

MANDATORY SAFETY INSTRUCTIONS TO INSTALLERS AND USERS

- Use Only manufacturer or dealer supplied antennas.
- Antenna minimum safe distance: 108 cm.
- Antennas used for this transmitter must not exceed an antenna gain of 3 dBi.

The FCC (Federal Communications Commission) has adopted a safety standard for human exposure to RF energy which is below the OSHA (Occupational Safety and Health Act) limits.

- **Antenna mounting:** The antenna supplied by the manufacturer or radio dealer must not be mounted at a location such that during radio transmission, any person can come closer than the above indicated minimum safe distance to the antenna (i.e. 108cm).
- To comply with current FCC RF Exposure limitations, the antenna must be installed at or exceeding the minimum safe distance indicated above, and in accordance with the requirements to the antenna manufacturer or supplier.
- **Vehicle installation:** The antenna can be mounted at the center of a vehicle metal roof or trunk lid if the minimum safe distance is observed.

Antenna substitution: Don't substitute any antenna for the one supplied or recommended by the manufacturer or radio dealer. You may be exposing person(s) to excessive radio frequency radiation. You may contact your radio dealer or the manufacturer for further instructions.

Warning



Maintain a separation distance from the antenna to person(s) at least 108cm.

“This transmitter is authorized to operate with a maximum duty factor of 50%, in a typical push-to-talk mode, for satisfying FCC RF exposure compliance requirements.”

Caution:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

 Operating Instruction of PT8200

Contents

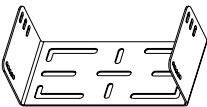
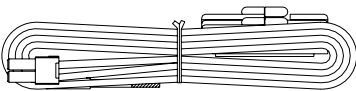
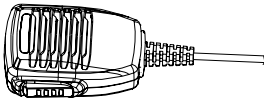
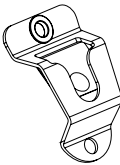

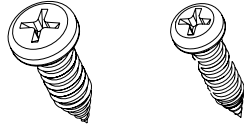
1 Package-opened Inspection and Device.....	1
2 Familiarity with the Machine.....	2
3 Basic Operation	4
4 Program Button Function	4
5 Intercom Call	6
5.1 Selective Call.....	6
5.2 Send Selective Call	6
5.3 Receive Selective Call	6
5.4 Call Prompt.....	6
6 Select Group	7
7 Talkaround	7
8 Applied Items	7
9 Scan	8
9.1 Start/Close Scan Function	8
9.2 Cancel Noise Channel.....	8
9.3 Edit Scan List.....	8
9.4 Increase or Cancel the Channels in the Scan List	8
9.5 Set Priority Channel.....	9
10 OST OST	9
11 GPS Information View	9
12 Wired Replication Mode	10
13 Common Failures and Troubleshooting	10
14 Main Specifications	11

1 Package-opened Inspection and Device

Please check the host in the package and the supplied accessories in the following table prior to use of this Machine. Where any articles are found lost or damaged, please contact the local distributor without delay.

1.1 Supplied Accessories

No.	Accessories	Quantity
01	Stationary Support	1
02	Power Cable	1
03	Hand Microphone	1
04	Microphone Hanger	1
05	M4*10 Combination Screw	4
06	M4*16 Self-tapping Screw	2
07	M5*16 Self-tapping Screw	4
08	Operating Instruction	1
09	Warranty Card	1

 <p>Stationary Support</p>	 <p>Power Cable</p>	 <p>Hand Microphone</p>
 <p>Microphone Hanger</p>	 <p>M4*10 Combination Screw</p>	 <p>M5*16 / M4*16 Self-tapping Screw</p>

1.2 Preparatory Work

1.21 Connection of Power Cable

First of all, please check whether there is a hole for the power cable on the insulating board. If no, please bore the board with the suitable drill bit and fix a rubber grommet on it.

Afterwards, please have the cable pass through the insulating board and lead from the car into the car engine. Connect the red conductor to the positive terminal of the accumulator and the black conductor to the negative terminal.

At last ring the remained conductor and fix it.

Note: Please maintain the sufficient relaxation of the power cable to make it convenient to dismantle the radio in the state of power connection.

1.22 Fixation of Radio

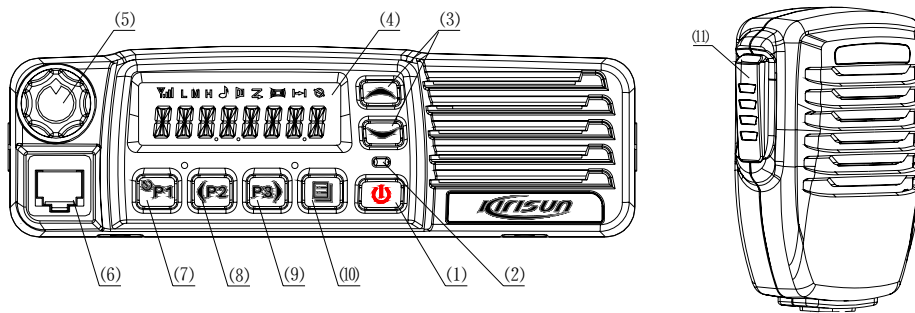
Warning: For the purpose of passengers' safety, please fix the radio firmly on the stationary support so that the radio will not be loosened in case of collision.

- 1) The stationary support is taken as an example. Draw the position and drill a hole on the instrument panel first, and then fix the stationary support with 4 M5*16 self-tapping screws. (Note: please fix the radio at the position convenient for operation and control, and leave an enough space for fixation and connection of the cable.)
- 2) Slide the radio into the stationary support and fix it with 4 M4*10 combination screws (plus plain washer and spring washer). (Different combinations of fixing holes are selectable to adjust the radio to the proper height and visual angle.)
- 3) Connect the antenna and the power cable to the radio.
- 4) Fix the microphone hanger at the position easy to use, with 2 M4*16 self-tapping screws. (The microphone and its cable should be fixed at the position not affecting safe driving.)
- 5) Connect the microphone to the microphone jack on the front panel of the radio and put it on the hanger.

Note: Where replacement of the protective tube for the power cable is required, please use the one of the same specification without fail. It is not allowed to change it into the tube of higher capacity.

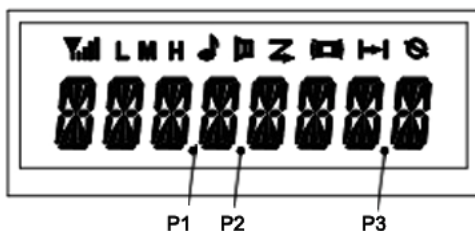
2. Familiarity with the Machine

2.1 Description of External View






- (1) power button
Press this button for a long time to start or close the intercom.
- (2) LED indicator
The red indicator will light when it transmit the carrier; the green indicator will light when it receives the carrier.
The indicator will flicker and give the orange light when it receives Dtmf or 2Tone signal consistent with the set one locally.
The red indicator flickers in the scanning process.
- (3) button (programming button)
- (4) LCD display screen
For details, see “LCD Display”.
- (5) Volume Control knob
To be used to adjust volume.
- (6) Microphone/Programming Interface
- (7) button (programming button)
- (8) button (programming button)
- (9) button (programming button)
- (10) button (programming button)
- (11) PPT button (on the hand microphone)
Press the PTT button first, and then speak to the microphone to transmit the sound to the other. Please don't press this button if you want to listen to the other.

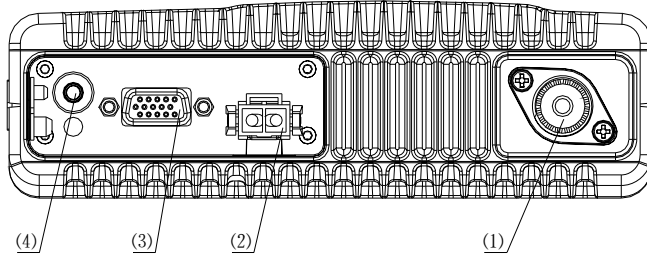
2.2 Display Screen



Display	Description
	It means the receiving signal strength. 4 lines mean the strongest signal.
LMH	Transmission power level "L" means the transmission of signal for the intercom at the lower power; "M" means the transmission of signal for the intercom at the medium power; "H" means the transmission of signal for the intercom at the high power;
	Receive Call display The intercom receives a selective call/call reminder.
	Monitoring State display
	Scanning State display

	Companing State display
	Talkaround State display
	Interference State display
P2	OST State display

2.3 Rear Panel



- (1) Antenna Interface
- (2) Power Interface
- (3) 15Pin Extended Serial Interface
- (4) External Speaker Interface

3. Basic Operation




1. Startup:
Press the red POWER button for a long time (at least 1.5 seconds) to start/close the intercom.
2. Volume
Press the "MONITOR" or "Squelch" button to listen to the background noise first, and then adjust the volume by turning the volume control knob.
3. Channel
The intercom can provide 128 conventional channels (There are totally 16 groups and each has at most 16 channels). Press the "CHANNEL UP" or "CHANNEL DOWN" button to select the channel. Press the "GROUP UP" or "GROUP DOWN" button to select the group you require.
4. Transmission
To send a call, press the PTT button and speak to the microphone in the normal voice. Please keep the microphone about 3 or 4 cm far from your mouth. After speaking, please loosen the PTT button.
5. Receive
The intercom will return to the receiving state after you loosen the PTT button.
The distributor may have set the QT/DQT signaling in the program of your intercom. Where the channels for these functions are set, you can only hear the call from other radios in your system, but not all calls.

4. Program Button Function

 / , , , ,  can be programmed as one of the auxiliary functions.

Buttons	Function Description
0. None	No function setup
1. Channel Up	Select the previous channel
2. Channel Down	Select the next channel
3. Group Up	Select the previous group

4. Group Down	Select the next group
5. Display Channel Frequency	Press this button and the LCD will show the frequency of the current channel.
6. Display Channel Name	Press this button and the LCD will show the name of the current channel.
7. Display Mode Switch	Press this button and the LCD will show "Channel Number", "Channel Name", "Group Number, Group Name" and "Channel Frequency" alternately.
8. OST	Change the setup of preset QT/DQT for the current channel.
9. Power Selection	Press this button to make selection among the high, medium and low transmission power, and "H", "M" and "L" will be shown on the LCD to represent the current transmission power.
10. Squelch Level Selection	Press this button to enter the "Squelch Level Adjustment Mode" first, and then press the  /  button to adjust the level. Press the  button to save the selected squelch level and quit this mode.
11. Locking Button	Start/close the function of locking button.
12. Scan	Start/close the scanning function of system.
13. Mixed Channel (Temporary) Cancellation	Cancel the noise channel.
14. Voice Companding	Start/close the voice compression/expansion function.
15. Speech Amplification	Start/close the speech amplification function. Press this button and the function will be started. Press the PTT button and speak to the microphone so that you can hear your voice but not send it through the external speaker connected to the vehicle mounted radio. Press this button once again and the amplification function can be closed and the vehicle mounted radio return to the user's mode.
16. Interference	Start/close the voice interference function.
17. Standby Channel	Press this button and the vehicle mounted radio will be switched to the set Standby channel. Where the double Standby channel is set, press this button and the radio will be switched to the Standby Channel 1. Press this button again within two seconds to switch it to the Standby Channel 2. To return to the previous channel, press this button for the third times within 2 minutes. Switching of zone can follow after switching to the Standby channel. If it is the single channel, press this button within 2 seconds to switch between the Standby channel of this button and the current channel. Press this button again after 2 seconds to switch to the Standby Channel 1.
18. Talkaround	Pressing the programming button as the TALKAROUND button, the transmission will be done according to the received frequency.
19. VOX Selection	Start/close the VOX function of the current channel.
20. Instantaneous Monitoring/Call Cancel	Press this button to close QT, DQT, 2Tone/DTMF signaling according to the set data. Loosen this button to return to the normal operation. Press this button in the elective call state to quit such a state.
21. Trigger Monitoring/Call Cancel	Press the programming button to trigger this button and the QT, DQT, 2Tone/DTMF signaling will be closed, so you can receive the signal that can't be heard in the normal operation. Press this button return to the normal operation. Press this button in the elective call state to quit such a state.
22. Instantaneous Squelch Cancel/Call Cancel	Press this button and the squelch function will start; loosen this button to return to the normal operation. Press this button in the elective call state to quit such a state.
23. Cancel Squelch/Call Cancel	Press this button and the squelch function will start; press this button again to quit this button.
24. Emergency Alarm	Press this EMERGENCY ALARM button and you can give the alarm according to the write-frequency software or send your identification or background to your partner or the system.
25. Overall Call	Press this button to enter the fast menu mode of "Radio Call". For detailed







	operation, see "Menu Operation".
26. Call Button 1	As set, transmit the preset code.
27. Call Button 2	As set, transmit the preset code.
28. Call Button 3	As set, transmit the preset code.
29. Call Button 4	As set, transmit the preset code.
30. Menu Selection/Enter	Press this button to activate the menu mode. Entering the menu mode, press this button to select and save the items in the menu.
31. Speaker Alarm	Start/close the speaker function. After you press this button, the speaker function will be started. If the radio receives the matched dual-tone/two-tone multi-frequency code, it will give a warning sound. Press this button again and this function will be closed.
32. Lease Time View	Press this button and the LCD will show the remained time of current lease.
33. Independent Operation	Start/close the independent operation function.
34. Scan List Edit	Press this button and the radio will enter the fast menu mode for scan list edit. For details, see "Menu Operation".
35. GPS Information View	Press this button and the radio will enter the menu mode of GPS Information Menu.
36. VOX Level Selection	Press this button to enter the VOX Level Adjustment Mode". Press  /  button to adjust VOX level. Press  button to save the selected VOX level and quit this mode.

Monitoring/Hook Detection: select the hook function or start the monitoring function of desk microphone.


5. Intercom Call

5.1 Selective Call


5.2 Send Selective Call






- A. Press "Menu Selection/Enter" button to enter the menu mode.
- B. Press  /  button until "RADIOCAL".
- C. Press  button to select "SEL CALL".
- D. Press  /  button until the required call list appears.
- E. Press "PTT" button to send the selective call.
- F. Press "PTT" button and speak to the microphone in normal voice. Please keep the microphone about 3 to 4 cm far from your mouth. After speaking, please loosen the "PTT".
- G. Press  button to return to the previous operation.


5.3 Receive Selective Call

Receiving a selective call, you will hear the prompt tone and find the orange indicator flickers.  icon flickers and the calling party's ID code or name displays. Press PPT button for callback.

5.4 Call Prompt

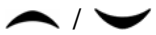

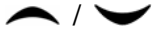

After the radio receives the call prompt, the prompt tone will sound and the orange indicator flicker.  icon flickers and the calling party's ID code or name shows until someone answers. Press the "PTT" button for callback or other buttons for cancellation.

- A. Press "Menu Selection/Enter" button to enter the menu mode.
- B. Press  /  button until "RADIOCAL".
- C. Press  button to select "CALL ALT".
- D. Press  /  button until the required call list shows.


- E. Press "PTT" button to utter the selective call.
- F. After calling, press  button to return the previous operation.

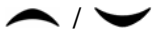


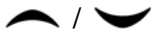

6. Select Group

According to the setup of the communication network, the vehicle mounted radio can be distributed to different groups. Select the proper group to realize calling with the vehicle mounted radio of different groups.

1. Select the group through menu.
 - A. Press the "Menu Selection/Enter" button to enter the menu mode.
 - B. Press  button until "ZONE".
 - C. Press  button for selection.
 - D. Press  button until the group name you require appears.
 - E. Press  button for selection.
2. Select the group through "GROUP UP" or "GROUP DOWN".

7. Talkaround

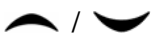

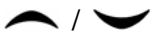

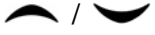


In the communication network, you can expand communication range through the repeater, but when the vehicle mounted radio is out of the communication range, you can connect with other radio in the talkaround method. The talkaround function can show through .

1. Select the group through menu.
 - A. Press the "Menu Selection/Enter" button to enter the menu mode.
 - B. Press  button until "RPTRTALK".
 - C. 按  选择 Press  button for selection.
 - D. Press  button until "REPEATE" or "TALKRND".
 - E. Press  button for confirmation.
2. Switch the talkaround or repeater mode through "talkaround".

8. Applied Items

The applied item can help you customize some setups of the radio.

Operating steps as follows:

- A. Press the "Menu Selection/Enter" button to enter the menu mode.
- B. Press  button until "UTILITY".
- C. Press  button for selection.
- D. Press  button until the items you require show.
- E. Press  button for confirmation. The radio will show the current setup.
- F. Press  button to show all items that can be set with this item.
- G. Press  button to select this setup.
- H. Press  button to return to the previous operation.

Change the setup items in the following table as per the previous steps.


Items	Selectable Setups	Functions
Squelch Level "SQL LEV "	SQL 0 ~ 9	Change the squelch level of the radio.
Transmission Power "PWR LEV "	"PWR LOW " "PWR MID ", "PWR HI "	Select among high, medium and low transmission power.
VOX Level	VOX 0 ~ 9	Change the VOX level of the radio.

"VOX LEV "		
Backlight "BACK LED"	"BLED OFF" "BLED ON " "BL AUTO "	Select among such modes of backlight as "turnoff", "normal turn-on" or "auto".
MCU software version display "SOFT VER" Eg. "R01.00"	Show the software version.

9. Scan



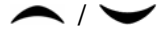

In order to receive the calls from many channels, the intercom can be programmed to scan these channels. At most there are 16 channels in each scan list. Each channel can use a scan list together with others or alone.

9.1 Start/Close Scan Function

You can press "SCAN" button directly from the menu to activate the scan function. When the scan function is started,  icon and your channel will display at the same time.

In the scan state, the red indicator will flicker. When the scan is stopped, the indicator will stop flickering.

During the period from the scan state the menu mode, the radio will stop scanning. After the menu is quitted, the scanning will go on.

2. Enter the scan state through menu mode.
 - A. Press the "Menu Selection/Enter" button to enter the menu mode.
 - B. Press  button until "SYS SCAN".
 - C. Press  button for selection.
 - D. Press  button until "SCAN ON?" or "SCAN OF?".
 - E. Press  button for confirmation.
3. Use the scan button.
 - A. Press "SCAN" button to activate the scan function.
 - B. Press "SCAN" button again to close the scan function.

9.2 Cancel Noise Channel



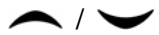



If a channel continuously produces noise or interference, press the "Mixed Channel (Temporary) Cancellation" button to cancel this channel from the scan list temporarily.


Note: the priority channel can't be canceled and the last one in the scan list, either.

Quit the scan mode first, and then re-enter such a mode. If the "Mixed Channel Reset" can work, the cancelled channel can be added into the scan list.










9.3 Edit Scan List

9.4 Increase or Cancel the Channels in the Scan List

- G. Press the "Menu Selection/Enter" button to enter the menu mode.
- H. Press  button until "PROG LST".
- A. Press  button to select "SCAN LIST".
- I. Press  button until "ADD LST?" or "DEL LST?".
- J. Press  button for selection.
- K. Press  button until the channel you want to add or cancel displays.
- L. Press  button to complete operation and the show "CHN SAVE" or "CHN DEL".

M. Press  P1 button to return to the previous operation.



9.5 Set Priority Channel

1. Press the “Menu Selection/Enter” button to enter the menu mode.
2. Press  button until “PROG LST”.
3. Press  button to select “SCAN LIST”.
4. Press  button until “ED PRIO?”.
5. Press  button for selection.
6. Press  button until “PRIO#1?” or “PRIO#2?”.
7. Press  button to select the type of the required priority channel.
For example, in Step 7, the type of priority channel is “DES?”. Press  button to select the required priority channel.
8. Press  button to complete operation.
9. Press  P1 button to return to the previous operation.

10. OST

In a certain specific channel, you can revise the QT/DQT encoding setup of current channel.

The operating steps as follows:





- A. Press the “OST” button to enter the OST menu mode.
- B. Press  button until the QT/DQT code/decode shows.
- C. Press  button to select quitting.

Note:

- Where the OST backup function is selected, the radio will save the OST code of each channel even if the channel is changed or the machine is shut down.
- In the OST state, the LCD of the vehicle mounted radio and P2 icon will display.
- In the OST state, press “OST” button again and the QT/DQT of the radio will return to the original position.

11. GPS Information View

If the radio starts the GPS function, you can view the current GPS information. The specific operating steps go as follows:

- A. Press “GPS Information View” button to enter the GPS information display mode.
- B. Press  button until the items you require displays.
- C. Press  button for selection.
- D. Press  button for pageup of the following content.
- E. Press  P1 button to return to the previous operation.

The specific content can be shown as follows:

1. Positioning star number: “STAR NUM”
2. Longitude “LONGITUD”
3. Latitude “LATITUDE”
4. Altitude “ALTITUDE”
5. Speed “SPEED”
6. Time “TIME”

12. Wired Replication Mode

If the wired replication function is set, the intercom will not quit after entering the wired replication mode. If it returns to the user mode, the user needs to restart the machine.

The operating steps go as follows:

- 1 Press [P1] and [P2] buttons for power-on to show "CLONE" (for two seconds) and enter the replication mode. If such a mode is not allowed, it will enter the user mode.
- 2 Connect the pickaback plane with the wired replication cable first, and then turn on the power button for the pickaback plane.
- 3 Press the host [P4] button for replication. At this time the red host indicator will light and the data will be transmitted to the pickaback plane from the host. In the period when the pickaback plane receives the data, it will show "PROGRAM" and the green indicator light. The host will show "SUCCESS" and the pickaback plane will automatically restart upon receipt of all data.
- 4 Press the [P4] button and the host will return to the replication mode. Continuous replication will start from Step 3.

Note: The wired replication mode can be started or prohibited through the PC program software. Once such a mode is prohibited, the intercom can't enter the wired replication mode.

13. Common Failures and Troubleshooting

No.	Failures	Causes and Troubleshooting
1	No reaction after startup	<p>A The power cable is not joined with the battery or the host reliably. Please connect the power cable reliably.</p> <p>B The protective tube of power cable is burnt out. Please Change it.</p> <p>C The power button is of poor contact. Please change the silica gel button or button.</p> <p>D The battery is out of power. Please charge or change it.</p> <p>E CPU is broken, Please change IC.</p>
2	Phase lock loop unlocked (Beeping)	<p>The crystal X1 of phase lock loop is broken. Please change it.</p> <p>The oscillator tube is broken. Please change it.</p> <p>The chip U101 of phase lock loop is broken. Please change IC.</p>
3	No talkback	<p>The frequency for talkback is not right. Please re-select the channel of the frequency.</p> <p>The QT/DQT signaling code for talkback is not the same. Please reset it. Please check the setup of receive/send signaling system for both parties.</p> <p>It is out of the effective communication range.</p>
4	No receiving signal	<p>The antenna is not in good contact. Please fasten the antenna head.</p> <p>The high-frequency amplifying tube Q26 is broken. Please change it.</p> <p>The squelch level is set high so the squelch can't be started. Please reset the squelch level.</p> <p>The mixed tube Q21 is broken. Please change it.</p> <p>The FM chip U101 is broken. Please change IC.</p>

5	The red transmission Indicator lights but no sound is heard.	The power-amplifier tube Q23/Q25 is broken, resulting in no power output. Please change it. The microphone is broken. Please change it. The power amplifier U201 is broken. Please change it.
6	The green receiving indicator lights but no sound is heard.	The speaker is broken. Please change it. The audio power amplifier TDA1519C is broken. Please change IC.

14. Main Specifications

Frequency Range: 136MHz—174MHz 340MHz--400MHz 400MHz--470MHz 470MHz--520MHz

Channel Number: 128 pieces (divided into 16 groups and at most 16 channels per group)

Channel Spacing: 25kHz (broad band)/ 20kHz (medium band) /12.5kHz (narrowband)

Operating Voltage: 13.6V DC±10%

Operating Temperature: -30°C--+55°C

External Dimension: machine only: 170mm*52mm*170mm; plus stationary support: 185mm*62mm*170mm

Weight: machine only: 1450g; plus stationary support: 1690g

P3)