

ABELL[®]
Voice of Abell, Crisp as an Apple

A720T

INSTRUCTION MANUAL



ABELL[®]
Voice of Abell, Crisp as an Apple
ABELL INDUSTRIES CO., LTD.
www.abell.com.cn sales@abell.com.cn
Tel: 86-755-26095567 Fax: 86-755-26404666

ABELL INDUSTRIES CO., LTD.

ABELL[®]

Thanks

Thank you for choosing ABELL DMR Digital 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 radio will provide you with the reliable performance and high quality you demand.

This user manual apply to: Abell A720T

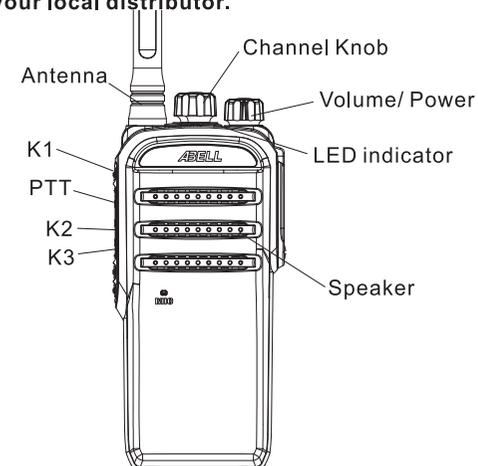
ABELL[®]

Safety Instruction

Please observe the following safety tips to prevent fire, accidents, personal injury or equipment damage.

- ▶ **Do not** modify the radio or its charger in any way.
- ▶ **Do not** expose the radio to direct sunlight for extended periods of time, or leave near heaters or other heat sources.
- ▶ **Do not** store or use unprotected radios for prolonged periods in areas of high dust or excessive moisture.
- ▶ Users may experience signal interference if the unit is used near devices such as TV or electric generators.
- ▶ If the unit emits smoke or you notice a strange smell, immediately turn off the power, and send it to the closest repair service station.
- ▶ The radios are small but contain high power. It is not uncommon to notice slight warming of the handset. This is normal and the unit may continue to be used.

If there is any problem with the unit, please contact ABELL or your local distributor.



**ABELL**[®]**Turn on**

Turn the Volume/Power knob clockwise to turn the radio on.
(Some radios are programmed to emit a tone when powered on).

Turn off

Turn the Volume/Power knob anticlockwise to turn the radio off,
you will hear a sound when the radio is turning off.

Volume adjustment

Press and hold down the squelch key off momentarily to hear
the continuous beep and turn the volume/power knob to adjust.

Three way to choose channel

1. Channel knob: rotate around the "channel choosing button"
to choose the channel you need.
2. Channel button: choose the channel you need.
3. Input: when the keyboard mode is the channel mode, you
can directly input channel number to change the channel to
your need.

Transmit and receive

Press PTT button, the two way radio will in the transmit state,
the red light will turn on, ICD display will shows
Release PTT button, the two way radio will in the receive state,
the green light will turn on when receive voice data, LCD
display will shows

**ABELL**[®]**ABELL Radios Quality Warranty and Liability****The warranty range and limitation**

ABELL is committed to quality and stands behind its products.
ABELL will, during the warranty period specified for each product,
repair or replace components that fail as a result of poor
workmanship or materials. This warranty does not cover improper
use or intentional damage.

The warranty policy not include the following conditions:

1. Defects or damages caused by working in abnormal or unusual
situations.
2. Defect or damages caused by misuse, accident, or water
submersion.
3. Defect or damages caused by unauthorized installation, repair,
tampering or adjustment.
4. Warranty does not extend to cosmetic scratches or damages
as a result of normal use or misuse.
5. This warranty is void if:
 - (a) the product information label on the back aluminum case is
removed, or if the serial number is tampered with, changed, or
cannot be identified.
 - (b) If the battery case is damage, tampered with, or unsealed.

General Items

This warranty policy establishes the liability limits for which
ABELL is responsible
ABELL has the right to decide, in their sole discretion, whether
to repair, replace, or refund the purchase price of any equipment
subject to this warranty. There are no other options available
under this warranty. This express warranty is the complete
agreement. **OTHER THAN AS EXPRESSLY SET OUT IN THESE
TERMS OR ADDITIONAL TERMS, NEITHER ABELL NOR ITS
SUPPLIERS OR DISTRIBUTORS MAKE ANY SPECIFIC
PROMISES ABOUT THE SERVICES OR PRODUCTS.**



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Unpacking and device check

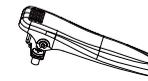
Please take the radio out of the package carefully, and before abandon the package material, we advise you to check the accessories according to the following list. If any part is lost or damage, please give the claim letter to the carrier or deliverer.

Accessories

Items	quantity
Antenna	1
Belt clip	1
Power supplier	1
Battery	1
Charger	1
Lanyard	1
Instruction manual	1
Warranty card	1



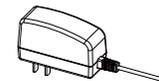
Antenna



Belt clip



Lanyard



Charger



Power Supplier



1800 mAh
Li-ion battery



Battery information

Battery protection

ABELL radios use lightweight, environmentally friendly lithium batteries as a power source. The following battery tips will help you to get the best performance and prolong the battery life of your equipment.

1. Be sure to use the original ABELL charger to charge the battery.
2. When charging radios, please power off the radios to ensure battery can be fully and effectively charged.
3. New, uninstalled batteries can be stored for long period, but should be stored in a cool, dry place. (These should be recharged once every three months to maintain the battery's electrical properties, otherwise it will be damaged and will not function properly).
4. New batteries need to be fully charged before use.
5. Use only the battery charger and power supply specified by ABELL. Use of non-authorized charging systems will void the warranty of both the battery and the equipment.
6. Avoid extreme temperatures as this will effect capacity of the battery.
7. The battery cannot be stored in hot or cold places, otherwise it will reduce battery capacity and useful life. The battery should always be stored at normal temperature, and radios equipped with cold batteries may temporarily not work, even if fully charged.
8. Do not let the metal stripes on the battery come into contact with metal objects (such as metal benches, pins, etc) as this may cause the battery to short circuit.
9. Always dispose of old or damaged batteries In accordance with local recycling laws.
10. **NEVER** discard or expose batteries to fire, this will result explosion and serious injury or death.



Battery Usage

1. Do not use, install or attempt to charge damaged batteries.
2. Do not use batteries in any other equipment other than that which it is designed for.
3. Battery charging time varies and is determined by the remaining capacity of the battery and the battery and charger type. The battery can be repeatedly charged and discharged more than 300 times, but they will age with use. Aging will occur quicker when batteries are used for short periods and then recharged. Batteries should be allowed to fully discharge before charging to prolong battery life.
4. Batteries that are stored and unused discharged over time.

Battery charge

When the usage is very low, you can not use the radios.

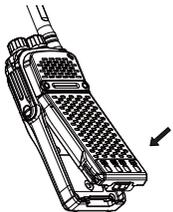
1. The battery should connect with the two way radios charge together or along. Please close the two way radios' power supply.
2. The charger indicator shows the charge state:

Indicator	Current state
Red light flash	Waiting for charge
Red light bright	During charging
Green light bright	Charge complete

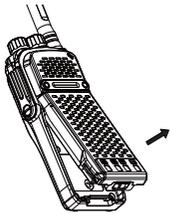


Preparation

Installing the battery



Align the battery with the rabbet



Push and press down until "click" in

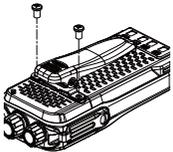
Assemble the antenna



Lift the metal cover, then press down the "lock" to release the battery to take the battery down.

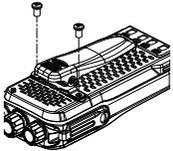


Assemble the belt clip



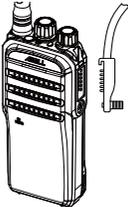
Assemble: Fix the belt clip in the upper end of rear side with two screws until they are screwed down.

Disassemble the belt clip



Disassemble: Disassemble the two screws from the belt clip with a screwdriver

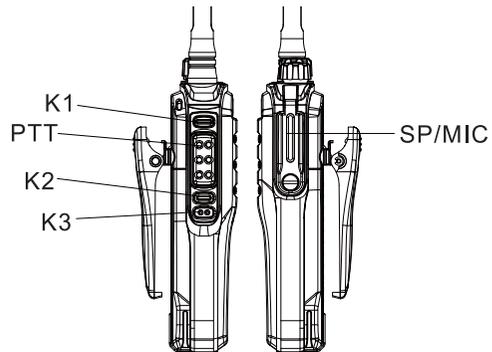
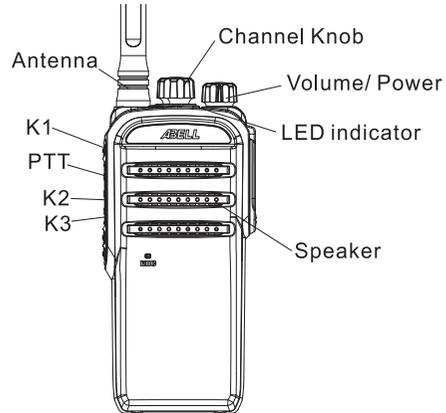
Insert the earphone



Open the rubber cover to insert the Earphone.



Function key



Charging the Battery

Use only the charger and battery specified by Abell. Charger LED can indicate the charging process.



Charger Indicator

Indicator	Charge Status
Red flash	Standby
Red glows	Charging
Green glows	Fully charged

LED Indicator of Transceiver

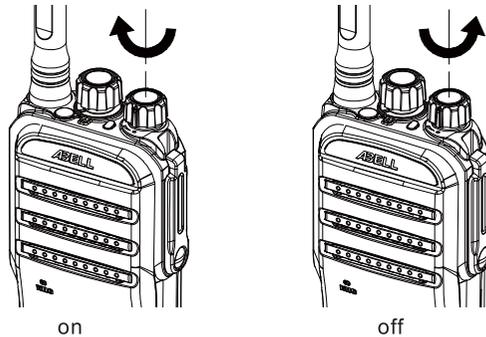
Indicator	charge Status
Green glows 2-3S	starting up
Green glows	receiving signal
Green flash	received
Red glows	transmitting
Red flash	Battery low, will be issued a low battery beep, please charge or replace the battery as soon as possible to ensure that the product to maintain normal work.

Function and basic operation

Turning your radio on and off

Power on: Turn clockwise [power switch / volume control knob] to hear "click" sound to turn on the radio, if set the power on tone, it will issue a power-on tone, and then enter the receiving standby state.

Power off: Turn counterclockwise [power switch / volume control knob], hear the "click" sound, the walkie-talkie has been closed.



Switch channel

When you need to make a call on a channel, rotate [Channel Knob] to the specified channel, and if the channel broadcast function is on, you will hear the sound of the broadcast channel. If you hear a continuous "beep" sound after channel switching, the current channel is not programmed and can not be used.

Push-to-talk operation

Switch the channel selector to the channel needed.

Transmit: Hold the radio in a vertical position with the microphone 2 cm away from your lip, press PTT, speak to the **MIC**. **Receive:** The LED Indicator turns in green, when receive signals, while the speaker making sounds. Adjust Volume knob to change the audio volume.

Key	Functions	
K1	Short Press	Non-functional; Emergency alarm; Cancel emergency alarm; Voice control; Power switch; Steady state monitoring [Simulation]; Steady cancel mute [Simulation]; Scanning; (DMR); one-click call 4 (DMR); broadcast local ID (number); broadcast channel number; broadcast power; broadcast battery power; broadcast channel type; area switching;
	Long Press	No function; emergency alarm; cancel emergency alarm; voice control; power switching; steady state monitoring [simulation]; transient monitoring [simulation]; steady state cancel squelch [simulation]; transient cancel squelch [simulation]; Network; One-key call 1 (DMR); One-key call 2 (DMR); One-key call 3 (DMR); One-key call 4 (DMR); Broadcast local ID (number); Broadcast channel number; Battery power; broadcast channel type; area switching;
K2	Short Press	Non-functional; Emergency alarm; Cancel emergency alarm; Voice control; Power switch; Steady state monitoring [Simulation]; Steady cancel mute [Simulation]; Scanning; (DMR); one-click call 4 (DMR); broadcast local ID (number); broadcast channel number; broadcast power; broadcast battery power; broadcast channel type; area switching;
	Long Press	No function; emergency alarm; cancel emergency alarm; voice control; power switching; steady state monitoring [simulation]; transient monitoring [simulation]; steady state cancel squelch [simulation]; transient cancel squelch [simulation]; Network; One-key call 1 (DMR); One-key call 2 (DMR); One-key call 3 (DMR); One-key call 4 (DMR); Broadcast local ID (number); Broadcast channel number; Battery power; broadcast channel type; area switching;
K3	Short Press	Non-functional; Emergency alarm; Cancel emergency alarm; Voice control; Power switch; Steady state monitoring [Simulation]; Steady cancel mute [Simulation]; Scanning; (DMR); one-click call 4 (DMR); broadcast local ID (number); broadcast channel number; broadcast power; broadcast battery power; broadcast channel type; area switching;
	Long Press	No function; emergency alarm; cancel emergency alarm; voice control; power switching; steady state monitoring [simulation]; transient monitoring [simulation]; steady state cancel squelch [simulation]; transient cancel squelch [simulation]; Network; One-key call 1 (DMR); One-key call 2 (DMR); One-key call 3 (DMR); One-key call 4 (DMR); Broadcast local ID (number); Broadcast channel number; Battery power; broadcast channel type; area switching;
TK/ Emergency KEY	Short Press	Non-functional; Emergency alarm; Cancel emergency alarm; Voice control; Power switch; Steady state monitoring [Simulation]; Steady cancel mute [Simulation]; Scanning; (DMR); one-click call 4 (DMR); broadcast local ID (number); broadcast channel number; broadcast power; broadcast battery power; broadcast channel type; area switching;
	Long Press	No function; emergency alarm; cancel emergency alarm; voice control; power switching; steady state monitoring [simulation]; transient monitoring [simulation]; steady state cancel squelch [simulation]; transient cancel squelch [simulation]; Network; One-key call 1 (DMR); One-key call 2 (DMR); One-key call 3 (DMR); One-key call 4 (DMR); Broadcast local ID (number); Broadcast channel number; Battery power; broadcast channel type; area switching;

**Functional key****Non-functional**

No function programmed(Invalid key, error beep)

Emergency alarm

Pressing this button allows the user to initiate an emergency alarm, which is a typical top key function. (Only short keys are supported, long keys must be associated with emergency alarm off)

Cancel emergency alarm

Pressing this button allows the user to stop firing an emergency alarm, which is a typical top key function. (Only supports long key, short key must be associated with emergency alarm on)

Steady state (analog)

If not automatically reset the state, press the key is in the listening state, press the key again to exit the monitoring state

Steady Cancel Squelch(analog)

Press the key to disable noise squelch when steady-state cancel squelch key; press again to cancel squelch key to exit noise squelch.

Steady Cancel Squelch (analog)

Press the key to disable noise squelch when steady-state cancel squelch key; press again to cancel squelch key to exit noise squelch.

Transient Cancel Squelch (analog)

Press to disable noise squelch when the transient is off transiently; release to exit noise squelch.

**Scanning**

Press this button to turn the scan on or off

Press the programming scan key after the "beep" sound prompts to enter the scan, and then flash green light, then press the key prompts two "beep" to exit the scanning state.

One Key calling 1-4(DMR)

One key calling function including SMS, Voice call.Operation:
To enable the feature, press the programmed key, then hold the PTT to launch the call.

Digital Channel Information

Function: Set digital channel digital protocol related parameters

Local number: The unique code used to identify a person in a digital system when talking on a digital channel.

Group Call maintained Time: Users can extend group call status after calling by setting this feature via programming software. During this period, each member of this group can call back directly.

Private Call maintain Time: Users can extend group call status after calling by setting this feature via programming software. During this period, each unit can call back directly.

Transmit pre-carrier time: Pre-carrier is loaded before the data or control information in the message (text message, private call, etc.) before a string of information (extended message), increasing the chances of the receiver to detect the message. Setting transmit pre-carrier time takes up channel resources, which you can set based on your needs and operating modes. For example, scan to increase the probability of the scan stay, which is the machine function

Voice delay: This parameter defines the overall voice delay when the transceiver initiates voice communication

Time out timer(TOT)

To prevent the occupation of the channel too long, but also to prevent the walkie-talkie due to long-term transmission caused by damage to the machine.

Timeout: You can set the maximum time that the transceiver is allowed to transmit continuously. The intercom emits a warning tone and stops transmitting when the scheduled timer expires.

Early warning time: You can set how long the intercom will issue a "warning tone" before the time-out timer (TOT) expires. When the "warning tone" rang for a specified amount of time, the timeout timer expires

Retransmission time: Set the time from the start of the barring (TOT time) to the time of allowing the transmission again. When this time has not expired, press the PTT will be banned warning sounds.

Reset time: PTT is released before TOT does not time out, timer starts to count, and when PTT is pressed again, timer TOT is re-timed if the timer exceeds the set value; if not set, TOT time continues to count, The set value is the reset time.

Operation: Use the Abell programming software to set this feature.

Single call, Group call, All call

Single call

A single call sent by one user to another

Group call

A multi-call initiated by a user to a group of users.

All call

A single user to all other users call. All calls in the communication process does not use a special time slot or channel. All calls are given only to individual users with high authority, which is significant when a high authority user wants to communicate with all users of a certain channel, but not individual or group users.

Note: The user can set only one full call and use the specified call ID 16777215.

CTCSS/ CDCSS

CTCSS features:

Usually the receiving side of the sub-tone value depends on the sender, in order to ensure accurate reception, the sender and receiver of the sub-audio requirements consistent. Set this parameter by selecting the frequency of the specific standard subaudible frequency.

CDCSS features:

Usually the receiving side of the subsonic digital value depends on the sender, in order to ensure the accuracy of receiving, requiring the sender and receiver of the subsonic digital consistent. Set this parameter by selecting the frequency of the specific standard subaudible digital.

Tail Tone Elimination

In order to avoid the disappearance of the carrier on a channel when the receiver has a tail sound issued. When the message is sent, the carrier disappears and the receiver sends a jarring noise because it can not be detected immediately. With sub-audio transmission signal transmission is completed, the sender will continue to send a specific signal to the receiver, so that the receiver can disappear before the carrier disappears.

Power

The power level indicates the size of the transmit power when the transceiver is working, and the transceiver can set the power level according to the actual requirements. When the requirements of communication distance, the quality of the call can choose the radio high-power working condition; when the required communication distance is near, the call quality of the general case of low-power car operating conditions can be selected to reduce energy consumption and extend the use of time.

Value range: low power / high power

Default: low power

Power level table

Digital mode setting

Receiving Groups List

This feature allows users receive several different groups calls on one Digital Channel

Value Range: Group Call List 1- Group Call List 32

Default: Group Call List 1

Transmitting Groups List

Select the people you want to call from the contact list.

Value Range: Contact list 1- Contact 512

Default: Contact Call List 1

DMR

DMR uses TDMA technology which allows two simultaneous conversations with in a 12.5kHz Channel without any interference.

TDMA Direct Mode

Under TDMA direct mode one channel allows two simultaneous conversations. Every unit of one group has to use the same Time division which can avoid interference.

Operation

This feature has been turned on via programming software. After this feature been turned on, switch to Digital channel of TDMA select mode manually or turn on the unit at the Digital channel of TDMA select mode, which can enter TDMA Direct Mode.



Safety information

This manual provide you with safe and ease instruction for our ABELL portable two-way radio.  warning

Operation and Electro magnetin exposures

Press PTT(push to talk), hold the radio in a vertical position with the microphone 2.5 to 5cm(1 to 2 inches) away from the lips. And make the antenna 2.5cm away from your head or body when transmit.

Electromagnetic interference (EMI) /Electromagnetic compatibility

Note: All electronic device will be influenced by EMI if no proper electromagnetic compatibility design was adopted. Close the radio if the airline required when in the plane. And commit to the airline's requirements when using the radio in the plane.

Operation warning

Car with safty air bay restraint system Don't put the portable radio on the top or in the range of the car air bag for fear of hurting when the air bag is open suddenly

Environment with explosion risk

Please turn off the radio in the environment with explosion risk, unless your radio has gotten the FM or Cenelec Certificate. In such environment, even little electric spark can lead to explosion, fire, damage or death.

Battery

Don't change or charge the battery in the environment with explosion risk. Since it may cause flames and leads to Explosion.



In the blast area or area with detonator

Please turn off your radio in advance when you are near from the In the blast area or area with detonator.  warning

Operation instruction

Damaged antenna

Stop using the damaged antenna. The damaged antenna may burn your skin when using it.

Battery

If any metal conductor such as jewelry accessory, keys or necklace touch battery's electrode, that may cause fire, heat to hurt people. Be careful when putting the fully charged battery in the pocket, leather case or other container with metal.

Radio's maintainance

- 1.The chemical material such as alcoholic,petroleum will hurt the radio surface.
- 2.Please take the radio softly, do not pick the radio by griping the antenna, which may easily break the antenna.
- 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 wet cloth and make sure that no water enter it.
- 5.Unrecognized accessories may damage the radio and in this case our warranty will be unavailable.



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.

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environmental exposure limits, always adhere to the following procedures.

Guidelines:

- 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.



Operating Instructions:

- Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) key. To receive calls, release the PTT key. 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).
- Keep the radio unit at least 2.5 cm away from the face. Keeping the radio at the proper distance is important as RF exposure decreases with distance from the antenna. The antenna should be kept away from the face and eyes.
- When worn on the body, always place the radio in a approved holder, holster, case, or body harness or by use of the correct clip for this product. Use of non-approved accessories may result in exposure levels which exceed the FCC's occupational/controlled environmental RF exposure limits.
- Use of non-approved antennas, batteries, and accessories causes the radio to exceed the FCC RF exposure guidelines.
- Contact your local dealer for the optional accessories of the product.

ISED Statement

The device has been tested and complies with SAR limits, users can obtain Canadian information on RF exposure and compliance

Après examen de ce matériel aux conformité aux limites DAS et/ou aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquérir les informations correspondantes

This device complies with Innovation, Science and Economic Development Canada Compliance license-exempt RSS standard(s). 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.

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