automatically hide the digital menu, The menus listed below are for analog channel only, unlisted menus are the same as the digital channel, please refer to Chan Set (Digital Channel).

(4) TCDT

Set up the CTCSS/DCS code for the TX.

(5) RCDT

Set up the CTCSS/DCS code for the RX.

(6) RTCDT

Set up the CTCSS/DCS code for both TX and RX
CTCSS code: 62.5Hz~254.1Hz, a total of 51 groups
DCS code: 000N~777I, a total of 1024 groups.

(7) Optional Signal

Allows the setup of DTMF/5TONE/2TONE encode and decode for the Analog channels.

(10) Squelch mode

When the analog channel is set up for both CTCSS/DCS decoding and optional signaling, you can set up the RX condition in this menu.

SQ: You can hear the call once the channel receives a matched carrier.

CDT: You can hear the call when receives a matched CTCSS/DCS signal.

TONE: You can hear the call when receives matched signaling.

C&T: You can hear the call when receives a matched CTCSS/DCS and matched signaling.

C|T: You can hear the call when receives a matched CTCSS/DCS or matched signaling.

(10) Band Width

Choose wide band or narrow band for the analog channel.

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(11) Reverse

When this function is enabled, the RX frequency, TX frequency and CTCSS/DCS encode/decode will be reversed.

(16) Busy Lock

Always: Always allows transmissions

Different CDT: Will not allow transmit when receiving matched carrier but unmatched CTCSS/DCS.

Channel Free: Will not allow transmit when receiving matched carrier.

(18) DTMF Enc

Set a DTMF ID as the default call ID for the current channel.

Press the PTT key to transmit the selected DTMF ID.

Edit the DTMF ID in Menu or with the PC programming software.

(19) DTMF Dec

Set a DTMF ID as the default receive ID for the current channel.

When the channel receives a signal with matched DTMF ID, the speaker will open.

(20) 2Tone Enc

Set a 2Tone as the default call ID for the current channel.

Press the PTT key to transmit the selected 2Tone.

Edit the 2Tone in the PC programming software before it can be selected.

(21) 2Tone Dec

Set a 2Tone ID as the default receive ID for the current channel.

When the channel receives a signal with matched 2Tone ID, the speaker will open.

(23) 5Tone Enc

Set a 5Tone as the default call ID for the current channel.

Press the [PTT] key to transmit the selected 5Tone.

Edit the 5Tone in the PC programming software before it can be selected.

(24) 5Tone Dec

Set a 5Tone ID as the default receive ID for the current channel.

When the channel receives a signal with matched 5Tone ID, the speaker will open.

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(27) **APRS Receive**(optional with installed BT+APRS board)

Turn on this function to enable the radio to receive analog APRS information the analog APRS information in current channel. Make sure your channel setting Frequency, CTCSS/DCS match to the transmit radio's setting.

The radio will display the callsign, coordinates,direction,distance, digipeater paths, etc., when receiving analog APRS from the other radios.

Radio Menu-> APRS -> Ana APRS Info, allows to view the receive analog APRS logs.

CPS -> Public->APRS ->Analog APRS -> Receive Allow set to "On", and input the Callsign and SSID you want to receive. The radio will only receive and display the analog APRS information of the filter callsign, instead of displaying all analog APRS.

7.7.3 Device Info

Show the Radio ID, Radio name, serial number, model name, frequency range, firmware version, radio data version, latest program date, picture version, language version etc.

7.8 Record

The voice record is designed for security use. Each call will be saved as a separated recording file with DMR ID and time details. The standard voice allows 10 hours recording in DMR mode only. The optional 500 hours voice recording is allowed in both DMR or analog mode.

7.8.1 Turn On/ Off the Recording

a. Press  (Menu) enter main Menu, press  /  key to Record.

b. Select **Talk Record**, then

- Select **Record Switch**, select on or off to turn on or off the recording.

7.8.2 Play the Record



a. Press  (Menu) to enter main Menu, press  /  key to Record.

b. Select **Record List** to enter Record list, select a recording to enter the Record file.





c. Select a Record to see the Detailed Information.

d. Press Select to choose the record option.

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
- 1) **Record Play**, it will play one record at a time, you can press  /  key to switch the recording without return to previous menu.
- 2) **Loop Playback**, it will play all records in a loop.

7.8.3 Send the Record

- a. Press  (Menu) to enter main Menu, press  /  key to Record.
- b. Select Record List to enter Record list, select a recording to enter the Record file.
- c. Select a Record to see the detail information.
- d. Select Record Send, and it will display the Contact list or Manual Dial.
- e. Select Contact list to choose a contact, press select to send the Record.
- f. Select Manual Dial, input the DMR ID, press  key to switch group ID or private ID, press select to send the Record.

7.8.4 Recording Manually


In the PC software, Public – Optional Setting – Key function, program a key as Record.

- a. Press the programmed Record key, and the radio will start the recording, and speak into the microphone.
- b. Select Record Play, and the radio will play the record.
- c. Select Record Send, and the radio will display Contact list or Manual Dial.
- d. Select Contact list to choose a contact, and press select to send the Record.
- e. Select Manual Dial, input the DMR ID, press  key to switch group ID or private ID, press select to send the Record.

 » **The Recording function is only valid in digital channel.**
NOTE

7.9 GPS Positioning Function(optional with installed GPS)


7.9.1 Turn on GPS

- a. Press  (Menu) to enter the main Menu.
- b. Select "GPS".
- c. Select "GPS On".

7. MAIN MENU FUNCTIONS


7.9.2 GPS Info

Method 1: Check GPS info from Menu



Press  (Menu) key to enter Main Menu, select "GPS", then select "GPS Info".

Method 2: Check GPS info from programmed key

In the PC software, Public – Optional Setting – Key function, program a key as "GPS Info", then press the programmed key to check the GPS info.

 **NOTE** » **If the GPS is not positioning, it will display “No Fixed Position”, and the GPS icon shows a grey color. Move the radio to an open window or outdoors, and it will take a few minutes to connect to the GPS Satellites.**

7.9.3 Send GPS Information

- a. When the GPS is positioning successfully, the GPS icon shows a red color. Follow the above step to check the GPS info, press edit key to Text edit.
- b. Press Confirm, and it will display Send or Save. If you select Save, the GPS info will be saved as a draft message.
- c. Choose Send and it will display Contact list or Manual Dial.
- d. Select Contact list to choose a contact, press select to send the GPS info. or
- e. Select Manual Dial, input the DMR ID, press  key to switch group ID or private ID, press  to send the GPS info.

7.10 APRS Location Reporting(Supported by GPS)

(1) Upload Type

None: No APRS.

Sel A Aprs: Select analog APRS.

Sel D Aprs: Select DMR APRS.

(2) Ana APRS

PTT Upload: Set the PTT transmit method.

- Off: No APRS data transmission.
- Tx Start: Transmit analog APRS when the user presses the PTT.
- TX End: Transmit analog APRS when the user releases the PTT.

7. MAIN MENU FUNCTIONS

Upload Power: Set the transmit power.

Upload frequency: Set the transmit frequency.

Upload text: Set the text to be shown on aprs.fi

(3) Ana APRS Info

The received analog APRS information will be saved in radio for review.

Click on "Ana APRS Info" will show the received APRS information.

Clicking on "Delete All" will clear the information.

(4) Digi APRS

PTT Upload: Set the PTT transmit method.

- Off: No APRS data transmission.
- On: Transmit DMR APRS when the user releases the PTT.

Report Channel: Allow user to select a channel to transmit the DMR APRS, Availability to set up to 8 report channels in CPS-APRS-Digi page first.

Upload Slot: Allow user to select a Time Slot to transmit the DMR APRS.

- Channel Slot: It uses the Time Slot of current channel
- Slot 1: Use Time Slot 1
- Slot 2: Use Time Slot 2

(5) Digi APRS Info

The received APRS information will be saved in radio for review.

Click on "Digi APRS Info" will show the received APRS information.

Click on "Delete All" will clear the information.

(6) Intervals Set

This function allows you to set the analog APRS or DMR APRS auto transmit at fixed times.

(7) Upload Beacon

GPS Beacon: The APRS will transmit the GPS data, only if the GPS is set to on first, then GPS must also successfully lock on the satellites.




Fixed Beacon: The APRS will transmit the fixed beacon data. Someone can transmit the fixed beacon without setting the GPS on. The fixed beacon location information should be set in CPS first.



Note: More setup are available by PC software only. **CPS-Tools-Options-APRS**, you have to check on the APRS box first to get APRS menu added to the left Digital menu.

(APRS is a registered trademark of Bob Bruninga, WB4APR)

7. MAIN MENU FUNCTIONS

7.11 Digital Monitor

a. Press  (Menu) key to enter main menu, press  /  key to choose **Digi Moni** function.

b. Press Select to enter **Digi Moni** menu, press  /  key to choose a sub menu.

1) **DigiMoni Switch**

off: Turn off Digital Monitor

Single Slot: Monitor the current TS

Double Slot: Monitor TS1 and TS2

2) **DigiMoni Cc**

Any Cc: Monitor any color code

Same Cc: Monitor the same color code

3) **DigiMoni Id**

Any Id: Monitor any TG

Same Id: Monitor the same TG

4) **Slot Hold**


Off: Turn off the slot hold




On: Turn on the slot hold

It is recommended to turn on "slot hold" when using Digi monitor double slot-monitoring both time slots. When the signal disappears from the active time slot, the hold function will remain on that time slot for a few seconds until all activity disappears.

c. Press Select to enter the sub menu and set up.

7.11.1 Response and Save a call in Digital Monitor Mode

During Digital Monitor, when user receives a call with unmatched ID, press  key, the screen will display "*Monitor Response Setup Successfully*", press [PTT] key will reponse to the call.

Press  key, the radio will remind you to choose a Zone, press  /  key to choose a Zone, press select key to save the new channel to the Zone.

8. RESET

- a. Power off the radio first.
- b. Then power it on while holding the [PTT] and the [PF1] button below the PTT at the same time.
- c. The radio will start up with a note on the display – “Are you sure you want to initialize radio?”

Press Exit to exit the reset and power on the radio.

Press Confirm to proceed the reset, it will show a screen display note – Initialize Radio.

- d. After a re-start the radio will display the setting of time zone and the date and the time. Use the up-down key to set the current year. Move to the month by pushing the **P1** key. Set the month, and use the **P1** key to move forward each step. Once done, click the Confirm key to save the date and time.


Please remember set up the time zone to avoid the date/time error.



Make sure the codeplug is saved to PC before your do the update and reset.

9. TROUBLE SHOOTING GUIDE

Problems	Solutions
The radio cannot be switched on or no display after being switched on.	<ul style="list-style-type: none">A. Battery pack may not be installed properly. Remove the battery pack and install it again.B. Battery power may be insufficient. Recharge or replace the battery pack.
The battery doesn't last very long after charging.	The battery is defective; please replace it with a new battery pack.
Cannot talk to or hear other members in your group.	<ul style="list-style-type: none">1. Make sure the frequency and CTCSS are the same as other members.2. Make sure you are within range, and not too far away from your member.3. Make sure you are set in correct digital mode, and frequency.4. In digital mode, make sure the correct Talk Group, Time Slot, Color Code, and if used, Encryption Code is set correctly.5. In digital mode, make sure the receive contact list, and receive group list is set correctly if they are used.
Other voices from non-group members are heard on the channel.	Analog: Change the CTCSS/DCS Tone, and make sure to change the tone on all radios in your group.

10. PROGRAMMING GUIDE

 BTECH DMR-6X2 PRO radios ship from the manufacturer “Keypad” locked per FCC rules.

You can press the  (Menu) key and the  (star) key to unlock the keypad for the first time of use. You will need the programming cable to connect your radio to your computer for programming.

When programming this radio for the first time, it is recommended you first READ the radio with the software and then save this file for future reference as it contains the default programming and settings. In addition, after you READ this radio with software, first make your programming and frequency changes, then send this edited file back to your radio.

Multiple Radio ID's

The DMR-6X2 PRO radio will allow multiple DMR Radio ID numbers to be used with the radio. This feature will allow one radio to be used for example as a Commercial Radio with its own DMR ID, and at the same time also be used as an Amateur radio with another DMR ID.

In PC software, Digital/ Radio ID List, you can enter your Department Unit Number or Amateur Radio callsign.

Amateur DMR INFORMATION

For the best Amateur DMR experience, obtain a subscriber ID from one of the many available Amateur sources.

An Amateur user can obtain an ID (this is free) from:

<https://www.radioid.net/account/register#!>

Then follow the steps for registering a new DMR ID Number.

You WILL need to upload an official copy (not the FCC “Reference Copy”) before an ID will be issued.

There are many DMR networks worldwide, and many sources of information on DMR repeaters. The final source you should use would be the sponsor of the system you wish to use.

One of the best-known networks is Brandmeister. There are also other systems that are on, that use their own format for talk groups and operating rules.

Due to the constantly changing list of groups, we will not list them all here. To use the full capabilities of the available Brandmeister Network options, register here:



<https://brandmeister.network/?page=register>

Worldwide Amateur Contact Database


The DMR-6X2 PRO DMR radios contain a separate database memory for importing and displaying Amateur DMR individual IDs, call sign and user name in comma-delimited format (.csv)

Please reference in the programming guide for import and export database operations detailed.


11. ON-LINE SERVICE AND SUPPORT

The  BTECH website provides additional information about obtaining service or support for the  BTECH line of two-way radios and accessories. Visit: baofengtech.com

Warning Notes


Every effort has been made to ensure that the information in this document is complete, accurate, and up to-date.  BTECH Radio assumes no responsibility for the results of errors beyond its control. The manufacturer of this equipment also cannot guarantee that changes in the equipment made by non-authorized users will not affect the operation of or information in it.



FCC Licensing Information

This  BTECH radio is capable of operation on Commercial / Land Mobile frequencies which require a license from the Federal Communications Commission (FCC) for business, personal, education and recreational use. To obtain forms, call the FCC forms hotline at: 1-800-418-3676 or go to <http://www.fcc.gov>


For questions concerning commercial licensing, contact the FCC at 1-888-CALL-FCC(1-888-225-5322).

SAFETY

The  BTECH DMR-6X2 PRO DMR handheld transceiver has been carefully designed to provide you with years of safe, reliable operation. As with all electrical equipment, however, there are a few basic precautions you should take to avoid hurting yourself or damaging the radio:

- Read the instructions in this handbook carefully. Be sure to save it for future reference.
- Read and follow all warning and instruction labels on the radio and owner's manual.
- Do not carry the transceiver by the antenna. This may damage the antenna or antenna terminal. Grasp the handheld by its base (not the antenna) when you need to place or remove it.
- Do not keep the radio with the antenna very close to, or touching exposed parts of the body, while transmitting.  BTECH radios will perform best, if you speak 2-4 inches away from the microphone and the radio is vertical.
- Be sure the "PTT" key is not pressed when you do not need to transmit.
- Do not operate the radio near unshielded electrical blasting caps or in an explosive atmosphere or where two way radio use is prohibited.
- Do not transmit without the antenna fitted on the radio. Though it is provided with a protection circuit, it may damage the TX output final stage.
- Respect the environmental conditions. The radio is designed to be used in normal environments, however avoid exposing it to extremely hot or cold temperature (out of the range between -20°C to $+55^{\circ}\text{C}$). Do not expose the transceiver to excessive vibrations as well as dusty or rainy locations.
- Never try to disassemble or service the radio by yourself (aside from the routine maintenance described in this handbook). It may cause damage to the radio transceiver and void your warranty requiring extensive repair work. Always contact your local dealer for assistance.
- Use only authorized accessories. Using non  BTECH radio brand accessories may seriously damage your handheld transceiver and void your warranty.
- Do not spill liquid of any kind into your radio. If the transceiver gets wet, immediately dry it by a soft and clean cloth.
- Switch the radio off before you clean it. Follow the directions described in the paragraph "Care and maintenance".

SAFETY

- Handle the battery properly. Never place the LI-ion battery in your pocket or purse with loose coins, keys, or metal objects. This could result in short circuiting the battery.
- Be certain that your power source matches the rating listed for the supplied battery charger (AC adapter). If you are not sure, check with your authorized  BTECH dealer.
- Avoid damaging the power cable of the battery charger. Do not step on or place anything on it as this could result in a damaged charger power cord. This product complies with the requirements of the Council Directives 89/336/EEC and 73/23/EEC on the approximation of the laws of the member states relating to electromagnetic compatibility and low voltage.

WARNING

Your wireless hand-held portable transceiver contains a low power transmitter. When the Push-to-Talk (PTT) button is pressed it sends out radio frequency (RF) signals. The device is authorized to operate at a duty factor not to exceed 50% TX and 50% RX.

In August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for hand-held wireless devices. To maintain compliance with the FCC's RF exposure guidelines, this transmitter and its antenna must maintain a separation distance of least 2 inches from your face. Speak in a normal voice, with the antenna pointed up and away from the face at the required separation distance. The belt clip is for storage purposes only.

AVOID TRANSMITTING ON HIGH POWER WHILE RADIO IS ATTACHED TO YOUR BELT. To transmit, hold the device away from your body and ensure the antenna is at least 2 inches from your body when transmitting.

12. TECHNICAL SPECIFICATIONS

General		
Frequency Range	Europe: 144-146MHz(V),430-440MHz(U) United States: 136-174MHz(V),400-480MHz(U) Australia: 144-148MHz(V), 420-450MHz(U) India: 144-146MHz(V), 436-438MHz(U)	
Channel Capacity	4000 channels	
Channel Spacing	25KHz (Wide Band) , 12.5KHz (Narrow Band)	
Phase-locked Step	5KHz, 6.25KHz	
Operating Voltage	7.4V DC $\pm 20\%$ /(2100mAh/3100mAh)	
Frequency Stability	± 2.5 ppm	
Operating Temperature	$-20^{\circ}\text{C} \sim +55^{\circ}\text{C}$	
Size	129×61×39mm (with battery pack)	
Weight	282g (with battery pack, antenna)	
Receiver Specifications		
	Wide band	Narrow band
Sensitivity(12dB SINAD)	$\leq 0.25\mu\text{V}$	$\leq 0.35\mu\text{V}$
Digital Sensitivity	0.3uV/-117.4dBm (BER 5%) 0.7uV/-110dBm (BER 1%)	
Adjacent Channel Selectivity	$\geq 70\text{dB}$	$\geq 60\text{dB}$
Spurious Emission	$\leq -57\text{dB}$	$\leq -57\text{dB}$
Spurious Rejection	$\geq 70\text{dB}$	$\geq 70\text{dB}$
Blocking	84db	
Hum & Noise	$\geq 45\text{dB}$	$\geq 40\text{dB}$
Audio Distortion	$\leq 5\%$	
Audio Power Output	1000mW/16Ω	
Transmitter Specifications		
	Wide band	Narrow band
Power Output	VHF: 7/5/2.5/1W, UHF: 6/5/2.5/1W	
Modulation	$\pm 5.0\text{KHz}@25\text{KHz}$	$\pm 2.5\text{KHz}@12.5\text{KHz}$
Adjacent Channel Power	$\geq 70\text{dB}$	$\geq 60\text{dB}$
Hum & Noise	$\geq 40\text{dB}$	$\geq 36\text{dB}$
Spurious Emission	$\leq -36\text{dBm}$	$\leq -36\text{dBm}$
4FSK Digital Modulation	12.5KHz (data) 7K60FXD 12.5KHz (data+voice) 7K60FXE	
Audio Distortion	$\leq 5\%$	
Error rate	$\leq 3\%$	

