



## Preface

Thanks for your favor in our product. To derive optimum performance from the product, please read this manual and the *Safety Information Booklet* carefully before use.

## Instructional Icons

 **Caution:** Indicates situations that could cause damage to your product or bodily injury.

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

## Term Explanation

### Voltage Standing Wave Ratio (VSWR)

Voltage Standing Wave Ratio (VSWR) is a value that measures how well a load is impedance-matched to a source.

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<http://www.hytera.com>.

## FCC Statement

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

Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Note: 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.

## **Compliance with RF Exposure Standards**

Hytera's radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR § 1.1307, 1.1310 and 2.1091
  - American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1:2005; Canada RSS102 Issue 5 March 2015
- Institute of Electrical and Electronic Engineers (IEEE) C95.1:2005 Edition

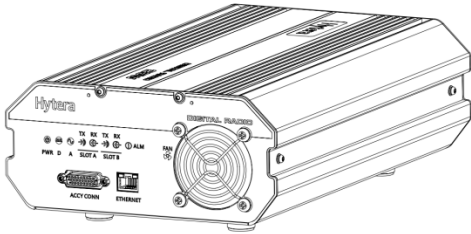
## **Operational Instructions and Training Guidelines**

To ensure the optimal performance and the compliance with occupational/controlled environment RF radiance limits in the above standards, please adhere to the following requirements:

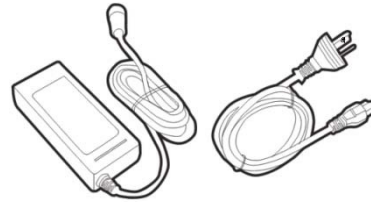
- When you are installing the product antenna outside, set up the antenna according to the supplier's requirements with its Gain within 5dBi and keep it at least 50cm away from human body.
- Not used duty cycle over 50%.

## 1. Checking Items in the Package

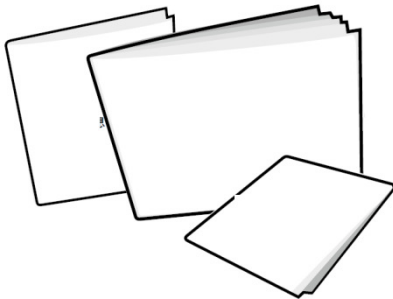
Please unpack carefully and check that all items listed below are received. If any item is missing or damaged, please contact your dealer.



## Repeater



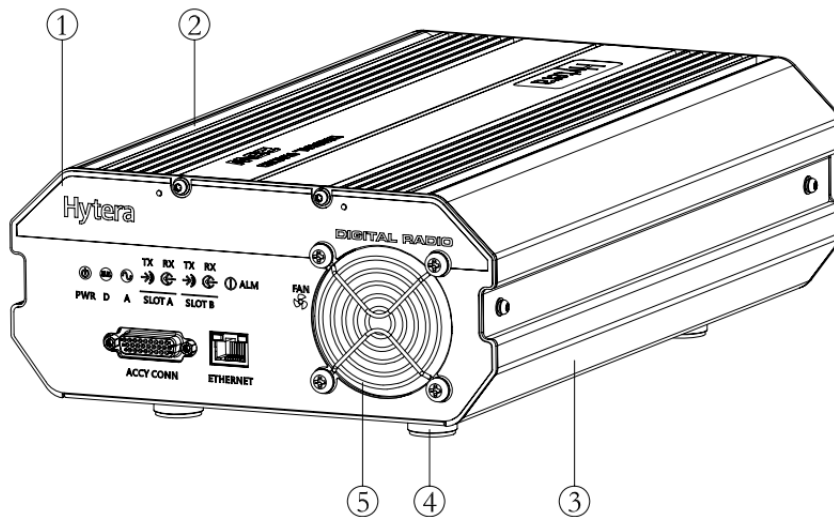
AC Power Cord



## Documentation Kit

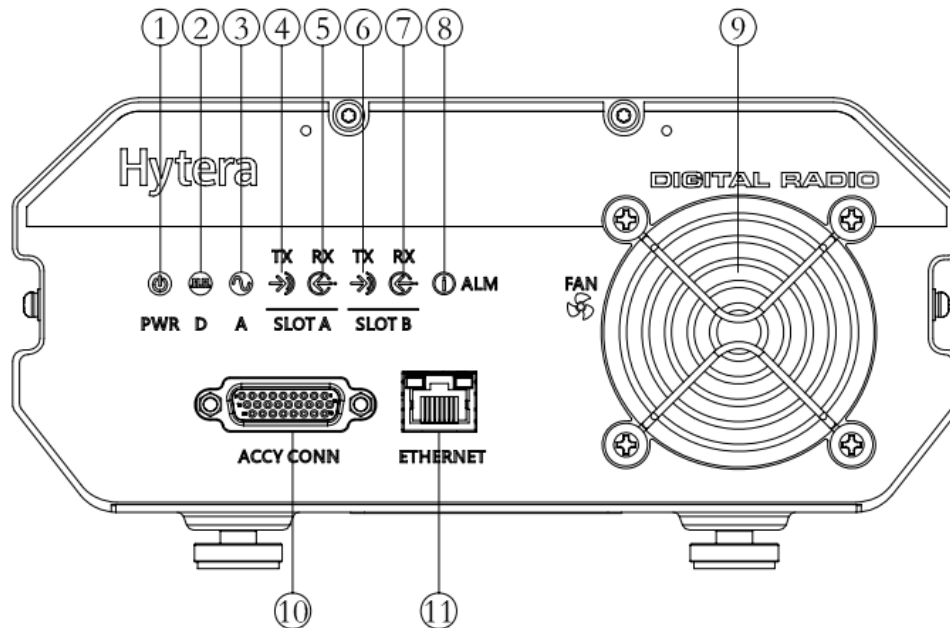
## 2. Product Introduction

### 2.1 Parts



No.	Part Name	No.	Part Name
1	Front Panel	4	Foot Pad
2	Upper Cover	5	Fan Mesh Enclosure
3	Chassis	/	/

## 2.2 Front Panel

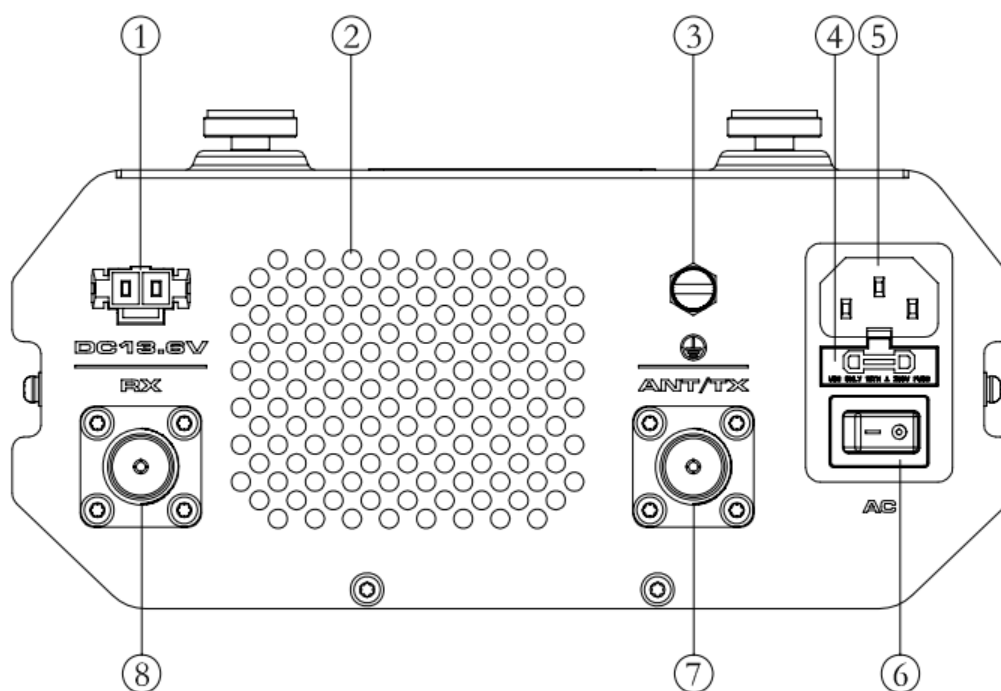


No.	Part Name	No.	Part Name
1	Power Indicator	7	Slot B RX Indicator
2	Digital Mode Indicator	8	Alarm Indicator
3	Analog Mode Indicator	9	Fan Inlet
4	Slot A TX Indicator	10	D-SUB Data Interface
5	Slot A RX Indicator	11	RJ45 Data Interface
6	Slot B TX Indicator	/	/

### Note:

If the repeater is manufactured without internal duplexer, then part 8 will be an external duplexer RX port; if it is manufactured with internal duplexer, then there is no connection inside part 8.

## 2.3 Rear Panel



No.	Part Name	No.	Part Name
1	DC Power Inlet	5	AC Power Inlet
2	Fan Outlet	6	AC Power Switch
3	Ground Terminal	7	ANT/TX Antenna Connector (N-type Female)
4	Fuse Box	8	RX Antenna Connector (N-type Female)

### 3. Status Indication

LED indicators on the front panel indicate the following repeater status:

LED Indicator Name	LED Indicator Status	Repeater Status
Digital Mode Indicator	Blue	The repeater is operating in digital mode.
Analog Mode Indicator	Yellow	The repeater is operating in analog mode.
Slot A TX Indicator	Red	<ul style="list-style-type: none"><li>● Analog Mode: The repeater is transmitting.</li><li>● Digital Mode: Slot A is transmitting.</li></ul>
Slot A RX Indicator	Green	<ul style="list-style-type: none"><li>● Analog Mode: The repeater is receiving.</li><li>● Digital Mode: Slot A is receiving.</li></ul>
Slot B TX Indicator	Red	Digital Mode: Slot B is transmitting.
Slot B RX Indicator	Green	Digital Mode: Slot B is receiving.
Alarm Indicator	Red	Alarm alert indication will remain until all alarms are eliminated.

## 4. Before Use

### 4.1 Instruction

To ensure optimum performance and reliability of the repeater, please read the following instructions carefully.

#### Operation Environment

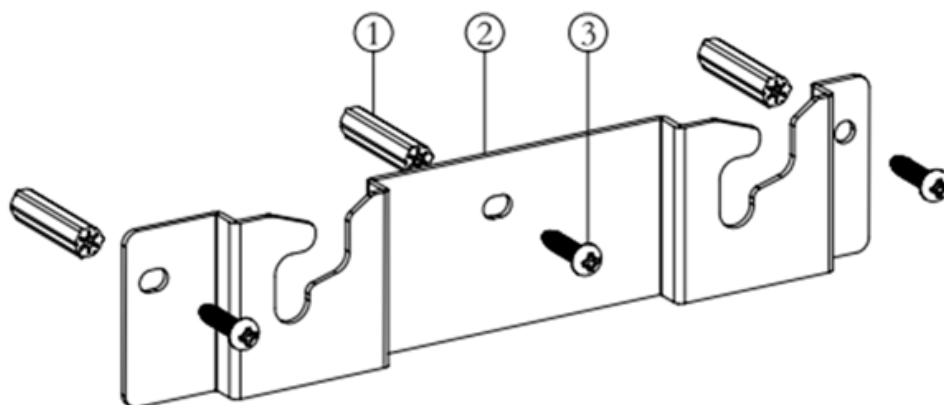
The repeater must be installed in a dry and well-ventilated place with ambient temperature of -30 °C to +60°C and relative humidity of not more than 95%.

#### Voltage Check

Check whether the input voltage is within the operating voltage of the repeater (DC power supply: 13.6V  $\pm$  15%; AC power supply: 90V to 264V).

### 4.2 Wall-mount Bracket Installation (Optional)

Please contact your dealer to purchase a wall-mount bracket kit to install the repeater on the wall.



No.	Part Name	No.	Part Name
1	Expansion Rubber Plug	3	Self-tapping Screw
2	Wall-mount Bracket	/	/

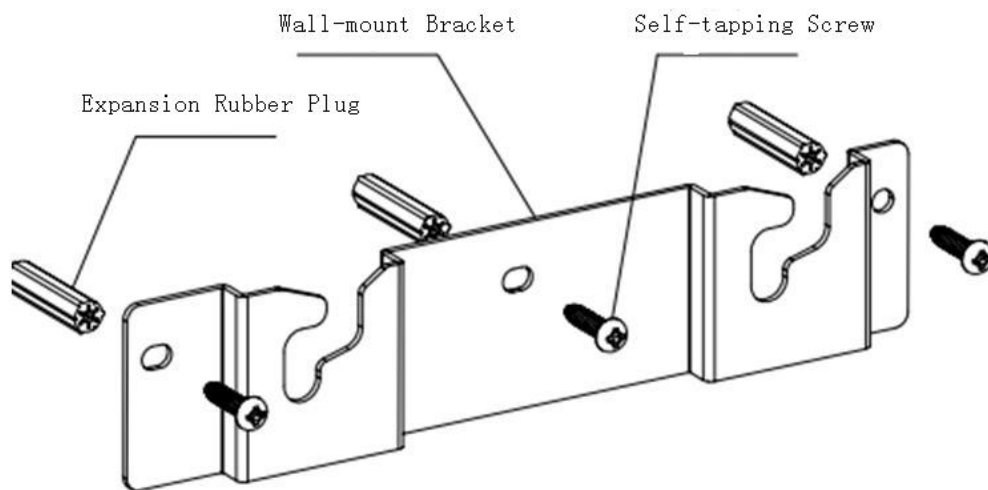
#### 4.2.1 Installation Tools

Tools required for installing the repeater include an electric drill and a T10 torx screwdriver.

#### 4.2.2 Installation Steps

**Step 1** To install the wall-mount bracket, do as follows:

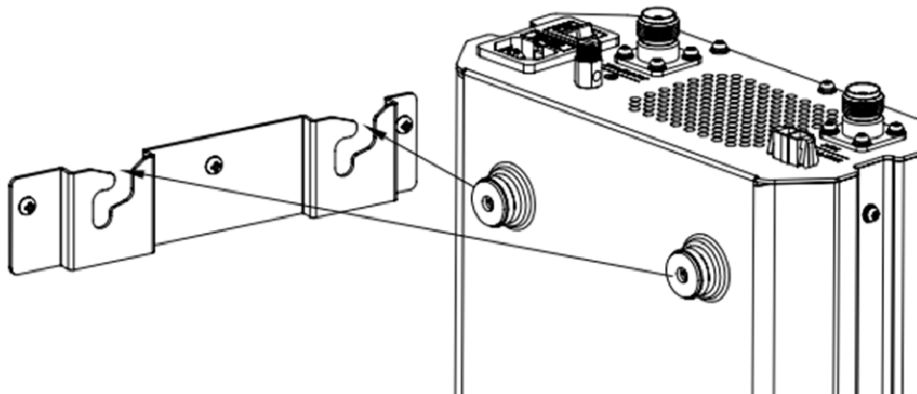
1. Use the electric drill to drill three holes on the wall which align with that on the wall-mount bracket;
2. Put the expansion rubber plug into the drill holes; you can ignore this step if the wall is not a concrete wall;
3. Use three ST4X16 self-tapping screws to fasten the bracket on the wall.



 **Note:** Make sure the wall can support the repeater's weight before drilling.

**Step 2** To amount the repeater on the bracket, do as follows:

1. Align the hanging screws on the upper side of the repeater with the notch of the bracket and hang the repeater on the bracket;
2. Move the repeater side to side slightly to ensure the hanging screws reach the bottom of the notch.



### 4.2.3 Product Check

Please check whether the repeater works properly by observing the 7 LEDs located in the front panel after the repeater is powered on via the **AC Power Switch** key.

## 5. Basic Operation

### 5.1 Powering On/Off

#### Powering On/Off Manually

- To power on, long press the **AC Power Switch** after connecting the power supply with the power adapter.
- To power off, long press the **AC Power Switch**.

#### Auto Power On

If the power of the adapter happens to be cut off or the power adapter runs out of the battery power when in use, the repeater will be powered off forcibly. After that, when the power adapter restarts to supply power, the repeater will power on automatically.

The Auto Power on feature is set via the programming software by the dealer.

### 5.2 Adjusting the Power Level

You can request your dealer to set the TX power to High or Low. High power can extend the repeater coverage, enabling you to communicate with farther radios.

## 6. Status Indication

The LED indicators on the front panel indicate the following repeating status:

LED Indicator Name	LED Indication	Repeater Status
Digital Mode LED Indicator	Blue	The repeater is operating in digital mode.
Analog Mode LED Indicator	Yellow	The repeater is operating in analog mode.
Slot A TX LED Indicator	Red	<ul style="list-style-type: none"><li>• Analog mode: The repeater is transmitting.</li><li>• Digital mode: The repeater is transmitting in Slot A.</li></ul>
Slot A RX LED Indicator	Green	<ul style="list-style-type: none"><li>• Analog mode: The repeater is receiving.</li><li>• Digital mode: The repeater is receiving in Slot A.</li></ul>
Slot B TX LED Indicator	Red	Digital mode: The repeater is transmitting in Slot B.
Slot B RX LED Indicator	Green	Digital Mode: The repeater is receiving in Slot B.
Alarm LED Indicator	Red	Alarm occurs. The alarm LED indicator will remain red until all alarms are eliminated.

## 7. Alarm Information

The repeater will have real-time detection of its status automatically. When the repeater is operating abnormally, the alarm indicator on the front panel will remain glowing red until all alarms are eliminated.

When an alarm event occurs, you can diagnose and handle the problem via the RDAC application provided by us or contact your local dealer for technical support.

Alarm types and causes are listed in the table below:

Alarm Type	Alarm Cause
External Power Abnormal	High Voltage: The input voltage is higher than $15.8V \pm 0.2V$ . Low Voltage: The input voltage is lower than $11V \pm 0.2V$ .
High Temperature	Temperature sensor detects a temperature above $85^{\circ}\text{C}$ .
Abnormal VSWR	$VSWR > 3:1$ . Over-high VSWR will damage the PA module or even disable it.
TX Unlock	TX PLL is unlocked, and the repeater stops transmitting and repeating.
RX Unlock	RX PLL is unlocked, and the repeater stops receiving and repeating.
Fan Failure	PA temperature is higher than the fan off temperature configured via CPS.

## 8. Troubleshooting

Phenomena	Analysis	Solution
Power-on Failure.	The power cord may be unconnected or not securely connected to the outlet.	Properly connect the power cord and ensure secure connection.
	The power supply may output improper voltage.	Check if the power supply outputs the voltage within the required range (DC power supply: $13.6V \pm 15\%$ ; AC power supply: 90V to 264V). If not, replace the power adapter.
Unable to communicate with other members.	TX/RX frequency of the repeater is inconsistent with that of portable/mobile radios.	Check if the frequencies are consistent. Reset the frequencies when necessary.
	Failed to repeat useful signal due to strong interference signals.	If you cannot remove or bypass the interference source, change to operate at other frequencies.
	The group member is out of the coverage of the repeater.	Move towards the coverage of the repeater.

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

## 9. Care and Cleaning

To guarantee optimal performance as well as a long service life of the repeater, please follow the tips below.

### Product Care

- Keep the repeater in good environmental conditions to ensure reliability.
- Do not place other equipment on top of the repeater to ensure optimal heat dissipation.
- Do not pierce or scrape the product.
- Keep the product far away from corrosive environments.
- Do not place the product in corrosive agents, solutions or water.

### Product Cleaning



**Caution:** Be sure to turn off the repeater before 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 fabric with neutral cleanser to clean the keys, control knobs, LCD and connectors. Do not use chemical preparations such as stain removers, alcohol, sprays or oil preparations. Make sure the repeater is completely dry before use.

## 10. Optional Accessories

Contact your local dealer for the optional accessories used with the product.



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