ICOM

INSTRUCTION MANUAL

VHF TRANSCEIVER

IC-V3MR

Icom Inc.

INTRODUCTION

Thank you for choosing this Icom product. This product was 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 provided with the transceiver.
READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL— This instruction manual contains important operating instructions for the IC-V3MR.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ **DANGER!**	Personal death, serious injury or an explosion may occur.
⚠ **WARNING!**	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:

- Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightning, other natural disasters, disturbances, riots, war, or radioactive contamination.
- The use of Icom transceivers with any equipment that is not manufactured or approved by Icom.

PRECAUTIONS

⚠ **DANGER! NEVER** operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere. This could cause an explosion and death.

⚠ **WARNING! NEVER** use or charge Icom battery packs with non-Icom transceivers or non-Icom chargers. Only Icom battery packs are tested and approved for use with Icom transceivers or charged with Icom chargers. Using third-party or counterfeit battery packs or chargers may cause smoke, fire, or cause the battery to burst.

⚠ **WARNING! NEVER** hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting.

⚠ **WARNING! NEVER** operate the transceiver with earphones, a headset, or other audio accessories at high volume levels. The continuous high volume operation may cause a ringing in your ears. If you experience the ringing in your ears, reduce a volume level or discontinue use.

CAUTION: DO NOT use or leave the transceiver in excessively dusty environments. This could damage the transceiver.

CAUTION: DO NOT short the terminals of the battery pack. Shorting may occur if the terminals touch metal objects such as a key, so be careful when placing the battery packs (or the transceiver) in bags, and so on. Carry them so that shorting cannot occur with metal objects. Shorting may damage not only the battery pack but also the transceiver.

CAUTION: DO NOT change the internal settings of the equipment. This may reduce equipment performance and/or cause extensive and expensive damage to the equipment. The equipment warranty does not cover any problems caused by unauthorized internal adjustments.

CAUTION: DO NOT operate the transceiver unless the flexible antenna, battery pack, and jack cover are securely attached to the transceiver and that the antenna and battery pack are dry before attachment. Exposing the inside of the transceiver to dust or water will result in serious damage to the transceiver.

CAUTION: DO NOT operate the transceiver while driving a vehicle. Safe driving requires your full attention—anything less may result in an accident.

CAUTION: DO NOT use harsh solvents such as Benzine or alcohol when cleaning. This could damage the equipment surfaces. If the surface becomes dusty or dirty, wipe it clean with a soft, dry cloth.

NOTE: DO NOT use or leave the transceiver in areas with temperatures below –30°C (–22°F) or above +60°C (+140°F), or in areas subject to direct sunlight, such as the dashboard.

DO NOT push PTT unless you actually intend to transmit.

KEEP the transceiver away from heavy rain and never immerse it in water. The transceiver meets IP54* requirements for dust-protection and splash resistance.
However, once the transceiver has been dropped, dust-protection and splash resistance cannot be guaranteed due to the fact that the transceiver may be cracked or the waterproof seal damaged, and so on.
* Only when the battery pack and jack cover are attached.

NEVER place the transceiver in an insecure place to avoid inadvertent use by unauthorized persons.

BE CAREFUL! The transceiver may become hot after continuously transmitting for long periods of time.

Even when the transceiver power is OFF, a slight current still flows in the circuits. Remove the battery pack from the transceiver when not using it for a long time. Otherwise, the installed battery pack or batteries will become exhausted, and will need to be recharged or replaced.

SAFETY TRAINING INFORMATION

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

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

- FCC KDB Publication 447498 D03, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- American National Standards Institute (C95.1-2019), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 0 Hz to 300 GHz.
- American National Standards Institute (C95.3-2002), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields– RF and Microwave.
- The antenna, battery, belt clip, speaker-microphone, and other accessories that are listed in "OPTIONS" on this instruction manual, are authorized for use with this product. Use of accessories other than those specified may result in RF exposure levels exceeding the FCC requirements for wireless RF exposure.

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

- **DO NOT** operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio.
- **DO NOT** transmit for more than 50% of the total radio use time ("50% duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the status indicator lights red. You can cause the radio to transmit by pushing the "PTT" switch.
- **ALWAYS** keep the antenna at least 2.5 cm (1 inch) away from the body when transmitting, and only use the Icom belt-clip listed in "OPTIONS" on this instruction manual when attaching the radio to your belt, or other place, to ensure FCC RF exposure compliance requirements are not exceeded.

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

Electromagnetic Interference/Compatibility

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

Occupational/Controlled Use

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

FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications to this transceiver, not expressly approved by Icom Inc., could void your authority to operate this transceiver under FCC regulations.

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

- **DO NOT** operate or adjust all controls, adjustments, and switches without resulting in a violation of the FCC rules.
- **DO NOT** replace any transmitter components such as crystal, semiconductor, and so on. It could result in a violation of the FCC rules.

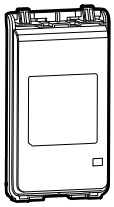
Adjustment of this radio should be performed by or under the immediate supervision and responsibility of Icom Inc. or:

- A person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services.
- Services by an organization or committee representative of the private land mobile services user.
- Since FCC Part 95.2725 requires monitoring the channel before transmit, Lock-out (Busy lockout) must be enabled if Moni (Monitor) button was disabled.

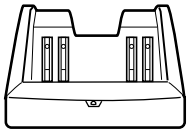
Section 1 ACCESSORIES

Supplied accessories

Battery pack (BP-298)

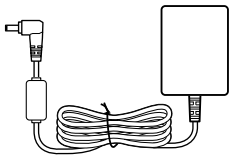


Battery charger (BC-240)

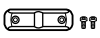


Belt clip (MB-124)

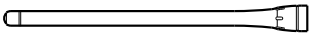
Power adapter (BC-242)



Jack cover (with screws)



Flexible antenna (FA-SC28V)

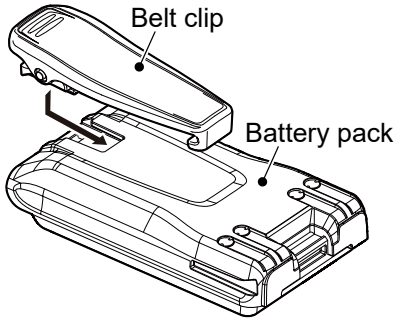


NOTE: Some accessories may not be supplied, or the shape may differ, depending on the transceiver version.

Belt clip

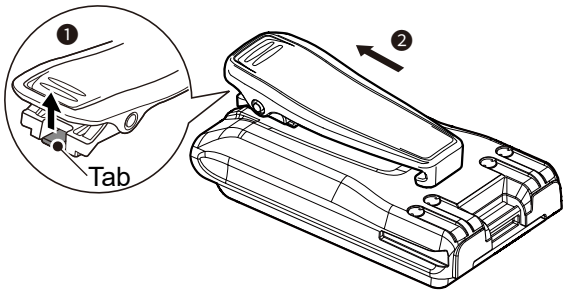
Attaching:

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.



Detaching:

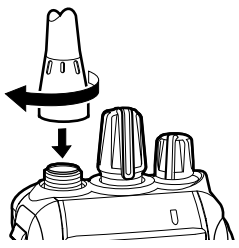
- Lift the tab up (❶), and slide the belt clip in the direction of the arrow (❷).



BE CAREFUL! DO NOT break your fingernail.

Flexible antenna

Connect the antenna to the antenna connector.



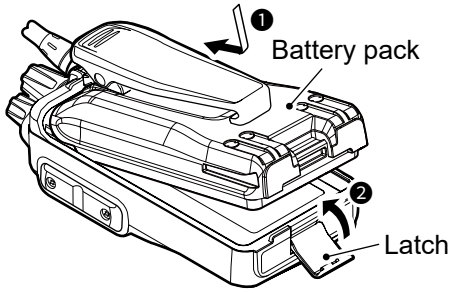
CAUTION:

- **DO NOT** carry the transceiver by holding only the antenna.
- **DO NOT** connect an antenna other than the specified antenna.
- **DO NOT** transmit without an antenna.

Battery pack

Attaching:

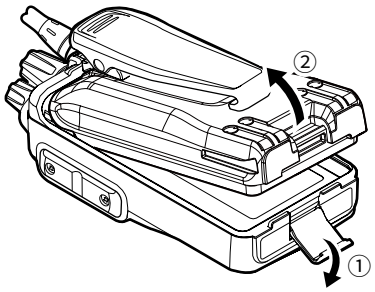
1. Insert the battery pack in the direction of the arrow (❶), and then close it.
2. Hook the latch until it makes a 'click' sound (❷).



Detaching:

⚠ **WARNING!** The latch is tightly locked, so use caution when releasing it. **DO NOT** use your fingernail. Use the edge of a coin or screwdriver tip to carefully release it.

- Unhook the latch (①), and then lift up the battery pack in the direction of the arrow (②).



CAUTION: NEVER remove or attach the battery pack when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver or the battery pack, and may result in them being damaged.

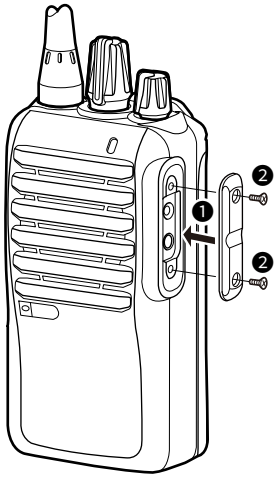
NOTE: Keep battery terminals clean. It's a good idea to occasionally clean them.

Jack cover

Attach the jack cover when optional equipment is not used.

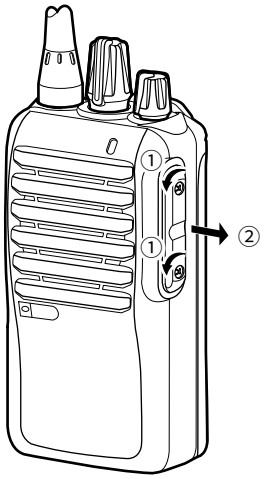
Attaching:

1. Attach the jack cover to the [SP MIC] jack (❶).
2. Tighten the screws (❷).



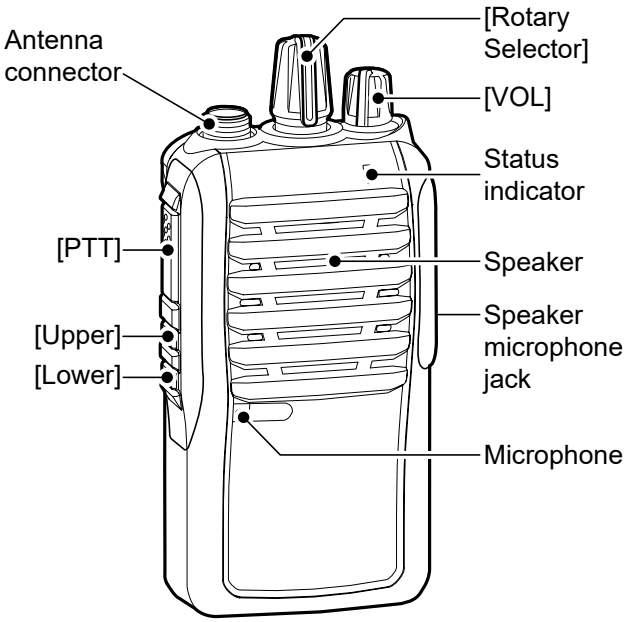
Detaching:

1. Remove the screws with a Phillips screwdriver (①).
2. Detach the jack cover to connect the optional equipment (②).



Section 2 PANEL DESCRIPTION

Front, top and side panels



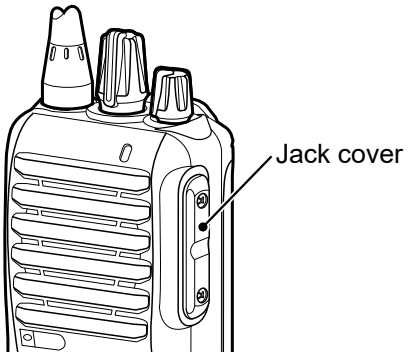
◇Status indicator

- Lights red: Transmitting.
- Lights green: Receiving or squelch is open.
- Lights or blinks orange: A matching signal is received, depending on the presetting.

ⓘ Refer to the Status indicator section. (p. 2-3)

◇Speaker microphone jack

Connect the optional speaker microphone or VOX adapter cable.



CAUTION: DO NOT use the transceiver without the jack cover or the optional equipment attached.
The transceiver meets IP54 requirements for dust-protection and splash resistance only when the battery pack and jack cover are attached.

◇About the Software Key functions

Dealers can assign Software Key functions to the [Upper] or [Lower] keys. See page 2-4 for details.

The following Software keys are assigned to default:

Key	Assigned Software
[Upper]	Push to turn the Monitor function ON or OFF.
[Lower]	No function is assigned to default.

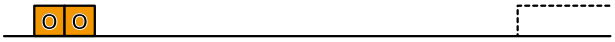
Status indicator

The Status indicator indicates the status of various parameters of the transceiver, as described below.
(Reference: R=Red, G=Green, O=Orange)

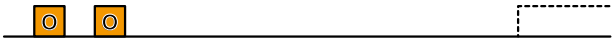
- TX:
  Lights while transmitting.

- RX:
  Lights green while receiving a signal.

- Call LED (ON):
  Blinks about once every second when the specified signal is received.



- Call LED (Blink):
  Blinks about twice every second when the specified signal is received.



- Fast/Slow scan:
  Slowly blinks green while scanning for a channel with a signal.

- Low Battery 1
  Blinks slowly when you should charge the battery soon.

- Low Battery 2
  Blinks fast when you should charge the battery soon.

- TX low Battery 1:
  Blinks while detecting a low battery while transmitting.

- TX low Battery 2:
  Blinks while detecting a very low battery while transmitting.

- Channel Error:
  Continuously blinks red and orange when you select a blank channel or an unlocked channel.

Assignable Software Key functions

Disable
Set to disable the key.

NOTE: This key function is assignable to only [Ext. Emer].

Null
No function.

Scan Start/Stop
Push to start or cancel a scan.
When the Power ON scan function is turned ON, push to pause the scan. The paused scan resumes after the Auto Reset timer period ends.

Prio A, Prio B
Push to select the Priority A or Priority B channel.

Prio A (Rewrite), Prio B (Rewrite)
- Push to select the Priority A or Priority B channel.
- Hold down for 1 second to assign the operating channel to Priority A or Priority B channel, respectively.

Moni*2
- Push to turn the CTCSS (DTCS) or 2-tone squelch mute ON or OFF.
  While pushing this key, the transceiver opens any squelch, or deactivates any mute.
- Depending on the presetting, hold down for 1 second to cancel the scan.

CAUTION: Since FCC Part 95.2725 requires monitoring the channel before transmit, Lockout (Busy lockout) must be enabled if Moni (Monitor) button was disabled.

Lock
Hold down for 1 second to turn the Key Lock function ON or OFF.
ⓘ Even when the lock function is activated, [Moni*2], [Call] (Including [Call A] and [Call B]), [Emergency], [Surveillance] and [Lone Worker] are not locked.

Lone Worker
- Push to turn OFF the Lone Worker function.
- Hold down for 1 second to turn ON the Lone Worker function.
  ⓘ If no operation occurs during the specified period, the Emergency function is automatically turned ON.

NOTE: To use the Lone Worker function, set the related settings using the programming software.

High/Low
Push to select the transmit output power level temporarily, or permanently, depending on the presetting.

DTMF Autodial
Push to transmit a DTMF code.

Call, Call A (Code 1), Call B (Code 2)
Push to transmit a 2-Tone code.

Emergency
- Hold down during the Emer SW ON timer period to turn ON the Emergency function.
- Hold down during the Emer SW OFF timer period to cancel the Emergency function, before transmitting an Emergency call.

NOTE: Set the related settings using the programming software.

Surveillance
- Push to turn OFF the Surveillance function.
- Hold down for 1 second to turn ON the Surveillance function.
  When this function is turned ON, the beep is not heard and the status indicator does not light, even when a signal is received, or a key is pushed.

Siren
Hold down for 1 second to emit a siren sound.
This function can be used for situations other than an emergency alert, such as a security alarm, for example.
ⓘ The transceiver emits the siren sound until the transceiver is turned OFF.

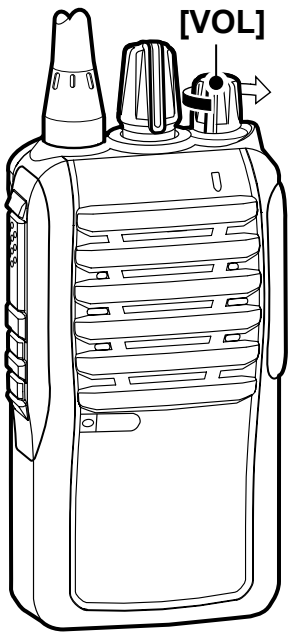
Sp. Func 1, Sp. Func 2
Sp. Func 1 and Sp. Func 2 are reserved.

Section 3 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 “BATTERY CHARGING.” (p. 5-1)

- Rotate [VOL] to turn ON the transceiver.



◇Adjusting the audio level

- When receiving a call, rotate [VOL] to adjust the audio output level.

Selecting a channel

◇Selecting an operating channel

- Rotate [Rotary Selector] to select an operating channel.

<Power ON Scan operation>
Depending on the presetting, when the transceiver is turned ON, a scan automatically starts. The scan stops when a call is received.

NOTE: When the Power SW ON function is turned ON, the Priority A channel is selected each time the transceiver is turned ON. In this case, the transceiver does not start scanning when it is turned ON.

ⓘ To turn ON the Power SW ON function, set the following setting to “Enable” using the programming software.
Common > Key & Display > Move to Prio A CH > **Power SW ON**

◇Default frequencies chart

Channel	Frequency (MHz)	CTCSS Tone (Hz)	Band Width	TX PWR (W)
Ch 1	151.820	67.0	Narrow	2
Ch 2	151.880			
Ch 3	151.940			
Ch 4	154.570		Wide	
Ch 5	154.600			

ⓘ Channel 6 to 16 are not programmed by default. Ask your dealer for details.

◇Selecting the Priority A or B channel

- Push [Prio A], [Prio A (Rewrite)], [Prior B], or [Prio B (Rewrite)] to select the Priority A or Priority B channel.

◇Rewriting the Priority A or B channel

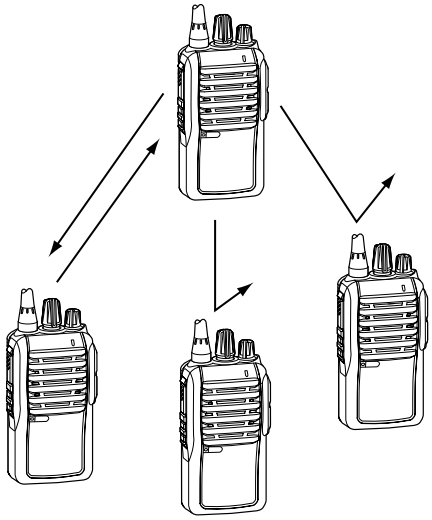
- Hold down [Prio A (Rewrite)] or [Prio B (Rewrite)] for 1 second to set the currently selected channel as the Priority A or B channel.

Call procedure

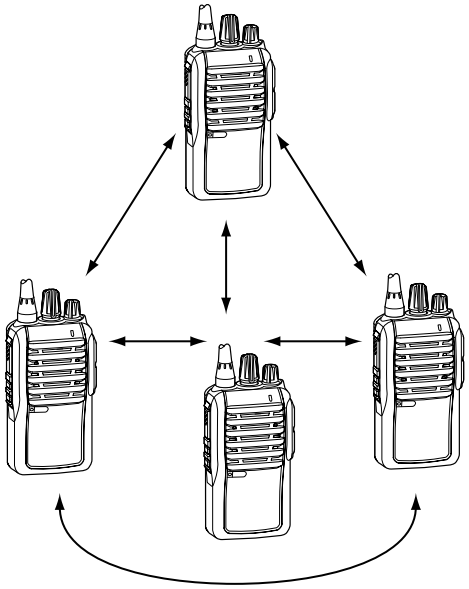
When your system uses tone signaling (except CTCSS and DTCS), a call procedure may be necessary prior to voice transmission. The tone signaling employed may be a selective calling system, enabling you to call only specific stations and prevent unwanted stations from contacting you.

1. Select a channel according to your system operator's instructions.
   ⓘ This may not be necessary, depending on the presetting.
2. Push [Call].
3. After transmitting, the remainder of your communication can be carried out in the normal way.

Selective calling



Non-selective calling



Receiving and transmitting

CAUTION: DO NOT transmit without an antenna.

◇Receiving

1. Rotate [Rotary Selector] to select a channel.
2. When receiving a call, rotate [VOL] to adjust the audio output level to a comfortable listening level.

NOTE:
- Push [Upper] to listen on the channel, to confirm that no one is operating on the channel before transmitting.
- Depending on the presetting, the transceiver may automatically transmit the microphone audio for the preset period of time when a matched 2-Tone signal is received (Auto TX function).

◇Transmitting

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.

◇Transmitting notes

Transmit inhibit function
The transceiver has several inhibit functions which restrict transmission under the following conditions:
- The channel is busy.
- A signal with an un-matched (or matched) CTCSS (or DTCS) tone is received.
- The selected channel is a ‘receive only’ channel.

Time-Out Timer
If continuous transmission exceeds the specified Time-Out Timer time, the transmission is cut off.

Penalty timer
After the Time-Out Timer cuts off the transmission, further transmission is inhibited for a specified penalty period of time.

PTTID call
The transceiver automatically sends the ID code (DTMF or MDC system) when [PTT] is pushed (beginning of the transmission) and/or released (end of transmission), depending on the presetting.

Receiving and transmitting

◇Transmitting a DTMF code (Autodial)

You can quickly send DTMF tones that have been pre-entered into the transceiver.

- Push [DTMF Autodial] to transmit a DTMF code.

NOTE: You can also send a DTMF code even when transmitting a call, depending on the presetting.

◇Receiving a Stun, Kill, and Revive command

The dispatcher can send a 2-tone signal that will stun, kill, or revive your transceiver.

When a Stun command is received, the transceiver becomes unusable. In this case, receiving a Revive command is necessary to operate the transceiver again.

When a Kill command is received, the transceiver becomes unusable (the transceiver switches to the programming required condition). In this case, programming the transceiver is necessary to operate the transceiver again.

NOTE: A beep may sound, depending on the presetting. Ask your dealer for details.

Setting the microphone gain

The higher value makes the microphone more sensitive to your voice.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to any channel other than Channel 16.
3. While holding down [Lower], rotate [VOL] to turn ON the transceiver and enter the microphone gain adjustment mode.
4. Push [Upper] to increase, or push [Lower] to decrease the microphone gain.
   ⓘ The adjustable range is between 1 (low sensitivity) to 4 (high sensitivity).
   • A beep sounds after pushing [Upper] or [Lower]. An error beep sounds when the adjustable range is exceeded.
5. Rotate [VOL] to turn OFF the transceiver, then turn it ON again to restart normal operation.

NOTE: When using the VOX function, we recommend setting the microphone gain to 3. However, you can adjust it to suit your operating environment (including your headset performance). (p. 6-4)

Setting the squelch level

The squelch circuit mutes the received audio signal, depending on the signal strength.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to any channel other than Channel 16.
3. While holding down [PTT] and [Lower], rotate [VOL] to turn ON the transceiver and enter the squelch level adjustment mode.
4. Push [Upper] to increase the squelch level, or push [Lower] to decrease the squelch level.
   ⓘ The adjustable range is between 0 (open) to 9 (tight).
   • A beep sounds after pushing [Upper] or [Lower]. An error beep sounds when the adjustable range is exceeded.
5. Rotate [VOL] to turn OFF the transceiver, then turn it ON again to restart normal operation.

Selecting the output power level

If the transceiver has [High/Low] assigned to it, the transmit output power level can be selected, depending on the presetting.
When the battery voltage drops to a low level, and the status indicator status is “Low Battery 2,” the output power automatically switches to “Low 1.” (p. 2-3)

- Push [High/Low] to select the transmit output power level.

• A beep sounds when “Low 1” is selected.
• Two beeps sound when “Low 2” is selected.
• Three beeps sound when “High” is selected.

Section 4 ADVANCED OPERATION

Emergency Call

IMPORTANT: It is recommended that the dealer set up an Emergency channel to provide reliable Emergency call operation.

NOTE: Depending on the presetting, the following functions may be automatically activated. Ask your dealer for details.

Auto TX function
After transmitting an Emergency call, the transceiver transmits the microphone audio for a specified period of time.

Auto RX function
After transmitting an Emergency call, the transceiver stands by in the Audible mode for a specified period of time.

TIP: You can transmit Emergency call using DTMF or MDC 1200.

When the Emergency function is turned ON, a countdown starts. The transceiver counts down during the Reminder Timer set time.

If no Emergency channel is specified, the Emergency call is made on the previously selected channel.

ⓘ The transceiver automatically transmits a repeat Emergency call until it receives an acknowledgment, or until you turn OFF the transceiver.
ⓘ If the transceiver is programmed for Silent operation, it transmits an Emergency call without a beep sounding or the status indicator lighting.

- Hold down [Emergency] during the Emer SW ON timer period to turn ON the Emergency function.
- Hold down [Emergency] during the Emer SW OFF timer period to cancel the Emergency function, before transmitting an Emergency call.

NOTE: Set the related settings using the programming software.

Lone Worker Emergency Call

When the Lone Worker function is turned ON, and no operation occurs for the specified period of time, the Emergency function is automatically turned ON, and then the countdown for the Emergency call transmission starts.

After the specified period of time has passed, an Emergency call is automatically transmitted once or repeatedly, depending on the presetting.

If you operate the transceiver before the call is transmitted, the Emergency function is turned OFF, and the Emergency call is canceled.

NOTE: To use the Lone Worker function, set the related settings using the programming software.

1. Hold down [Lone Worker] for 1 second to turn ON the Lone Worker function.
2. Push [Lone Worker] to turn OFF the Lone Worker function.

MDC 1200 system operation

The MDC 1200 signaling system enhances your transceiver's capabilities. It allows PTT ID and Emergency signaling.

◇Transmitting an Emergency Call

The MDC 1200 system's Emergency feature can be accessed using the [Emergency] key. The transceiver will send an Emergency MDC 1200 system command once, or repeatedly for a programmed number of times until it receives the acknowledgement signal, depending on the presetting.

The Emergency call can be transmitted without a beep sound, depending on how the Emergency function is programmed. Ask your dealer for details.

Section 5 BATTERY CHARGING

Battery caution

Misuse of Li-ion batteries may result in the following hazards: smoke, fire, or the battery may rupture. Misuse can also cause damage to the battery or degradation of battery performance.

⚠ **DANGER! NEVER** incinerate used battery packs. Internal battery gas may cause an explosion.

⚠ **DANGER! NEVER** strike or otherwise impact the battery pack. Do not use the battery pack if it has been severely impacted or dropped, or if the pack has been subjected to heavy pressure. Battery pack damage may not be visible on the outside of the case. Even if the surface of the battery does not show cracks or any other damage, the cells inside the battery may rupture or catch fire.

⚠ **DANGER! NEVER** leave the battery pack in places with temperatures above 60°C (140°F). High temperature buildup in the battery cells, such as could occur near fires or stoves, inside a sun-heated vehicle, or in direct sunlight for long periods of time may cause the battery cells to rupture or catch fire. Excessive temperatures may also degrade the battery pack's performance or shorten the battery cell's life.

⚠ **DANGER! NEVER** place battery packs near a fire. Fire or heat may cause them to rupture or explode. Dispose of used battery packs in accordance with local regulations.

⚠ **DANGER! NEVER** solder the battery terminals, or NEVER modify the battery pack. This may cause heat generation, and the battery may burst, emit smoke or catch fire.

⚠ **DANGER! NEVER** let fluid from inside the battery get in your eyes. This can cause blindness. Rinse your eyes with clean water, without rubbing them, and immediately go to a doctor.

⚠ **WARNING! NEVER** let fluid from inside the battery cells come in contact with your body. If it does, immediately wash with clean water.

⚠ **WARNING! NEVER** put the battery pack in a microwave oven, high-pressure container, or in an induction heating cooker. This could cause a fire, overheating, or cause the battery cells to rupture.

⚠ **WARNING! NEVER** use deteriorated battery packs. They could cause a fire.

CAUTION: DO NOT use the battery pack out of the specified temperature range for the transceiver (–30°C ~ +60°C (–22°F ~ +140°F)) and the battery itself (–20°C ~ +60°C (–4°F ~ +140°F)). Using the battery out of its specified temperature range will reduce its performance and battery cell's life. Please note that the specified temperature range of the battery may exceed that of the transceiver. In such cases, the transceiver may not work properly because it is out of its operating temperature range.

CAUTION: DO NOT leave the pack fully charged, completely discharged, or in an excessive temperature environment (above 50°C, 122°F) for an extended period of time. If the battery pack must be left unused for a long time, it must be detached from the transceiver after discharging. You may use the battery pack until the remaining capacity is about half, then keep it safely in a cool and dry place at the following temperature range:

–20°C ~ +50°C (–4°F ~ +122°F) (within a month)
–20°C ~ +40°C (–4°F ~ +104°F) (within three months)
–20°C ~ +20°C (–4°F ~ +68°F) (within a year)

CAUTION: DO NOT expose the battery pack to rain, snow, saltwater, or any other liquids. Do not charge or use a wet pack. If the pack gets wet, be sure to wipe it with a clean dry cloth before using.

CAUTION: DO NOT continue to use the battery pack if it emits an abnormal odor, heats up, or is discolored or deformed. If any of these conditions occur, contact your Icom dealer or distributor.

BE SURE to replace the battery pack with a new one approximately five years after manufacturing, even if it still holds a charge. The material inside the battery cells will become weak after a period of time, even with little use. The estimated number of times you can charge the pack is between 300 and 500. Even when the pack appears to be fully charged, the operating time of the transceiver may become short when:

- Approximately 5 years have passed since the pack was manufactured.
- The pack has been repeatedly charged.

Charging caution

⚠ **DANGER! NEVER** charge the battery pack in areas with extremely high temperatures, such as near fires or stoves, inside a sun-heated vehicle, or in direct sunlight. In such environments, the safety/protection circuit in the battery will activate, causing the battery to stop charging.

⚠ **WARNING! NEVER** charge the transceiver during a lightning storm. It may result in an electric shock, cause a fire or damage the transceiver. Always disconnect the power adapter before a storm.

⚠ **WARNING! NEVER** charge or leave the battery in the battery charger beyond the specified time for charging. If the battery is not completely charged by the specified time, stop charging and remove the battery from the battery charger. Continuing to charge the battery beyond the specified time limit may cause a fire, overheating, or the battery may rupture.

⚠ **WARNING!** Occasionally observe the battery pack condition while charging. If any abnormal condition occurs, discontinue using the battery pack.

CAUTION: DO NOT insert the transceiver (battery attached to the transceiver) into the charger if it is wet or soiled. This could corrode the battery charger terminals or damage the charger. The charger is not waterproof.

CAUTION: DO NOT charge the battery pack outside of the specified temperature range: 10°C ~ 40°C (50°F ~ 104°F). Icom recommends charging the pack at 20°C (68°F). The pack may heat up or rupture if charged out of the specified temperature range. Additionally, battery performance or battery life may be reduced.

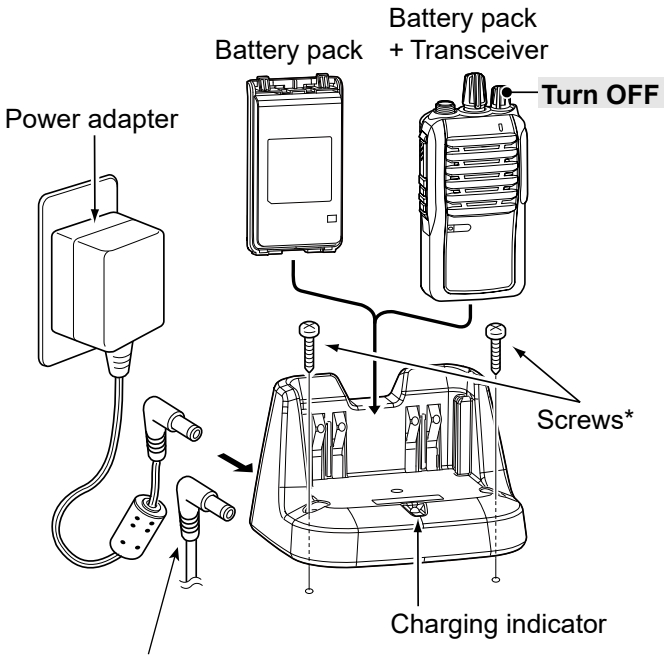
Battery chargers

◇Rapid charging with the BC-240

You can rapidly charge a Li-ion battery pack with the BC-240.

Charging time* for the BP-298:
Approximately 3 hours
* When the Extend Battery Life function is turned OFF, as explained to the right.

Additionally required item (purchase separately):
- A power adapter, the OPC-515L DC POWER CABLE, or the CP-23L CIGARETTE LIGHTER CABLE



The optional OPC-515L (for a DC power source) or CP-23L (for a 12 V cigarette lighter socket) can be used instead of the power adapter.

CAUTION: NEVER connect the OPC-515L to a power source using reverse polarity. This will ruin the battery charger. White line: ⊕, Black line: ⊖

* Self tapping screw: M3.5 × at least 30 mm
Purchase separately. Using screws is recommended to secure the charger.

Charging indicator

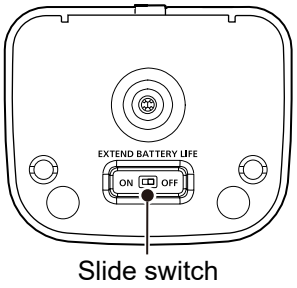
Lights orange:	While charging
Lights green:	When charging is completed.
Blinks red:	When a charging error has occurred. Reinstall the battery or the transceiver.

◇About the BC-240

Turn the Extend Battery Life function ON or OFF. The battery charger has a function switch on the bottom panel. (Default: OFF)

OFF: The battery is fully charged. The operating time of the transceiver is maximum.
ON: The battery is not fully charged to not shorten the battery life cycle.
The battery life cycle is extended. But the operating time of the transceiver becomes shorter.

Bottom view:



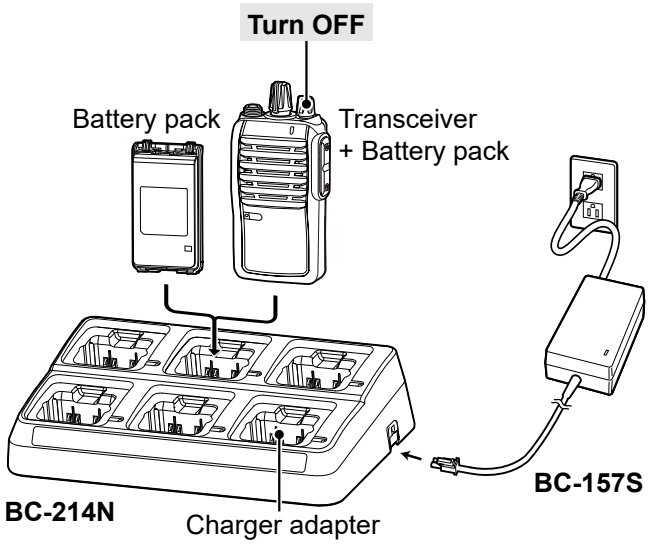
Battery chargers

◇Rapid charging with the BC-214N

You can rapidly and simultaneously charge up to 6 battery packs with the optional BC-214N (with AD-139 CHARGER ADAPTERS installed).

Charging time for the BP-298:
Approximately 3 hours

Additionally needed item (purchase separately):
The BC-157S AC ADAPTER



NOTE: The BC-214N has a charging timer that stops charging after approximately 5.3 hours of charging.

Section 6 OPTIONS

Options

◇Battery pack

- **BP-298** BATTERY PACK

Battery pack	Voltage	Capacity	Approximate battery life*
BP-298	7.2 V	2100 mAh (minimum) 2250 mAh (typical)	24 hours

* When the power save function is turned ON, and the operating periods are calculated under the following conditions.
TX : RX : standby = 5 : 5 : 90, TX Power 2 W

◇Chargers

- **BC-240** DESKTOP CHARGER
  To rapidly charge a single battery pack.
- **BC-214N** MULTI CHARGER + **BC-157S** AC ADAPTER
  To rapidly charge up to 6 battery packs. A power adapter may be supplied, depending on the charger version.

◇DC cables

- **CP-23L** CIGARETTE LIGHTER CABLE
  Use when charging the battery pack from a 12 V cigarette lighter socket. (Use with the BC-240)
- **OPC-515L** DC POWER CABLE
  Use with a 13.8 V power source instead of the power adapter. (Use with the BC-240)

◇Antenna

- **FA-SC28V** VHF ANTENNA
  148 ~ 162 MHz

◇Others

- **AD-98FSC** ANTENNA CONNECTOR CONVERTER
  Enables you to connect an external antenna with a BNC connector.
- **MB-124** BELT CLIP
- **HM-158LA/HM-159LA/HM-222HLWP** SPEAKER-MICROPHONE
  Combination speaker-microphone that provides convenient operation while the transceiver is hanging on your belt.
  ⓘ Adjust the microphone gain before use.
  HM-222HLWP:
  With an Emergency key and a loud speaker. Meets IP68 requirements for waterproof protection.
  ⓘ Not yet released as of August 2021.
- **HS-94/HS-95/HS-97** HEADSET
  + **VS-4LA** PTT SWITCH CABLE/
  OPC-2004/OPC-2004LA ADAPTER CABLE
  HS-94: Ear-hook type
  HS-95: Neck-arm type
  HS-97: Throat microphone
  VS-4LA: To connect to headsets
  OPC-2004/OPC-2004LA:
  To connect to headsets for VOX operation
  ⓘ Adjust the both microphone and VOX gain before use.
- **CS-V3MR** PROGRAMMING SOFTWARE
  + **OPC-478UC** PROGRAMMING CABLE
  Provides quick and easy programming of such settings as memory channels and Set modes contents. Ask your dealer for details.
  You can download the CS-V3MR PROGRAMMING SOFTWARE from the Icom website.
  (https://www.icomjapan.com/support/)
- **OPC-474** PROGRAMMING CABLE
  For transceiver-to-transceiver programming.

VOX function

The transceiver has a VOX function, which allows you hands-free operation.
An optional HS-94, HS-95 or HS-97 HEADSET and the VS-4LA PTT SWITCH CABLE, or the OPC-2004 or OPC-2004LA ADAPTER CABLE are also required for operation.

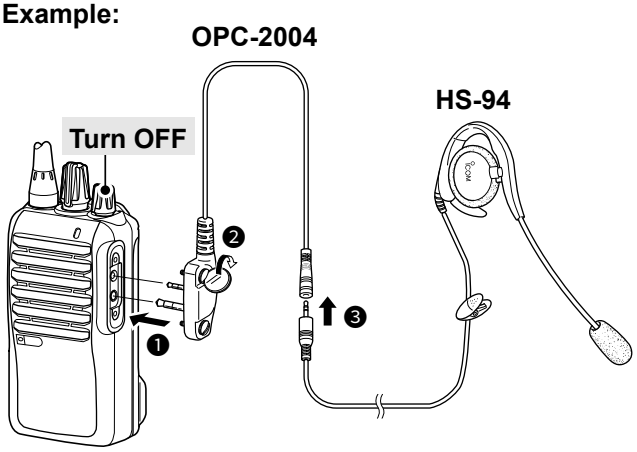
What is VOX?
The VOX (voice operated transmission) function starts transmission when you speak into the microphone, without pushing [PTT], and then automatically returns to reception when you stop speaking.

◇Connecting the optional unit

1. Rotate [VOL] to turn OFF the transceiver.
2. Remove the jack cover. (p. 1-3)
3. Connect the optional HS-94, HS-95 or HS-97 and VS-4LA, OPC-2004, or OPC-2004LA.

CAUTION: DO NOT use the transceiver without the jack cover or the optional equipment attached.
The transceiver meets IP54 requirements for dust-protection and splash resistance only when the battery pack and jack cover are attached.

Example:



VOX function

◇Turning the VOX function ON or OFF

The VOX function can be turned ON or OFF. The VOX function automatically switches between receive and transmit during voice operation.

1. Connect the optional HS-94, HS-95 or HS-97 and VS-4LA, OPC-2004, or OPC-2004LA. (p. 6-3)
2. Rotate [VOL] to turn OFF the transceiver.
3. Set [Rotary Selector] to any channel other than Channel 16.
4. While holding down [Upper], rotate [VOL] to turn ON the transceiver and turn the VOX function ON or OFF.
   - A beep sounds when the VOX function is OFF.
   - Two beeps sound when the VOX function is ON.
5. Rotate [VOL] to turn OFF the transceiver, then turn it ON again to restart the normal operation.

NOTE: When using the VOX function, we recommend setting the microphone gain to 3. However, you can adjust it to suit your operating environment (including your headset performance). (p. 3-5)

◇Setting the VOX gain

The higher value makes the VOX function more sensitive to your voice.

1. Connect the optional HS-94, HS-95 or HS-97 and VS-4LA, OPC-2004, or OPC-2004LA. (p. 6-3)
2. Rotate [VOL] to turn OFF the transceiver.
3. Set [Rotary Selector] to Channel 16.
4. While holding down [PTT] and [Upper], rotate [VOL] to turn the transceiver ON and enter the VOX gain adjustment mode.
5. Push [Upper] to increase, or push [Lower] to decrease the VOX gain while speaking into the optional headset at your normal voice level.
   ⓘ The adjustable range is between 1 (low sensitivity) to 10 (high sensitivity).
   - A beep sounds after pushing [Upper] or [Lower]. An error beep sounds when the adjustable range is exceeded.
6. Rotate [VOL] to turn OFF the transceiver, then turn it ON again to restart the normal operation.

NOTE: Set the microphone gain before setting the VOX gain. (p. 3-5)

Count on us!

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