AR8000 Instruction

Thank you for choosing the ABELL AR8000 Repeater.

ABELL products incorporate cutting-edge scientific technology, stable electronic components, and undergo strict quality control, making them your wise choice.This high-quality repeater will provide you with reliable stability and quality.
This manual is applicable to the following model: ABELL AR8000.

Advance notice:

• Please do not expose this device to rain or humid environments to avoid the risk of fire or electric shock.
• Do not open the device in any environment to prevent the danger of electric shock.
• Avoid prolonged exposure of the device to direct sunlight or placement near heating appliances.
• Do not place the device in dusty, humid areas, or on unstable surfaces.
• Do not allow the plastic bag used for packaging this device to be accessible to children. If a child wears it, it could lead to suffocation.
• Always disconnect the power to the transmitter before installing optional accessories.
• If you detect unusual odors or smoke, immediately disconnect the power and contact your dealer or authorized service center.

Safety Instructions:

For your safe and efficient use of the repeater, please carefully read the following information.
• The chassis contains high-voltage and high-temperature components; please be cautious of the risk of electric shock and burns.
• Maintenance work must be performed by professional technicians; do not attempt to disassemble it yourself.
• Settings and installations must be approved by the local radio regulatory authority.
• The repeater chassis is equipped with grounding terminals that should be properly grounded to ensure equipment performance and safety.
• Proper lightning protection measures must be taken during the installation of the repeater antenna to prevent potentially severe life and property losses.
• It is crucial to use qualified antennas, lightning arresters, feeders, power splitters, and other corresponding accessories and to install them correctly to prevent damage to the repeater.

Check products

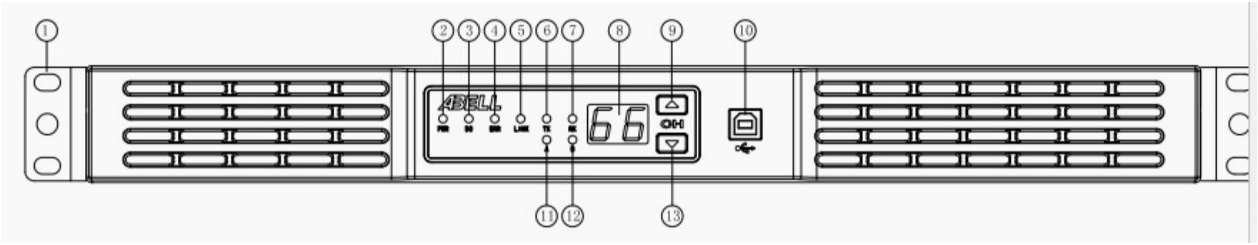
items	quantity
repeater	1
AC cable	1
USB cable	1
Screws and bay	1 set
fuse	1

Installation

Align the handle with the holes on the front panel bracket, and secure it with the provided screws to attach the handle to the front panel of the repeater.
Please consult your dealer for installation advice regarding the repeater and antenna.

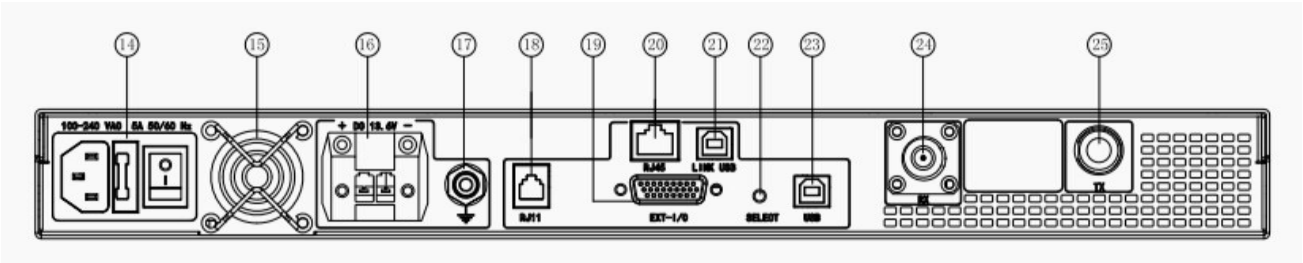
Product structure

Front panel



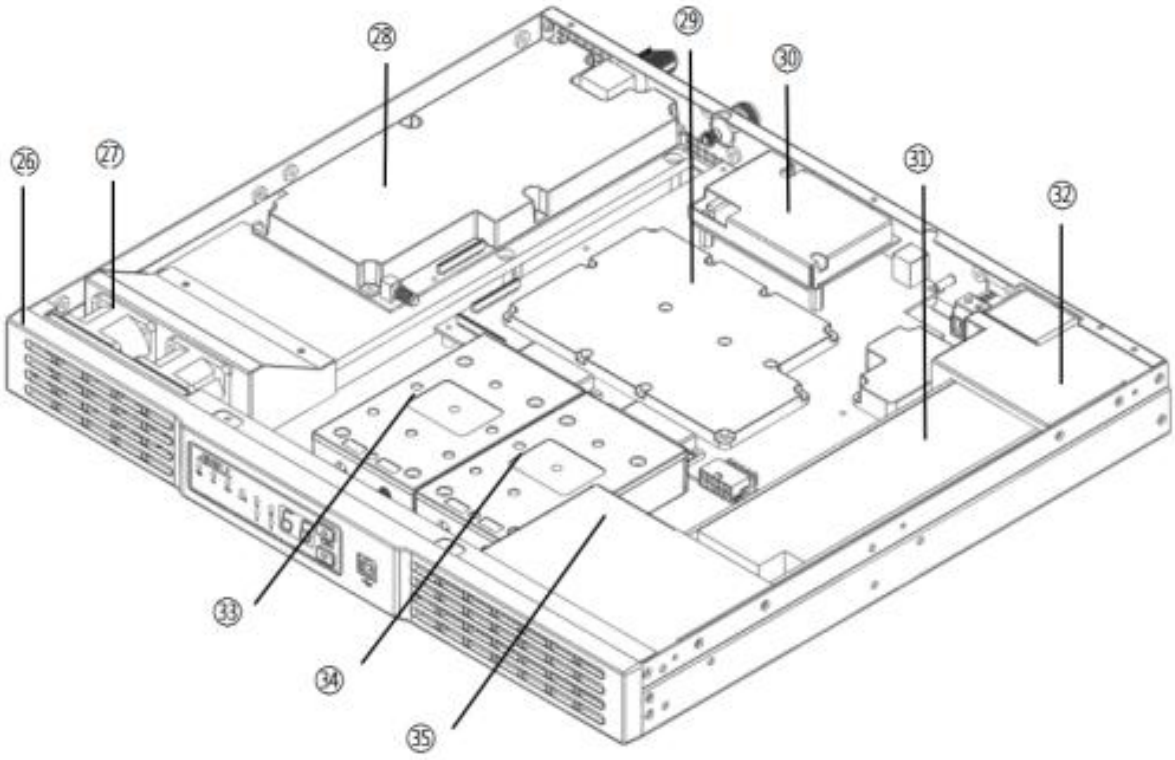
num	Part	num	part
①	bracket	⑧	display
②	Power Indicator	⑨	Up button
③	DC Indicator	⑩	USB socket
④	ERR Indicator	⑪	A light
⑤	LINK Indicator	⑫	B light
⑥	TX Indicator	⑬	Down button
⑦	RX Indicator		

Back panel



num	Part	num	part
⑭	AC input	⑳	RJ45 internet port
⑮	Power fan	㉑	IP-LINK port
⑯	DC input	㉒	SELECT
⑰	Grounding screw	㉓	USB socket
⑱	RJ11 input	㉔	RX antenna port
⑲	EXT-I/O	㉕	TX antenna port

Internal structure



num	Part	num	part
㉖	Front Panel	㉛	Power supply
㉗	Power amplifier fan	㉜	Power supply fan protection board
㉘	Power amplifier	㉝	RX Module
㉙	Main board	㉞	TX Module
㉚	IP Link board	㉟	Fuse board

Basic Operation

Power On

• If the product is connected to an external DC power source, turn on the switch of the external DC power source. The "PWR" indicator light and "DC" indicator light will display green, indicating successful device startup.

• If the product is connected to an AC power source, press the "Power Switch" button on the back panel. The "PWR" indicator light will display green, indicating successful device startup.

Shutdown

• If the product is connected to an external DC power source, turn off the switch of the external DC power source.

• If the product is connected to an AC power source, turn off the "Power Switch" button on the back panel.

Channel Switching

• While in standby mode, press the up or down key to change the current working channel. When changing channels, the display screen will flash the channel number. Wait for the display screen to stop flashing. The repeater successfully switches to the target channel and starts working.

Status Indicator Signal

• Digital Signal

When the repeater is forwarding, "TX" and "RX" indicators are always on; "A" indicator is always on for time slot 1 call, "B" indicator is always on for time slot 1 call, "B" indicator is always on for time slot 1 call, "B" indicator is always on for time slot 1 call, "B" indicator is always on for time slot 1 call. A" indicator is always on for time slot 1 call, "B" indicator is always on for time slot 2 call.

• Analog Signal

When repeater is forwarding, "TX" and "RX" indicators are always on.

• **LINK indicator signal**

When the LINK indicator is blinking, data transmission is carried out; when the LINK indicator is always on, data transmission is successful.

Basic function

DMR Digital Voice Relay

Upon receiving an uplink RF signal, the repeater's receiving end automatically controls the transmitting end (exciter module and power amplifier module) for relaying based on color code matching and prevents unauthorized users from activating and using the repeater.

Support analog voice relay

The repeater can set up transmit and receive CDCSS/CTCSS on each channel according to user requirements to achieve group relaying.

Support digital and analog Dual Detection

The repeater supports simultaneous detection of digital and analog signals. If the uplink signal is digital, it will be relayed according to digital relay rules. If the uplink signal is analog, it will be relayed according to analog relay rules.

DTMF Mode

DTMF Modulation and Demodulation

The hardware supports DTMF and FSK modulation and demodulation channels. By combining with software functional modules, DTMF signaling transmission functionality can be achieved.

PSTN Support

Supports incoming external phone calls or DTMF dial-out to specified phones, enabling voice relay services between external telephones and wireless terminals.

ASC System (Optional)

The ASC (Abell Site Connection) system interconnects multiple conventional DMR repeaters distributed in different geographical locations via an IP network, creating a larger signal coverage area, supporting more services, and providing easier operation, deployment, and management of emergency communication networks than a single repeater.

Besides supporting traditional voice and messaging services, it also offers features like call preemption, forced disconnection, roaming, positioning, authentication, recording, alarms, remote stun/activate, GIS, user management, remote device management, and more.

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 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, 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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

Operational Instructions and Training Guidelines

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should always adhere to the followings:

- Gain of antenna must not exceed 3.5dBi.
- Antenna Installation: Install the antenna at least 85cm away from your body, in accordance with the requirements of the antenna manufacturer/supplier.
- Do not remove the RF Exposure Label from the device.
- User awareness instructions should accompany device when transferred to other users.
- Do not use this device if the operational requirements described herein are not met.
- Transmit no more than the rated duty factor of 50% of the time. Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy only when transmitting (in terms of measuring for standards compliance).