

## **TC-102**

# **User Manual**

Please read through this manual carefully before using the TC-102.

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## About The TC-102

The TC-102 is a transmitter-receiver which allow message transmission on 14 channels in UHF. Using the TC-102 does not require any licence, subscription or tax payment. It is a multi-purpose communication device suitable for many circumstances: security control, building sites, leisure, guiding, sport, etc.

It is extremely easy to use, even for children. The TC-102 is to be used together with one or more TC-102.

In this operation manual, the correspondent is another user of TC-102 who communicates with you.

TC-102 is in compliance with Part95 .

## Panel Description

### DRAWING

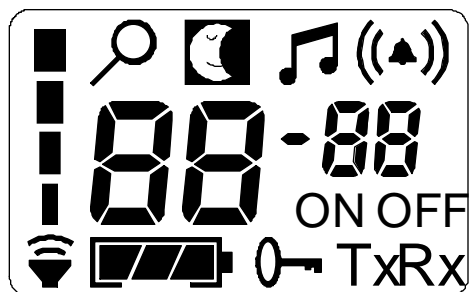
[PTT]	: Push To Talk key
[▲] [▼]	: Selection keys, select frequency channel in standby mode, enable or disable function in function mode.
[MON/LIGHT]	: Press and release the key to toggle the on/off of the LCD back light. Press and hold the key for 1 second to toggle the on/off of the monitor function.
[▲] [▼]	: Volume control keys
[ENTER]	: Confirmation key.
[LAST CHAN]	: Toggle key, press once to go to channel 4. press it again to return to current selected channel.
[FUNC]	: Function key, press this key to enter function selection mode.
[LOCK]	: Lock key, press to lock the [▲][▼][LAST CHAN][FUNC] keys to prevent : accidental change of parameters
[CALL]	: Press to call other parties, alert of tone or vibration or both are activated on other parties.
[O]	: Power on off key, press and hold it for 1 second to turn it on, press and hold it for 1 second again to turn it off.

**Mic & Speaker Jack** : The jack is for connection of external mic/speaker (optional accessory).

**Speaker** : To listen to your correspondent.

**Microphone** : To speak with your correspondent.

## Display Panel



: 2-digit channel number



: 2-digit CTCSS code number



: Scan frequency channel or CTCSS number



: Talk confirmation tone



: Vibration alert



: Tone alert

ON

: Enable function selected

OFF

: Disable function selected



: Battery level indicator



: Volume level indicator



: Key lock enabled

Rx

: Receiving

Tx

: Transmitting

## Battery Care And Precautions

Please read and follow the note below to avoid fire hazards or personal injury:

- Do not expose batteries to open flame or heat source. They could explode. Contact your local authority on disposal of batteries to ensure conformance with prevailing community regulations.
- Do not throw batteries into dustbin. Contact your local authority on disposal of batteries to ensure conformance with prevailing community regulations.
- Do not crush or take battery apart. Leakage of corrosive electrolyte may damage

the eyes and the skin. Swallowing a battery is harmful.

- Do not attempt to recharge the battery provided with the TC-102. Recharging can cause leakage of corrosive electrolyte or explosion.
- Be sure that the poles of each battery are positioned properly in the unit. Inadvertent charging, leakage of corrosive electrolyte or explosion can occur if a battery is installed backwards.
- Remove the batteries from the unit if you do not plan to use the TC-102 for an extended period of time (several months or more) because the batteries may leak electrolyte during this period.
- Do not leave dead batteries in the TC-102 because they may leak electrolyte in the unit.

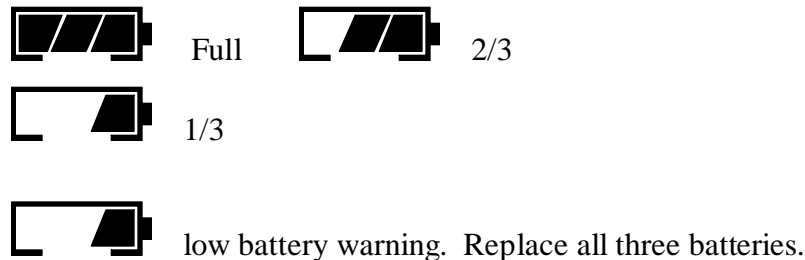
**NB:** Please keep this operation manual carefully for future references.

## Installation Of The Batteries

Drawing

### Battery Level Indicator

4 levels battery indicator for showing the capacity of the battery



### Turn On/Off The TC-102

To turn on the TC-102, press the [ O ] key for 2 seconds. The TC-102 will beep and enter to reception mode.

To turn off the TC-102, press the [ O ] key until the LCD display is cleared.

### Backlight Of LCD Display

The screen will light for 10 seconds whenever the [MON/LIGHT] key is pressed. You can extinguish the backlight by pressing the [MON/LIGHT] key again.

### Set The Main Channel And CTCSS Codes

The TC-102 has 14 main channels and 38 CTCSS codes (CTCSS 00 means no code is checked). You can only communicate the group of correspondent with same main channel and CTCSS code. If your CTCSS code is 00, you can hear all messages of the main channel but other people cannot hear your message if their CTCSS code is not 00.

To set the main channel:

1. Press [▲] or [▼] keys to select your desired main channel.
2. You can press [LAST CHAN] to select channel 07. Press [LAST CHAN] again will switch back to previous channel.

To set the CTCSS code:

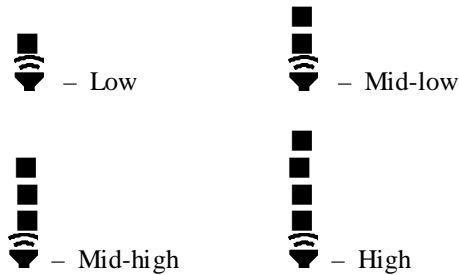
1. Press [FUNC] key and the CTCSS code number will flash.
2. Press [▲] or [▼] keys to select your desired CTCSS code.
3. Press [ENTER] to confirm the selection.

### Listen Or Speak To Your Correspondent

You cannot speak and listen to your correspondent at the same time. While you are speaking, you cannot hear your correspondent.

To listen to your correspondent:

1. Make sure the [PTT] key is not pressed.
2. When your correspondent starts to speak, icon [Rx] will appear.
3. You can adjust the speaker volume by pressing [▲] or [▼] keys, volume icons are shown according to the setting.




To speak to your correspondent:


1. Press and hold the [PTT] key while you speak. The icon [Tx] will appear.
2. When you finish speaking, release the PTT key.

### Call Your Correspondent

Press the [CALL] key, the icon [Tx] icon appears. The TC-102 of your correspondent will beep, vibrate or both, depending on the call alert setting.

### Lock/Unlock Keys

After you have pressed the [LOCK] key, the icon [  ] appears. The [▲], [▼], [FUNC], [LAST CHAN] and [ENTER] keys will not function.

To unlock the keys, press the [LOCK] key again. The icon [  ] will disappear.

### Monitor Mode

Your TC-102 has an Automatic Squelch Circuit to turn off the speaker when there is no receiving message. However, the circuit will reduce the reception ability if the receiving message signal is weak. It is advised to deactivate the circuit if you want to monitor the weak signal.

To deactivate the Automatic Squelch Circuit (monitor mode):


1. Press and hold the [MON/LIGHT] key until the icon [Rx] appears.
2. You will hear noise. This is normal because the circuit will not turn off the speaker even the noise is large.

To activate the Automatic Squelch Circuit again:

1. Press and hold the [MON/LIGHT] key until the icon [Rx] disappears.

### Search The Main Channel


This function enables you to find a main channel used by other people.

1. Press [FUNC] key twice.
2. The icon  appears and the channel number flashes.
3. Press the [ENTER] key to start searching.
4. When your unit finds a main channel which is in use, it will stop at this channel for 10 seconds.
5. You can now stop the searching by pressing the [ENTER] key. The TC-102 will stay at this channel. Otherwise, it will continue to search for another busy channel.

### Search For CTCSS Code




This function enables you to find a matching CTCSS code of a particular main channel.

This function enables you to find a main channel used by other people.

1. Press [FUNC] key three times.
2. The icon  appears and the CTCSS code number flashes.
3. Press the [ENTER] key to start searching.
4. When your unit finds a matching CTCSS code, it will stop at this CTCSS code for 10 seconds.
5. You can now stop the searching by pressing the [ENTER] key. The TC-102 will stay at this code. Otherwise, it will continue to search for another matching code.

### Select Call Alert

This function allows you to set the alert types (beep, vibration or both) when you receive a call.

1. Press [FUNC] key four times.
2. Press the [▲] or [▼] keys to select the desired type of call alert:
  - The icon  indicates a beep alert.
  - The icon  indicates a vibration alert.
  - The icon  indicates a beep and vibration alert.
3. Confirm the selection by pressing the [ENTER] key.

### Set Talk Confirmation Tone

This function allows you to alert yourselves with a beep when your correspondent has finished speaking. You can answer him after the beep tone.

1. Press [FUNC] key five times.
2. The icon  flashes.

3. Press the [▲] or [▼] keys to turn on or off beep tone.
  - The icon [ON] indicates with beep tone.
  - The icon [OFF] indicates without beep tone.
4. Confirm the change by pressing the [ENTER] key.

### Talk Range

Your TC-102 has been designed to maximize the transmission range. It is recommended not to use two units within 1.5 m apart because of interference. The maximum talk range is affected by terrain. In flat and open area, the talk range can be up to 2 km. The range will be reduced if there is obstruct in between.

### Handsfree Use

Your TC-102 can connect an external mic/speaker kit for handsfree use. Simple insert the plug into the mic/speaker jack. The unit has a built in Voice Activated Transmission (VOX) circuit. You speak to the external mic and your voice will activate the transmission without pressing the [PTT] key. Remember to adjust the volume to a comfortable listening level.

### Technical Specifications

Operating Frequency	462.5625 – 462.7125 MHz; 467.5625-467.7125
Channels	14
Channel Spacing	25KHz
CTCSS Code	00 – 38
Power Source	3 x 1.5 V ‘AAA’ Alkaline Battery

### Channel Frequency Table

Channel.	Frequency (MHz)	Channel.	Frequency (MHz)
01	462.5625	08	467.5625
02	462.5875	09	467.5875
03	462.6125	10	467.6125
04	462.6375	11	467.6375
05	462.6625	12	467.6625
06	462.6875	13	467.6875
07	462.7125	14	467.7125



**CTCSS Codes Frequency Table**

Code	Frequency (Hz)	Code	Frequency (Hz)
01	67.0	20	131.8
02	71.9	21	136.5
03	74.4	22	141.3
04	77.0	23	146.2
05	79.7	24	151.4
06	82.5	25	156.7
07	85.4	26	162.2
08	88.5	27	167.9
09	91.5	28	173.8
10	94.8	29	179.9
11	97.4	30	186.2
12	100.0	31	192.8
13	103.5	32	203.5
14	107.2	33	210.7
15	110.9	34	218.1
16	114.8	35	225.7
17	118.8	36	233.6
18	123.0	37	241.8
19	127.3	38	250.3

**CAUTION STATEMENT:**

- To maintain compliance with the FCC's RF exposure guidelines, hold the transmitter and antenna at least 2 inches (5cm) away from your face, and speak in a normal voice. Point the antenna up and away from your face.
- If you were the handset on your body while using the handset accessory, use only the supplied belt clip for this product and when transmitting, take it out of the belt to ensure that the antenna is at least 1 inch(2.5cm) from the body.
- Use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transmitter and changes or modifications not expressly approved by the party responsible for the compliance could void the user's authority to operate the equipment.