# CTCSS/DCS/2-TONE/5-TONE Setting

Many repeaters have CTCSS(Continuous Tone Code Squelch System) or DCS(Digital Coded Squelch)as a " key " to access the system,so-called " selective call ". The audio can be heard ONLY when the matching CTCSS tone/DCS code signal is received. The combination of CTCSS squelch and DCS function is not available, only one or the other may be used for a given memory channel. But 5-TONE/2-TONE can combine with CTCSS/DCS to use, DTMF/ANI, 5-Tone/ANI function can show the calling code of the opposite party.

*1.* Press **TS/DCS** key.The current setting will display with T/SQ/DCS icons and relative frequency/code. Press the same key to select T/SQ/DCS setting.

-1.600 ⟶ +1.600

Initial state

*2.* The numbers (such as 88.5) represent the CTCSS frequency in Hz.When it is displayed with " 🔓 " only, the unit transmits CTCSS (encode) infrasonic frequency tone when pressing **PTT** (encode) and the repeater access is enabled (assuming the repeater is using 88.5)

*3.* Press the same key again so that " **SQ** " shows on the screen. This is the CTCSS decode frequency. This enables CTCSS squelch (or tone squelch,TSQ)

*4.* Press it again so that "**DCS**" icon, normal code and inverted code of DCS are displayed. Normal code icon is 023N; inverted code icon is 023I.They enable DCS encoding and decoding.
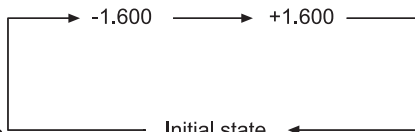
For item 2-4, turn the main dial or press the **UP/DOWN** keys to change CTCSS or DCS normal and inverted codes. Press any key (except **TS/DCS,UP/DPWN** keys) to confirm to enter the setting and return to original status. The TS/SQ/DCS icon will remain on the screen to show the current status.To exit,simply press the **TS/DCS** key until the relative status icon T/TQ/DCS disappears.

The CTCSS encoding and decoding frequencies may be set differently.The encode setting frequency automatically relates to the decode setting, but decode setting does not affect encode. The standard set of 50 different CTCSS tones are available as shown on the chart below. DCS encode/decode cannot be separated and are selectable from 104 codes as shown below.

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

CTCSS Tone Frequency (Hz)

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

DCS Code

# 2-TONE/5-TONE (Optional)

2-Tone, 5-Tone code is similar to the function of CTCSS/DCS, as a "key" to access the system, so-called "selective call ". And 5-Tone code also has special call function, including Send Message, Emergency, Call all, ANI, Stun, Waken, etc.

- When a certain channel has set 2-Tone, only when suited 2-tone has been received, the function can be performed, and open squelch.
- When a certain channel has set 5-Tone, only when suited 5-tone has been received, the function can be performed, and open squelch.
- When a certain channel has set 2-Tone and CTCSS or DCS, only when suited 2-tone and CTCSS or DCS have been received, the function can be performed as the two conditions met together, and open squelch.
- When a certain channel has set 5-Tone and CTCSS or DCS, only when suited 5-tone and CTCSS or DCS have been received, the function can be performed as the two conditions met together, and open squelch.

## DTMF

This transceiver provides you 8 SPR storage, C0 is DTMF number of transceiver. C1-C6 can be DTMF number, combined number or number of the opposite party.CP is the last received oppsite code,which is a temporarily station,and can't be changed.The default value:000

**NOTE:**

*1. In long distance, when signal is weak, the incoming DCS coded-signal may have deviation, and then your transceiver may not turn on DCS squelch. If it occurs, please press **TS/DCS** key to get into setting mode and press **CALL** key, a decimal point appears on the 10 MHz order, at this moment, if DCS squelch has been turned on once, even if the DCS code deviation is large or signal is weak transmitted by opposite party, DCS squelch will always be ON state. When DCS code value has been changed, DCS squelch will be OFF. To exit this setting please press **CALL** key again, decimal point disappearing on the 10 MHz order indicates to exit, and press again any keys except **CALL** key to back to original state. This setting can also be stored in a certain memory channel.*

**2. DTMF/ANI/2-Tone/5-Tone only can be preset by programming software, to invoke or switch them please consult microphone operation(P34).**
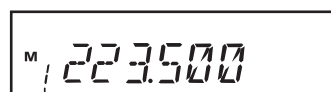
## Memory Channels

In Memory Channels, you can store frequencies and related data that you frequently use so that you do not need to reprogram that data every time. You can quickly recall a programmed channel through simple operation.

The memory mode on this transceiver provides up to 99 channels (1~99, 1-80 as fixed channel, 81-99 as programmable channel), 1 call (quick recall channel) and a pair of program-scan "edge memory" channels for quick, easy access to the preprogrammed frequencies with different parameter settings.

*1.* Press **V/M** key. "**M**" appears on the screen to indicate that the unit is in the memory mode.Repeat to switch the mode between VFO and memory.


Memory mode

*2.* In memory mode, turn the main dial or press **UP/ DOWN** keys to change the memory channel number. Also can directly input the no. by DTMF keypad.

*3.* If  change the number by units of 10, press **FUNC** and rotate the main dial or press **UP/DOWN** keys while"▣ "displays on the screen.
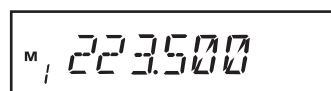

Memory channel
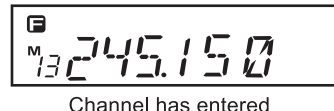
## 【Memory Channels Programming】

**1.** Return to VFO mode by pressing **V/M** key. In this mode, program the desired frequencies and relative data. About CTCSS frequency and DCS code please refer to the settings on forenamed list.

Channel has entered

**2.** When all the settings are complete, press **FUNC** key. "▣" and "**M**" appears and a memory channel number will be indicated on the screen.

Channel has not entered(empty)
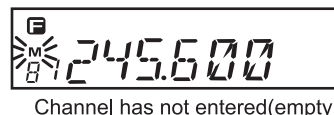
**3.** Turn the main dial or press the **UP/DOWN** keys to select the desired memory channel number into which the current VFO settings will be stored. An empty channel is shown with a flashing "**M**". It may be a good practice to allocate memory channels in order, such as 1-9 for local repeaters,10-19 local simplex,20-49 repeaters within the area, 50-79 for reserve, 80-98 simplex reserve. It makes references easier for the operation and future modifications of the memory channels.

**4.** While "▣ "displays on the screen press **V/M** key. The VFO settings are stored to the memory channel and a beep will sound.The memory channel can be over-written if a previously pro-grammed channel is selected(the memory channels shown with stable **M**).
Note: 1-80 as fixed channels which can not clone frequency, only can clone other parameters.

**5.** To program the CALL channel (quick recall) select the channel shown with **C** icon on the screen. Save CH-99 to store the setting used for the Alarm operation,which will be explained later. Use PL and PH for Program scan setting, which will be explained in the Advanced Operations chapter ).

**6.** To delete a programmed channel, select it in memory mode, press **FUNC** key then press the **V/M** key while "▣" is on. The memory is deleted and a beep sounds. The "**M**" starts flashing showing that this channel is now empty. If you want to delete or change the other parameters of 1-80 fixed memory channels, please take the steps above to set clone in VFO mode.

**7.** To cancel "Delete", repeat 6. However, the cancel function becomes impossible once the channel or the mode is changed.

## 【Programmable data in memory channels】

Some features will be explained later, so please read this instruction manual thouroughly prior to programming memories. Memory channels (including 1-99 and CALL) can store following.

- Frequency
- Offset Frequency
- Offset Direction
- CTCSS Tone both Encode and Decode
- DCS Code (Encode and Decode)

- Scan Skip Channel
- Busy Channel Locked Setting
- Prior Monitoring Frequency (PC programming required)
- Normal/Narrow FM Width
- 2-Tone/5-Tone code

*NOTE:*
 *1. In the programmed memory channels, you only can temporarily modify or delete some certain parameter values.*
 *2. Only the frequency can be stored in PH and PL channels to determine the edges of the program scan range.*

## Call Mode

This is a memory mode that allows the transceiver to quickly recall the assigned memory channel by simply pressing the **CALL** key, regardless of the current status of the unit. Default CALL frequency: 223.500MHz

1. Press **CALL** key. The C icon appears on the screen and the transceiver enters the CALL mode. In this mode, the main dial or the **UP/DOWN** keys cannot change the frequency or memory channels.
2. Press **CALL** key again or press V/M key to exit CALL mode.
3. No scan functions are available in CALL mode.
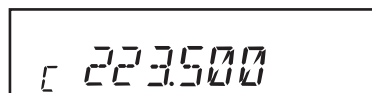
To store a desired setting in the CALL channel, follow the memory mode programming instructions and assign your selected settings to memory channel C. The call channel can be modified but cannot be eliminated or hidden.

## Receiving Signals

1. Be sure to have connected the unit with the appropriate antenna, powered on, set theaudio volume and squelch level properly.
2. Select the desired receiving frequency or scanning different frequencies to monitor ongoing communications. The S-meter shows relative signal strength between BUSY and FULL when the transceiver detects an incoming signal.
3. If the S-meter indicates an incoming signal but nothing is heard from the speaker, check audio level, squelch level, and CTCSS/DCS decoding status, which are explained elsewhere in this manual.
4. The Monitor function is available to receive weaker signals. Press and hold **SQL** key for more than 1 second. Regardless of the squelch, it will be opened and " **BUSY** " displays on the screen. Press any key on the front panel to exit.

## Transmitting Signal

1. Select the desired frequency. Be sure that you are authorized to operate on the selected frequency. Check the system and monitor the frequency to make sure that you are not going to disturb any ongoing communication.
2. Select the output power. Press **FUNC** key and then press **CALL** key while "**F**" displays on the screen. As the **CALL** key is pressed, the output power changes among 3 levels. The "Lo " stands for LOW power setting, "Mi " for MEDIUM power. When the transceiver is set at HIGH power,no icon will display. The output power level cannot be changed during transmission.
3. Default setting is High power. Press the **PTT** key on the microphone to transmit, release it to receive. During transmission, the relative power output is shown on the S-meter as:

   **LOW power = 2 segments**

   **MID power = 3 segments**

   **HIGH power = 5 segments**
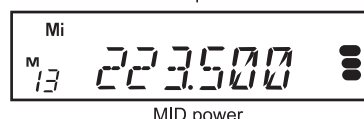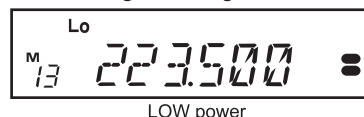
# 6. Parameter Setting

**[IMPORTANT] Please read the following content throughly before changing any parameters.**
By entering the Parameter Setting mode, some of the transceiver's operating parameters can be changed to suit your application. The following is the Selectable Parameters' Menu.

*NOTE:*
*1.The Alphanumeric Channel Tag setting will not appear in the menu until memories have  been programmed first !*
*2. **Only in VFO mode, the setting value of channel spacing step will appear in MENU.***

## Parameter Setting Mode

**1.** Press **FUNC** key for more than 2 seconds to enter the Parameter Setting. Use **SQL** key or **UP/DOWN** keys to select menu.
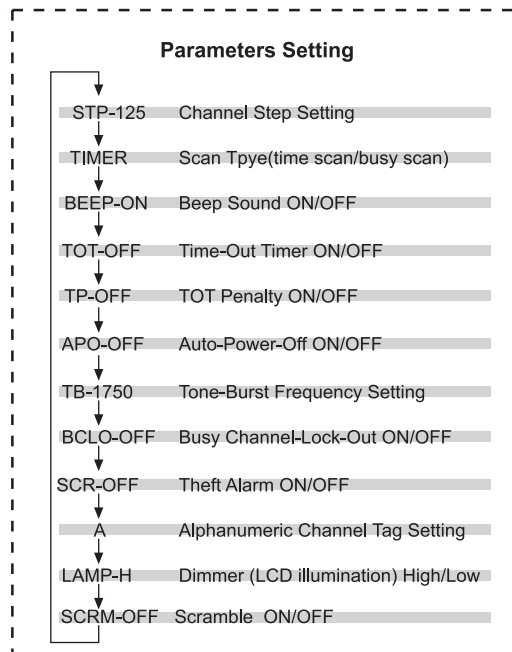
```
 STP- 5
```
Default setting

**2.** Rotate the main dial to select the desired settings.

**3.** Press **SQL** or **UP/DOWN** keys again to enter the selected setting into the radio's memory. The transceiver is now ready for additional Parameter adjustment.

**4.** Press any other key except **SQL/UP/DOWN** to exit the Parameter mode. The only exception is the Channel Tag setting which accepts only **PTT**, **FUNC**, **MHz** and **TS/DCS** keys to exit.

## Detail  Of The Feature In Menu

Please refer to "Parameter Setting" for setting operations. The operation procedures of some features are explained later in detail.
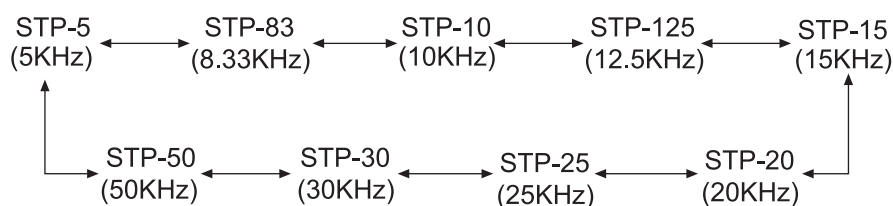
**Parameters Setting**

| | |
|---|---|
| STP-125 | Channel Step Setting |
| TIMER | Scan Tpye(time scan/busy scan) |
| BEEP-ON | Beep Sound ON/OFF |
| TOT-OFF | Time-Out Timer ON/OFF |
| TP-OFF | TOT Penalty ON/OFF |
| APO-OFF | Auto-Power-Off ON/OFF |
| TB-1750 | Tone-Burst Frequency Setting |
| BCLO-OFF | Busy Channel-Lock-Out ON/OFF |
| SCR-OFF | Theft Alarm ON/OFF |
| A | Alphanumeric Channel Tag Setting |
| LAMP-H | Dimmer (LCD illumination) High/Low |
| SCRM-OFF | Scramble  ON/OFF |

## Channel Step Setting

This is to select the channel step to be used in the VFO (Variable Frequency Oscillator) mode. Refer to the chart below for the ralation of the actual step frequency and how it is displayed.

```
STP - 5
```

```
STP-5          STP-83          STP-10          STP-125          STP-15
(5KHz)  ←→   (8.33KHz)  ←→   (10KHz)  ←→   (12.5KHz)  ←→   (15KHz)
  ↑                                                                ↑
  |    STP-50          STP-30          STP-25          STP-20       |
  └──  (50KHz)  ←→   (30KHz)  ←→   (25KHz)  ←→   (20KHz) ──┘
```

## Scanning Type

This is to select the scan resume condition. TIMER (calculagraph) setting allows the radio to resume scanning after 5 seconds, regardless of the signal receiving status, BUSY setting resumes scanning when the received signal has gone. The scan mode will be explained later.

```
TIMER
```

## Beep Sound

BEEP-ON setting enables a beep that sounds after some keys are touched and/or setting is done. BEEP-OF shows that the beep function is off.

```
BEEP-ON
```

## Time-Out Timer

The TOT feature is popular in repeater systems. It prohibits the users from transmitting after a certain period of time. By setting this function and activating it according to the repeaters' require-ment, the radio alerts the user by a beep 5 seconds before stop transmitting. When the time is expired, transmitting stops and the transceiver automatically returns to receiving mode. This avoids the repeater going into its TOT mode. Until the **PTT** is pressed once again, the transceiver will not transmit.

*1.* In this Menu the default screen shows TOT-OFF.

*2.* Turn the main dial to select time-out timer. Screen should change as shown. The number followed by TOT is the time-out timer in seconds.

*3.* The TOT feature is selectable up to 450 seconds (7.5 minutes).

```
TOT-OFF
```

```
TOT- 60
```

during the setting time of 60 seconds

## TOT Resuming Time

When the transmission is shut down in the TOT mode, this function prohibits another transmission for a selected time period.

1. During the TOT resuming period, the beep sounds when the **PTT** is pressed but the radio does not transmit.

2. Default setting is TP-OFF (TOT resume stop). Rotate the main dial to select the resuming time, up to 15 seconds.

```
TP-OFF
```

```
TP- 5
```
during the setting time of 5 seconds

## APO─Auto Power OFF

This feature will automatically turn off the transceiver. It is useful for mobile operation to avoid draining the car battery. If there is no activity or use of the radio, it will turn off automatically after 30 minutes.In one minute before turning off, transceiver will sound beep for seconds.

1. Default is APO-OFF(automatic turn off function disable).

2. Turn dial to select APO-ON to activate the function.

```
APO-OFF
```

```
APO-ON
```
during the ON setting

## Tone─Burst Frequency

This is to access Tone-Burst repeater which require a certain pitch of audible tone to activate "sleeping" repeater. Usually, a repeater system does not require the tone once the repeater is activated.

1. The default is TB-1750, which is 1750Hz tone.

2. It is selectable from 1000, 1450,1750, 2100Hz.

```
TB-1750
```
during the 1750Hz frequency

## Busy Channel Lockout

This function prohibits transmission as there is a signal indication icon on the receiving frequency position. The default is BCLO-OF, which means the function is OFF. To set this function ON, the radio transmits only when:

1. No signal is received on the receiving frequency.

2. Matching CTCSS tone or DCS code is received.

```
BCLO-ON
```
during the ON setting
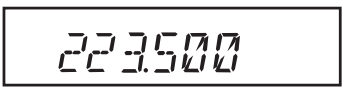
Otherwise, when press **PTT,** a beep sounds, but the unit does not transmit .

## Burglar Alarm

Default is SCR-OFF. Select ON or DLY (delay) to activate the function. When the SCR-ON is selected, 100MHz and 100KHz order decimal points will appear on the screen. Operation way of the transceiver will be show later.

```
223.500
```

# Alphanumeric Tag

The memory channels stored in the memory-mode can be displayed with an alphanumeric tag instead of the default frequency display. Program the memory channel first. There are 67 characters available including A-Z, 0-9.

*1.* Enter the set mode while the units is in memory mode(refer to page 23).

*2.* Select alphanumeric tag setting by rotating the main dial or pressing the **UP/DOWN** keys. **A** flashes on the screen.
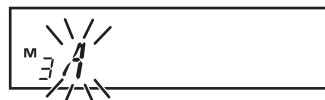
*3.* Turn the main dial to select a character. Press the **V/M** key. The character stops flashing and is entered.
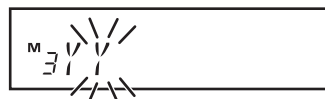
*4.* The same flashing character appears next to it, ready for entering the next character. Repeat the same sequence, up to seven characters.

*5.* To delete all characters during programming press **CALL**.

*6.* To exit after setting is done, press **PTT, FUNC, or TS/DCS.**

After programming, the alphanumeric tag will be displayed on the designated channels, instead of the frequency, when in memory mode. The memory channel number and other icons will also be displayed. If you wish to see the programmed frequency, press **FUNC** and it will be displayed for 5 seconds. To return to the alphanumeric display, wait 5 seconds or in succession press **FUNC** to return to normal operation.

**[IMPORTANT] This function cannot be enabled without preprogramming the memory channels.**

# Dimmer

The screen illumination can be dimmed.
*1.* "**LAMP-H**" is displayed as default.
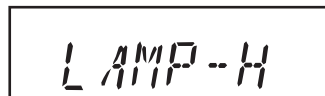
*2.* Turn the dial to choose brighter (H) or darker (L).

# 7. Advanced Operation

*Your transceiver offers different features for advanced operations.*

## Scan

Use this function to automatically search for signals. 6 different scan types are available in the unit. In parameter setting mode, choose Timer mode or Busy mode to determine the desired resuming condition. If the CTCSS (TSQ) squelch or DCS squelch is set, the audio can be heard only when the CTCSS tone/DCS code matches the incoming signal. Otherwise, scanning stops but no audio will be heard. The direction of scan, upward or downward,can be changed during the scan by rotating the main dial or pressing **UP/DOWN** keys in the desired direction.

### 【VFO Scan】

Scans all VFO channels in regard to the preset tuning step.

*1.* Enter VFO mode.

*2.* Press **UP** (to go upward) or **DOWN** (to go downward) key for more than 1 second.

*3.*The scan starts. It stops at the frequency where the incoming signal is detected, and resumes the scan according to the resume setting.

*4.* Press any key (other than **UP/DOWN** keys) to exit.

### 【Memory Scan】

Scans all memory channels unless Memory skip feature is selected for a given memory.

*1.* Enter Memory mode.

*2.* Sequence is the same as in VFO scan. Use **UP/DOWN** keys for commands.

---

**NOTE:** *Memory Skip Feature*

This feature allows determined memory channels to be skipped during the scan.

*1.* In memory mode, select the channel to be skipped. Press **FUNC** key. While " ▣ " is visible on the display, press **V/M** key. Repeat the sequence to delete the setting.

*2.* When the memory channel is set to skip, the 10 MHz order decimal point will be displayed.

*3.* The 1-80 memory channels and the 99th channel are the burglar warning channel, which can not be set to skip.

*4.* CALL, PL and PH are always skipped during Memory scan.
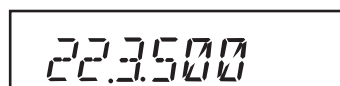
lights up

### 【Program Scan】

This is a type of VFO scan, but by setting the frequency range of the VFO into PH and PL channels, it only scans between those frequencies. With setting the PH and PL properly, up to 3 program scan ranges will be available.

*1.* Enter the VFO mode and set the desired scanning frequencies into the designated PL and PH memory channels.Refer to Memory Channel Setting for the proper sequence.

*2.* Return to VFO mode by pressing V/M key. Set the VFO to the frequency within the range to be program-scanned.

**The Highest band edge**
Range (a)
PH
(b)
PL
(c)
**The Lowest band edge**
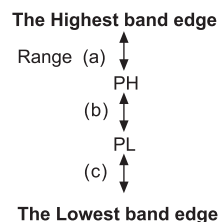
**3.** Press **MHz** key for more than 1 second to start scanning. During this scan mode, "**P**" flashes after memory channel display.

**4.** Use main dial or **UP/DOWN** keys to change the direction.Press any key (other than the **UP/DOWN** keys) to exit.

## 【CTCSS Scan】

This function automatically searches for the CTCSS tone an incoming signal might carry. This feature is useful to search the encoding tone of a repeater, or to communicate with a station operation in TSQ (CTCSS squelch) mode.

**1.** Press **TS/DCS** key to enter CTCSS decode setting mode.

**2.** Press **UP/DOWN** key for more than 1 second but less than 2 seconds to start scannig. It scans 50 tones in order.

**3.** The decimal point on the tone frequency will flash, and it stops when the matching tone is detected.

**4.** The scan won't resume until the operation is repeated.

**5.** Press any key (other than **UP/DOWN** keys) to exit.

## 【DCS Scan】

Same as previous, but for DCS normal and inverted code search.

**1.** Press **TS/DCS** key to enter DCS setting mode.

**2.** Press **UP/DOWN** key for more than 1second but less than 2 seconds to start.It searches the 104 DCS normal and inverted codes in order. Normal code shows 023N; inverted code shows 023I.
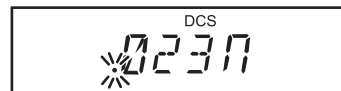
**3.** The 1 MHz order decimal point will flash.

**4.** The scan stops when the matching code is detected.

**5.** The scan won't resume until the operation is repeated.

**6.** Press any key (other than **UP/DOWN** keys) to exit.

# Key-Locked Function

This will lock several keys to avoid unintentional operating transceiver.

1. Press **FUNC** key and press **TS/DCS** key while "▣ " is on the screen.
2. The " ⊶ " icon appears.
3. With this function activated, only the following commands can be accessed:
   - **PTT**
   - **FUNC** + **TS/DCS** to cancel this function
   - Monitor function (to release squelch for weak signal receiving)
   - Squelch setting
   - **UP/DOWN** keys
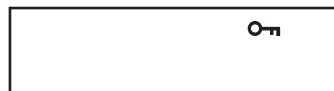
# Tone Burst

Press the **DOWN** key while **PTT** is pressed. The tone burst will be transmitted as long as both keys are pressed together. Usually just a few seconds of burst is enough to activate the repeater.

# Wide/Narrow Band

This unit is fixed to work in narrow band mode.Switching wide/narrow band mode:

1. Press **MHz** key while keeping **FUNC** key pressed. " **Nar** " appears on the LCD screen and the transceiver enters to NARROW mode.

2. Repeat the same sequence to switch between the WIDE/NARROW modes. When the transceiver is in the WIDE mode, " **Nar** " disappears on screen.

3. In the NARROW mode, the microphone gain and modulation during transmission and the demodulation range during receiving will be lower.
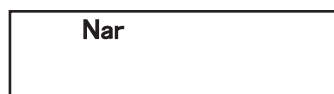
# Compander Function

This function can decrease the background noise and improve the audio quality.

1. Press **FUNC**, and then press **SQL** when " ▣ "displays on the screen.While " ⎍⎍ " shows this function is ON.

2. Repeat the above operation, the transceiver switches between ON/OFF Compander function. " ⎍⎍ " disappears on screen while set OFF this function.

# ANI Function

This transceiver uses DTMF/5-TONE to realize ANI function. When channels have been programmed to have ANI function, press **PTT** to send the reprogrammable DTMF/5-TONE codes, it will display caller information to realize ANI function after called transceiver has decodes.

## ☞ 7. Advanced Operation

## Auto-Dialer

This will automatically transmit pre-programmed DTMF tones. DTMF (Dual-Tone-Multi-Frequency) are the same tones used in the telephone system, and they are often used to remote control electronic devices or AUTOPATCH phone systems available on some repeaters.

**To program tones in the Auto-dialer memory:**

*1.* Press **FUNC** key and **TS/DCS** key at the same time to enter the setting mode. Default display is 1 on the right end of the screen. Memory channel icon displays which of the 9 auto-dial memories(1~9) is in use.
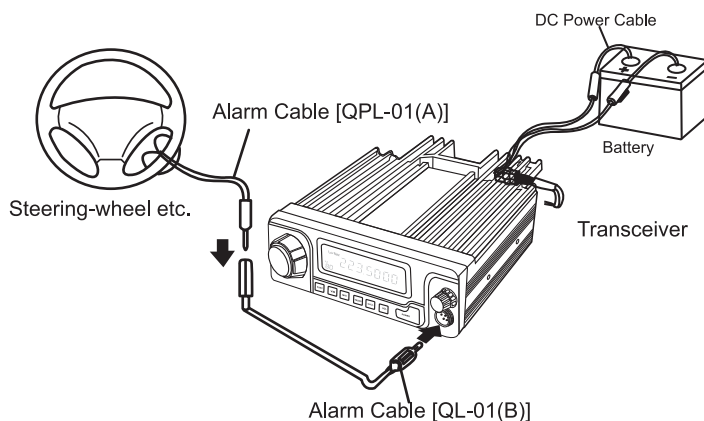
4 7012356

Ex. Dialer set mode

*2.* Use **UP/DOWN** keys to select the desired channel.

*3.* Rotate the main dial to select the first digit, then press **TS/DCS** key to enter. The Cursor moves toward right. Repeat sequence to complete.

*4.* Use "-- " for pause. The display scrolls when the 7th digit is entered. The numbers  0 to 9, pause, * and # can be stored (Max.16 digits).

*5.* To check the entered digits, press **FUNC** then rotate the main dial while"⊟" displays on the screen.

*6.* To delete, press **CALL** key. Press **PTT**, **V/M**, **MHz** or **SQ**L keys to exit and return to original status.

**Dialing numbers in the Auto-dial memory:**

*1.* Choose the desired communicating frequency or memory channel.

*2.* Press **FUNC** and **TS/DCS** at the same time to enter setting mode. Choose autodialing memory channels.

*3.* Press **PTT** and **UP** at the same time to transmit a group of numbers stored in the Auto-dialer memories.

## Burglar Alarm

This alert uses a beep sound when the unit is about to be removed in an unwarrantable way. This function is useful when the unit is installed in a vehicle.



DC Power Cable

Alarm Cable [QPL-01(A)]

Battery

Steering-wheel etc.

Transceiver

Alarm Cable [QL-01(B)]

# ☞ 7. Advanced Operation

## 【Operation 1】

**Setting:** Connect the provided alarm DC cable directly to the battery.

*1.* Connect the provided alarm cable to the DATA jack on the front panel as shown. Secure the other end of the cable to an object that stays fixed in the vehicle.

*2.* Enter the Parameter Setting mode by pressing **FUNC** key for more than 2 seconds. Use **SQL** or **UP/DOWN** keys to select menu and rotate the dial to set SCR-ON. Press any key other than **SQL/UP/DOWN** key to enter the setting and exit.

*3.* Turn off the unit with PWR switch. The TX LED will light.

To turn off the alarm function, turn on the unit, enter the Parameter setting mode again, and select SCR-OF. When alarm is activated, the decimal points on 100 MHz and 10kHz order will flash on screen.

*NOTE:*

*1. The alarm function is ON only when the unit is turned off.*
*2. When alarm is activated (SCR-ON or DLY), the ignition key function does not work.*

**Function:**

*1.* When the alarm cable is removed from the DATA jack or cut without using the proper sequence, the alarm sounds for 10 minutes. During the alarm, the unit goes to receive on memory channel 99, according to its pre-programmed setting (TSQ/DCS received).

*2.* When a signal is received on Channel 99, the alarm stops.

*3.* Turning on the unit with SQL key pressed also cancels the alarm.

*4.* Turn the unit off again with the alarm cable connected properly. It returns to the alarm mode.

## 【Operation 2】

Choose this operation when a delay period is desired.

*1.* Enter the Parameter setting mode as described previously and select SCR-DLY.Follow the previous instruction to set.

*2.* Turn off the unit. Display will disappear but the LCD illumination stays on. After 20 seconds TX LED lights up, illumination dims, and alarm functions. The system won't work during the 20-second "DELAY" period.

*3.* The alarm sounds under the same condition as described previously. There is a 20 second delay until the alarm sounds. During the 20-second period,only the display illumination is lit. Turn ON the unit during "DELAY" period to cancel the alarm function.
**Do set SCR-OF during normal operation.**

*NOTE:*

*1. Start alarming, the unit will switch between transmitting and receiving signals per 5 seconds (lasts 1 minute), and then the audio-alarm sounds for 10 minutes.*

*2. Setting and operating this function is same with other models, it allows you to monitor and control alarm far away on memory channel 99.*

# 8. Microphone Operation

## Keys' Instruction
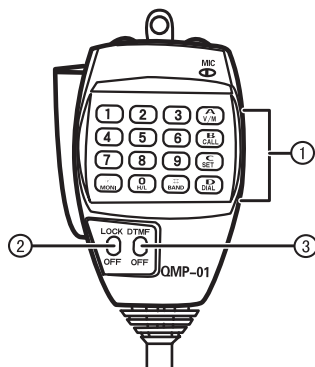


**1.** Dual-audio keypad -- setting functions, inputting VFO frequency or dialing DTMF,etc.

**2.** LOCK/OFF--Key locks (Lightening turns ON/OFF in synchrony).

**3.** DTMF OFF and DTMF keypad switch between dual-audio dialing, functions operating, etc.

## Functions Chart

| Key | Transceiver corresponding key | Function |
|---|---|---|
| 0-9 | — | Input frequency directly and choose memory channel no. |
| A | V/M | Switches between VFO and Memory mode |
| B | CALL | Switch to Call Mode |
| C | Press **FUNC** for more than 2 seconds | Switch parameter setting modes, matches with # key to check the value of DTMF/ANI/2Tone 5Tone |
| D | FUNC + TS/DCS | Program auto dialer values |
| * | Press **SQL** for 1 second | Monitor function |
| # | — | Switch to DTMF/ANI/2-Tone/5-Tone mode |
| 0 | H/L | Switches transmission output among HI, MID and LOW. |

*NOTE:*

*1. Under the Parameter setting mode, press **UP** or **DOWN** to choose menu, press * or # to choose the desired setting, press any other key except *, #, **UP** or **DOWN** to exit the Parameter setting mode.*

*2. Setting the auto dialer, press **UP** or **DOWN** to choose memory channels, input the numbers on the keypad. Press * or # to choose numbers or symbols, press **A** to enter, press **C** to clear, press **B**, **D** or **PTT** key to return to the initial status.*

*3. Only DTMF/ANI/2-TONE/5-TONE mode has been selected, **C** key matches with # key to check the value of DTMF/ANI/2-TONE/5-TONE. In addition, press and hold **FUNC** key for 3 seconds to enter, the value also can be checked by matching with **UP** or **DOWN** key.*

## Inputting Frequencies

Frequencies can be entered directly by pressing the numerical (1~0) keys.

*1.* Set the microphone DTMF OFF to OFF.

*2.* DTMF keys can be used to enter frequencies from 222MHz(Transceiver frequency range: 222-225.0000MHz).
(Ex.)  When want to set 245.500MHz,  correspondingly channel tuning step to input "2", it displays

Input  ② ④ ⑤

$$245.500$$

After inputting "5"and "0", a slightly longer beep is heard and the input is complete.The output frequencies cannot be input.

*3.* Cancelling the entry : Press **PTT**, or any key other than the numerical keys.

*Note:* E market models can directly be input the frequency value through keypad, and only when six digits have been input,a slightly longer beep is heard, and the entry has been complete.

## Choose Memory Channel

In memory channel, press DTMF keypad(1~0) to choose directly.

1. Switch the OFF key on MIC DTMF to the OFF position.

2. (EX.)When you want to choose "1" memory channel, directly press key"1",
it will switch to "1" memory channel after 2 seconds.If the memory channel no. is double-digit, it will directly switch to the desired channel after entering the no.

*NOTE:* Only the programmed memory channels can be chosen.

# 9. Maintenance

## Reset

Resetting the transceiver by returning all programmed setting to default setting. If the trouble continuously appears, this function can solve the problems and return to the normal operation status.

## How To Reset

Press **FUNC** for 3 seconds and power ON the transceiver, all the icons will display on the LCD screen, and then display the default setting.

all icons display on the LCD screen

**NOTE:** All the settings would be initialized, therefore pay more attention on resetting operation.

## Default Setting After Resetting

|  |  | CTCSS Frequency | 88.5Hz |
|---|---|---|---|
| VFO Frequency | 223.500MHz | DCS Setting | — |
| CALL Frequency | 223.500MHz | DCS Code | 023N |
| Memory Channels (0~99) | — | Output Power | HI |
| Offset Direction | — | Key Locked Setting | No Use |
| Offset Frequency | 5MHz | TOT | No Use |
| Channel Stepping | 12.5kHz | APO | No Use |
| CTCSS Setting | — | Squelch Level | 0 |

## Trouble Shooting

If the transceivers malfunctions.check the fauewing chart for trouble shooting.

| Trouble | Shooting Guide |
|---|---|
| Get through, but displays nothing | The battery pole is reversed. Connect the Red lead to positive terminal of the DC power, connect the Black lead to negative terminal. |
| The fuse is bown | Check out the problem and solve, change a new fuse. |
| The screen is too dim | Setting the dimmer LAMP-L to LAMP-H. |
| No sound from the speaker | Decrease the squelch level when it is set to mute. Set the Tone-Burst or DCS squelch function ON. Set OFF the CTCSS/DCS function. |
| The keys and main dial cannot work | Set ON the Tuning-Locked function. Set it OFF. |
| The main keypad couldnot change the memory channel. | The transceiver is on CALL or VFO mode. |
| Press **PTT** but cannot transmit signals | The microphone is installed incorrectly. Please connect correctly again. |

| General Specification | |
|---|---|
| Frequency Range | RX:222.000-225.000Mhz  TX:222.000-225.000Mhz |
| Working Way | 16KOF3E (FM)  11K0F3E  (Narrow band FM) |
| Frequency Rate | 12.5 kHz |
| Number of Channels | 99 channels |
| Antenna Impedance | 50 Ω Imbalance |
| Frequency Stability | ± 5ppm |
| Microphone Impedance | 2 k ohm |
| Regulate Voltage | DC 13.8V  ± 15% (11.7-18.5) |
| Current | Transmit: ≤ 9A<br>Receive: ≤ 600mA |
| Working Temperature | –10°C ~ +60°C (+14° F ~ +140° F) |
| Grounding | Negative |
| Size | 145(W)X47(H)X190(D)mm |
| Weight | about 1.2kg |
| Transmitter | |
| Output Power | 50W (high)<br>25W (medium)<br>1W (low) |
| Modulation | FM |
| Residual Radiation | –60dB or below |
| Max. Fre. Deviation | ± 5KHz, ± 2.5KHz (Narrow band mode) |
| Receiver | |
| Circuit | Double–change Transceiver |
| Sensitivity | –12.0 dBu (0.25μV) or below  12dB SINAD |
| If Frequency | First: 21.7MHz, Second: 450KHz |
| Squelch Sensitivity | –16.0 dBu (0.1μV) |
| Selectivity | >60dB/12.5KHz    >70dB/25KHz |
| Intermodulation | >65dB |
| Audio Power | 2.0 W (8 Ω ,10% distortion) |

# ☞ *Customer's records*

The serial number of this product can be found on its body.
You should note this serial number in the space provided below and retain this book plus your purchase receipt as a permanent record of your purchase to aid an identification in the event of theft of lose,and for warranty service purposes.

MODEL NUMBER: _____

SERIAL NUMBER: _____

We sincerely hope that this manual can bring you convenience! With the development of the technology and the lapse of time, we reserve the right of revision in terms of the standard, technical requirement and all kinds of product specifications referred to in this manual. Please understand if not keeping you informed of the new information.

*Win-Win*

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