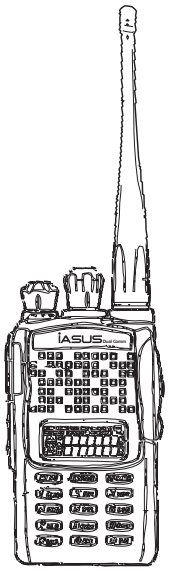
iASUS CONCEPTS

**Model No. IA-4DC**



**IASUS Dual Comm**
**UHF multi channel radio**



## Contents

## UNPACKING AND CHECKING EQUIPMENT

Carefully unpack the radio. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

**Supplied Accessories**

| ITEMS | QUANTITY |
|---|---|
| Radio | 1 |
| Antenna | 1 |
| Battery | 1 |
| Charger | 1 |
| Belt Clip | 1 |
| User's Manual | 1 |

**Optional Accessories**

| ITEMS |
|---|
| Earphone |
| Microphone |
| Connecting cable |
| Programmable software |



## Maintenance

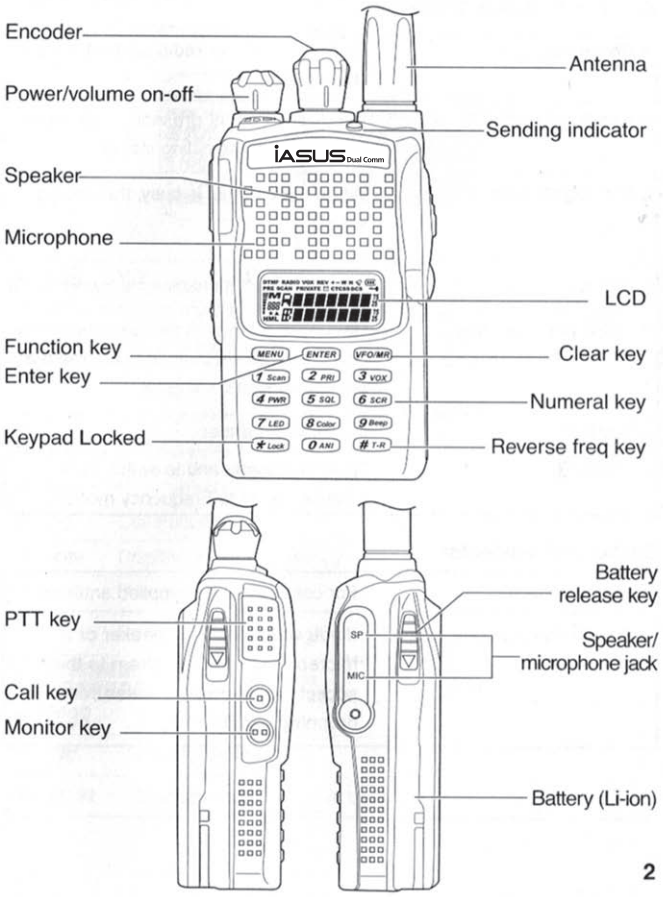
Your Two Way Radio is an electronic product of exact design and should be treated with care .The suggestions below will help you to fulfill any warranty obligations and to enjoy this product for many years.

- Do not attempt to open the unit. Non-expert handling of the unit may damage it.
- When using regulated power supply, take notice of power voltage must be between 6V and 8V to avoid damaging the unit.
- Do not store the Radio under the sunshine or in hot areas. High temperatures can shorten the life of electronic devices, and warp or melt certain plastics.
- Do not store the Radio in dusty, dirty areas.
- Keep the Radio dry. Rainwater or damp will corrode electronic circuits.
- If it appears that the Radio diffuses peculiar smell or smoke, please shut off its power immediately and take off charger or battery in the Radio, then contact with local agency.
- Do not transmit without antenna.

## Features

- UHF 4W Output power
- Two lines dot-matrix display
- Double channel watch
- 128 groups of memory channels
- Automatic Numbering Identification (ANI) code
- Built-in Voice Operate Transmit (VOX) function
- All channels scan and priority channel scan
- Scrambler
- Emergency alarm
- Programmable by pc with software
- 50 CTCSS and 104 DCS Normal/Inverted selectable
- Time-out Timer (TOT)
- Busy channel lockout
- 2 tone/MSK/DTMF encode and decode
- Built-in FM radio receiver

## Main indicators/controls








## Main indicators/controls-description

**Key, Knob, Switch, Indicator**

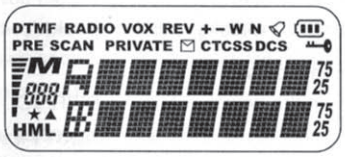
| | |
|---|---|
| ■ Power/volume On-off | To turn on/off the radio and adjust the volume level. |
| ■ Sending indicator | When the PTT is pressed, it glows to indicate the transmitting status. |
| ■ Busying indicator | When the channel is busy, the display shows |
| ■ PTT key | When pressed, it enables the transmission |
| ■ MONI (monitor) Key | Hold down this key in receiving mode: the channel in use will be monitored. The busy channel indicator will glow. |
| ■ Call key | to Call your partner |
| ■ VFO/MR | To exit the menu and to switch from Channel mode to Frequency mode. |

**Socket and connector**

| | |
|---|---|
| ■ SMA Connector | For connecting the supplied antenna |
| ■ Speaker/microphone jack | If you want to use a speaker or a microphone, connect them to this socket. If not, prevent water from dropping into it. |

## LCD display

Many icons are shown on the display when the radio is on. The following table can help you to identify each of them.




| | |
|---|---|
| Battery level indicator | |
| +/– | Shows the TX offset direction in relation to the Rx frequency |
| H/L | Power level indicator (HI=High/LO=Low) |
| | Keypad locked |
| DCS | Display when DCS is turned on |
| CTCSS | CTCSS turned on |
| VOX | VOX turned on |
| | Call Function |
| REV | Display reverse frequency |
| PRE | Priority scan activated |
| | Received signal strength and TX power |
| | Frequency in use |
| | Function menu |
| ★ | Priority channel |
| N/W | Displays narrow or wide band |





## Basic operations

### Supplied antenna

Insert the base of the supplied antenna into the SMA connector and rotate it clockwise. Make sure the antenna has set down. Take out the antenna from the base by rotating it counter-clockwise rotation.

### Turn on and off the power

If you want to turn on the power, rotate the PWR/VOL knob clockwise until a beep sound is heard .All icons and frequencies appeared on the screen. You can adjust your desired volume by turning the knob.
To turn off the power, rotate the PWR/VOL knob counter-clockwise rotation. All the icons on the display will disappear and the radio is off.

### Adjusting volume

After turning on the radio, rotate the PWR/VOL knob clockwise to increase the volume and counter-clockwise to decrease.

### Transmitting/Receiving

Firstly, hold down briefly the MONI button to make sure that the frequency is not busy and then press the PTT. Speak 4/10cm far from the unit.
The TX indicator lights up.
Release the PTT key to receive.

### Emergency Alarm

Hold down the CALL key for 1 second and press MONI: the radio will switch to emergency alarm.

### Call to receiver

Press and hold the CALL key for 2 seconds .The receiver will ring.

### Keypad Lock

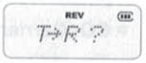
To Lock or unlock the buttons.

In channel/Frequency mode, press and hold down * Lock key for two seconds. The keypad will Lock. Repeat the same procedure to unlock it.


### Setting Reverse Frequency Function

This function is possible only when you are linked to a repeater:

It permits to invert the TX frequency with the RX frequency.In Channel/Frquency mode, hold down # T-R for two seconds until "REV" appears on the display. Repeat the same procedure to return to the previous frequency setting.




### Scanning

The Scan version is very useful to monitor the channels before transmitting.

### Scan all the channels

In Channel/Frequency status, press MENU + 1 Scan + ENTER .The radio will scan from the channel in use through all the channels, whenever any activity is detected, the radio will suspend the scan for 5 seconds. It will then continue to scan unless you press PTT or ENTER key to end scanning.Otherwise it continues to scan until you press any key.





### Priority channel scan

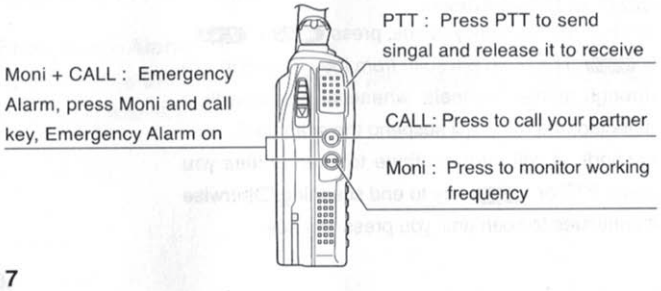
In Channel Mode, MENU + 2 PRI + ENTER the radio will always scan priority channel. For example, if channel 3 is priority channel, the radio will scan like this: 3 →1; 3 →2; 3 →3; 3 →4; 3 →5.

### Select scan type

Press MENU and rotate the Encoder until the display shows"SCANS ?". Press ENTER and turn the Encoder knob again to select the scan type (TO/CO/SE). Confirm your selection with ENTER and exit by pressing VFO/MR twice.

- **TO: Time-operated scan**
  Even though the channel is busy, radio locks on a busy channel for a period of 5 seconds, it will continue scanning the other channels.
- **CO: Carrier-operated scan**
  The radio stops on a busy channel until there is no activity, there is 2 seconds interval time and then radio begins scanning the other channels.
- **SE: Search scan**
  The radio stops on a busy channel and exits the Scan mode.

### Flank keys



**DTMF Encode and Decode**

The radio can get the function of selective call, group call and broadcast call via DTMF tone. This function can be set by your dealer.

**DTMF CALL**

**1. Two ways to call via DTMF manually**

1) Press and hold PTT and input keypad numbers, 0-9 , a-d , * and # available.
2) Press ENTER into the "DTMF IN" then input the number you want. The numbers you can input are : 0-9, a-d , * and # . You can turn channel selector to delete or exit. Then press PTT to call.

**2. Auto-dial**

You need store the DTMF code(max 16 numbers) in nine different memory position for auto dial. Press [CALL]+ Number (1- 9) to dial the preset numbers automatically.

**DTMF RECEIVE**

When you receive the correct tone signal, the squelch will be cut off and you can receive a call or send a call.

1) When receive the single tone, the radio will sound "dū dú dǔ dù" for response. It indicates that call is successful.
2) When receive the group call tone, the radio will ring. You can press [PTT] key to send message or receive message. The function of selective call, group call, and broadcast call can be enable/disable by dealers.





**Select Mode**

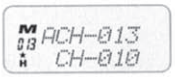
Three modes (1) double channel mode (2)channel mode (3)frequency mode can be switch by pressing VFO/MR

**1. Double channel mode**

Hold down ENTER and turn on the power, the radio can enter or exit the double channel mode .

When you enter this mode you will see A or B on the display. A indicates this channel can receive and transmit but the other channel can receive only. B indicates this channel can receive and transmit but the other channel can receive only.

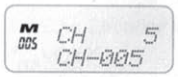
A and B channel can be switched by press MENU +[PTT].



**2. Channel Mode**

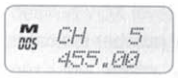
There are three kinds of Channel Mode. M 005 Shows that current channel is the fifth channel.

1) Show the channel name and channel number.



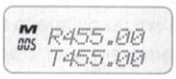

CH 5: indicate channel name, it can be edited by user.
CH-005: indicate the current channel is the fifth channel.

2) Show the channel name and the frequency



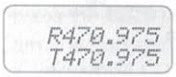

CH 5: indicate channel name, it can be edited by user.
455.00: indicate the frequency of the current channel.

3) The transmit and receive frequency of current channel




R 455.00: indicate the receive frequency of current channel.
T 455.00: indicate the transmit frequency of current channel.

**3. Frequency mode**




R 470.975: indicate the receive frequency
T 470.975: indicate the transmit frequency

The difference between channel mode and frequency mode is that if the left of the LCD show M 005 .

**FM Radio receiver**

This radio have the function of FM radio.

Press MENU + [CALL] you can enter this function. Press Lock to select the programs. Press " # " key for reposition. Press MENU to exit this function.





## Store/Delete

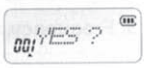
**To store a frequency**

To store a frquency and its settings (CTCSS, DCS, SHIFT REPEATERS etc) follow the procedure below:

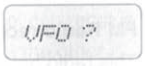
1). at first, choose all the settings to store;
2). press the MENU button;
3). then, push VFO/MR ;
4). rotate the Encoder knob and select the momory number where you want to store the frequency and its settings;
5). confirm your selection by pressing VFO/MR .
(note:a triangle displayed underneath the channel number indicates that it has already been stored).

**Delete a momory**

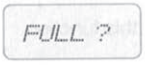
1. **Delete one store channel**
   In Channel Mode turn off the power. Hold down the VFO/MR key and turn on the unit. "DEL?" and stored channel number will be displayed. Turn the Encoder knob or select the channel to delete. Push ENTER until "YES?" appears on the display; push it again to confirm or press VFO/MR to exit.


2. **Reset (Delete all the settings in Frequency mode)**
   Hold down the MENU and turn on the unit until "RESET?" is displayed. Press ENTER until "VFO?" is shown on the display; push it again for confirmation.


3. **Delete all settings**
   Hold down MENU and turn on the unit until display "VFO?" is shown on the display. Turn the Encoder knob to select "FULL ? " , then press ENTER to delete all the settings in Frequency and Channel mode.



## Advanced Operations

**Selecting the VOX sensitivity level**

The VOX function is deactivated by default. To activate it follow the procedure here below:

1). press the MENU button;
2). turn the Encoder knob until the display shows "$_{003}$VOX?";
3). push the ENTER key;
4). turn again the Encoder knob and select the desired VOX level (you can choose amongst 9 different levels);
5). push the ENTER key again;
6). to exit, press twice VFO/MR ;


To activate and select rapidly the VOX function, you can do it also by operating on the fast menu: press the MENU key and then 3 VOX and follow the procedure above described starting from point 3.

**Setting the transmission power**

To select desired power level:

1). press the MENU button;
2). turn the Encoder knob until the display shows "$_{004}$POWER? " ;
3). push ENTER ;
4). turn again the Encoder knob and select the desired power level (you can choose between 2 levels: "H" and "L"); press * to increase power and press # to decrease power;
5). press ENTER ;
6). press twice the VFO/MR knob to exit;



To activate and select rapidly the power level, you can also use the fast menu: press the MENU key and then 4 PWR and follow the procedure above described starting from point 3.





**Setting squelch**

To select the squelch level:

1). press the MENU button;
2). turn the Encoder knob until "$_{005}$SQL ?" is displayed;
3). push ENTER ;
4). turn the Encoder knob and select the desired squelch level (9 different levels are available);
5). press ENTER ;
6). press twice the VFO/MR knob to exit;

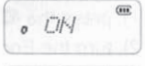


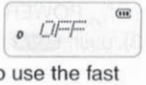
To activate and select rapidly the squelch level, you can also use the fast menu: press the MENU key and then 5 SQL and follow the procedure above described starting from point 3.

**Scrambler on/off**

To activate the scrambler, follow this procedure:

1). press the MENU button;
2). turn the Encoder knob until "$_{006}$SCRM ?" is displayed;
3). push ENTER ;
4). turn the Encoder knob and activate/deactivate the scrambler (ON=activated; OFF=deactivated);
5). press ENTER ;
6). press twice the VFO/MR knob to exit;




To activate/deactivate rapidly this function, you can also use the fast menu: press the MENU key and then 6 SCR and follow the procedure above described starting from point 3.

**Backlight on/off**

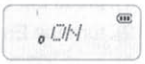
To select the LCD backlight, follow this procedure:

1). press the MENU button;

2). turn the Encoder knob until "007 LED ?" is displayed;

3). push ENTER ;

4). turn the Encoder knob and activate/deactivate the function: 3 different options are available (AUTO, ON, OFF) ;






5). press ENTER ;

6). press twice the VFO/MR knob to exit;

To activate/deactivate rapidly the backlight, you can also use the fast menu: press the MENU key and then 7 LED and follow the procedure above described starting from point 3.

**Select backlight color**

To activate the backlight colour:

1). press the MENU button;

2). turn the Encoder knob until "008 LIGHT" is displayed;

3). push ENTER ;


4). turn the Encoder knob and choose the desired colour (3 different colours are available);

5). press ENTER ;

6). press twice the VFO/MR knob to exit;

To select it rapidly, you can also use the fast menu: press the MENU key and then 8 Color and follow the procedure above described starting from point 3.





**Beep on/off**

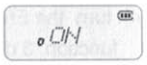
The keypad beep is activated by default. To deactivate it:

1). press the MENU button;

2). turn the Encoder knob until "009 BEEP" is displayed;

3). push ENTER ;

4). turn the Encoder knob and activate/deactivate the beep (ON=beep enabled; OFF=beep disabled);




5). press ENTER ;

6). press twice the VFO/MR knob to exit;


To activate/deactivate rapidly the keypad beep, you can use the fast menu: press the MENU key and then 9 Beep and follow the procedure above described starting from point 3.

**Automatic Numbering Identification (ANI) on/off**

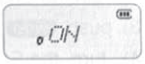
You can set an antomatic number identifier visible from the radio's display of your partner each time you send a call signal.

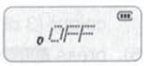
To activate this function:

1). press the MENU button;

2). turn the Encoder knob until "010 ANI" is displayed;

3). push ENTER ;




4). turn the Encoder knob and activate/deactivate the function. ON=activated; OFF=deactivated;

5). press ENTER ;

6). press twice the VFO/MR knob to exit;

To activate/deactivate this function, you can also use the fast menu: press the MENU key and then 0 ANI and follow the procedure above described starting from point 3.

**Repeater shift (for communications through repeaters)**

To activate this function, follow these steps:

1). press the MENU button;

2). rotate the Encoder knob until "$_{019}$S-D" is displayed;

3). push ENTER ;

4). turn the Encoder knob and select the repeater shift. You can choose amongst the following options +, - and 0;

5). press ENTER again;

6). press twice the VFO/MR to exit;


To select the repeater shift, you can also use the fast menu: press the MENU key and then ✱Lock and follow the procedure above described starting from point 3.


**Repeater shift adjustment (for communications through repeaters)**

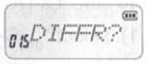
1). press the MENU button;

2). rotate the Encoder knob until "$_{015}$DIFFR" is displayed;

3). push ENTER ;

4). turn the Encoder knob and select the repeater shift. You can also enable it by inputting the frequency directly on the keypad;

5). press ENTER ;








**Select the frequency step**

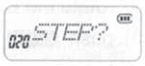
1). press the MENU button;

2). rotate the Encoder knob until "$_{020}$STEP?" is displayed;

3). push ENTER ;

4). turn the Encoder knob and select desired frequency step. You can choose amongst: 5KHz, 10KHz, 6.25KHz, 12.5KHz and 25KHz;

5). press twice the VFO/MR key to exit;




**Select CTCSS and DCS tones**

To select a CTCSS tone

1). press the MENU botton;

2). rotate the Encoder knob until "$_{016}$C-CDC" is displayed;

3). push ENTER ;

4). turn the Encoder knob and select the desired subaudio tone;

5). press ENTER to confirm ;

To select a DCS tone:

1). select "$_{016}$C-CDC" either with the Encoder knob or with fast access;

2). push ENTER ;

3). press the ✱Lock button;

4). turn the Encoder knob and select the desired DCS level;

5). press ENTER again for confirmation;

While selecting the DCS codes, if you press #T-R , you will select the normal (N) or inverted (I) DCS codes.

**Menu Operation**

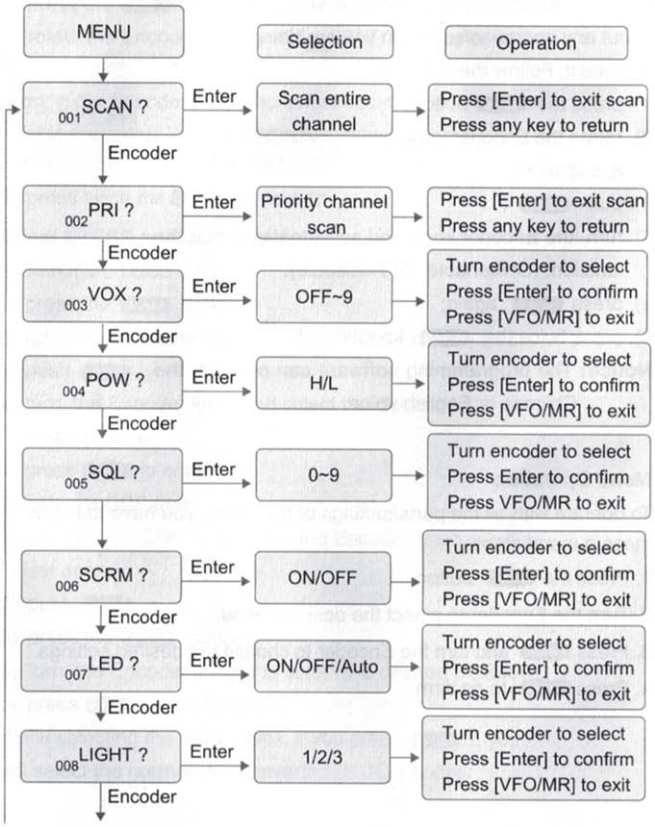
To operate with all the parts/settings of the menu, you have to follow these general steps:

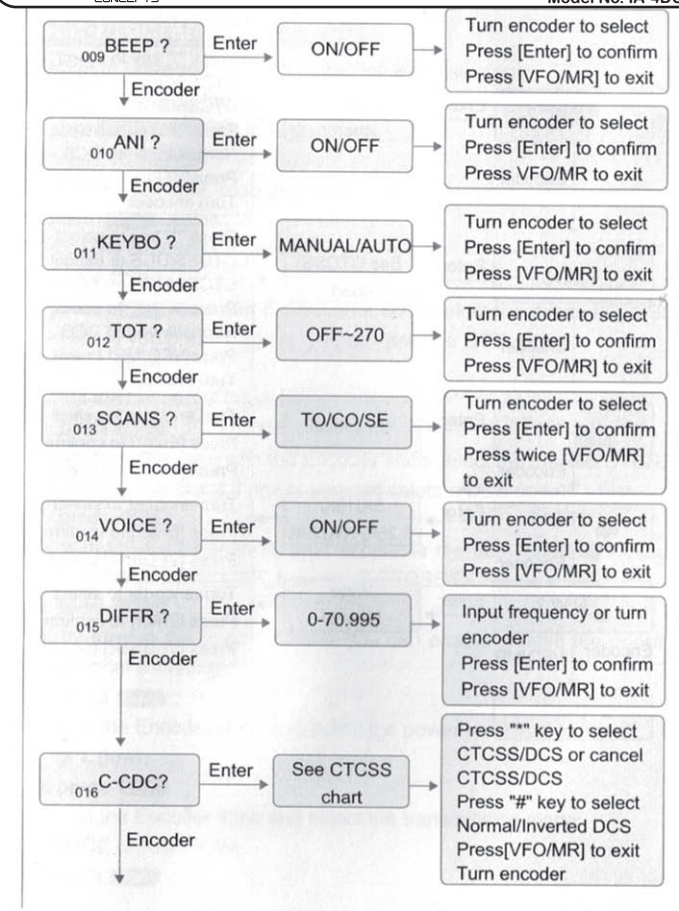
1. Press the MENU button.
2. Turn the Encoder to select the desired menu.
3. Press ENTER and turn the Encoder to choose the desired settings.
4. Press ENTER to confirm.





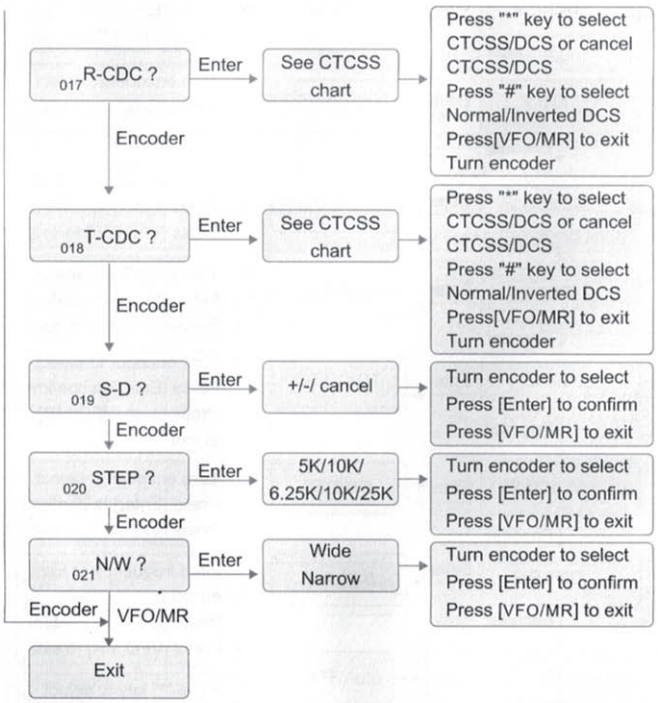
**Menu Operation List**




009 BEEP ?
Enter
ON/OFF
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
010 ANI ?
Enter
ON/OFF
Turn encoder to select
Press [Enter] to confirm
Press VFO/MR to exit
Encoder
011 KEYBO ?
Enter
MANUAL/AUTO
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
012 TOT ?
Enter
OFF~270
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
013 SCANS ?
Enter
TO/CO/SE
Turn encoder to select
Press [Enter] to confirm
Press twice [VFO/MR]
to exit
Encoder
014 VOICE ?
Enter
ON/OFF
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
015 DIFFR ?
Enter
0-70.995
Input frequency or turn
encoder
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
016 C-CDC?
Enter
See CTCSS
chart
Press "*" key to select
CTCSS/DCS or cancel
CTCSS/DCS
Press "#" key to select
Normal/Inverted DCS
Press[VFO/MR] to exit
Turn encoder
Encoder






017 R-CDC ?
Enter
See CTCSS
chart
Press "*" key to select
CTCSS/DCS or cancel
CTCSS/DCS
Press "#" key to select
Normal/Inverted DCS
Press[VFO/MR] to exit
Turn encoder
Encoder
018 T-CDC ?
Enter
See CTCSS
chart
Press "*" key to select
CTCSS/DCS or cancel
CTCSS/DCS
Press "#" key to select
Normal/Inverted DCS
Press[VFO/MR] to exit
Turn encoder
Encoder
019 S-D ?
Enter
+/-/ cancel
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
020 STEP ?
Enter
5K/10K/
6.25K/10K/25K
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
021 N/W ?
Enter
Wide
Narrow
Turn encoder to select
Press [Enter] to confirm
Press [VFO/MR] to exit
Encoder
VFO/MR
Exit

## Self-Programming mode

To enter in Self-Programming mode, follow these steps:

1). while turning on the unit, hold down [CALL] and MENU until "SELF" is displayed;


2). press ENTER ;
3). turn the Encoder knob and select the memory number to program;
4). push ENTER again;
5). digit the desired rx frquency;
6). press ENTER ;
7). press * Lock and with the Encoder knob select the desired CTCSS in RX (if you press it again, you can select a DCS code);
8). press ENTER ;
9). digit the desired tx frquency;
10). push ENTER ;
11). press * Lock and with the Encoder knob select the desired CTCSS in TX( if you press it again, you can select a DCS code);
12). press ENTER ;
13). with the Encoder knob, enable/disable the busy channel lockout (you can choose: OFF, 1 carrier, 2 CTCSS/DCS);
14). press ENTER ;
15). by turning the Encoder knob, you can enable/disable the priority channel scanning;
16). press ENTER ;
17). turn the Encoder knob and select the power level in tx H (high) or L (low);
18). press ENTER ;
19). turn the Encoder knob and select the transmission mode: WIDE or NARROW;
20). push ENTER ;



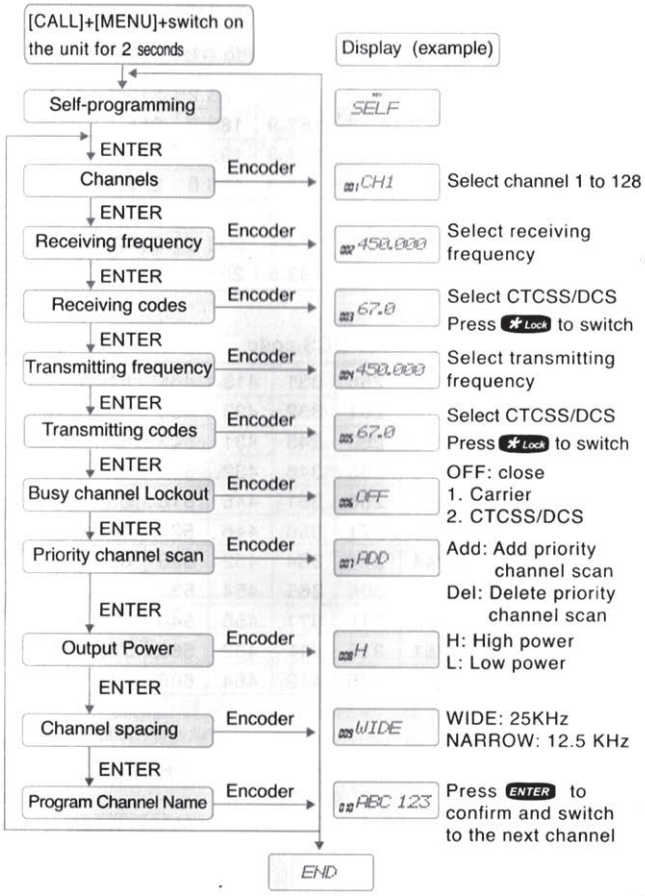


21). rotate the Encoder knob and select the first letter for the name of the programmed channel. To switch to the next channel, push the # T-R button and turn the Encoder knob;
22). press ENTER ;
23). switch off the unit to finish the programming procedure and return to the standard modality.

**The list of Self-programming contents**

| Items | Contents |
|---|---|
| 1 | Channel number |
| 2 | RX frequency |
| 3 | Codes CTCSS/DCS in RX |
| 4 | TX frequency |
| 5 | Codes CTCSS/DCS in TX |
| 6 | Busy channel lockout |
| 7 | Add/Del priority channel scan |
| 8 | Power level in TX |
| 9 | To select channel spacing |
| 10 | Program channel name |

## Self-programming chart








## Enclosed chart

50 CTCSS frequency code (Hz)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 67.0 | 85.4 | 107.2 | 136.5 | 165.5 | 186.2 | 210.7 | 254.1 |
| 69.3 | 88.5 | 110.9 | 141.3 | 167.9 | 189.9 | 218.1 | |
| 71.9 | 91.5 | 114.8 | 146.2 | 171.3 | 192.8 | 225.7 | |
| 74.4 | 94.8 | 118.8 | 151.4 | 173.8 | 196.6 | 229.1 | |
| 77.0 | 97.4 | 123.0 | 156.7 | 177.3 | 199.5 | 233.6 | |
| 79.7 | 100.0 | 127.3 | 159.8 | 179.9 | 203.5 | 241.8 | |
| 82.5 | 103.5 | 131.8 | 162.2 | 183.5 | 206.5 | 250.3 | |

104+1 DCS code

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 023 | 065 | 132 | 205 | 255 | 331 | 413 | 465 | 612 | 723 |
| 025 | 071 | 134 | 212 | 261 | 332 | 423 | 466 | 624 | 731 |
| 026 | 072 | 143 | 223 | 263 | 343 | 431 | 503 | 627 | 732 |
| 031 | 073 | 145 | 225 | 265 | 346 | 432 | 506 | 631 | 734 |
| 032 | 074 | 152 | 226 | 266 | 351 | 445 | 516 | 632 | 743 |
| 036 | 114 | 155 | 243 | 271 | 356 | 446 | 523 | 645 | 754 |
| 043 | 115 | 156 | 244 | 274 | 364 | 452 | 526 | 654 | |
| 047 | 116 | 162 | 245 | 306 | 365 | 454 | 532 | 662 | |
| 051 | 122 | 165 | 246 | 311 | 371 | 455 | 546 | 664 | |
| 053 | 125 | 172 | 251 | 315 | 411 | 462 | 565 | 703 | |
| 054 | 131 | 174 | 252 | 325 | 412 | 464 | 606 | 712 | |

## Technical specification

**General**

| | |
|---|---|
| Frequency Range | 136-174MHz 350-390MHz 400-470MHz |
| Working Temperate | -20℃ ~ +50℃ |
| Operating Voltage | DC 7.2V |
| Operate Mode | Simplex or Semi-duplex |
| Dimension | 119mm X 59mm X 34mm (Not included Antenna) |
| Weight | 220g (Including battery) |
| Antenna impedance | 50Ω |

**Transmitter**

| | |
|---|---|
| Frequency Stability | ±2.5ppm |
| Output Power | ≤5W |
| Max Frequency Deviation | ≤5KHz |
| Audio Distortion | ≤5% |
| Modulation Character | +3dB~-3dB |
| Adjacent Channel Power | ≥65dB |
| Spurious Radiation | ≤7.5μW |
| Occupied Bandwidth | ≤16KHz |

Receiver

| | |
|---|---|
| RF Sensitivity | <0.2μV |
| Audio Distortion | ≤5% |
| Audio Response | +2dB~-10dB |
| Adjacent Channel Selectivity | ≥60dB |
| Intermodulation Rejection | ≥60dB |
| Spurious Response | ≥60dB |
| Blocking | ≥85dB |

**Notice:** Other frequency ranges can be custom by dealers.Above technical specification is for reference only.





## TROUBLESHOOTING GUIDE

| PROBLEM | SOLUTION |
|---|---|
| No Power | • The battery pack may be dead.Recharge or replace the battery pack.<br>• The battery pack may not be installed correctly. Remove the battery pack and install it again. |
| Battery power dies shortly after charging | • The battery pack life is finished.Replace the battery pack with a new one. |
| Cannot talk to or hear other members in your group | • Make sure you are using the same frequency and CTCSS/DCS tone as the other members in your group.<br>• Other group members may be too far away. Make sure you are within range of the other radios. |
| Other voices (besides group members) are present on the channel. | • Change the CTCSS/DCS tone.Be sure to change the tone on all radios in your group. |