

User Manual



**VHF professional
marine handheld radio**



Thank you for choosing this product.
This VHF marine radio is designed and manufactured using state-of-the-art technology and exquisite craftsmanship.

IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL—This instruction manual contains important operating instructions.

EXPLICIT DEFINITIONS

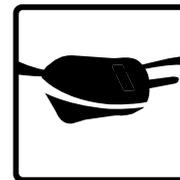
WORD	DEFINITION
⚠ DANGER!	Personal death, serious injury or an explosion may occur.
⚠ WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, only inconvenience. No risk of personal injury, fire or electric shock.

FEATURES

Floats on water

The transceiver floats in fresh or salt water even when the supplied accessories are attached.

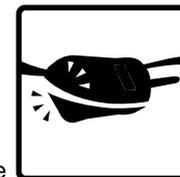
- It may sink when a third-party accessory is attached.



Floats and flashes

An LED sends out intermittent light from

a transparent section on the bottom of the transceiver, while floating in the water. As the LED light stands out in the dark, the transceiver can be easily retrieved from the water. This function works even when the transceiver is turned OFF.



Floats and flashes alarm

An alarm sounds when the transceiver is dropped into the water so that you can know that the transceiver has fallen in the water.



IN CASE OF EMERGENCY

If your vessel requires assistance, contact other vessels and the appropriate Coast Guard by sending a distress call on Channel 16.

○ **USING CHANNEL 16
DISTRESS CALL PROCEDURE**

1. "MAYDAY MAYDAY MAYDAY"
2. "THIS IS " (name of vessel)
3. Your call sign or other identification of the vessel.
4. "LOCATED AT" (your position)
5. The nature of the distress and assistance re-quired.
6. Any other information which might facilitate the rescue.

RECOMMENDATION

CLEAN THE TRANSCEIVER THOROUGHLY WITH FRESH WATER after exposure to saltwater, and dry it before operating. Otherwise, the transceiver's keys, switches and controllers may become unusable due to salt crystallization.

If the waterproof performance of the transceiver is suspected to be compromised, gently wipe the unit with a soft damp cloth (using clean water only). Dry it thoroughly before operating the transceiver again.

The waterproof performance may be impaired if the housing, port cover, or connector cover is cracked or damaged, or if the transceiver has been dropped. Please contact your distributor or dealer for further assistance.

Our company will not be liable for any damage, disruption, or performance degradation of our equipment or equipment not owned by us due to the following reasons:

- Force majeure, including but not limited to fire, earthquake, storm, flood, lightning strike, other natural disasters, riots, civil unrest, war or radioactive contamination.

SAFETY TRAINING INFORMATION



WARNING

Your 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 and IC RF exposure limits for “Occupational Use Only.” In addition, your 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 Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz.
- American National Standards Institute (C95.3-2021), IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic, and Electromagnetic Fields with Respect to Human Exposure to Such Fields, 0 Hz to 300 GHz
- The accessories listed on page 30 are authorized for use with this product. Use of accessories other than those specified may result in RF exposure levels exceeding the FCC and IC requirements for wireless RF exposure.
- Health Canada Safety Code 6 - Limits of Human Exposure to Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz.

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



CAUTION

- **DO NOT** operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed FCC and IC 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 and IC RF exposure compliance requirements to be exceeded. The radio is transmitting when “TX” is displayed on the function display. 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 our belt-clips listed on page 30 when attaching the radio to your belt, or other place, to ensure FCC and IC 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 and IC RF exposure limits of this radio.

Electromagnetic Interference/Compatibility

During transmissions, your 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.

PRECAUTIONS

⚠ WARNING! NEVER connect the radio to an AC outlet.

This may pose a fire hazard or result in an electric shock. **⚠ WARNING! NEVER** hold the radio so that the

antenna

is closer than 2.5 cm (1 inch) from exposed parts of the body, especially the face or eyes, while transmitting. The radio will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the radio is vertical.

CAUTION: DO NOT connect the radio to a power source other than the products specified by our company. Such a connection will ruin the radio.

CAUTION: DO NOT expose the inside of the radio to water. Otherwise, serious damage to the radio may occur. Make sure the antenna is securely attached to the radio, and that the antenna is dry before attachment.

BE CAREFUL: The radio meets IPX7 requirements for waterproof protection. However, once the radio has been dropped, waterproof protection cannot be guaranteed because of possible damage to the radio's case or the waterproof seal.

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

DO NOT use harsh solvents such as benzine or alcohol when cleaning, as they will damage the radio surfaces.

DO NOT push [PTT] when not actually intending to transmit. **DO NOT** modify the radio. The radio warranty does not cover any problems caused by unauthorized modification.

DO NOT use or place the radio in direct sunlight or in areas with following temperatures range.

- For the USA and EXP versions:
Below -20°C (-4°F) or above $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$)
- For the EUR, FRG, NLD, UK, and CHN versions:
Below -15°C ($+5^{\circ}\text{F}$) or above $+55^{\circ}\text{C}$ ($+131^{\circ}\text{F}$)
- For the AUS version:
Below -10°C ($+14^{\circ}\text{F}$) or above $+55^{\circ}\text{C}$ ($+131^{\circ}\text{F}$)

KEEP the radio out of the reach of children.

KEEP the radio at least 0.9 meter (3.0 feet) away from your vessel's magnetic navigation compass.

MAKE SURE the antenna and battery cover are securely attached to the transceiver, and that the antenna and battery cover are dry before attachment. Exposing the inside of the transceiver to water will result in serious damage to the transceiver.

Information:

In this instruction manual, the country names are described as shown below.

U.S.A.: USA	Export: EXP	Europe: EUR
German: FRG	Dutch: NLD	U.K.: UK
China: CHN	Australia: AUS	

PRÉCAUTIONS

⚠ **AVERTISSEMENT ! NE JAMAIS** brancher la radio à une sortie CA. Cela pourrait provoquer un choc électrique ou un incendie.

⚠ **AVERTISSEMENT ! NE JAMAIS** rapprocher la radio à moins de 2,5 cm (1 pouce) des parties exposées du corps, particulièrement le visage et les yeux, en cours émission. Les performances de la radio sont optimales quand le microphone est tenu entre 5 et 10 cm (2 et 4 pouces) de la bouche de l'utilisateur et quand l'appareil est vertical.

ATTENTION: NE JAMAIS brancher la radio à une source d'alimentation autre que celle des produits recommandés par . Cela pourrait endommager l'appareil.

ATTENTION: ASSUREZ-VOUS que l'antenne est solidement fixées à la radio et que l'antenne est sec avant de la mise en place. Tout contact de l'intérieur de la radio avec de l'eau endommagera gravement l'appareil.

MISE EN GARDE: La radio répond aux exigences IPX7 sur l'étanchéité. Toutefois, lorsque la radio a été immergée, l'étanchéité ne peut pas être garantie, en raison des risques de dommages affectant le boîtier ou le joint d'étanchéité de la radio.

NE placez **JAMAIS** l'appareil dans un endroit non sécurisé pour éviter toute utilisation par des personnes non autorisées.

NE PAS nettoyer l'appareil avec des produits chimiques tels que l'essence ou l'alcool susceptibles d'endommager la surface de la radio.

NE PAS appuyer sur la touche [PTT] sans intention réelle d'émettre.

NE PAS modifier la radio. La garantie de la radio ne couvre pas les problèmes résultant d'une modification non autorisée.

NE PAS utiliser la radio à proximité de détonateurs électriques non blindés ou dans une atmosphère explosive.

NE PAS utiliser ou placer la radio en plein soleil ou dans des zones dans lesquelles les températures sont comprises dans les plages suivantes.

- Pour les versions USA et EXP:

 - En dessous de -20°C (-4°F) ou au-dessus de $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$)

- Pour les versions EUR, FRG, NLD, UK, et CHN:

 - En dessous de -15°C ($+5^{\circ}\text{F}$) ou au-dessus de $+55^{\circ}\text{C}$ ($+131^{\circ}\text{F}$)

- Pour les version AUS:

 - En dessous de -10°C ($+14^{\circ}\text{F}$) ou au-dessus de $+55^{\circ}\text{C}$ ($+131^{\circ}\text{F}$)

GARDEZ la radio hors de la portée des enfants

MAINTENIR la radio au moins 0,9 m (3,0 pieds) du compas de route magnétique du navire.

ASSUREZ-VOUS que l'antenne et le couvercle de la batterie sont solidement fixés à l'émetteur-récepteur et que l'antenne et la batterie sont sèches avant la mise en place. Tout contact de l'intérieur de l'émetteur-récepteur avec de l'eau endommagera gravement l'appareil.

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◇ **Priorities**

- Read all rules and regulations pertaining to call priorities, and keep an up-to-date copy handy. Safety and distress calls take priority over all others.
- You must monitor Channel 16 when you are not operating on another channel.
- False or fraudulent distress calls are prohibited under law.

◇ **Privacy**

- Information overheard, but not intended for you, cannot lawfully be used in any way.
- Indecent or profane language is prohibited.

◇ **Radio licenses**

(1) SHIP STATION LICENSE

You may require a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed, but required to be.

If required, contact your dealer or the appropriate government agency for a Ship-Radiotelephone license application. This government-issued license states the call sign which is your craft's identification for radio purposes.

(2) OPERATOR'S LICENSE

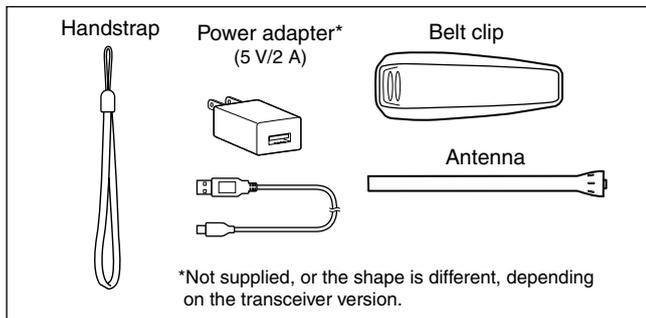
A Restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes.

If required, the Restricted Radiotelephone Operator Permit must be posted or kept with the operator. If required, only a licensed radio operator may operate a transceiver.

However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, ends the call and makes the necessary log entries.

A current copy of the applicable government rules and regulations is only required to be on hand for vessels in which a radio telephone is compulsory. However, even if you are not required to have these on hand it is your responsibility to be thoroughly acquainted with all pertinent rules and regulations.

■ Supplied accessories



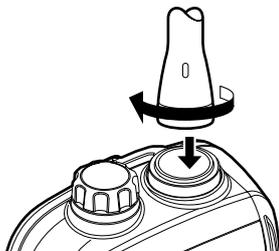
■ Attachments

□ Antenna

Connect the supplied antenna to the antenna connector.

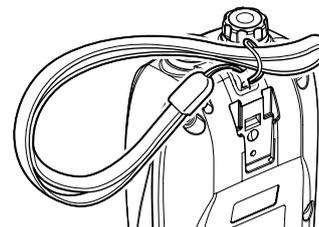
CAUTION:

- **NEVER** carry the transceiver by holding just the antenna.
- **DO NOT** Transmit without an antenna.



□ Handstrap

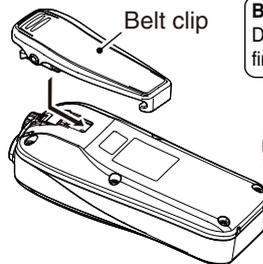
Pass the handstrap through the loop on the back side of the transceiver to make it easy to carry.



□ Belt clip

Attach or detach the belt clip.

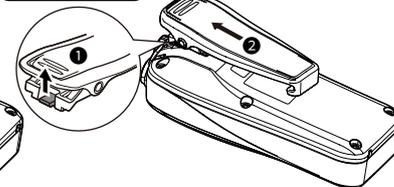
To attach the belt clip



Be careful!
Don't break your fingernail.

To detach the belt clip

Lift the tab up (1), and slide the belt clip in the direction of the arrow (2).



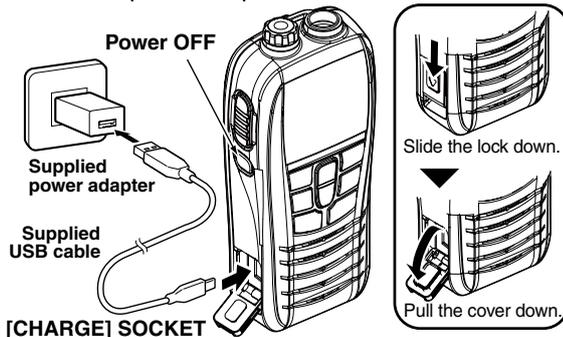
■ Charging

IMPORTANT:

- Read Section 8 (Pages 22 to 24) before charging.
- Before using the transceiver for the first time, fully charge the battery for optimum life and operation.
- Turn OFF the power while charging to avoid damage to the battery.

❑ Charging with the supplied power adapter

- ① Turn OFF the power.
- ② Connect the power adapter as shown below.



- “CHG” is displayed and bars of the battery icon scroll while charging.



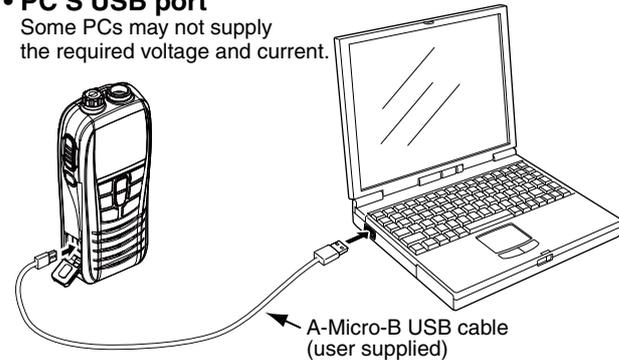
- When error is detected, the battery icon blinks, and “Er” and “CHG” are displayed.
- ③ The charging is completed in approximately 3 hours.
- The charging time differs depending on the battery condition.
 - “FL” is displayed when the battery has been fully charged.

For Reference: Charging with other power sources

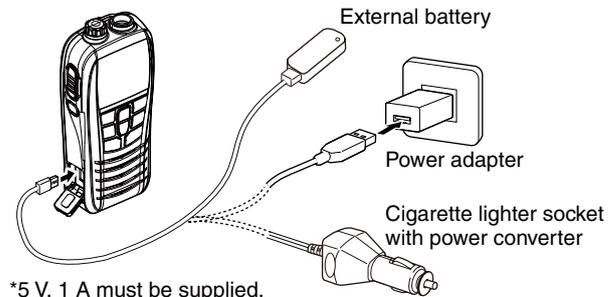
- NOTE: Charging with these power sources is not guaranteed. We are not responsible for the destruction or damage to charging with these power sources.
- ▨ Charging time differs, depending on the power supply.

• PC'S USB port

Some PCs may not supply the required voltage and current.



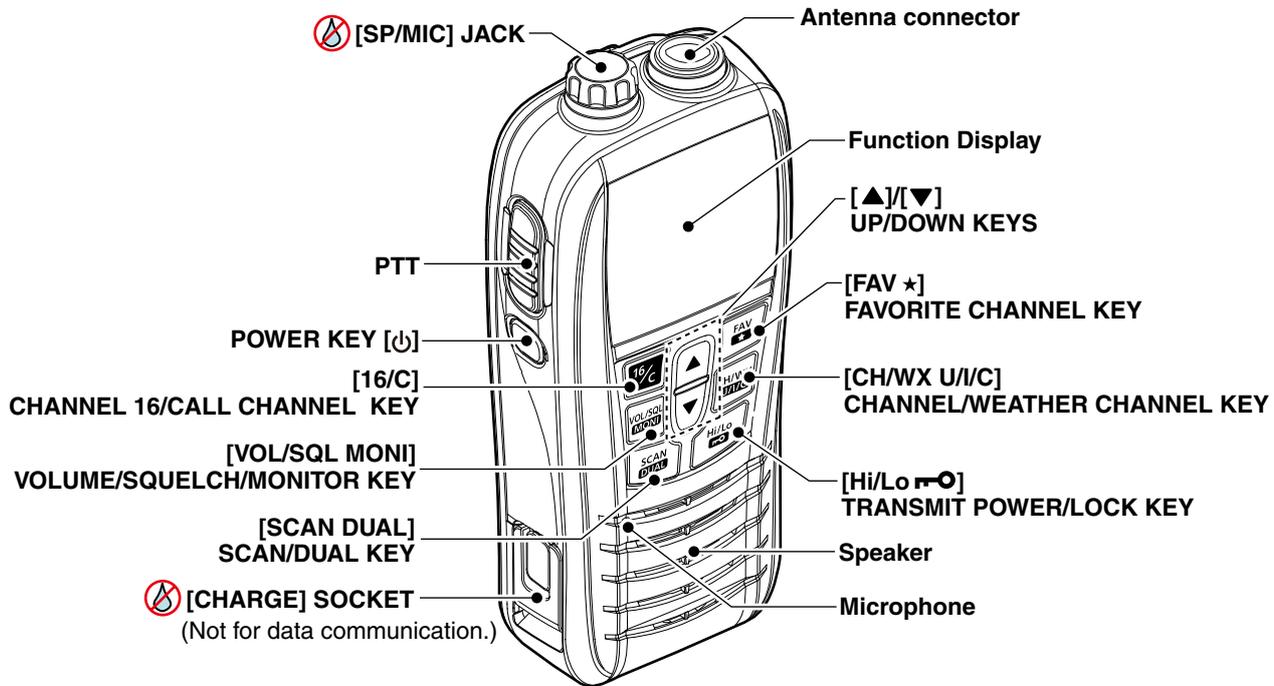
• Micro-B USB type charger*



3

PANEL DESCRIPTION

■ Front, top and side panels



⚠ CAUTION:

- Close up **securely** when no cable is connected.
- Make **sure** dust or other material does not adhere to the rubber seal. Otherwise, waterproof protection may not be guaranteed.

ANTENNA CONNECTOR (Page 2)

Connect the supplied antenna here.

SPEAKER/MIC JACK [SP/MIC] (Page 25)

Connect the optional HM-213 SPEAKER MICROPHONE here.

Unscrew the cap.

Lift the cap to detach it.



PTT SWITCH [PTT]

Hold down to transmit, release to receive.

POWER KEY [⏻]

Hold down to turn power ON or OFF.

CHANNEL 16/CALL CHANNEL KEY [16/C] (Page 9)



- Push to select Channel 16.
- Hold down for 1 second to select the Call channel.

VOLUME/SQUELCH/MONITOR KEY [VOL/SQL MONI]



- Push this key, and then push [▲] or [▼] to adjust the volume/squelch level.
- You can adjust the volume/squelch level while the “VOL”/“SQL” icon is blinking. (Pages 10 and 11)

SCAN/DUAL KEY [SCAN DUAL]



- Push to start or stop a scan*. (Page 15)
- Hold down for 1 second to enter the Dual/Tri-watch mode*. (Page 16)
- Hold down this key and [Hi/Lo] for 1 second, to activate the AquaQuake function. (Page 13)

*Except for the NLD version.

[CHARGE] SOCKET

Connect the supplied charger. (Page 3)

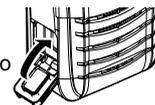


Slide down the cover lock.

Pull the cover down to open it.

CAUTION: When closing the socket cover

Stand the transceiver up straight. Otherwise, any water that is on the socket cover will get into the transceiver.



UP/DOWN KEYS [▲] or [▼]



- Push to select the operating channel.
- Push to change the volume/squelch level while adjusting.
- In the Set mode, push to select an item option.

FAVORITE CHANNEL KEY [FAV *] (Page 15)



- Push to sequentially select a Favorite channels while ignoring normal channels.
- Hold down for 1 second to set or clear the selected Favorite channel.

CHANNEL/WEATHER CHANNEL KEY [CH/WX U//C]/[CH]



- Push to switch between a regular channel and weather channel. (Page 9)
- Hold down for 1 second to change the channel group. (Page 8)

NOTE: [CH] is described as [CH/WX U//C] in this instruction manual.

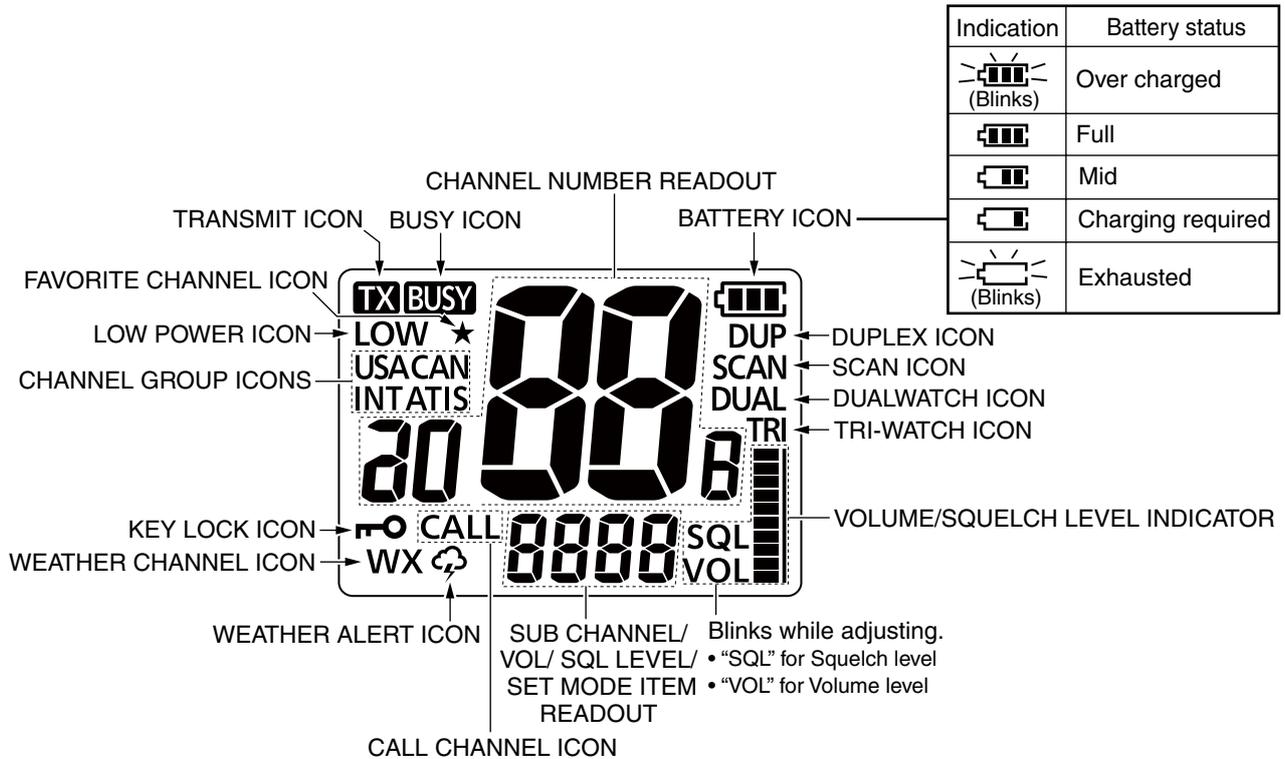
TRANSMIT POWER/LOCK KEY [Hi/Lo] [Hi/Lo]



- Push to set the output power to high or low. (Page 11)
- Hold down for 1 second to lock all keys except [PTT], [VOL/SQL MONI] and [Hi/Lo]. (Page 12)

3 PANEL DESCRIPTION

Function Display



TRANSMIT ICON

Appears while transmitting.

FAVORITE CHANNEL ICON

Displayed when a Favorite channel is selected. (Page 15)

LOW POWER ICON

- Displayed when the low TX power is selected. (Page 11)
- Blinks when a high temperature error or low voltage is detected, and automatically switched to the low power.

CHANNEL GROUP ICONS

Display the selected channel group. (Page 8)

KEY LOCK ICON

Appears when the Lock function is turned ON. (Page 12)

WEATHER CHANNEL ICON

Displayed when the weather channel group is selected. (Page 9)

WEATHER ALERT ICON

Displayed while the Weather Alert function is turned ON, and blinks when the alert tone is received. (Page 9)

CALL CHANNEL ICON

Displayed when the Call channel is selected. (Page 9)

SUB CHANNEL READOUT

- Displays the volume/squelch level while adjusting the level. (Pages 10 and 11)
- Displays Channel 16 during a priority scan, Dualwatch or Tri-watch. (Pages 14 and 16)
- Displays the Set mode item while in the Set mode. (Page 17)

VOLUME/SQUELCH LEVEL INDICATOR

- Number of bars shows the volume/squelch level.
- “SQL” blinks when adjusting the squelch level. (Page 11)
- “VOL” blinks when adjusting the volume level. (Page 10)

TRI-WATCH ICON*

Displayed during Tri-watch. (Page 16)

DUALWATCH ICON*

Displayed during Dualwatch. (Page 16)

SCAN ICON*

Blinks during a scan. (Page 14)

DUPLEX ICON

Displayed when a duplex channel is selected.

BATTERY ICON

- Displays the remaining battery capacity.
- Bars scroll inside the battery icon while charging. (Page 3)



CHANNEL NUMBER READOUT

Displays the selected operating channel number.

BUSY ICON

- Appears while receiving a signal.
- Blinks while the Monitor function is ON. (Page 11)

*Except for the NLD version.

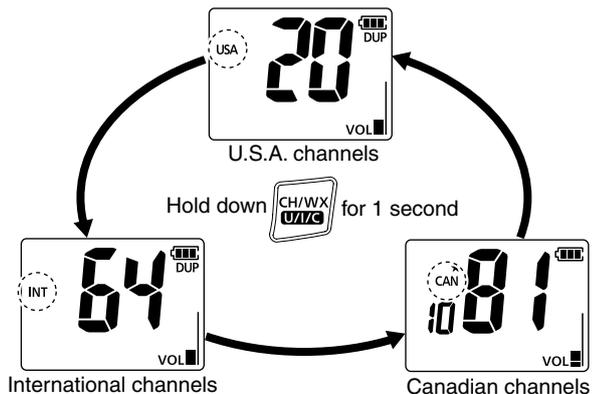
■ Selecting a channel

Choose the appropriate channel group for your operating area, and then select the desired channel.

□ Selecting a channel group

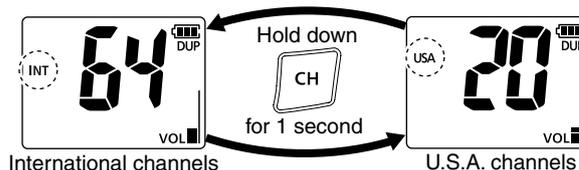
- ① Push [CH/WX] to exit the WX group if necessary.
- ② Hold down [U/I/C] (CH/WX) for 1 second to change the channel group. Repeat to advance to the next group.
 - The selectable channel groups differ, depending on the transceiver version.

For USA, EXP and CHN versions

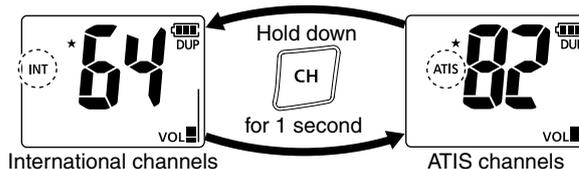


These display may be different in some transceiver versions.

For UK and AUS versions



For NLD version



□ Selecting a regular channel

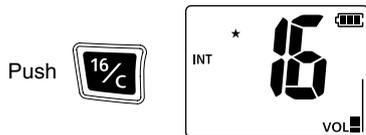
- Push [▲] or [▼] to select a channel.
 - "DUP" appears for duplex channels.



❑ Selecting Channel 16

Channel 16 is the distress and safety channel. It is used for establishing initial contact with a station, and for emergency communications. While in the standby, you must monitor Channel 16.

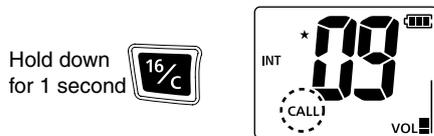
- ① Push **[16/C]** to select Channel 16.
- ② Push **[CH/WX]** to recall the channel that was displayed before selecting Channel 16.



❑ Selecting Call channel

Each channel group has a Call channel.

- ① Hold down **[16/C]** for 1 second to select the Call channel of the selected channel group.
 - “CALL” and the Call channel number appear.
- ② Push **[CH/WX]** to recall the channel that was displayed before selecting Channel 9.



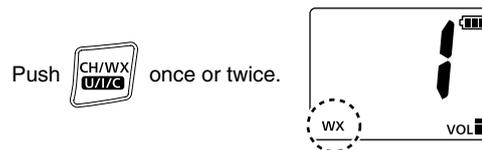
NOTE: You can set your most often-used channel. See page 13.

❑ Weather channels

(For USA, EXP, CHN and AUS versions.)

The transceiver has 10 weather channels. These are used for monitoring the broadcasts from the National Oceanic and Atmospheric Administration (NOAA).

- ① Push **[CH/WX]** once or twice to select the Weather channel group.
 - “WX” appears when a weather channel is selected.



A weather channel is selected.

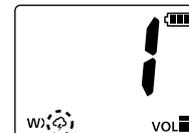
- ② Push **[▲]** or **[▼]** to select a weather channel.

About the Weather Alert function:

A NOAA broadcast station transmits a weather alert tone before any important weather announcements.

The Weather Alert function automatically detects a weather alert tone on the selected weather channel.

See page 18 for details.



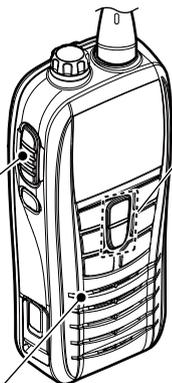
Weather Alert function is ON.

4 BASIC OPERATION

■ Receiving and transmitting

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

- 1) Push [▲] or [▼] to select a channel.
 - When a signal is received, “**BUSY**” appears.
- 2) Hold down [PTT], and then speak into the microphone.
 - “**TX**” appears while transmitting.
- 3) Release [PTT] to receive.



1) Select a channel.

2) Push to transmit.
4) Release to receive.

3) Speak into the microphone.

⚡ **IMPORTANT:** To maximize the readability of your transmitted signal, pause for a second after pushing [PTT], hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth and speak at a normal voice level.

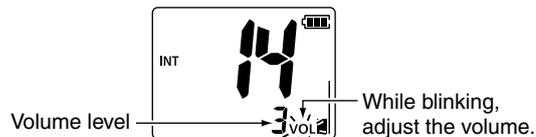
NOTE:

- To conserve battery power, the transceiver's Power Save function automatically activates when no signal is received for 5 seconds.
- When the temperature is extremely low, the battery protection function automatically sets transceiver power to Low, and disables High power selection.
- To prevent prolonged transmission, the Time-out timer function* cuts OFF after 5 minutes of continuous transmission. 10 seconds before transmission is cut OFF, a beep sounds and “tot” blinks to indicate that the transmission will be cut OFF. After it is cut OFF, “tout” is displayed for 10 seconds, and you cannot transmit until it disappears.
*This function may not be installed in some transceiver versions.

■ Adjusting the volume level

You can adjust the volume level while the “VOL” icon is blinking.

- 1) Push [VOL/SQL] once.
 - The “VOL” icon starts blinking.
 - If no key operation is performed for 5 seconds, the transceiver returns to the normal operating mode.



- 2) Push [▲] or [▼] to adjust the volume level.
 - The level is displayed on the screen.
- 3) Push [VOL/SQL] twice.
 - Returns to the normal operating mode.

■ Adjusting the squelch level

Squelch is a function that allows the audio to be heard only while receiving a signal that is stronger than a set level. You can adjust the squelch threshold level.

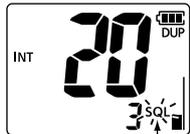
A higher level blocks weak signals, so you receive only stronger signals. A lower level allows you to hear weak signals including noise.

💡 Adjust the squelch level when you want to:

- Block weak signals including noise → Set the level higher.
- Hear weak signals, even in the noise → Set the level lower.

You can adjust the squelch level while the “SQL” icon is blinking.

- ① Push [VOL/SQL] twice.
 - The “SQL” icon starts blinking.
 - If no key operation is performed for 5 seconds, the transceiver returns to the normal operating mode.



↑ While blinking, adjust the squelch.
Squelch level.

- ② Push [▲] or [▼] to adjust the squelch level.
 - The level is displayed on the screen.
- ③ Push [VOL/SQL] once.
 - Returns to the normal operating mode.

■ Monitor function

The Monitor function momentarily cancels the squelch function. You can check for weak signals.

- Hold down [MONI] (VOL/SQL) for 1 second.
 - “BUSY” blinks.
 - If there is a weak signal, you can hear the signal and noise.
 - Release [MONI] (VOL/SQL) to turn OFF this function.

Blinks while the function is activated.



NOTE: This function has options. See page 19 for more.

■ Toggling the transmit power

If you receive no response to your call, your transmitted signal may not have reached the person you called. Choose high power for longer distance communications. On the other hand, transmitting at low power is enough to communicate, according to the distance. Choose low power for short range communication and battery conservation.

- Push [Hi/Lo] to toggle the transmit power between low and high.
 - “LOW” is displayed when low power is selected. No indication is displayed when high power is selected.

NOTE:

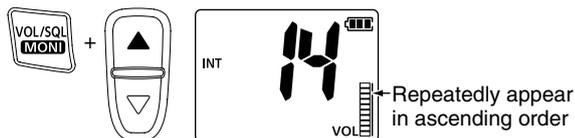
- Some channels are restricted to low power.

4 BASIC OPERATION

■ Volume Loud function

You can temporary maximize the volume level with a simple operation.

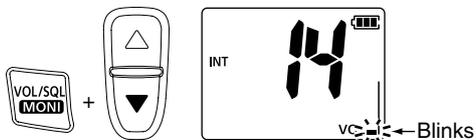
- While holding down [VOL/SQL], push [▲].
 - The volume level is set to the maximum level.
 - Push [VOL/SQL] and [▲] again to turn OFF the function.



■ Volume Mute function

You can temporary mute the audio output with a simple operation.

- While holding down [VOL/SQL], push [▼].
 - The volume level is set to the minimum level (OFF).
 - Push [VOL/SQL] and [▼] again to turn OFF the function.



■ Lock function

This function electronically locks most keys to prevent accidental changing of the channel and function access.

- Hold down [Hi/Lo] for 1 second to turn the function ON or OFF.



NOTE:
[PTT], [VOL/SQL], [MONI] (VOL/SQL) and [Hi/Lo] are not locked.
[▲] or [▼] are not locked when adjusting the volume or squelch, or when the Volume Loud or Volume Mute function is turned ON.

■ AquaQuake Water Draining function

Water in the speaker grill may muffle the sound coming from the speaker. The AquaQuake Water Draining function removes water from the speaker grill, by vibrating the speaker.

- Hold down both **[SCAN]** and **[Hi/Lo]** for 1 second.
 - A low vibration tone sounds for 10 seconds to drain water, regardless of the volume level setting.
 - This function also stops when a key is pushed.

NOTE: This function does not activate when an external speaker microphone is connected.

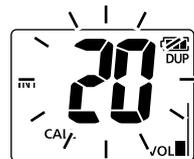
■ Setting the Call channel

You can recall the most often-used channel with a single operation, by setting the channel as the Call channel. The Call channel can be set in each channel group.

- ① Hold down **[U/I/C]** (CH/WX) for 1 second to change the channel group. Repeat to go to the desired group.
 - “CALL” and the Call channel number appear.
- ② Hold down **[16/C]** for 1 second to recall the current Call channel in the selected group.
 - “CALL” and the Call channel number appear.
- ③ Hold down **[16/C]** again for 3 seconds (until a long beep changes to 2 short beeps) to enter the Call channel setting mode.
 - The channel number starts blinking.



- ④ Push **[▲]** or **[▼]** to select the new Call channel.



- ⑤ Push **[16/C]** to set the displayed channel.
 - 2 short beeps sound.
 - The channel number stops blinking.

5

SCAN OPERATION (Except for the NLD version)

■ Scan types

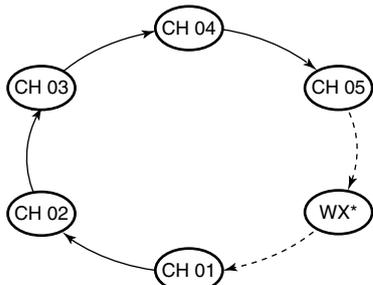
You can find ongoing communication by scanning the Favorite channels.

Before starting a scan, you need to:

- Set the desired channels you want to scan as Favorite channels (Page 15). (Only Favorite channels are scanned.)
- Set the desired scan type to “Normal (default)” or “Priority” in the Set mode (Page 18).

NORMAL SCAN

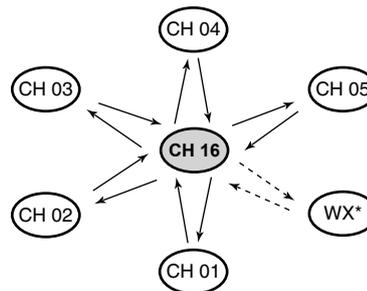
Sequentially searches through all Favorite channels. Channel 16 is not scanned unless it is set as a Favorite channel.



*For USA, EXP, CHN and AUS versions.
When the Weather Alert function is activated, the previously selected weather channel is also scanned.

PRIORITY SCAN

Sequentially searches through all Favorite channels, while also periodically checking Channel 16.



*For USA, EXP, CHN and AUS versions.
When the Weather Alert function is activated, the previously selected weather channel is also scanned.

When a signal is received:

- **On Channel 16**
The scan pauses until the signal disappears.
- **On a channel other than Channel 16:**
The scan becomes Dualwatch until the signal disappears.

■ Setting Favorite channels

You can quickly recall often-used channels by setting them as Favorite channels, which can be independently assigned to each channel group.

- ① Hold down [**U/I/C**] (CH/WX) for 1 second to change the channel group, if needed. Repeat to go to the next group.
- ② Select the desired channel to be set as a Favorite channel.
- ③ Hold down [*****] for 1 second.
 - The displayed channel is set as a Favorite channel.
 - “*” appears on the display.

Selecting a Favorite channel:

- Push [**FAV**] several times to select the desired Favorite channel.
 - Non-Favorite channels are skipped and not displayed.
 - You can also select the favorite channels by pushing [**▲**] or [**▼**] while holding down [**FAV**].

Clearing a Favorite channel:

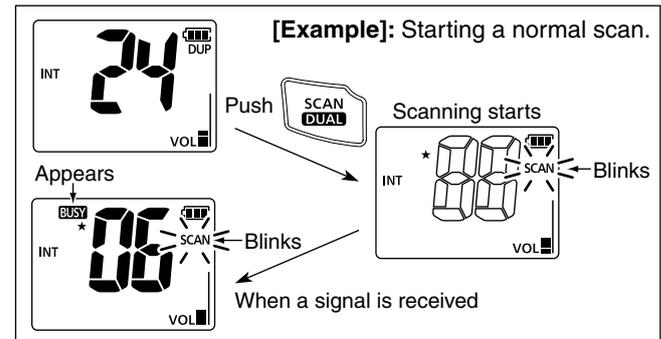
- ① Select the desired Favorite channel you want to clear.
- ② Hold down [*****] for 1 second.
 - “*” disappears.

Clearing all Favorite channels:

- While holding down [*****] (FAV), turn ON the power.
 - All Favorite channels in the selected channel group are cleared.
 - When no channel is set as Favorite channel: Holding down [*****] (FAV), turn ON the power sets all channels as Favorite channels.

■ Starting a scan

- ① Hold down [**U/I/C**] (CH/WX) for 1 second to change the channel group. Repeat to advance to the desired group.
 - When the Weather Alert function is in use, select a desired weather channel by pushing [**CH/WX**] and [**▲**] or [**▼**].
- ② Push [**SCAN**] to start a scan.
 - “SCAN” blinks while scanning.
 - During a priority scan, “16” appears on the sub channel readout.
 - When a signal is received, the scan pauses until the signal disappears, or resumes after pausing 5 seconds, depending on the Scan Resume Timer setting.
- ③ To stop the scan, push [**SCAN**] again.
 - “SCAN” disappears.
 - Pushing [**PTT**], [**16/C**], [**CH/WX**] or [**FAV**] also stops the scan.

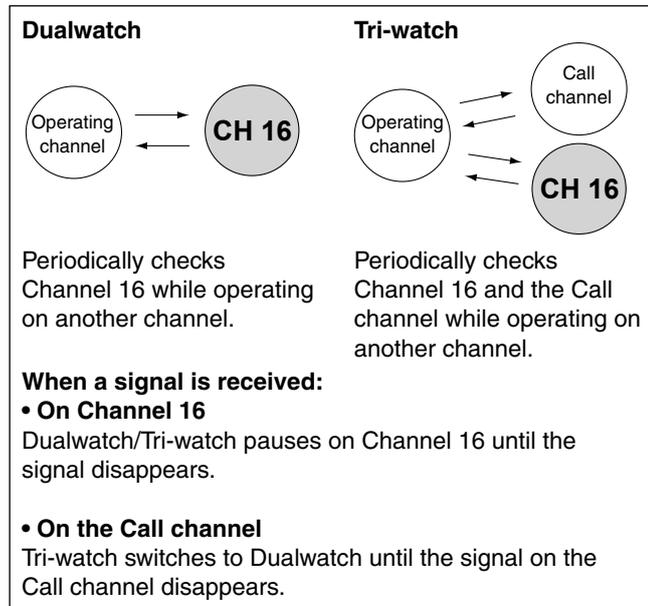


NOTE:

In order to properly receive signals, the squelch must be adjusted to the proper level. (Page 11)

Description

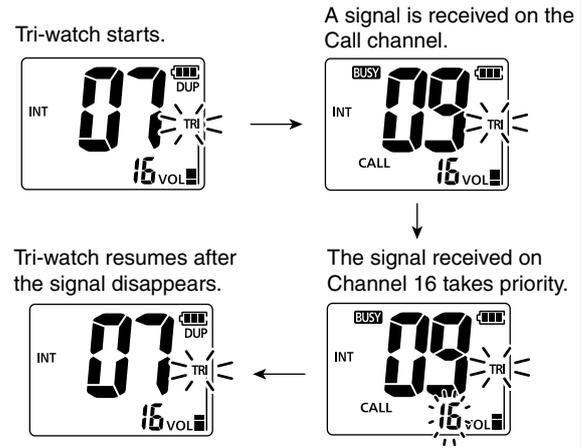
Dualwatch and Tri-watch are convenient to periodically check Channel 16 while you are operating on another channel.



Operation

- ① Select Dualwatch or Tri-watch in the Set mode. (Page 19)
- ② Select the desired channel.
- ③ Hold down **[DUAL]** (SCAN) for 1 second to start Dualwatch or Tri-watch.
 - “**DUAL**” blinks during Dualwatch. “**TRI**” blinks during Tri-watch.
 - A beep tone sounds when a signal is received on Channel 16.
- ④ To cancel Dualwatch or Tri-watch, push **[DUAL]** (SCAN) again.

[Example]: Operating Tri-watch on INT channel 07.



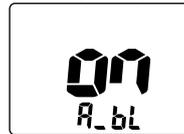
■ Set mode entry

The Set mode is used to select option for the transceiver's functions.

□ Set mode operation

- ① Turn OFF the power.
- ② While holding down [VOL/SQL], turn ON the power to enter the Set mode.
 - The starting item "bEEP" appears.
- ③ While holding down [VOL/SQL], push [▲] or [▼] to select an item.
 - You can also select an item to push only [VOL/SQL].
- ④ Push [▲] or [▼] to select an item option.
- ⑤ Push [16/C] to exit the Set mode.

SET MODE ITEMS (The chart shows the default settings. Default values differ, depending on the transceiver version.)

<p>• Beep tone</p>  <p>Starting item</p>	<p>• Weather Alert*</p> 	<p>• Priority scan**</p> 	<p>• Scan resume timer**</p> 	<p>• Auto scan**</p> 
<p>• Dual/Tri-watch**</p> 	<p>• Monitor key action</p> 	<p>• Automatic backlighting</p> 	<p>• LCD contrast</p> 	<p>• Power save</p> 
<p>• Float Alert</p> 	<p>• Automatic AquaQuake</p> 	<p>• CH Display***</p> 	<p>*For USA, EXP, CHN and AUS versions.</p> <p>**Except for the NLD version.</p> <p>*** The "CH Display" item is displayed for each selectable channel group. Not display for some versions.</p>	

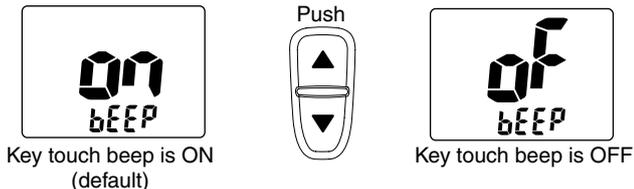
■ Set mode items

□ Beep Tone function

“bEEP”

Turn the key touch beep sound ON or OFF.

- OFF: For silent operation.
- ON: A beep sounds when a key is pushed.



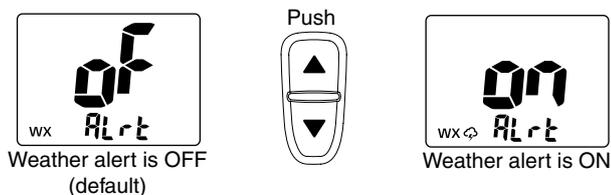
□ Weather Alert function

“ALrt”

(For USA, EXP, CHN and AUS versions)

When this function is turned ON and the transceiver detects a weather alert tone, the “WX ↻” icon blinks and a beep sounds. (The blinking stops when another key is pushed.)

The currently selected weather channel is monitored even while receiving another channel (when the Power Save function is ON) or during a scan.



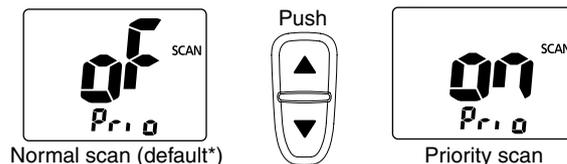
□ Priority Scan function

“Prio”

(Except for the NLD version)

The transceiver has 2 scan types — “Normal” and “Priority.”

- OFF: A normal scan, which searches all Favorite channels in the selected channel group.
- ON: A priority scan, which sequentially searches all Favorite channels while monitoring Channel 16.



*Default value differs, depending on the transceiver version.

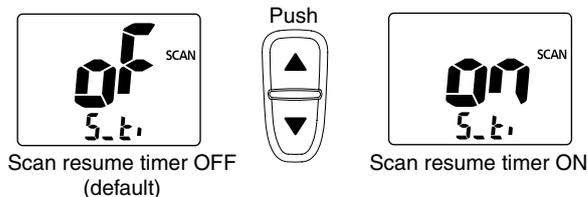
□ Scan resume timer

“S_ti”

(Except for the NLD version)

Select a scan resume timer option.

- OFF: When a signal is received, the scan pauses on the channel until the signal disappears.
- ON: When a signal is received, the scan pauses on the channel for 5 seconds, and then resumes.



□ Auto Scan function

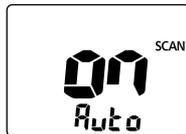
“Auto”

(Except for the NLD version)

The Auto Scan function automatically starts a normal or priority scan when no signal is received, and no operation is performed for 30 seconds.



Auto scan OFF (default)



Auto scan ON

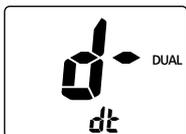
□ Dual/Tri-watch function

“dt”

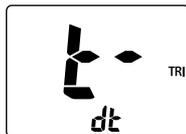
(Except for the NLD version)

Set the watch type to Dualwatch or Tri-watch.

- d- : Dualwatch.
- t- : Tri-watch.



Dualwatch function (default)



Tri-watch function

□ Monitor key action

“SqLS”

The monitor key momentary activates the Monitor function. Select a key action option.

- Pu (PUSH): The Monitor function is activated while holding down [MONI] (VOL/SQL) for more than 1 second. The squelch function is canceled while holding down the key.
- Ho (HOLD): The Monitor function is activated by holding down [MONI] (VOL/SQL) for more than 1 second. The squelch function is canceled until [MONI] (VOL/SQL) is pushed again.



Push setting (default)



Hold setting

7 SET MODE

■ Set mode items (Continued)

□ Automatic backlighting

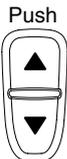
“A_bl”

This function is convenient for the operation in low light. The backlight can be turned ON or OFF.

- The backlight is automatically activated when you push any key other than [PTT].
- The backlight is automatically turned OFF after 5 seconds of inactivity.



Backlighting ON (default)



Backlighting OFF

□ LCD contrast setting

“Lcdc”

Set the LCD contrast level to High or Low.



High contrast (default)



Low contrast

⚡ The LCD contrast level has little effect during indoor use.

□ Power Save function

“P_SA”

The Power Save function reduces current drain by periodically turning OFF the receiver circuit.

- OFF: The function is turned OFF.
- ON: When no signal is received, and no operation is performed for 5 seconds, the receiver circuit is periodically turned OFF.



Power Save ON (default)



Power Save OFF

□ Floats and Flashes Alarm function

“FLAr”

Alarm periodically sounds while the transceiver is floating in the water, to allow you to find the transceiver in the water.

- OFF: The function is OFF.
- ON: Alarm periodically sounds while the transceiver is floating in the water. This function stops when a key is pushed or 10 seconds have past after the transceiver is retrieved from the water.

⚡ **CAUTION:** The alarm sounds loudly.



Alarm OFF (default)



Alarm ON

❑ Automatic AquaQuake function “Aqua”

This function automatically activates the AquaQuake Water Draining function when the transceiver is retrieved from the water.

- OFF: The function is OFF.
- 2/5/10: The AquaQuake Water Draining function is automatically activated after stopping the floating alarm sound. A low vibration tone sounds for the specified time of 2, 5 or 10 seconds, to remove water from the speaker grill.



OFF (default)



2

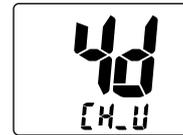
NOTE: This function does not activate when an external speaker microphone is connected.

❑ CH Display function “CH_I” / “CH_U” / “CH_C”

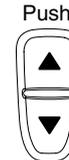
(Not display for some versions.)

Selects the number of digits to display the channel number. You can select settings for each channel group.

- 3d: The channel number is displayed in 3 digits, such as “78A.”
- 4d: The channel number is displayed in 4 digits, such as “1078.”



4d (default)



3d

■ 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's performance.

⚠ **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** use or leave battery pack in areas with temperatures above +60°C (+140°F). High temperature buildup in the battery, 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 to rupture or catch fire. Excessive temperatures may also degrade battery's performance or shorten battery life.

⚠ **DANGER! NEVER** strike or otherwise impact the battery. Do not use the battery if it has been severely impacted or dropped, or if the battery has been subjected to heavy pressure. Battery 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** expose the battery to rain, snow, seawater, or any other liquids. Do not charge or use a wet battery. If the battery gets wet, be sure to wipe it dry before using.

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

⚠ **DANGER! NEVER** use the battery with a transceiver for which it is not specified. Never use a battery with any other equipment, or for any purpose that is not specified in this instruction manual.

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

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

⚠ **WARNING! NEVER** use the battery if it emits an abnormal odor, heats up, or is discolored or deformed. If any of these conditions occur, contact your dealer or distributor.

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

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

CAUTION: DO NOT use the battery pack out of the specified temperature range.

- For the USA and EXP versions:
–20°C (–4°F) to +60°C (+140°F)
- For the EUR, FRG, NLD, UK and CHN versions:
–15°C (+5°F) to +55°C (+131°F)
- For the AUS version:
–10°C (+14°F) to +55°C (+131°F)

Using the battery out of its specified temperature range will reduce the battery's performance and battery 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: Shorter battery life could occur if the battery is left fully charged, completely discharged, or in an excessive temperature environment (above +50°C; +122°F) for an extended period of time. If the transceiver must be left unused for a long time, you may use the transceiver until the battery icon shows half capacity, then keep the transceiver safely in a cool dry place with the temperature range as follows:

- 20°C to +50°C (-4°F to +122°F) (within a month)
- 20°C to +35°C (-4°F to +95°F) (within three months)
- 20°C to +20°C (-4°F to +68°F) (within a year)

⚠ DANGER! Use and charge only specified this product's battery pack with the transceiver. Only our battery pack is tested and approved for use with this product's transceiver. Using third-party or counterfeit battery packs may cause smoke, fire, or cause the battery to burst.

❑ 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.

⚠ DANGER! 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.

WARNING! NEVER connect the transceiver into the power adapter if it is wet or soiled. This could corrode the power adapter or damage the **[Charge]** socket. The supplied power adapter is not waterproof.

CAUTION: DO NOT use the power adapter unless the power outlet is easily accessible and near the unit. Remove it from the power outlet when not in use.

8 ABOUT THE BATTERY

❑ Charging caution (Continued)

NOTE: Charge the battery pack within the specified temperature range:

15°C (59°F) to 40°C (104°F)

Otherwise, the charging time will be longer, but the battery will not reach a full charge. While charging, at a point after the temperature goes out of the specified range, the charging will automatically stop.

TURN OFF the power before charging, to avoid damage to the battery. **Charge** the battery at least once every six months, even if it has been not used for a long period of time. The battery will have slowly self-discharged, even though it has not been used. If the battery is left for a long period without being charged, its life cycle will be shorter, or worse, it will never accept a charge again.

❑ Battery lifetime and replacement

The internal battery material will become weak after a period of time, even with little use. The estimated number of charging and discharging cycles is between 300 and 500, depending on the type of operation.

Even when the battery appears to be fully charged, the operating time of the transceiver may become short when:

- Approximately five years have passed since the battery was manufactured.
- The battery has been repeatedly charged.

BE SURE to replace the battery with a new one approximately five years after purchasing, even if it still holds a charge.

Contact your local service shop or authorized dealer about the battery replacement.

OPTIONAL SPEAKER-MICROPHONE

9

■ Descriptions

The SPEAKER MICROPHONE is a lightweight speaker microphone. It fits in the palm of your hand and allows you to talk and listen more easily.

Alligator type clip

To attach the speaker-mic. to your shirt or collar.

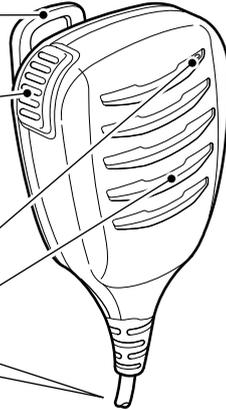
PTT switch

Push to transmit, release to receive.

Microphone

Speaker

Turn the transceiver power OFF when connecting the mic.



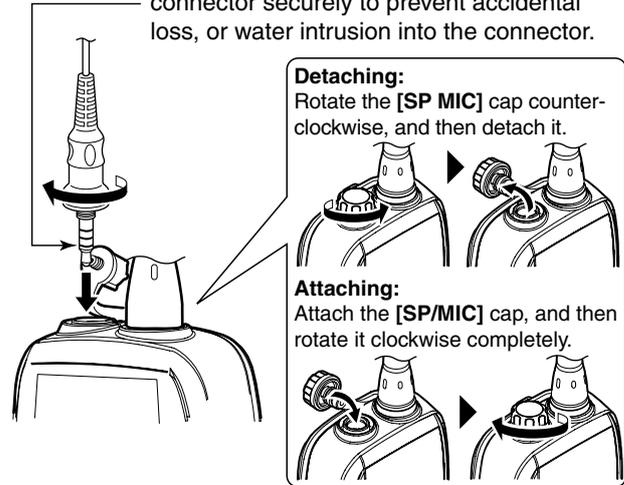
NEVER immerse the connector in water. If the connector gets wet, be sure to dry it **BEFORE** connecting it to the transceiver.

NOTE: The microphone is located at the top of the speaker-microphone, as shown above. To maximize the readability of your transmitted signal (voice), hold the microphone approximately 5 to 10 cm (2 to 4 inches) from your mouth, and speak at your normal voice level.

■ Attaching

Turn OFF the power. Then, insert the speaker-mic connector into the [SP/MIC] connector and securely screw it, as shown below. Be careful not to cross-thread the connection.

CAUTION: Attach the speaker-microphone's connector securely to prevent accidental loss, or water intrusion into the connector.



Detaching:

Rotate the [SP/MIC] cap counter-clockwise, and then detach it.

Attaching:

Attach the [SP/MIC] cap, and then rotate it clockwise completely.

IMPORTANT: **KEEP** the transceiver's [SP/MIC] cap attached when the speaker-microphone is not used. If the cover is not attached, water will get into the transceiver. Moreover, the terminals (pins) will become rusty, or the transceiver will function abnormally if the connector gets wet.

8

9

10 ATIS CODE (For only the NLD and FRG versions)

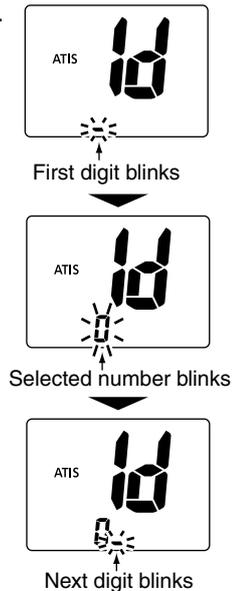
The 10-digit ATIS code can be set and confirmed.

Depending on the dealer setting:

- The ATIS code setting may not be necessary.
- The code can be set only one time.

❑ Setting the ATIS code

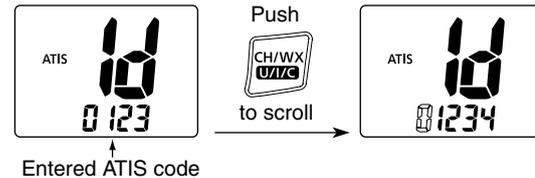
- ① Turn OFF the power.
- ② While holding down [16/C], push [⏻].
 - Enters to the ATIS Code Setting mode.
- ③ Push [▲] or [▼] to select the number for the first digit of the ATIS code.
- ④ Push [CH/WX] to select the next digit, and then push [▲] or [▼] to select a number.
 - Pushing [VOL/SQL] selects the previous digit.
- ⑤ After the 10th digit has been input, push [Hi/Lo] to store the code.
 - The code number stops blinking.
 - Push [16/C] to return to the normal operating mode.



❑ ATIS code confirmation

(Can be performed only when the ATIS code has been programmed.)

- ① Turn OFF the power.
- ② While holding down [16/C], push [⏻] to enter the ATIS code confirmation mode.
 - The digit number and the stored code number appear.
 - Push [CH] to select the next digit, push [VOL/SQL] to select the previous digit.



- ③ Push [16/C] to exit the ATIS Confirmation mode.

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The transceiver does not turn ON.	<ul style="list-style-type: none"> The battery is exhausted. 	<ul style="list-style-type: none"> Charge the battery. 	Page 3
No sound from speaker, or sound is muffled.	<ul style="list-style-type: none"> The squelch level is too high. Volume level is too low. The Volume Mute function is ON. Speaker has been exposed to water. 	<ul style="list-style-type: none"> Adjust the squelch level. Adjust the volume level. Turn OFF the function. Remove water from the speaker grill. 	Page 11 Page 10 Page 12 Page 13
Transmitting is impossible, or high power can not be selected.	<ul style="list-style-type: none"> Some channels are limited to low power or only receive. The output power is set to low. The battery is exhausted. 	<ul style="list-style-type: none"> Select a different channel. Push [Hi/Lo] to select high power. Charge the battery. 	Pages 31, 32, 33 Page 11 Page 3
The displayed channel cannot be changed.	<ul style="list-style-type: none"> The Lock function is activated. 	<ul style="list-style-type: none"> Hold down [LOCK] (Hi/Lo) for 1 second to turn OFF the function. 	Page 12
Scan does not start.	<ul style="list-style-type: none"> Less than 2 channels are set as Favorite channel. (Only Favorite channels are scanned.) 	<ul style="list-style-type: none"> Set desired channels as Favorite channels. 	Page 15
No beep sounds.	<ul style="list-style-type: none"> Beep Tone function is turned OFF. 	<ul style="list-style-type: none"> Turn ON the Beep Tone in the Set mode. 	Page 18
The battery icon blinks, and “Er” and “CHG” are displayed.	<ul style="list-style-type: none"> The battery is charged outside the charging temperature range of 15°C (59°F) to 40°C (104°F). The battery temperature becomes hot such as after continuously transmitting for long time. 	<ul style="list-style-type: none"> Keep the transceiver in a cool place until the internal battery cools down. 	—
The battery cannot be fully charged.	<ul style="list-style-type: none"> The transceiver power is turned ON while charging. The internal battery has become weak. 	<ul style="list-style-type: none"> Turn OFF the transceiver's power, and then charge the battery again. Replace the internal battery. Ask your dealer for details. 	Page 3 Page 24

12 SPECIFICATIONS AND OPTIONS

■ Specifications

Measurements made without an antenna.

□ GENERAL

● (Except [CHN])

- Frequency coverage (MHz):

TX 156.025–
157.425 RX 156.050–163.275

- Mode: FM (16K0G3E)
- Power supply voltage: 3.7 V DC nominal (negative ground)
- Current drain (approximate):

TX (5 W/1.0 W) 2.3 A/0.9
A Maximum audio (internal SP) 0.40
A Maximum audio (external SP) 0.20 A

- Frequency stability: ± 10 ppm
- Operating temperature:
–20°C to +60°C (–4°F to +140°F)

- Dimensions (projections not included):
56.6 (W) × 134.2 (H) × 30.5 (D)
mm, 2.2 (W) × 5.3 (H) × 1.2 (D) inch

- Weight (approximate):
218 g, 7.7 oz
(including the supplied antenna and belt clip)

□ TRANSMITTER**● (Except [CHN])**

- Output power: Approximately 5 W /1 W
- Modulation system: Variable reactance frequency modulation
- Maximum frequency deviation:
 - ±5 kHz
- Adjacent channel power:
 - 70 dB
- Spurious emissions: -68 dBc typical
- Residual modulation: 40 dB
- Audio frequency response:
 - +1 dB to -3 dB of 6 dB octave from 300-3000 Hz

□ RECEIVER**● (Except [CHN])**

- Sensitivity : 0.25 μ V (-12 dB μ) typical (at 12 dB SINAD)
- Squelch sensitivity: 0.25 μ V (-12 dB μ) typical (at threshold)
- Intermodulation: 70 dB typical
- Spurious response: 70 dB typical
- Adjacent channel selectivity:
 - 70 dB typical
- Audio output impedance:
 - 8 Ω (internal speaker)
 - 4 Ω (external speaker)
- Audio output power: Internal SP 0.70 W typical
(at 10% distortion) External SP 0.30 W typical

12 SPECIFICATIONS AND OPTIONS

■ Options

□ CHARGER

- AC ADAPTER
- AC ADAPTER + USB2.0 A-microB cable (same as the supplied one)

□ OTHER OPTIONS

- ANTENNA
- BELT CLIP (same as the supplied one)
- SPEAKER-MICROPHONE

Full sized waterproof speaker-microphone including alligator type clip to attach to your shirt or collar, and so on.

VHF MARINE CHANNEL LIST 13

☐ (USA, EXP and CHN)

Channel Number			Frequency (MHz)		Channel Number			Frequency (MHz)		Channel Number			Frequency (MHz)	
USA	INT	CAN	Transmit	Receive	USA	INT	CAN	Transmit	Receive	USA	INT	CAN	Transmit	Receive
	01	01	156.050	160.650	20	20	20*1	157.000	161.600	1063	1063*6	1063	156.175	156.175
1001	1001*6		156.050	156.050	1020	1020		157.000	157.000		64	64	156.225	160.825
	02	02	156.100	160.700			2020*5	161.600	161.600			1064	156.225	156.225
	03	03	156.150	160.750		21		157.050	161.650		65		156.275	160.875
	04		156.200	160.800	1021	1021*6	1021	157.050	157.050	1065	1065*6	1065*1	156.275	156.275
		1004	156.200	156.200			2021	RX only	161.650		66		156.325	160.925
	05		156.250	160.850		22		157.100	161.700	1066	1066*6	1066*1	156.325	156.325
1005	1005*6	1005	156.250	156.250	1022	1022*6	1022	157.100	157.100	67*1	67	67	156.375	156.375
06	06	06	156.300	156.300		23	23	157.150	161.750	68	68	68	156.425	156.425
	07		156.350	160.950	1023	1023*6		157.150	157.150	69	69	69	156.475	156.475
1007	1007*6	1007	156.350	156.350			2023	RX only	161.750	71	71	71	156.575	156.575
08	08	08	156.400	156.400	24	24*7	24	157.200	161.800	72	72	72	156.625	156.625
09	09	09	156.450	156.450	25	25*7	25	157.250	161.850	73	73	73	156.675	156.675
10	10	10	156.500	156.500			2025	RX only	161.850	74	74	74	156.725	156.725
11	11	11	156.550	156.550	26	26*7	26	157.300	161.900		75*3	75*1	156.775	156.775
12	12	12	156.600	156.600	27	27	27	157.350	161.950		76*3	76*1	156.825	156.825
13*1	13	13*1	156.650	156.650			1027*6	157.350	157.350	77*1	77	77*1	156.875	156.875
14	14	14	156.700	156.700	28	28	28	157.400	162.000		78		156.925	161.525
15*4	15*3	15*1	156.750	156.750			1028*6	157.400	157.400	1078	1078	1078	156.925	156.925
16	16	16	156.800	156.800			2028	RX only	162.000		2078*5		161.525	161.525
17*1	17*2	17*1	156.850	156.850		60	60	156.025	160.625		79		156.975	161.575
	18		156.900	161.500		61		156.075	160.675	1079	1079	1079	156.975	156.975
1018	1018*6	1018	156.900	156.900			1061	156.075	156.075		2079*5		161.575	161.575
	19		156.950	161.550		62		156.125	160.725		80		157.025	161.625
1019	1019	1019	156.950	156.950			1062	156.125	156.125	1080	1080*6	1080	157.025	157.025
	2019*5		161.550	161.550		63		156.175	160.775		81		157.075	161.675

*1 Low power only. *2 Low power only for the CHN version. *3 Low power only (Except for the AUS version). *4 RX only.

*5 RX only (Except for the CHN version). *6 For only the USA and EXP version. *7 For only the AUS and CHN version.

NOTE: Simplex channels, 1021, 1023, 1081, 1082 and 1083 **CANNOT** be lawfully used by the general public in USA waters. When the "CH Display" setting in the Menu screen is set to "3 Digits," the channel number is displayed in 3 digits. (For example: "1001" is displayed as "01A.")

13 VHF MARINE CHANNEL LIST

□ (Except AUS)

• International channels

CH	Frequency (MHz)		CH	Frequency (MHz)		CH	Frequency (MHz)		CH	Frequency (MHz)		CH	Frequency (MHz)	
	Transmit	Receive		Transmit	Receive		Transmit	Receive		Transmit	Receive		Transmit	Receive
01	156.050	160.650	15* ¹	156.750	156.750	1028	157.400	157.400	72	156.625	156.625	82	157.125	161.725
02	156.100	160.700	16	156.800	156.800	31* ^{1,3}	157.550	162.150	73	156.675	156.675	83	157.175	161.775
03	156.150	160.750	17* ¹	156.850	156.850	1037* ⁴	157.850	157.850	74	156.725	156.725	87	157.375	157.375
04	156.200	160.800	18	156.900	161.500	60	156.025	160.625	75* ¹	156.775	156.775	88	157.425	157.425
05	156.250	160.850	19	156.950	161.550	61	156.075	160.675	76* ¹	156.825	156.825	P4* ⁵	161.425	161.425
06	156.300	156.300	1019* ²	156.950	156.950	62	156.125	160.725	77	156.875	156.875			
07	156.350	160.950	2019* ²	RX Only	161.550	63	156.175	160.775	78	156.925	161.525			
08	156.400	156.400	20	157.000	161.600	64	156.225	160.825	1078* ²	156.925	156.925			
09	156.450	156.450	1020* ²	157.000	157.000	65	156.275	160.875	2078* ²	RX Only	161.525			
10	156.500	156.500	2020* ²	RX Only	161.600	66	156.325	160.925	79	156.975	161.575			
11	156.550	156.550	21	157.050	161.650	67	156.375	156.375	1079* ²	156.975	156.975			
12	156.600	156.600	22	157.100	161.700	68	156.425	156.425	2079* ²	RX Only	161.575			
13	156.650	156.650	23	157.150	161.750	69	156.475	156.475	80	157.025	161.625			
14	156.700	156.700	1027	157.350	157.350	71	156.575	156.575	81	157.075	161.675			

*1 Low power only.

*2 Except for the NLD version.

*3 For only the NLD version.

*4 For only the NLD and UK version (UK Marina Channel: M1=1037 (157.850 MHz) for the UK version), and low power only for the NLD version.

*5 UK Marina Channel: M2=P4 (161.425 MHz) for the UK version only.

☐ (for UK version only)

• USA channels

CH	Frequency (MHz)										
	Transmit	Receive									
1001	156.050	156.050	1018	156.900	156.900	1065	156.275	156.275	1082	157.125	157.125
1005	156.250	156.250	1019	156.950	156.950	1066	156.325	156.325	1083	157.175	157.175
06	156.300	156.300	20	157.000	161.600	67*	156.375	156.375	84	157.225	161.825
1007	156.350	156.350	1020	157.000	157.000	68	156.425	156.425	85	157.275	161.875
08	156.400	156.400	1021	157.050	157.050	69	156.475	156.475	86	157.325	161.925
09	156.450	156.450	1022	157.100	157.100	71	156.575	156.575	87	157.375	157.375
10	156.500	156.500	1023	157.150	157.150	72	156.625	156.625	88	157.425	157.425
11	156.550	156.550	24	157.200	161.800	73	156.675	156.675	P4	161.425	161.425
12	156.600	156.600	25	157.250	161.850	74	156.725	156.725			
13*	156.650	156.650	26	157.300	161.900	77*	156.875	156.875			
14	156.700	156.700	27	157.350	161.950	1078	156.925	156.925			
15	RX only	156.750	28	157.400	162.000	1079	156.975	156.975			
16	156.800	156.800	1037	157.850	157.850	1080	157.025	157.025			
17*	156.850	156.850	1063	156.175	156.175	1081	157.075	157.075			

* Low power only.

• 1037 and P4 channels are UK Marina Channels: M1=1037, M2=P4.

/// **NOTE:** Simplex channels, 1021, 1023, 1081, 1082 and 1083 **CANNOT** be lawfully used by the general public in USA waters.

14 INFORMATIONS

■ DISPOSAL



The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that in the European Union, all electrical and electronic products, batteries, and accumulators (rechargeable batteries) must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws in your area.

How the World Communicates

Palby Marine A/S, Korsvej 3, 6000 Kolding, Denmark, CVR nr. 13619883 - palby@palby.dk

Flak AS - Skibåsen 37, 4636 Kristiansand, Norway, Org no: 913308492 - flak@flak.no
