



OWNER'S MANUAL

INTRINSICALLY SAFE DIGITAL PORTABLE RADIO



is the trademark or registered trademark of Hytera Communications Corporation Limited.

© 2014 Hytera Corp., Ltd. All Rights Reserved.

Address: HYT Tower, Hi-Tech Industrial Park North, Beihuan
RD., Nanshan District, Shenzhen, China

Postcode: 518057

<http://www.hytera.com>





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:

PD70X/70XG Intrinsically Safe Digital Portable Radio (X may represent 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 neither the above icons 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 2.5 centimeters away from human body when transmitting.

EU Regulatory Conformance

As certified by the qualified laboratory, the product is in compliance with the essential requirements and other relevant provisions of the Directive 1999/5/EC.

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

Intrinsically Safe Radio Information (Exi)

Equipment marking

SGS

I.S Class I, II,III, Division 1, Group C,D,E,F,G ,T4

NI Class I, Division 2, Group A,B,C,D

-30°C to +55°C

Certificate Number

USTC/13/FAI/01689

No Misoperations

Stop operating this product and leave the explosive atmosphere immediately when the safety or integrity of the product is endangered, and deliver it to your local dealer for examination.

These items may endanger the product's safety or integrity:

- The radio is stored improperly;
- The radio is faulty;
- The radio works with overload;
- The radio's operational error or threshold value is out of allowed range.

- The radio is damaged during transportation;
- The radio's housing is obviously damaged or cracked;
- The radio logo or model is hard to be recognized;

Safety Instructions



Caution : To protect you against any property loss, bodily injury or even death, be sure to observe the following safety instructions:

- Use only the Ex-battery BL2411-Ex specified by the Company. The use of other batteries may result in Ex-protection (intrinsic safety) failure.
- Charge the battery in a non-hazardous area only with the designated charger.
- Do not remove the battery from the radio in a hazardous area.
- Do not carry any standby battery into a hazardous area.
- Use the accessories specified by the Company only. Do not replace the accessories in a hazardous area.
- Do not use a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn may result.
- Do not expose the radio to direct sunlight for a long time, nor place it close to a heating source.
- Hold the radio upright and keep its microphone 2.5 to 5 centimeters away from your mouth during use.
- If you wear a radio on your body, ensure its antenna is at least 2.5 centimeters away from your body during transmission.
- Do not attempt to repair and service the radio, batteries and its accessories. Please contact your dealer for repair and servicing.
- Do not disassemble or redo the radio. Unauthorized modification of the radio may result in termination of

Ex-protection (intrinsic safety) of the radio.

- Improper usage of the product other than it is intended to be used for will impair safety of the product, yourself and surrounding environment.
- Do not carry the radio into Zone 0 and 20. Please do not use the radio out of the operating temperature range specification of this product.

Specifications

Item	Specifications
Rated Operating Voltage	DC 7.4V
Max. Operating Voltage	DC 8.4V
Max. Operating Current	2.7A
Dimensions (H * W *D) (with standard battery, without antenna)	125*55*43mm
Weight (with standard antenna & battery)	About 369g
Sensitivity	0.3µV
Rated Audio Power Output	0.5W
Audio Distortion	3%
Ambient Temperature	-30°C to +55°C
Storage Temperature	-40°C to +85°C
Charging Temperature	0°C to +40°C
Battery	Ex-battery BL2411-Ex (2400mAh)
Charging Time	About 4 hours

Compliance Standards

- UL 913 5th Ed. February 21,1997
- CSA C22.2 No. 157-92 (R2012) +UPD1 +UPD2

Informations sur la Radio intrinsèquement sûre (Exi)

Marquage de l'équipement

SGS

I.S Classe I, II, III, Division 1, Groupe C,D,E,F,G ,T4

NI Classe I, Division 2, Groupe A,B,C,D

-30 °C à +55 °C

Numéro de certificat

USTC/13/FAI/01689

Mauvaises utilisations à éviter

Arrêtez d'utiliser ce produit et quittez l'atmosphère explosive immédiatement si la sécurité ou l'intégrité du produit sont compromises, puis retournez-le à votre revendeur local pour vérification.

Voici la liste des éléments susceptibles de compromettre la sécurité ou l'intégrité du produit :

- La radio n'est pas stockée correctement.
- La radio est défaillante.
- La radio fonctionne en surcharge.
- La valeur de seuil ou d'erreur de fonctionnement de la radio se trouve en dehors de la plage autorisée.
- La radio est endommagée au cours du transport.
- Le boîtier de la radio est visiblement endommagé ou fendillé.
- Le logo ou le modèle de la radio sont difficilement reconnaissables.

Instructions de sécurité



Avvertissement : Pour vous protéger contre la perte de biens, les blessures corporelles ou même les risques mortels, assurez-vous de suivre les instructions de sécurité suivantes :

- N' utilisez que la batterie Ex BL2411-Ex spécifiée par l' Entrepise. L' utilisation d' autres batteries peut entraîner une défaillance de la protection Ex (sûreté intrinsèque).
- Chargez uniquement la batterie dans une zone ne présentant aucun risque, à l' aide du chargeur prévu à cet effet.
- Ne retirez pas la batterie de la radio dans une zone à risques.
- Ne transportez pas de batterie de rechange dans une zone à risques.
- Utilisez uniquement les accessoires spécifiés par l' Entrepise. Ne remplacez pas les accessoires dans une zone à risques.
- N' utilisez pas une antenne endommagée. Si une antenne endommagée entre en contact avec votre peau, vous risquez des brûlures superficielles.
- N' exposez pas la radio à la lumière directe du soleil pendant une période prolongée. Ne la placez pas à proximité d' une source de chaleur.
- Tenez la radio en position verticale et gardez le micro à une distance de 2,5 à 5 cm de votre bouche pendant son utilisation.
- Si vous transportez une radio, assurez-vous que son antenne se trouve à une distance minimale de 2,5 cm de votre corps au cours de la transmission.
- N' essayez pas de réparer et d' entretenir la radio, les batteries et les accessoires. Veuillez contacter votre revendeur pour la réparation et l' entretien.
- Ne démontez pas la radio, ne la modifiez pas. Toute modification non autorisée de la radio peut compromettre la protection Ex (sûreté intrinsèque) de la radio.
- Une utilisation incorrecte du produit, autre que dans le cadre de l' utilisation prévue, peut compromettre

la sécurité du produit, votre sécurité et celle de votre environnement.

- Ne transportez pas la radio dans des zones 0 et 20. Veuillez ne pas utiliser la radio en dehors des plages de température de fonctionnement spécifiées pour ce produit.




Spécifications

Élément	Spécifications
Tension nominale de fonctionnement	7,4 V CC
Tension maximum de fonctionnement	8,4 V CC
Intensité maximum de fonctionnement	2,7 A
Dimensions (H×L×P) (avec batterie standard, sans antenne)	125×55×43 mm
Poids (avec antenne et batterie standards)	Environ 369 g
Sensibilité	0,3 µV
Puissance nominale de sortie audio	0,5 W
Distorsion audio	3 %
Température ambiante	-30°C à +55 °C
Température de stockage	-40°C à +85 °C
Température de charge	0°C à +40 °C
Batterie	Batterie Ex BL2411-Ex (2 400 mAh)
Durée de chargement	Environ 4 heures

Normes de conformité

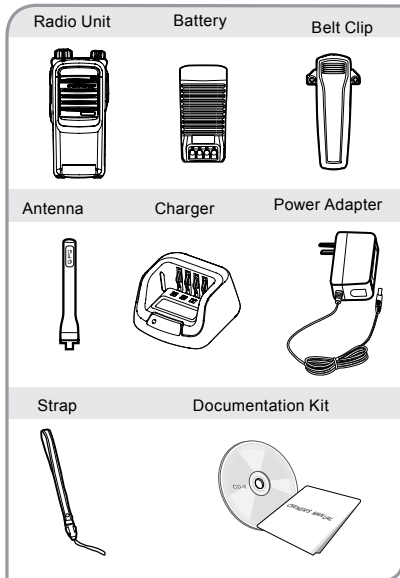
- UL 913 5e éd. 21 février 1997
- CSA C22.2 N° 157-92 (R2012) +UPD1 +UPD2

Instructional Icons

Items in the Package	2
Product Overview	2
Product Control.....	2
Programmable Keys.....	2
Before Use	3
Charging the Battery.....	3
Attaching the Battery.....	3
Checking the Battery Power.....	3
Attaching the Antenna.....	3
Attaching the Belt Clip.....	3
Status Indication	4
LED Indicator.....	4
Basic Operation	4
Powering On/Off.....	4
Adjusting the Volume.....	4
Selecting a Zone.....	4
Selecting a Channel.....	4
Call Services	4
Private Call 	4
Group Call 	5
Call on Analog Channel (No Signaling) 	5
Emergency Call.....	5
Troubleshooting	5
Care and Cleaning	6
Optional Accessories	6

Items in the Package

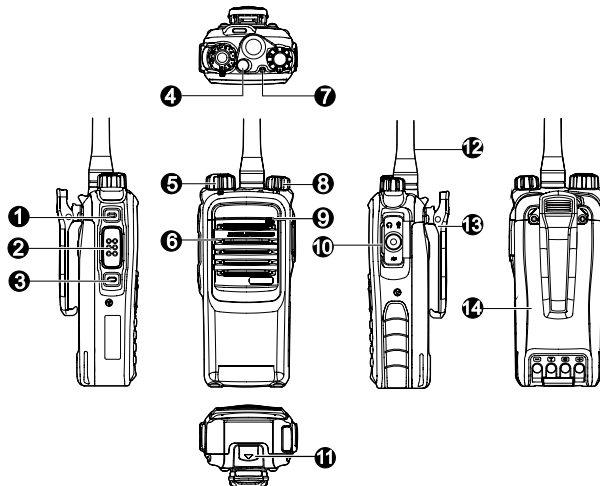
Please unpack carefully and check that all items listed below are received. If any item is missing or damaged, please contact your dealer.



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.


Product Overview

Product Control



No.	Part Name	No.	Part Name
1	SK1 (Side Key 1)	8	Power On-Off/Volume Control Knob
2	PTT (Push-to-Talk) Key	9	Microphone
3	SK2 (Side Key 2)	10	Accessory Connector
4	TK (Top Key)	11	Battery Latch
5	Channel Selector Knob	12	Antenna
6	Speaker	13	Belt Clip
7	LED Indicator	14	Battery

Programmable Keys

For enhanced convenience, you may request your dealer to program the TK (), SK1 and SK2 as shortcuts to certain functions. Please refer to the corresponding Feature Book for more details.



Caution: The TK is programmed with emergency feature by default (short press: Emergency On; long press: Emergency Off). It is programmable by your dealer.

Before Use

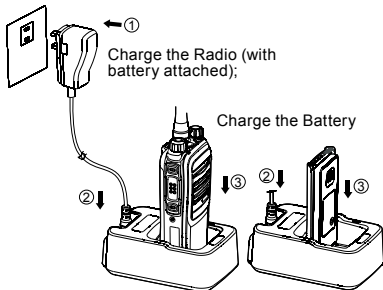
Charging the Battery



Caution:

- Make sure the radio is powered off before charging. Read the Safety Information Booklet in advance to get necessary safety information.
- To achieve optimal battery performance, please charge the battery for at least 5 hours before initial use.
- -10 °C to work in low power mode can guarantee the working time.

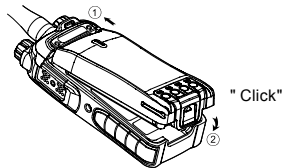
Please use the charger specified by the Company to charge the battery. Charging Diagram is listed below.



Charging Status Indication (on charger):

LED Indication	Charging 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 failed

Attaching the Battery



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

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 beeps.	Under the low battery threshold. Please recharge or replace the battery for proper radio operation

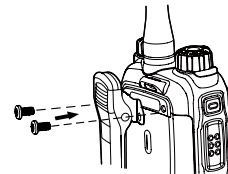
Attaching the Antenna



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

Attaching the Belt Clip

1. Loosen the screws from the back of the radio.
2. Align the screw holes of the belt clip with those on the radio's back, and then tighten the screws.



Attaching the Accessories

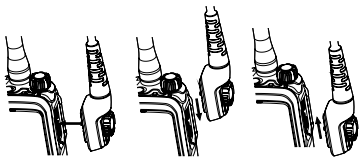
1. Open the accessory connector cover as shown below.



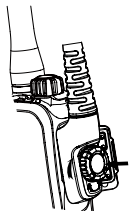
2. Align the accessory (such as an audio accessory, or a programming cable) plug with the accessory connector.



Caution: Do not scrape the silicone rubber surrounding the accessory connector screw hole, in order to ensure the waterproof performance of the radio.



3. Tighten the screw on the accessory plug.



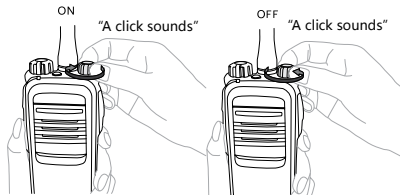
Status Indication

LED Indicator

LED Indication	Radio 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 or roaming.
The LED indicator flashes orange rapidly.	Emergency.
The LED indicator glows orange.	Call hung. During a call, you can hold down the PTT key to talk to the other party before the call hang time expires.

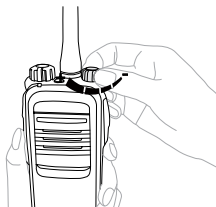
Basic Operation

Powering On/Off



Adjusting the Volume

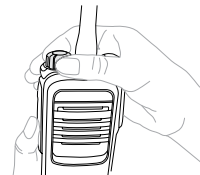
You can adjust the volume of output voice, alert tone and channel notification tone by rotating the **Volume Control Knob**. For other tones, the volume will be configured by the dealer.



Selecting a Zone

A zone is a group of channels exhibiting the same property, which is programmed by your dealer and can facilitate convenient management over the channel. The radio supports 3 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.

Selecting a Channel



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

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

Initiating a Private Call

In the standby mode, hold down the **PTT** key to initiate a Private Call to the Private Call contact preset for the current channel.

You may request your dealer to preset a regular Private Call contact, Group Call contact or an All Call contact for each digital channel.

Receiving and Responding to a Private Call

When a Private Call is received, you can listen to it without any operation, and you may hold down the **PTT** key within the preset time period to call back.

Group Call

Initiating a Group Call

In the standby mode, hold down the **PTT** key to initiate a Group Call to the Group Call contact preset for the current channel.

Receiving and Responding to a Group Call

When a Group Call is received, you can listen to it without any operation, and you may hold down the **PTT** key within the preset time period to call back.

Call on Analog Channel (No Signaling)

To transmit on an analog channel, hold down the **PTT** key and speak into the microphone. To receive, release the **PTT** key.

Please refer to the corresponding Feature Book for operation description on how to make and receive calls on the analog channel with signaling.

Emergency Call

In case of emergency, you can use this feature to ask for help from your companion or the control center. The Emergency Call has the highest priority which can terminate the ongoing calls with lower priorities on the current channel. You can make an emergency call even when your radio is transmitting or receiving.

This feature needs to be configured and enabled by your dealer. Please refer to the corresponding Feature Book for details.

Troubleshooting

Phenomena	Analysis	Solution
The radio fails to power on.	The battery may be improperly installed.	Remove the battery and then reattach it.
	The battery power may be used up.	Recharge or replace the battery.
	The battery may be poorly connected due to 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 by rotating the Volume Control Knob .
	The antenna may be loosened or improperly installed.	Reattach the antenna after turning off the radio.
You cannot communicate with other members.	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.
	The frequency or signaling may not match that of other members.	Set your TX/RX frequency and signaling to the same as that of other members.
	The channel type (digital/analog) may be set inconsistently.	Make sure all members are on the same digital/analog channel.
Irrelevant communication or noise is heard on the channel.	You may be too far away from the group members.	Move towards other members.
	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.
	The radio may be set with no 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 to try again.
	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 queries, please contact us or your local dealer 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 corrosive environments.
- 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 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, control 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.
- Make sure the product is completely dry before use.

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 the Company 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	<ul style="list-style-type: none">● CH10A06 Dual Pocket MCU Charger Kit (for Li-ion/Ni-MH Batteries)● MCA05 Battery Optimizing System● MCA08 MCU Multi-unit Charger(for Thick Battery)
Audio	<ul style="list-style-type: none">● EHN16: Detachable C-Earset● EHN17: Detachable and swivel Earset● EAN23: Detachable Earpiece with Transparent Acoustic Tube● ESN12: Detachable Earbud● SM18N2: Waterproof remote speaker microphone(IP67)● EAN17: 3-wire Surveillance Earpiece with Transparent Acoustic Tube(Beige)● EAN18: 3-wire Surveillance Earpiece with Transparent Acoustic Tube(Black)● ES-01: Receive-Only Earbud● ES-02: Receive-Only Earpiece with Transparent Acoustic Tube● EH-01: Receive-Only C Style Earloop● EH-02: Receive-Only Adjustable Earhook with Swivel Speaker● ACN-01: PTT&MIC cable(for use with Receive-Only Earpiece)
Others	<ul style="list-style-type: none">● LCY006 Carrying Case (Thick Battery)(Leather)(Swivel)● POA38 Li-ion/Ni-MH Battery Adapter for PD78X Series