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CE 0700 !

VHF FM Transceiver / 136.000-173.995MHz  
All EU and EFTA member states. Operator  
license is required.

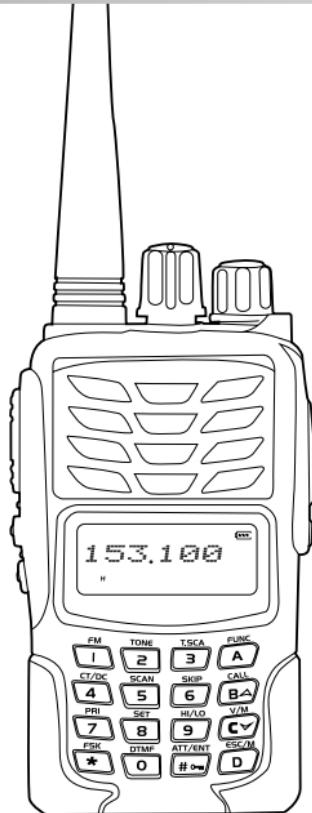
IC

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**ALINCO**



VHF FM Transceiver  
**DJ-100**  
**Instruction Manual**

Thank you for purchasing your new Alinco transceiver. Please read this manual carefully before using the product to ensure full performance, and keep this manual for future reference as it contains information on after-sales service. In case addendum or errata sheets are included with this product, please read those materials and keep them together with this instruction manual for future reference.

## **Introduction**

Thank you very much for purchasing this excellent Alinco transceiver. Our products are ranked among the finest in the world. This radio has been manufactured with state of the art technology and it has been tested carefully at our factory. It is designed to operate to your satisfaction for many years under normal use.

**Please read this manual completely from the first page to the last, to learn all the functions the product offers. It is important to note that some of the operations may be explained in relation to information in previous chapters. By reading just one part of the manual, you may risk not understanding the complete explanation of the function. In addition, please understand that your radio may be programmed by the dealer according to the local regulation, masking some of features mentioned in this manual. Please consult your dealer for details of programming.**

## **Before transmitting**

There are many radio stations operating in proximity to the frequency ranges this product covers. Be careful not to cause interference when transmitting around such radio stations.

### **■ Lightning**

Any person is not safe outdoor during thunderstorm and lightning. This condition is getting worse if somebody keeps a hand-held radio; chances of being hit by lightning are doubled since lightning may hit a radio antenna as well. At this time, there is no hand-held radio having any kind of protection against lightning current (which is higher than 10 kA.). Note also that no car provides adequate protection of its passengers or drivers against lightning as well. Therefore, Alinco will not take responsibility for any danger associated with using its hand-held radios outdoor or inside the car during lightning.

## ■ About IP54 rating / Dust and splash resistant

### About IP54 rating

5: Dust protected /Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact.

4: Splashing water / Water splashing against the enclosure from any direction shall have no harmful effect.

Test duration: 5 minutes / Water volume: 10 liters per minute /Pressure: 80~100 kN/m<sup>2</sup>

The IP54 designation provides for limited dust and splash proofing of the radio per specified above. This compatibility is factory guaranteed for a period of one year provided all the jack covers are securely in place, any accessories connected must be specified genuine Alinco accessories and the radio has not been disassembled by the customer. The factory has tested and made the equipment compatible to IP54 certification during engineering. However, please understand that this equipment is NOT certified IP54 compliant but is designed to remain operational when used in hard conditions and is in no way stating that you should attempt to wash the radio for cleaning. Warranty will not cover radios that are water/dust damage due to negligence or misuse of the product.

## ■ Covering ranges

You may expect a range of approx.3km/2 miles or more at high-power when located on a flat, noise-free place like on a beach. However, it may vary drastically depending on how to wear and carry the radios, surrounding locations/conditions and static noise levels (below or near power transmission lines), etc. In urban areas with many buildings or inside a building, such covering range will become drastically short even to several tens of meters.

## Features

- Output power selectable 5W/2W/0.5W
- 200 PC-programmable channels
- Li-Ion battery pack and stand-charger as standard accessories
- Alphanumeric name tags
- FM broadcast 76-108MHz receiver built-in
- Selectable Battery-save parameters
- Busy Channel Lockout
- Voice Comander (Reduce Noise & enhance audio clarity)
- Inversion Scramble(Analog encryption)
- CTCSS/DCS Encode/Decode, DTMF/ANI, 5-Tone, 2-Tone and Tone-bursts
- VOX built-in
- Emergency Kill/Stun/Revive, Alarm signal, Various scan modes, Key lock, Wide/Narrow operations and more at NO extra costs.

## Conformity Symbols

CE 0700 !

IC

RoHS

Tested to comply MIL-STD-810G

-Shock: Method 514.6/I,IV -Vibration: Method 516.6/I

# SAFETY TRAINING INFORMATION

## Warning: Please Read Carefully

A transceiver generates RF (Radio Frequency) electromagnetic energy while transmitting. This Alinco transceiver is designed for and classified as "Occupational Use Only", meaning it must be used minimum necessary only during the course of employment by employees aware of the hazards, and the ways to minimize such hazards. This transceiver is NOT intended for use by the "General Population" in an uncontrolled environment. This transceiver has been required "SAR-Standard" tested and complies with the FCC RF exposure limits for "Occupational Use Only".

To ensure that your expose to RF electromagnetic energy is within the allowable limits for occupational use, always adhere to the following guidelines:

- DO NOT operate the transceiver without a proper antenna attached, as it may damage the transceiver and may also cause you to exceed FCC RF exposure limits. A proper antenna is the genuine antenna supplied with this transceiver by Alinco or ones specifically authorized by the antenna manufacturer for use with this transceiver.
- DO NOT transmit for more than 50% during the time of employment (50% duty cycle or less). Transmitting excessive amount of time can cause RF exposure compliance requirements to be exceeded. Please carefully read this instruction manual to learn how to transmit and stop transmitting before starting to use it.
- ALWAYS keep the antenna at least 3 cm (1 inch) away from your body when transmitting and only use the original belt clips when attaching the transceiver to your body (Unauthorized attachment devices may help radiating more electromagnetic energy). To obtain the best sound quality during communications, hold the antenna at least 6 cm (2 inches) from your mouth, and slightly off to one side.

- Use only the genuine Alinco accessories listed in this instruction manual for RF safety. Third party accessories are not guaranteed for RF safety by Alinco.

The above provides the information needed to make users of this transceiver aware of RF exposure, and what to do to assure that this transceiver operates with the FCC RF exposure limits.

- **Electromagnetic Interference/Compatibility**

During transmissions, a transceiver generates RF energy that can possibly cause interference with other devices and/or systems.

To avoid such interference, turn off the transceiver in areas where signs are posted to do so. NEVER operate transceivers in areas that are sensitive to electromagnetic radiation such as hospitals, blasting sites, aboard aircraft and similar advanced vehicles etc. Do not expose magnetic cards such as credit cards in a very close vicinity to a transceiver; it may erase the magnetic data. A person using medical devices such as a pacemaker MUST NOT use this transceiver, as interference may cause malfunction to such medical devices.

- **Occupational/Controlled Use**

This product is used in situations that users are exposed to RF as consequence of their employment provided those users are fully aware of the potential RF hazards and can exercise control over their exposure.

- This transceiver is NOT ATEX approved and NOT intended for the use in hazardous explosive atmospheres.
- California residents only: Please note per Proposition 65 that Li-Ion battery pack in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

## **FCC INFORMATION**

### **FOR CLASS B UNINTENTIONAL RADIATORS:**

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.**

### **FOR CUSTOMERS IN CANADA :**

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.

# **Alert**

## ■ Environment and condition of use

-  It is recommended that you check local traffic regulations regarding the use of a radio equipment while driving. Some countries prohibit or apply restrictions for the operation of radios and mobile- phones while driving.
-  Do not use this product in close proximity to other electronic devices, especially medical ones. It may cause interference to those devices.
-  Keep the radio out of the reach of children.
-  In case a liquid leaks from the product, do not touch it. It may damage your skin. Rinse with plenty of cold water if the liquid contacted your skin.
-  Never operate this product in facilities where radio products are prohibited for use such as aboard aircraft, in airports, in ports, within or near the operating area of business wireless stations or their relay stations.
-  Use of this product may be prohibited or illegal outside of your country. Be informed in advance when you travel.
-  The manufacturer declines any responsibilities against loss of life and/or a property due to a failure of this product when used to perform important tasks like life-guarding, surveillance, and rescue.
-  Do not use multiple radios in very close proximity. It may cause interference and/or damage to the product(s).
-  Risk of explosion if battery is replaced with an incorrect type. Dispose of, or recycle used batteries according to your local regulations.

-  The manufacturer declines any responsibilities against loss of life and property due to a failure of this product when used with or as a part of a device made by third parties.
-  Use of third party accessory may result in damage to this product. It will void our warranty for repair.

## ■ Handling this product

-  Be sure to reduce the audio output level to minimum before using an earphone or a headset. Excessive audio may damage hearing.
-  Do not open the unit without permission or instruction from the manufacturer. Unauthorized modification or repair may result in electric shock, fire and/or malfunction and voids warranty.
-  Do not operate this product in a wet place such as in a shower room. It may result in electric shock, fire and/or malfunction, This product is splash-proof but not a complete water-proof.
-  Do not place the product in a container carrying conductive materials, such as water or metal in close proximity. A short-circuit to the product may result in electric shock, fire and/or malfunction.

## ■ About chargers

-  Do not use adapters other than having the specified voltage. It may result in electric shock, fire and/or malfunction, Never turn on the radio while charging.
-  Do not plug multiple devices using an adapter into a single wall outlet. It may result in overheating and/or fire.
-  Do not handle adapter with a wet hand. It may result in electric shock.



Securely plug the adapter into the wall outlet. Insecure installation may result in short-circuit, electronic shock and/or fire.



Do not use the adapter if the plug or socket contacts are dirty. Overheating and/or short-circuiting may result in fire, electric shock and/or damage to the product.

## ■ In case of emergency

In case of the following situation(s), please turn off the product, switch off the source of power, then remove or unplug the power-cord. Please contact your local dealer of this product for service and assistance. Do not use the product until the trouble is resolved. Do not try to troubleshoot the problem by yourself.

- **When a strange sound, smoke and/or strange odor comes out of the product.**
- **When the product is dropped or the case is broken or cracked.**
- **When a liquid penetrated inside.**
- **When a power cord (including DC cables, AC cables and adapters) is damaged**



For your safety, turn off then remove all related AC lines to the product and its accessories from the wall outlet if a thunderstorm is likely.

## ■ Maintenance



Do not open the unit and its accessories. Please consult with your local dealer of this product for service and assistance

## **Alert**

### ■ Environment and condition of use

-  Do not use the product in proximity to a TV or a radio. It may cause interference or receive interference.
-  Do not install in a humid, dusty or insufficiently ventilated place. It may result in electric shock, fire and/or malfunction.
-  Do not install in an unstable or vibrating position. It may result in electric shock, fire and/or malfunction when if the product falls to the ground.
-  Do not install the product in proximity to a source of heat and humidity such as a heater or a stove. Avoid placing the unit in direct sunlight.
-  Be cautious of a dew formation. Please completely dry the product before use when it happens.

### ■ About transceiver

-  Be cautious of the whip antenna when carried in your shirt-pocket etc. It may make contact with your eye and cause injury.
-  Do not connect devices other than specified ones to the jacks and ports on the product. It may result in damage to the devices.
-  Turn off and remove the power source (AC cable, DC cable, battery, cigar cable, charger adapter etc.) from the product when the product is not in use for extended period of time or in case of maintenance.
-  Never pull the cord alone when you unplug AC cable from the wall outlet.



Use a clean, dry cloth to wipe off dirt and condensation from the surface of the product. Never use thinner or benzene for cleaning.



Check with your local waste officials for details on recycling or proper disposal in your area.



## ■ PC PROGRAMMING

NOTE: The utility software may be available to distributors/dealers only. USB programming cable is required. The manufacturer will not release the software to unauthorized party so please contact your dealer for details.

■ This product may be blocked for operation in default state and only dealers can program to make it working. Manufacturer is not available for reprogramming or modifying the dealer-programmed setting. VFO(freunecy) mode may not be available due to regulation.

Please consult your dealer for technical supports of this product.

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## • STANDARD ACCESSORIES

**ALINCO**

### Standard Accessories



Antenna



Battery



Charger



AC Adaptor  
(A shape may vary)



Belt Clip



Instruction  
Manual



Hand Strap

**NOTE: Accessories may differ depending on the version you have purchased. Please contact your local dealer for details of standard accessories and the warranty-policy before purchase.**

## ◦ KEY OPERATIONS / QUICK CHART

Function	Key Operation	Parameter Instruction	Page
FM radio On/Off	<b>[A] → [1]</b>	Activate FM Broadcasting Receiver	18
Add/delete Optional Signaling	<b>[A] → [2]</b>	Choose DTMF、2TONE、5TONE、FSK as optional signaling of current channel	20
CTCSS/DCS Scan	<b>[A] → [3]</b>	Scan CTCSS when channel set CTCSS decode; Scan DCS when channel set DCS	21
Add or delete CTCSS/DCS code	<b>[A] → [4]</b>	Add or delete CTCSS encode/decode or DCS encode/decode	22
Scan	<b>[A] → [5]</b>	Channel or frequency scan	23
Scan skip	<b>[A] → [6]</b>	In standby state, checking Priority channel	23
Priority Monitor	<b>[A] → [7]</b>	"H" icon: High power, "M" icon: Middle power, "L" icon: Low Power	24
TX power selection	<b>[A] → [9]</b>	Press [ B ] key/ [ C ] key to choose transmit method: "CAL ID", "CAL GR" or "CAL AL"	24
FSK transmit method	<b>[A] → [*]</b>	Displays received message, press [ B ] key [ C ] key to change page	25
FSK message checking	<b>Hold pressing [*] key 1second</b>	Displays current data, "EMPTY" means no data	26
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Signal Annenuation	<b>[A] → [#]</b>	When LCD displays "ATT" icon, Keypad is locked.	28
Keypad lock	<b>Hold pressing [#] key 1second</b>	When LCD displays "ATT" icon, Keypad is locked.	36

### « Charging Operation

The battery is not charged at the factory, so please charge it before use. Charge the battery for the first time after purchase or extended storage (more than 2 months) may not bring the battery to its normal operating capacity. After repeating fully charge/ discharge cycle for two or three times, the operating capacity will reach the best performance. The battery life is over when its operating time decreases even though it is fully and correctly charged and it must be replace to new one.

### « Battery Charger Type

Please use Alinco's designated charger, other models may cause explosion. After installing the battery, when the radio displays  low battery, please charge the battery.

### « Notice for Charging Battery

- ▲ Do not shortcircuit the charger. Never attempt to remove the casing from the battery, otherwise the warranty is void and you risk serious damage to yourself and properties.
- ▲ The ambient temperature should be between 5°C and 40°C while charging. Charging outside this range may not charge the battery.
- ▲ Always switch off the transceiver before charging. Otherwise, it may not charge correctly.
- ▲ To avoid interfering the charging procedure, please do not cut off the power or take out the battery during charging.
- ▲ Do not recharge the battery if it is already fully charged. This may shorten the life of the battery or damage the battery.
- ▲ Do not charge the battery or transceiver when wet. Dry it before charging to avoid danger.

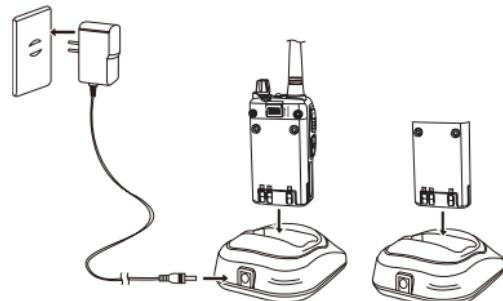
## ◦ BATTERY INFORMATION

### Caution

- Risk of explosion, generation of heat or leak of chemicals inside if the battery is replaced by an incorrect type or reverse polarity. Use always the recommended types of batteries in this manual only.
- The battery pack isn't fully charged when shipped. It must be charged before use.
- Charging should be conducted in a temperature range of +5°C to +40°C (+41°F to +104°F).
- Don't modify, dismantle, incinerate or immerse the battery pack in the water as this can be dangerous.
- Never short-circuit the battery pack terminals, as this can cause damage to the equipment or lead to heating of the battery which may cause burns.
- Unnecessary prolonged charging (overcharging) can deteriorate battery performance.
- The battery pack should be stored in a dry place where temperature is in -10°C to +45°C (-14°F to +113°F) range. Temperatures outside this range can cause the battery liquid to leak. Exposure to prolonged high humidity can cause corrosion of metal components.
- Battery-packs are a consuming part. When its operating time becomes considerably short after a normal charge, please consider that the pack is exhausted and replace it with a new one.
- The battery pack is recyclable. Check with your local waste officials for details on recycling options or proper disposal in your area.
- Use specified genuine chargers only to charge battery packs. Use of other chargers may cause damage to products, you and your property.
- Never carry battery packs together with conductive articles such as metals in a same bag to prevent from short-circuiting. Put the packs only in nylon bags to carry them safely.
- Even if you do not use the battery pack for a long time, charge it at least once every three months to prevent deterioration.

### How to Charge the battery pack

1. Plug the AC adaptor into the AC outlet, then plug into the DC jack , the indicator lights orange for 1 second and goes out---waits to charge.
2. Slide the battery or transceiver with battery into the charger; make sure the battery terminals are in contact with the charging terminals . LED turns into twinkling RED ---pre-charging begins.
3. Pre-charging for about 5 minutes, LED twinkles stop then charging begins.
4. It takes about 4 hours to fully charge the battery, and LED turns to green when the charge is complete.



**Warning:** Never charge while the radio is turned on. When turned on, the charger can't detect the charging voltage properly and LED fails to indicate charge status correctly.

#### 5. Charging Process:

Status	LED
Stand-by (self-examine orange lights)	
1second when power on)	None
Pre-charging (pre-charging stage)	Red light twinkles for about 5 minutes
Charging (charge in constant current.)	RED light lightens for about 4 hours
Fully charged (charge in constant voltage)	Green light

## ◦ BATTERY INFORMATION

### 6. LED Indicator:

STATUS	self-examine when power on	(No battery)	Pre-charging	Charge normally	Fully Charged	Trouble
LED	Orange (for 1 second)	None	Red blinks for 5 minutes	Red	Green	Red blinks alternatively

#### NOTE:

- ▲ Trouble means battery heating, short-circuit or charger malfunction. Remove the battery pack from the charger immediately and contact to your local dealer for services.
- ▲ The max trickle pre-charging time is 30 minutes. In case the red indicator continues to blink longer, please stop charging and consult with your local dealer for services.
- ▲ It is known that Li-Ion battery packs heat up over 400°C by itself when kept in a temperature of over 80°C for extended period of time. Although the packs are protected against overheating with a protective circuit, never leave the battery packs in a car or similar locations in hot seasons.
- ▲ Li-ion packs may deteriorate by over 30% regardless of conditions after 3 years. This is a nature of Li-ion pack and not a defect of the product.
- ▲ The charger is to charge the battery pack only. It is not an AC adapter to operate the radio. Never attempt to transmit the radio with using the charger as it will cause the damage to the charger and a repair/replace may become necessary.
- ▲ The charge should be conducted in an ambient temperature with a proper air-conditioning in an extremely hot or cold seasons.
- ▲ Try charging the battery pack only when having trouble charging with the radio. In case the radio may have troubles, the charge can't be conducted properly. If the battery pack can be charged alone, please take the radio to your local dealer for services.

### How to Store the Battery

- 1.The battery should be kept in the status of 50% discharge when storing.
- 2.It should be kept in cool, dry environment and remove it from the transceiver.
- 3.Keep away from source of heat and direct sunlight.

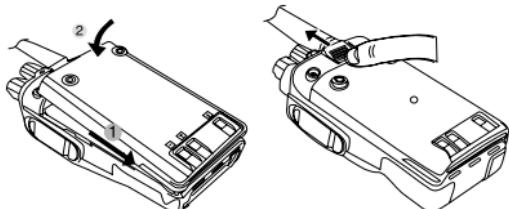
#### WARNING

- ▲ Do not short-circuit battery terminals.
- ▲ Never attempt to remove the casing from the battery pack.
- ▲ Never assemble the battery hazardous in explosive atmosphere as, spark may cause explosion.
- ▲ Do not put the battery in hot environment or throw it into fire, it may also cause explosion.

**NOTE:** Battery pack discharges faster when it is attached to the radio. Please always remove it from the radio when not in use.

### Installing / Removing the Li-ion Battery

- 1.Match the three grooves of the battery pack with the corresponding guides on the back of the transceiver, then push it.
- 2.Press the battery and transceiver firmly together until the release latch on the top of the transceiver locks. After hearing a “click” sounds, the battery has been locked.
- 3.To remove the battery, slide up the release latch and remove the pack away from the transceiver.



## ◦ INSTALLATION & CONNECTION

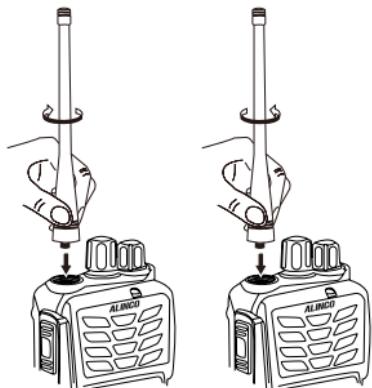
### Installing / Removing the Antenna

#### Installing the Antenna:

1. Hold the antenna by its base.
2. Align the grooves at the base of the antenna with the protrusions on the antenna connector.
3. Slide the antenna down and turn it clockwise until it stops.
4. Confirm that the antenna is securely connected. Check the connection from time to time.

#### Removing the Antenna:

Turn the antenna counter-clockwise to disconnect the antenna.



**NOTE: Do not use third-party antenna as it may radiate more RF that exceeds SAR limit guidances.**

### Installing / Removing the Belt Clip

#### Installing the Belt Clip:

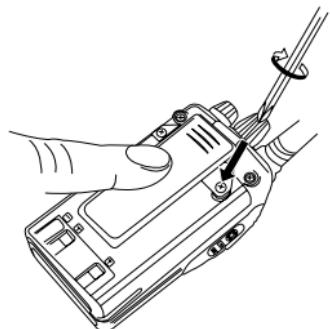
1. Put the belt clip on the back of the unit, and the screw clockwise until it stops.
2. Confirm that the belt clip is securely attached.

\* Tighten up the screw occasionally.

#### Removing the Belt Clip:

Turn the screw counter-clockwise to remove the belt clip.

**Caution:** Use the screws of specified size only. Others may cause damage to the product. screws (+PM2.5x3)



### Accessories

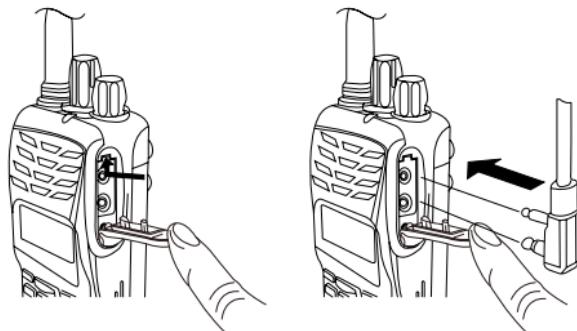
Remove the jack cover and insert the accessory plug into the jack, as shown.

When the accessory is not used, please be sure to put on cover with securely.

**NOTE:**

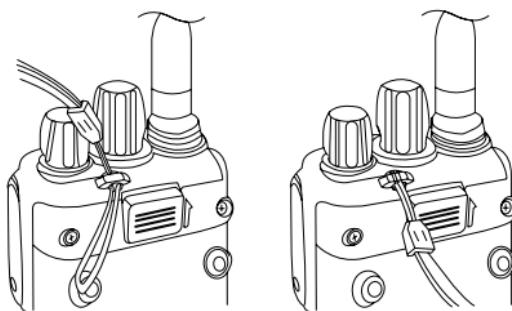
**1.**To keep the radio dust and splash resistant, the cover must be closed properly with the original supplied cover.

**2.**The radio is not dust and splash resistant while using the optional accessory risking that the water may penetrate inside through the plug.



### Installing the Hand Strap

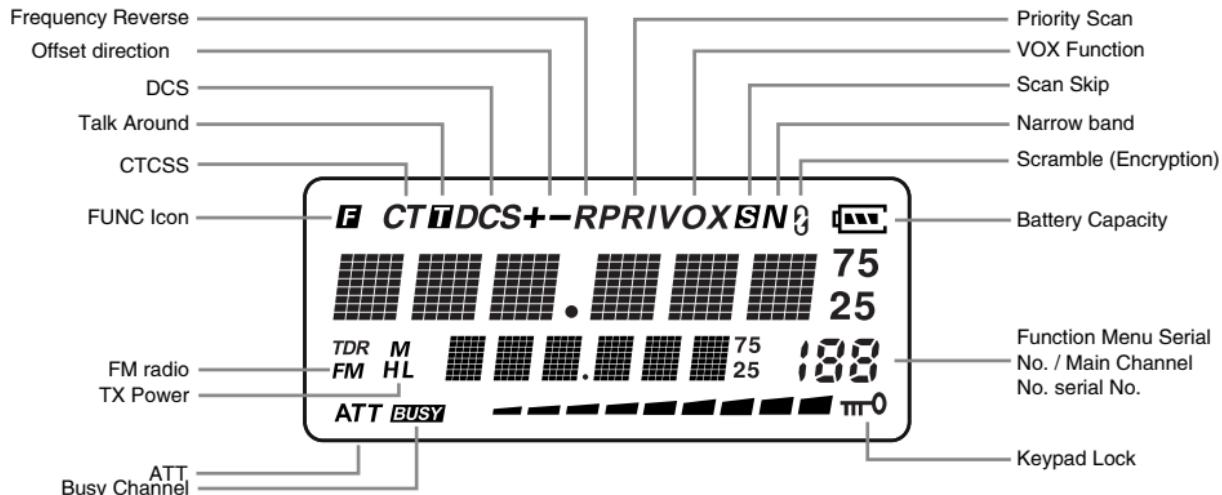
Attach the hand strap as shown.



## ◦ GETTING ACQUAINTED

### LCD Display

Please refer the chart below to understand the meanings of icons that appear on the LCD display.



#### NOTE:

 Battery capacity indicator(full)

 Battery power consuming

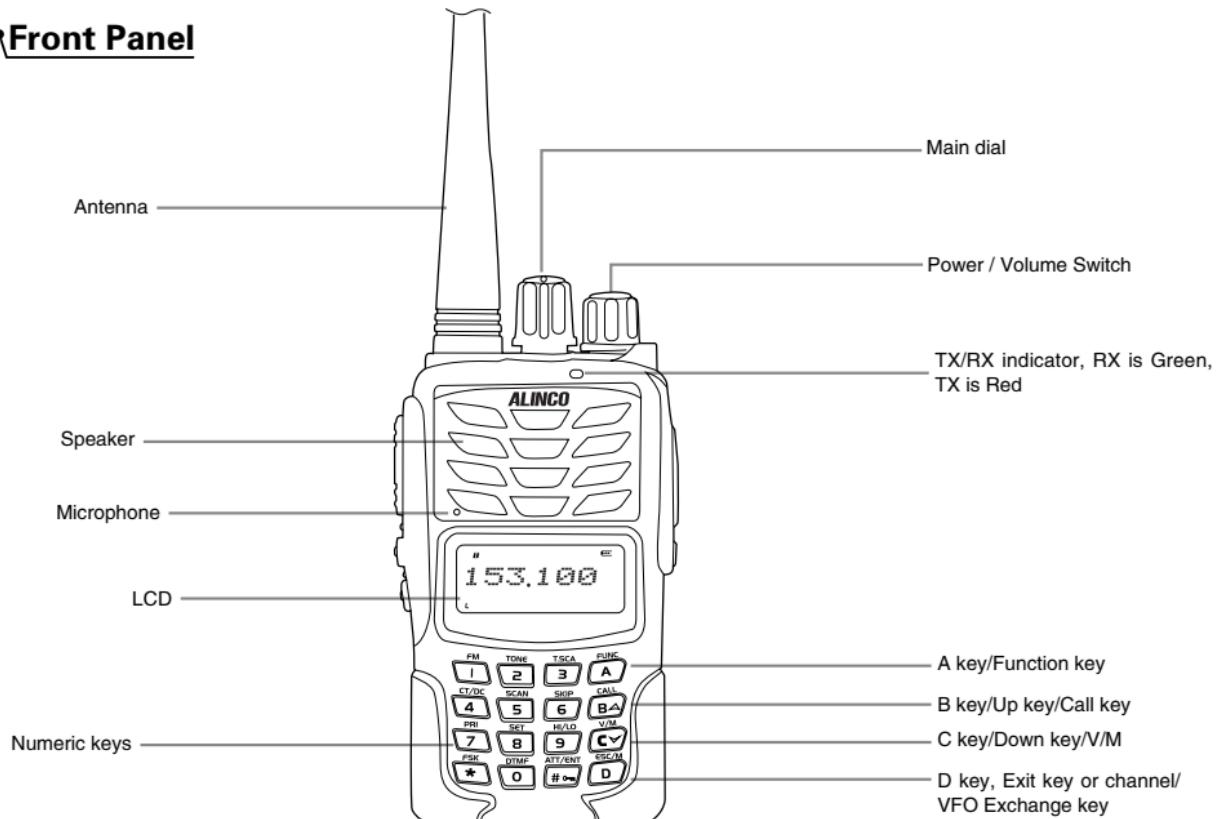
 No power, replace battery pack or charge battery

 Receiving signal strength / TX power indicator

## ◦ GETTING ACQUAINTED

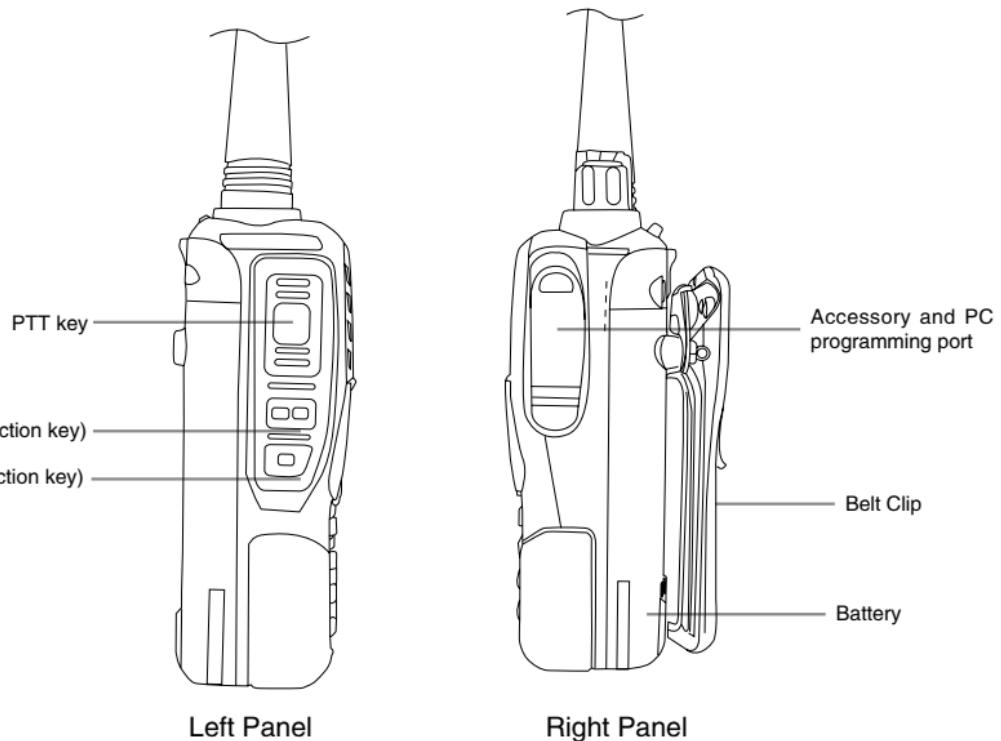
**ALINCO**

### **Front Panel**

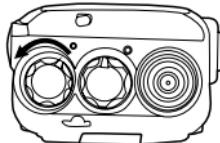
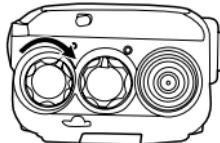


## ◦ GETTING ACQUAINTED

### «Side Panel

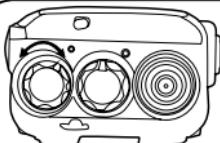


### « Power On and off



Turn **【POWER】 / 【VOLUME】** dial clockwise to power on.  
Turn it counterclockwise to power off.

### « Adjusting Audio output level



Press and hold **【PF2】** key to monitor white noise to refer to the current audio level.  
Turn **【POWER】 / 【VOLUME】** dial clockwise to increase the audio level, counterclockwise to decrease.

#### CAUTION:

NEVER USE EARPHONE while adjusting audio level. The max audio output is 1W, and it's loud enough to hurt your eardrums.

You may feel a static shock when wearing an earphone in a dry atmosphere but it's not a defect of product but a cause of nature. It is the same shock you feel typically when opening a door of a car in certain conditions.

## ◦ **BASIC OPERATIONS**

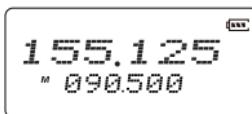
### « Frequency Input by Keypad

In VFO mode or FM radio receiver, You may directly enter frequency through numeric keys.

1. Press **C** to switch to VFO.

2. Enter the desired frequency in 6-digit by numeric keys.

Example: To enter 155.125, press **[1][5][5][1][2][5]**. By pressing the last **[5]**, a dot appears after the MHz unit and the radio is ready to operate. When an invalid frequency is entered, the display will return to the current display.



#### NOTE:

In Frequency + Channel mode, it shows current channel number on the right of main frequency display.

The direct input is relevant to the stepping and transceiver frequency scope. If entering frequency is beyond scope or not matching with step size, the input is invalid.

In the FM receiver mode, the frequency step size input by numeric keys is 50KHz

### « Channel Input by Keypad

In Frequency + Channel or Channel + Name Tag mode, you may select the channel by entering three channel digits (000-199). If the entered channel has not been preprogrammed, the radio will beep to alert you that input is wrong and then return to current channel.

### ﴿ Change Frequency / Channel Through Main Dial

Under frequency mode, you can change the current frequency to desired one through main dial; turn clockwise to increase frequency; counter-clockwise turn to decrease, every click will increase/decrease one step.

**This transceiver has 9 step size: 5, 6.25, 8.33, 10, 12.5 KHz, channel steps.**

Under channel mode, you can change the current channel to desired one through main dial, turn clockwise to the next channel, counter-clockwise turn to the last channel.

### ﴿ Alarm

When [PF1] key is set as alarm, press and hold this key to sound alarm and transmit, press again to cancel.

- **Note: Please use programming software to choose the Alarm mode or close Alarm.**

### ﴿ Squelch Off Momentary/ Squelch Off

When [PF2] key function set as "Squelch Off Momentary/ Squelch Off ", you can use this key to monitor weak signals that you cannot hear during normal operation.

1. **Squelch Off Momentary:** press and hold [PF2] key to hear the background noise, release the key to return to normal operation.

## ◦ **BASIC OPERATIONS**

2. Squelch Off: press [**PF2**] key to hear the background noise, press [**PF2**] again to return to normal operation.
  - Note: The above functions should be set in software. Manual setting is not available.

### **Receiving**

Select the operating mode and frequency or channel that you wish to operate. When a signal is received on the frequency that you selected, and S-meter is displayed on the LCD, then the received signal can be heard. The RX indicator also lights green at this time.

- Note: Please be aware of the squelch level and selective-calling settings such as CTCSS and DCS as you may risk not hearing the receiving signal.

### **Transmitting**

Select the frequency by using the dial or keypad.

2. Press the [**PTT**] key. The red TX indicator turns on while transmitting.
3. While holding down the [**PTT**] key, speak into the unit at normal voice from the distance of 5cm (2").
4. Release the [**PTT**] key to receive.

Before transmitting, it is recommended to monitor the channel you are going to use to ensure it is not busy by pressing and holding [**PF2**] key.

### **[PF1] Key Function**

The Side [**PF1**] key can realize functions as below:

1. In receiving mode, press to check current voltage.

- 2.In receiving mode, press and hold to alarm.(you can shut off this function by software)
- 3.In transmitting mode, press to transmitting selected Tone-pulse signaling.
- 4.Press this key to power on transceiver, and get into wire cloning mode.

### **Side Key [PF2] Function**

Monitor function (squelch off or momentary off per preprogramming).

1. Turn the main dial while pressing and holding this key to set the squelch level.
2. While transmitting, press this key to transmit preprogrammed 2-tone,5-tone or DTMF tone signaling.
3. Pressing and holding this key while turning on for 2 seconds to enter to the parameter setting mode.
4. Turn on with this key and  key pressed together to perform the factory reset. All icons will appear then after 2 seconds the display resumes with showing 155.000,
  - Note: Reset may be prohibited by the dealer programming.

### **Switching between VFO and Memory Mode**

In main channel, Sub channel or FM broadcast mode, press  key to switch between frequency mode (VFO) and Memory mode.

- Note: When the channel hasn't been preprogrammed, this operation is unavailable. VFO mode may not be available in some countries of distribution due to regulations.

## ◦ ADVANSED OPERATIONS

- Note: Most part of this ADVANSED OPERATION chapter is useless for preprogrammed radio users.

### « Channel Edit

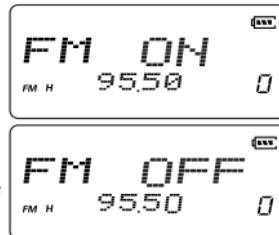
- 1.In main channel frequency mode or sub-channel frequency mode, enter the frequency and signaling as desired, after pressing **A** key, the top left corner of LCD displays "**F**", then press **C**, the channel number twinkling means getting into store/ delete channel mode.
- 2.Turn main dial to select the desired channel address to store.
- 3.Press **A** key, and then hold **C** for 2 seconds, after two "beep" sounds, this channel has been stored.

### « Delete Channel

- 1.In Standby state, after pressing **A** key, the top left corner of LCD displays "**F**" , then press **C**, the channel number twinkling means getting into store/ delete channel mode.
- 2.Turn selector knob to select the channel which you want to delete.
- 3.Press **A** key, and hold **B** key for 2 seconds, the frequency disappear with in two "beep" sounds, the channel has been deleted.

### « FM Radio Receiver

- 1.Under standby state, press **A** key, top left corner of LCD displays "**F**" icon,then press **1** key again, LCD displays "FM" icon and "FM ON" , FM radio function is on.
2. While "FM ON" is indicated on the display, press **B** key to turn on/off FM radio function, FM radio is on when LCD displays "FM ON", FM radio is off when LCD displays "FM OFF".



3. When FM radio is on, press **A** key firstly, then press **4** key to search broadcasting stations, the searched stations will be saved into FM radio channels automatically.
4. When FM radio is on, press **A** key firstly, then press **5** key to scan broadcasting stations, when meeting stations, scan will stay 5 seconds then resume.
5. Press **D** key to exit FM radio mode.

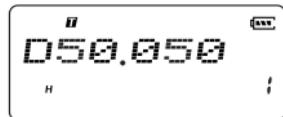
**Note:** When RADIO function is set as OFF in programming software, this function is invalid.

### Add or Cancel DTMF, 2TONE, 5TONE,FSK Signaling

DTMF, 2TONE,5TONE,FSK signaling are similar to CTCSS / DCS, while DTMF and 5TONE have other special functions, including ANI, PTTID, call all, group call, single call, alarm, remotely Kill, remotely Stun,Revive, and tail-eliminating. For more information and setup, please refer to the help option in the programming software.

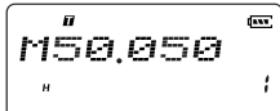
Main channel in frequency mode / frequency +channel mode/channel name mode, after pressing **A** key, the top left corner of LCD displays "**F**" , then press **2** key. Repeat the operation above, 4 statuses available.

1. When the first digit displays "**D**", it has DTMF signaling squelch when receive. Hold **[PTT]** key then press **[PF2]** key to transmit the prestored and selected DTMF signaling.
2. When the first digit displays "**T**", it has 2TONE signaling squelch when receive. Hold **[PTT]** key then press **[PF2]** key to transmit the prestored and selected 2TONE signaling.
3. When the first digit displays "**F**", it has 5TONE signaling squelch when receive. Hold **[PTT]** key then press **[PF2]** key to transmit the prestored and selected 5TONE signaling.



## ◦ ADVANSED OPERATIONS

4. When the first digit displays "M", it has FSK signaling squelch when receive. Hold [PTT] key then press [PF2] key to transmit the prestored and selected FSK signaling.



5. When displays none of alphabetical character, DTMF, 2TONE, 5TONE, FSK signaling are cancelled. Even in the channel mode, above change may be applied temporary.

- Note: Details will be explained later in the Channel operation chapter.

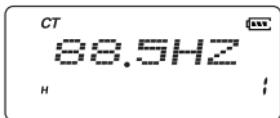
## « CTCSS / DCS Scan

After pressing [A] key, the top left corner of LCD displays "F", then press [B] to enter CTCSS / DCS scan. When signaling scanned matches the setting of the transceiver, stop for 15 seconds then scan again. Press any keys except [A] [\*] [#] to exit scanning.

- Note: This function is invalid when the main channel is in channel display mode or current mode without signaling setup.

Scan CTCSS when the current channel is set to CTCSS, scan DCS when the channel is set to DCS.

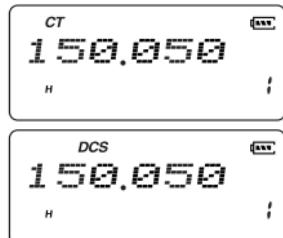
Turn main dial to change the CTCSS / DCS scan direction.



## ﴿ Add or cancel CTCSS/DCS

Under standby state, press **A** key, the top left corner of LCD displays "**F**" icon, then press **4** key to choose CTCSS/DCS signaling.

1. LCD displays "**CT**" icon, means current channel add CTCSS encode and decode.
2. LCD displays "**DCS**" icon, means current channel add DCS encode and decode.
3. None of icons is displayed on the LCD means CTCSS/DCS signaling is not available.



## ﴿ Frequency Scan, Channel Scan or FM Search

While receiving, after pressing **A** key, while **F** icon is displayed on the top left corner, press **5** key to begin frequency scan or channel scan. Scan-resume condition can be set in the set mode that will be explained later. Default is timed and resumes scanning after 15 seconds regardless of receiving state.

### 1. Frequency Scan

In VFO mode, it scans in accordance with the channel step. Press any key except **A**, **\*** or **#** keys to stop scanning.

- Note: An advanced PA/PB frequency scans may be available after dealer-programming.

## ◦ ADVANSED OPERATIONS

### 2. Channel Scan

In channel mode, it scans in accordance with preprogrammed channels. Press any key except **[A]**, **[\*]** or **[#]** keys to stop scanning.

### 3. FM Search

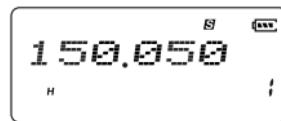
In FM broadcast receiver mode, it scans in accordance with 100KHz step. Press any key except **[A]**, **[\*]** or **[#]** keys to stop scanning.

#### Note:

- Turn the main dial clockwise or counter-clockwise to change scan direction.
- Channels selected as "skip channels" won't be scanned during the channel scanning.

### Scan Channel Skip

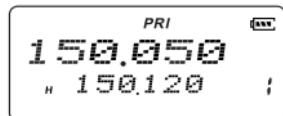
In Channel mode or Memory mode, after pressing **[A]** key, press **[6]** key to set the current channel to be skipped while channel-scanning, and 'S' icon appears to indicate the channel is set as the skip. Repeat the operations to cancel channel scan skip setting. The S icon will disappear.



- **Note: This feature is available only in the Channel modes.**

## Priority Monitor

In VFO mode, after pressing **A** key, while **F** icon is displayed on the top left corner, press **7** key to activate the priority monitor. PRI icon appears and monitors preprogrammed priority channel once every 5 seconds. When the priority channel receives a matching signal, it will stay tuned to the priority channel until current signal disappears. Press any keys other than D key to exit.



- Note: To activate this feature, it is required to set and select the priority channel in advance.

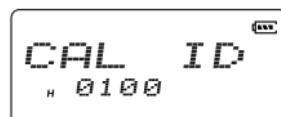
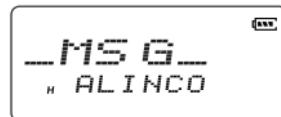
## TX Power Selection

After pressing **A** key, while **F** icon is displayed on the top left corner, press **9** key to set the output power. When the bottom left corner of screen displays 'H' the power is 5W/high power.'L' for 0.5W. When nothing is displayed, the output power is middle/2W.

## ◦ ADVANSED OPERATIONS

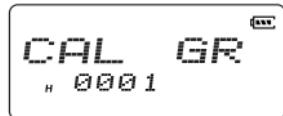
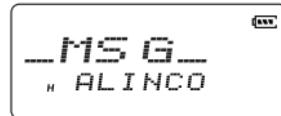
### « FSK Message Single Transmitting

1. In standby state, press **[A]** key, the top left corner of LCD displays "**F**" icon.
2. Press **\*** key, LCD displays '**\_MSG\_**'.
3. Turn main dial to select the desired character.
4. Press **[PF1]** key to confirm the current character and enter next character.
5. Press **[PF2]** key to return previous character. Total 18 characters can be entered.
6. Press **[#-]** key, LCD displays "**CALL ID**".
7. Enter the desired calling ID.
8. Press **[PTT]** key to transmit FSK message.



### « FSK Message Group Transmitting

1. In standby state, press **[A]** key, the top left corner of LCD displays "**F**" icon.
2. Press **\*** key, LCD displays '**\_MSG\_**'.
3. Turn main dial to select the desired character.
4. Press PF1 key to confirm the current character and enter next character.
5. Press PF2 key to return previous character. Total 18 characters can be entered.
6. Press **[#-]** key, LCD displays "**CALL ID**", then press **[B]** key/ **[C]** key to select "**CAL GR**".
7. Enter the desired calling Group ID.

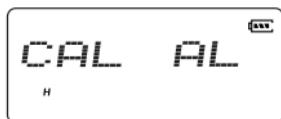


8. Press [PTT] key to transmit FSK message.

### **FSK Message All Transmitting**

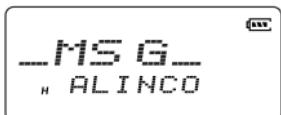
1. In standby state, press **A** key, the top left corner of LCD displays "**F**" icon.
2. Press **\*** key, LCD displays '**\_MSG\_**'.
3. Turn main dial to select the desired character.
4. Press **[PF1]** key to confirm the current character and enter next character.
5. Press **[PF2]** key to return previous character. Total 18 characters can be entered.
6. Press **#** key, LCD displays "**CALL ID**". Press **B** or **C** key to select "**CAL AL**".
7. Press PTT key to transmit FSK message.

- **Note: Pressing PTT after having edited the message will send the message to all users.**



### **FSK message checking**

Press and hold **\*** key for 1 second to check the receiving short message.  
Press **B** or **C** key to read more messages. Press **D** key to exit.



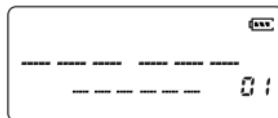
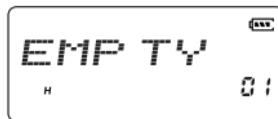
- **Note: When no message is being received, a beep sounds and the message won't be displayed.**

## ◦ ADVANCED OPERATIONS

### DTMF Code Searching And Setup

After pressing **A** key, the top left corner of LCD displays "**F**" then press 0 key, it displays the current DTMF group. (16 groups in total)

- 1.Turn main dial to select the desired group and DTMF data, and press PTT to transmit the desired DTMF data. It displays EMPTY when DTMF data is not programmed yet.
- 2.Press **A** key, the top left corner of LCD displays "**F**", press and hold 0 key for 2 seconds to enter DTMF editing menu. Use numerical keys to enter DTMF characters. Press **[PF2]** key to transmit the tones, save the data and exit.



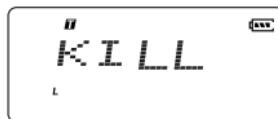
### Manually Transmitting DTMF Signaling

Method 1: hold **[PTT]** key and enter the number you need in keyboard.

Method 2: hold **[PTT]** key and enter the first number, release **[PTT]** key, the transceiver will stay in transmitting situation in 2 seconds and you can keep on entering the numbers you need in keyboard. You do not need to keep holding **[PTT]** key to enter. When transmitting DTMF frequency, you can monitor the frequency by the sounds making by the loudspeaker.

### Remotely Kill/Revive

By transmitting preprogrammed KILL code, the radios that received the code will become temporary out-of-service. When KILL code is received, **KILL** is displayed and all keys and functions will be suspended for use.



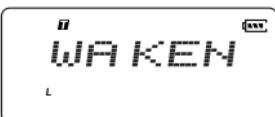
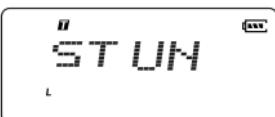
To wake up (revive) the radios again, send the KILL code with # at the end. Example: If 1234 is the KILL code, send 1234# to revive. It displays "**WAKEN**" when revive code is received. Turn off and turn on to operate.



### Remotely Stun /Waken

By transmitting preprogrammed STUN code, the radios that received the code will become temporary out-of-service except for receiving. When STUN code is received, **STUN** is displayed and all keys and functions will be suspended for use.

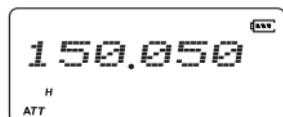
To wake up (revive) the radios again, send the STUN code with # at the end. Example: If 5678 is the STUN code, send **5678#** to revive. It displays "**WAKEN**" when revive code is received. Turn off and turn on to operate.



### RF Attenuator (ATT)

In case receiving signal is excessively strong that bothers hearing, ATT may become useful.

1. Press A key, the top left corner displays " **F** " icon.
2. Press **[#]** key, **ATT** icon appears on the left bottom and ATT is on.
3. Repeat above to exit and **ATT** icon disappears.



## ◦ CHANNEL OPERATIONS

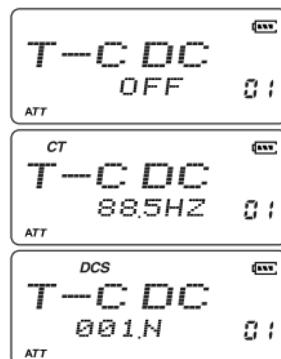
- For VFO or Memory channel mode users, temporary changes in preset channel parameter may be available. Such temporary changes won't be held in the memory and will be deleted when a channel is changed or turn off the radio.
- This feature is not available to dealer-programmed Channel mode users.

Please ask your dealer for details of programming.

1. After pressing **A** key, the top left corner of LCD displays "**F**" then press **B** key to enter function menu.
2. Press **B** / **C** key to select the menus to be set.
3. Turn main dial to choose the parameter.
4. Press **D** key or **#** key to confirm and exit the setup.

### CTCSS / DCS Encode Setup

1. After pressing **A** key, the top left corner of LCD displays "**F**" then press **B** key.
2. Press **B** / **C** key to choose menu 01. LCD will display "**T-CDC**"
3. Press **1** key to choose CTCSS, DSC or OFF. When DCS is selected, press **\*** key to choose positive or inverse code.
4. Turn main dial to choose the desired CTCSS / DCS encodeing tone. See appendix for details of available tones.
5. Press **D** key or **#** key to confirm and exit.

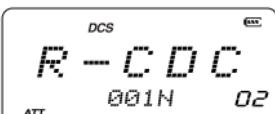
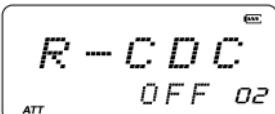


### CTCSS/DCS Decode

By using this function with CTCSS/DCS encode feature, you hear only signals that are sent with matching tones. (Such operations are often referred to as Tone-Squelch or DCS squelch)

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.
2. Press **B** / **C** key to choose menu 02. LCD will display " **R-CDC** "
3. Press **I** key to choose CTCSS, DSC or OFF. When DCS is selected, press **\*** key to choose positive or inverse code.
4. Turn main dial to choose the desired CTCSS / DCS decoding tone. See appendix for details of available tones.
5. Press **D** key or **#** key to confirm and exit.

- Note: You may set the encoding and decoding tones separately.



### Choose To Transmit 2TONE

By preprogramming the 2-Tone setting in advance, you may select the tone and transmit it.

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.
2. Press **B** / **C** key to choose menu 03. LCD will display " **2TONE** "
3. Turn main dial to choose the desired 2-Tone signal. Press PTT to transmit the tone. Up to 32 tones are programmable.
5. Press **D** key or **#** key to confirm and exit.



## ◦ CHANNEL OPERATIONS

### Choose To Transmit 5TONE

By preprogramming the 2-Tone setting in advance, you may select the tone and transmit it.



1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.
2. Press **B▲** / **C▼** key to choose menu 04. LCD will display " **5TONE** "
3. Turn main dial to choose the desired 5-Tone signal. Press PTT to transmit the tone. Up to 100 tones are programmable.
5. Press **D** key or **#** key to confirm and exit.

### Choose To Transmit FSK

By preprogramming the FSK setting in advance, you may select the tone and transmit it.



1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.
2. Press **B▲** / **C▼** key to choose menu 05. LCD will display " **FSK ENC** "
3. Turn main dial to choose the desired FSK Encoding signal. Press PTT to transmit the tone. Up to 100 tones are programmable.
4. Press **D** key or **#** key to confirm and exit.

### Signaling Combination

You may combine the signaling functions of different system.

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.

2. Press **B** / **C** key to choose menu 06. LCD will display " **SIGNAL** "

3. Turn main dial to choose the desired signaling combinations mentioned below.

– SQ: Hear all communications regardless of the signaling tones.

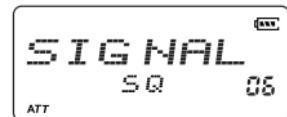
– CT/DCS: Hear only the signals with matching CTCSS or DCS tones.

– Tone: Hear only the signals with matching DTMF, 2-Tone or 5-Tone tones.

– CT&TO: Hear only the signals with matching CTCSS, DCS, DTMF,2-Tone or 5-Tone tones.

– CT/TO: Hear only the signals with matching any one of CTCSS, DCS, DTMF, 2-Tone or 5-Tone tones.

4. Press **D** key or **#** key to confirm and exit.



## ◦ CHANNEL OPERATIONS

### Frequency Step

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.
2. Press **B** / **C** key to choose menu 07. LCD will display "STEP".
3. Turn main dial to choose the desired step mentioned below.
4. Press **D** key or **#** key to confirm end exit.

Available steps are 5,6.25,8.33,10,12.5KHz.

This parameter is not available when the radio is in the Channel mode.



### Offset Direction

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.
2. Press **B** / **C** key to choose menu 08. LCD will display "SHIFT".
3. Turn main dial to choose the desired Offset direction.
  - SBC** -: Negative offset, TX frequency is lower than RX frequency.
  - ADD+**: Positive offset, TX frequency is higher than RX frequency.
  - Select **OFF** for simplex operation.
4. Press **D** key or **#** key to confirm end exit.



### Offset Frequency

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.

2. Press **B** / **C** key to choose menu 09. LCD will display "OFF SET".

3. Turn main dial to choose the desired Offset frequency.

Available parameters are 0.00 to 69.995MHz in step size selected in menu 07.

4. Press **D** key or **#** key to confirm end exit.



### Narrow FM Mode

1. After pressing **A** key, the top left corner of LCD displays " **F** " then press **B** key.

2. Press **B** / **C** key to choose menu 11. LCD will display " **N** ".

3. Turn main dial to choose the desired bandwidth frequency.

Available parameters are 12.5(narrow).

4. Press **D** key or **#** key to confirm end exit.

• Note: Be sure to use correct bandwidth assigned to your radio service otherwise your signal may cause interferences to your adjacent frequency users.

## ◦ CHANNEL OPERATIONS

### Frequency Reverse

This function temporary reverses the transmitting and receiving frequencies and signaling tone settings.

1. After pressing **A** key, the top left corner of LCD displays "F" then press **8** key.

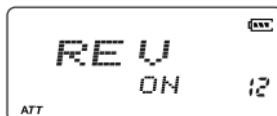
2. Press **B<sub>▲</sub>** / **C<sub>▼</sub>** key to choose menu 12. LCD will display "REV".

3. Turn main dial to choose the desired parameter.

**ON**: enable frequency reverse.

**OFF**: disable frequency reverse.

4. Press **D** key or **#** key to confirm end exit.



This function is not available when Talk Around function is activated.

### Talk Around

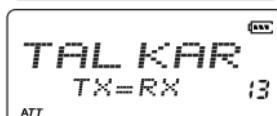
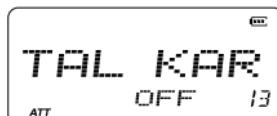
1. After pressing **A** key, the top left corner of LCD displays "F" then press **8** key.

2. Press **B<sub>▲</sub>** / **C<sub>▼</sub>** key to choose menu 13. LCD will display "TAL KAR".

3. Turn main dial to choose the desired parameter.

**TX=RX**: talk around enables / **OFF**: talk around disables

4. Press **D** key or **#** key to confirm end exit.



### Busy Channel Lockout

This function prohibits the transmitting when the channel is busy.

1. After pressing **A** key, the top left corner of LCD displays "F" then press

**B** key.

2. Press **B** / **C** key to choose menu 14. LCD will display "LOCK".

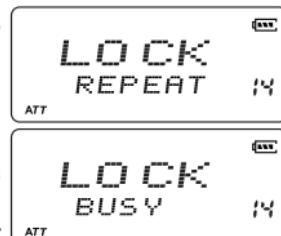
3. Turn main dial to choose the desired parameter.

**-REPEAT:** Signaling busy lock. It suspends transmitting when receives a matching carrier but incorrect signaling tones.

**-BUSY:** Carrier busy lock. It suspends transmitting when receives any carrier signal.

**- OFF:** PTT operation is always possible without busy channel lockout.

4. Press **D** key or **#** key to confirm end exit.



### Prohibits transmitting

1. After pressing **A** key, the top left corner of LCD displays "F" then press

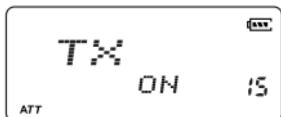
**B** key.

2. Press **B** / **C** key to choose menu 15. LCD will display "TX".

3. Turn main dial to choose the desired parameter.

**ON:** Transmitting is allowed / **OFF:** Transmitting disabled

4. Press **D** key or **#** key to confirm end exit.



## ◦ CHANNEL OPERATIONS

### Sub Channel Display Setup

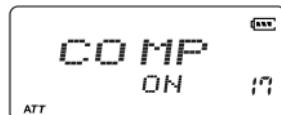
1. After pressing **A** key, the top left corner of LCD displays "F" then press **B** key.
2. Press **B** / **C** key to choose menu 16. LCD will display "DSP SEL".
3. Turn main dial to choose the desired parameter.  
**NAME:** Display current channel name  
**VOLT:** Display current battery voltage  
**CTDC:** Display current CTCSS/DCS signaling  
**TONE:** Display current optional signaling (DTMF, 5TONE, 2TONE or FSK)
4. Press **D** key or **#** key to confirm end exit.



### Comander

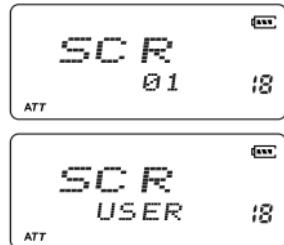
Comander reduces carrier noises and enhances the audio clarity.

1. After pressing **A** key, the top left corner of LCD displays "F" then press **B** key.
2. Press **B** / **C** key to choose menu 17. LCD will display "COMP".
3. Turn main dial to choose the desired parameter.  
**ON:** Enable comander / **OFF:** Disable comander
4. Press **D** key or **#** key to confirm end exit.



### Scrambler Setup (Encryption)

1. After pressing **A** key, the top left corner of LCD displays "F" then press **B** key.
2. Press **B<sup>▲</sup>** / **C<sup>▼</sup>** key to choose menu 18. LCD will display "SCR".
3. Turn main dial to choose the desired parameter.
  - 1-10:** Select one of 10 preset scrambling parameters for easier operation.
  - USER:** Preprogrammed user-customized scrambling parameter
  - OFF:** Disable scrambler
4. Press **D** key or **#<sup>↔</sup>** key to confirm and exit.



## ◦ SET MODE OPERATIONS

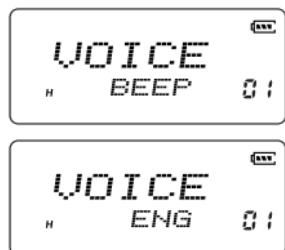
You may customize the features and functions of the radio to better suit your operation comfort. Customization may not be available to preprogrammed radios. Please consult your dealer for setting details.

To operate Set mode:

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **[B▲]** / **[C▼]** key to select desired function to customize.
3. Turn the main dial to select the desired parameter.
4. Press **[D]** key or **[#←]** key to confirm and exit.

### Beep and Voice assist sounds

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **[B▲]** / **[C▼]** key to choose menu 01. LCD will display "VOICE".
3. Turn the main dial to select the desired parameter.  
**ENG:** English voice / **BEEP:** Beep sounds / **OFF:** Turn off both
4. Press **[D]** key or **[#←]** key to confirm and exit.



### Time-Out Timer

The purpose of the Time-out Timer is to prevent any caller from using a channel for an extended period of time. If you continuously transmit to exceed the limit, it stops transmitting and alert with a beep tone (if tone is activated in menu 01).

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.

## ◦ SET MODE OPERATIONS

**ALINCO**

2.Press **[B▲] / [C▼]** key to choose menu 02. LCD will display "TOT".

3.Turn the main dial to select the desired parameter.

**1-30MIN:** Up to 30 minute timer out time selectable by 1 minute step.

**OFF:** Disable TOT

4.Press **[D]** key or **[#↔]** key to confirm and exit.



## Voice Operated Transmission (VOX)

VOX operation allows you to transmit hands-free. You don't need to press **[PTT]** key to transmit only through voice. This function is available only when the supported earphone microphone (EME-56A) is used.

1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.

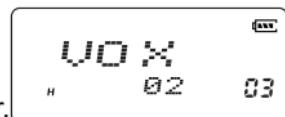
2.Press **[B▲] / [C▼]** key to choose menu 03. LCD will display "VOX".

3.Turn the main dial to select the desired parameter.

**-1-10:** The microphone sensitivity level to start transmitting. Higher the number, louder you speak to activate the VOX.

- **OFF:** VOX disable

4.Press **[D]** key or **[#↔]** key to confirm and exit.

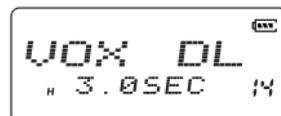


## ◦ SET MODE OPERATIONS

### « Voice Operated Transmission (VOX) Delay Time

This parameter determines the delay time from stop speaking to return to receiving in VOX operation.

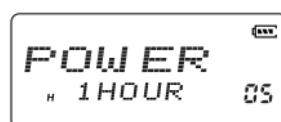
1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **B▲ / C▼** key to choose menu 04. LCD will display "**VOX DL**".
3. Turn the main dial to select the desired parameter.
  - **0.3 to 3 in seconds:** 28 parameters in 0.1 seconds step.
4. Press **D** key or **#** key to confirm and exit.



### « Auto Power-Off

This parameter determines the Auto Power Off time setting.

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **B▲ / C▼** key to choose menu 05. LCD will display "**POWER**".
3. Turn the main dial to select the desired parameter.
  - **30MIN:** Automatic Power-Off after 30 minutes
  - **1HOUR:** Automatic Power-Off after one hour
  - **2HOUR:** Automatic Power-Off after two hours
4. Press **D** key or **#** key to confirm and exit.



### ⟨⟨ DTMF Burst and Pause timing

This parameter determines the DTMF burst and pause timing setting.

1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.

2.Press **(B)** / **(C)** key to choose menu 05. LCD will display "DTMF".

3.Turn the main dial to select the desired parameter.

**30MS:** DTMF bursts 30 miliseconds and pauses 30 miliseconds

**50MS:** Same as above for 50miliseconds

**100MS:** Same as above for 100miliseconds

**200MS:** Same as above for 200miliseconds

**300MS:** Same as above for 300miliseconds

**500MS:** Same as above for 400miliseconds

4.Press **D** key or **#** key to confirm and exit.



### ⟨⟨ Squelch Level

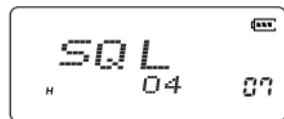
This parameter determines the squelch level. This is the same operation as PF2 key and main dial. Setting the level too low will hear the noise often, but too high may risk not receiving weaker signals.

1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.

2.Press **(B)** / **(C)** key to choose menu 07. LCD will display "SQL".

3.Turn the main dial to select the desired squelch level from 00 to 11.

4.Press **D** key or **#** key to confirm and exit.



## ◦ SET MODE OPERATIONS

### Scan Resume Conditions

This parameter determines the resume conditions of scanning.

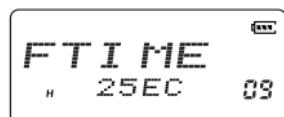
1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **B▲ / C▼** key to choose menu 08. LCD will display "**SCAN**".
3. Turn the main dial to select the desired parameter.
  - 5ST:** Resumes scanning after 5 seconds regardless of receiving state
  - 10ST:** Resumes scanning after 10 seconds regardless of receiving state
  - 15ST:** Resumes scanning after 10 seconds regardless of receiving state
  - 2SP (Busy scan):** Resumes scanning after 2 seconds from the receiving signal is gone
4. Press **D** key or **#** key to confirm and exit.



### Function Key Setting time

This parameter determines the resume conditions of scanning.

- 1.Pressing and holding [PF2] key to turn on the radio to enter the Set mode.
- 2.Press **B▲** / **C▼** key to choose menu 08. LCD will display "FTIME".
- 3.Turn the main dial to select the desired parameter.
  - **FUNCT**: When function key operating finishes, **F** icon disappears and exits from Function operations.
  - **1SEC/2SEC/3SEC**: When function key operating finishes, **F** icon disappears and exits from Function operations after 1/2/3 seconds is elapsed respectively.
  - ALWAYS**: Function operation is always active until A key is pressed.
- 4.Press **D** key or **#** key to confirm and exit.



### Backlight On/Off Mode

This parameter determines the LCD/Keypad illumination timing.

- 1.Pressing and holding [PF2] key to turn on the radio to enter the Set mode.
- 2.Press **B▲** / **C▼** key to choose menu 10. LCD will display "LIGHT".
- 3.Turn the main dial to select the desired parameter.
  - OFF**: Illumination deactivated. The battery consumption is minimum.
  - ON**: Illumination remain turned on always. Never select this while operating with the battery.
  - AUTO**: Illumination turns on for 2 seconds after any key operation then turns off automatically. This is usually recommended.
- 4.Press **D** key or **#** key to confirm and exit.



## ◦ SET MODE OPERATIONS

### Backlight Color Setup

This parameter determines the LCD/Keypad illumination timing.

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.

2. Press **B** / **C** key to choose menu 11. LCD will display "**COLOR**".

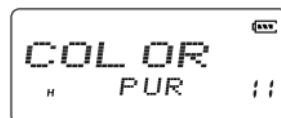
3. Turn the main dial to select the desired parameter.

- **BLUE**: RX/Blue TX/Purple

- **ORG**: RX/Orange TX/Blue

- **PUR**: RX/ Purple TX/Orange

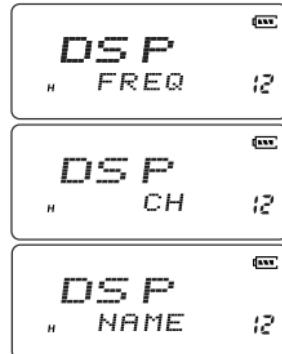
4. Press **D** key or **#** key to confirm and exit.



### Display Mode

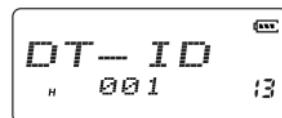
This parameter determines the LCD display mode. This parameter may not be available for dealer-programmed radios.

- 1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
- 2.Press **[B▲] / [C▼]** key to choose menu 12. LCD will display "**DSP**".
- 3.Turn the main dial to select the desired parameter.
  - FREQ:** channel frequency + channel number display
  - CH:** channel number display.
  - NAME:** Channel name+ Channel number display
- 4.Press **[D]** key or **[#←]** key to confirm and exit.



### DTMF Self ID display

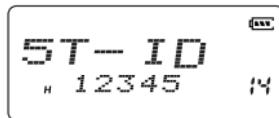
- 1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
- 2.Press **[B▲] / [C▼]** key to choose menu 13. LCD will display "**DT-ID**".
3. LCD displays DTMF self ID number.
- 4.Press **[D]** key or **[#←]** key to confirm and exit.



## ◦ SET MODE OPERATIONS

### 5TONE Self ID Inquiry

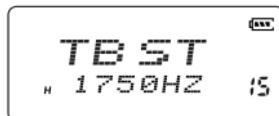
- 1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
- 2.Press **B** / **C** key to choose menu 14. LCD will display "5T-ID".
3. LCD displays DTMF self ID number.
- 4.Press **D** key or **#** key to confirm and exit.



### Tone-burst tone setting

Select the Tone-burst tone frequency. 4 tones are available. To transmit the tone-burst, press PF1 key while transmitting.

- 1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
- 2.Press **B** / **C** key to choose menu 15. LCD will display "5T-ID".
- 3.Turn the main dial to select the desired parameter. Available tones are 1000/1450/1750/2100Hz
- 4.Press **D** key or **#** key to confirm and exit.



### « Battery Save Ratio

Select the battery save time-ratio. Longer the sleep time, lower the battery consumption but you may risk missing an initial part of calling signal.

- 1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
- 2.Press **[BA] / [CA]** key to choose menu 16. LCD will display "**SAVE**".
- 3.Turn the main dial to select the desired parameter.

**OFF:** Battery save function OFF. Not recommended for battery operation

1:2: operative/sleep ratio is 1:2.

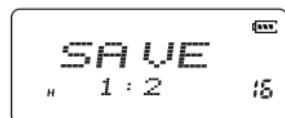
1:3: BS ratio 1:3.

1:5: BS ratio 1:5.

1:8: BS ratio 1:8

**AUTO:** Automatically adjust the ratio and most recommended.

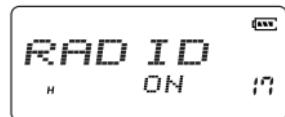
- 4.Press **[D]** key or **[#]** key to confirm and exit.



## ◦ SET MODE OPERATIONS

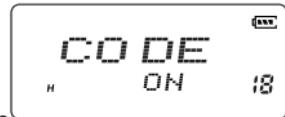
### FM Radio

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **[B▲] / [C▼]** key to choose menu 17. LCD will display "**RADIO**".
3. Turn the main dial to select the desired parameter.  
-**ON**: FM radio receive is allowed.  
-**OFF**: FM radio is prohibited.
4. Press **[D]** key or **[#-]** key to confirm and exit.



### Password

1. Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
2. Press **[B▲] / [C▼]** key to choose menu 18. LCD will display "**CODE**".
3. Turn the main dial to select the desired parameter.  
-**ON**: Password function is on, correct password must be input when power on the radio.  
-**OFF**: Password function is off.
4. Press **[D]** key or **[#-]** key to confirm and exit.



### • RESET

In case the radio is malfunctioning or you may resume the default conditions of the radio, please perform this factory reset.

- 1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.
- 2.Press **[B]** / **[C]** key to choose menu 19. LCD will display "**RESTOR**".
- 3.Turn the main dial to select the desired parameter.

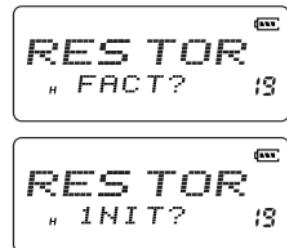
**FACT?:** Restore factory default

**SETUP?:** Restore custom parameters only to default leaving the memory

**OFF:** Do not perform reset

- 4.Press **[#]** key to perform the reset.

\* Reset is not available to dealer-programmed or Channel mode radios.



## ◦ DEFAULT SETTINGS

VFO Frequency	155.000MHz
Memory Channel	CH0:155.000MHz CH1-CH199:Blank
PF1 long press key	
PF1 short press key	
Voice Prompting	Beep
Time-Out Timer	3 Minutes
Vox Setup	Off
VOX Delay	0.3SEC
Frequency Step	12.5K
Squelch Level	4
Battery Save	1:2
LCD Backlight	Auto
LCD Backlight Color	Orange
Display Mode	1Frequency
DTMF Transmitting Time	50ms
Priority Channel	CH0
FM Radio	OFF
Offset Frequency Setup	OFF
Channel Scan Skip	NO
TX Power Selection	High
DTMF Code	None

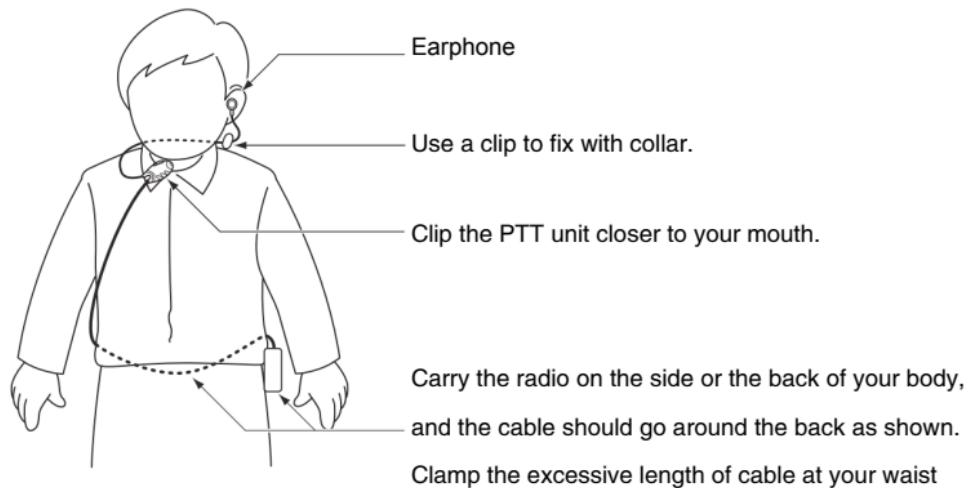
Keylock	Off
CTCSS/DCS Decode/Encode	None
Offset Frequency	600KHz
Channel Spacing	12.5K
Scramble	None
Voice Comander	OFF
Busy Channel Lockout	OFF
Optional Signaling	OFF
Squelch Mode	SQ
PTT ID	OFF
TX Function	ON

## ◦ OPTIONAL ACCESSORIES

**ALINCO**

- EA-211** VHF & FM radio Antenna
- EBC-34** Belt Clip
- EBP-87** Li-ion Battery Pack (DC 7.4V 1500mAh)
- EBP-88** Li-ion Battery Pack (DC 7.4V 1700mAh)
- EDC-189** Li-ion Battery Charger
- EDC-190E** AC Adaptor (220V Linear type)
- EDC-191E** AC Adaptor (220V)
- EDC-191T** AC Adaptor (120V)
- EME-56A** Earphone Microphone

## ◦ RECOMMENDED INSTALLATION OF EARPHONE MICROPHONE



For dealers only. Please contact the authorized importer of your area for more details.

### • **Cable Cloning**

With this function, you can copy the programming data of the transceiver to another one; it can copy parameters and memory programming data to another transceiver.

**Connection:** use wire cloning cable (optional accessory) to connect main transceiver with sub-transceiver through reading/ writing programmable interface.

**Setup:** main transceiver party

1. Hold **[PF1]** side key to power on, LCD displays "**CLONE**", main transceiver enters into copy mode.
2. Press **[PTT]** key , LCD displays "**CLONE XX**", XX means the transmitted data quantity.
3. After data copies completely, LCD displays "**CLONE OK**".
4. Main transceiver stays in this mode preparing to next copy, restart main transceiver to exit copy mode.

**Setup: sub-transceiver party.**

1. When receiving data, LCD displays "**CLONE XX**", XX means the received data quantity.
2. After data received sub-transceiver returns to normal mode.
3. Power off, take over cable line and link to another sub-transceiver which you want to copy.

If data can not transfer successfully, power off main transceiver and sub-transceiver, check the cable line and repeat the process.

### • **Communication Note**

This function is used to receive ANI call matching the communication note, and displays the corresponding name of the code in LCD. It is similar to mobile phone communication note. You can set 15 groups of 5TONE note and DTMF note each. You only need to set the opposing party ID with the corresponding name. For more information, please refer to the communication note option in software.

- o TECHNICAL SPECIFICATIONS

## Technical Specifications

General		
		
Frequency range	TX/RX	136.000-173.995MHz
	FM radio	76-108MHz (RX only)
Modulation	F3E(11K0F3E)	
Programmable channels	200 channels	
Frequency stability	±2.5ppm	
Power supply	DC7.4V (Battery only)	
Current drain	TX(5W)	≤1.4A
	RX	≤300mA
	Stand-by	≤70mA
	Battery save on	≤30mA
Temperature range	Operating:-20~+55 (-4~131°F) / Charging:+5~+40 (+41~104°F)	
Dimensions (Projections not included/approx.)	59(W) x 98(H) x 35(D) mm 2.32"(W) x 3.86"(H) x 1.38"(D)	
Weight *approx	227g or 8.01oz (with battery pack and antenna)	

- TECHNICAL SPECIFICATIONS

**ALINCO**

<b>Transmitter</b>		
Output power (Approx.)	high	5W
	middle	2W
	low	0.5W
Modulation	Variable reactance FM	
Spurious emissions	- 60dB or less	
Max.deviation(Wide/Narrow)	± 5kHz / ± 2.5kHz	

<b>Receiver</b>	
Receive system	Double conversion superheterodyne
Intermediate frequencies	38.85MHz (1st) / 450kHz (2nd)
Sensitivity(12dB SINAD)	wide -12dBu, Narrow -9dBu
Selectivity	- 6dB : 12kHz or more / - 60dB : 30kHz or less
Audio output power	1W (10% distortion)

\* All specifications are subject to change without notice or obligation.

\* ALINCO and Alinco logo are registered trademarks of Alinco, Inc in many countries including USA, Russia, EU states and China.

## ◦ TROUBLE SHOOTING GUIDE

Problem	Corrective Action
No power	A.The battery may be exhausting. Recharge or replace the battery. B.The battery may not be installed correctly. Remove the battery and install it again. C.The power switch is broken; send it to local dealers to repair. D.Battery life is end; contact to local dealers to replace.
Battery power dies shortly after charging.	The battery is exhausted. Replace the battery pack with a new one.
Transceiver cannot scan	The channels are not programmed.
All band noisy after programmed	Adjust squelch level.
No sound when using earphone.	Earphone or the jack is broken. Please contact with local dealers for inspection.
Communication distance becomes short, and Low sensitivity	A.Check whether the antenna is in good conduction and the antenna base do not come adrift. B.Antenna may be broken. Consult your local dealer for services.
Cannot talk or hear other members in your group	A.Different frequency or channel, please change it. B.Different CTCSS / DCS /DTMF, please reset it. C.Out of communication range.
Can not power on or frequent power off	Check if the battery pack is securely attached.

## ◦ TROUBLE SHOOTING GUIDE

**ALINCO**

The receiving sound level is low or intermittent	Consult with local dealers for inspection.
Receiving signal is intermittent.	A. Out of communication range or obstruct by walls, buildings etc. Change position to transmit. B. Internal components may be in trouble, please contact with local dealers to repair.
Loudspeaker sounds lower or with dry noise after certain time of usage.(Speaker magnet attracts iron powders)	Check whether the loudspeaker is broken, Iron powder or dusts is in the loudspeaker. Please contact with local dealers to repair.
Receive voice from the other parties and can not transmit	Interference is being received. BCLO activated.
Receiving indicator with green light but no sound	A. Low volume, increase the audio level. B. Volume switch or loudspeaker is broken, please contact with local dealers to repair. C. Earphone jack is broken, please contact with local dealers to repair.

## ◦ APPENDIX

### « CTCSS Frequency Chart

1	62.5	12	94.8	23	136.5	34	177.3	45	218.1
2	67.0	13	97.4	24	141.3	35	179.9	46	225.7
3	69.3	14	100.0	25	146.2	36	183.5	47	229.1
4	71.9	15	103.5	26	151.4	37	186.2	48	233.6
5	74.4	16	107.2	27	156.7	38	189.9	49	241.8
6	77.0	17	110.9	28	159.8	39	192.8	50	250.3
7	79.7	18	114.8	29	162.2	40	196.6	51	254.1
8	82.5	19	118.8	30	165.5	41	199.5		
9	85.4	20	123.0	31	167.9	42	203.5		
10	88.5	21	127.3	32	171.3	43	206.5		
11	91.5	22	131.8	33	173.8	44	210.7		

« **1024 Groups DCS Chart**

000	001	002	003	004	005	006	007
010	011	012	013	014	015	016	017
020	021	022	023	024	025	026	027
030	031	032	033	034	035	036	037
040	041	042	043	044	045	046	047
050	051	052	053	054	055	056	057
060	061	062	063	064	065	066	067
070	071	072	073	074	075	076	077
100	101	102	103	104	105	106	107
110	111	112	113	114	115	116	117
120	121	122	123	124	125	126	127
130	131	132	133	134	135	136	137
140	141	142	143	144	145	146	147
150	151	152	153	154	155	156	157
160	161	162	163	164	165	166	167
170	171	172	173	174	175	176	177
200	201	202	203	204	205	206	207
210	211	212	213	214	215	216	217
220	221	222	223	224	225	226	227
230	231	232	233	234	235	236	237
240	241	242	243	244	245	246	247
250	251	252	253	254	255	256	257

## ◦ APPENDIX

260	261	262	263	264	265	266	267
270	271	272	273	274	275	276	277
300	301	302	303	304	305	306	307
310	311	312	313	314	315	316	317
320	321	322	323	324	325	326	327
330	331	332	333	334	335	336	337
340	341	342	343	344	345	346	347
350	351	352	353	354	355	356	357
360	361	362	363	364	365	366	367
370	371	372	373	374	375	376	377
400	401	402	403	404	405	406	407
410	411	412	413	414	415	416	417
420	421	422	423	424	425	426	427
430	431	432	433	434	435	436	437
440	441	442	443	444	445	446	447
450	451	452	453	454	455	456	457
460	461	462	463	464	465	466	467
470	471	472	473	474	475	476	477
500	501	502	503	504	505	506	507
510	511	512	513	514	515	516	517
520	521	522	523	524	525	526	527
530	531	532	533	534	535	536	537

540	541	542	543	544	545	546	547
550	551	552	553	554	555	556	557
560	561	562	563	564	565	566	567
570	571	572	573	574	575	576	577
600	601	602	603	604	605	606	607
610	611	612	613	614	615	616	617
620	621	622	623	624	625	626	627
630	631	632	633	634	635	636	637
640	641	642	643	644	645	646	347
650	651	652	653	654	655	656	657
660	661	662	663	664	665	666	667
670	671	672	673	674	675	676	677
700	701	702	703	704	705	706	707
710	711	712	713	714	715	716	717
720	721	722	723	724	725	726	727
730	731	732	733	734	735	736	737
740	741	742	743	744	745	746	747
750	751	752	753	754	755	756	757
760	761	762	763	764	765	766	767
770	771	772	773	774	775	776	777

## SAFETY TRAINING INFORMATION



Your Alinco Incorporated, Electronics Division radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as "Occupational Use Only", meaning it must be used only during the course of employment by individuals aware of the hazards, and the ways to minimize such hazards. This radio is NOT intended for use by the "General Population" in an uncontrolled environment.

This radio has been tested and complies with the FCC RF exposure limits for "Occupational Use Only". In addition, your Alinco Incorporated, Electronics Division radio complies with the following Standards and Guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

FCC OET Bulletin 65 Edition 97-01 Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.

American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields- RF and Microwave.

The following accessories are authorized for use with this product. Use of accessories other than those (listed in the instruction) specified may result in RF exposure levels exceed the FCC requirements for wireless RF exposure.



To ensure that your exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines:

DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or antenna specifically authorized by the manufacturer for use with this radio.

DO NOT transmit for more than 50% of total radio use time ("50% duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the "TX indicator" lights red. You can cause the radio to transmit by pressing the "PTT" switch.

ALWAYS keep the antenna at least 2.5 cm (1 inch) away from the body when transmitting and only use the belt-clip which is listed in instructions when attaching the radio to your belt, etc., to ensure FCC RF exposure compliance requirements are not exceeded. To provide the recipients of your transmission the best sound quality, hold the antenna at least 5 cm (2 inches) from your mouth, and slightly off to one side.

The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to assure that this radio operates with the FCC RF exposure limits of this radio.

### Electromagnetic Interference/Compatibility

During transmissions, your Alinco Incorporated, Electronics Division radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

### Occupational/Controlled Use

The radio transmitter is used in situations in which persons are exposed as consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.