

Thanks

Thanks for choosing ABELL series Two-way radio, we believe it is a wise choice to choose us because we have the latest technology, the most stable components, the most advanced production technology. ABELL series Two-way radio will provide you with a reliable performance and high quality you demand.

This manual is for ABELL A420T/A420T(LF).

Accessories



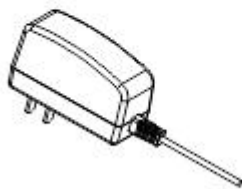
Antenna



Belt Clip



Lanyard



Power Adapter



Charger Base



Li-ion Battery

Radio Usage

Charging

To avoid any damages on the charger meanwhile following the guarantee articles, it must use the attached charger to charge the battery. Please charge the radio or the battery in the charger base.

Charger Indicator State

Indicator	Charging state
Flash Red	Waiting to charge
Steady Red	During charging
Steady Green	Charge complete

Battery Installation and Remove

Align the battery with the aluminum housing and press down on the battery; Please turn off the radio before removing the battery, then press the battery lock-latch to remove the battery.

Antenna Installation

Clockwise rotate the antenna into the connector on the top of the radio until it is tight. Do not over tighten.

Belt Clip Installation and Remove

Using 2 screws to lock the belt clip on the back of the radio until it is tight; unscrew it If need to remove the belt clip.

External Speaker /Microphone Installation

Connect the audio accessories to the SP/MIC jack.

Power on/off

Power-on: Turn [power switch/volume control knob] clockwise to hear the "click" sound to start the radio. If a power-on prompt tone is set, you will a power-on prompt tone and then enter the receiving mute state. Power off: turn [power switch/volume control knob] counterclockwise, hear "click" -, the radio is off.

Switching Channels

Rotate [Channel knob] to switch channel. If programmed the “Channel Announcement”, then you can hear the channel broadcast, If a continuous 'beep' tone is heard after the channel switch over, means the current channel is not programmed, cannot be used.

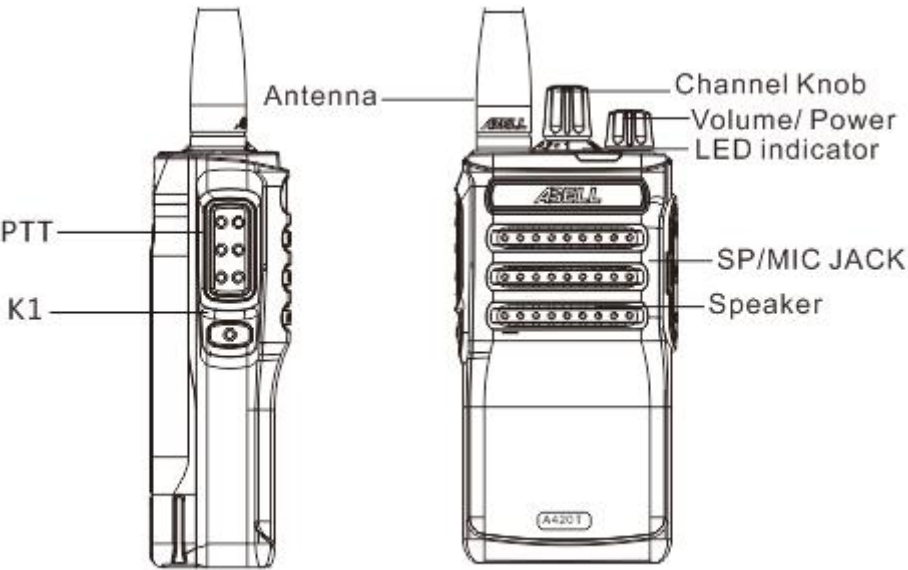
Communication

Switch the channel to the required channel.

Select the desired channel with the channel selector.

Transmit: Hold the radio in a vertical position approximately 2.0 cm(1 inch) from your lip. Press the PTT and speak.

Receive: The LED indicator will light green when a signal is received and the speaker will emit audio. Adjust the volume control knob for a comfortable level.'



Keys	Function
Power/ volume knob	Power on/ off the radio, switching the volume.
Channel knob	Switching for channel 1-16
PTT	Press PTT to transmit
LED indicator	Red light is on RX. Green light on TX. When the battery voltage is too low, the standby red light flashes and prompts "Low Battery ".
K1	Programmable key
SP/MIC jack	Connect the audio accessories
MIC	Microphone

Maintenance

1. Chemicals such as alcohol, cleaning fluids, and petroleum based products will damage the radio surfaces.
2. Do not pick up the radio using the antenna or purposely stress the housing and belt clip.
3. Please close the dust proof cover to protect the Microphone/speaker jack while not using accessory.
4. Clean the surface of the radio with only a damp cloth not using water. Insure that none of the water enters the radio case.
5. Unrecognized accessories may damage the radio

Functions

This radio has the following functions available. Please refer to the "Call" for the individual call, group call and analog call operation. Other functions need to be programmed by the dealer. [K1] is programmable short-cut key, contact to your dealer for more details.

Type	Name	Description
Common function	Zone	A zone is a grouping of channels, the radio is up to 2 zones, 32 channels.
	Power level	The output power of the current channel, can be configured to high or low level.
	Scan	Scan to scan list, Analog and Digital can be scan at the same time.
	Emergency alarm	When there is a emergency situation ,user can ask help by using it, emergency alarm has priority.
	Vox	When the microphone detects that the voice meets the terminal transmission conditions, the terminal will automatically transmit. This function needs to be used in conjunction with a headset with voice control function.
	Busy channel lock	Busy channel lock is to lock the channel which is transmitting to prevent interference from other users
	TX time-out	The timeout prohibition is when the transmission time is exceeded (default 60s), the terminal will automatically terminate the transmission and send a warning tone. If need to talk again, please transmit after the preset time.
	Battery save	When the terminal standby reaches the power saving time, it will automatically enter the power saving mode.
Digital function	Individual call	A single call made by one user to another
	Group call	Allows a user to call multiple units that are on the same talk group.
	All call	Allows a user to call all users.

	One touch access call	Allows to make a private call or call multiple units by a short-cut key.
	TDMA direct mode	Allows to divide the digital channel into two alternating time slots.
Analog function	Analog channel call	Is one-to-many call on the current analog channel
	Squelch on	Means the speaker is always on with or without carrier
	Squelch level	The Squelch level is divided into 0~9 levels, from shallow to deep, the higher the level, the deeper the squelch is. Level 0 is squelch function turned on, level 9 is deep silence, and the default is level 5.
	Monitor	Monitoring is not distinguish signaling, Voice is received as long as the carrier matches.
	CTCSS/CDCSS	You can receive the voice through the loudspeaker only when the received sub-tone matches the transmitted sub-tone.

LED Indicator

Indicator state	Radio State
Flash green	Powering on
Steady green	Receiving signal
Slowly flash green	Scanning
Steady red	Transmitting
Flash red	Low battery
Steady orange	Call Hold status (digital) : when the call is successfully exchanged, all parties are in the RX state and channel resources are unoccupied. In this case, you can press the [PTT] key to talk.

Troubleshooting

Issue description	Possible reason	Solution
Cannot power on	The battery may not be installed correctly	Remove the battery and reinstall it
	Ran out of battery	Charge or replace battery
	Poor contact caused by dirty or damaged battery contacts	Clean the battery contacts
When receiving the signal, the audio voice is low , intermittent or silent	Battery voltage is too low	Charge or change battery
	Low volume	Turn up the volume
	The antenna is loose or improperly installed	Reinstall the antenna after power off
	Speakers are blocked or damaged	Softly clean the external part
Cannot talk to other users of the group	The frequency or signaling programmed is different from other users in the group	Program the same frequency or signaling with other users in the group
	Improper setting of digital and analog channels	Program a same digital or analog channel
	Too far away from other users of the group	Try to get closer to other members and make sure they are within effective communication range
There are other communications or noises heard in the channel	Co-Channel interference	Change to a new frequency point, or adjust the squelch level
	Signaling is not configured	Signaling settings for all terminals in the group
Noisy	Long-distance communications with other users	Get closer to other users, Make sure in effective Communication range
	Bad location, affected by tall buildings or in the basement	Retry after moving to an open and flat ground
	External environment or electromagnetic interference	Avoid possible interference devices
Keep transmitting	VOX is enabled, Set the headset PTT/VOX switch from PTT to VOX	Re-plug the headset

Safety Information

This document provides you with information and safety operating instructions of ABELL portable two-way radio. If you need to know the information about using the radio in a hazardous environment, please refer to the operation manual or instruction card approved by the manufacturer. Radios with this condition have this instruction card.

To ensure that you are always exposed to the safe range of radio frequency electromagnetic energy permitted by the above standards and guidelines, please maintain the following operating procedures.

Portable radio operation and electromagnetic field exposure While the portable radio is transmitting, keep the radio in a vertical position and hold the microphone 2.5 to 5 cm (1 to 2 inches) away from the mouth. Also keep the radio antenna at least 2.5 cm (1 inch) away from your head or body when transmitting .

Electromagnetic interference, electromagnetic compatibility

Note: If proper electromagnetic compatibility protection is not adopted, after electromagnetic compatibility design or internal structure design for the purpose of electromagnetic compatibility, almost all electromagnetic equipment will be affected by electromagnetic interference (EMI).

In order to avoid problems caused by electromagnetic interference or electromagnetic compatibility, please note that wherever there is a sign that says please turn off the radio please do so. For example, hospitals and other health care facilities use some devices that are very sensitive to radio frequency energy.

If the crew asks you to turn off the radio during the flight, please turn it off. When using the radio on an airplane, you must follow the airline's regulations and the flight crew's instructions.

Battery

Do not replace the battery or charge the battery in a explosive risk environment. The installation and removal of the battery may cause contact sparks and cause an explosion.

Blasting and Detonator Area

When approaching the blasting area and detonator area, please turn off your radio in advance to avoid possible explosion. In the blasting area or any other area marked with the words "Please turn off the radio, please be sure to comply with the relevant regulations.

Note: The above-mentioned potentially explosive atmosphere includes fuel areas, such as the bottom tank of ships; fuel or chemical transportation or storage sites; there are chemicals or dust in the air; any other you are usually reminded to turn off the car engine. Some areas. There are usually obvious warning signs in potentially explosive atmospheres.

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.

Specific Absorption Rate (SAR) information:

This device meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is 8.0W/kg averaged over one gram of tissue.

RF Exposure Information

- DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio, and the antenna gain shall not exceed the specified gain by the manufacturer declared.
- DO NOT transmit for more than 50% of total radio use time, more than 50% of the time can cause RF exposure compliance requirements to be exceeded.
- During transmissions, your radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so.
- DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.
- Portable Device, this transmitter may operate with the antenna(s) documented in this filing in Push-to-Talk and body-worn configurations. RF exposure compliance is limited to the specific belt-clip and accessory configurations as documented in this filing and the separation distance between user and the device or its antenna shall be at least 2.5 cm.
- General population/uncontrolled Radio, this radio is designed for and classified as "General population/uncontrolled Use"

Operating Instructions:

- Transmit no more than the rated duty factor of 50% of the time. To Transmit (Talk), push the Push to Talk (PTT) button. To receive calls (listen), release the PTT button. Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting in terms of measuring for standards compliance.
- When operating in front of the face, worn on the body, always place the radio in a Retevis approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of Non-Retevis approved accessories may result in exposure levels, which exceed the IEEE/ICNIRP RF exposure limits.