

Preface



Thanks for your favor in our product. This manual is helpful for you to quickly know how to use the product. Please refer to the corresponding Feature Book for detailed features and operations.

This manual is applicable to the following product:

[MD65X Digital Mobile Radio](#)

(X may represent 0,2, 5, 6 or 8)

Instructional Icons

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

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

Disclaimer

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 Environments. 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.

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. such modifications could void the user's authority to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and 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.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

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:

- Antenna gain must not exceed 5.5dBi for UHF or 5.5dBi for VHF.
- The antenna installation must comply with the requirements of manufacturer or supplier, and it must be 1.08 meter away from human body.
- To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures; and should transmit no more than

50% of the time, although the hardware support transmission up to 100% of the time in analog mode and up to 50% in digital mode.

EU Regulatory Conformance

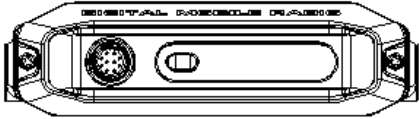

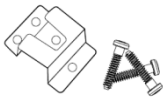
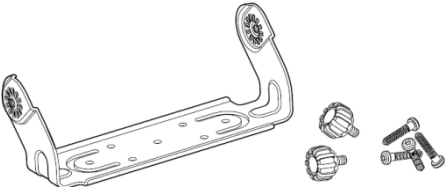




EU Regulatory Conformance

The equipment is in compliance with the essential requirements and other relevant provisions of the Directive 1999/5/EC.

CE 0678

1. Items in the Package

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

		
<p>Radio Unit</p>	<p>Remote Speaker Microphone</p>	<p>Hanger and Screws for Remote Speaker Microphone</p>
		
<p>Mounting Bracket Kit</p>	<p>Fuse</p>	<p>GPS Antenna</p>
		
<p>Power Cord</p>	<p>Documentation Kit</p>	



Note:

- The GPS antenna is the standard accessory for the MD65X with GPS feature. The frequency band is marked on the label of antenna; if not, please refer to the label on the radio for frequency band information.
- If not particularly specified, the remote speaker microphone mentioned in this manual indicates that in the item list.

2. Product Overview

2.1 Radio Unit



Caution:

- GPS antenna connector is for MD65X mobile radio with GPS feature only.
- Do not block the ventilation hole of the fan.
- Clean the fan regularly.
- Do not use stop the fan with hard objects such as screwdriver to avoid fan damage.
- Do not touch the fan when it operates to avoid bodily injury.

2.2 Remote Speaker Microphone

For enhanced functionality, you may request your dealer to program the **TK**, **P1** and **P2** key as shortcut to certain feature. You may refer to the corresponding Feature Book for feature details.



Caution: By default, the **TK** key short press is set as the programmed **Emergency On** key while long press is set as the programmed **Emergency Off** key.

3. Installation

3.2 Instructions

Before you install the product in a vehicle, be sure to read the following instructions carefully:

- The product operates with cathode-grounded power supply of 13.6V±15% only. Please check the polarity and voltage of the power supply on the vehicle before you install the product.
- Please check how long the screws will extend from the bottom surface of the product before installation. Drill the mounting hole cautiously to avoid damage to the vehicle wiring and other parts.
- Please connect Hytera supplied antenna and power cord to the product, before you install it in the bracket. And make sure the antenna and power cord are dedicated for Hytera digital radios.
- Install the product with Hytera supplied mounting bracket, to avoid product looseness in case of accidents. The loose product may cause bodily injury.
- Install the product in a location where it's easy to reach the front panel controls.
- Please make sure there's sufficient space at the back of the product for wiring.
- Be sure to use the fuse with the same specification for DC power cord upon replacement.
- If another piece of equipment is nearby, such as a repeater, make sure there is at least 10 meters between the antenna of this product and the antenna of that equipment.

3.3 Tools

- Drill
- Cross head screwdriver
- Hex socket sleeve (for 4.8×20mm self-tapping screws assembling)

3.4 Operation

Follow the steps below to install the product:

1. Install the **bracket** in a location where it's easy to operate the product.
2. Connect accessories such as the **antenna** and **power cord** to the product.
3. Slide the **product** into the properly mounted bracket and secure it using the locking knobs.
4. Install the **remote speaker microphone hanger** in a location where it can be reached conveniently.
5. Plug the **remote speaker microphone** connector into the microphone connector on the front panel, but at first align the triangle index on the **remote speaker microphone** with the microphone installation index on the microphone connector. Place the remote speaker microphone on the hanger when you do not use it.












The assembly parts of the product are listed below:

No.	Part Name	No.	Part Name
1	Radio Unit	8	Power Interface
2	Locking Knobs	9	Power Cord (black)
3	Mounting Bracket	10	Power Cord (red)
4	4.8×20mm Self-tapping Screws	11	Fuse
5	Remote Speaker Microphone	12	RF Antenna Connector
6	4×16mm Self-tapping Screws	13	GPS Antenna Connector
7	Remote Speaker Microphone Hanger	/	/

4. Indications

The LCD display and LED indicators on the remote speaker microphone indicate the operation status of the radio.

4.2 LCD Icon

Icon Name	Icon Display	Product Status
RSSI Icon		More bars indicate better signal strength.
GPS Icon		The GPS feature is enabled, and valid GPS data is received.
		The GPS feature is enabled, but no valid GPS data is received.
Scan Icon		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.
Roam Icon		The radio is roaming.
Volume Icon		More bars indicate higher volume.
Channel Icon	CHXX	Indicates the current channel. "XX" denotes the channel number, such as "CH01".
Zone Icon	ZONEXX	Indicates the current zone. "XX" denotes the zone number, such as "ZONE01".
TX Power Icon		Low power in current channel.
		High power in current channel.

4.3 LED Indicator

LED Indication	Product Status
The LED indicator flashes	Powering on.

LED Indication	Product Status
green.	
The LED indicator glows red.	Transmitting.
The LED indicator glows green.	Receiving.
The LED indicator flashes orange slowly.	Scanning or roaming.
The LED indicator flashes orange rapidly.	Emergency.
The LED indicator glows orange.	The call is established successfully and you can hold down the PTT key to talk.


5. Basic Operation



5.2 Powering On/Off

Method 1

Method 2

5.3 Adjusting the Volume


步骤 3 Press the  key on the remote microphone speaker until the icon  is shadowed.

步骤 4 Press the  key to lower the volume and press the  key to increase it.

5.4 Selecting a Zone

You can include a group of channels with the same property into a zone for convenient management. The radio supports 64 zones, each of which consists of up to 16 channels.

To select a zone, do as follows:

步骤 1 Press the  key on the remote microphone speaker until ZONEXX (e.g. ZONE01) is shadowed.

步骤 2 Press the  key to select a zone.

5.5 Selecting a Channel

步骤 1 Press the  key on the remote microphone speaker until CHXX (e.g. CH01) is shadowed.



步骤 2 Press the  key to select a channel.

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

5.6 Setting TX Power Level

This feature is to set the TX power level to high or low. 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. However, if you cannot communicate with radios located at a distant place with low power, please select high power.

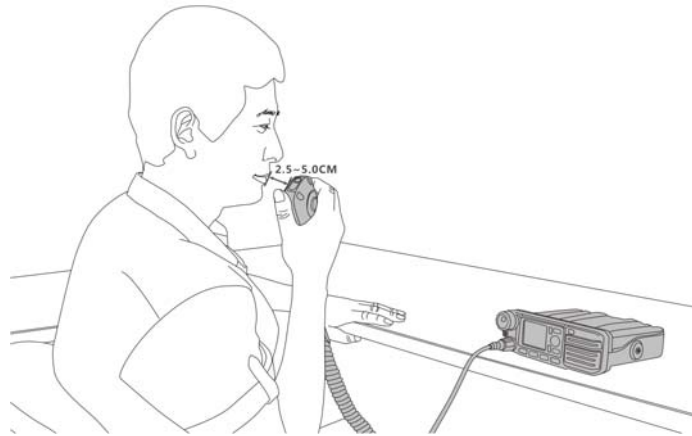
To set the TX power level, do as follows:

步骤 1 Press the  key on the remote microphone speaker until the TX power level icon (e.g. ) is shadowed.

步骤 2 Press the /  key to switch power level.

6. Initiating a Call

After the radio is powered on, you can make different kinds of calls. To ensure optimal volume of the receiving radio, keep the microphone about 2.5 to 5 centimeters away from your mouth when transmitting.



6.2 Calling 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 and all call (your radio must be programmed to allow you to call back in an all call); but in group call, the radio will make a call to all parties involved when calling back. Here takes the private call between Radio A and Radio B as example:

1. Radio A and B select the same digital channel.
2. Radio A holds down the **PTT** key to initiate a call.

You may preset a regular private call/group call/all call contact for each digital channel via your dealer.

3. By holding down the **PTT** key, Radio A can talk to the microphone when the LED indicator on the radio glows red.
4. Radio A releases the **PTT** key to finish talking.
Radio A can hold down the **PTT** key to talk when the LED indicator on the radio is glowing orange.
When receiving, the LED indicator on the radio glows green.
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.

 **Note:**

The Call Hold Time (the duration of LED indicator glowing orange) is preset by your dealer. If neither party talks before this duration expires, the call will end.










6.3 Calling on Analog Channel (No Signaling)

On the analog channel without signaling, the calling operations 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.

Please refer to the corresponding Feature Book for calling operations on the analog channel with signaling.

7. Feature Description

Available features of this radio are listed below. Please refer to the corresponding Feature Book for details.

Feature Type	Detailed Feature
Radio Features	<ul style="list-style-type: none"> ● Radio setting: Power Level, LED Indicator and Alert Tone ● Convenient functionality: Shortcuts, One Touch Call and VOX ● Security: Lone Worker ● Rent ● Audio Optimization ● Positioning
Conventional Common Features	<ul style="list-style-type: none"> ● Scan ● Talk Around
Digital Features 	<ul style="list-style-type: none"> ● Access management <p>7.2 Calling on Digital Channel </p> <ul style="list-style-type: none"> ● Basic voice services: Private Call and Group Call (See {0>数字信道呼叫  <}100{Calling on Digital Channel  in this manual) <p>7.3 Calling on Digital Channel </p> <ul style="list-style-type: none"> ● Auxiliary voice services: All Call (See {0>数字信道呼叫  <}100{Calling on Digital Channel  in this manual) and Phone ● Security ● Supplementary services ● Patented features ● Mobility management
Analog Features 	<ul style="list-style-type: none"> ● Access management <p>7.4 Calling on Analog Channel (No Signaling) </p>

Feature Type	Detailed Feature
	<ul style="list-style-type: none"> ● Voice services (See {0>模拟信道呼叫（无信令）<}100{>Calling on Analog Channel (No Signaling) in this manual) ● Security ● Signaling
Features Developed with Third Party	<ul style="list-style-type: none"> ● API ● Accessory Connector

8. Troubleshooting

Phenomena	Analysis	Solution
Power-on Failure.	The power cord may be disconnected.	Properly connect the power cord.
During receiving, the voice is weak, discontinuous or totally inactive.	Low volume level.	Increase the volume via the remote speaker microphone.
	The antenna may be loosened or improperly installed.	Turn off the product, re-install the antenna and turn it on again.
	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.
Unable to communicate with other members in analog mode.	The frequency or signaling does not match that of other members.	Set your TX/RX frequency and signaling to the same as that of other members.
	You may be too far away from the group members.	Move towards other members.
In digital mode, there's RX indication on the radio, but unable to communicate with other members.	The digital carrier can be received but cannot be demodulated due to inconsistent ID with that of other members.	Sets the same ID of other members.
Irrelevant communication or noise is heard on the channel.	You may be interrupted by radios using the same frequency.	Adjust the squelch level.
	The radio may be set with no signaling.	Set your radio with signaling to avoid interference at the same frequency, and make sure that all members share the same signaling.
The noise is too	You may be too far away from	Move towards other members, and then try

Phenomena	Analysis	Solution
loud.	other members.	again.
	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 to try again.
	You may suffer from external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.
No indication on the LCD of the remote speaker microphone.	The LCD may fail to function temporarily.	Restart the radio or reassemble the remote speaker microphone.
GPS positioning failure.	The GPS antenna may be connected improperly.	Properly connect the GPS antenna.
	GPS signals cannot be received due to unfavorable position.	Move to an open and flat area to try again.

If the above solutions cannot fix the problems, or there are other questions, please contact Hytera or the dealer for more technical support.

9. 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 or earpiece cable directly.
- Attach the accessory connector cover when the accessory is not in use.

Product Cleaning




Caution: Turn off the product and disconnect the power supply 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.

10. Optional Accessories

The following items are the main optional accessories for the radio. For more information of other accessories, please consult your local dealer.

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

Accessory Type	Model/Name
Power Supply	PS22002 Vehicle Power Supply (220W, backup power applicable)
Audio	SM09D1 External Speaker
Cable	PC37 10-Pin Connector Programming Cable (USB port)
	PC47 Programming Cable (USB port)
	PC49 Back-to-back Data Cable
Others	Omni-directional Antenna