ICOM

INSTRUCTION MANUAL

HYBRID IP TRANSCEIVER

# IP730D
# IP740D


INTRODUCTION

1 ACCESSORIES

2 BEFORE USING

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7 FOR YOUR REFERENCE


Icom Inc.

# INTRODUCTION

Thank you for choosing this Icom product.
This product is designed and built with Icom's state of the art technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

# IMPORTANT

**FIRST, CAREFULLY READ INSTRUCTIONS** that is boxed with the transceiver.

**SAVE THIS INSTRUCTION MANUAL—** This instruction manual contains additional important operating instructions for the transceiver.

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- The use of Icom transceivers with any equipment that is not manufactured or approved by Icom.

# Section 1 ACCESSORIES

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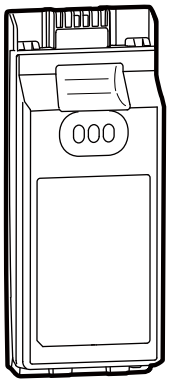
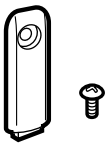
## Supplied accessories

Battery pack



Belt clip

Connector cover and screw



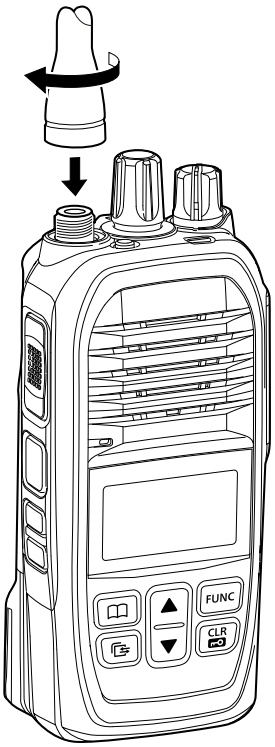
**NOTE:** Some accessories are not supplied, or the shape is different, depending on the transceiver version.

## Attachable accessories

### ◇ Antenna

Connect an optional antenna to the antenna connector.

**CAUTION:**
- **DO NOT** carry the transceiver by holding only the antenna.
- **DO NOT** connect an antenna other than the supplied antenna, or those listed in this manual.
- **DO NOT** transmit without an antenna.



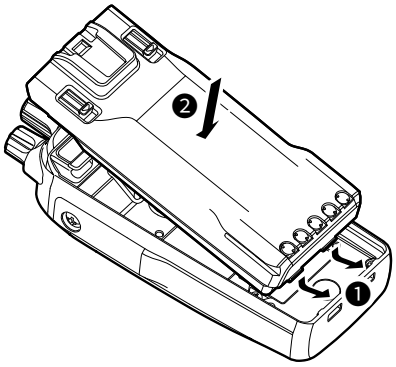
Attachable accessories (Continued)

## ◇ Battery pack/Battery case

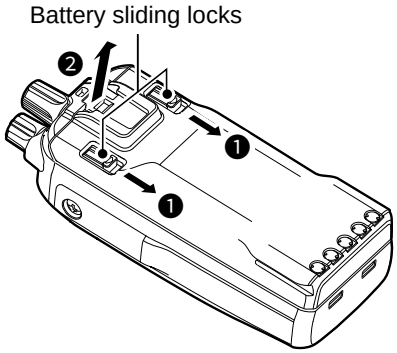
**CAUTION:**
- **DO NOT** attach or detach the battery pack or the battery case when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver, battery pack, or battery case and may damage them.

**CAUTION:** Keep the battery pack terminals clean. It's a good idea to occasionally clean them.

**To attach:**
1. Slide the battery pack in the direction of the arrow. (❶)
2. Push the battery pack until the battery sliding locks make a 'click' sound. (❷)



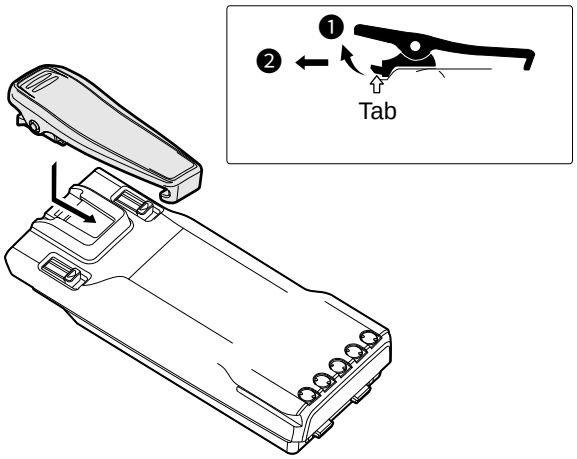
**To detach:**
1. Pull both battery sliding locks in the direction of the arrow. (❶)
2. Lift up to detach the battery pack. (❷)




## ◇ Belt clip

**To attach:**
1. Remove the battery pack from the transceiver, if it is attached.
2. Slide the belt clip in the direction of the arrow until the belt clip is locked and makes a 'click' sound.

**To detach:**
1. Remove the battery pack from the transceiver, if it is attached.
2. Lift the tab up (❶), and slide the belt clip in the direction of the arrow (❷).
   ⓘ Be careful not to break your fingernail.



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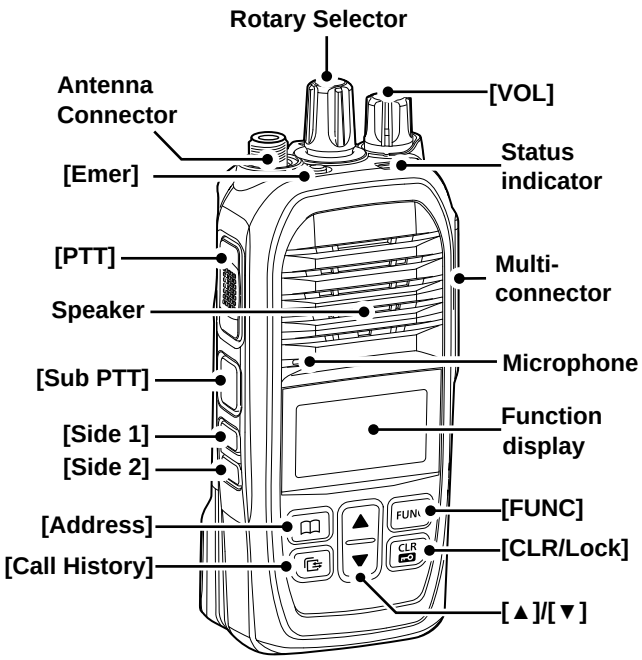
# Panel description

## ◇ Front, top and side panels




## ◇ Status indicator

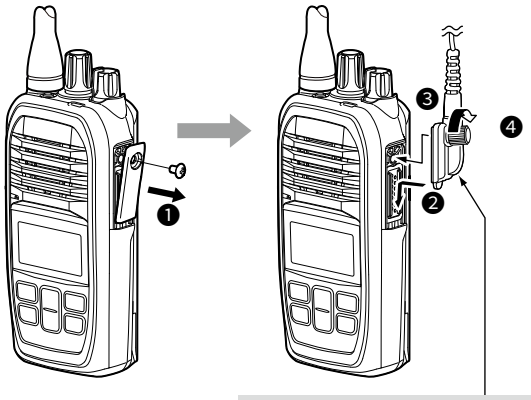
| | |
|---|---|
| • Lights red: | Transmitting. |
| • Lights green: | Receiving or squelch is open. |
| • Lights yellow: | Receiving and transmitting in the Full-Duplex mode. |

## ◇ Multi-connector

Connects to an optional speaker microphone or headset.

ⓘ Turn OFF the transceiver before attaching or detaching the microphone.

**CAUTION: DO NOT** use the transceiver without the connector cover or optional equipment attached. The transceiver meets IP67 requirements for dust-tight and waterproof protection only when the connector cover or the optional speaker microphone is attached. See page 7-4 for the usable speaker microphones.



**CAUTION:** Firmly attach to the Multi connector, but do not overtighten. A loose connection will allow water intrusion into the connector. Over-tightening the connection can damage the transceiver.

## ◇ About the assignable key functions

Functions described on page 5-10 may be assigned to the [Sub PTT], [Side 1], and [Side 2] keys, depending on a presetting. Hold down or push these keys to use the assigned functions.
You can also assign the functions in the Detailed Set mode (p. 6-5).

# Function display

Cellular mode

IDAS mode

## ◇ Cellular mode

| | |
|---|---|
| 4G | Displays the signal strength level by 3 bars.<br>ⓘ The connected network type (4G or 3G) is displayed on the left top. |
| | • Blinks when the transceiver location is out of the service area, or cannot receive a control signal.<br>• Displayed if the transceiver has not been authenticated.<br>ⓘ The connected network type (4G or 3G) is displayed on the left top. |
| | All/Group Call |
| | Talkgroup Call*1 |
| | Individual Call |
| | Phone Call*1 |
| | • Displayed when the Pocket Beep function is ON. (p. 3-8)<br>• Blinks when a call is received. It blinks until the transceiver returns to the standby mode after a received signal disappears. |
| P | Displayed when the P-Bell function is ON. (p. 3-8) |

## ◇ IDAS mode

| | |
|---|---|
| | Displays the relative receive signal strength level. |
| | Displayed when the signal level is low. |
| | All/Group Call |
| | Individual Call |
| | Displayed when the Encryption function is ON. (p. 4-4) |
| H | Displayed*2 when high output power is selected. |
| L1 | Displayed*2 when low output power is selected.<br>ⓘ “L2” is displayed for 2 W, “L1” is displayed for 1 W. |
| R | Displayed*2 when a receive-only channel is selected. |
| | Displayed when the channel is in the audible (unmuted) mode. |

## ◇ Cellular/IDAS mode

| | |
|---|---|
| | • Displayed when the Record function is ON. (p. 5-9)<br>• Blinks while recording audio. |
| | Displayed when Bluetooth is activated. (p. 5-2) |
| | Displayed when a Bluetooth device is connected. (p. 5-2) |
| | Displayed when the Key Lock function is ON. (p. 2-4) |
| VOX | Displayed when the VOX function is ON. (p. 6-3) |
| E | Displayed when the Emergency Call function is ON. (p. 5-5) |
| | Displays the remaining battery charge.<br>: Full<br>: Mid<br>: Charging required<br>: Battery exhausted |
| F | Blinks when the transceiver is downloading a new firmware. |
| | Displayed when the Surveillance function is ON. (p. 5-10) |

*1 May be usable, depending on a presetting.
*2 Blinks when the transceiver temperature becomes hot.

# Basic operation

## ◇ Turning ON the transceiver

**NOTE:** Before using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation. See the BATTERY CHARGING section on the boxed INSTRUCTIONS.

Rotate [VOL] clockwise to the 12 o'clock position to turn ON the transceiver.
ⓘ The dial is made tight for dust and water resistance.
ⓘ To turn OFF the transceiver, rotate [VOL] counter-clockwise until it makes a "click" sound.
ⓘ An opening text may be displayed, depending on a presetting.

## ◇ Adjusting the volume level

Rotate [VOL] to adjust the volume level.
ⓘ The Adjustment screen is displayed while adjusting.

## ◇ Using the Key Lock function

You can use the Key Lock function to prevent accidental channel changes and unnecessary function access, depending on a presetting.
Functions except the following are electronically locked:
[PTT], [Sub PTT], [VOL], [Emer], and the Monitor function.

Hold down [CLR/Lock] for 1 second to turn the Key Lock function ON or OFF.
ⓘ "  " is displayed while the function is ON.

## ◇ Selecting the operation mode

You can select the operating mode, as shown below. See the section or page shown below for instructions on each operation mode.
**Cellular mode: Section 3**
**IDAS mode: Section 4**
**Dual mode: p. 5-11**

**NOTE: About the Repeater (Bridge) mode:**
The Repeater Mode relays received IDAS audio to the cellular transceiver group, while transferring the cellular radio conversations to the IDAS transceiver group. Ask your dealer about the mode details.

1. Push [FUNC] to display the function.
   • The Function screen is displayed.
2. Push [FUNC] to display "Mode Select," if another function is displayed.
   ⓘ You may need to push [FUNC] several times, depending on a presetting.
3. Push [▲] or [▼] to select the operating mode, and then push [Call History].
   • The operating mode is selected and then returns to the Standby screen.

# Section 3 USING THE CELLULAR MODE

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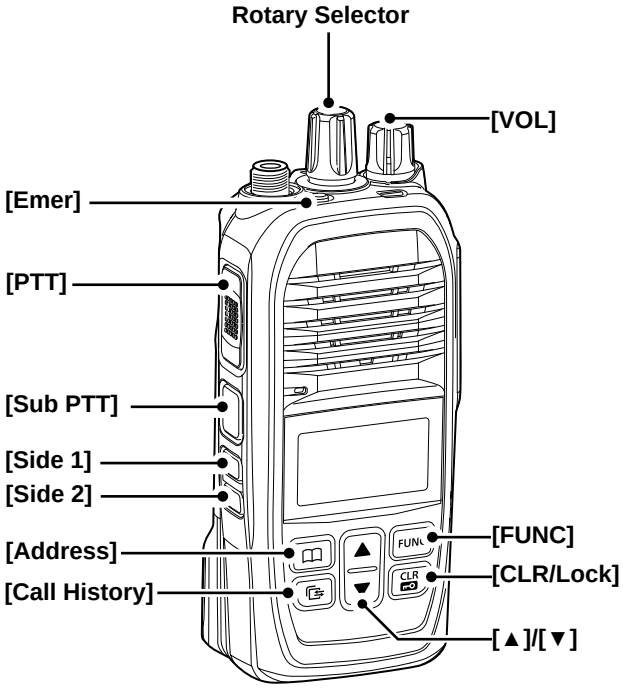
# Basic operation

## ◇ Operating keys




| | |
|---|---|
| **Rotary Selector** | Rotate to select a channel, scroll the screen, or move the cursor. |
| **[Emer]** | Hold down until “Emergency” is displayed to send an Emergency call. (p. 5-5) |
| **[PTT]** | Hold down to transmit, release to receive. |
| **[Sub PTT]**<br>**[Side 1]**<br>**[Side 2]** | Functions may be assigned, depending on a presetting. See page 5-10 for assignable function details. You can also assign functions in the Detailed Set mode (p. 6-5). |
| **[Address]** | • Selects a preset address. (p. 3-3)<br>• Push to toggle the Address Book between the call types. |
| **[Call History]** | • Push to display the call history. (p. 3-6)<br>• Push this key several times to toggle between the Call history types, Transmitted call, Received call, Sent message, Received message, Recording log, and Phone call log.<br>• Hold down for 1 second to playback a selected Recording log. (p. 5-9) |
| **[▲]/[▼]** | Push to scroll the screen, move the cursor, or selecting a channel. |
| **[CLR/Lock]** | • Push to return to the standby screen.<br>• Hold down for 1 second to turn the Key Lock function ON or OFF. (p. 2-4)<br>ⓘ [PTT], [Sub PTT], [VOL], [Emer], and the Monitor function are usable even while the Key Lock function is ON. |
| **[FUNC]** | • Push to display the Function screen.<br>• In the function screen, push several times to select functions such as Operating mode selection, Talkgroup Selection, and so on*.<br>*Selectable function may differ, depending on a Set mode setting. |
| **[VOL]** | • Rotate to turn the transceiver ON or OFF.<br>• Rotate to adjust the audio output level. |

## ◇ Selecting a call-to party

1. Push [Address] to display the Address book.
   ⓘ The Address book is displayed.
2. Push [Address] several times to toggle the call type.
   ⓘ The selectable call type may differ, depending on a presetting.
3. Rotate Rotary Selector or push [▲] or [▼] to select a call-to party.

## ◇ Receiving and transmitting

**Receiving:**
When a Call is received, the Status indicator lights green.

**Transmitting:**
While holding down [PTT], speak at your normal voice level.
ⓘ The Status indicator lights red while [PTT] is pushed.

**Talk while receiving a call:**
While receiving a call, push [PTT] to talk in the Full-Duplex mode* like a telephone call.
ⓘ In the Full-Duplex mode, the Status indicator lights yellow.

* Usability depends on a presetting. Ask your dealer for details.

**IMPORTANT:**
To maximize the readability of your signal:
1. After pushing [PTT], pause briefly before you start speaking.
2. Hold the microphone 5 ~ 10 cm (2 ~ 4 inches) from your mouth, then speak at your normal voice level.

**About the call type:**

| | |
|---|---|
| • All call: | Transmit to all of the transceivers that belong to the network. |
| • Group call: | Transmit to the transceivers that belong to the same group. |
| • Talkgroup call: | Transmit to the transceivers that belong to the same Talkgroup. |
| • Individual call: | Transmit to an individual transceiver. |
| • Telephone call: | Transmit to an IP phone.* |

*Transmittable, depending on a presetting.

**About the Time-out Timer:**
If continuous transmission exceeds the preset Time-Out Timer time, the transmission is cut off. Release [PTT], and then hold down again to resume talking.

# Advanced operation

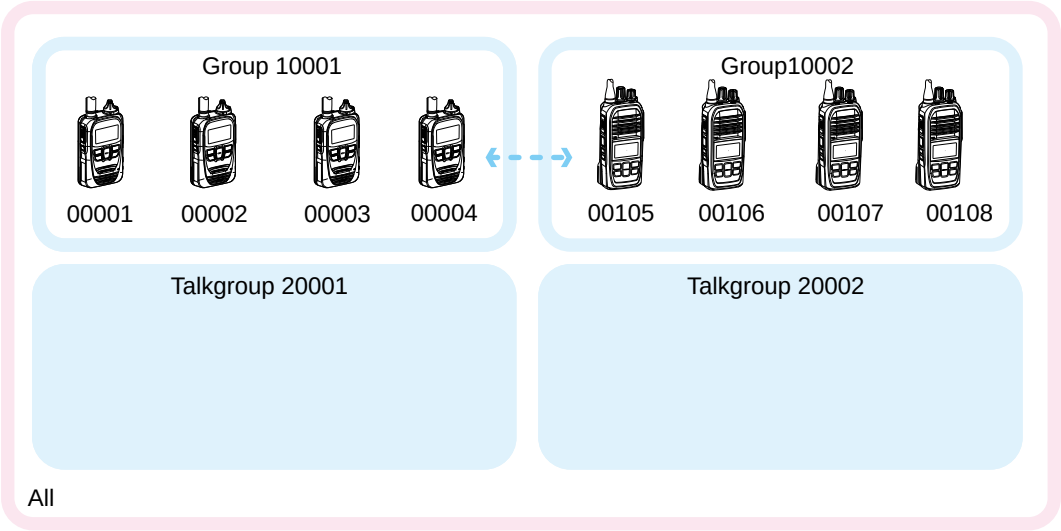
## ◇ About the Talkgroup Call

The Talkgroup Call function enables the user to communicate with call-to parties in the same Talkgroup.
For example, in the illustration below, when the IP730D “00105” in its normal group “10002” selects Talkgroup “20001,” it is excluded from group “10002,” and can communicate with only the transceivers “00004” and “00108” that belong to Talkgroup “20001.”

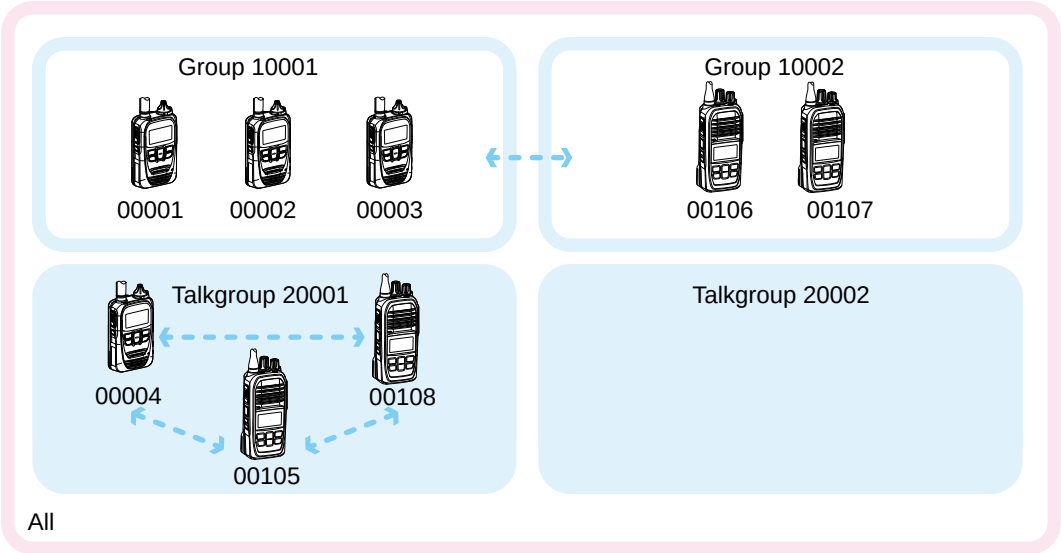
ⓘ This function can be used for only when the Talkgroup number is registered, and the Talkgroup Call function is assigned to a key by your dealer.

ⓘ Ask your dealer about whether or not to include the Talkgroup in the All Call.

When Talkgroup is OFF




When Talkgroup is selected



Advanced operation (Continued)

## ◇ Selecting a Talkgroup number

You can select a Talkgroup number if the Talkgroup Call function is assigned to the [FUNC] key. Ask your dealer for details.

1. Push [FUNC] to display the Function.
   • The Function screen is displayed.
2. Push [FUNC] to display “Talkgroup,” if another function is displayed.
   ⓘ You may need to push [FUNC] several times, depending on a presetting.
3. Rotate Rotary Selector or push [▲] or [▼] to select a Talkgroup number that you want to belong.

4. Push [CLR/Lock].
   • The transceiver is ready to talk to only the transceivers that belong to the same Talkgroup.
   ⓘ While the Talkgroup number is selected, you cannot transmit Normal Group call.
   ⓘ You can leave the Talkgroup and return to the Normal Group by selecting “OFF” in Step 2 on the “Talkgroup” screen.

Advanced operation (Continued)

## ◇ Sending a message (Message Call)

You can send a message, depending on a presetting. Ask your dealer for details.

### 1. Selecting a call-to party

1. Push [Address] to display the Address book.
   • The Address book is displayed.
2. Push [Address] several times to toggle the call type.
   ⓘ Displayed call type may differ, depending on a presetting.

   All → Group → Individual → Telephone

3. Rotate Rotary Selector or push [▲] or [▼]to select a call-to party.

**TIP:** You can also select a call-to party from Call history.
1. Push [Call History] to display the Call history.
   • The Call history is displayed.
2. Push [Call History] several times to toggle the Call history between “Tx log,” “Rx log,” and “TX MSG log.”
   ⓘ The displayed log may differ, depending on a presetting.

   Tx log → Rx log → Tx MSG log → Rx MSG log → Tx Call log → Rx Call log

3. Rotate Rotary Selector or push [▲] or [▼] to select a call-to party.

### 2. Sending a message

**Sending a preset message:**

1. Push [FUNC] to display the Function.
   • The Function screen is displayed.
2. Push [FUNC] to display “Message,” if another function is displayed.
   ⓘ You may need to push [FUNC] several times, depending on a presetting.
3. Rotate Rotary Selector or push [▲] or [▼] to select a message to send.
   • The selected message may scroll, depending on the message length.

4. Push [PTT] to send a message.
   ⓘ “No Response” is displayed if the transmission failed.

Advanced operation (Continued)

## ◇ Browsing received messages

You can browse received messages, depending on a presetting.
Ask your dealer for details.

1. Push [Call History] to display the Call history.
   • The Call history is displayed.
2. Push [Call History] to display “Rx MSG log.”
   ⓘ You may need to push [Call History] several times, depending on a presetting.
3. Rotate Rotary Selector or push [▲] or [▼] to browse received messages.
   ⓘ The selected message may scroll, depending on the message length.

## ◇ Status Call

You can send a Status call depending on a presetting. Ask your dealer for details.

1. Push [FUNC] to display the Function.
   • The Function screen is displayed.
2. Push [FUNC] to display “Status,” if another function is displayed.
   ⓘ You may need to push [FUNC] several times, depending on a presetting.
3. Rotate Rotary Selector or push [▲] or [▼] to select a status.
4. Push [PTT] to send a status.

## ◇ Toggling the SIM card

The transceiver has two SIM card slots, SIM 1 and SIM 2. You can toggle which SIM card to use in the Detailed Set mode.

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [Address] and [FUNC], rotate [VOL] to turn ON the transceiver.
   • The Detailed Set Mode is displayed.
   ⓘ Release the finger from keys when "SET (Detail)" is displayed.

3. Rotate Rotary Selector or push [▲] or [▼] to select an item group "Cellular," and then push [FUNC].

SET(Detail)
SET MODE
Cellular

4. Push [Address] or [FUNC] several times to select "SIM Selection."
5. Rotate Rotary Selector or push [▲] or [▼] to select a SIM card to use.
   ⓘ The SIM card name may be displayed, if it is entered.
6. Push [CLR/Lock] to exit "SIM Selection."
   ⓘ Push [CLR/Lock] again to exit the Detailed Set mode and return to the Standby screen.

SET(Detail)
SIM Selection
Carrier A (SIM1)

**TIP:** You can also push [FUNC] to display the "SIM Selection" screen by enabling the "Show SIM selection" in the Detailed Set mode (p. 6-8).

## ◇ Pocket Beep function

The Pocket beep function sounds a notification tone and indication when a call is received.
ⓘ This function is set by your dealer, or in the Set mode.
ⓘ "  " is displayed when the function is ON.
ⓘ "  " blinks and the notification beep sounds when a call is received. It blinks until the transceiver returns to the standby mode after a received signal disappears.

## ◇ P-Bell function

The P-Bell function sounds the notification tone when a call is received.
A received call is muted until you reply. After pushing [PTT], the mute is released.
ⓘ This function is set by your dealer, or in the Set mode.
ⓘ "P" is displayed when the function is ON.

# Section 4 USING THE IDAS MODE

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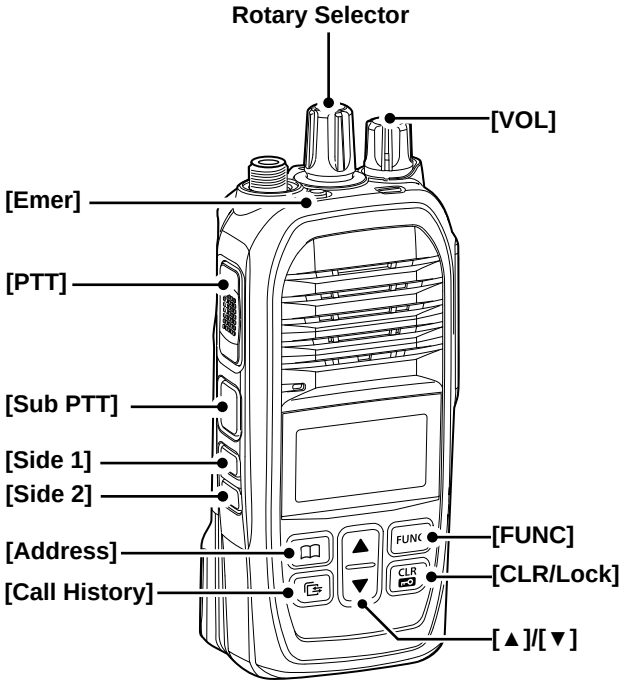
# Basic operation

## ◇ Operating keys




| | |
|---|---|
| **Rotary Selector** | Rotate to select a channel, scroll the screen, or move the cursor. |
| **[Emer]** | Hold down until “Emergency” is displayed to send an Emergency call. (p. 5-5) |
| **[PTT]** | Hold down to transmit, release to receive. |
| **[Sub PTT]**<br>**[Side 1]**<br>**[Side 2]** | Functions may be assigned, depending on a presetting. See page 5-10 for assignable function details. You can also assign functions in the Detailed Set mode. (p. 6-5) |
| **[Address]** | • Push to display the Call-to party selection screen |
| **[Call History]** | • Push to display the call history.<br>• Push this key several times to toggle between the Call history types, Transmitted call, Received call, and Recording Log.<br>• Hold down for 1 second to playback a selected Recording log (p. 5-9). |
| **[▲]/[▼]** | Push to scroll the screen, move the cursor, or selecting a channel. |
| **[CLR/Lock]** | • Push to return to the standby screen.<br>• Hold down for 1 second to turn the Key Lock function ON or OFF. (p. 2-4)<br>ⓘ [PTT], [Sub PTT], [VOL], [Emer], and the Monitor function are usable even while the Key Lock function is ON. |
| **[FUNC]** | • Push to display the Function screen.<br>• In the function screen, push several times to select functions such as Operating mode selection, and so on*.<br>*Selectable function may differ, depending on a Set mode setting. |
| **[VOL]** | • Rotate to turn ON or OFF the transceiver.<br>• Rotate to adjust the audio output level. |

## ◇ Selecting a Zone

Certain channels are grouped together and assigned to a Zone according to their intended use.
For example, Analog channels ‘Station 1’ and ‘Station 2’ are assigned to an “Analog” Zone, and Digital channels ‘Station 3’ and ‘Station 4’ are assigned to a “Digital” Zone.

ⓘ Confirm the that the function to enter the Zone Selection screen is assigned to [Sub PTT], [Side 1], or [Side 2]. You can assign functions in the Detailed Set mode. See page 6-5 for details.

1. Push or hold down the key that is assigned for entering the Zone Selection screen.
2. Rotate Rotary Selector or push [▲] or [▼] select a zone.
3. Push [Call History] to exit the Zone Selection screen and return to the Standby Screen.

## ◇ Receiving and transmitting

**Receiving:**

1. Rotate Rotary selector, or push [▲] or [▼] to select a channel.
   - When a Call is received, the Status indicator lights green.

**Transmitting:**

**CAUTION: DO NOT** transmit without an antenna.

1. Wait until the channel is clear to avoid interference.
2. While holding down [PTT], speak at your normal voice level.
3. Release [PTT] to receive.

**IMPORTANT:**
To maximize the readability of your signal:
1. After pushing [PTT], pause briefly before you start speaking.
2. Hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at your normal voice level.

**NOTE:** You can only transmit at low power in the IDAS mode when using an optional BP-305 battery case and alkaline batteries.

## ◇ Transmitting Notes

**Transmit inhibit function**

The transceiver has several inhibit functions which restrict transmission under the following conditions:

**Lockout function:**
The function inhibits transmission when the channel is busy. However, depending on a presetting, you can transmit when a call is received that includes a non-matching (or matching) CTCSS (DTCS), RAN (Radio Access Number), Individual ID, or Group ID.

**Time-Out Timer:**
If continuous transmission exceeds the preset Time-Out Timer time, the transmission is cut off. Release [PTT], and then hold down again to resume talking.

**Penalty timer:**
After the transmission is cut off by the Time-Out Timer, transmission is further inhibited for a preset penalty period of time.

# Other functions

## ◇ Radio Access Number (RAN)

Radio Access Number (RAN) is a signaling system designed for digital radio communications. When a channel is set up with a RAN, the squelch will open only when a call containing a matching RAN* is received. If a call containing a different RAN is made on the same channel a user is using, a user will not hear the call.

*Depending on the settings, not only RAN but also individual ID or group ID must match.

## ◇ Encryption function

The Encryption function enables voice scrambling, which provides private digital communication between stations.
When an encrypted call is received, the audio is heard only when the call contains a matching Key ID and Encryption key.
If a call containing a different ID is made on the same channel, the squelch will not open, and the user will not hear the call.

Push [Encryption] to toggle the Encryption function ON or OFF.

- “ ” is displayed when the Encryption function is ON.

ⓘ When the Encryption function is ON, push [PTT] to make an encrypted call.

# Section 5 OTHER FUNCTIONS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◇ Pairing with a Bluetooth device.....5-3
◇ Settings for the Bluetooth function.....5-3
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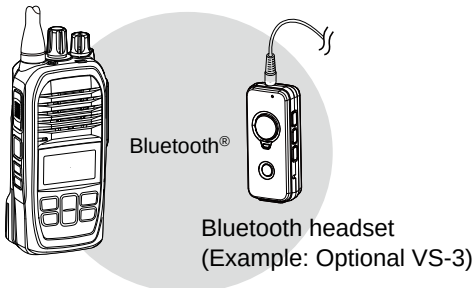
# Using a Bluetooth® device

The transceiver can operate with Bluetooth headsets.
ⓘ Only the VS-3 headset performance is guaranteed as of February 2021.

- The Bluetooth function may not be usable, depending on a presetting. Ask your dealer for details.
- The communication range of Bluetooth is approximately 10 m (33 ft).
  ⓘ May vary, depending on the environment in which the device operates.
- Although you can enter up to 6 Bluetooth devices in the transceiver device list, it is recommended that you pair only one device at a time.

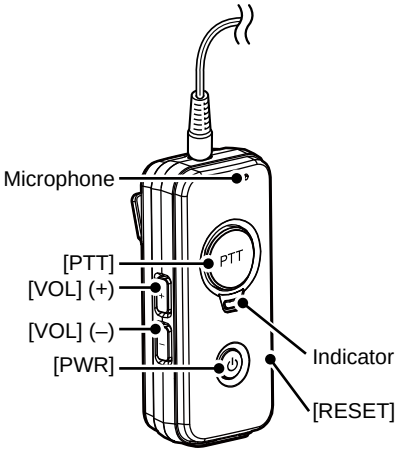
**Electromagnetic Interference**
When you use a Bluetooth device, pay attention to the following:
Bluetooth devices operate in the 2.4 GHz band that is also used by other appliances, such as Wireless LAN products, microwave ovens, RFID systems, amateur radio stations, and so on.
When using a Bluetooth device near such devices, interference may occur, causing a decrease in communication speed, and an unstable connection.
In such case, keep the Bluetooth devices away from the other appliances, or stop using those devices.
Bringing the Bluetooth device and the transceiver closer together also improves communication.




## ◇ About the VS-3 Bluetooth headset

When you connect an optional VS-3 Bluetooth headset to the transceiver, you can wirelessly transmit and receive the headset audio.
The VS-3 has a [PTT] switch, so you can transmit in the same way as using the transceiver's [PTT] switch.

- The [FWD], [RWD], and [PLAY] keys on the VS-3 are disabled while using the headset with the IP730D or IP740D.
- If the headset does not work correctly, even if the power is ON, push [RESET] with a pin to force power OFF.




| Function | | Operation | Beep tone | Indicator |
|---|---|---|---|---|
| **Bluetooth function** | **ON** | Hold down [PWR] for 3 seconds | Melody (up) | Blinks blue |
| | **OFF** | | Melody (down) | OFF |
| **Pairing mode** | **Searching** | While Bluetooth function is OFF, hold down [PWR] for 6 seconds | PiPa-<br>(ready to connect) | Quickly blinks red then blue, every 3 seconds |
| | **Connected** | | PiRo | Blinks blue twice, every 3 seconds |
| **Transmit*1** | | Push [PTT] | Pi*2 | Blinks red once, then blue twice, every 3 seconds |
| **Audio volume** | **Up*1** | Push [VOL] (+) | Pi | – |
| | **Down*1** | Push [VOL] (–) | Boo | – |

*1Functional only when a Bluetooth device is connected.
*2Depends on the Notice Tone settings or "BT PTT Beep" setting in the Set mode.

## ◇ Pairing with a Bluetooth device

This is an example of connecting the transceiver to a VS-3 Bluetooth headset.

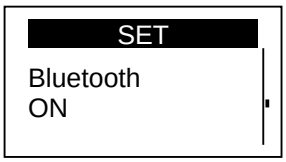
### 1. Entering the VS-3 Pairing mode

1. Confirm the VS-3 is turned OFF.
2. Hold down [PWR] for 6 seconds.
   • The indicator quickly blinks red then blue, and then the headset enters the Pairing mode.

**NOTE:**
• Charge the VS-3 before operating.
• The VS-3 starts up in the Pairing mode when its Bluetooth function is ON, but no bluetooth device is entered in its Pairing list.

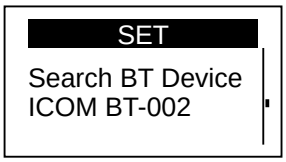
### 2. Enable the transceiver's Bluetooth function

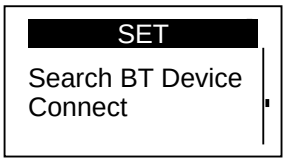
1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC], rotate [VOL] to turn ON the transceiver.
   • The Set Mode is displayed.
   ⓘ Release [FUNC] when "SET MODE" is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group "Common," and then push [FUNC].
4. Push [FUNC] or [Address] several times to select "Bluetooth."
5. Rotate Rotary Selector or push [▲] or [▼] to select "ON."




### 3. Pairing and connecting the Bluetooth device

1. Push [FUNC] several times to select "Search BT Device" in the Set mode, and then push [Call History].
   • The transceiver searches for a Bluetooth device.
   ⓘ Push [CLR/Lock] to cancel searching.
   • If found, the device's name and BD address are displayed on the screen.
   (Example: ICOM BT-002)




2. Push [▲] or [▼] to select the headset to pair and connect, and then push [Call History].
   • "Connect" is displayed when the pairing has completed.

3. Push [CLR/Lock] to exit "Search BT Device."
   ⓘ Push [CLR/Lock] again to exit the Set mode and return to the Standby screen.
   • "  " is displayed if the headset has correctly paired.

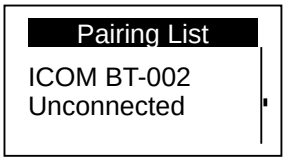
## ◇ Settings for the Bluetooth function

You can customize the transceiver's Bluetooth settings in the Set mode.
See the Set mode section for details.

## ◇ Disconnecting a paired device

You can disconnect a paired Bluetooth device if it is not being used.

1. In the standby screen, push [FUNC] several times to select “Pairing List.”
2. Push [▲] or [▼] to select the device to disconnect, and then push [Call History].
   • “Unconnected” is displayed if the headset or device is correctly disconnected.
   ⓘ Do the same steps to reconnect to the Bluetooth device.



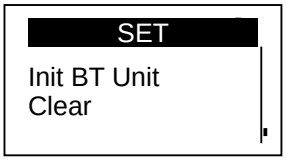

## ◇ Initializing the Pairing lists

If you have problems with Bluetooth operation, initialize the pairing lists, as shown below.

### Initializing the Pairing list of the transceiver

ⓘ All the paired Bluetooth devices are deleted from the Pairing list by the initialization.
ⓘ The Pairing list is not initialized by the RESET function in the Detailed Set mode.

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC], rotate [VOL] to turn ON the transceiver.
   • The Set Mode is displayed.
   ⓘ Release [FUNC] when “SET MODE” is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group “Common,” and then push [FUNC].
4. Push [FUNC] or [Address] several times to select “Init BT Unit.”
5. Rotate Rotary Selector or push [▲] or [▼] to select “Clear.”
6. Push [Call History] to initialize the Pairing Lists.
   • The pairing list is initialized, and the transceiver automatically restarts.




### Initializing the Pairing list of the VS-3

1. Hold down [PWR] on the VS-3 for 3 seconds, to turn ON the Bluetooth function.
   • The indicator blinks blue.
2. Hold down [PWR] on the VS-3 for 3 seconds again, to turn OFF the Bluetooth function.
   • The indicator turns OFF.
3. Within 10 seconds, while holding down both [VOL] (+) and [VOL] (–), hold down [PWR] for 10 seconds.
   • The indicator lights violet, then turns OFF after the pairing list is initialized.

# Using the Emergency call function

You can receive or transmit Emergency Call if the function is enabled.

**Transmitting:**
The instruction is for when the function is enabled. Ask your dealer for details.

1. Hold down [Emer] until “Emergency” is displayed.
   • An alarm periodically sounds.
   ⓘ If the Surveillance function is enabled, no alarm sounds.
2. Wait for an answer-back.
   • When the transceiver receives an answer-back, the alarm stops, and the Status indicator lights green.
   ⓘ Turn OFF the transceiver to cancel the emergency call.
   ⓘ The transceiver automatically transmits a repeat Emergency call until it receives an acknowledgement, or until a user turns OFF the transceiver.

**Receiving:**
1. “Emergency” is displayed and the alarm periodically sounds.
   ⓘ If the Surveillance function is enabled, no alarm sounds.
2. While holding down [PTT], talk into the microphone.
   • While holding down [PTT], the Status indicator lights red.
   • The alarm stops.
   • Returns to the Standby screen when you release [PTT].

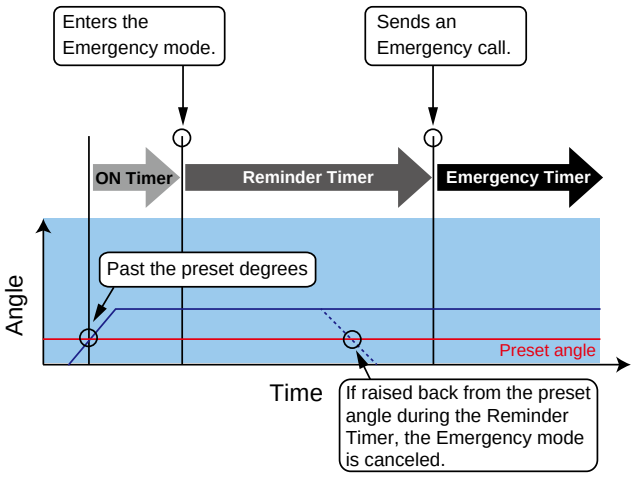
**NOTE:** The Emergency function may not properly work, depending on the surrounding environment such as obstructions, weather condition, and so on. Icom is not responsible for the destruction or damage caused by using the Emergency Call function.

The transceiver enters the Emergency mode through the following functions, depending on a presetting:

## ◇ The Man Down function

When the transceiver is tilted past the preset angle for the ON Timer preset time, the transceiver enters the Emergency mode.

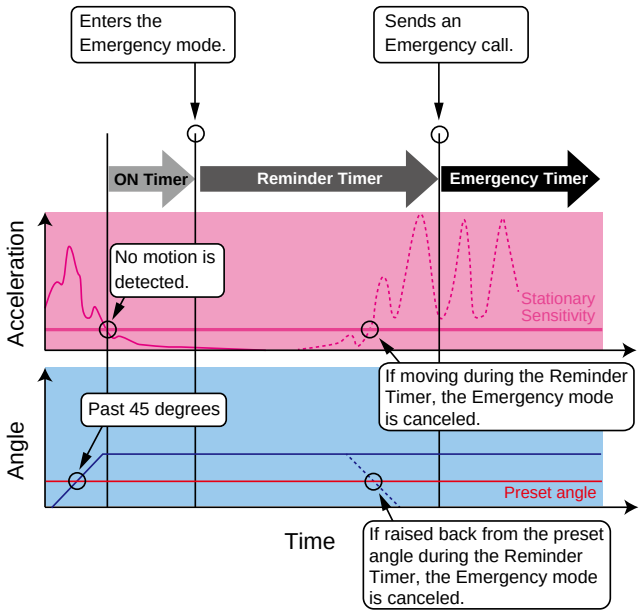
ⓘ If a user raises the transceiver back from the preset angle towards the vertical position before the Reminder Timer set time expires, the Emergency mode is canceled.




**Man Down With Stationary:**

- The transceiver leans past the preset angle for the ON Timer preset time.
  AND
- The transceiver is detected as stationary (no motion) for the ON Timer set time.

ⓘ If a user raises the transceiver back from the preset angle towards the vertical position, or when the user moves the transceiver before the Reminder Timer set time expires, the Emergency mode is canceled.




**NOTE:** The Man down function may not properly work, depending on the surrounding environment such as obstructions, weather condition, and so on.
Icom is not responsible for the destruction or damage caused by using the Man Down function.

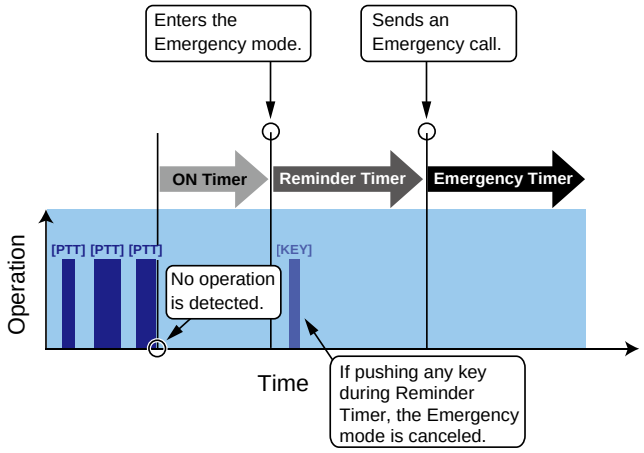
## Using the Emergency Call function (Continued)

The transceiver enters the Emergency mode through the following functions, depending on a presetting:

### ◇ The Lone Worker function

When no operation occurs for the ON Timer preset time.

ⓘ If a user pushes any key before the Reminder Timer set time expires, the Emergency mode is canceled.



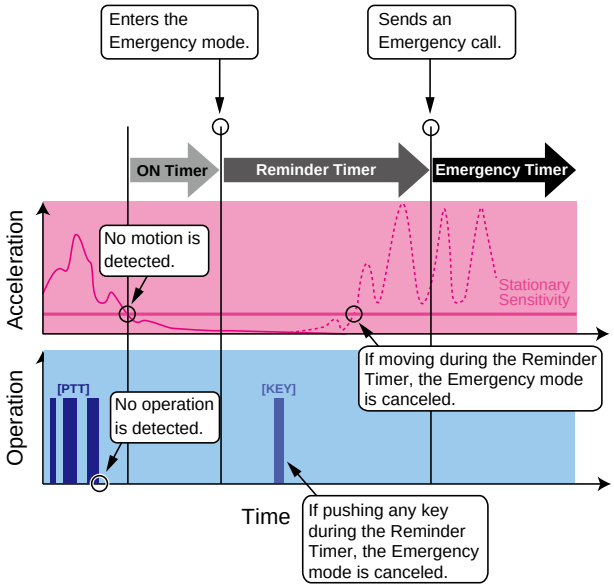

**Lone Worker With Stationary:**

- When no operation occurs for the ON Timer preset time.
  AND
- The transceiver is detected as stationary (no motion) for the ON Timer set time.

ⓘ If a user pushes any key, or moves the transceiver before the Reminder Timer set time expires, the Emergency mode is canceled.

**Example:**

- ON Timer: 60 minutes
- Reminder Timer: 60 seconds




**NOTE:** The Lone Worker function may not properly work, depending on the surrounding environment such as obstructions, weather condition, and so on.
Icom is not responsible for the destruction or damage caused by using the Lone Worker function.

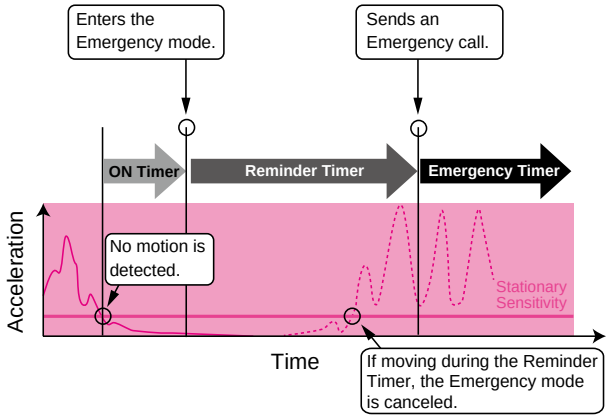
## Using the Emergency Call function (Continued)

The transceiver enters the Emergency mode through the following functions, depending on a presetting:

### ◇ The Stationary Detection function

When the transceiver is detected as being stationary (no motion) for the ON Timer preset time.

ⓘ If a user moves the transceiver during the Reminder Timer set time, the Emergency mode is canceled.

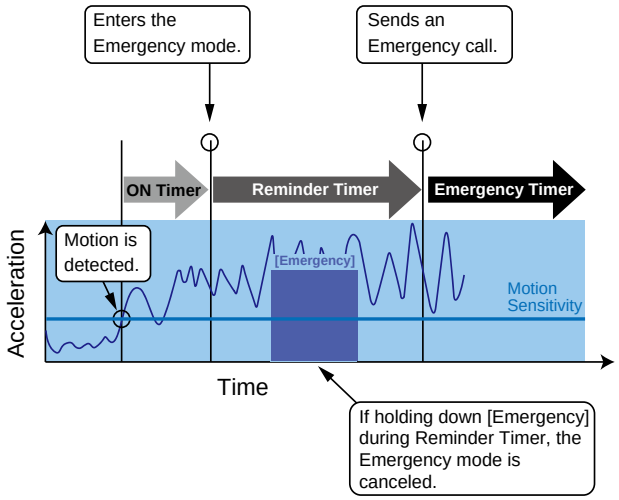



**NOTE:** The Stationary Detection function may not properly work, depending on the surrounding environment such as obstructions, weather condition, and so on.
Icom is not responsible for the destruction or damage caused by using the Stationary Detection function.

### ◇ The Motion Detection function

When the transceiver continuously moves for the ON Timer preset time.

ⓘ If a user holds down [Emer] for the Emer SW OFF Timer (Sec) set time, before the Reminder Timer set time expires, the Emergency mode is canceled.




**NOTE:** The Motion Detection function may not properly work, depending on the surrounding environment such as obstructions, weather condition, and so on.
Icom is not responsible for the destruction or damage caused by using the Motion Detection function.

# Using the Voice Recorder function

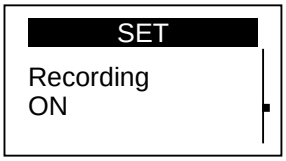
The transceiver can record and playback up to 10 of the latest incoming calls, depending on a presetting.

ⓘ Records up to 4 minutes per call. If a call is longer than 4 minutes, the older will be automatically deleted.
ⓘ The recordable call type may differ, depending on a presetting.
ⓘ A recorded audio data cannot be exported.
ⓘ This function does not record analog audio.

## ◇ Using the Voice Recorder function

### 1. Enable the Voice Recorder function

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC], rotate [VOL] to turn ON the transceiver.
   • The Set Mode is displayed.
   ⓘ Release finger from [FUNC] when “SET MODE” is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group “Common,” and then push [FUNC].
4. Push [FUNC] or [Address] several times to select “Recording.”
5. Rotate Rotary Selector or push [▲] or [▼] to select “ON.”
6. Push [CLR/Lock] to exit “Recording.”
   ⓘ Push [CLR/Lock] again to exit the Set mode and return to the Standby screen.




### 2. Turning ON the Voice Recorder function

1. Push [FUNC] to display the Function.
   • The Function screen is displayed.
2. Push [FUNC] to display “Recording,” if another function is displayed.
   ⓘ You may need to push [FUNC] several times, depending on a presetting.
3. Rotate Rotary Selector or push [▲] or [▼] to select “ON.”
4. Push [CLR/Lock] to return to the Standby screen.
   • “ ” is displayed.

### 3. Playing back the recorded audio

“ ” blinks in the Standby Screen if there is recorded audio that has not been played back.

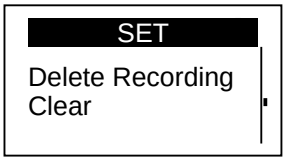
1. Push [Call History] to display the Function.
   • The Call History is displayed.
2. Push [Call History] several times to toggle the Call history from “Tx log,” “Rx log,” “TX MSG log,” “RX MSG log,” or “Recording Log.”
   ⓘ Displayed log may differ, depending on a presetting.
3. Push [▲] or [▼] to select a audio to playback.

   → Tx log → Rx log → Tx MSG log → Rx MSG log → Tx Call log → Rx Call log → Recording log

4. Hold down [Call History] for 1 second to playback the audio.
   ⓘ Push [▲] or [▼] to stop playing back the audio.

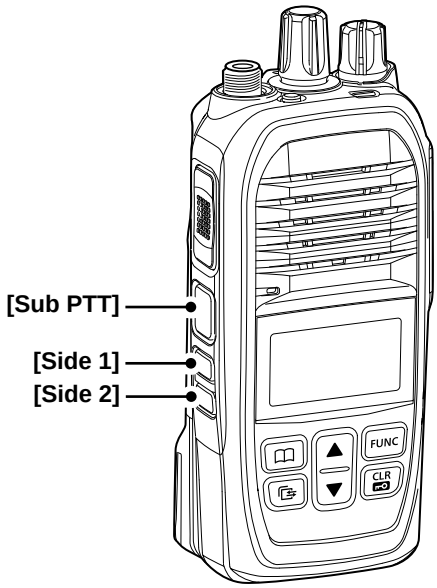
## ◇ Deleting the recorded audio

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC], rotate [VOL] to turn ON the transceiver.
   • The Set Mode is displayed.
   ⓘ Release finger from [FUNC] when “SET MODE” is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group “Common,” and then push [FUNC].
4. Push [FUNC] or [Address] several times to select “Delete Recording.”
5. Rotate Rotary Selector or push [▲] or [▼] to select “Clear.”
6. Push [Call History] to delete the recorded audio.
7. Push [CLR/Lock] to exit “Delete Recording.”
   ⓘ Push [CLR/Lock] again to exit the Set mode and return to the Standby screen.



# Using assignable keys

Functions shown below may be assigned to the [Sub PTT], [Side 1], and [Side 2] keys, depending on a presetting. Hold down or push these keys to use assigned functions.
You can also assign these functions in the Detailed Set mode (p. 6-5).



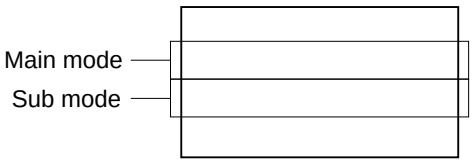

| Function | Descriptions |
|---|---|
| Zone | Enter the Zone* Selection screen.<br>*Certain channels are grouped together and assigned to a Zone according to their intended use. For example, Analog channels 'Station 1' and 'Station 2' are assigned to an "Analog" Zone, and Digital channels 'Station 3' and 'Station 4' are assigned to a "Digital" Zone. |
| Monitor | Turn ON the monitor function.<br>The function turn the squelch mute or the CTCSS (DTCS) squelch mute ON or OFF. |
| Talk Around | Turn ON the Talk Around function.<br>The function equalizes the transmit frequency to the receive frequency, for direct (Simplex) communication. |
| Message | Push to directly display the Message screen.<br>ⓘ The Message screen displayed by the first push differs depending on a presetting. |
| One Touch | Push to directly select particular call-to party.<br>ⓘ The selectable call-to party differs depending on a presetting. |
| Surveillance | Turn ON the Surveillance function.<br>When this function is turned ON, the beep is not heard and the backlight and the Status indicator do not light, even when a signal is received, or a key is pushed. |
| AquaQuake™ | While holding down this key, the AquaQuake water draining function removes water from the speaker grill by vibrating the internal speaker.<br>ⓘ Water in the speaker grill may muffle the sound coming from the speaker.<br>ⓘ After the specified period of time, this function automatically stops, even if a user continues to hold down this key.<br>ⓘ This key works with only the internal speaker. |

# Using the Dual mode

You can use the Cellular mode and IDAS mode at the same time.

## ◇ Main mode and Sub mode

When the Dual mode is selected, the Main mode and Sub mode are displayed as shown to the right.




**Switching the operating mode:**

Hold down [FUNC] for 1 second to toggle the Main mode and Sub mode.

## ◇ Transmitting

Hold down [PTT] to transmit in the Main mode.
Hold down [Sub PTT] to transmit in the Sub mode.

ⓘ You can also simultaneously transmit* in both modes by holding down both [PTT] and [Sub PTT].
*The Status indicator lights yellow.

ⓘ A channel, call to - party, or call type are not selectable in the Sub mode. To select those, switch to the Main mode.

**NOTE:** Functions shown below are not usable in the Dual mode.
- Sending or receiving a message
- VOX function
- P-Bell function

# Section 6 SET MODE

Using the Set mode ..... 6-2
◇ Basic Set mode ..... 6-2
◇ Detailed Set mode ..... 6-2
◇ Using the Set mode ..... 6-2
Set mode items ..... 6-3
◇ Common ..... 6-3
◇ Cellular ..... 6-7
◇ IDAS ..... 6-9

# Using the Set mode

You can use the Set mode to set infrequently changed values or function settings.
The transceiver has 2 types of Set modes, as shown below.
ⓘ You cannot transmit or receive while the transceiver is in the Set mode.

## ◇ Basic Set mode

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC], rotate [VOL] to turn ON the transceiver.
   • The Set mode is displayed.
   ⓘ Release finger from [FUNC] when “SET” is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group “Common,” “Cellular,” or “IDAS,” and then push [FUNC].
   ⓘ Select “Certification” and then push [FUNC] to display certification information.

SET
SET MODE
Common

## ◇ Detailed Set mode

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC] and [Address], rotate [VOL] to turn ON the transceiver.
   • The Detailed Set mode is displayed.
   ⓘ Release finger from [FUNC] when “SET (Detail)” is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group “Common,” “Cellular,” or “IDAS,” and then push [FUNC].

SET(Detail)
SET MODE
Common

## ◇ Using the Set mode

**Example: Disabling the key touch beep.**

1. Turn OFF the transceiver, if it is turned ON.
2. While holding down [FUNC] and [Address], rotate [VOL] to turn ON the transceiver.
   • The Detailed Set mode is displayed.
   ⓘ Release finger from [FUNC] when “SET (Detail)” is displayed.
3. Rotate Rotary Selector or push [▲] or [▼] to select an item group “Common,” and then push [FUNC].
4. Push [FUNC] or [Address] several times to select “Key-Touch Beep.”
5. Rotate Rotary Selector or push [▲] or [▼] to select “OFF.”
6. Push [CLR/Lock] to exit “Key-Touch Beep.”
   ⓘ Push [CLR/Lock] again to exit the Set mode and return to the Standby screen.

SET(Detail)
Key-Touch Beep
OFF

# Set mode items

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ Common

| Item | Description | Option/range | Default |
|---|---|---|---|
| LOG CLEAR | Deletes logs.<br>ⓘ Select "Clear," and then push [Call History] to delete. | – – –, Clear | – – – |
| FIRM UP | Updates the transceiver's firmware.<br>ⓘ Select "YES," and then push [Call History] to update the firmware.<br>ⓘ The transceiver automatically restarts.<br>ⓘ Updating the firmware takes approximately 10 minutes. | NO or YES | NO |
| RX Notify Vol. | Sets the call or message received notification volume. | 0 ~ 32 | 10 |
| Notify Vol. | Sets the Notification Beep level. | 0 ~ 32 | 10 |
| Key-Touch Beep | Selects whether or not to enable the Key-touch beep. | ON or OFF | ON |
| Internal Mic Gain | Sets the internal microphone sensitivity.<br>ⓘ Higher values make the microphone more sensitive to your voice. | –12 dB ~ 12 dB (in 4 dB step) | 0 dB |
| External Mic Gain. | Sets the external microphone sensitivity.<br>ⓘ Higher values make the microphone more sensitive to your voice. | –12 dB ~ 12 dB (in 4 dB step) | 0 dB |
| VOX | Selects whether or not to use the VOX function.<br>The function automatically switches between receive and transmit by detecting your voice. | OFF, Bluetooth Mic, or Earphone Mic/Headset | OFF |
| VOX Threshold*1 | Sets the VOX gain level.<br>ⓘ Lower values make the VOX function more sensitive to your voice. | 1 ~ 10 | 5 |
| VOX Delay*1 | Sets the period of time the transceiver continues transmitting after the user stops speaking, and then the VOX switches to receive.<br>ⓘ If you set the time too short, a pause in a conversation may be regarded as the end of conversation, and the transceiver will start receiving, even as the conversation continues. | 0.5 ~ 3.0 | 1.0 |

*1 Displayed only when "Bluetooth Mic," or "Earphone Mic" is selected in the "VOX" item.

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ Common

| Item | Description | Option/range | Default |
|---|---|---|---|
| Man Down*2 | Selects whether or not to enable the Man Down function.<br>The transceiver enters the Emergency mode when it is tilted past the preset angle for a certain time. (p. 5-6) | OFF or ON | OFF |
| Lone Worker*2 | Selects whether or not to enable the Lone Worker function.<br>The transceiver enters the Emergency mode when no operation occurs for a certain time. (p. 5-7) | OFF or ON | OFF |
| Stationary Detection*2 | Selects whether or not to enable the Stationary Detection function.<br>The transceiver enters the Emergency mode when it is detected as being stationary (no motion) for a certain time. (p. 5-8) | OFF or ON | OFF |
| Motion Detection*2 | Selects whether or not to enable the Motion Detection function.<br>The transceiver enters the Emergency mode when it is continuously moves for a certain time. (p. 5-8) | OFF or ON | OFF |
| Recording | Selects whether or not to enable the Voice Recorder function. (p. 5-9) | OFF or ON | OFF |
| Record Call type*3 | Selects a type of call to record. | Individual Call or All | Individual Call |
| Delete Recording*3 | Deletes recorded audio.<br>ⓘ Select "Clear," and then push [Call History] to delete. | – – – or Clear | – – – |
| Noise Canceller | Selects whether or not to enable the Noise Cancelling function. | ON or OFF | ON |
| PTT Lock | Selects whether or not to enable the PTT function.<br>The function inhibits transmission by the internal PTT. | OFF or ON | OFF |
| Operate Inhibit | Selects whether or not to inhibit the operation except using [VOL]. | OFF or ON | OFF |
| Sub PTT Push*4 | Sets the function to execute when you push [Sub PTT]. | Null, Zone, Monitor, Talk Around, Message, One Touch, or Surveillance | Null |
| Sub PTT Hold*4 | Sets the function to execute when you hold down [Sub PTT]. | Null, Zone, Monitor, Talk Around, Message, One Touch, Surveillance, or AquaQuake | Null |

*2 Displayed only when the Emergency Call function is enabled by your dealer.
*3 Displayed only when "ON" is selected in the "Recording" item.
*4 In Dual mode, transmits in Sub mode regardless of the setting.

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ Common

| Item | Description | Option/range | Default |
|---|---|---|---|
| Side 1 Push | Sets the function to execute when you push [Side 1]. | Null, Zone, Monitor, Talk Around, Message, One Touch, or Surveillance | Null |
| Side 1 Hold | Sets the function to execute when you hold down [Side 1]. | Null, Zone, Monitor, Talk Around, Message, One Touch, Surveillance, or AquaQuake | Null |
| Side 2 Push | Sets the function to execute when you push [Side 2]. | Null, Zone, Monitor, Talk Around, Message, One Touch, or Surveillance | Null |
| Side 2 Hold | Sets the function to execute when you hold down [Side 2]. | Null, Zone, Monitor, Talk Around, Message, One Touch, Surveillance, or AquaQuake | Null |
| Backlight | Selects a Backlight option. | Auto, ON, or OFF | Auto |
| Brightness | Selects a Backlight brightness option. | Light or Dark | Light |
| Contrast | Sets the screen contrast. | 1 ~ 16 | 8 |
| Bluetooth | Selects whether or not to enable the Bluetooth function. (p. 5-2) | OFF or ON | OFF |
| BT Auto Connect*5 | Selects whether or not to automatically connect a Bluetooth device. | OFF or ON | ON |
| BT Sync Vol.*5 | Selects whether or not to synchronize the Bluetooth headset's volume level with the transceiver's volume level.<br>ⓘ When "ON" is selected, the Bluetooth headset volume can be set by rotating [VOL]. | OFF or ON | OFF |
| BT Connect Type*5 | Selects the Synchronous Connection-Oriented (SCO) link*4 connection type of a Bluetooth headset.<br>When "Auto Disconnect" is selected, the SCO link is automatically disconnected after 2 seconds.<br>*4 A Bluetooth link for voice communication.<br>ⓘ This setting is valid only when a Bluetooth device other than a VS-3 is used.<br>ⓘ When this item is set to "Auto Disconnect," the VOX function is not usable. | Always Connect or Auto Disconnect | Always Connect |
| BT PTT & Mic Switch*5 | Enables the user to select which microphone to use.<br>ⓘ When this item is set to "Auto," transmits the audio from the device whose [PTT] is pushed. | Auto, Bluetooth Mic, or Radio Mic | Auto |
| BT AF Output*5 | Selects the AF Output device when a Bluetooth headset is connected. | BT Only or BT & SP | BT Only |
| BT Mic Gain*5 | Sets the Bluetooth microphone sensitivity.<br>ⓘ Higher values make the microphone more sensitive to your voice. | –12 dB ~ 12 dB (in 4 dB step) | 0 dB |

*4 In Dual mode, transmits in Sub mode regardless of the setting.
*5 Displayed only when "ON" is selected in the "Bluetooth" item.

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ Common

| Item | Description | Option/range | Default |
|---|---|---|---|
| BT Echo Canceller*5 | Selects whether or not to enable the Bluetooth headset's Echo Canceller. | ON or OFF | ON |
| BT E-Cancel Gain*5 | Sets the Echo Canceller input gain for a Bluetooth headset. | –40 dB ~ 40 dB | 0dB |
| BT E-Cancel Delay*5 | Sets the Echo Canceller delay for a Bluetooth headset. | 0 milliseconds ~ 160 milliseconds | 70 milliseconds |
| BT Noise Cancel*5 | Selects whether or not to enable the Bluetooth headset's Noise Canceller. | ON or OFF | ON |
| BT Power Save*5 | Selects whether or not to enable the Bluetooth headset's Power Save function.<br>ⓘ When "ON" is selected, the Power Save function automatically activates after 2 minutes of no communication. | OFF or ON | OFF |
| BT One Touch PTT*5 | Selects whether or not to enable the One-Touch PTT function while a Bluetooth headset is connected.<br>The function toggles receiving and transmitting by momentarily pushing [PTT] on a Bluetooth headset.<br>ⓘ Push [PTT] to talk, and push again to return to receive.<br>ⓘ When "ON" is selected, you do not have to hold down [PTT] while you are talking. | OFF or ON | OFF |
| Show BT One Touch PTT*5 | Selects whether or not to display the "BT One Touch PTT" item by pushing [FUNC] on the standby screen. | OFF or ON | OFF |
| BT PTT Beep*5 | Selects whether or not to sound a beep when the [PTT] on the Bluetooth headset is pushed. | OFF or ON | OFF |
| Search BT Device*5 | Searches for Bluetooth devices.<br>ⓘ Push [Call History] to start searching. | Search | Search |
| Delete BT Device*5 | Deletes paired devices. | – | No Device |
| Init BT Unit*5 | Initializes the built-in Bluetooth unit and pairing list. | – – – or Clear | – – – |
| BT Unit Version | Displays the built-in Bluetooth unit version. | – | – |
| RESET | Resets the transceiver to its defaults, except for the Bluetooth pairing list.<br>ⓘ Select "Run," and then push [Call History] to reset.<br>ⓘ The transceiver automatically restarts. | NO or YES | NO |

*5 Displayed only when "ON" is selected in the "Bluetooth" item.

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ Cellular

| Item | Description | Option/range | Default |
|---|---|---|---|
| Success Tone | Selects whether or not to enable the tone that indicates an individual call was successfully transmitted.<br>ⓘ The transmission result is also displayed on the screen. | ON or OFF | ON |
| Failure Tone | Selects whether or not to enable the tone that indicates an individual call failed.<br>ⓘ The transmission result is also displayed on the screen. | ON or OFF | ON |
| Call Tone (IND/ GRP/ALL/ TEL) | Sets the call Initiation tone. | OFF, Tone1 ~ Tone8<br>ⓘ Larger number makes the tone lower. | Tone1 (Pi) |
| Crtsy Beep (IND/GRP/ALL/ TEL) | Sets the call Termination beep. | OFF, Tone1 ~ Tone8<br>ⓘ Larger number makes the tone lower. | Tone1 (Pi) |
| RX Tone (IND/GRP/ALL/ TEL/MSG) | Sets the call Receive tone. | OFF, Tone1 ~ Tone8<br>ⓘ Larger number makes the tone lower. | OFF |
| Notify Type (IND/GRP/ALL/ TEL) | Sets the call receive notification type. | P-Bell or Pocket beep | P-Bell |
| Notify No. (IND/GRP/ALL/ TEL/MSG) | Sets the number of tones. | Continuous (Except for "MSG"), 1, 3, 10, 20 (times) | 3 (times) |
| RX Notify Actn. | Sets the call or message receive notification type. | Tone, Vibration, or Tone + Vibration | Tone |
| Out of Rng Tone | Selects whether or not to enable the Out-of-Area Warning Beep. The beep also sounds when the transceiver reenters the service area. | OFF or ON | OFF |
| Range Side Tone | Selects whether or not to mute the Side Tone when the transceiver is out-of-area. | OFF or ON | OFF |
| Sidetone | Selects whether or not to output your voice to a headset that is connected to the transceiver.<br>ⓘ The function outputs your voice even if you are not holding down [PTT], depending on the attached microphone. (p. 7-5) | OFF or ON | OFF |
| Sidetone Volume*6 | Sets the Side tone volume. | 0 ~ 32 | 10 |

*6 Displayed only when "ON" is selected in the "Sidetone" item.

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ Cellular

| Item | Description | Option/range | Default |
|---|---|---|---|
| Echo Canceller | Selects whether or not to enable the Echo Cancelling function.<br>ⓘ Commonly used for an earphone MIC, and headset.<br>ⓘ This function is not usable when the "Sidetone" is set to "ON." | ON or OFF | ON |
| RX Buffer Type | Sets the Jitter buffer size.<br>ⓘ Jitter buffer reduces audio interruptions. | Dynamic, 40 ~ 480 milliseconds (in 40 milliseconds step) | Dynamic |
| Call Type Stnby | Selects whether or not to display the call-to party (Call type)* on the standby screen.<br>*Preset by your dealer. | ON or OFF | ON |
| One Touch PTT | Selects whether or not to enable the One-Touch PTT function.<br>The function toggles receiving and transmitting by momentarily pushing [PTT].<br>ⓘ Push [PTT] to talk, and push again to return to receive.<br>ⓘ When "ON" is selected, you do not have to hold down [PTT] while you are talking. | OFF or ON | OFF |
| Destination ID | Selects a Destination ID display option.<br>ⓘ If "OFF" is selected, the call-to party (call type) that is preset by your dealer is displayed on the standby screen. | OFF, All Operations, Transmit and Receive, or Transmit | OFF |
| Show SIM Selection | Selects whether or not to display the "SIM Selection" item by pushing [FUNC] on the standby screen. | ON or OFF | ON |
| SIM Selection | Selects a SIM card. (p. 3-8)<br>ⓘ Rotate Rotary Selector or push [▲] or [▼] to select a SIM card, and then push [Call History] to restart the transceiver. | _ _ _* (SIM1)<br>*A SIM card name is displayed, if it is named. | _ _ _ (SIM1) |
| Show Network Select | Selects whether or not to display the "Network Select" item by pushing [FUNC] on the standby screen. | OFF or ON | OFF |
| Network Select | Selects whether or not to automatically select a network carrier. | Auto, Last accessed, or User select | Auto |
| Cellular Unit Version | Displays the internal cellular unit version. | – | – |
| IMEI | Displays the Communication unit's IMEI number. | – | – |
| Phone Number*7*8 | Displays the SIM card's telephone number. | – | – |
| ICCID*8 | Displays the SIM card's ICCID. | – | – |

*7 May not be displayed, depending on the inserted SIM card.
*8 Displays the phone number and ICCID of the SIM card that is selected in the "SIM Selection" item.

The shaded items are also displayed in the Basic Set mode.
ⓘ Items or default values may be differ, depending on the transceiver's version or presettings. Ask your dealer for details.

## ◇ IDAS

| Item | Description | Option/range | Default |
|---|---|---|---|
| SQL Level | Selects whether or not to display the Squelch level adjustment screen by pushing [FUNC]. | ON or OFF | ON |

# Section 7 FOR YOUR REFERENCE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# Speciýcations

ⓘ Measurements made without an antenna.
ⓘ All stated specifications are subject to change without notice or obligation.

## ◇ General

| | | |
|---|---|---|
| • Antenna impedance (For IDAS): | | 50 Ω nominal |
| • Input impedance (MIC): | | 2.2 k Ω |
| • Output impedance (audio): | | 8 Ω |
| • Audio power output: | | |
| | Internal speaker | 1300 mW typical (at 5% distortion into an 8 Ω load) |
| | External speaker | 650 mW typical (at 5% distortion into an 8 Ω load) |
| | HM-222H | 1300 mW typical (at 5% distortion into an 8 Ω load) |
| • Operating temperature range: | | –30°C ~ +60°C (–22ºF ~ +140ºF) |
| • Power supply voltage: | | 7.5 V DC nominal |
| • Current drain (approximately): | | |
| | RX stand-by | 300 mA |
| | RX max. audio | 520 mA (Internal speaker) |
| | TX High (5 W) | 1.8 A |
| • Dimensions: | | 61.7 (W) × 42.8 (D) × 140.5 (H) mm,<br>2.4 (W) × 1.7 (D) × 5.5 (H) in (with BP-303) |
| • Weight (approximately): | | 320 g, 11.3 oz (with BP-303) |

## ◇ 4G (LTE)/3G (W-CDMA)

| | | |
|---|---|---|
| • Frequency band: | | |
| | USA version | LTE Band 2, 4, 12<br>W-CDMA Band 2, 5 |
| | EUR/EXP-02 version | LTE Band 1, 3, 7, 8, 20<br>W-CDMA Band 1, 8 |
| | AUS/EXP-01 version | LTE Band 1, 3, 5, 7, 8, 28<br>W-CDMA Band 1, 5 |
| • Modulation: | | QPSK, 16QAM, 64QAM |
| • Rated output power: | | 0.25 W |
| • Receiver sensitivity (QPSK): | | –95 dBm maximum, –102 dBm typical |

## ◇ IDAS

| | | |
|---|---|---|
| • Frequency range: | IP730D | 136 MHz ~ 174 MHz |
| | IP740D | 350 MHz ~ 470 MHz, 400 MHz ~ 520 MHz |
| • Number of conventional channels: | | 128 ch / 8 Zone |
| • Type of emission: | | |
| | USA version | 11K0F3E (15.0kHz), 4K00F1E, 4K00F1D (6.25 kHz) |
| | EUR/EXP/AUS version | 8K50F3E (12.5kHz), 4K00F1E, 4K00F1D (6.25 kHz) |

## ◇ Transmitter

| | | |
|---|---|---|
| • Rated output power: | | 5 W (High), 2 W (Low 2), 1 W (Low 1) |
| • SAR 10g (W/kg): | IP730D | 0.67 |
| | IP740D | 6.61 |
| • Modulation: | | Frequency modulation, FSK modulation |
| • Frequency error: | | ±1.0 ppm |
| • Spurious emissions: | | |
| | USA/EXP version | 70 dB minimum. 90 dB typical |
| | EUR/AUS version | 0.25 uW (Less than 1GHz),<br>1.0 uW (More than 1GHz) |
| • Adjacent channel power: | IP730D | 60 dB minimum 70 dB typical |
| | IP740D | 60 dB minimum 64 dB typical |
| • FSK Error: | | 5 % maximum, 1 % typical |
| • FM Hum and Noise: | | 34 dB minimum, 60 dB typical (Without CCITT Filter) |

## ◇ Receiver

| | | |
|---|---|---|
| • Sensitivity: | IP730D | |
| | USA/EXP version | 0.32 uV maximum (at 12 dB SINAD)<br>0.22 uV typical (at 12 dB SINAD) |
| | EUR/AUS version | 0.0 dBuVemf maximum (at 20 dB SINAD)<br>–2.0 dBuVemf typical (at 20 dB SINAD) |
| | IP740D | |
| | USA/EXP version | 0.32 uV maximum (at 12 dB SINAD)<br>0.17 uV typical (at 12 dB SINAD) |
| | EUR/AUS version | 0.0 dBuVemf maximum (at 20 dB SINAD)<br>–2.0 dBuVemf typical (at 20 dB SINAD) |
| • Adjacent channel selectivity: | | 60 dB minimum, 67 dB typical |
| • Intermodulation: | IP730D | |
| | USA/EXP version | 70 dB minimum, 74 dB typical |
| | EUR/AUS version | 65 dB minimum, 67 dB typical |
| | IP740D | |
| | USA/EXP version | 70 dB minimum, 72 dB typical |
| | EUR/AUS version | 65 dB minimum, 66 dB typical |
| • Hum and Noise: | | 34 dB minimum, 60 dB typical<br>(Without CCITT Filter) |

## ◇ Bluetooth

| | |
|---|---|
| • Version: | 4.2 |
| • Output power: | Class 2 |
| • Profile: | HFP, HSP |
| • Modulation: | GFSK, π/4-DQPSK, 8DPSK |

# Options

## ◇ Battery pack/Battery case

• **BP-302/BP-303** BATTERY PACK

| Battery pack | Voltage | Capacity | Approximate battery life* |
|---|---|---|---|
| **BP-302** | 7.2 V | 1950 mAh (Minimum)<br>2010 mAh (Typical) | 15 hours |
| **BP-303** | 7.2 V | 3250 mAh (Minimum)<br>3350 mAh (Typical) | 25 hours |

* In the Cellular mode, the operating periods are calculated under the following conditions.
TX : RX : standby = 5 : 5 : 90
The battery life may shorter, depending on the distance with the cellular station or the signal strength.

• **BP-305** BATTERY CASE
Battery case with 5 AA battery cells.

## ◇ Chargers

• **BC-227** DESKTOP CHARGER + **BC-242** AC ADAPTER, **BC-123S** AC ADAPTER, **OPC-515L** DC POWER CABLE
To rapidly charge the battery pack.
Charging time: Approximately 4.4 hours for the BP-303
ⓘ OPC-515L must be purchased separately.

• **BC-226** DESKTOP CHARGER + **BC-228** AC ADAPTER
You can connect up to 6 BC-226 together.
Charging time: Approximately 4.2 hours for the BP-303
ⓘ A power adapter may be supplied, depending on the charger's version.

## ◇ Antennas

• **FA-SC25V/FA-SC28V/FA-SC29V/FA-SC55V**
VHF ANTENNAS
FA-SC25V 136–150 MHz
FA-SC28V 148–162 MHz
FA-SC29V 160–174 MHz
FA-SC55V 150–174 MHz

• **FA-SC26VS/FA-SC27VS/FA-SC56VS/FA-SC57VS**
VHF STUBBY ANTENNAS
FA-SC26VS 136–144 MHz
FA-SC27VS 142–150 MHz
FA-SC56VS 150–162 MHz
FA-SC57VS 160–174 MHz

• **FA-SC61VC** VHF CUT ANTENNAS
FA-SC61VC 136–174 MHz

• **FA-SC01U/FA-SC02U/FA-SC03U/FA-SC25U/FA-SC57U/FA-SC72U**
UHF ANTENNAS
FA-SC01U 350–400 MHz
FA-SC02U 330–380 MHz
FA-SC03U 380–430 MHz
FA-SC25U 400–430 MHz
FA-SC57U 430–470 MHz
FA-SC72U 470–520 MHz

• **FA-SC26US/FA-SC73US** UHF STUBBY ANTENNAS
FA-SC26US 400–450 MHz
FA-SC73US 450–490 MHz

• **FA-SC61UC** UHF CUT ANTENNAS
FA-SC61UC 380–520 MHz

• **FA-SC62V/FA-SC63V** HIGH GAIN ANTENNAS
FA-SC62V 155 MHz
FA-SC63V 160 MHz

## ◇ Others

• **MB-136, MB-133** BELT CLIP
• **MB-96F, MB-96FL, MB-96N** BELT HANGERS
• **LC-195** CARRYING CASE + **MB-57L** SHOULDER STRAP
• **VS-3** Bluetooth® HEADSET
The Bluetooth headset with a [PTT] switch.

• **VS-4MC/VS-5MC*** PTT SWITCH CABLE + **HS-94, HS-95, HS-97** HEADSET
VS-5MC: Used to connect a headset to a transceiver.
HS-94: Ear-hook type
HS-95: Neck-arm type
HS-97: Throat microphone
* Non-waterproof

• **HM-184, HM-222, HM-222H, HM-236** SPEAKER MICROPHONE
HM-184, HM-236: Meets IP67 waterproof protection.
HM-222: Meets IP68 waterproof protection.
HM-222H: Loud speaker version of the HM-222.

• **HM-163MC** TIEPIN TYPE MICROPHONE
• **HM-238MC** TIEPIN TYPE MICROPHONE
With a [Sub PTT] switch.

• **HM-245T** DTMF SPEAKER MICROPHONE
With a Ten-Keypad used for sending DTMF codes.
Meets IP67 waterproof protection.

• **EH-15B** EARPHONE, **SP-26** TUBE EARPHONE, **SP-28** EAR HOOK TYPE EARPHONE
For use with the HM-163MC or HM-238MC

• **SP-27** TUBE EARPHONE, **SP-29** EAR HOOK TYPE EARPHONE, **SP-40** EARPHONE + **AD-135** EARPHONE ADAPTER
AD-135: Used to connect an earphone to the transceiver's Multi-connector.

• **CP-23L** CIGERETTE LIGHTER CABLE
Used when charging a battery pack through a cigerette lighter socket.

## ◇ Using the BC-227

Charging time: approximately 4.4 hours for the BP-303.

**CAUTION:** Before using the charger, read the 'Battery caution' and 'Charging caution' on the INSTRUCTIONS that boxed with the transceiver.

**Status indicator**

| Light color | Status |
|---|---|
| Orange | Charging |
| Green | Charging is completed. |
| Blinks orange and green | Charging failed. It may have some problems. |

**NOTE:**
- The transceiver MUST be turned OFF while charging. Otherwise:
  - The battery will not be charged properly.
  - The battery life may be shortened.
- 6