PD405
Digital Portable Radio
OWNERS MANUAL



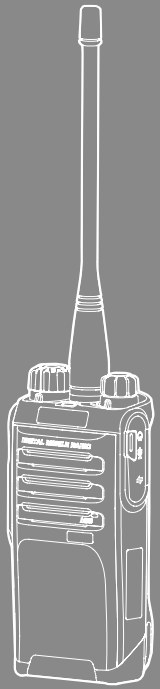

Hytera
海能达

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:
PD40X Digital Portable Radio (X may represent 2, 5, 6 or 8)

DIGITAL PORTABLE RADIO



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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:

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J;
- 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.

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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 ---- 8
- 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 ---- 11

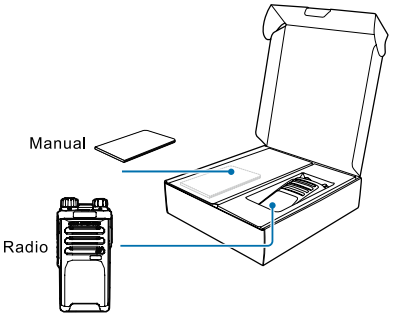
Troubleshooting ---- 12
Care and Cleaning ---- 13
Optional Accessories ---- 14

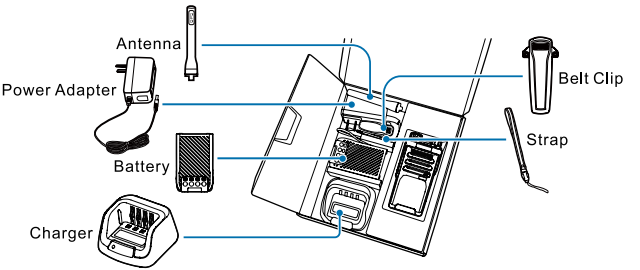
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Items in the Package

Please unpack carefully and check if all items listed below are received. If any item is missing or damaged, please contact your dealer.

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



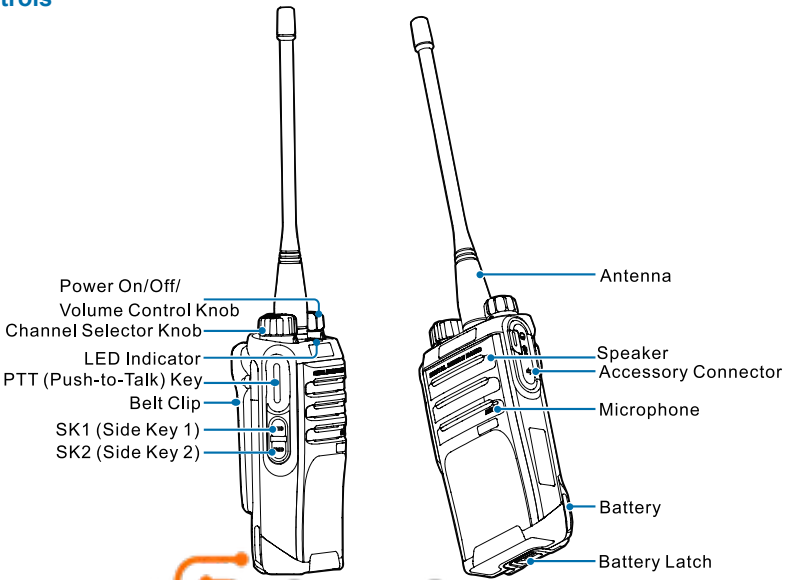


Note All pictures in this manual are for reference only.

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Product Overview

Product Controls

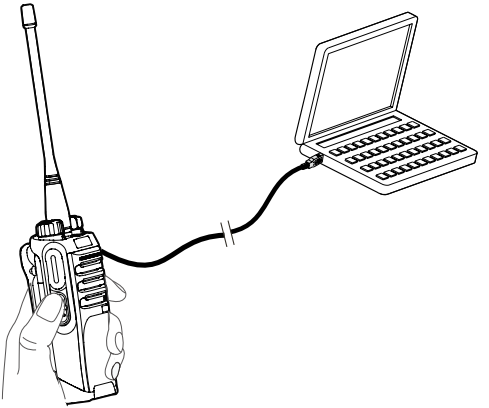


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Product Overview

Programmable Keys

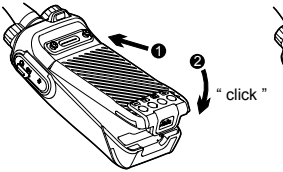
For enhanced convenience, you may request your dealer to program the **SK1** and **SK2** keys as shortcuts to certain feature.



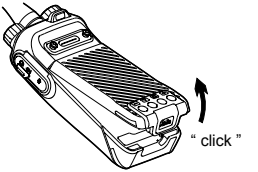
Before Use

Attaching the Battery

To attach the battery, do as follows.



Assemble



Disassemble

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

Attaching the Antenna



Assemble

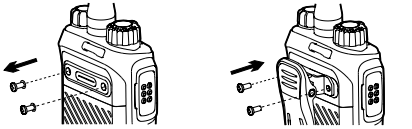


Disassemble

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

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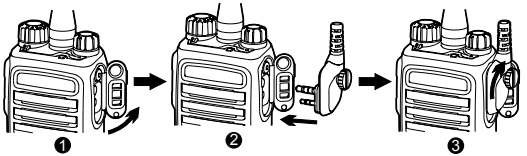
Attaching the Belt Clip



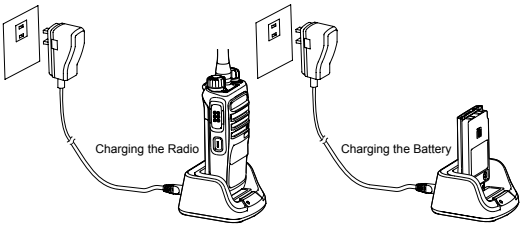
Remove the screws

Assemble the Belt Clip

Attaching the Accessories



Charging the Battery



LED Indication	Current Status
The LED Indicator flashes red slowly	Standby (no load)
The LED Indicator glows red	Charging
The LED Indicator glows orange	90% charged
The LED Indicator glows green	Fully charged
The LED Indicator flashes red rapidly	Charging error

Caution

- Make sure the radio is powered off before charging. Read the Safety Information Booklet in advance to get necessary safety information.
- Charge a new battery for at least 5 hours before initial use for best performance.

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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:



LED Indication	Battery Power
The LED indicator glows green	High
The LED indicator glows orange	Medium
The LED indicator glows red	Low
The LED indicator glows red and low battery alert sounds	Under the low battery threshold. Charge or replace the battery for proper radio operation

Status Indication

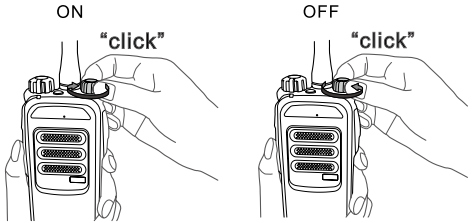
LED Indicator



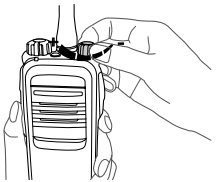
LED Indication	Product Status
The LED indicator flashes green	Powering on
The LED indicator glows green	Receiving
The LED indicator glows red	Transmitting
The LED indicator flashes orange slowly	Scanning
The LED indicator glows orange	Call hung period. No voice is being transmitted or received on the traffic channel during a call. Within such period, you can hold down the **PTT** key to talk to the other party.

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Turning the Radio On/Off



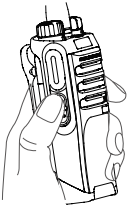
Adjusting the Volume



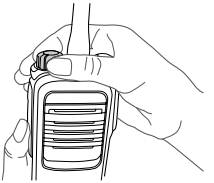
Selecting a Zone

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 Zone



Selecting a Channel

Selecting a Channel

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

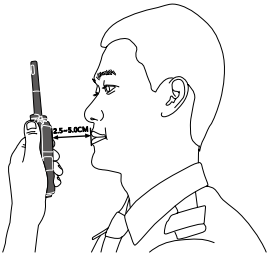
If the Channel Notify feature is enabled by your dealer, the radio will announce the channel number upon channel switching.

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Call Services

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

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.

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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.

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

This feature is to prevent any user from occupying a channel for an extended period and to avoid radio damages due to overheat.

Operation

If the TX time (60s preset by dealer) expires, the radio will automatically terminate transmission and keep beeping. 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.

Busy Channel Lockout

Description

Busy Channel Lockout can prevent radio user from interfering other transmitting radio users on the same channel.

Operation

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.

Scan

Description

Scan allows you to search for channels with ongoing activities and listen

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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.

Operation

Service	Operation
To initiate private calls or group calls on the digital channel.	Press the **One Touch Call** key and then hold down the PTT key.
To send text messages	Press the programmed **One Touch Call** key.

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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).

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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

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

Follow the instructions below when using the VOX feature:

- 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.

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

To enable Auto Mode Switch feature, switch to the mixed channel manually or turn on the radio on the mixed channel.

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Troubleshooting

Phenomena	Analysis	Solution
The radio cannot be powered on.	The battery may be improperly installed.	Remove the battery and reattach it.
	The battery power may run out.	Recharge or replace the battery.
	The battery may suffer from poor contact caused by dirtied or damaged battery contacts.	Clean the battery contacts. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.
During receiving, the voice is weak, discontinuous or totally inactive.	The battery voltage may be low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume.
	The antenna may get loose or may be improperly installed.	Power off the radio, and reattach the antenna.
	The speaker may be blocked or damaged.	Clean the surface of the speaker. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.
You cannot communicate with other members.	The frequency or signaling may be inconsistent with that of other members.	Set your TX/RX frequency and signaling to the same as that of other members.
	The channel type (digital and analog) may be set inconsistently.	Make sure all members are on the same digital/analog channel.
	You may be too far away from the group members.	Move towards other members.
Irrelevant communication or noise is heard on the channel.	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.
	The radio may be set without signaling.	Set signaling for all member radios to avoid interference at the same frequency.
The noise is too loud.	You may be too far away from other members.	Move towards other members.
	You may locate in an unfavorable position. For example, your communication may be blocked by high buildings or frustrated in the underground areas.	Move to an open and flat area, and restart the radio.
	You may suffer from external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.

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

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Care and Cleaning

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.

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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.

Power Supply:	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
Audio:	EAM13 3-wire Surveillance Earpiece with VOX & Transparent Acoustic Tube (Black), ESM14 Remote Earbud, EAM17 Remote Earpiece with Transparent Acoustic Tube, EHM20 Remote Swivel Earset, EHM19 Remote C-Earset, SM26M1 Remote Speaker Microphone, SM13M1 Remote Speaker Microphone (IP55)
Cable:	PC76 Programming & Download Cable
Carrying Accessories:	NCN011 Nylon Carrying Case (Half-folded)(Non-swivel)(Black), LCBN13 Universal Chest Pack (Nylon)(Black)

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