

User Manual

1. Precautions

Please observe the following precautions when using this product to avoid fire, personal injury, damage to equipment or other accidents:

- ① Do not use the equipment in inflammable and explosive environment (such as gas, dust, smoke, etc.), please turn off the equipment when refueling or parking at the gas station.
- ② Do not place the equipment in dusty, wet or splashed places or on uneven surfaces.
- ③ Please use this equipment away from interference sources (such as TV, computer, distribution cabinet, etc.).
- ④ Do not transmit while charging
- ⑤ Do not use this device while driving or operating a motor vehicle..
- ⑥ Do not expose the device to direct sunlight for a long time or place it near the heating device.
- ⑦ If the equipment emits abnormal odor, it must be turned off immediately. After ensuring safety, it should be sent to the nearest maintenance site for inspection.
- ⑧ Do not modify or adjust this equipment for any reason.
- ⑨ Please obey the local laws and regulations.

Disclaimer: The customer shall bear all the responsibility for the

equipment failure or accident caused by the customer's violation of the above precautions, and the company shall not be responsible for it.

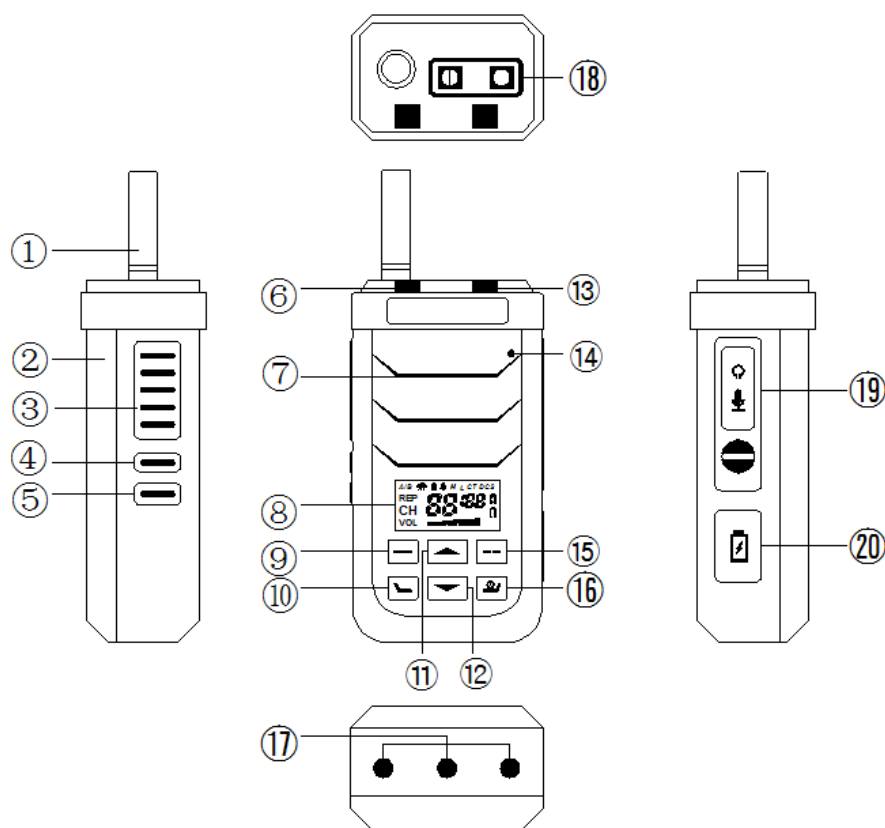
2. Product Checking

Thanks for choosing our radio. Please unbox and check whether the following accessories are included and well-packed. If there's anything missing or damaging after unboxed, please contact your local distributor.

NO	Item	Quantity
1	Radio	1
2	Charger	1
3	Belt Clip	1
4	User Manual	1
5	Guarantee Card	1
6	Adapter	1
7	USB line	1

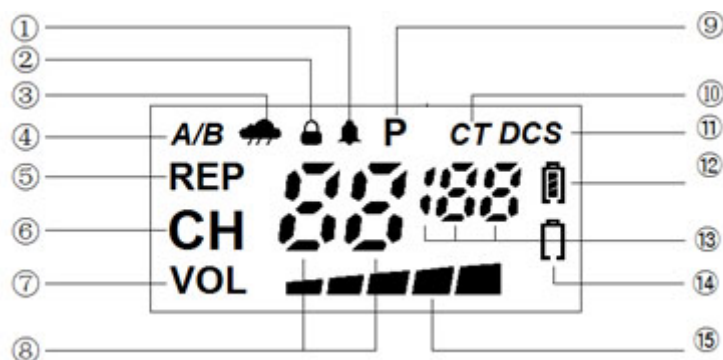
3. Familiar with Radio

3.1 Radio Diagram



- ① Built-in RF Antenna ② Battery ③ PTT ④ side-key 1 ⑤ side-key 2 ⑥ Alarm Button ⑦ speaker
 ⑧ Display screen ⑨ — key ⑩ ↘ key ⑪ ▲key ⑫ ▼key ⑬ Indicator Light ⑭ MIC ⑮
 — key ⑯ ↗key ⑰ Water Immersion Detection Sensor ⑱ Alarm & Emergency Light ⑲
 Earpiece and Programmable Jack ⑳ Charging port

3.2 LCD Icon Display



① Beep ② Keypad Lock ③ NOAA ④ Dual-Channel Standby ⑤ Channel (REP) Indicator ⑥ Channel
 ⑦ VOL ⑧ Channel Number & Function Indicator ⑨ Power ⑩ Analog CTCSS ⑪ Digital DCS ⑫
 Battery Level Indicator ⑬ CTCSS/DCS & Parameter Indicator ⑭ Low Battery Indicator ⑮
 Power/Field Strength Indicator

4. Function Description

4.1 Keypads Instruction

Keys	Trigger Method	definable function	definable function
PTT	Long press	Transmit or Exit	×
Alarm Key	short press	Activate Alarm & Lighting Mode	√
	Long press	Emergency Alarm	√
Side-key 1	short press	Increase Receive Volume	×
	Long press	Monitor	√
Side-key 2	short press	Decrease Receive Volume	×
	Long press	scan	√
—	short press	Temporary Switch to Channel B	√
	Long press	Enter Channel B Selection Mode	√
▲	short press	Channel+	×
	Long press	Fast Channel+	√
▼	short press	Channel-	×
	Long press	Fast Channel-	√
— —	short press	Display On/Off	√

	Long press	Speaker Water Removal Vibration	√
	Long press	Enter the DTMF input mode	√
	short press	Display Battery power	×
	Long press	Turn On/Off	×

4.2 Power-On Combination Key Functions

While powering on, press and hold the corresponding keys to activate the following functions:

Combination Key	Function
	Enable/Disable Channel
Alarm Key	Enable/Disable Voice Activation (VOX)
	Enable/Disable Water Immersion Alarm
	Keypad Lock/Unlock
	Enable/Disable Key Beep
	Enable/Disable Vibration on Receive
Side-key 1	Enable/Disable Noise Reduction (Optional)
Side-key 1+Side-key 2	Enter Frequency Detection Mode

4.3 Transmitting

- ① Press PTT and will transmit at current frequency, and the indicator lights up red at the same time.
- ② VOX : When VOX transmission is enabled (configurable in advance, or via a user-defined key to toggle VOX mode), the radio will automatically start transmitting when ambient sound exceeds the preset threshold, with the indicator lighting up red. Transmission will stop automatically when ambient sound falls below the preset threshold and remains there for longer than the preset VOX delay time.

Note: If the optional Noise Reduction feature is installed, disable it before using VOX

transmission. Otherwise, ambient sound may be filtered out by AI Noise Reduction, preventing VOX activation.

4.4 Receiving

① When a same-frequency signal is received, the indicator will light up green. If no CTCSS/DCS tone is set for reception, or if the configured CTCSS/DCS tone matches that of the incoming signal, the receiver audio will be activated.

② If the optional vibration motor is installed, you can enable or disable vibration alerts upon reception. When enabled, the motor will vibrate for each incoming signal if the radio is idle. If the radio is operated during this period, vibration will pause for a preset duration before resuming.

4.5 Channel Switching

① Short press the ▲ or ▼ key to switch between preset valid channels.

② If the long-press function of the ▲ or ▼ key remains set to the default Fast Channel Switch, long press the ▲ or ▼ key to quickly switch between valid channels.

③ To switch to a channel, ensure the Channel function is enabled first (see Section 4.2).

4.6 Receive Volume Adjustment

The receive volume is divided into 10 levels (0–10).

Short press Side Key 1 to increase the volume level.

Short press Side Key 2 to decrease the volume level.

When the volume level is set to 0, no receive audio will be output. The volume setting status is illustrated in the following diagram:



Note: Voice announcement and key beep sounds cannot be adjusted; they can only be enabled or disabled.

4.7 Dual-Channel Standby

① Setting up Channel B for Dual-Channel Standby

Each channel can independently be assigned a dedicated Channel B for Dual-Channel Standby. First, configure a key function as Set Channel B (default: long press the — key). When this key is

triggered, the radio enters Channel B setup mode, and the "A/B" icon flashes. Use the ▲ or ▼ key to select a Channel B for the current channel:

If no operation is performed for 5 seconds, or if the PTT key is pressed, the setup mode will exit and the settings will be discarded.

Press any other key to save the settings and exit setup mode.

② In standby mode, the radio monitors both the main channel (Channel A) and the configured Channel B simultaneously. When a signal is detected on Channel B, the radio will temporarily switch to Channel B to receive the call. After the call ends, it will remain on Channel B for 8 seconds to wait for new activity. Pressing the PTT key will transmit on Channel B:

If no transmission or reception occurs for 8 consecutive seconds, the radio will automatically exit Channel B mode.

Pressing any key will also exit Channel B mode.

③ Temporary Switch to Channel B

Configure a key function as A/B Channel Toggle (default: short press the — key). When this key is triggered, the radio temporarily switches to Channel B for 8 seconds. While in Channel B mode, pressing the PTT key will transmit on Channel B:

If no transmission or reception occurs for 8 consecutive seconds, the radio will automatically exit Channel B mode.

Pressing any key will also exit Channel B mode.

4.8 Monitor

Configure a key function as Monitor (default: long press Side Key 1). When this key is triggered, the receiver audio is activated to monitor voice traffic on the current channel.

4.9 Scanning

① First, assign a key function as Scan (default: long press Side Key 2). When this key is triggered, the radio enters scanning mode and scans all channels added to the scan list.

② Scan Types: Three scan types are available: Carrier Operated (CO), Time Operated (TO), and Search (SE).

CO Mode: If a signal is detected on the current scanning channel, the radio will stay on that channel until the signal disappears, then resume scanning after a preset delay.

TO Mode: The radio will stay on the current scanning channel for a specified duration, then proceed

to the next channel regardless of whether a signal is present.

SE Mode: The radio will stop scanning and remain on the current scanning channel.

③ **Change Scanning Direction:** During scanning, press the ▲ or ▼ key to switch the scanning direction.

④ **Exit Scanning Mode:** Press any key to exit scanning mode. If the post-scan return channel is set to the current channel, the radio will stay on the last scanned channel after exiting. If set to return to the initial channel, the radio will revert to the channel it was on before entering scanning mode.

4.10 Key Lock & Unlock

Assign the function of any key as **Key Lock & Unlock**. Press the key to lock or unlock all key functions **except** PTT. If no key is assigned to the Key Lock & Unlock function, the device can also be locked or unlocked via combination key operation while powering on (refer to Section 4.2). When the keys are locked, the  will appear on the display.

4.11 Light Mode

Assign the function of any key as **Light Mode** (default: short press the alarm key). Press the key to switch between different light modes:

① **Lighting Mode:** White light stays on continuously for illumination.

② **SOS Distress Mode:** White light flashes in the SOS distress pattern of three short flashes, three long flashes and three short flashes, once per minute.

③ **Color Light Slow Flash:** Red and blue lights flash alternately at 1-second intervals.

④ **Color Light Fast Flash:** Red and blue lights flash alternately at a faster speed.

4.12 Display On/Off

Assign the function of any key as **Display On/Off** (default: short press ).

Press the key to toggle the display on or off.

4.13 CTCSS Indication & Settings

① The figures below show the indications for different CTCSS types: Fig. 1 = No CTCSS; Fig. 2 = Analog CTCSS; Fig. 3 = Digital CTCSS (DCS); Fig. 4 = Non-standard CTCSS. Refer to Appendix Table 1 for the CTCSS code chart.



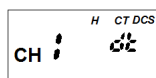
② **Manual CTCSS Settings:** Assign the function of any key as **CTCSS Settings** (default: long press the key). Press the key to enter CTCSS setting mode, and the **CT** and **DCS** icons will flash simultaneously. At this time, press the or key to adjust the CTCSS of the current channel. If no operation is performed within 5 seconds, or if the PTT key is pressed, the settings will be canceled and the mode will be exited. Press any other key to save the settings and exit the mode. (If the device is currently on a channel, press any key to enter transmit CTCSS setting mode; press any key again to save the settings and exit the mode.)

4.14 Remote CTCSS Decoding

Assign the function of any key as **Remote CTCSS Decoding**. Press the key to enter remote CTCSS decoding mode, and the display will show "dt" as illustrated in the figure below.

In this mode, the device can quickly decode the CTCSS of signals within communication range that match the receive frequency of the current channel. Once decoding is completed, the CTCSS of the current channel will be replaced with the decoded value.

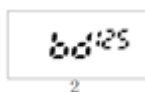
Press any key to exit decoding mode.



4.15 Bandwidth Switching

Assign the function of any key as **Bandwidth Switching**. Press the key to switch the working bandwidth of the current channel.

Refer to the following figures for the display indications: Fig. 2 = Narrowband 12.5KHz



4.16 Emergency Alarm

Assign the function of any key as **Emergency Alarm** (default: long press the alarm key). Press the key to enter alarm mode.

This device is equipped with the following alarm modes:

① **Local Alarm:** When triggered, the device emits a sharp alarm sound to alert people nearby of an emergency.

② **Remote Alarm:** When triggered, the device will not emit any alarm sound itself, but continuously transmit sharp alarm sounds to remote devices on the same frequency to notify them. This function can be used to send a distress signal in emergency situations where it is inconvenient to make a sound.

③ **Local + Remote Alarm:** When triggered, the device emits a sharp alarm sound and simultaneously transmits the alarm sound to remote devices on the same frequency.

④ **MDC Signaling Alarm:** When triggered, the device will initiate a call to remote devices on the same frequency every 20 seconds, with each call lasting 10 seconds to allow remote devices to monitor the surroundings of the device. After the 10-second call ends, the device will send an MDC signal. For devices of some brands with a display screen, receiving this signal may trigger a message "**XXX needs help!**" to show on the screen. For devices of the same model as this one, receiving the signal will trigger a voice announcement of "**XXX needs help!**". *XXX refers to the pre-edited device ID entered by the user.* This alarm mode is suitable for distress calls during team activities.

Users can pre-configure a light effect for the alarm state when using the device's alarm function:

- If **white light alarm** is selected, the white light will turn on and flash in SOS distress mode when the alarm is triggered.
- If **color light alarm** is selected, the red and blue lights will flash rapidly alternately when the alarm is triggered.

4.17 ID Inquiry

Assign the function of any key as **ID Inquiry**. Press the key to check the device ID.

For example, the display of Device ID 70 after inquiry is shown in the figure below.



4.18 Water Immersion Alarm & Speaker Water Drainage

① **Water Immersion Alarm:** Press the  key while powering on to toggle the alarm ON or OFF. The alarm method and indicator light are basically the same as those specified in Section 4.17. The difference is that when using MDC signaling for alarm, the water immersion alarm will send the command: "**XXX has fallen into water!**"

② **Automatic Speaker Water Drainage:** When the device is removed from water and the alarm is deactivated, it will emit a 165Hz audio tone continuously for 60 seconds to vibrate the speaker and expel tiny water droplets. Press any key to stop the audio tone.

③ **Manual Water Drainage:** Assign the function of any key as **Speaker Water Drainage** (default: long press ), Press the key to trigger the device to emit a 165Hz audio tone for 60 seconds for water drainage.

4.19 Channel Off-Net Mode

Assign the function of any key as **Channel Off-Net Mode**. Press the key to toggle the mode ON or OFF if the device is currently operating on a channel.

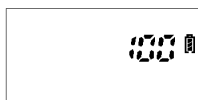
When Off-Net Mode is activated, the **REP** icon will flash, and the transmit frequency will be set to match the receive frequency. When Off-Net Mode is deactivated, the **REP** icon will stop flashing.

4.20 Battery Level Inquiry & Low Battery Alert

Short-press the **Power Key** to check the device's remaining battery percentage. (This value is an estimated figure with accuracy error, **for reference only**.)

When the battery voltage is too low, the icon will start flashing. Users are advised to charge the device promptly.

The battery level display is shown in the figure below.



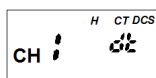
4.21 Frequency Detection & Decoding Function

Press Side Key 1 and Side Key 2 simultaneously while powering on the device to enter frequency detection and decoding mode.

In this mode, the device can quickly detect the frequency and CTCSS of nearby transmitting devices, and save the detected data to overwrite the current channel.

After detection is completed, press any key (**excluding PTT, Volume, Channel Switch and Power keys**) to restart detection.

During detection mode, switching to channels is not allowed, but switching to empty channels is permitted. This enables users to add frequency information to empty channels by using the frequency detection & decoding function.

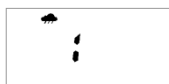


4.22 NOAA

Assign the function of any key as **NOAA**. Press the key to enter weather radio monitoring mode.

If no signal is received on the current weather channel within 6 seconds, the device will automatically start scanning the signals of 11 weather radio channels. Refer to Appendix Table 2 for the frequency chart of these 11 weather radio channels.

The weather radio status indication is shown in the figure

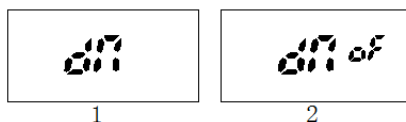


4.23 Noise Reduction (Optional Function)

Assign the function of any key as Noise Reduction (NR). Press the key to toggle the function ON or OFF.

In NR mode, the device effectively filters out ambient noise and amplifies human voices, delivering clearer call quality. This mode is recommended for operation in noisy environments.

Refer to the figures below for the function status prompts: Fig. 1 = NR ON; Fig. 2 = NR OFF



5. Appendix Table

5.1 Appendix Table 1: CTCSS Serial Number & Code Chart

NO	CTCSS	NO	DCS	NO	DCS	NO	CTCSS	NO	DCS
1	67.0	39	D023N	81	D315N	122	69.3	135	D036N
2	71.9	40	D025N	82	D331N	123	159.8	136	D053N
3	74.4	41	D026N	83	D343N	124	165.5	137	D122N
4	77.0	42	D031N	84	D346N	125	171.3	138	D145N
5	79.7	43	D032N	85	D351N	126	177.3	139	D212N
6	82.5	44	D043N	86	D364N	127	177.8	140	D225N
7	85.4	45	D047N	87	D365N	128	183.5	141	D246N
8	88.5	46	D051N	88	D371N	129	189.9	142	D252N
9	91.5	47	D054N	89	D411N	130	196.6	143	D255N
10	94.8	48	D065N	90	D412N	131	199.5	144	D266N
11	97.4	49	D071N	91	D413N	132	206.5	145	D274N
12	100.0	50	D072N	92	D423N	133	229.1	146	D325N
13	103.5	51	D073N	93	D431N	134	254.1	147	D332N
14	107.2	52	D074N	94	D432N			148	D356N
15	110.9	53	D114N	95	D445N			149	D446N
16	114.8	54	D115N	96	D464N			150	D452N
17	118.8	55	D116N	97	D465N			151	D454N
18	123.0	56	D125N	98	D466N			152	D455N
19	127.3	57	D131N	99	D503N			153	D462N
20	131.8	58	D132N	100	D506N			154	D523N
21	136.5	59	D134N	101	D516N			155	D526N
22	141.3	60	D143N	102	D532N				
23	146.2	61	D152N	103	D546N				

24	151.4	62	D155N	104	D565N				
25	156.7	63	D156N	105	D606N				
26	162.2	64	D162N	106	D612N				
27	167.9	65	D165N	107	D624N				
28	173.8	66	D172N	108	D627N				
29	179.9	67	D174N	109	D631N				
30	186.2	68	D205N	110	D632N				
31	192.8	69	D223N	111	D654N				
32	203.5	70	D226N	112	D662N				
33	210.7	71	D243N	113	D664N				
34	218.1	72	D244N	114	D703N				
35	225.7	73	D245N	115	D712N				
36	233.6	74	D251N	116	D723N				
37	241.8	75	D261N	117	D731N				
38	250.3	76	D263N	118	D732N				
		77	D265N	119	D734N				
		78	D271N	120	D743N				
		79	D306N	121	D754N				
		80	D311N						

5.2 Appendix Table 2: NOAA Weather Radio Frequency Chart

1	162.550	7	162.5250
2	162.400	8	161.650
3	162.475	9	161.775

4	162.425	10	161.750
5	162.450	11	162.000
6	162.500		

6. Specifications

General Part	
Frequency Range:	TX/RX: 462.5500-462.7250MHz, 467.5625-467.7125MHz
Channel Capacity	22
Channel Spacing (W/N)	12.5kHz
Voltage	3.7VDC
Working Mode	Same frequency simplex,different frequency simplex
Antenna	Spring
Frequency Stability	±2.5ppm
Working Temperature	−20 ~ +60℃
Dimension	175 X 58 X 38 mm about 182g (Including Antenna; Excluding Belt Clip)
Transmitting	
Modulation Mode	F3E
Maximum deviation (W/N)	≤5KHz /≤2.5KHz
SNR (W/N)	-45dB/ -40dB
TX Current	≤1300mA
Receiving	
Sensitivity (W/N)	0.22μV/ 0.25μV 12dB SINAD
Inter modulation (W/N)	65dB/ 60dB
Audio Distortion	<5%
Audio Output Power	≤1W (8 Ω)
RX Current	≤500mA
Standby Current	≤60mA

Note: The above parameters are subject to change without prior notice!

FCC Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

Note:

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.

SAR tests are conducted using standard operating positions accepted by the FCC with the device transmitting certified power level, the actual SAR level of the device while operating can be well below the maximum value.

For body worn operation, this device has been tested and meets the FCC RF exposure guidelines when used with for this product or when used with an accessory that contains no metal.

To maintain compliance with the FCC's RF exposure guidelines, hold the transmitter and antenna at least 1 inch (2.5 centimeters) from your face and speak in a normal voice, with the antenna pointed up and away from the face.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to comply with the FCC RF exposure requirements, the antenna installation must comply with following:

Users must be fully aware of the hazards of the exposure and able to exercise control over their RF exposure to qualify for the higher exposure limits.

Your wireless hand-held portable transceiver contains a low power transmitter. This product sends out radio Push-to-Talk (PTT) Button is pressed.

The device is authorized to operate at a duty factor not to exceed 75%.