

RETEVIS



Ailunce HD2 User's Manual

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For downloading further resources:

Brochures, Software/Firmware, Manual etc, Please contact your direct reseller first OR go to website retevis.com and check “support” in the each product link to download it.

Safety and Overview

We are grateful that you choose our Retevis/Ailunce digital radio.

We believe this easy-to-use transceiver will provide dependable and reliable communication to people operating at peak efficiency. The transceivers incorporate the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product!

Product safety and RF exposure for handheld transceivers



Before using this two way radio, please read the manual which contains important operating instructions for safe usage, RF Energy Awareness, control information and operational instructions for compliance with RF Energy Exposure limits in applicable national and international standards. also read the operational instructions for safe use.

Features:

- 1.The HD2 is capable of transmitting high power, you can select TX power on the radio directly, and extra low power setting to easily use with a DMR hotspot.
- 2.The HD2 has the ability to import 500,000 DMR Contacts.
3. Upgraded USB Type-C charging battery, charge the radio on the desktop charger, or just the battery alone.
4. Eye-catching alarm button on top of the radio, easy and quick to request an emergency call in emergencies.
5. Almost all the operations can be done via the radio keyboard.
6. Support to use a side key as the secondary PTT.
7. Support night mode and adjust the brightness.
8. Support different keyboard lock mode.
9. Support Bluetooth voice transmission.
10. Support NOAA function (Only available in the United States)
11. Support Talker Alias to display the transmitter alias.

Specifications

General Specifications	Frequency range *	TX: 144-148Mhz & 420-450Mhz & 222-225Mhz; RX: 136-174Mhz & 400-520Mhz; Bluetooth: 2.402~2.480GHz, Max: 2mW; GPS, L1:1575.42Mhz/ L2:1227.6Mhz L5 : 1176. 45Mhz;
	Channel Capacity	3000 Channels
	Channel Spacing	12.5KHz/25Khz
	Operating Voltage	7.4V
	Battery Type	Li-ion battery

General Specifications	Operating Temperature	0°C ~ +45°C
	Audio Power Output	16Ω 1W
	Antenna Impedance	50Ω
Receiver	Sensitivity	(12dB SINAD) ≤-121dBm
	Adjacent Channel	≥70dB (25Khz)
	Selectivity	≥60dB (12.5Khz)
	Spurious Emissions	≤-57dB (25Khz) ≤-57dB (12.5Khz)
	Spurious Suppression	≥70dB (25Khz) ≥70dB (12.5Khz)
	Signal-to-Noise Ratio	≥45dB (25Khz) ≥40dB (12.5Khz)
	Audio Distortion	≤5%
Transmitter	Transmit Power	Max 5W;
	Frequency Stability	±2.5ppm
	Modulation Limits	±5.0KHz@25KHz (25Khz) ±2.5KHz@12.5KHz (12.5Khz)
	Adjacent Channel Power	≤70dB (25Khz) ≤60dB (12.5Khz)
	Signal-to-Noise Ratio	25Khz: 45dBm; 12.5Khz: 40dBm
	4FSK digital modulation	12.5KHz (Data) 7K60FXD; 12.5KHz (Data+Voice) 7K60FXE
	Audio Distortion	≤5%
	Bit Error Rate	≤3%
* The ranges may differ, depending on the transceiver version, and specific regulatory requirements. Depending on the International Amateur Radio Union (IARU) Region selected by the distributor ;		

Unpacking and Checking Equipment

Please check if there is any damage to the package when you receive it. It is recommended that you check the items listed in the following table. If any items are missing or damaged during shipment, please contact your dealer immediately.

Battery Using Information

Battery packs are not charged when they are shipped. Charging them before use.

- ◆ Initially charging the battery pack after purchase or extended storage (longer than 2 months) will not bring the battery pack to its greatest capacity or its normal charge, which can be done only after repeated charging and discharging two or three times.

- ◆ Do not use the radio during charging. This will affect the normal charging of the battery pack, causing damage to the radio and possible accidents.

- ◆ After the battery pack is fully charged, please take it out of the charger base.

Do not charge it again before the battery is completely running out. or it will destroy the battery performance of the battery.

- ◆ If, when using the correct charging methods, the battery does not gain capacity or use time, which means the battery life is near the end, please change to a new battery pack.

- ◆ Please only use the original factory battery pack and charger. They are available from your local agent.

- ◆ If you are unsure about non-original factory battery packs and accessories, please do not use them. Use of non-original items may cause damage to the radio and can cause accidents.

Desktop Charger Charging instructions:

Use the 5V 1A charging adapter to charge the desktop charger.

- ◆ Plug the lithium battery or radio equipped with the lithium battery into the charger base, and ensure that the battery is in normal contact with the charging base.

- ◆ The green light on the charging base will be on when the charging base is empty; When the red light is on, charging begins; When full, the green light will display.

- ◆ After the lithium battery pack is fully charged, take it out of the charger.

Type-C Battery Charging instructions:

Use the 5V1A charging adapter to charge the battery directly, the LED light on the back of the battery will turn red when charging, and change to green when the battery is full.

Note: When the radio is charging, it is forbidden to transmit to avoid damage to the radio and possible injury.

Eliminating the Risk, keep away from the flammable materials, heat sources and ignition sources while a battery is charged. Charging should only take place in a well ventilated area and when someone is about to be aware and

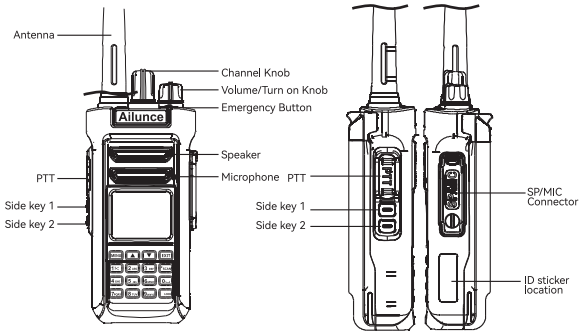
react to a potential issue. To reduce risk of fire, a battery should not be charged for more than 7.5 hours and disconnect charger from line voltage (AC outlet) by removing main plug even if the battery is not completely charged. Don't leave a device unattended while charging. Disconnect the charger when the device is fully charged: do not overcharge the device.

Don't fully drain: Aim to recharge when the battery hits about 20% for battery, keeping it above critical levels.

Don't store batteries empty; charge them to 60-80% for ideal long-term storage to extend storage periods.

If your device or battery is not used for longer than seven days, please perform regular maintenance checks and recharge the battery periodically to maintain optimal battery levels. Following these guidelines will not only protect battery life but also ensure that devices can return to active duty without issue.

Getting Acquainted



LCD Display Icon	LCD Display meaning
	Indicates received signal strength;
	Keyboard Lock.
	Battery Save.
	FM Radio is on.
	Voice announcement and Key tone on.
	Displays remaining battery percentage level
	Display power level.
	Means current channel is wide bandwidth.
	Means current channel set with CTCSS tone.
	Shift Up Plus or Minus.
	VOX function is on.
	FM means the channel is analog mode, DMR means the channel is DMR mode.
	GPS function is on.
	Bluetooth function is on.

Basic Operations

Turn the radio volume knob clockwise to turn on the HD2, there will be a "click" sound, a message sound, and the screen will show up welcome, while the LED indicator lights up.

Turn the volume knob clockwise to increase the volume or anticlockwise to lower.

Note: If the voice announcement and the key beep function are turned off, there is no sound when power on the radio.

KEYPAD FUNCTIONS	
MENU	Confirm button.
EXIT	Short press to switch VFO and channel mode. Long press to switch analog and digital under VFO mode.
*SCAN	Short press to switch Band A and Band B. Long press to begin or stop the scan function.
#LOCK	Short press to switch single band or dual band. Long press to lock or unlock the keyboard.
Number 0-9	Use the number keys in the menu to quickly switch to the corresponding option.

Radio Menu Setting- Main Set

NO.	Menu	Definition
1	Squelch	0~9 levels (In analog mode, when the Squelch level is set high, the background hiss noise will be muted. However, only the stronger signals will be heard. If the Squelch level is set low, this will allow lower strength signals to be heard, but the radio will now be more prone to hearing the background hiss noise from time to time.)
2	Power Save	Power saving ratio (It indicates the battery saving rate, the highest rate is 1:4. the higher you select, the more power saved. at the same time, the receiving will be a little delayed, but normally we don't feel the delay.)
3	Double PTT	Choose to use double PTT or not. When double PTT is on, the side key function will not work.
4	Bluetooth	Turn on or off the Bluetooth function. When connected to Bluetooth voice device, the Bluetooth icon will change to red.
5	BTRbind	Confirm Bluetooth.
6	Voice	Voice Announcements.
7	Zone Name	Turn on the function to display zone name.
8	VOX Delay	Set VOX delay time.
9	Mic Gain	Set the mic gain level.
10	Hang Up	Set the digital hang up time. ①Off: when the hang-up function is off, it will transmit with the current channel contact. ② 1S ~ 10S: If the current channel has received the call within this hang-up time range, it will be transmitted with the received contact. If it is out of the hang-up time, it will transmit with the current channel contact.
11	Key Define	Key1 and Key2 short press functions as below: OFF, Power, Scan, radio (FM Radio) , Wake up, TalkAround, Key Call 1-6, VOX, Kill (Remote kill), Zone Plus, Zone Minus, DMR slot, Promiscuous, Manual Dial, CH-Mode, Reverse, Bluetooth , 0.5W Power, FM Call, Voltage, NOAA, key Beep、Encryption; Key 1 or Key 2 long press extra functions as below: TX-DSW, M-MONI, Tx1000, Tx1450, Tx1750, Tx2100. Short press [*scan] button to switch SK1 or SK2 short or long press operation.
12	Backlight	Screen backlight time: 1s-120s; Cont: The backlight stays on.
13	Brightness	Level 1-10; The higher the number, the higher the brightness.
14	Key Beep	Keyboard tone.
15	Key Lock	Choose manual or auto Lock.
16	Lock Mode	Keyboard, keyboard+CH, keyboard+CH+PTT.

NO.	Menu	Definition
17	CH-Mode	Frequency: Frequency+Channel number. Name: Channel name. CH: Channel mode.
18	S/D Mode	Choose single band and dual band standby.
19	VFO Scan Mode	Carrier, Time, Search. Time mode (TO): When the radio detects a signal it will stop scanning and will pause for 5 seconds before scanning again even if the signal is still present. Carrier mode (CO): When the radio detects a signal it will stop scanning and will stay on the same frequency and will resume scanning after 5 seconds when the signal ends. Search mode (SE): When the radio detects a signal, it will stop on that frequency and will not move on, even if the signal ends. Long press [*scan], it will begin to scan. Up and down key to change the scan direction, Press any key to exit scan.
20	Save CH	Storage channel: If displays "CH-01", means it already a storage channel. If display "002", means it can save it as a new channel.
21	Delete CH	Delete channel. Same operation as above.
22	Roger Beep	Transmit end tone
23	Time	Set local time. Use *Scan button to switch year, month, day time.
24	Menu Exit time	Set menu exit time.
25	Miss Call Set	Choose to check the miss call or not.
26	CallInLight	Choose if the led bright when receiving.
27	DMRTX Beep	Digital transmit Talk Permit Tone.
28	FM TX Beep	Analog transmit beep tone
29	Night Mode	Switch to night mode
30	Noise Tail	Repeater tail tone elimination.

Channel settings (Band A Set and Band B Set)

1	Zone	Choose the working zone.
2	GPS	Switch GPS on or off. (Only GPS version).
3	RxGPSInfo	Confirm to receive the GPS information.
4	TxGPSInfo	Confirm to transmit the GPS information.
5	Step	Frequency step choose for current channel.
6	Power	Select power level for current channel.
7	VOX	Turn ON or OFF VOX function.
8	Vox Level	Choose a VOX working level.
9	W/N	Choose bandwidth for working channel.
10	TOT	Time Out timer.
11	DTMF Signal	Choose if using the DTMF function.
12	C-CDC	Same RX and TX CTCSS tone, short press [*scan] button to switch CTCSS, DCS tone and inverse DCS tone.
13	R-CDC	Receive CTCSS tone.
14	T-CDC	Transmit CTCSS tone.
15	Ch.Name	Edit the channel name under channel mode.
16	TX Permission Set	Transmit permission settings. Analog mode: - CTCSS/DCS Mismatch: Transmit only if sub-tones match. - Channel Free: Transmit only if the channel is free. - Receive Only: Disable transmit (listen only). - Always Allow: Transmit anytime. Digital Mode: Always Allow=Transmit anytime; Prohibit TX= Only Receive; Color Code: Impossible to transmit if the frequency and CC are the same; Channel Free: Transmission is only allowed when the channel is free.
17	Shift Up	Set an offset frequency direction for a repeater channel.
18	Shift Freq	Edit the offset frequency.
19	Color Code	Choose a color code for a digital channel.
20	Encrypt Type	Choose an encryption type.
21	Encrypt NO.	Choose an encryption system.
22	DMR Mode	Choose the working mode for the current digital channel: Simplex, Repeater or Double Slot

23	DMR Slot	Choose DMR slot for current digital channel.
24	Promiscuous	Allowed to receive all Group Contacts.
25	RxAll PC	Allowed to receive all Private Contacts.
26	RxAll CC	If the RxAll CC mode is turned on, the HD2 will allow reception regardless of the CC being used.
27	Radio ID	Choose a Radio ID for the current channel.
28	Contacts	Choose the communication contacts for the current digital channel.
29	GPS contacts	Choose the transmit GPS contacts.
30	Rx Groups	Choose the Rx groups used on the current digital channel.

Detailed Functions

Message

This menu is mainly set up with SMS related functions:

- ① Inbox: Display the received SMS content.
- ② Write: edit the message. Edit the text message, long press the [*scan] key to switch between uppercase and lowercase letters and numbers.
- ③ Send Items: Outbox. Check the sent messages, and edit it to resend forward again.
- ④ Quick text. Edit the quick message text in the CPS, and then choose them on the radio.

Contact: priority contact

The HD2 can save 5000 priority contacts on the radio.

- ① Enter the [Contacts] menu.
- ② Edit the ID, choose the contact type: group, private, or All.
- ③ Name the contact. Long press[*SCAN] button to switch between ABC, abc, 123.
- ④ Switch channel knob to edit next contact.
- ⑤ In channel band setting, you can choose one of the contacts as your communication contact.
- ⑥ Manual Dial, here you can manually dial a private call directly.
- ⑦ Talker Alias, set the if transmit with alias or display alias on the receive window.

Radio ID

There can set 32 radio IDs. Edit 32 IDs, and then choose an using ID for a digital channel.

FM radio

32 FM Radio channels can be stored through computer program software;

- ① Press the [MENU] key to turn off the radio, or turn on the radio, press [EXIT] to exit.
- ② Long press the Exit button to switch between the VFO channel and MR storage channel in radio mode;
- ③ Long press the [* Scan] button to save the radio frequency as the radio channel;
- ④ Short press the [* Scan] button to scan the radio frequency in VFO Mode.
- ⑤ Short press the [#] button to turn on or off DW. Dual Watch represents that in FM radio mode, if there is an intercom signal coming in, it will first switch to receiving the intercom signal. If the intercom signal disappears, it will return to the FM Radio signal.

Version information

Displays the Serial number and firmware version.

Detailed functional operations

1. Save an analog Channel

- ① Input 144.25000MHz on Band A or Band B;
- ② Press the Menu key to enter Band A or Band B Set;
- ③ Set the C-CDC and/or the R-CDC. If the digital or C-CDC or the R-CDC , then set C-CDC and R-CDC separately.
- ④ After completing the above operations, it is currently a temporary channel that can be used for transmission and reception.
- ⑤ Enter the Main Set—"Save CH" menu again, select an empty channel to save as a new channel.
- ⑥ If it displays "CH-2", it is already a memory channel; if it displays "0006", it is an empty channel.

2. Save a digital channel

- ① Input 144.25000MHz on Band A or Band B;
- ② Long press the Exit button to switch between FM and DMR mode.
- ③ Select a Color Code;
- ④ DMR Mode: Simplex;
- ⑤ Choose DMR slot;
- ⑥ Select the Radio ID to be used for the current channel;
- ⑦ Select the call contact for the current channel. Return to the main interface to edit a temporary channel for communication;
- ⑧ Enter the Main Set—"Save CH" menu again, select an empty channel to save as new channel.
- ⑨ If "CH-2" is displayed, it is already a memory channel; if "0006" is displayed, it is an empty channel.

3. Make an analog repeater channel

- ① In VFO mode, input a receiving frequency that is the same as the repeater

transmission frequency;

- ② For example, 439.2000MHz is the transmission frequency of the repeater, it will be the reception frequency of the radio;
- ③ Enter Band A or B to set the frequency difference direction, in the Shift Up menu item, choose“Minus”, and Shift Freq edit 08.0000 , The transmission frequency of the radio is 439.2000-8.0000 MHz, which is 431.20000 MHz;
- ④ The repeater generally has sub tone settings, Set the same CTCSS tone used by the repeater on the radio; 5)After completing the above operations, the standby interface of the radio will display 439.2000Mhz;
- ⑤ It will display 431.20000Mhz and the CTCSS when transmitting.

4.Make a digital repeater channel

- ① In VFO mode, input a receiving frequency that is the same as the repeater transmission frequency;
- ② For example, 439.2000MHz is the transmission frequency of the repeater, it will be the reception frequency of the radio;
- ③ Enter Band A or B to set the frequency difference direction, in the Shift Up menu item, choose“Minus”, and Shift Freq edit 08.0000 , The transmission frequency of the radio is 439.2000-8.0000 MHz, which is 431.20000 MHz;
- ④ Choose a same color code with the repeater color code on the radio Band A or B set.
- ⑤ Choose DMR mode“repeater”for a repeater channel.
- ⑥ Choose a communication contact for this repeater channel;
- ⑦ After completing the above operations, go back to the standby interface. It will display the frequency 439.2000Mhz, and DMR icon.

5.Make a RX Group List

On the 7th menu of the Main set [RX Group Lists], you can edit the RX group list name and set the group list members.
Then, on the 30th menu of Band A/B, you can choose one of the RX group lists to receive more group signals.

6.Import 500,000 DMR contacts operation

The HD2 has the ability to upload 500,000 DMR contacts into the radio.
Download the digital contacts from Ailunce website <https://www.ailunce.com/ResourceCenter/>

Upload the contacts CSV sheet to the radio via the CPS. Find Contacts-Address Book Contacts, import the CSV file, and then write the contacts to the radio.

7.Talker Alias

Even if you haven't uploaded a contact form, you can still identify the sender's information.

In the radio contacts menu, find Talker Alias and enable “Tx with Alias”. If the receiver radio also has the Talker Alias function, enable the receiver alias, you'll

see the sender's information on the receiving screen.

8.Promiscuous Feature

When operating on a on digital channel, the channel needs to match the same contact and color code. But on HD2, it has contact and color code feature that allows reception of different contacts and color codes..

- ① the 24th menu [Promiscuous] of Band A/B Set. if turned On, the HD2 will receive all the different group contacts call in digital channel.
- ② The 25th menu [RxALLPC] of Band A/B set. if turned On, the HD2 will receive all the different private contacts call in digital channel.
- ③ The 26th menu [RxALLCC] of Band A/B set, if turned On, the HD2 will receive all the different color code in digital channel.
- ④ So, if you enable [Promiscuous], [RxALLPC], and [RxALLCC] on a digital channel, it will receive signals from other digital channels with different contacts and color codes.

9.Frequency Scan and channel Scan operation

Frequency Scan

1)In the CPS, you can set the start and end scan frequency for VHF and UHF. Here are two kinds of VFO scan conditions.

Current Frequency: Start from the current VFO frequency.

Preset Frequency: Start from a preset frequency (e.g., 430.0000MHz).

2)On the radio, in VFO mode, long-press the [*SCAN] button to begin a frequency scan; long-press [*SCAN] again to stop the frequency scan.

Channel Scanning

The HD2 can create 16 scan lists (each with up to 100 channels).

Create/Edit a Scan List in the CPS.

Scan Setting	Options/Settings	Description
Scan Name	Create a name for this scan list.	
Scan Mode	- Time Scan (TO): Stay for a time ,resume scanning even if the channel is still active. - Carrier Scan (CO): Stay until the signal disappears then resume scanning. - Search Scan (SE): Stop permanently after finding a signal and then restart scanning manually.	How long to stay on an active channel.
Scan Condition	- Carrier: Stop if any co-frequency signal is detected . - CTCSS/DCS: Stop only if signal + matching sub-tone are detected.	When to stop scanning (for active channels).

Scan Setting	Options/Settings	Description
Scan Mode Set	- Current Channel: Transmit on the channel where scanning stopped. - Last Active Channel: Transmit on the last channel used before scanning. - Designated Channel: Transmit on a Designated Channel.	Which channel to use for transmission during scanning.
Designated Channel Select	Choose from existing channels.	Pre-select a channel for transmission.
Priority Channel 1/2	Select two channels → Scanning checks these first every cycle.	Channels to scan first (e.g., emergency channels).
Scan Hang Time	adjust 1-10 seconds.	Time to stay on a channel after its signal disappears (avoids missing short signals).

10. Emergency Alarm operation

Set up the alarm list in the Emergency Alarm menu.

Alarm Type Select: Menu->Emergency Alarm->Emergency List-> Select the desired alarm system->Emergency Type: Options include Siren, Regular, Silent, and Silent with Voice.

- ① Siren: Only the current radio rings alarm.
- ② Regular: Ring alarms based on the selected emergency modes.
- ③ Silent: The radio does not ring alarm but alarms based on the selected mode; During the emergency alarm, the radio is prohibited from being received until the alarm function is deactivated.
- ④ Silent with Voice: The radio does not ring alarms but alarms based on the selected mode, and the radio can receive during the alarm.

Emergency Mode Types:

Menu->Emergency Alarm->Emergency List->Select the desired alarm system->Emergency Mode: Options include Emergency Alarm, Emergency Call, and Emergency Alarm.

- ① Emergency Alarm: Only the current radio rings the alarm.
 - ② Emergency Call: The radio does not ring alarm but directly initiates an alert call;
 - ③ Emg Alarm w/Call: The radio rings an alarm and then initiates a call;
- In the channel setting, select an emergency list and then set a customization button as the emergency function key. By default, it is set to the TOP key. Press the preset key to activate the alarm function when necessary.

11. GPS Function

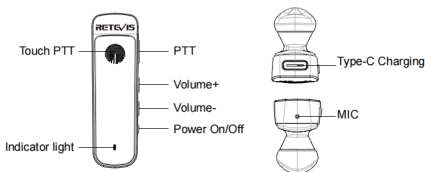
GPS function only work on digital channel.

- ① On a DMR channel, Menu-Band A/B set-GPS: ON/OFF. Turn on the GPS.

- ② Go back to turn on "RxGPSInfo" and "TXGPSInfo".
- ③ Band A/B Set 29th menu: GPS Contacts. choose one Priority group contacts or private contact both OK.
- ④ All the settings are finished. Next step is to get outside until the GPS icon is activated.
- ⑤ Check local radio GPS information under the 10th main menu.
- ⑥ When communicating to other HD1 or HD2, and they will transmit their GPS information together with the voice data, then it will display their GPS information after voice signal.
- ⑦ You can also set the transmit interval time in the CPS channel setting.

12. Bluetooth Operation

- 1) Turn on the Bluetooth function. The 5th menu of Main Set.
- 2) Pair the Bluetooth earpiece.



- ① Press and hold the on/off button for 5 seconds will enter into pairing mode, and you will hear a "di" sound.
- ② Confirm "BTRebind" the first time you connect the Bluetooth earpiece.
- ③ Waiting for several seconds, the radio Bluetooth will be connected to the Bluetooth earpiece.
- ④ Next time if you turn on the radio and earpiece, they will pair automatically within several seconds.
- ⑤ If pairing time out of 1 min, please clear the connection memory of the earpiece as follows operations: Press the PTT button 4 times in a row with a Beep sound to clear the Bluetooth connection memory in the power-on state, and then pair the radio and Bluetooth earpiece again.

13. Update firmware upgrade operation

Ailunce HD2 V3 version firmware need to upgrade in the RETEVIS CPS.

Upgrade operation:

- ① Firstly, enter the DFU mode: Press the PTT and SK1 together, and then turn on the radio. The indicator light is red.
- ② Open the firmware software.
- ③ Connect the programming cable to the computer, and then choose the correct device COM port. Click Connect, then Update. It will display the

upgrading progress bar.

④ After 1 min, it will finish the upgrade operation. It will display "Upgrade Successfully".

14. Weather channel receiving operation (only use in American)

There are 12 weather channels for monitoring the National Oceanographic and Atmospheric Administration (NOAA) weather broadcasts.

Set a side key short or long press to NOAA function. The HD2 will display NOAA channel at the sub band.

The HD2 will monitor the current NOAA signal. The NOAA channel frequency as below sheet:

Channel No.	Frequency (MHz)
NOAA-1	162.550Mhz
NOAA-2	162.400Mhz
NOAA-3	162.475Mhz
NOAA-4	162.425Mhz
NOAA-5	162.450Mhz
NOAA-6	162.500Mhz
NOAA-7	162.525Mhz
NOAA-8	161.650Mhz
NOAA-9	161.750Mhz
NOAA-10	161.775Mhz
NOAA-11	162.000Mhz
NOAA-12	163.275Mhz

15. Signaling (DTMF & Repeater Activation)

Many repeaters remain in a dormant state to save power or avoid interference. Enthusiasts need to send a specific DTMF sequence (such as 1234) to "wake up" or activate them before communication can take place. The HA2 supports DTMF signaling for this purpose.

What is DTMF?

DTMF (Dual-Tone Multi-Frequency) is a signal composed of two tones — used for remote control (e.g., activating repeaters, remote stun/kill of radios).

Parameters	Description
PTT ID	Push-to-Talk ID, a unique identification code for the radio.
PTT ID Type	Configurable options: Off, BOT (Begin of Transmission), EOT (End of Transmission), or Both. Determines whether DTMF signaling is sent when PTT is pressed.
Sidetone	An audible tone played during transmission to confirm DTMF signal emission.
BOT ID / EOT ID	Supports up to 16 characters from the set: 0–9, A–D, *, #. Defines the DTMF sequence sent at the start or end of transmission.

ID Display	When enabled, received DTMF decoding results are shown in a pop-up window.
CALL_ID	Local device identification code (equivalent to a phone number). Supports 10 digits (0–9 only).
Remote Control Functions	Stun: Remotely disables the target device's transmission capability. Kill: Remotely disables both transmission and reception. Wake-up: Remotely restores transmission and reception.
Stun ID	Identification code used to stun or kill the local device. Supports 10 characters from 0–9, A–D, *, #.
Wake-up ID	Identification code used to wake up the local device. Supports the same characters as Stun ID.
DTMF Group Code	Group call identifier, configurable as A, B, C, D, *, or #.
DTMF Code Length	Duration of each DTMF tone and the interval between tones. Adjustable from 30ms to 150ms.

DTMF Call Test (Between Two Radios)

Test DTMF calls with another radio (same frequency and CTCSS/DCS).

Steps:

- ① First, select the signaling list for the channel for which you want to enable DTMF.
- ② Then, enable code in the signaling category settings.
- ③ Set the local device's CALL_ID to 123 and the other device's CALL_ID to 456.
- ④ Select the PTT ID type as BOT and set the BOT ID to the other device's CALL_ID (456). If the other device is calling the local device, the BOT ID should be set to 123.

If both walkie-talkie are on the same frequency and tone and the above settings are complete, DTMF intercom communication can be established.

Remote Stun/Kill/Wake-Up

Remotely control a target radio (e.g., disable a lost radio to prevent misuse).

Principle: Send the target radio's Stun ID (to stun/kill) or Wake-up ID (to restore) via DTMF signaling.

Steps:

Configure the target radio: On the target, press **[MENU]** → [Signaling] → Set [Stun ID] = 123456 → Set [Wake-up ID] = 654321 → Enable "Decode".
Configure the managing radio (your radio): Set [Encode] = On → Set [PTT ID Type] = BOT → Set [BOT ID] = 123456 (target's Stun ID).

Stun the target: Press PTT on your radio → The target radio will receive the Stun ID and disable its transmit/receive functions (LCD shows "Stunned").

Wake up the target: On your radio, set [BOT ID] = 654321 (target's Wake-up ID) → Press PTT → The target radio will restore functions.

Note: This can also be done via CPS software: [Settings] → [Remote Control] → Enter target's ID → Send command.

Show ANI ID

Show ANI is the switch that displays the other party's identity code.
For example, if you enable the show ANI ID in the CPS and set Receiver ID: 456 and Transmitter ID: 123, then the transmitter needs to send 456123; after the receiver matches 456, it will display 123.

Send DTMF via Quick Call List

Create a list of frequently used DTMF sequences (e.g., repeater activation codes) for quick access.

Steps:

Create the list via CPS: Open CPS → [DTMF Quick Call] → Add sequences (e.g., "1234" = Repeater A, "5678" = Repeater B) → Save to the radio.

Send on the radio: Press **【MENU】** → [Signaling] → [Quick Call List] → Select a sequence → Press **【MENU】** to send (no need to press PTT).

Send DTMF via numerical key

While pressing and holding the PTT, press each corresponding key to send the DTMF code:

Number **【0-9】** = DTMF dial number 0-9.

【Menu】 key= A

【Up】 key= B

【Down】 key= C

【Exit】 key= D

16.Troubleshooting

No power	• Battery power may have run out, please change battery or recharge it. • Battery may not be properly installed, please take it off and re-install.
Battery lasts a short time after charge.	• The battery life is over, please replace with a new battery.
Can not talk to other members of your group.	• Verify your transmission is within effective operating range. • Verify channel, frequency and code settings are correct.
Hearing other conversation on a channel (not group members*)	• Please change code settings, including all two way radio settings of your group.
Radio keep beeping.	• Radio channel is empty. Please turn to other channels or program the channel first.
Can't power on the radio after update firmware.	• This problem should be updated with a wrong firmware, please update the correct firmware again.

CAUTION

User's instructions should accompany the device when transferred to other users.

Unauthorized modification and adjustment

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority granted by the local government radio management departments to operate this radio and should not be made.

To comply with the corresponding requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the local government radio management departments equipment authorization for this radio could violate the rules.

Radio License

Governments keep the radios in classification. Two-way radios are only operated on authorized radio frequencies that are regulated by the local radio regulatory authorities (such as FCC, ISSED, OFCOM, ANFR, BFTK, ComReg., and so on.). For detailed classification and the use of your two-way radios, please contact the local government radio management departments. Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference. (Licensed radios are applicable)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device. 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.

ISED Information

EN: This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

This radio equipment contains frequency bands that are subject to licensing procedures before it is allowed to be operated. Please make sure you have a valid radio license or radio operator permit before use.

Disposal

The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that all electrical and electronic products, batteries, or accumulators must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws and rules in your area.



RF Safety

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. RF energy, which when used improperly, can cause biological damage. Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits: <http://www.who.int/en/>

Transmit no more than the rated duty factor 50% of the time. Transmitting necessary information or less, is important because the radio generates measurable RF energy exposure only when transmitting in terms of measuring for standards compliance. For users who wish to further reduce their exposure, some effective measures to reduce RF exposure include:

- Reduce the amount of time spent using your wireless device.
- Use a speakerphone, earpiece, headset, or other hands-free accessory to reduce proximity to the head (and thus head exposure).

While wired earpieces may conduct some energy to the head and wireless earpieces also emit a small amount of RF energy, both wired and wireless earpieces remove the greatest source of RF energy (handheld device) from proximity to the head and thus can greatly reduce total exposure to the head. Increase the distance between wireless devices and your body.

• This radio is designed for and classified as “Occupational/Controlled Use Only”. Occupational/Controlled environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential of exposure, for example, as a result of employment or occupation. It means a radio must be used only by individuals aware of the hazards, and the ways to minimize such hazards; Not intended for use in a General population/uncontrolled environment.

Hand-held Mode

To control your exposure and ensure compliance with the controlled environment exposure limits, always adhere to the following procedure:

- To receive calls, release the PTT button.
- To transmit (talk), press the Push-to-Talk (PTT) button in front of the face.
- Hold the radio in a vertical position with the microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips.



Electromagnetic Interference/Compatibility

Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility. 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, such as hospital or healthcare facilities. Persons with pacemakers, implantable cardiac defibrillators (ICDs) or other active implantable medical devices should

- Consult with their physicians regarding the potential risk of interference from radio frequency transmitters, such as portable radios (poorly shielded medical devices may be more susceptible to interference).
- Turn the radio OFF immediately if there is any reason to suspect that interference is taking place.
- Do not carry the radio in a chest pocket or near the implantation site, and carry or use the radio on the opposite side of the body from the implantable device to minimize the potential for interference. Hearing Aids: Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices: If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

Turn off your radio in the following conditions:

- Turn off your radio prior to entering any area with a potentially hazardous or explosive atmosphere. Only radio types that are especially qualified should be used in such areas as “Intrinsically Safe”.

Note: the areas with potentially explosive atmosphere referred to above include blasting caps, blasting areas, inflammable gas, dust particles, metallic powders, grain powders, fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles (such as grain, dust or metal powders) and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often – but not always posted.

Use of Communication Devices While Driving

Always check the laws and regulations on the use of radios in the areas where you drive. Use of Communication Devices, for example, mobile radio, may not be allowed.

Give full attention to driving and to the road.

- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call, if driving conditions or regulations so require.
- Do not place a portable radio in the area over an airbag or in the airbag deployment area. The radio may be propelled with great force and cause serious injury to occupants of the vehicle when the airbag inflates.



Protect your hearing

Use the lowest volume necessary to do your job. Turn up the volume only if you are in noisy surroundings.

- Limit the amount of time you use headsets or earpieces at high volume.
- When using the radio without a headset or earpiece, do not place the radio's speaker directly against your ear.
- Use carefully with the earphone maybe possible excessive sound pressure from earphones and headphones can cause hearing loss. CAUTION: Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing could be affected. Hearing damage from loud noise is sometimes undetectable at first and can have a cumulative effect.



Batteries Safety

• WARNING: KEEP NEW OR OLD USED BATTERIES OUT OF REACH OF CHILDREN.

- In the event of a battery leaking, do not allow the liquid to come into contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice immediately.
- If a radio or a battery has been submerged in water, please dry and clean it

before use. Do not dry the radio or battery with an appliance or heat source, such as a hair dryer or microwave oven. If the radio has been submersed in a corrosive substance (e.g. saltwater), rinse the radio and battery in fresh water, then dry them.

Since batteries are sensitive to high temperatures when storing them, keep them in a cool and dry place. The recommended temperature should be between +10 °C and +25°C and never exceed +30°C. Batteries should therefore not be stored next to radiators or boilers nor in direct sunlight.

Extremes of humidity (below 35% and above 95% relative humidity for sustained periods should be avoided since they are detrimental to both batteries and packing. Although the storage life of batteries at room temperature is good, storage is improved at lower temperatures provided special precautions are taken. Also, accelerated warming is harmful.

Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas; A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

- The plug of the adapter is considered a disconnect device. The socket-outlet shall be installed near the equipment and shall be easily accessible.

CHOKING HAZARD—Small Parts.

Not suitable for children under 3 years old.



Authorized Accessories List

- Contact Retevis for assistance regarding repairs and service.
- For a list of Retevis-approved accessories for your radio model, visit the website: <http://www.Retevis.com>

Guarantee

Model Number: _____
Serial Number: _____
Purchasing Date: _____
Dealer: _____ Telephone: _____
User's Name: _____ Telephone: _____
Country: _____ Address: _____
Post Code: _____ Email: _____

Remarks:

- 1.This guarantee card should be kept by the user, no replacement if lost.
- 2.Most new products carry a two-year manufacturer's warranty from the date of purchase. Further details, pls read <http://www.re-tevis.com/after-sale/>
- 3.The user can get warranty and after-sales service as below:
 - Contact the seller where you buy.
 - Products Repaired by Our Local Repair Center.
- 4.For warranty service, you will need to provide a receipt proof of purchase from the actual seller for verification.

Exclusions from Warranty Coverage:

- 1.To any product damaged by accident.
- 2.In the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs.
- 3.If the serial number has been altered, defaced, or removed.



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E-mail: hams@ailunce.com

Facebook: [@ailunce](https://www.facebook.com/ailunce)



Made in China

材质：80g双胶纸
尺寸：130×90mm
工艺：骑马订
颜色：单色印刷