INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

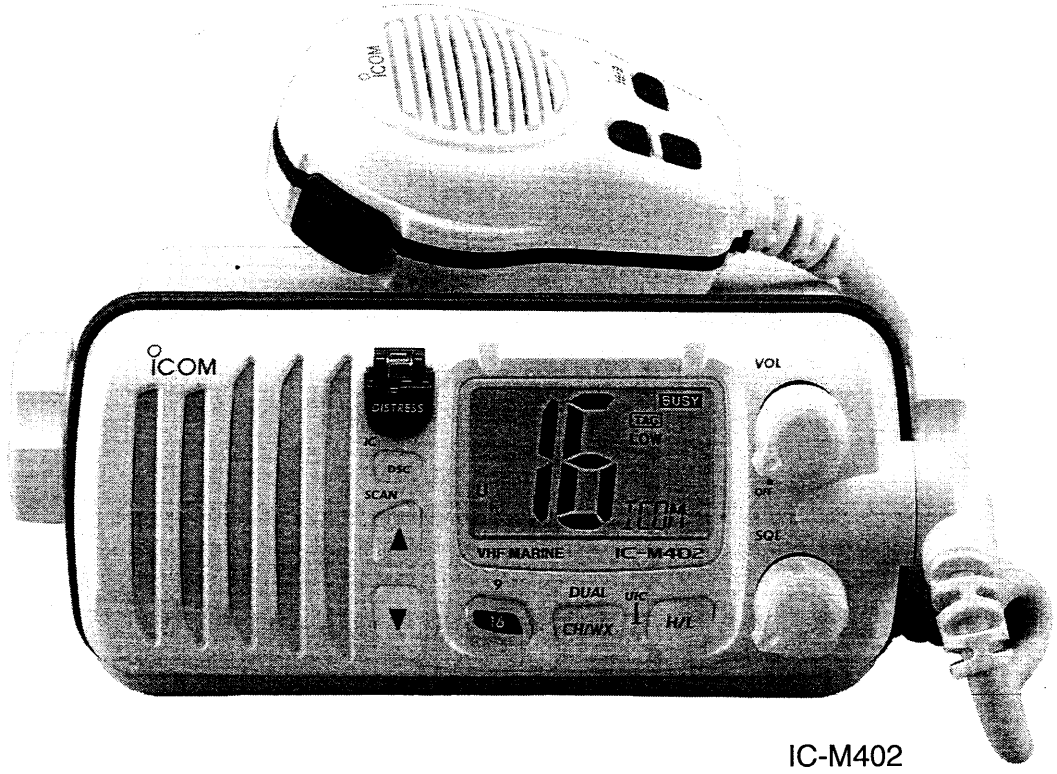
IC-M402

(REMOTE-CONTROL MIC COMPATIBLE)

VHF MARINE TRANSCEIVER

IC-M402S

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



IC-M402

Icom Inc.

FOREWORD

Thank you for purchasing this Icom product. The IC-M402/M402S VHF MARINE TRANSCEIVERs are designed and built with Icom's superior technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

We want to take a couple of moments of your time to thank you for making your IC-M402/M402S your radio of choice, and hope you agree with Icom's philosophy of "technology first." Many hours of research and development went into the design of your IC-M402/M402S.

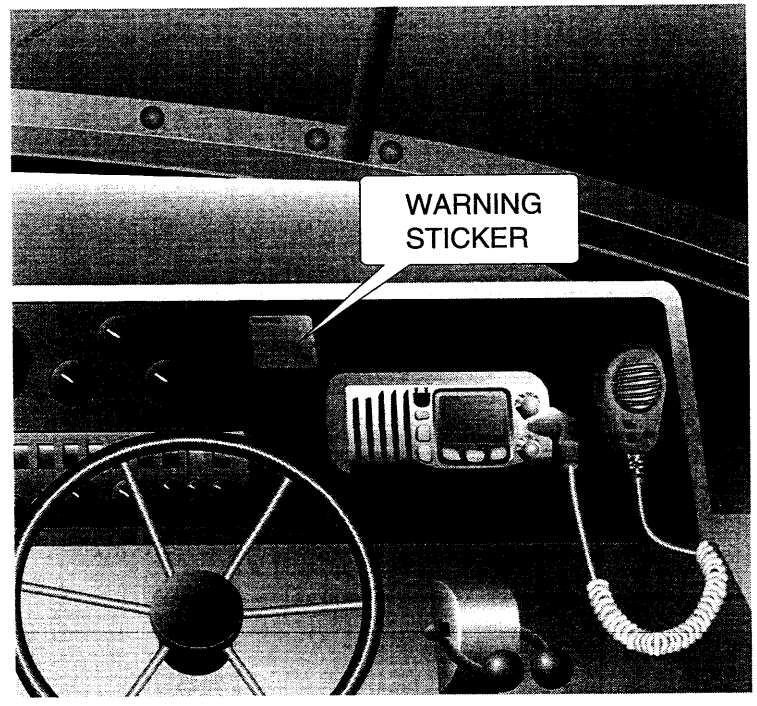
◇*FEATURES*

- ❍ *large 2-digit Ch with scrolling channel names*
- ❍ *Easy to hear speaker*
- ❍ *Built-in DSC capability that meets RTCM SC101*
- ❍ *Rugged waterproof construction*
- ❍ *Optional COMMANDMIC™ (IC-M402 only)*

NOTE

A WARNING STICKER is supplied with the transceiver.
To comply with FCC regulations, this sticker must be affixed in such a location as to be readily seen from the operating controls of the radio like as follows. Make sure the chosen location is clean and dry before applying the sticker. (p. 22)

EXAMPLE



IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL— This instruction manual contains important operating instructions for the IC-M402/M402S.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ 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.

IN CASE OF EMERGENCY

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

USING CHANNEL 16

DISTRESS CALL PROCEDURE

1. "MAYDAY MAYDAY MAYDAY."
2. "THIS IS ....." (name of vessel)
3. Your call sign or other indication of the vessel (AND 9-digit DSC ID if you have one).
4. "LOCATED AT ....." (your position)
5. The nature of the distress and assistance required.
6. Any other information which might facilitate the rescue.

Or, transmit your distress call using digital selective calling on Ch 70.

USING DIGITAL SELECTIVE CALLING (Ch 70)

DISTRESS CALL PROCEDURE

1. While lifting up the switch cover, push and hold [DISTRESS] for 5 sec. until you hear 5 short beeps change to one long beep.
2. Wait for an acknowledgment from a coast station.
   - Channel 16 is automatically selected.
3. Push and hold [PTT], then transmit the appropriate information as at left.

CAUTIONS

⚠**WARNING! NEVER** connect the transceiver to an AC outlet. This may pose a fire hazard or result in an electric shock.

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

NEVER connect the transceiver to a power source of more than 16 V DC or use reverse polarity. This will ruin the transceiver.

NEVER cut the DC power cable between the DC plug and fuse holder. If an incorrect connection is made after cutting, the transceiver may be damaged.

NEVER place the transceiver where normal operation of the vehicle may be hindered or where it could cause bodily injury.

KEEP the transceiver at least 3.3 ft (1 m) away from the ship's navigation compass.

DO NOT use or place the transceiver in areas with temperatures below –4°F (–20°C) or above +140°F (+60°C) or, in areas subject to direct sunlight, such as the dashboard.

AVOID the use of chemical agents such as benzine or alcohol when cleaning, as they may damage the transceiver surfaces.

BE CAREFUL! The transceiver rear panel will become hot when operating continuously for long periods.

Place the transceiver in a secure place to avoid inadvertent use by children.

BE CAREFUL! The transceiver and optional HM-127* employ waterproof construction, which corresponds to JIS waterproof specification, grade 7 (1 m/30 min.). However, once the transceiver or microphone has been dropped, waterproofing cannot be guaranteed due to the fact that the case may be cracked, or the waterproof seal damaged, etc.

*IC-M402 only.

RADIO OPERATOR WARNING

Icom requires the radio operator to meet the FCC Requirements for Radio Frequency Exposure.An omnidirectional antenna with gain not greater than 9 dBi must be mounted a minimum of 5 meters (measured from the lowest point of the antenna) vertically above the main deck and all possible personnel. This is the minimum safe separation distance estimated to meet all RF exposure compliance requirements. This 5 meter distance is based on the FCC Safe Maximum Permissible Exposure (MPE) distance of 3 meters added to the height of an adult (2 meters) and is appropriate for all vessels.

For watercraft without suitable structures, the antenna must be mounted so as to maintain a minimum of 1 meter vertically between the antenna, (measured from the lowest point of the antenna), to the heads of all persons AND all persons must stay outside of the 3 meter MPE radius.

Do not transmit with radio and antenna when persons are within the MPE radius of the antenna, unless such persons (such as driver or radio operator) are shielded from antenna field by a grounded metallic barrier. The MPE Radius is the minimum distance from the antenna axis that person should maintain in order to avoid RF exposure higher than the allowable MPE level set by FCC.

FAILURE TO OBSERVE THESE LIMITS MAY ALLOW THOSE WITHIN THE MPE RADIUS TO EXPERIENCE RF RADIATION ABSORPTION WHICH EXCEEDS THE FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE) LIMIT.
IT IS THE RESPONSIBILITY OF THE RADIO OPERATOR TO ENSURE THAT THE MAXIMUM PERMISSIBLE EXPOSURE LIMITS ARE OBSERVED AT ALL TIMES DURING RADIO TRANSMISSION. THE RADIO OPERATOR IS TO ENSURE THAT NO BYSTANDERS COME WITHIN THE RADIUS OF THE MAXIMUM PERMISSIBLE EXPOSURE LIMITS.

Determining MPE Radius
THE MAXIMUM PERMISSIBLE EXPOSURE (MPE) RADIUS HAS BEEN ESTIMATED TO BE A RADIUS OF ABOUT 3M PER OET BULLETIN 65 OF THE FCC.
THIS ESTIMATE IS MADE ASSUMING THE MAXIMUM POWER OF THE RADIO AND ANTENNAS WITH A MAXIMUM GAIN OF 9dBi ARE USED FOR A SHIP MOUNTED SYSTEM.

TABLE OF CONTENTS

1 OPERATING RULES

■ Channel selection

◇PRIORITIES

- Read all rules and regulations pertaining to priorities and keep an up-to-date copy handy. Safety and distress calls take priority over all others.
- You should monitor Ch 16 when you are not operating on another channel.
- False or fraudulent distress signals are prohibited and punishable by law.

◇PRIVACY

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

◇RADIO LICENSES

(1) SHIP STATION LICENSE

In some countries, you must have a current radio station license before using the transceiver.

Inquire through 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.

The Restricted Radiotelephone Operator Permit must be posted or kept with the operator.

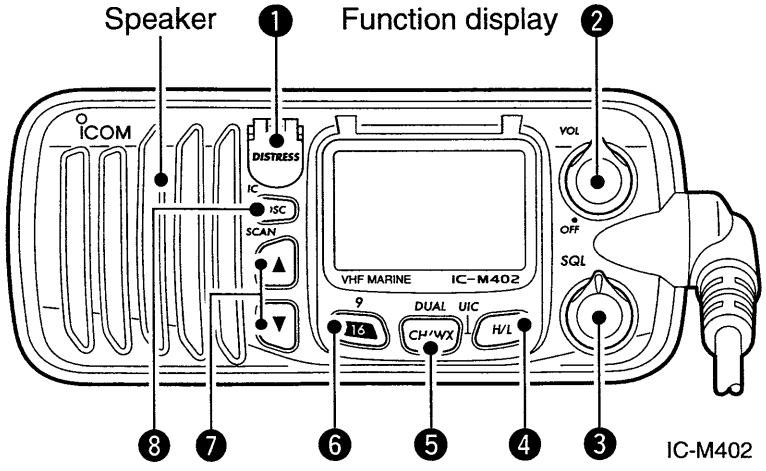
However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, ends the call and makes the necessary log entries.

Keep a copy of the current government rules and regulations handy.

Radio license for boaters (U.S.A. only)

The Telecommunications Act of 1996 permits recreational boaters to have and use a VHF marine radio, EPIRB, and marine radar without having an FCC ship station license. Boaters travelling on international voyages, having an HF single sideband radiotelephone or marine satellite terminal, or required to carry a marine radio under any other regulation must still carry an FCC ship station license. For further information, see the FCC Ship Radio Stations Fact Sheet.

■ Panel description



IC-M402

❶ DISTRESS SWITCH [DISTRESS]
Transmits distress call when pushed for 5 sec. (p. 12)

❷ POWER / VOLUME CONTROL [VOL]
Turns power ON and OFF and adjusts the audio level. (p. 6)

❸ SQUELCH CONTROL [SQL]
Sets the squelch threshold level. (p. 6)

❹ TRANSMIT POWER SWITCH [H/L]
➥Toggles high and low power when pushed. (p. 6)
•Some channels are set to low power only.
➥While pushing this switch, other switches perform secondary functions.

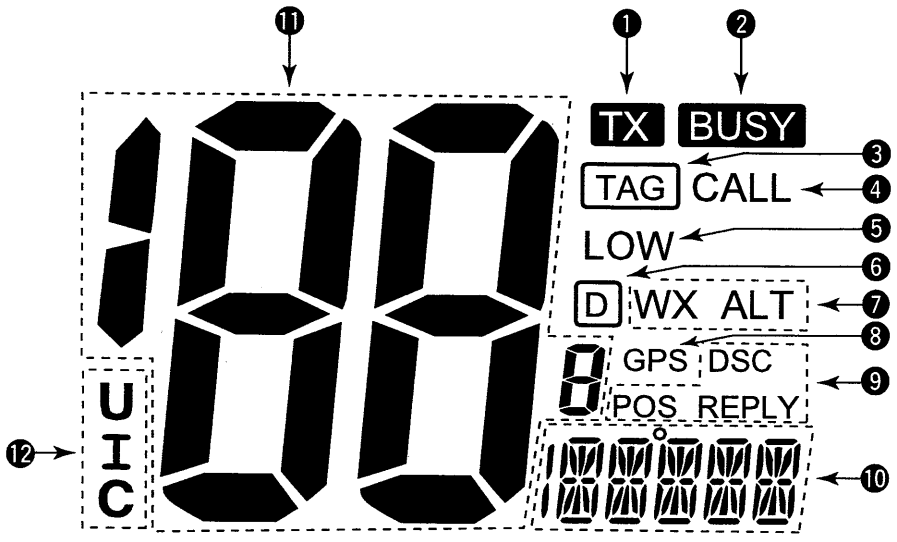
❺ CHANNEL SWITCH [CH/WX•DUAL]
➥Selects and toggles the regular channels and weather channel when pushed momentarily. (p. 5)
➥While push and hold [H/L] push [CH/WX•DUAL] to selects one of 3 regular channels in sequence. (p. 5)
•International, U.S.A. and Canadian channels are available for regular channels.
➥Starts dualwatch or tri-watch when pushed for 1 sec. (p. 8)
➥Stops dualwatch or tri-watch when either is activated.

❻ CHANNEL 16/CALL CHANNEL SWITCH [16•9]
➥Selects Ch 16 when pushed. (p. 5)
➥Selects call channel when pushed for 1 sec. (p. 5)
•"CALL" appears when call channel is selected.
➥Push for 3 sec. to enter call channel programming condition when call channel is selected. (p. 7)
➥While push and hold [H/L] push [16•9] to enter memory name programming condition. (p. 7)
➥While turning power ON push [16•9] to enter set mode. (p. 20)

❼ CHANNEL UP / DOWN SWITCHES [▲/▼ •SCAN]
➥Push to select the operating channels, set mode contents, etc. (p. 6)
➥While push and hold [H/L] push [▲]/[▼] to adjust the brightness of the LCD and switch backlight.
➥Push for 3 sec. to enter call channel programming condition when call channel is selected. (p. 7)
➥Push [▲] or [▼] for 1sec. to start/stop scanning. (p. 10)
➥Push [▲] and [▼] for 1sec. to toggle the tag setting for the displayed channel. (p. 10)

❽ DSC/INTERCOM SWITCH [DSC/IC] ([DSC] for IC-M402S)
➥Selects the DSC menu when pushed. (p. 11)
➥While push and hold [H/L] push [DSC] for 1 sec. to show current position and time. (p. 11)
➥Push [DSC] for 1 sec. to enter intercom mode. (IC-M402 only, p. 19)

■ Function display



❶ TRANSMIT INDICATOR (p. 6)
"TX" appears while transmitting.

❷ BUSY INDICATOR (p. 6)
"BUSY" appears when receiving a signal or when the squelch opens.

❸ TAG CHANNEL INDICATOR (p. 9)
Appears when a tag channel is selected.

❹ CALL CHANNEL INDICATOR
"CALL" appears when the call channel is selected. (p. 5)

❺ LOW POWER INDICATOR (p. 6)
"LOW" appears when low power is selected.

❻ DUPLEX INDICATOR (p. 5)
"D" Appears when a duplex channel is selected.

❼ WEATHER CHANNEL INDICATOR (p. 6)
➥"WX" appears when a weather channel is selected.
➥"ALT" appears when the weather alert function is in use; flashes when an alert tone is received.

❽ GPS INDICATOR
➥"GPS" appears while valid position data is received.
➥"GPS" blinks when invalid position data is received.
➥"GPS" disappears when no GPS receiver is connected.

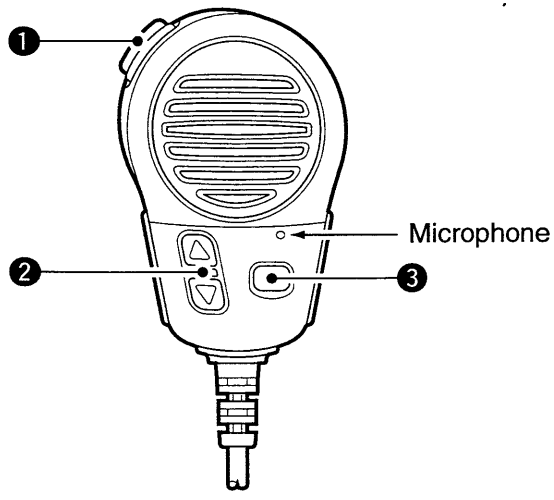
❾ DSC INDICATOR
➥Indicates the DSC status.

❿ CHANNEL NAME INDICATOR
➥Channel comment appears if programmed. (p. 7).
➥"LOW BATTERY" scrolls when the battery voltage drops to approx. 10 V DC or below.
➥"DW" appears during dualwatch; "TW" appears during tri-watch. (p. 8)

⓫ CHANNEL NUMBER READOUT
➥Indicates the selected operating channel number. "A" appears when a simplex channel is selected. (p. 5)
➥In set mode, indicates the selected condition. (p. 20)

⓬ CHANNEL NUMBER READOUT
Indicates whether a U.S.A. (**USA**), International (**INT**), or Canadian (**CANADA**) channel is in use.

■ Microphone

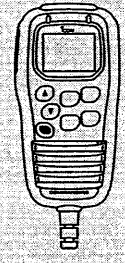


❶ PTT SWITCH [PTT]
Push and hold to transmit; release to receive. (p. 6)

❷ CHANNEL UP/DOWN SWITCHES [▲]/[▼]
Push either switch to change the operating channel, set mode contents, etc. (p. 6)

❸ CHANNEL 16/CALL CHANNEL SWITCH [16/9]
➥Same function as the [16•9] switch on the front panel. (p. 2)
- Selects Ch 16 when pushed. (p. 5)
- Selects call channel when pushed for 1 sec. (p. 5)
  - "CALL" appears when call channel is selected.
- Push for 3 sec. to enter call channel programming mode when call channel is selected. (p. 7)

- While push and hold [H/L] on the front panel push [16/9] to enter memory channel name programming condition. (p. 7)
- While push and hold [16/9] on the supplied microphone, turn power ON to toggle the microphone lock function ON and OFF. (p. 6)

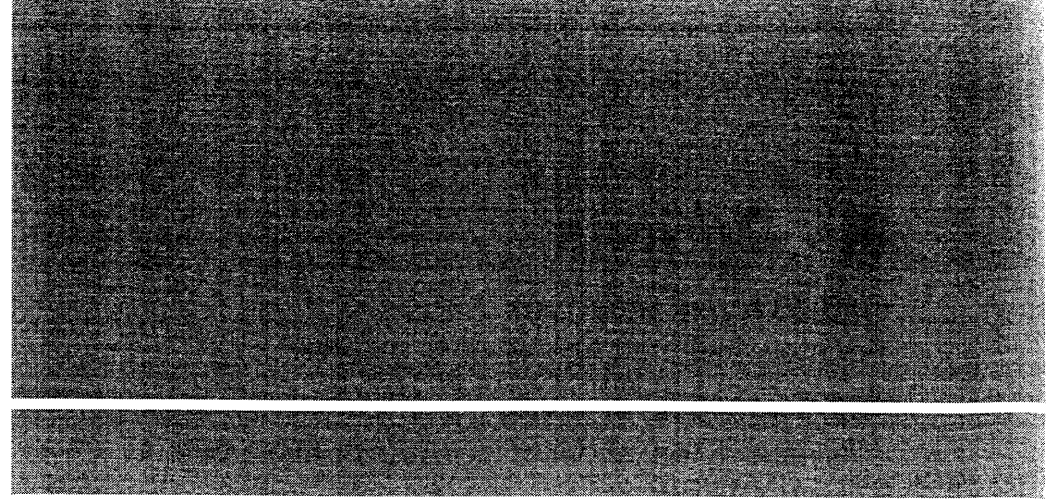


NOTE:

The optional **HM-127** REMOTE CONTROL MICROPHONE and **OPC-999** MICROPHONE EXTENSION CABLE can be connected to **IC-M402 only**.
➥p. 19 Intercom operation
➥p. 26-37 HM-127 REMOTE-CONTROL MICROPHONE)

IC-M402S has **no external microphone speaker jack** for connecting **HM-127** and **OPC-999**.

Count on us!



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Icom Inc.
1-1-32 Kamiminami, Hirano-ku, Osaka 547-0003 Japan