

User Guide

DMR Two Way Radio

DP480

We are very grateful for your purchasing Kirisun brand DMR Two Way Radio produced by Shenzhen Kirisun Communications Co.,Ltd.

We believe Kirisun DMR Two Way Radio, which always incorporates the latest technology, can bring great convenience to your life and work. We also believe that the quality and function of Kirisun DMR Two Way Radio can meet your demands for reliable communication.

Notice

- ◆ Please carefully read this instruction manual before using the product for your easy operation. We will consider that you have read this manual when you use the product.
- ◆ Please carefully keep the manual for future reference.
- ◆ In order to protect your legal rights from infringement, please carefully fill in the warranty card and claim valid receipt.
- ◆ Kirisun and our authorized partners own the intellectual property of all the parts of this product (including accessories). Any design and materials may not be modified, copied, extracted or translated without authorization of Kirisun or its authorized parities.
- ◆ This product may involve update or modification in future, and Kirisun owns the right to change the specifications of software and hardware described in this manual without further notice. Specifications and information contained in this manual are for reference only.
- ◆ All the contents are carefully proofread, but mistake may be inevitable. The rights of final explanation are preserved by Kirisun.

Safety Precaution

- ◆ The radio can only be repaired or maintained by professional technicians. The user must not disassemble the radio at liberty.
- ◆ In order to avoid problems caused by electromagnetic interference or electromagnetic incompatibility, please turn off the radio in the place such as hospital, plane and other health care centers where there is a sign such as “Turn off Your Radio”.
- ◆ In the car with air bags, please do not keep your radio at the place within possible reach of the air bag spread.
- ◆ Please turn off your radio before entering flammable or explosive environment.
- ◆ Do not change or charge the battery in flammable or explosive environment.
- ◆ Please turn off your radio when getting closer to the blast zone or thunder zone.
- ◆ Do not use any radio with damaged antenna, which may cause slight burning to the skin in contact.
- ◆ Please make sure that the antenna is properly attached when using the radio.
- ◆ Please keep the radio vertical when it is transmitting, and also keep the microphone 5 cm away from your mouth.
- ◆ Please make sure that the antenna is 2.5cm away from your body when the radio is transmitting.

Battery

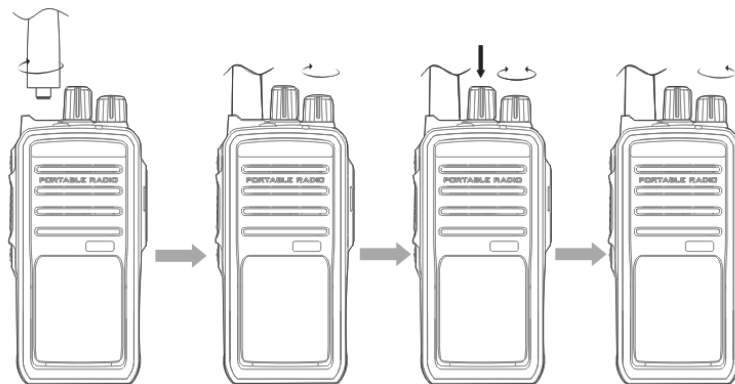
- ◆ If the conductive substance on human body makes contact with the exposed battery terminal, it may damage your belongings, and/or do harm, such as burning, to human body. Conductive material includes jewelry, keys or bead-like necklace. They can form a loop (it causes short circuit) with battery and cause skin burn after the rapid temperature rise. Be cautious when managing a charged battery, especially when you put it in the pocket, wallet or container with metallic objects. To decrease the risk of being harmed, the battery cannot be exposed in the file, disassembled or squeeze.
- ◆ The highest environment temperature around the power supply device or voltage transformer must not be higher than 40°C (104°F).
- ◆ Please turn off the radio attached with battery when charging. Using radio during charging will affect its charging process.
- ◆ Please do not put the radio and battery into the charger when they are not in need of charging, and constant charging will shorten the battery life. Do not use the charger as a store to radio.
- ◆ To achieve optimal performance, we recommend changing battery after one-year use.

DP480 Quick Reference



Brief Introduction

1. Attaching the antenna: Put the antenna into the antenna interface, and rotate the antenna clockwise to fix it.
2. Powering on: rotate the power/volume knob to power on the radio.
3. Channel Selection: rotate the channel selection knob to select channel.
4. Powering off: rotate the power/volume knob clockwise to power off the radio



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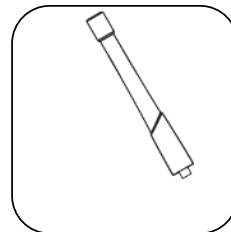
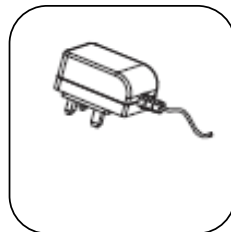
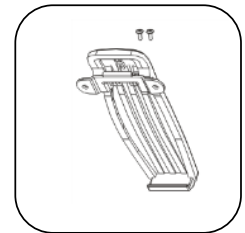
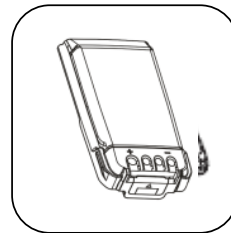
9 FCC STATEMENT - 2 -

1 Unpacking and Checking

Please carefully open the box, and check if the accessories listed below are contained in the package. For any missing or damaged item, please contact your local dealer for solution.

1.1 Supplied Accessories

Material	Quantity
Main Unit	1
Charger	1
Power Adaptor	1
Battery	1
Belt Clip	1
Antenna	1
Strap	1
Certificate	1
User Guide	1

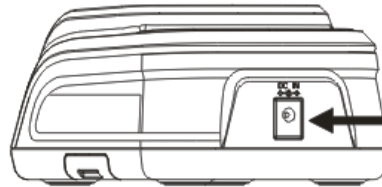


2 Battery Information

2.1 Notice

- ◆ The battery is not charged before delivery, so please charge the battery for your first use. If the battery is not used for a long time or the battery is used up, please charge it before use. Charge/discharge for twice or three times alternately to achieve its optimal performance. For low battery, please charge it or replace it.
- ◆ Note:
 - ◆ ◆Do not cause any short circuit on the battery or throw the battery into fire.
 - ◆ ◆When attaching the battery to the radio for charging, please make sure the radio is powered off to guarantee it can be fully charged.
 - ◆ ◆Do not leave the radio or battery on the charger after it is fully charged. Unnecessary constant charging will shorten the battery life.
 - ◆ ◆Do not put the fully-charged battery back to the charger for re-charging, or it may shorten the battery life.
 - ◆ ◆Please try to keep the battery in an indoor environment at around 25°C. The battery may get easily spoiled after being kept in the environment below -10°C for a long time.

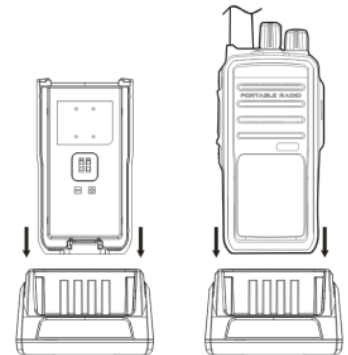
- ◆ ◆ In temperature higher than 35°C or below -10°C, the dischargeable power of the battery may decrease due to the physical property of lithium battery.



power.
the socket,

2.2 Battery Charging

- (1) Plug the power adaptor in the proper socket of AC
- (2) Plug the cable of the power adaptor at the back of and the green indicator glows.
- (3) Plug the battery or radio in the charger.
- (4) Make sure that the battery is in proper contact with the charger terminal, and the red indicator glows.
- (5) After the battery is charged for 6 hours, the red light goes out, indicating that the battery is fully charged.
- (6) When the green indicator glows, keep the battery on the charger for 1-2 hours before taking it out so as to achieve the optimal performance.
- (7) Take out the power adaptor from the socket of AC power output.



Note:

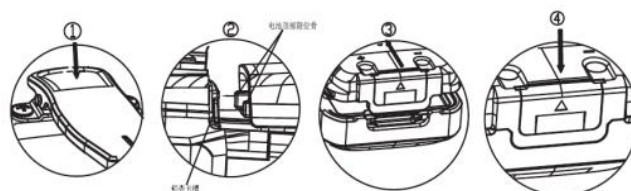
- ◆ The battery is not charged before delivery from the factory, so please charge the battery before your first use.
- ◆ Kirisun KB-75A lithium-ion can be used for this radio.
- ◆ If the battery which is stored for over 2 months or a new battery is charged for the first time, it should be charged repeatedly to gain full battery capacity. The battery should be at least charged once every three months.
- ◆ When the battery is fully charged or the battery power is above the level of low power alert, do not charge the battery, or it may affect the battery life and performance. Please take out the battery from the charger after it is fully charged.
- ◆ When the radio enters the state of low voltage alarm, please charge the battery before using it and do not force to power on the radio in case that the battery life and performance is impaired.
- ◆ There is protection circuit inside KB-75 lithium battery. The power supply will be cut off in state of low power, and when you charge it in the charger, the indicator will glow after 1-5 minutes.

3. Attaching the Accessories

3.1 Attaching/Detaching the Battery

◆ Attaching the Battery

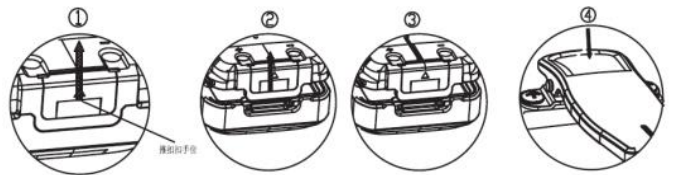
(1) Slightly press the top of the belt clip as shown in ①;



- (2) Align the battery with the battery installation base at the back and insert the battery as shown in ②.
- (3) Slide the battery along the direction as shown in ③ until the battery is fit into the right position.
- (4) Slightly press the battery top as shown in ④ until the battery is locked by the latch.

◆ Detaching the battery

- (1) For detaching the battery, please first turn off the radio.
- (2) Slide the battery latch along the direction as shown in ① to bounce the battery as shown in ②.
- (3) Slide to take out the battery along the direction as shown in ③. If there is belt clip, slightly press the belt clip top as shown in ④ and slide the battery along the direction as shown in ③ to take out the battery.



Note:

- ◆ Do not throw the battery terminals with short circuit or battery into fire.
- ◆ Do not remove the battery case without permission.

3.2 Attaching/Detaching the Antenna

For attaching the antenna, put the antenna's end with screw thread into the antenna port.

Turn the antenna clockwise until it is fixed.

For detaching the antenna, turn it counter-clockwise.

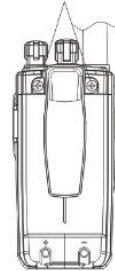
3.3 Attaching/Detaching the Belt Clip

Align the two screws on the belt clip with the screw holes at the back of the radio.

Use two 2.5x6.5 machine screws.

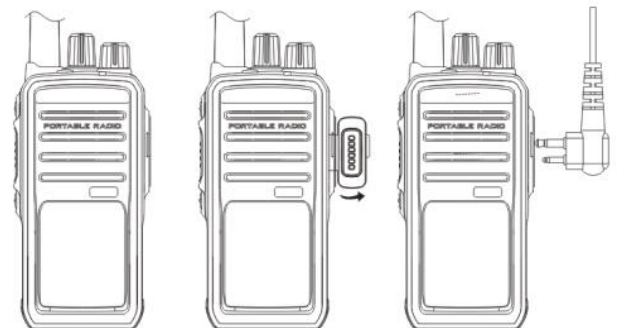
When detaching, loosen the two screws on the belt clip and remove the belt clip.

M2.5*6.5的锁背夹螺丝

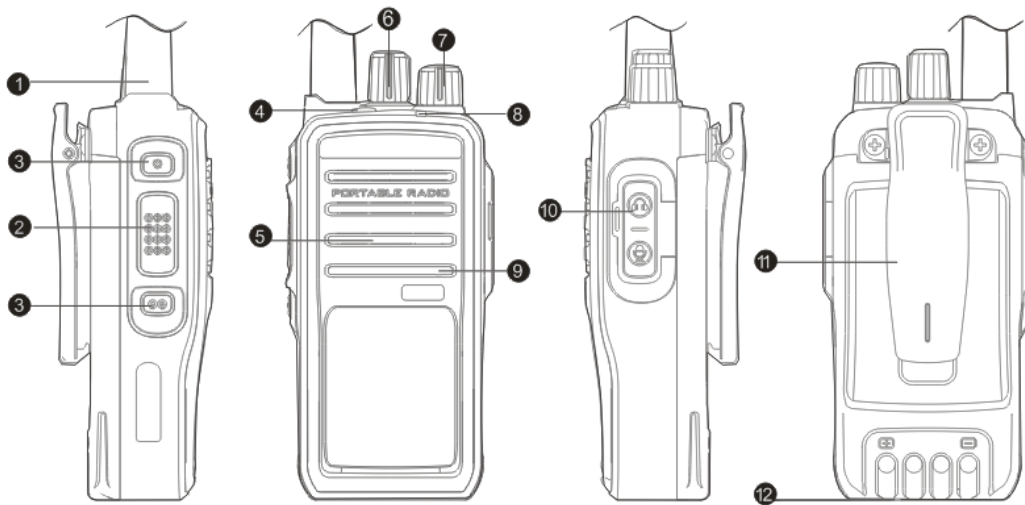


3.4 Attaching the Microphone

Open the earphone cover plate on the right and connect the earphone cable to the port.



4. Overview



No.	Part Name	No.	Part Name
1	Antenna	7	Power/Volume Knob Turn it clockwise to turn on the radio and turn it counter-clockwise until a click is heard to turn off the radio. When the radio is on, turn the knob to adjust volume.
2	Side key (programmable key) It can be programmed to different features. See "5. Programmable Keys" for details.	8	LED Indicator The red indicator indicates the radio is transmitting, and the green indicator indicates the radio is receiving; the red indicates flashing indicates the low power.
3	PTT key Press the key to initial a call.	9	Microphone Inputs audio
4	Emergency key	10	External Interface Open the cover and connect the speaker and microphone.

5	Speaker Output audio.	11	Belt Clip
6	Channel Knob Turn it to select channel 1-16.	12	Battery Latch

5. Programmable Keys

5.1 Programmable Keys

To suit the operation habits of customer, programmable keys (side keys) are available and can be set by dealer as shortcut key.

Note:

Short Press: press and release quickly.

Long Press: press and hold for a while (press duration can be set by programming software)

No	Programmable Feature	Application
1	None	No feature
2	High/Low Power	Switch to high and low power
3	Monitor	If the current analogue channel has CTCSS, press this key and switch to carrier squelch mode to cancel CTCSS; press it again to

No	Programmable Feature	Application
		go back to the original state.
4	Emergency	Starts the emergency feature. Used for seeking help in emergency.
5	Emergency Exit	Exits the emergency state.
6	Squelch on/off	Enable/Disable squelch feature. Used for receiving the weak signals on the analogue channel.
7	Squelch Level	Adjusts the signal strength required when receiving.
8	Scan	Enable/Disable scan feature and listens to the communication activities on other channels.
9	Alert Tone on/off	Enable/disable all the alert tones.
10	Zone Selection	Press this key to switch among different zones. The zones are programmed by programming software.

No	Programmable Feature	Application
11	Repeater/Talk around	Enable/disable Repeater feature.
12	Nuisance Delete	Deletes the channel which is useless from the scan list.

5.2 LED Indication

State	Operation
Glows red	Transmitting
Glows green	Receiving
Flashes red	Low battery
Flashes green	Channels are being scanned
Flashes orange	Digital call hang time and it will exit when the hang time is up
Glows orange	Blank channel which is not available. Switch to other channel to exit.

Flashes red quickly	The programming software is reading the parameters available for configuration
Flashes green quickly	The programming software is writing the parameters which is available for configuration into the radio.

6. Basic Operation

a) Powering on/off the Radio

When the radio is off, rotate the power/volume knob clockwise until a click is heard to power on the radio. When the radio is on, rotate the power/volume knob counter-clockwise until a click is heard to turn off the radio.

b) Selecting the Channel

When the radio is on, rotate the channel selector knob to select channels.

c) Adjusting the Volume

When the radio is on, rotate the power/volume knob clockwise to increase the volume and

counter-clockwise to decrease the volume.

6.4 Initiating a Call

Press PTT button to initiate a call to the default contact on the current channel when it is digital channel. The default contact on the current channel can be programmed by dealer.

6.5 Receiving

When the radio receives RF signal on the current channel and reaches squelch start level, the green LED glows to indicate that carrier is received.

When the current channel is digital channel and when it received private call, group call or all call, the radio will output the voice from the channel.

When the channel is analogue channel and when it received analogue signals with CTCSS matching the one on this channel (or there is no CTCSS set on the channel), the radio will output voice from the channel.

6.6 Replying to the Call

When the current channel is digital channel and after a call is received, press PTT button within the call hang time to reply. If the call hang time is up, you need to initiate a call to reply. The call hang time can be set by dealer.

When the current channel is analogue channel and after a call is received, press PTT button within the call hang time and speak to the microphone to reply.

7. Features and Operation

a) TOT (time-out-timer)

TOT prevents the user from occupying the channel for too long. If the continuous transmission exceeds the duration set by dealer, the radio will stop transmitting and sound alarm. For stopping alarm, release PTT button. For transmission again, please press PTT button after a certain time interval (interval set by dealer).

If the dealer set pre-alarm feature, pre-alarm will sound before TOT time is up.

b) Channel Scan

Channel scan searches channels with signals. When the channel scanned has signals, the radio will stay on this channel for communication. Scan method is carrier control scan.

By pressing the Scan shortcut key, the radio can scan the scan list related to the current channel.

When the radio is in scan state, press the Scan shortcut key again to stop the scan.

c) Scan the Reply Message

When the radio is scanning, press PTT button and the radio will transmit and talk on the predefined channel. This channel is set by dealer.

d) Priority Scan

When there is priority scan set in the scan list, the priority scan will be automatically enabled when the radio starts the scan feature. The priority scan mode is cycle scan, and it scans priority channel every time when it scans a conventional channel. For example, if there are channel 1, 2, 3, 4 in the scan list and channel 2 is priority channel, the scan cycle will be 1->2->3->2->4->2->1.

e) Stun and Revive

If the dealer enables this feature, the user can respond by receiving and decoding stun/revive signal. After being stunned, the radio features cannot be used, and it can only be revived by programming or receiving revive signal. After being revived, the radio recovers to normal operation. This feature is only valid in digital mode.

f) Kill

If the dealer enables this feature, and the radio enters Kill status after receiving the Kill instruction. After being killed, the radio cannot be used and can only be revived by programming. This feature is only valid in digital mode.

g) Emergency

In state of emergency, press the Emergency shortcut key to send emergency alarm.

Emergency alarm consists of two parts: alarm type and alarm mode. Alarm mode is used to specify the contents sent to other members in emergency. You can ask your dealer to set these parameters based on your requirements.

For exiting emergency, press again the Emergency shortcut key.

◆ Alarm Mode

Emergency Alarm: enable to send alarm and exit alarm state automatically afterwards.

Emergency Alarm + Emergency Call: after the radio sends emergency alarm, press PTT button to send emergency call.

Emergency Alarm + Auto Background Tone: after the radio sends emergency alarm, the background tone will be sent automatically in the way of emergency call.

◆Alarm Type

None: no alarm feature (default).

Siren Only: after the radio enters the alarm state, the siren can only sound locally and the control center will not receive any alarm signals.

Conventional: after the radio enters alarm state, there will be light and sound alert and it can also receive response from other members.

Secret: after the radio enters alarm state, there will be no light or sound alert

Secret with Voice: after the radio enters alarm state, there will be no light or sound alert but it can receive response from other members.

h)Color Code Selection in Digital Mode

Only when both the color code and ID matches, the speaker can be turned on to receive.

Range: 0~15 (16 groups of color codes)

Description: only 1~14 can be selected when DMR feature is enabled.

i) Radio Setting

This radio has no LCD or keypad, so please use programming software for more radio settings.

j) GPS(optional)

Use programming software to activate GPS feature. After GPS feature is enabled, use Kirisun dispatch system to report terminal GPS information to dispatcher. You can also manually check the portable location at dispatcher.

k) Lone Worker

This feature is intended for lone worker and if the worker does not operate the radio within a certain pre-defined time, the radio will automatically ask for help from control center or other radios.

l) Man Down(optional)

After Man Down is enabled, if the radio falls down to a certain angle for the predefined time, the radio will

automatically report to control center or other radios for help.

m) Roaming (optional)

Use the programming software to activate Roaming. After Roaming is enabled, the radio is able to locate the base station with signal strength within the configuration range among multiple stations and continue communication. In condition of weak signals or when the radio cannot detect any signals from the current station, the radio will scan the roaming list in search of available channel.

8 Troubleshooting

No.	Problem	Cause and Solution
1	Failed to power on	A. The battery is used up –charge the battery or change to a new battery; B. Volume switch is faulty – get it repaired at the specified service station;
2	Small voice during call	A. speaks too far from the microphone – the ideal distance: 3-10cm; B. wrong volume setting – turn the volume knob clockwise to increase the volume;

3	Failed to transmit or receive	A. wrong channel parameters – reset the parameters and try again; B. the group identity for default contact is wrong – select a right group; C. Beyond the communication scope.
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9 FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: 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, 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.
- Increase the separation between the equipment and receiver.
- 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.

NOTE 2: Any 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.

SAR warning

Output power listed is rated conducted. This device must be restricted to work-related operations only in an Occupational/Controlled RF exposure environment and must operate with a duty factor not exceeding 50%. This transmitter may operate with the antenna(s) documented in this filing in Push-to-Talk and body-worn configurations. RF exposure compliance is limited to the specific belt-clip and accessory configurations as documented in this filing and the separation distance between user and the device or its antenna shall be at least 2.5 cm. All qualified end-users of this device must have the knowledge to control their exposure conditions and/or duration to comply with occupational/controlled Exposure limit and requirements. The highest reported SAR values for Face-held, body-worn and simultaneous transmission conditions are 3.264 W/Kg, 3.318 W/Kg.

Warning!

This portable radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as “Occupational Use Only,” meaning it must be used only during the course of employment by individuals aware of the hazards and the ways to minimize such hazards. This radio is NOT intended for use by the “General Population” in an uncontrolled environment.

Technical Parameters

PMR:

Operation Frequency Range: 400 to 480MHz

Rated Output Power: High Power: 4W / Low Power: 1W

Modulation Type: Analog: FM / Digital: 4FSK

Channel Separation: Analog: 12.5kHz / Digital: 12.5kHz

GPS:

Modulation: MSK

Operation Frequency: 1575.42MHz