Preface
Thanks for your favor in our product. This manual is helpful for you to quickly know how to use the product. To avoid body injury or property loss caused by misoperation, please read the Safety Information Booklet carefully before use.

This manual is applicable to the following product:
PD41X Digital Portable Radio (X may represent 2, 5, 6 or 8)
Icon Conventions

- Indicates functions that are available on digital channel only.
- Indicates functions that are available on analog channel only.

Functions marked with no icon are available on both analog and digital channels.

Disclaimer

Hytera Communications Corporation Limited (the Company) endeavors to achieve the accuracy and completeness of this manual, but no warranty of accuracy or reliability is given. All the specifications and designs are subject to change without notice due to continuous technology development. No part of this manual may be copied, modified, translated, or distributed in any manner without the express written permission of us. We do not guarantee, for any particular purpose, the accuracy, validity, timeliness, legitimacy or completeness of the Third Party products and contents involved in this manual.

If you have any suggestions or would like to learn more details, please visit our website at: http://www.hytera.com.

RF Radiation Information

This product must be restricted to operations in an occupational/controlled RF exposure environment. Users must be fully aware of the hazards of the exposure and able to exercise control over their RF exposure to qualify for the higher exposure limits.

RF Radiation Profile

Radio Frequency (RF) is a frequency of electromagnetic radiation in the range at which radio signals are transmitted. RF technology is widely used in communication, medicine, food processing and other fields. It may generate radiation during use.

RF Radiation Safety

In order to ensure user health, experts from relevant industries including science, engineering, medicine and health work with international organizations to develop standards for safe exposure to RF radiation. These standards consist of:

- American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992;
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999;
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998;

FCC Regulations

Federal Communication Commission (FCC) requires that all radio communication products should meet the requirements set forth in the above standards before they can be marketed in the U.S, and the manufacturer shall post a RF label on the product to inform users of operational instructions, so as to enhance their occupational health against exposure to RF energy.

Operational Instructions and Training Guidelines

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit not more than 50% of the time and always adhere to the following procedures:

- RF energy will be generated only when the radio is transmitting.
- The radio must be at least 2.5 centimeters away from human body when transmitting.
Contents

Items in the Package ..................................................1
Product Overview .....................................................2
  Product Controls ..................................................2
  Programmable Keys ...............................................3
Before Use .............................................................3
  Attaching the Battery ..............................................3
  Attaching the Antenna ............................................3
  Attaching the Belt Clip ..........................................4
  Attaching the Accessories ......................................4
  Charging the Battery ..............................................4
  Checking the Battery Power ...................................5
Status Indication .....................................................5
  LED Indicator .....................................................5
  Basic Operation ..................................................6
  Turning the Radio On/Off .......................................6
  Adjusting the Volume ............................................6
  Selecting a Zone ..................................................6
  Selecting a Channel ..............................................6
Call Services ..........................................................7
  Call on Digital Channel .......................................7
  Call on Analog Channel ........................................7
Features and Operations ...........................................8
  Power Level .......................................................8
  Covert Mode .....................................................8
  Time-out Timer (TOT) ...........................................8
  Busy Channel Lockout .........................................8
  Scan ...............................................................9
  Talk Around .....................................................9
  One Touch Call ..................................................9
  Squelch Level Adjustment ....................................10
  Monitor ...........................................................10
  CTCSS/ CDCSS ...................................................10
  Squelch Off .....................................................10
  TDMA Direct Mode ..............................................11
  VOX ..............................................................11
  Auto Mode Switch ..............................................12
  RF ID Patrol .....................................................12
Troubleshooting ......................................................13
Care and Cleaning ..................................................14
Optional Accessories ...............................................15
Please unpack carefully and check if all items listed below are received.

If any item is missing or damaged, please contact your dealer.

The frequency band is marked on the label of antenna; if not, please refer to the label on the radio for frequency band information.

All pictures in this manual are for reference only.
Product Overview

Product Controls

- Power On/Off/Volume Control Knob
- LED Indicator
- Channel Selector Knob
- PTT (Push-to-Talk) Key
- Speaker
- SK1 (Side Key 1)
- SK2 (Side Key 2)
- Battery
- Antenna
- Accessory Connector
- Belt Clip
- Microphone
- Battery Latch
Programmable Keys
For enhanced convenience, you may request your dealer to program the SK1 and SK2 keys as shortcuts to certain feature.

Product Overview

Before Use

Attaching the Battery
To attach the battery, do as follows.

1. To remove the battery, please turn off the radio first. Then slide the battery latch upwards to unlock the battery.

Note

Attaching the Antenna

Caution

Do not hold the radio by its antenna, otherwise the performance and lifespan of the antenna will be reduced.
Before Use

Attaching the Belt Clip

1. Remove the screws
2. Assemble the Belt Clip

Attaching the Accessories

1. 
2. 
3. 

Charging the Battery

- Make sure the radio is powered off before charging.
- Read the Safety Information Booklet in advance to get necessary safety information.

Caution:
- Charge a new battery for at least 5 hours before initial use for best performance.

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>🟥 The LED Indicator flashes red slowly</td>
<td>📉 Standby (no load)</td>
</tr>
<tr>
<td>🟥 The LED Indicator glows red</td>
<td>🚁 Charging</td>
</tr>
<tr>
<td>🟥 The LED Indicator glows orange</td>
<td>🍃 90% charged</td>
</tr>
<tr>
<td>🍃 The LED Indicator glows green</td>
<td>🌿 Fully charged</td>
</tr>
<tr>
<td>⚠️ The LED Indicator flashes red rapidly</td>
<td>⚠️ Charging error</td>
</tr>
</tbody>
</table>
Before Use

Checking the Battery Power
You may check the current battery power by holding down the programmed Battery Power Indicator key preset by your dealer. And release the key to exit. Battery power indications are listed below:

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Battery Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LED indicator</td>
<td>High</td>
</tr>
<tr>
<td>The LED indicator</td>
<td>Medium</td>
</tr>
<tr>
<td>The LED indicator</td>
<td>Low</td>
</tr>
<tr>
<td>The LED indicator</td>
<td>Under the low battery threshold.</td>
</tr>
</tbody>
</table>

LED Indicator

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Product Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LED indicator flashes green</td>
<td>Powering on</td>
</tr>
<tr>
<td>The LED indicator glows green</td>
<td>Receiving</td>
</tr>
<tr>
<td>The LED indicator glows red</td>
<td>Transmitting</td>
</tr>
<tr>
<td>The LED indicator flashes orange slowly</td>
<td>Scanning</td>
</tr>
<tr>
<td>The LED indicator glows orange</td>
<td>Call hang period.</td>
</tr>
</tbody>
</table>

No voice is being transmitted or received on the traffic channel during a call. Within such period, you can hold down the PTT key to talk to the other party.
Basic Operation

Turning the Radio On/Off

ON
“click”

OFF
“click”

Adjusting the Volume

Selecting a Zone

A zone is a group of channels with the same property, which can facilitate convenient management over the channels. The radio supports three zones, each of which consists of up to 16 channels. You can switch to the appropriate zone by pressing the programmed Zone Up or Zone Down key preset by your dealer.

If the Zone Notify feature is enabled by your dealer, the radio will announce the zone number when selecting zone.

Selecting a Channel

After the radio is powered on, you can rotate the Channel Selector Knob to select an appropriate channel.

If the Channel Notify feature is enabled by your dealer, the radio will announce the channel number upon channel switching.
After the radio is powered on, you can make and receive calls. To ensure optimal volume of the receiving radio, keep the microphone about 2.5 to 5 centimeters away from your mouth when transmitting.

- **Private call**: It is a voice call between one individual user and another individual user.
- **Group call**: It is a voice call between one individual user and a predefined group of users. All parties in the group can communicate with each other.
- **All call**: It is a one-way voice call from any user to all users on a channel.

### Call on Digital Channel

You can initiate a private call, group call or all call (your radio must be programmed to allow you to use the all call service) through the same operations on digital channel. When calling back, the radio will make a call to the calling party in private call; but in group call, the radio will make a call to all parties involved when calling back. And you cannot call back in an all call.

Here takes the private call between Radio A and Radio B for example:

1. Radio A and B select the same digital channel.
2. You may preset a regular private call/group call/all call contact for each digital channel via your dealer.
3. Radio A holds down the PTT key to initiate a call.
4. Radio A can talk to the microphone when the LED indicator on the radio glows red and release the PTT key to finish talking.
5. Radio B can receive the call without any operation. When receiving, the LED indicator glows green.
6. Radio B can hold down the PTT key to talk when the LED indicator on the radio is glowing orange.
7. Radio A can receive the call without any operation. When receiving, the LED indicator glows green.

**The Call Hang Time (the duration of LED indicator glowing orange) is preset by your dealer.**

### Call on Analog Channel

The calling operations on the analog channel are the same as that on the digital channel. The difference is that the called parties are all the users on the channel, rather than the preset contact for the channel.
**Power Level**

**Description**
Power Level allows you to set the TX power level. High power can extend the signal coverage, enabling you to communicate with farther radios. Generally, we recommend you to adopt low power for battery saving.

**Operation**
Press the programmed **Adjust Power Level** key to toggle the power level between high and low. When you switch to high power, a high-pitched tone sounds; when you switch to low power, a low-pitched tone follows.

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**Covert Mode**

**Description**
Covert Mode allows you to disable all the visible or audible indications programmed by your dealer, such as the LED indicator, vibration and tones, for communication in covert situations. This feature is mainly used in special missions.

Note: If an audio accessory is connected to the radio, the radio will output the voice and alert tones via the audio accessory when the Covert Mode is enabled.

**Operation**
Press the programmed **Covert Mode** key to enable or disable this feature.

---

**Time-out Timer (TOT)**

**Description**
Time-out Timer (TOT) allows you to set whether the radio will automatically terminate transmission and keep beeping when the TX time (60 seconds by default, and it is programmable via CPS) expires. To stop beeping, please release the PTT key. You must wait for a certain time period (preset by your dealer) before you can hold down the PTT key to transmit again. This feature is to prevent any user from occupying a channel for an extended period and to avoid radio damages due to overheat.

**Operation**
This feature needs to be programmed via CPS by your dealer.

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**Busy Channel Lockout**

**Description**
Busy Channel Lockout can prevent radio user from interfering other transmitting radio users on the same channel. When the channel is busy, the radio will beep when you hold down the PTT key to transmit, indicating the channel is busy. You can hold down the PTT key to transmit when the channel is free.

**Operation**
This feature needs to be programmed via CPS by your dealer.
Scan
Description
Scan allows you to search for channels with ongoing activities and listen to communication activities on other channels so that you can keep a close track of your team members.

Operation
Press the programmed Scan key to enable the Scan feature (a high-pitched tone sounds). Or switch to a channel on which the Auto Scan feature is enabled via the CPS to enable the Scan feature.
After the feature is enabled, the radio will scan all the channels in the scan list set for the channel on which scanning starts. The scanning process is as follows:
1. During scanning, the LED indicator flashes orange slowly.
2. When activities are detected on a channel, the radio will stay on the channel to receive current activities, and the LED indicator will glow green.
3. If you want to continue listening to the activities on the channel, press the programmed Monitor or Squelch Off Momentary key during scan stay.
4. If you want to stop scanning, press the programmed Scan key again (a low-pitched tone sounds).

Note
The radio cannot scan analog channel and digital channel at the same time.

Talk Around
Description
Talk Around allows you to continue to communicate in DMO by pressing the programmed Talk Around key when the repeater malfunctions, or when the radio is out of the repeater’s coverage but still within the coverage of the other radio.

Operation
Press the programmed Talk Around key to enable the feature (a high-pitched tone sounds); press this key again to disable the feature (a low-pitched tone sounds).

One Touch Call
Description
This feature allows you to make calls or send messages to the predefined contact easily. By pressing the programmed One Touch Call key, you can make the following services:
- To initiate group calls or send text messages to the group contact.
- To initiate private calls or send messages to the private contact.
Features and Operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>Service</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To initiate private calls or group calls on the digital channel.</td>
<td>Press the <strong>One Touch Call</strong> key and then hold down the <strong>PTT</strong> key.</td>
</tr>
<tr>
<td></td>
<td>To send text messages</td>
<td>Press the programmed <strong>One Touch Call</strong> key.</td>
</tr>
</tbody>
</table>

**Squelch Level Adjustment**

**Description**
Squelch Level Adjustment allows you to adjust the squelch threshold required for the radio to be unmuted.
Generally, the higher squelch level requires stronger signal. If the squelch level is set to “Open” (squelch level: 0), the speaker will keep unmuted irrespective of the decoding conditions.

**Operation**
Press the programmed **Adjust Squelch Level** key to switch the level among “Tight”, ” Normal” and ” Open”. When switching from “Tight “ to “Open “, a low-pitched tone sounds followed by the background noise; from “Open “ to “Normal “, a high-pitched tone sounds with the background noise fading; from “Normal “ to “Tight “, a high-pitched tone sounds.

**Monitor**

**Description**
Monitor allows you to set whether the radio can receive the weak signals in order to monitor the radio.

**Operation**
Press the programmed **Monitor** key to enable the feature (a high-pitched tone sounds); press this key again to disable the feature (a low-pitched tone sounds).

**CTCSS/ CDCSS**

**Description**
CTCSS/CDCSS allows the radio to add signaling with a frequency lower than that of the audio to the carrier. The speaker can be unmuted only when the CTCSS/CDCSS received by the receiving party is matched with that transmitted by the transmitting party.

**Operation**
Enable or disable this feature via CPS by your dealer.

**Squelch Off**

**Description**
Squelch Off allows the speaker of the radio to keep unmuted no matter whether carrier is present.
Operation

- Press the programmed Squelch Off key to enable the feature (a high-pitched tone sounds) and sounds background noise. Press this key again to disable the feature (a low-pitched tone sounds).

- Press the programmed Squelch Off Momentary key to enable the feature (a high-pitched tone sounds) and sounds background noise. Press this key again to disable the feature (a low-pitched tone sounds).

TDMA Direct Mode

Description

TDMA Direct Mode allows the radio to divide the 12.5 kHz channel into two alternative slots in direct mode. If the radio operates on a channel with this feature enabled and one time slot is already occupied, it can transmit and receive in the other free time slot.

Operation

Enable or disable this feature via CPS by your dealer. With this feature enabled, you can manually switch to a digital channel in TDMA Direct Mode or enter the TDMA Direct Mode by powering on the radio on a digital channel in TDMA Direct Mode.

VOX

Description

VOX allows you to trigger the voice transmission by speaking directly without holding down the PTT key. When the voice detected by the microphone (either external or internal microphone) reaches the volume to trigger the transmission, it will be transmitted automatically.

Caution

- To use the VOX feature with an external microphone, make sure the PTT/VOX switch is switched to “VOX” before the radio is powered on and the VOX feature is enabled.
- The VOX feature will be enabled for all the channels.
- The VOX feature settings will not remain unchanged when the radio is powered on and off.
- After the VOX feature is enabled, switching the PTT/VOX switch to “PTT” will disable the feature. In such case, switching the PTT/VOX switch to “VOX” will keep the radio transmitting. To make the radio function properly, reattach the earpiece to enable the feature again.

Operation

Switch the PTT/VOX switch to “VOX” and attach the earpiece to the radio. Press the programmed VOX key to enable this feature. The VOX gain level can be programmed via CPS by your dealer.
Auto Mode Switch

Description
Auto Mode Switch allows the channel with this feature to be configured with digital and analog parameters at the same time, to receive digital or analog voice calls, and to call back after switching to digital or analog mode automatically.

Operation
The mixed channel with Auto Mode Switch feature can be programmed by your dealer via CPS. To enable Auto Mode Switch feature, switch to the mixed channel manually or turn on the radio on the mixed channel.

RF ID Patrol

Description
RF ID Patrol allows the radio to read the information of patrol point or ID card when the radio moves towards the patrol point or ID card. The information of patrol point or ID card together with internal time of the radio will be saved into the radio. According to the CPS configurations, the radio will send the information in text message format to the message receiving device of the management center through the specific digital channel, which is finally connected to PC. PC will process these text messages or the stored information exported from the radio in back-stage management software, so as to realize information collection and management of the patrol points.

Operation
1. The dealer will program a digital channel for message sending with message receiving device of the management center via CPS.
2. Open the back-stage management software of PC and make sure that it is connected to the message receiving device properly.
3. Move the radio towards the ID card or patrol point device to read the ID card information. The radio will beep once and send text message to the message receiving device of the management center automatically.
4. The message receiving device will send ACK back after receiving the message.
5. The radio will beep four times after receiving the ACK, indicating successful patrolling.
<table>
<thead>
<tr>
<th>Phenomena</th>
<th>Analysis</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The radio cannot be powered on.</td>
<td>The battery may be improperly installed.</td>
<td>Remove the battery and reattach it.</td>
</tr>
<tr>
<td></td>
<td>The battery power may run out.</td>
<td>Recharge or replace the battery.</td>
</tr>
<tr>
<td></td>
<td>The battery may suffer from poor contact caused by dirtied or damaged battery contacts.</td>
<td>Clean the battery contacts. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.</td>
</tr>
<tr>
<td></td>
<td>The battery may suffer from poor contact caused by dirtied or damaged battery contacts.</td>
<td>Clean the battery contacts. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.</td>
</tr>
<tr>
<td></td>
<td>The battery voltage may be low.</td>
<td>Recharge or replace the battery.</td>
</tr>
<tr>
<td></td>
<td>The volume level may be low.</td>
<td>Increase the volume.</td>
</tr>
<tr>
<td></td>
<td>The antenna may get loose or may be improperly installed.</td>
<td>Power off the radio, and reattach the antenna.</td>
</tr>
<tr>
<td></td>
<td>The speaker may be blocked or damaged.</td>
<td>Clean the surface of the speaker. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.</td>
</tr>
<tr>
<td></td>
<td>The frequency or signaling may be inconsistent with that of other members.</td>
<td>Set your TX/RX frequency and signaling to the same as that of other members.</td>
</tr>
<tr>
<td></td>
<td>The channel type (digital and analog) may be set inconsistently.</td>
<td>Make sure all members are on the same digital/analog channel.</td>
</tr>
<tr>
<td></td>
<td>You may be too far away from the group members.</td>
<td>Move towards other members.</td>
</tr>
<tr>
<td></td>
<td>You may be interrupted by radios using the same frequency.</td>
<td>Change the frequency, or adjust the squelch level.</td>
</tr>
<tr>
<td></td>
<td>The radio may be set without signaling.</td>
<td>Set signaling for all member radios to avoid interference at the same frequency.</td>
</tr>
<tr>
<td></td>
<td>You may be too far away from other members.</td>
<td>Move towards other members.</td>
</tr>
<tr>
<td></td>
<td>You may located in an unfavorable position. For example, your communication may be blocked by high buildings or frustrated in the underground areas.</td>
<td>Move to an open and flat area, and restart the radio.</td>
</tr>
<tr>
<td></td>
<td>You may suffer from external disturbance (such as electromagnetic interference).</td>
<td>Stay away from equipment that may cause interference.</td>
</tr>
</tbody>
</table>

If the above solutions cannot fix your problems, or you may have some other queries, please contact us or your local dealer for more technical support.
To guarantee optimal performance as well as a long service life of the product, please follow the tips below.

**Product Care**

- Do not pierce or scrape the product.
- Keep the product far away from substances that can corrode the circuit.
- Do not hold the product by its antenna directly.
- Do not hold the product by its earpiece cable directly.
- Attach the accessory connector cover when the accessory is not in use.

**Product Cleaning**

⚠️ **Caution**: Turn off the product and remove the battery before cleaning.

- 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.
- Use neutral cleanser and a non-woven fabric to clean the keys 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 case damage.
- Make sure the product is completely dry before use.
### Optional Accessories

The following items are the main optional accessories for the product, and please consult your local dealer for more other accessories.

**Caution**
Use the accessories specified by the Company only. If not, the Company shall not be liable for any losses or damages arising out of use of unauthorized accessories.

<table>
<thead>
<tr>
<th>Power Supply:</th>
<th>MCA08 MCU Multi-unit Rapid-rate Charger (for Li-Ion/Ni-MH batteries), CH10A06 Dual-Pocket MCU Charger Kit (for Li-Ion/Ni-MH battery, including Dual-Pocket Charger and Switching Power), PS7501 AC/DC Adaptor, MCA05 Battery Optimizing System, BL2010 2000mAh Li-Ion battery</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cable:</th>
<th>PC76 Programming &amp; Download Cable</th>
</tr>
</thead>
</table>