



DIGITAL MOBILE RADIO

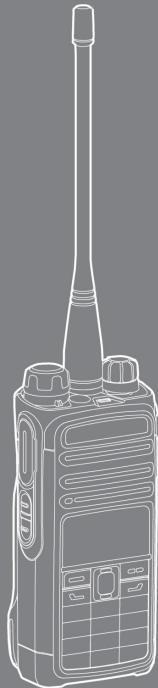
PD48X USER MANUAL

Welcome to the world of Hytera and thank you for purchasing this product. This manual includes a description of the functions and step-by-step procedures for use. It also includes a troubleshooting guide. To avoid bodily injury or property loss caused by incorrect operation, please carefully read the *Safety Information Booklet* before use.

This manual is applicable to the following product:

PD48X Digital Portable Radio (X may represent 2, 5, 6 or 8)

DIGITAL PORTABLE RADIO



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FCC statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Verification of harmful interference by this equipment to radio or television reception can be determined by turning it off and then on. The user is encouraged to try to correct the interference by one or more of the following measures:

I Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a different circuit to that of the receiver's outlet.

Consult the dealer or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation.

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

Compliance with RF Exposure Standards

The radio complies with the following RF energy exposure standards and guidelines:

United States Federal Communications Commission, Code of Federal Regulations; 47 CFR § 1.1307, 1.1310 and 2.1093

American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1:2005; Canada RSS102 Issue 5 March 2015

Institute of Electrical and Electronic Engineers (IEEE) C95.1:2005
Editing

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environmental exposure limits, always adhere to the following procedures.

Guidelines:

Do not remove the RF Exposure Label from the device.

User awareness instructions should accompany device when transferred to other users.

Do not use this device if the operational requirements described herein are not met.

Operating Instructions:

Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), press the **Push-to-Talk (PTT)** key. To receive calls, release the **PTT** key. Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy only when transmitting (in terms of measuring for standards compliance).

Keep the radio unit at least 2.5 cm away from the face. Keeping the radio at the proper distance is important as RF exposure decreases with distance from the antenna. The antenna should be kept away from the face and eyes.

I When worn on the body, always place the radio in an approved holder, holster, case, or body harness or by use of the correct clip for this product. Use of non-approved accessories may result in exposure levels which exceed the FCC's occupational/controlled environmental RF exposure limits.

I Use of non-approved antennas, batteries, and accessories causes the radio to exceed the FCC RF exposure guidelines.

I Contact your local dealer for the product's optional accessories.

IC Statement

The device has been tested and complies with SAR limits, users can obtain Canadian information on RF exposure and compliance.

After examining this equipment for compliance with SAR limits and/or RF field strength limits, users can obtain the radio frequency exposure and compliance and compliance related information

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:

I This device may not cause harmful interference.

I This device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) the device may not cause interference, and (2) the user of the device must accept any interference received, even if the interference is likely to compromise the functioning

EU Regulatory Compliance

As certified by the qualified laboratory, the product is in compliance with the essential requirements and other relevant provisions of 2014/53/EU.

Please note that the above information is applicable to EU countries only.

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Packing list

Please unpack carefully and check that you have received the following items. If any item is missing or damaged, please contact your dealer.

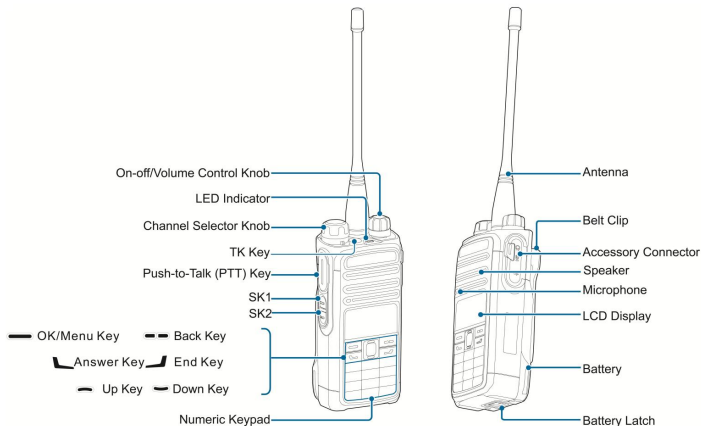
Item	Quantity (PCS)	Item	Quantity (PCS)
Radio	1	Antenna	1
Battery	1	belt clip	1
Load	1	Strap	1
power adapter	1	Literature Kit	1



Note

Check whether the frequency band on the antenna label matches that on the radio label. If not, please contact your dealer.

Product Controls



Note

You can request your dealer to program the following keys as shortcuts to radio features: **TK** key, **SK1** key, and **SK2** key. Please consult your dealer for assignable radio features.

Before Use

Charging the Battery

Caution

I Use the approved charger to charge the battery. I Read the *Safety Information Booklet* before charging.

Before initial use, fully charge the battery to ensure optimum performance.

To charge the battery, do as follows:

1. Insert the output connector of the power adapter into the port on the back of the charger.
2. Plug the power adapter into a power outlet.
3. Place the battery into the charger, and then switch the power outlet on.

To determine the charging status, check the light-emitting diode (LED) indicator on the charger according to the following table:

LED indicator	Charging Status
Flashes red slowly	The battery fails to make proper contact with the charger.
glow red	The battery is charging.

LED indicator	Charging Status
orange glows	The battery is charged to 90% or above.
glow green	The battery is fully charged.
Flashes red rapidly	The battery fails to be charged.

Note

You can also charge the radio with battery attached. It is recommended that your radio remain turned off during charging.

Attaching the Battery



Note

To remove the battery, make sure that the radio is turned off, and then slide the battery latch upwards.

Attaching the Antenna

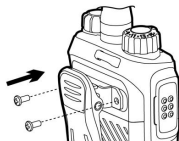


Caution

Do not hold the radio by the antenna, because it may reduce the radio performance and life span of the antenna.

Attaching the Belt Clip

1. Use a Phillips screwdriver to turn the screws counter-clockwise on the back of the radio and remove them.
2. Align the screw holes on the belt clip with those on the back of the radio.
3. Put the screws back in place as shown below, and use the Phillips screwdriver to turn them clockwise until hand tight.



Attaching the Audio Accessory

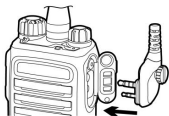
Caution

For optimal waterproof and dustproof performance, close the accessory connector cover and fasten the screw when no accessory is attached.

1. Open the accessory connector cover.

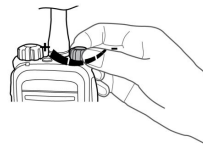


2. Plug the accessory into the accessory connector.



3. Rotate the screw on the accessory plug clockwise until hand tight.


Adjusting the Volume



Locking or Unlocking Keypad When the keypad is not in use, it is recommended that you lock it to avoid accidental operations.

To lock or unlock the keypad manually, do one of the following from the home screen:

1 Press the preprogrammed **Keypad Lock** key. 1

Press the **OK/Menu** key and then press .

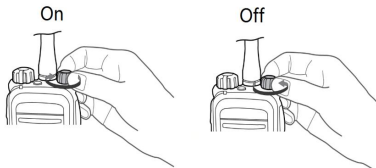
To allow the keypad to be locked automatically, enable the Keypad Lock feature as follows:

1. Go to **Menu > Settings > Radio Set > Keypad Lock**.
2. Select **Enable**, and set **Delay Time** by pressing the **Up** or **Down** key.

To disable this feature, select **Disable** under the **Keypad Lock** menu.

Basic Operations

Turning On or Off the Radio



**Note**

In addition, you can go to **Menu > Settings > Radio Set > Optional Key** to set whether the corresponding keys and knobs still work when the keypad is locked.

Inputting via Keypad

You can input aliases, contact numbers or messages via the keypad of the radio.

Here are some useful tips:

I To switch the input method between alphabetic mode and numeric mode, press

I To enter special characters, press numeric in alphabetic gold mode in mode.

I To enter a space, press in alphabetical mode.

Selecting a Zone

A zone is a group of channels with the same property. The radio supports up to 16 zones, with a maximum of 16 channels per zone. To select a zone, do one of the following:

I Go to **Menu > Zone**, press **Up** or **Down** key to select a zone, and then press **OK/Menu** key to switch to the selected zone. I Press the preprogrammed **Zone Up** or **Zone Down** key to switch to the selected zone.
















Selecting a Channel

Data and voices are received and transmitted on a channel. You can rotate the **Channel Selector** knob to select the channel.

Status Indication

LCD Icons

icon	Radio Status
DM	Direct Mode: The radio transmits and receives directly.
RM	Repeater Mode: The radio transmits and receives through a repeater.
	The number of bars indicates the charge left in the battery.
	There is no signal.
	The number of bars indicates the signal strength.
	The radio is set at low power.

icon	Radio Status
	The radio is set at high power.
	An accessory is connected.
	The radio is roaming.
	The radio is scanning.
	The radio stays on a non-priority channel.
	The radio stays on priority channel 1.
	The radio stays on priority channel 2.
	The Monitor feature is enabled.
	The speaker is turned on.
	There is/are missed call(s).
	There is/are unread short message(s).
	The InBox is full.
	A private call is in progress or a private contact is on the contact list.
	A group call is in progress or a group contact is on the contact list.
	An all call is in progress or an all call contact is on the

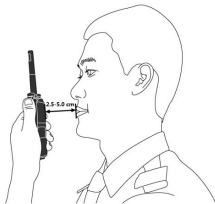
icon	Radio Status
	contact list.

LED Indications

LED indicator	Radio Status
Green flashes	Being turned on.
glow green	Receiving.
glow red	Transmitting.
Flashes orange slowly	Scanning or roaming.
orange glows	Call hang time: No voice is being transmitted or received on the channel during a call. Within such a period, you can press and hold the PTT key and speak.

Call Services

When you are speaking during a call, keep the microphone about 2.5 to 5 cm away from your mouth. This ensures optimal voice quality on the receiving radio.



Call on Digital Channel

You can initiate or receive the following types of calls on a digital channel:

I Private call: a call from an individual user to another individual user.

I Group call: a call from an individual user in a group to all the other members in the group.

I All call: a call from an individual user to all the other users on the current channel.

You can request your dealer to enable all call feature.

Making a Call

You can make a call in any of the following ways:


I Preset Contact

1. Rotate the **Channel Selector** knob to select the required channel.
2. Press and hold the **PTT** key to call the private contact, group contact, or all call contact preset for the selected channel.

I Contact List or Call Log




1. Press the **OK/Menu** key.
2. Go to **Contact > Contact List / Favorite Contact or Call Logs > Outgoing/Incoming/Missed > Outgoing List/Incoming List/Missed List**.
3. Press the **Up** or **Down** key to select the required contact.
4. Press and hold the **PTT** key to call the selected contact.

I Manual Dial

1. Go to **Menu > Contact > Manual Dial**.
2. Press  to switch the display between the private contact or the group contact.
3. Input a contact number and press and hold the **PTT** key to make a call.




I One Touch Call

1. Press the preprogrammed **One Touch Call** Key.
2. Press and hold the **PTT** key to call the contact.

The radio displays , , and  for an outgoing private call, group call, and all call respectively.

Receiving and Responding to a Call

When receiving a call, you can listen to it without any operation.

The radio displays , , and  for an incoming private call, group call, and all call respectively.

You can press and hold the **PTT** key and speak within call hang time.

Ending a Call

The radio will end a call when the call hang time expires.

Call on Analog Channel You can initiate

or receive a call on an analog channel with or without signaling.

Call Without Signaling A call

without signaling is a call made to all the other users on an analog channel without signaling.

To initiate a call without signaling, do as follows:

1. Rotate the **Channel Selector** knob to select the required channel.
2. Press and hold the **PTT** key, and speak into the microphone.

Call With Signaling On an

analog channel with signaling, you can make a call to a specific contact on the channel. Do as follows:

1. Rotate the **Channel Selector** knob to select the required channel.
2. Press the **OK/Menu** key, and go to **Contact > Contact List**.
3. Select the target contact.
4. Press and hold the **PTT** key, and speak into the microphone.

Message Services

The Message feature allows you to view, send, and delete messages.

Viewing a Message

To view received messages or sent messages, do as follows:

1. Press the **OK/Menu** key, and then go to **Message > InBox/OutBox > InBox List/Outbox List**.
2. Select the required message.

Sending a Message You can

send a message or a quick text message, forward a message from the InBox or OutBox, and resend a message from the OutBox.

Sending a New Message 1. Go to **Menu**

> **Message > New Msg**, and then type the text using the keypad.

2. Press the **OK/Menu** key, and then select **Send**.
3. Select the target contact, and then press the **OK/Menu** key.

Sending a Quick Text Message A quick

text message is a frequently used message predefined by your dealer. To send a quick text message, do as follows:

1. Press the **OK/Menu** key, and then go to **Message > Quick Text**.
2. Select the required quick text, and then press the **OK/Menu** key.
3. Select **Send**, and then select the target contact.
4. Press the **OK/Menu** key.

Deleting a Message

To delete a message from the InBox or OutBox, do as follows:

1. Go to **Menu > Message > InBox/OutBox > Inbox List/Outbox List**.
2. Select the required message, and then press the **OK/Menu** key.
3. Select **Delete**, and then press the **OK/Menu** key.

To delete all messages from the InBox or OutBox, do as follows:

1. Go to **Menu > Message > InBox/OutBox**.
2. Select **Delete All**, and then press the **OK/Menu** key.

Supplementary Features

Basic Settings

You can press the **OK/Menu** key, go to **Settings > Radio Set**, and then perform the following operations:

If you want to...	Then...
Switch to or from direct mode	Select Talk Around , and then select Enable or Disable .
Adjust the power level	Select Power Level , and then select one of the following as required: High Power : Enables communication with remote radios but consumes more battery power. Low Power : Enables communication with close radios and saves battery power.
Set the backlight	Select Backlight , and select one of the following as required: Off : The backlight remains off. On : The backlight remains on. Timed : The backlight automatically goes out if no operation or activity is performed within the

If you want to...	Then...
	preset period.
Turn on or off the LED indication	Select LED , and then select Enable or Disable .
Turn on or off a specific tone	1. Select Tone , and then select the required tone. 2. Select On/Off , and then select Enable or Disable .
Turn off all visible and audible indications	Select Covert Mode , and then select On .

Contact Management

You can manage the Favorites list and Contact List.

Adding a Contact

To add a contact to the Contact List, do as follows:

1. Go to **Menu > Contact > New Contact > Input ID/Edit ID**.
2. Enter the ID using the keypad, and then press the **OK/Menu** key.
3. Select **Input Alias/Edit Alias**, and enter the alias using the keypad.
4. Press the **OK/Menu** key, and then select **Save**.

To add a frequently used contact to the Favorites list, do as follows:

1. Go to **Menu > Contact > Favorites > Add Contact**.
2. Select the required contact, and press the **OK/Menu** Key.

**Note**

The ID and alias of a new contact must be unique.

Deleting a Contact

To delete a contact from one of the above lists, do as follows:


1. Select the required contact from the corresponding list.
2. Select **Delete Contact**, and then press the **OK/Menu** key.

scan

The Scan feature allows you to listen to activities on a channel, keeping track of your team members. With this feature enabled, the radio searches the scan list preset for the current channel and stays on a channel with activities.

Turning On or Off the Scan Feature

To turn on or off the Scan feature, go to **Menu > Scan > Scan On/Off**, and then select **On** or **Off**.

With the Scan feature enabled, the radio displays , and the LED indicator slowly flashes orange. When detecting activities on a channel, the radio stays on it, and the LED indicator glows green. When the radio stays

on a non-priority channel, it displays . When the radio stays on a priority channel 1 or 2, it displays .

Selecting a Scan List

To select a scan list, do as follows:

1. Go to **Menu > Scan > Scan List**.
2. Select the required scan list, and then press the **OK/Menu** key.

Time-out Timer

The Time-out Timer (ToT) feature allows the radio to stop transmission automatically and keep beeping when the period preset by your dealer expires. To stop beeping, release the **PTT** key. You need to wait for a certain period (also preset by your dealer) to start transmission again.

This feature aims to prevent a radio user from occupying a channel for an extended period and to avoid radio damage due to overheating.

Busy Channel Lockout

The Busy Channel Lockout feature allows the radio to keep beeping when you press and hold **PPT** key when the current channel is occupied by other radios. When the current channel is idle, you can transmit by pressing and holding **PPT** key.

The Busy Channel Lockout feature aims to prevent interference from other radio on the same channel during transmission.

Real-time Clock

Real-time Clock allows you to view and set time on the radio. With Real time Clock enabled, the home screen displays time in the format of HH:MM; with Real-time Clock disabled, it displays --:--.

! To enable or disable time display, go to **Date and Time > Time Display**; ! To view time, date, and week, go to **Date and Time > Time View**;

! To set time and date, go to **Date and Time > Time Settings**; ! To change time format, go to **Date and Time > Time Format**; ! To change time zone, go to

Date and Time > Time Zone.

Voice Operated Transmit

The Voice Operated Transmit (VOX) feature allows you to transmit voice without pressing and holding the **PTT** key. The radio automatically transmits voice when the volume reaches the preset level. A higher gain level indicates lower sensitivity, which requires higher volume for triggering transmission.

To turn on or off this feature, press the **OK/Menu** key, go to **Settings > Radio Set > VOX > On/Off**, and then select **On** or **Off**.

To set the sensitivity of the external or internal microphone, press the **OK/Menu** key, go to **Settings > Radio Set > VOX**, and then select the appropriate level.

Digital Services

One Touch Call

The One Touch Call feature allows you to press the preprogrammed **One Touch Call** key to quickly access a service assigned by your dealer. Tea available services are as follows:

Department Type	Description
Voice Service	To initiate a group or private call.
Data Service	To send a quick text message.

room

The Roam feature allows you to enjoy seamless communication across sites or networks.

To turn on or off this feature, press the **OK/Menu** key, go to **Roam > Roam On/Off**, and then select **On** or **Off**.

To select a roam list, press the **OK/Menu** key, go to **Roam > Roam List**, and then select the required list.

Analog Services

Setting the Squelch Level

The squelch level refers to the squelch threshold required for the radio's speaker to be turned on.

Generally, a higher squelch level requires higher signal strength. The squelch level includes Low, Normal and Tight.

To set the squelch level, do one of the following:

1 Press the **OK/Menu** key, go to **Settings > Radio Set > Squelch**, and then select **Low**, **Normal**, or **Tight** as required.

1 Press the programmed **Setting the Squelch Level** Key.

Turning On or Off the Monitor Feature

The Monitor feature allows the radio to receive weak signals.

To turn on or off this feature, press the preprogrammed **Monitor** key.

Setting the CTCSS/CDCSS Feature

The Continuous Tone-Coded Squelch System (CTCSS)/Continuous Digital-Coded Squelch System (CDCSS) feature allows the radio to filter out unwanted voice on the current channel.

You can request your dealer to enable this feature.

Troubleshooting

phenomenon	Analysis	Solution
You cannot turn on the radio.	The battery may be installed improperly.	Remove and reattach the battery.
	The battery power may run out.	Recharge or replace the battery.
	The battery may suffer from poor contact caused by dirty or damaged battery contacts.	Clean the battery contacts or replace the battery.
During receiving, the voice is weak or intermittent.	The battery voltage may be low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume.
	The antenna may be loose or may be installed incorrectly.	Turn off the radio, and then remove and reattach the antenna.
	The speaker may be blocked.	Clean the surface of the speaker.
You cannot communicate with other group members.	The frequency or signaling type may be inconsistent with that of other members.	Verify that your TX/RX frequency and signaling type are correct.
	The channel type (digital or analog) may be set incorrectly. Verify that you are on the correct digital or analog channel.	
	You may be too far away from other members.	Move towards other members.
You hear unknown voices or noise.	You may be interrupted by radios using the same frequency. Change the frequency, or adjust the squelch level.	
	The radio in analog mode may be set with no signaling.	Request your dealer to set signaling for the current channel to avoid interference.

phenomenon	Analysis	Solution
You are unable to hear anyone because of too much noise and hiss.	You may be too far away from other members.	Move towards other members.
	You may be in an unfavorable position. For example, your communication may be blocked by high buildings or blocked in an underground area.	Move to an open and flat area, restart the radio, and try again.
	It may be the result of external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.
The radio keeps transmitting.	The PPT/VOX key of the earpiece is toggled from PPT to VOX .	Plug earpiece again or switch channel.
The OLED does not display any information.	The OLED may not work temporarily.	Restart the radio.
You cannot use the keys.	The keypad may not work temporarily.	Restart the radio.

If the above solutions cannot fix your problems, or you may have some other queries, please contact your dealer for more technical support.

Care and Cleaning

To guarantee optimal performance as well as a long service life of the product, please follow these tips.

Product Care

- I Do not pierce or scrape the product.
- I Keep the product far away from substances that can corrode the circuitry.
- I Do not hold the product by the antenna or earpiece cable.
- I Close the accessory connector cover when no accessory is in use.

Product Cleaning



Note

Turn off the product and remove the battery before cleaning.

- I Clean up the dust and fine particles on the product surface and charging piece with a clean and dry lint-free cloth or a brush regularly.
- I Use neutral cleanser and a non-woven fabric to clean the keys, knobs, and front case after long-time use. Do not use chemical preparations such as stain removers, alcohol, sprays or oil preparations, so as to avoid surface box damage.
- I Make sure the product is completely dry before use.

Optional Accessories

Contact your local dealer for the optional accessories used with the product.



Caution

Use the approved accessories only; otherwise, we will not be liable for any loss or damage arising out of the use of any unauthorized accessories.

Abbreviations

Abbreviation	Full Name
CDCSS	Continuous Digital-Coded Squelch System
CTCSS	Continuous Tone-Coded Squelch System
DM	Live Mode
LEDs	Light emitting diode
OLED	Organic Light-emitting Diode
PTT	push to talk
RM	Repeater Mode
SK	Side Key

Abbreviation	Full Name
TK	Top Key
EARLY	Time-out Timer
VOX	Voice Operated Transmit

**Note**

Existing devices should be upgraded to Hytera's iM or iS firmware before being used as part of a system. For details about upgrade, contact your Hytera dealer.



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