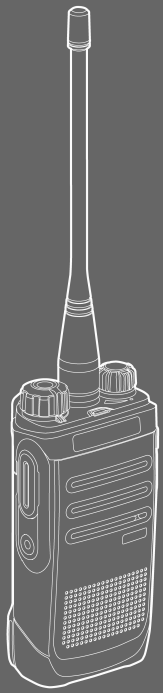
Hytera

DIGITAL PORTABLE RADIO

BD50X USER MANUAL

SyncComms

DIGITAL PORTABLE RADIO



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:

BD50X Digital Portable Radio (X may represent 2, 5, 6 or 8)

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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:

- 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:

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- 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 Edition

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.
- 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.
- Use of non-approved antennas, batteries, and accessories causes the radio to exceed the FCC RF exposure guidelines.
- Contact your local dealer for the product's optional accessories.

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EU Regulatory Conformance

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, contact your dealer.

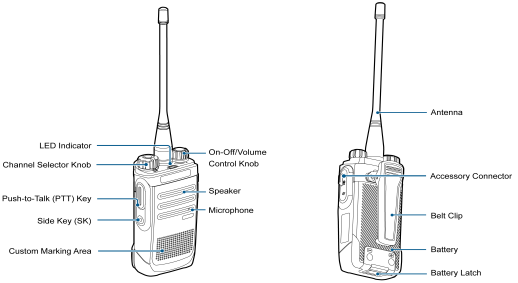
Item	Quantity (PCS)	Item	Quantity (PCS)
Radio	1	Antenna	1
Battery	1	Belt Clip	1
Charger	1	Strap	1
Power Adapter	1	Documentation Kit	1

NOTE

- Check whether the frequency band marked on the antenna label matches that on the radio label. If not, contact your dealer.
- Figures in this manual are for reference only.

Product Overview

Product Layout



Programmable Key

For enhanced convenience, you can request your dealer to program **SK** as a shortcut to a radio feature. Consult your dealer for assignable radio features.

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LED Indications

LED Indicator	Radio Status
Flashes green	The radio is being turned on.
Glows green	The radio is receiving.
Glows red	The radio is transmitting.
Flashes orange slowly	The radio is scanning.
Glows orange	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.

Before Use

Charging the Battery

CAUTION

- Read the *Safety Information Booklet* before charging.
- Use the approved charger to charge the battery.
- The remaining lithium-ion battery power is limited to 30% pursuant to the new lithium battery shipment regulation approved by International Air Transport Association (IATA).

Before initial use, make sure to charge the battery. You can charge either the standalone battery or the radio with battery attached. It is recommended that the radio remain powered off during charging.

The LED indicator on the charger shows the charging status. For details, see the following table.

LED Indicator	Charging Status
Glows red	The battery is being charged.
Glows orange	The battery is charged to 85% or more.
Glows green	No battery is placed on the charger, or the battery is fully charged.

Attaching the Battery

1. Push the battery latch to , and then remove the battery cover.
2. Inset the top of the battery into the slot, and then press the bottom of the battery toward the radio until the battery is securely inserted.
3. Put the battery cover back in place, and then push the battery latch to .

NOTE

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

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Attaching the Antenna

CAUTION

Do not hold the radio by the antenna and swing it. This may affect the antenna performance and shorten the life span of the antenna.

1. Align the threaded end of the antenna with antenna connector.
2. Rotate the antenna clockwise until hand tight.

Attaching the Belt Clip

1. Use a screwdriver to remove the screws on the back of the radio.
2. Align the screw holes on the belt clip with those on the back of the radio.
3. Put the screws back in place, and then use the screwdriver to tighten them.

Attaching the Audio Accessory

CAUTION

For optimal waterproof and dustproof performance, do 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.

Checking the Battery Power

To check the battery power, press and hold the preprogrammed **Battery Power Indicator** key. The following table lists the battery power indications.

LED Indicator	Alert Tone	Battery Power
Glows green	Three beeps	High
Glows orange	Two beeps	Medium
Glows red	One beep	Low
Glows red	Low battery tone	Under the low battery threshold. Recharge or replace the battery.

Basic Operations

Turning the Radio On or Off

To turn the radio on or off, rotate the **On-Off/Volume Control** knob clockwise or counterclockwise until a click is heard.

Adjusting the Volume

To increase or decrease the volume, rotate the **On-Off/Volume Control** knob clockwise or counterclockwise.

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Selecting a Zone

A zone is a group of channels within the same operational area. The radio supports up to 3 zones, each of which contains up to 16 channels.

To select a zone, press the preprogrammed **Zone Up** or **Zone Down** key.

Selecting a Channel

To select a channel, rotate the **Channel Selector** knob.

If the Channel Notify feature is enabled, the radio automatically announces the current channel upon power-on and channel change.

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:

- Private call: a call from an individual user to another individual user.
- Group call: a call from an individual user in a group to all the other members in the group.
- All call (enabled by your dealer): a call from an individual user to all other users on the current channel.

Initiating a Call

- On the home screen, rotate the **Channel Selector** knob to select the required channel, and then press and hold the **PTT** key to initiate a call to the private/group/all call contact preset on the channel.
- If the One Touch Call feature is configured by your dealer, press the preprogrammed **One Touch Call** key, and then press the **PTT** key to initiate a call to a private or group contact.

Receiving and Responding to a Call

You can listen to an incoming call without any operation.

To respond to a private or group call, press and hold the **PTT** key within the preset time.

Ending a Call

- A private/group call ends when the call hang time expires.
- An all call ends when the calling party releases the **PTT** key.

Call on Analog Channel (Without Signaling)

You can initiate a call to all other users on the current analog channel. The operations are the same as those on digital channel.

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Supplementary Features

Feature	Description	Operation
Power Level	The feature allows you to set the TX power level of the radio to High or Low. High level strengthens the TX signal. Low level saves the battery power.	Press the preprogrammed **Power Level Adjust** key to adjust the power level.
Scan	The feature allows you to listen to activities on other channels, keeping track of your group members. With the feature enabled, the radio searches the scan list preset for the current channel. After detecting activities on a channel, the radio stays on it.	Press the preprogrammed **Scan** key to enable or disable the feature. If a channel is configured with Scan, the radio automatically scans when switching to the channel.
Emergency	The feature allows you to ask for help from your companion or the control center in case of emergency. With the highest priority, you can initiate an emergency call whenever your radio is transmitting or receiving.	Press the preprogrammed **Emergency On** key to initiate an emergency call to the preset contact. With the Alarm w/Call to Follow feature enabled, you can talk in an emergency call by speaking into the microphone without pressing the **PTT** key.
VOX	The 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. To set the desired sensitivity of the microphone transmission, consult your dealer to configure the VOX Gain Level.	You can use the feature with the earpiece with VOX. To enable the VOX feature, do as follows: 1 . Toggle the **PTT/VOX** switch on the earpiece to **VOX**, and insert the earpiece into radio. 2 . Press the preprogrammed **VOX** key on radio. If a channel is configured with VOX, the radio automatically

Feature	Description	Operation
		enables the feature when switching to the channel. To disable the VOX feature, toggle the switch to **PTT**.
Talk Around	The feature allows you to continue communication in DMO mode, when the repeater malfunctions or your radio is out of the repeater's coverage.	Press the preprogrammed **Talk Around** key to change between DMO and repeater mode.
Busy Channel Lockout	The feature prevents you from talking on a channel that is already in use. The radio keeps beeping if you press and hold the **PTT** key when the current channel is occupied by other radios.	The feature is enabled by default.
Keypad Lock	The feature allows you to lock the keypad or knobs to avoid unintended operations, when they are not in use.	Press the preprogrammed **Keypad Lock** key to enable or disable the feature.

Feature	Description	Operation
TOT	The feature allows the radio to automatically stop transmission and keep beeping when the preset period (60s by default) expires. To stop beeping, release the **PTT** key. You need to wait for a certain preset period to initiate a call again. In this way, the feature prevents a channel from being occupied for an extended period and avoids potential radio damage caused by overheating.	The feature is enabled by default.
Battery Save	The feature allows the radio to automatically enter Battery Save mode if no carrier is detected or no transmission is made within a certain period.	The feature is enabled by default.
Adjust Squelch Level	The feature allows you to adjust the squelch threshold required for the radio to be unmuted.	Press the preprogrammed **Adjust Squelch Level** key to adjust the level.

Feature	Description	Operation
	Generally, the higher squelch level requires stronger signal for the radio to be unmuted. The squelch level includes Low, Normal and Tight.	
Monitor	The feature allows the radio to receive more signals or weak signals, which helps you to recognize the weak voice in the speaker.	Press the preprogrammed **Monitor** key to enable or disable the feature.
Scrambler	The feature allows the radio to invert the frequency spectrum of transmitted audio signals. Only the receiving radio with the same scrambler setting can restore the audio signals. This prevents eavesdropping and ensures communication privacy.	Press the preprogrammed **Scrambler** key to enable or disable the feature. If a channel is configured with Scrambler, the radio automatically enables the feature when switching to the channel.

Feature	Description	Operation
CTCSS/ CDCSS	The feature allows the radio to play the voice only when the received CTCSS/CDCSS matches the transmitted CTCSS/CDCSS.	Consult your dealer to enable this feature.

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Troubleshooting

Phenomena	Analysis	Solution
The radio cannot be turned on.	The battery may be installed incorrectly.	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 reception, the voice is weak, intermittent 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 be loose or may be installed incorrectly.	Turn off the radio, and 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 signal strength may be low in comparison to other members.	Verify your TX/RX frequency and signal strength are correct.
	The channel type (digital or analog) may be set incorrectly.	Verify you are on the correct digital or analog channel.
	You may be too far away from other members.	Stay close with other members.
Unknown voices 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 in analog mode may be set with no signaling.	Request your dealer to set signaling for all radios operating at the same frequency, and make sure that all members share the same signaling.

Phenomena	Analysis	Solution
During receiving, you hear 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 undergound 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.	You may toggle the **PTT/VOX** switch on the earpiece with VOX feature to **VOX**.	Reinsert the earpiece or switch to another channel.
You hear unclear voice.	The signal is poor.	Make sure call participants are within the communication range.

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

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 circuitry.
- Do not hold the product by the antenna or earpiece cable.
- Close the accessory connector cover when no accessory is in use.

Product Cleaning

CAUTION

Turn the product off 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, 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 case damage.
- If the radio is used in a harsh environment (such as sea and salt frog), periodically clean and dry the radio.
- Make sure the product is completely dry before use.

Optional Accessories

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

CAUTION

Use the accessories specified by Hytera only; otherwise, we will not be liable for any loss or damage arising out of the use of any unauthorised accessories.

Abbreviations

Abbreviation	Full Name
LED	Light-emitting Diode
PTT	Push-to-Talk
SK	Side Key

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Address: Hytera Tower,Hi-Tech Industrial Park North,9108#Beihuan Road,
Nanshan District,shenzhen,People's Republic of China
Postcode:518057
http://www.hytera.com

