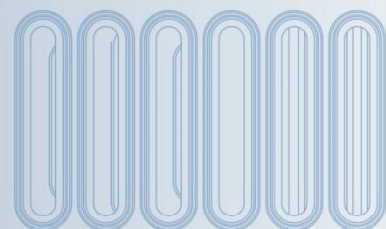
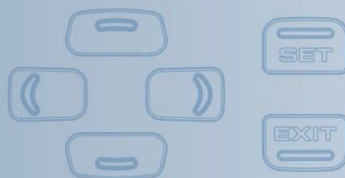


EXCERA

User Manual

ER9000 U1

Digital Repeater



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Important Information

Note: Ic Note : Cet Appareil Est Conforme À La Partie 15 Des Règlements De La Fcc Et Aux Normes Rss De L'industrie Du Canada. Son Fonctionnement Est Soumis Aux Deux Conditions Suivantes : (1) Cet Appareil Ne Doit Pas Causer Des Interférences Nuisibles, Et (2) Cet Appareil Doit Accepter Toute Interférence Reçue, Y Compris Les Interférences Qui Peuvent Provoquer Un Fonctionnement Indésirable..

Le Fabricant N'est Pas Responsable Des Toutes Interférences Radio Ou Télévision Causées Par Des Modifications Non Autorisées Apportées À Cet Appareil. De Telles Modifications Peuvent Empêcher L'utilisateur D'utiliser L'appareil.

Ic Note:

This Device Complies With Part 15 Of The Fcc Rules And Industry Canada License-exempt Rss Standard(s). 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.

The Manufacturer Is Not Responsible For Any Radio Or Tv Interference Caused By Unauthorized Modifications Or Change To This Equipment. Such Modifications Or Change Could Void The User's Authority To Operate The Equipment.

The Users Manual Or Instruction Manual For An Intentional Or Unintentional Radiator Shall Caution The User That Changes Or Modifications Not Expressly Approved By The Party Responsible For Compliance Could Void The User's Authority To Operate The Equipment. In Cases Where The Manual Is Provided Only In A Form Other Than Paper, Such As On A Computer Disk Or Over The Internet, The Information Required By This Section May Be Included In The Manual In That Alternative Form, Provided The User Can Reasonably Be Expected To Have The Capability To Access Information In That Form.

Before using this product, please read this user manual carefully.

RF Energy Exposure Information

RF Energy Exposure Awareness And Control

Information For Fcc Occupational Use Requirements

Before using the two-way portable radio, review the following important RF energy awareness and control information and operational instructions. Comply with this information and instructions in order to ensure compliance with RF exposure guidelines. e the capability to access information in that form.



This radio is intended for use in occupational/controlled conditions, where users have full knowledge of their exposure and can exercise control over their exposure to remain below RF exposure limits. This radio is NOT authorized for general population, consumer, or any other use.



Changes or modifications not expressly approved by Shenzhen Excera Technology Co., Ltd. could void the user's authority to operate the equipment.

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. It uses RF energy or radio waves to send and receive calls. RF energy is one form of electromagnetic energy. Other forms include, but are not limited to, electric power, sunlight, and x-rays. RF energy, however, should not be confused with these other forms of electromagnetic energy, which, when used improperly, can cause biological damage. Very high levels of x-rays, for example, can damage tissues and genetic material.

Experts in science, engineering, medicine, health, and industry work with organizations to develop standards for exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins of protection. All two-way radios marketed in North America are designed, manufactured, and tested to ensure they meet

government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it. Refer to the following websites for more information on what RF energy exposure is and how to control exposure to assure compliance with established RF exposure limits:

<http://www.fcc.gov/oet/rfsafety/rf-faqs.html>

<http://www.osha.gov/SLTC/radiofrequencyradiation/index.html>

Federal Communications Commission Regulations

Before it was marketed in the United States, the Digital portable radio was tested to ensure compliance with FCC RF energy exposure limits for two-way portable radios. When two-way radios are used as a consequence of employment, the FCC requires users to be fully aware of and able to control their exposure to meet occupational requirements. Exposure awareness can be facilitated by the use of a label directing users to specific user awareness information. The radio has an RF exposure product label.

Also, the Product Safety Manual and this Operator's Manual include information and operating instructions required to control RF exposure and to satisfy compliance requirements.

Operation Safety Recommendations

Occupational Safety Guidelines And Safety Training Information

To ensure bodily exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use. Always adhere to the following basic guidelines:

- The push-to-talk button should only be depressed when intending to send a voice message.
- The radio should only be used for necessary work-related communications.
- The radio should only be used by authorized and trained personnel. It should never be operated by children.
- Do not attempt any unauthorized modification to the radio. Changes or modifications to the radio may cause harmful interference and/or cause it to exceed FCC RF exposure limits. Only qualified personnel should service the radio.
- Always use only authorized accessories (antennas, control heads, speakers/mics, etc.). Use of unauthorized accessories can cause the FCC RF exposure compliance requirements to be exceeded.

The information listed above provides the user with information needed to make him or her aware of a RF exposure, and what to do to assure that this radio operates within the FCC exposure limits of this radio.

Radio Frequency Interference

FCC Part 15

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.

Industry Canada

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAUTION:

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES

ACCORDING TO THE INSTRUCTIONS.

Adapter shall be installed near the equipment and shall be easily accessible.

The max operating of the device is 60°C.

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 100% of the time and always adhere to the following procedures: Your radio radiates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode. Antenna gain must not exceed 6.5dBi. The antenna installation comply with the requirements of manufacturer or supplier, and at least 3.8m from any body part of the user or nearby persons.

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.

C €0678!

Alert Icon



Caution: Indicates situations that could cause human injury or damage to your products.



Note: Indicates tips that can help you make better use of your products.

Disabled Frequencies

400 – 470 MHz	
No.	Frequency
1	408 MHz
2	417.6 MHz
3	427.2 MHz
4	436.8 MHz
5	446.4 MHz
6	456 MHz
7	465.6 MHz

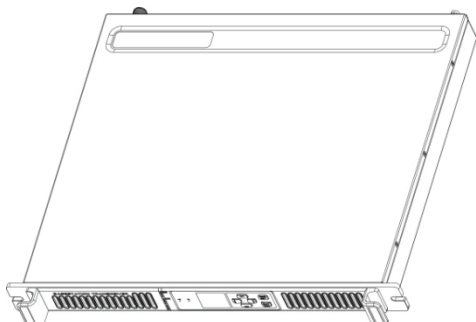


Caution!

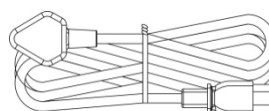
This radio is restricted to occupational use only to satisfy FCC RF energy exposure requirements.

Checking 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.



1 Repeater



2 Power Cord

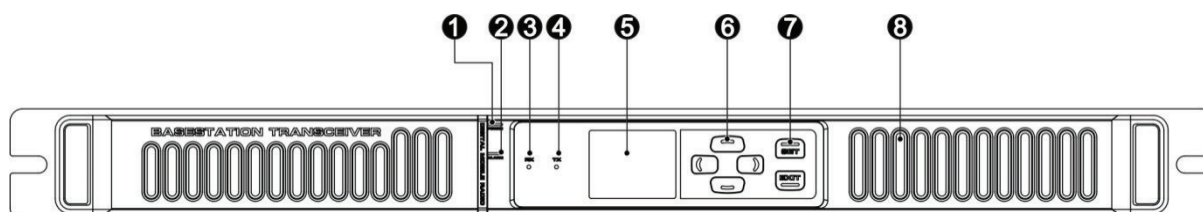


3 User Manual

Getting Started

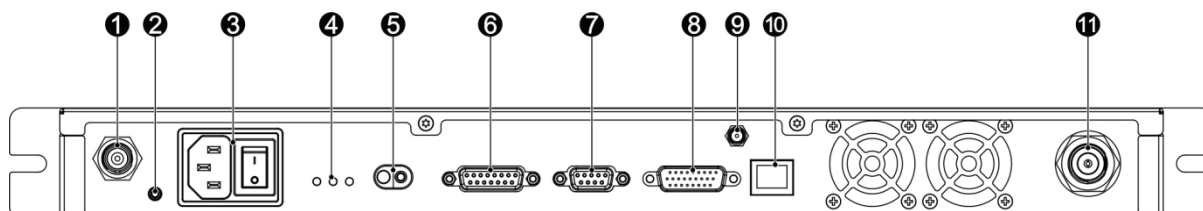
Product Overview

Front Panel



No.	Part Name	No.	Part Name
1	Power Indicator	5	LCD Display
2	Alarm Indicator	6	Navigation Keys
3	RX Indicator	7	SET/EXIT Key
4	TX Indicator	8	Speaker

Rear Panel



No.	Part Name	No.	Part Name
1	RX Connector (BNC)	7	DB9 Connector
2	Ground Screw	8	DB26 Connector
3	Main Power Supply Connector & Power Supply On/Off Switch	9	SMA Connector
4	LED Indicators ● Green LED: Indicates power supply is normal when lit. ● Blue LED: Indicates	10	RJ45 Ethernet Connector

No.	Part Name	No.	Part Name
	overload or short circuit occurs for the power supply when lit. ● Red LED: Indicates reverse battery polarity when lit.		
5	DC Power Inlet/12V Lead-acid Battery	11	TX or Duplexer Connector (Type-N)
6	DB15 Connector		

Installation Guide

Proper installation ensures the best possible performance and reliability of the repeater. Therefore, be sure to read the following instructions before installation.

Installation Requirements

1. Installation Environment

The repeater must be installed in a dry and well-ventilated place with ambient temperature of -30°C to +60°C and relative humidity of no more than 95%.

2. Installation Location

The repeater can be installed on a rack, bracket, and cabinet, or on a desk.



Caution: DO NOT place heavy objects on the repeater chassis.

Installation Steps

Install the repeater as follows:

1. Install the repeater at a proper location.
2. Attach all necessary accessories, like antenna feeder, power cord, data cable, etc.
3. Ground the repeater through the ground screw located on the rear panel.



Note:

- If the DC power supply or 12V lead-acid battery is used to supply power to the repeater, check and ensure that V_{DC} or battery voltage is within the repeater operating voltage range of 10.8V to 16.5V.
- Check and make sure no blocking occurs for the air inlet on the front panel and the cooling fan on the rear panel.
- After turning on the repeater, check whether the repeater works properly by observing the states of the Power and Alarm Indicators and located on the front panel.

Parameter Configuration

When the repeater proves to work normally, configure appropriate parameters (e.g. operating frequency, TX power, and signalling type) as per your actual requirements.



Caution: Disconnect the power supply to the repeater before opening the chassis.

LCD Icon

Icon Name	Icon	Repeater Status
Scan Indicator		Scan is in progress when lit.
TX Power Indicator		Low TX power for the current channel
		High TX power for the current channel
Network Connection Indicator		Network connection is normal when lit.
Slot Indicator		Repeater is transmitting or receiving on slot 1 when lit.
		Repeater is transmitting or receiving on slot 2 when lit.
Channel Mode Indicator	Analog Channel Alias Digital Channel Alias	The current channel is an analog or a digital channel.

LED Indicator

LED Indicator	Repeater Status
Power Indicator	Repeater is connected to the power supply.
TX Indicator	The repeater is transmitting on a digital or an analog channel.
RX Indicator	The repeater is receiving on a digital/an analog channel.
Alarm Indicator	The repeater works abnormally.

Basic Operations

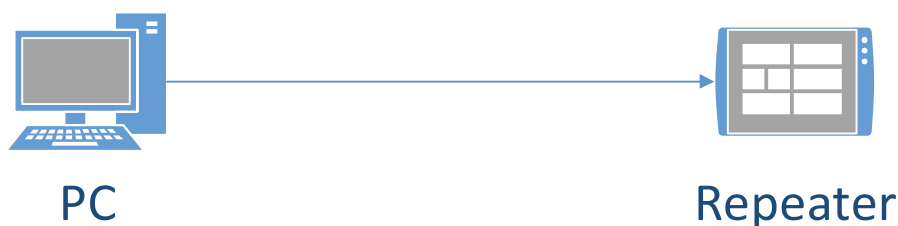
Turning the Repeater On/Off

- ON: Turn on the repeater by connecting an AC or a DC power supply to it. During the power-up process, the Power indicator glows green and the LCD shows animation.
- OFF: Disconnect the AC/DC power supply.

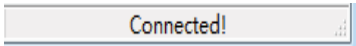
Reading from/Writing to a Repeater

This option instructs the PC to read/write data from/to a repeater through the RJ45 Ethernet connector located at the rear panel of the repeater. The repeater could be connected to the PC directly or to the PC via router in LAN.

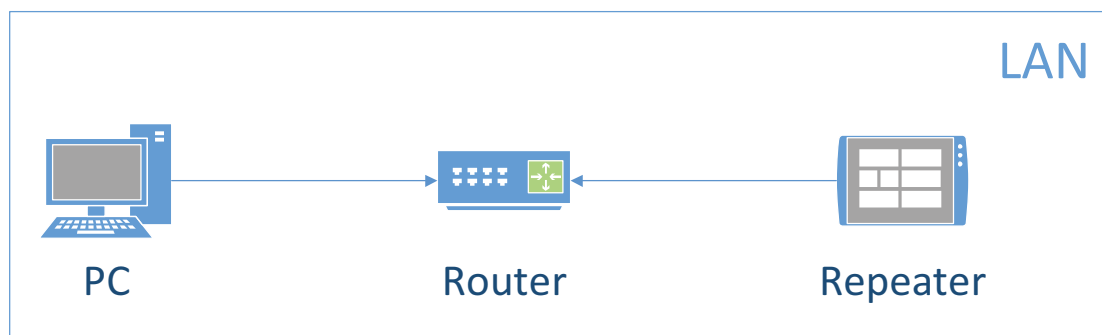
- Connecting Repeater to the PC Directly



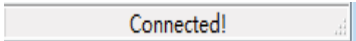
1. Connect the repeater to the PC with a network cable.
2. Check the repeater IP address via menu operation.
3. Set the PC IP address to be in the same network segment as that of the repeater.
4. Click “Connect” at the CPS menu bar and then the Connect to Repeater window appears.
5. Click “Scan” to search for the repeater to which the PC will connect.
6. Select the IP address and click “OK” to connect the repeater to the PC.

If connection is successful,  is displayed at the CPS status bar. Upon successful connection, you may click “Read” or “Write” at the CPS menu bar to read from/write to the repeater.

- Connecting the Repeater to the PC via Router in LAN



1. Connect the repeater to the PC via the router in LAN using a network cable.
2. Check the repeater IP address via menu operation.
3. Set the PC IP address to be in the same network segment as that of the repeater.
4. Click “Connect” at the repeater CPS menu bar and then the Connect to Repeater window appears.
5. Click “Scan” to search for the repeater to which the PC will connect.
6. Select the IP address and click “OK” to connect the repeater to the PC.

If connection is successful,  is displayed at the CPS status bar. Upon successful connection, you may click “Read” or “Write” at the CPS menu bar to read from/write to the repeater.



Note: Before writing to the repeater, you may revert the PC IP address to its previous one and set the repeater IP address to be in the same network segment as that of the PC, to facilitate normal PC operation.

Adjusting the Volume

Press the  key to increase the volume or the  key to decrease the volume.

Squelch Level

This option can reduce background noise by adjusting the squelch level when the repeater is receiving signals. You may set the squelch level to Tight, Normal, or Open using the repeater menu. Tight squelch level can filter weak signals, and allow only strong signals to be received. If the squelch level is set to Open, the repeater will turn on the speaker and background noise will be heard.

Follow the procedures below to set the squelch level.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Function” option.
3. Press the **SET** key to enter the Function menu.
4. Use the / key to select the “Squelch Level” option.
5. Press the **SET** key to enter the Squelch Level menu.
6. Use the / key to select Open, Normal, or Tight.
7. Press the **SET** key to set the selected option as the squelch level.

To exit this menu, press the **EXIT** key.



Note: This feature is applicable to analog channels only.

Scan

The Scan feature allows the repeater to search the scan list that is attached to the current channel for an eligible channel to receive or unmute.

Before initiating the scan function using the repeater menu, follow the procedures below to attach a scan list to the current channel using the CPS.

Procedure:

1. Log in to the CPS.
2. Go to “Conventional -> Scan -> Selected Scan List”.
3. Add channels (analog or digital) to be scanned into the Selected Scan List.
4. Go to “Conventional -> Channel -> Digital/Analog Channel -> Current Channel”.
5. In the Scan/Roam List option, attach the Selected Scan List to this channel.

After you have attached a scan list to the current channel, follow the following procedures to enable/disable the scan feature via menu operation.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Function” option.
3. Press the **SET** key to enter the Function menu.
4. Use the / key to select the “Scan” option.
5. Press the **SET** key to enter the Scan menu.
6. Use the / key to select On or Off.
7. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Power Level

You may set the TX power to High or Low. High power can extend repeater coverage, enabling you to communicate with farther terminals. The TX power is represented by the icons  and  respectively on the LCD display.

Follow the following procedures to set the TX power.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Power Level” option.
3. Press the **SET** key to enter the Power Level menu.
4. Use the / key to select High or Low.
5. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Zone

A zone is a group of channels. Your repeater supports up to 128 channels and eight zones (Zone 0 to Zone 7), with a maximum of 16 channels per zone.

Follow the following procedures to select a zone.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Zone” option.
3. Press the **SET** key to enter the Zone menu.
4. Use the / key to select a zone.
5. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Backlight

This option allows users to control the backlight using the menu. Activating the backlight can illuminate the LCD display, so as to facilitate your operation.

You may set the backlight to operate in any of the following modes:

- **Timed:** Any key press operation can activate the backlight. If no foregoing event occurs with the specified time period, the backlight will go out automatically.
- **Never:** The backlight remains activated all the time.



Note: When an alarm event occurs, the backlight will remain activated until the alarm disappears.

Follow the procedures below to set the backlight.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Repeater Settings” option.
3. Press the **SET** key to enter the Repeater Settings menu.
4. Use the / key to select the “Display” option.
5. Press the **SET** key to enter the Display menu.
6. Use the / key to select the “Backlight” option.
7. Press the **SET** key to enter the Backlight menu.
8. Use the / key to select a desired time or Never.
9. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Brightness

This option allows users to adjust brightness (0-7) using the menu.

Follow the following procedures to set brightness.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Repeater Settings” option.
3. Press the **SET** key to enter the Repeater Settings menu.
4. Use the / key to select the “Display” option.
5. Press the **SET** key to enter the Display menu.
6. Use the / key to select the “Brightness” option.
7. Press the **SET** key to enter the Brightness menu.
8. Press the  key to increase brightness or  to decrease brightness.
9. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Menu Reset

This parameter allows users to define the amount of time that the repeater remains in the menu mode. The counter will be activated after the repeater enters the menu. In the event of no key press operation within the preset time period, the repeater will automatically exit the menu.

You may set the menu reset to operate in any of the following modes:

- Timed: If no key press occurs within the specified time period, the repeater will automatically return to the home screen.
- Never: The radio user can manually exit the menu only.

Follow the procedures below to set the menu reset time.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Repeater Settings” option.
3. Press the **SET** key to enter the Repeater Settings menu.
4. Use the / key to select the “Menu Reset” option.

5. Press the **SET** key to enter the Menu Reset menu.
6. Use the / key to select Never or a desired menu reset time.
7. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

TX/RX LED

This option decides whether to give any LED alert when the repeater is transmitting and/or receiving.

You can set the following TX/RX LED related parameters: LED Switch, TX LED, and RX LED.

- **LED Switch:** If the On option is selected, TX LED and RX LED light when the repeater is transmitting and receiving. If the Off option is selected, Neither TX LED nor RX LED lights when the repeater is transmitting and receiving.
- **TX LED:** If the On option is selected, TX LED lights when the repeater is transmitting. If the Off option is selected, TX LED does not light when the repeater is transmitting.
- **RX LED:** If the On option is selected, RX LED lights when the repeater is receiving. If the Off option is selected, RX LED does not light when the repeater is receiving.

Follow the procedures below to set TX/RX LED related parameters.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Repeater Settings” option.
3. Press the **SET** key to enter the Repeater Settings menu.
4. Use the / key to select the “LED” option.
5. Press the **SET** key to enter the LED menu.
6. Use the / key to select any of the TX/RX LED related parameters among LED Switch, TX LED, and RX LED.
7. Press the **SET** key to enter the LED submenu.
8. Use the / key to select On or Off.
9. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Language

You can select a display language from the languages available in the repeater. This repeater supports English and Chinese.

Follow the following procedures to select a display language.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Repeater Settings” option.
3. Press the **SET** key to enter the Repeater Settings menu.
4. Use the / key to select the “Language” option.
5. Press the **SET** key to enter the Language menu.
6. Use the / key to select Chinese or English.
7. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Locking/Unlocking the Repeater

This repeater is equipped with Keypad Lock capability to prevent accidental key operation.

- Lock: You can set whether to allow the repeater to automatically lock the keys on the front panel and the auto lock delay time.
- Unlock: Press the  key and then the **SET** key to unlock the keys on the front panel.

Follow the following procedures to set the keypad lock feature.

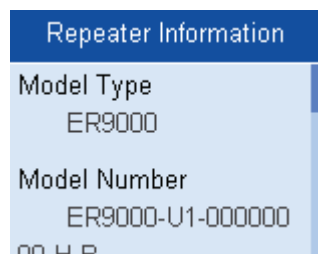
Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the / key to select the “Repeater Settings” option.
3. Press the **SET** key to enter the Repeater Settings menu.
4. Use the / key to select the “Keypad Lock” option.
5. Press the **SET** key to enter the Keypad Lock menu.
6. Use the / key to select Never or an auto lock delay time.
7. Press the **SET** key to save the settings in the system.

To exit this menu, press the **EXIT** key.

Menu Navigation

Repeater Information



Under this menu, you can use the   key to view repeater information, including Model Type, Model Number, Data Version, and Firmware Version.

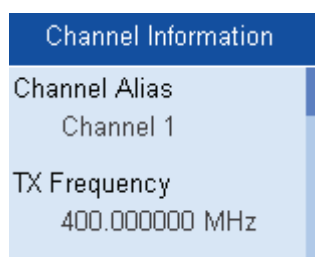
Follow the procedures below to view repeater information.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the   key to select the “Repeater Information” option.
3. Press the **SET** key to view basic information of the repeater.

To exit this menu, press the **EXIT** key.

Channel Information



Under this menu, you can use the   key to view channel information, including Channel Alias and TX Frequency.

Follow the procedures below to view channel information.

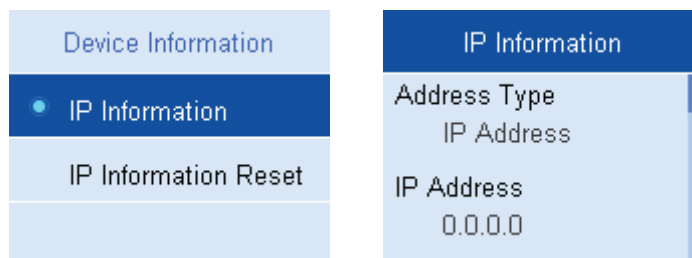
Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the   key to select the “Channel Information” option.
3. Press the **SET** key to view channel information.

To exit this menu, press the **EXIT** key.

Device Information

IP Information



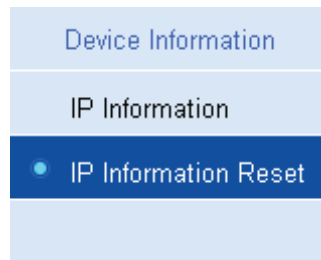
Under this menu, you can use the   key to view IP information, including Address Type, IP Address, Subnet Mask, Default Gateway, and MAC Address. Follow the procedures below to view IP information.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the   key to select the “Device Information” option.
3. Press the **SET** key to enter the Device Information menu.
4. Use the   key to select the “IP Information” option.
5. Press the **SET** key to view IP information.

To exit this menu, press the **EXIT** key.

IP Information Reset



Under this menu, you can restore IP information to factory defaults.

Follow the procedures below to restore IP information to factory defaults.

Procedure:

1. In the home screen, press the **SET** key to enter the main menu.
2. Use the /  key to select the “Device Information” option.
3. Press the **SET** key to enter the Device Information menu.
4. Use the /  key to select the “IP Information Reset” option.
5. Press the **SET** key to restore IP information to factory defaults.

To exit this menu, press the **EXIT** key.

Alarm Information

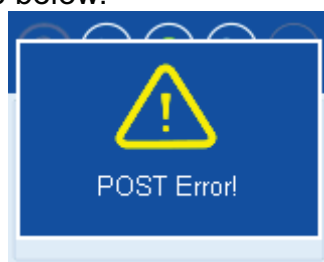
The repeater can automatically detect its operation status in a real time way. When an abnormality occurs, the LCD display will give you a prompt message, and the Alarm Indicator will glow red.

POST Error Alarm

The principal duties of the system during POST are as follows:

- verify fan
- verify LCD display
- verify TX circuit
- verify RX circuit
- verify active duplexer circuit

When an error occurs during POST, abnormality of partial functions happens and the system runs normally. In addition, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



You need to:

1. Disconnect the power supply, open the chassis, and check whether the LCD display is properly connected or damaged.
2. Disconnect the power supply and open the chassis to check whether the fan works properly.
3. Disconnect the power supply and open the chassis to check if the hardware cable gets loose or damaged. If yes, secure or replace the hardware cable.
4. If you cannot solve the problem, contact your local dealer for technical support.

Over Temperature Alarm

When the temperature of the PA module exceeds the normal range, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



Then the repeater will stop transmitting, and you need to:

1. Check whether the Fan Failure Alarm prompt message appears on the LCD display.

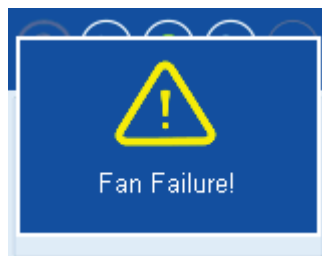
If yes, refer to measures taken in **Fan Failure Alarm**.

2. Check whether ambient temperature and ventilation conditions satisfy the foregoing installation requirements. If not, please make improvements as soon as possible. For example, install more air conditioners for optimal ventilation.
3. Check if the RF cable or antenna feeder that is connected to the transmitter is loose or damaged. Poor connection between them could cause high TX power. If yes, secure or replace the cable or antenna feeder.
4. If the above measures fail to solve the problem, contact your local dealer for technical support.

When repeater temperature falls into normal range, the prompt message will disappear and the Alarm Indicator will go out.

Fan Failure Alarm

When the fan fails to work, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



Then the repeater will automatically work at low TX power to protect the transmitter from overheating.

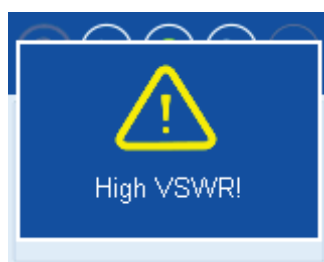
You need to:

1. Check whether the fan is blocked by an object. If yes, remove it.
2. If you cannot solve the problem, contact your local dealer for technical support.

When the fan restores to normal operation, the prompt message will disappear and the Alarm Indicator will go out.

VSWR Alarm

High voltage standing wave ratio (VSWR) of TX antenna connector could result in damage to the PA, and even failure of the transmitter. When the VSWR exceeds the normal range, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



Then the repeater will automatically works at low TX power.

You need to:

1. Check whether the operating frequency of the repeater is in line with that of antenna.
Both frequency mismatch and improper antenna could result in poor transmitting performance and even damage to the transmitter. If yes, please contact your local dealer to replace the antenna or program the repeater again.

2. Check if the RF cable or antenna feeder that is connected to the transmitter gets loose or damaged. If yes, secure or replace the cable or antenna feeder.
3. If you fail to solve the problem, contact your local dealer for technical support.

When the VSWR falls within the normal range, the prompt message will disappear and the Alarm Indicator will go out.

Low Forward Power Alarm

When the forward power is below the preset value, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



Then the repeater may continue transmission or terminate it according to the detected result.

You need to:

1. Check if the RF cable or antenna feeder that is connected to the transmitter gets loose or damaged. If yes, secure or replace the cable or antenna feeder.
2. If you cannot solve the problem, contact your local dealer for technical support.

When the forward power is restored to its normal value, the prompt message will disappear and the Alarm Indicator will go out.

Over/Low Voltage Alarm

When power voltage is detected to be over or below the normal range (10.8V-15.6V) of repeater, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



Low Voltage Alarm

Over Voltage Alarm

Then the repeater will automatically stop working and the prompt message will remain on the LCD display.

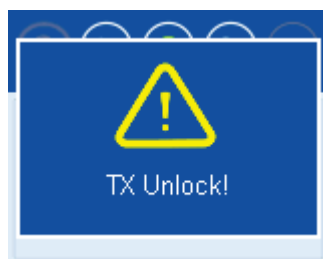
You need to:

1. Check whether the power voltage is too low or too high. If yes, replace the DC power supply or external battery.
2. Check if the power cord gets loose or damaged. If yes, secure or replace the cord.
3. If you fail to solve the problem, contact your local dealer for technical support.

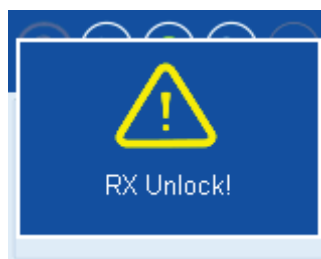
 **Caution:** If low voltage is detected when the repeater is powered by an external battery, please charge it in time. Disconnect the battery from the repeater before charging.

TX/RX Unlock Alarm

When the TX/RX PLL is unlocked, the Alarm Indicator will glow red and the LCD display will give you the prompt message below:



TX Unlock Alarm



RX Unlock Alarm

Then the repeater will automatically stop partial operations and the prompt message will remain on the LCD display.

You need to:

1. Disconnect the power supply, open the chassis, and check whether the hardware cable gets loose or damaged. If yes, please secure or replace the cable.
2. If you cannot solve the problem, contact your local dealer for technical support.

When the TX/RX PLL restores to normal operation, the prompt message will disappear and the Alarm Indicator will go out.



Caution: Disconnect the power supply prior to opening the chassis!

Optional Accessories

The following items are the main optional accessories for the product. Please contact us at +86-10-67869119 for more information.

		
Auto Tune Duplexer EDU001	Fiberglass Antenna EAD000001	Power Cord EPWCAZ01
		
Programming Cable EPC03	Fuse EACC001	Mobile Antenna EAM434401



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

Troubleshooting

Phenomena	Analysis	Solution
The repeater cannot be powered on.	Power cord is not connected or is not securely connected to the outlet.	Properly connect the power cord and secure connection.
	Power cord fuse is damaged.	Check whether the fuse has blown. If yes, replace it with a new one.
Group members cannot talk to each other, or the repeater cannot communicate with a subscriber radio.	TX/RX frequency of the repeater is inconsistent with that of portable/mobile terminals.	Reset frequencies.
	Failed to repeat useful signal due to strong interference signal.	If you cannot remove or bypass the interference source, change or operate at other frequencies.
	The group member is out of the coverage of the repeater.	Go within the coverage of the repeater.
Group members cannot talk to each other, even though RX indication is given.	Your ID is inconsistent with that of other group members.	Set your ID to be the same as that of other members.
	Inconsistent CTCSS/CDCSS	Reset CTCSS/CDCSS.
Short communication range or poor audio	Leakage of signal energy due to damaged connection cable.	Replace the cable with a new one if necessary.
	Loose connection between the antenna connector and the cable, or loss of connection	Secure or replace the cable.
	Invisible damage of cable	Replace the cable with a new one.
	Duplexer is not properly set (if the duplexer is mounted).	Contact the manufacturer or your dealer to reset the duplexer.

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. Power off the repeater or disconnect it from the external battery before cleaning.

Product Care

- Keep the product at a place of good ventilation and heat dissipation to facilitate normal work.
- Do not place irrelevant articles on the top of the product to ensure optimal heat dissipation.
- Do not pierce or scrape the product with any edged instruments or hard objects.
- Keep the product far away from substances that can corrode the circuit.
- Do not place the product in corrosive agents, solutions, or water.

Product Cleaning

- Remove the dust and fine particles on the repeater surface with a clean and dry lint-free cloth or a brush regularly.
- Use a non-woven cloth with neutral cleanser to clean the keys, control knobs, LCD, and connectors after long-time use. Never use chemical preparations such as stain removers, alcohol, sprays, or oil preparations. Make sure the product is completely dry before use.

Limited Warranty

What This Warranty Covers and for How Long

Shenzhen Excera Technology Co., Ltd. warrants the Excera manufactured products listed below against defects in material and workmanship under normal use and service for a period of time from the date of purchase as scheduled below:

ER9000 Digital Repeaters	Two Years
Accessories	Six Months

How to Get Warranty Service

You must provide a completely filled warranty card, purchase invoice, and receipt in order to get warranty services. The purchase invoice or receipt should indicate the repeater, accessories, repeater serial number, purchase date, and purchase amount.

What This Warranty Does Not Cover

1. Defect or damage resulting from use of the product in other than its normal and customary manner
2. Defect or damage caused by unauthorized product disassembly, repair, or modification
3. Damage due to force majeure, such as flood, lightning strike, earthquake, tsunami, fire, and abnormal voltage
4. Product that does not have proof of purchase, such as warranty card, purchase invoice, or receipt
5. Product which has had the serial number and the tamper-proof label removed or made illegible
6. Normal and customary wear and tear

Disclaimer

The information in this manual is carefully examined and is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies. 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 prior written permission of the Company.

RF High Power:47W, RF Low Power:5W.

The maximum allowable station effective radiated power (ERP) is dependent upon the station's antenna HAAT and required service area and will be authorized in accordance with table 2.

Table 2—450-470 MHz—Maximum ERP/Reference HAAT for a Specific Service Area Radius

	Service area radius (km)									
	3	8	13	16	24	32	40 ⁴	48 ⁴	64 ⁴	80 ⁴
Maximum ERP (w) ¹	2	100	2500	2500	2500	2500	2500	2500	2500	2500
Up to reference HAAT (m) ³	15	15	15	27	63	125	250	410	950	2700

³When the actual antenna HAAT is greater than the reference HAAT, the allowable ERP will be reduced in accordance with the following equation: $ERP_{allow} = ERP_{max} \times (HAAT_{ref} / HAAT_{actual})^2$.

Warranty Card

Purchase Information

Customer Name: _____

Customer Phone: _____

Customer Address: _____

Purchase Date: _____

Repeater Information

Model Number: _____

Serial Number: _____



Note:

- This warranty card applies to after-sale and maintenance services for the product and accessories described above.
- You must provide this warranty card and purchase invoice in order to get warranty services.
- The Company does not assume liability for damages caused by human factors. For more details, contact your local dealer.

SHENZHEN EXCERA TECHNOLOGY CO.,LTD.

Address: 3rd Floor, Block B, Jiada R&D Building, No.5 Songpingshan Road, Hi-Tech Park North, Nanshan District, Shenzhen

Postal Code: 518057

Web: www.excera.com.cn

Tel: +86-755-33010298