



INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

IC-M45EURO

Icom Inc.

FOREWORD

Thank you for purchasing this Icom product. The IC-M45EURO VHF MARINE TRANSCEIVER is designed and built with Icom's superior technology and craftsmanship. With proper care this product should provide you with years of trouble-free operation.

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-M45EURO.

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.

FEATURES

-  **Durable, water-resistant construction**
Built tough to withstand the punishing marine environment, the IC-M45EURO offers reliability you can count on.
-  **Dual watch and tri-watch functions**
Convenient functions which allow you to monitor the distress channel (ch 16) while receiving a channel of your choice—dual watch; or monitor the distress channel and another channel while receiving a channel of your choice—tri-watch.
-  **Large, easy-to-read LCD**
With dimensions of 20(H) × 60(W) mm, the IC-M45EURO's function display is easy to read and shows operating conditions at a glance. Backlighting and contrast can be adjusted to suit your preferences.
-  **'Smart' microphone**
Operating channel and transmit output power level settings are easily selectable via the supplied microphone.
-  **Simple operation**
Ergonomic design with a minimum number of switches and controls provides simple intuitive operation.

CAUTIONS

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

⚠ WARNING HIGH VOLTAGE! NEVER touch the antenna or an internal antenna connector during transmission. This may result in an electric shock or a burn.

NEVER connect the transceiver to a power source of more than 16 V DC. This connection will ruin the transceiver.

AVOID using or placing the transceiver in direct sunlight or in areas with temperatures below -20°C (-4°F) or above $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

DO NOT operate the transceiver without running the vessel's engine. When your vessel's engine is OFF and the transceiver is transmitting, the vessel's battery will soon become exhausted.

KEEP the transceiver out of the reach of children.

KEEP the antenna cable and DC power cable as far away as possible from electrical pumps, generators and other electronic instruments to prevent instrument malfunctions.

KEEP the transceiver and microphone at least 1 meter away from your vessel's magnetic navigation compass.

IN CASE OF EMERGENCY

If your vessel requires assistance, contact other vessels and the 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 indication of the vessel.
4. "LOCATED AT" (your position)
5. The nature of the distress and assistance required.
6. Any other information which might facilitate the rescue.

CE Versions of the IC-M45EURO which display the "CE" symbol on the serial number seal, comply with the essential requirements of the 89/336/EEC directive for Electromagnetic Compatibility.

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◇ 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 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

SHIP STATION LICENSE

When your craft is equipped with a VHF FM transceiver, you must have a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed.

Inquire through your dealer or the appropriate government agency for a Ship-Radiotelephone license. This license includes the call sign which is your craft's identification for radio purposes.

OPERATOR'S LICENSE

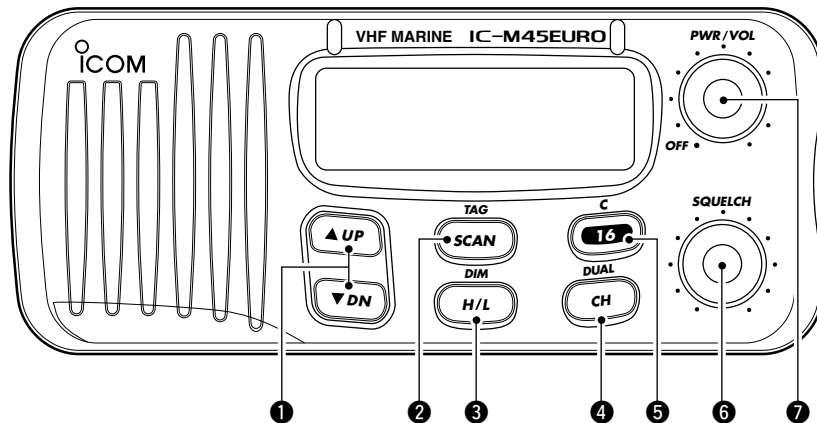
A restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes.

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

■ Front panel



① CHANNEL UP/DOWN SWITCHES [▲UP]/[▼DN]

Push to select an operating channel. (p. 6)

- Push and hold to 'speed' scroll up or down through the available channels.

② SCAN SWITCH [SCAN • TAG]

➔ Push to start/stop scanning. (p. 9)

- Scan type can be selected in SET mode. (p. 12)

➔ Push for 1 sec. to toggle the tag setting for the displayed channel. (p. 9)

③ HIGH/LOW POWER SWITCH [H/L • DIM]

➔ Toggles between high and low output powers. (p. 8)

➔ While pushing, push the [UP]/[DN] switches to adjust the display backlighting. (p. 10)

➔ While pushing, push [SCAN] for 3 sec. to clear all tag channels. (p. 9)

④ CHANNEL SWITCH [CH • DUAL]

➔ Push to selects the International channel group. (p. 6)

➔ The U.S.A. channel group is also available. To toggle between international and U.S.A. channels, while pushing [H/L], push this switch.

5 CHANNEL 16 SWITCH [16 • C]

- ➔ Push to select channel 16. (p. 5)
- ➔ Push for 1 sec. to select the call channel (the call channel number is different depend on version). (p. 5)
 - Each group can have it's own call channel programmed.
- ➔ Push for 3 sec. (when a call channel is selected) to enter call channel write mode. (p. 10)
 - Channel indication flashes.

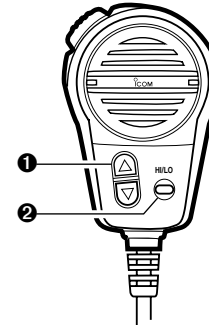
6 SQUELCH CONTROL [SQUELCH]

Rotate clockwise to eliminate audio noise. (p. 7)

7 POWER/VOLUME CONTROL [PWR/VOL]

Turns power ON and OFF and adjusts the audio output level.

Microphone



1 CHANNEL UP/DOWN SWITCHES [▲]/[▼]

Select an operating channel in the selected channel group.

- These switches can be used instead of the transceiver's [UP]/[DN] switches.

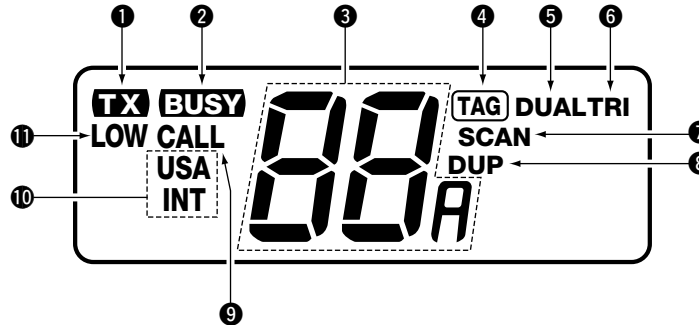
2 HIGH/LOW POWER SWITCH [HI/LO]

The same function as the transceiver's [H/L] switch—toggles between high and low output powers.

- Pushing this key at power ON turns the microphone keys ON/OFF.

2 PANEL DESCRIPTION

■ Function display



❶ TRANSMIT INDICATOR

Appears while transmitting. (p. 8)

❷ BUSY INDICATOR

Appears when receiving a signal or when [SQUELCH] is rotated too far clockwise. (p. 7)

❸ CHANNEL INDICATOR

Shows the operating channel (pgs. 5, 6)

❹ TAG CHANNEL INDICATOR

Appears when the selected channel is set as a tag channel. (p. 9)

❺ DUALWATCH INDICATOR

Appears and flashes during dualwatch operation. (p. 7)

❻ TRI-WATCH INDICATOR

Appears and flashes during tri-watch operation. (p. 7)

❼ SCAN INDICATOR

Appears and flashes during scan operation. (p. 9)

❽ DUPLEX INDICATOR

Appears when the selected channel is a duplex channel. (p. 6)

❾ CALL CHANNEL INDICATOR

Appears when the call channel is selected. (p. 5)

❿ MODE INDICATORS (p. 5, 6)

➔ "USA" shows that USA channels are selected.

➔ "INT" shows that international channels are selected.

⓫ LOW POWER INDICATOR

Shows that low output power is selected. (p. 8)

■ Power ON

- ① Rotate [PWR/VOL] clockwise to turn power ON.



All display indications appear briefly.

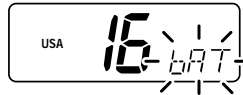


Channel 16 is automatically selected.

- ② Operate the transceiver as indicated in the following sections.

◇ Low voltage indicator

When “bAT” appears and flashes as shown at right, there is a DC power source problem. In this case, check your vessel’s battery and DC power cable.



■ Channel selection

◇ Channel 16

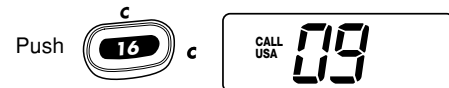
Channel 16 is the distress channel. It is used for establishing initial contact with another station and for emergency communications. Channel 16 is monitored during dual/tri-watch. While standing by you are required to monitor channel 16.



◇ Call channel

The call channel is used to store your most often-used channel for quick recall. In addition, the call channel is monitored during tri-watch. The default setting for the call channel is channel 16* which is for leisure boat use. A separate call channel can be set for each channel group (USA and INT).

* The default call channel number is depends on version.



for 1 sec.

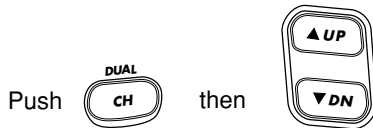
“CALL” indicates that the call channel is selected.

3 BASIC OPERATION

◇ International channels

There are 55 international channels for the IC-M45EURO.

- ① Push [CH] to select an international channel.
- ② Push [UP]/[DN] to select a channel.
 - “DUP” appears for duplex channels.



Simplex channel
Used for ship-to-ship
communication



Duplex channel
Used for ship-to-coast
communication

/// The previously selected channel is recalled by the [CH] switch directory from channel 16 or the call channel. However, once push the channel [UP]/[DN] switch from channel 16 or the call channel, the previously selected channel cannot be recalled in this manner.

■ Receiving

- ① Rotate [PWR/VOL] to turn power ON.
- ② Rotate [SQUELCH] fully counterclockwise.
- ③ Adjust [PWR/VOL] to a suitable listening level.
- ④ Rotate [SQUELCH] clockwise until the audio noise disappears.
- ⑤ Select a channel. See pgs. 5–6 for details.
 - When a signal is received:
 - The squelch opens.
 - Audio is emitted from the speaker.
 - “BUSY” appears in the function display.
- ⑥ When an interrupting signal is received, rotate [SQUELCH] deeply clockwise.

◇ Dual/tri-watch functions

These functions allow you to conveniently check the distress channel (ch 16) or, both the distress and leisure call channel (ch 9; programmable) while receiving another channel. When receiving a signal on one of these channels, the transceiver stops on the channel until the signal disappears.

Depending on your preference, select dual watch or tri-watch in advance in SET mode (p. 12). Dual watch is the default setting.

When dual watch is selected in SET mode:

- ➡ Push [CH • DUAL] for 1 sec. to start dual watch.



Checking channel 16 every 2 sec.



When receiving a signal on channel 16. Channel 16 is monitored until the signal disappears.

When tri-watch is selected in SET mode:

- ➡ Push [CH • DUAL] for 1 sec. to start tri-watch.

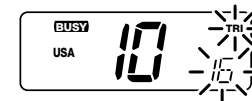


Checking channel 16 and the call channel every 2 sec.



When receiving a signal on the call channel, the call channel is monitored while checking ch 16 in 2 sec. intervals.

When receiving a signal on channel 16, channel 16 has priority.




- ➡ Push any switch to cancel dual/tri-watch and return to normal operation.

3 BASIC OPERATION

■ Transmitting

Before transmitting, read the call procedures at right.

- ① Select an operating channel. See pgs. 5–6 for details.
- ② Push [H/L] to select a transmit output power.
 - “LOW” appears when low output power is selected.
 - High power cannot be selected on some channels. Refer to the channel list on p. 18.
- ③ Push and hold the [PTT] switch to transmit.
 - “TX” appears.
- ④ Speak into the microphone at your normal voice level.
 - Do not hold the microphone too closely to your mouth or speak too loudly. This may distort the signal.
- ⑤ Release the [PTT] switch to receive.

 **IMPORTANT:** In order to maximize the readability of your transmitted signal, pause for a moment after pushing [PTT], hold the microphone 15–20 cm from your mouth, then speak into the microphone at an even, normal voice level.

CALL PROCEDURES

You must identify yourself when you transmit and you must respect time limits.

- 1) Give your call sign each time you call another vessel or a coast station. If you have no call sign, identify the station by giving the vessel name and the name of the license.
- 2) Give your call sign at the end of each transmission that lasts more than 3 minutes.
- 3) You must pause and give your call sign at least once every 15 minutes during long ship-to-shore calls.
- 4) Keep your calls short (less than 3 minutes). Wait 2 minutes before repeating a call.

■ Scan function

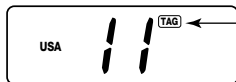
The transceiver has a high speed scan function for standing by on utility signals. The scan speed is 8 channel/sec. (except when the weather alert function is in use).

Two scan types are available: *normal scan* (scans all tag channels in sequence) and *priority scan* (checks channel 16 while scanning). These scans can be selected in SET mode (p. 12).

◇ Setting tag channels

You can specify channels as tag channels for efficient scanning. Tag channels can be set for each channel group (USA, INT) independently.

- ➔ Select the desired channel, then push [SCAN • TAG] for 1 sec. to toggle the tag setting.



Appears when the channel is specified as a tag channel.

✓ Clearing all tag channels

While pushing [H/L], push [SCAN • TAG] for 3 sec. until the long beep becomes 2 short beeps.

- All tag channels in the selected channel group are released.

◇ Scan operation

- ① Be sure the squelch is set to the threshold point.
- ② Push [SCAN] to start scanning.
 - “SCAN” appears and flashes in the function display.
 - “16” appears during priority scan.
- ③ To stop the scan, push [SCAN] again.
 - “SCAN” disappears.

✓ Scan resume timer

When a signal is detected, scan pauses until the signal disappears or resumes after pausing 5 sec., according to the SET mode setting. (p. 12)

✓ Confirming tag channels

While operating scan, push [UP] or [DN].

- Only tag channels are selected.
- Stop pushing [UP] or [DN] to resume scan.

3 BASIC OPERATION

■ Call channel programming

Pushing [16 • C] for 1 sec. selects the call channel, channel 16 by default, however you can program your most often-used channels in each channel group for quick recall.

- ① Push [16 • C] for 1 sec. to select the call channel of the selected group.
 - “CALL” and the call channel number appear.
- ② Push [16 • C] for 3 sec. to enter call channel write mode.
 - Call channel and channel group to be programmed flash.
- ③ Push [UP] or [DN] to select the desired channel.
- ④ Push any switch to automatically program the selected channel.
 - The transceiver returns to normal operation.



■ Display backlighting

The function display and switches can be backlit for better visibility under low light conditions.

While pushing [H/L • DIM], push [UP] or [DN] to adjust the backlighting.

- Backlighting can be set to 1 of 4 intensities or turned OFF.

■ Entering SET mode

SET mode is used to customize operation of the transceiver to suit your operating needs.

◇ To enter SET mode:

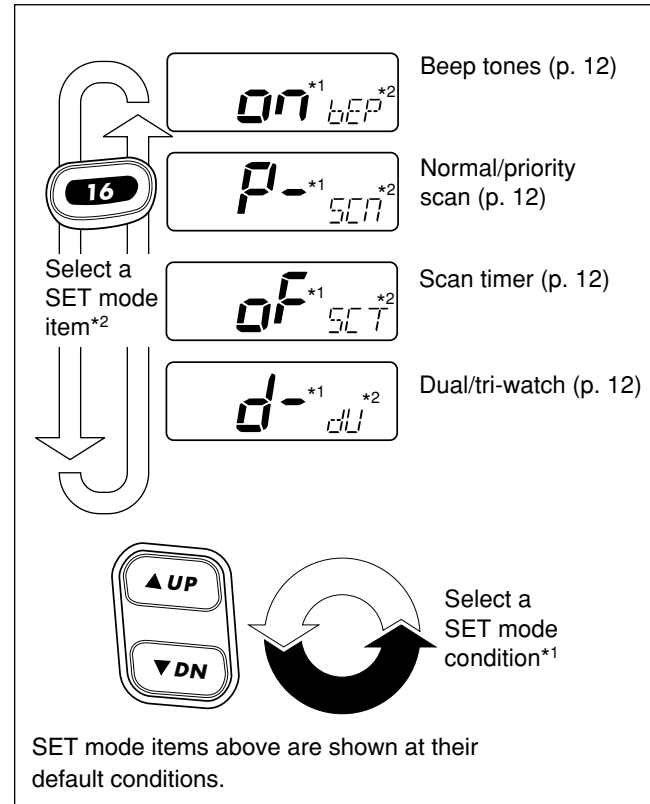
- ① While pushing [16], turn power ON.
 - Keep pushing [16] until the initial SET mode display appears.
 - SET mode is selected.
- ② To exit SET mode, turn power OFF then ON again.

◇ To select an item:

There are 5 items in SET mode that may be adjusted to suit your operating needs.

- ① Select SET mode as above.
- ② Push [16] to select an item; then push [UP]/[DN] to set the condition for the item.

■ SET mode items



4 SET MODE

◇ BEEP TONES

This item sets the transceiver's confirmation beep tones (when pushing a switch) ON or OFF.

Beep tones ON (default)

on bEP



Beep tones OFF

of bEP

◇ NORMAL/PRIORITY SCAN

This item sets the scan function to normal or priority operation. (See p. 9)

Priority scan (default)

p- sCN



Normal scan

n- sCN

◇ DUAL/TRI-WATCH

This item sets the [CH • DUAL] switch to activate dual watch or tri-watch. (p. 7)

Dual watch (default)

d- dU



Tri-watch

t- dU

◇ SCAN TIMER

This item sets the scan timer ON or OFF.

Scan timer OFF (default)

of sCT



Scan timer ON

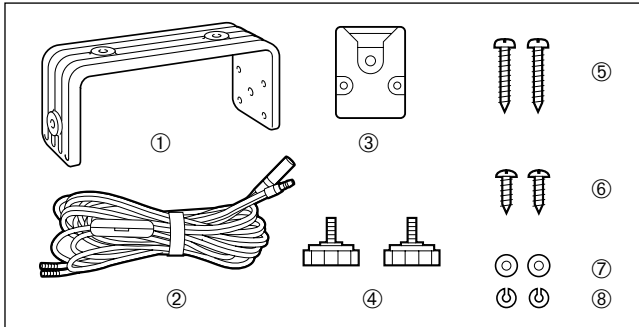
on sCT

- Scan pauses on a signal until the signal disappears, and resumes 3 sec. after that.

- Scan pauses on a signal and resumes 5 sec. later.

■ Unpacking

① Mounting bracket	1
② DC power cable (OPC-632)	1
③ Microphone hanger	1
④ Mounting bracket knobs	2
⑤ Mounting screws (5 × 20)	2
⑥ Mic hanger screws (3.5 × 30)	2
⑦ Flat washers (M5)	2
⑧ Spring washers (M5)	2



■ Antenna

A key element in the performance of any communication system is an antenna. Ask your Dealer about antennas and the best places to mount them.

■ Fuse replacement

Two fuses are installed in the supplied DC power cable. If a fuse blows or the transceiver stops functioning, track down the source of the problem, if possible, and replace the damaged fuse with a new, rated one.

• Fuse rating: 10 A

■ Cleaning

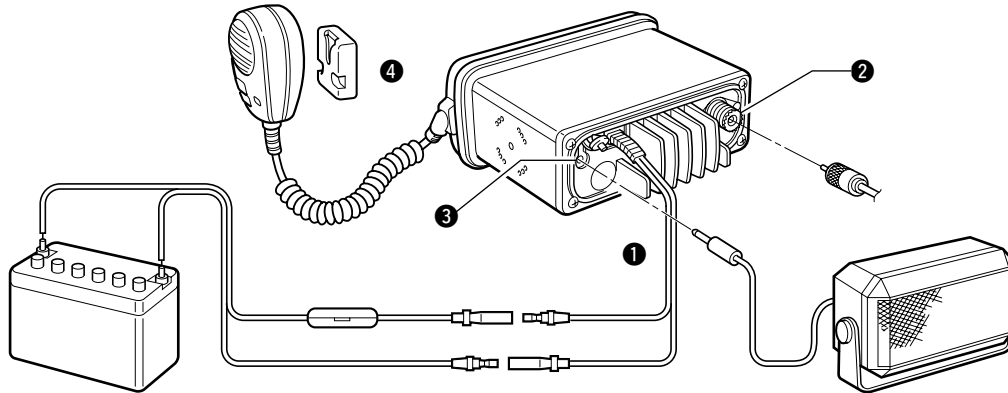
If the transceiver becomes dusty or dirty, wipe it clean with a dry, soft cloth.



AVOID the use of solvents such as benzene or alcohol, as they may damage transceiver surfaces.

5 CONNECTIONS AND MAINTENANCE

■ Connections



❶ DC POWER CONNECTOR

Connects the supplied DC power cable from this connector to an external 12 V DC power source.

❷ ANTENNA CONNECTOR

Connects a marine VHF antenna with a PL-259 connector to the transceiver.

CAUTION: Transmitting without an antenna will damage the transceiver.

❸ EXTERNAL SPEAKER JACK

Connects to an external speaker. See *OPTIONS* on p. 19 for available external speakers

❹ MICROPHONE HANGER

Rest the microphone on the hanger when not in use.

■ Mounting the transceiver

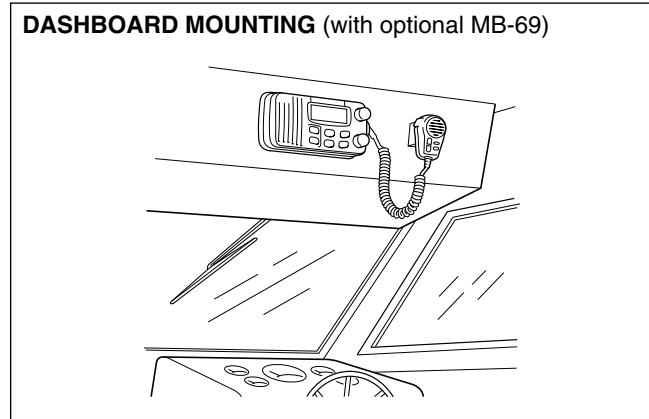
The universal mounting bracket supplied with your transceiver allows overhead or dashboard mounting. Please read the following instructions carefully.

- Mount the transceiver securely with the 2 supplied screws (M5 × 20) to a surface which is more than 10 mm thick and can support more than 5 kg.
- Mount the transceiver so that the face of the transceiver is at 90° to your line of sight when operating it.

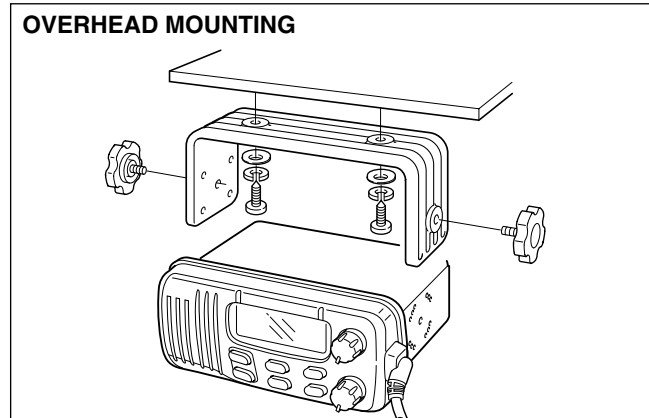
/// **CAUTION: KEEP** the transceiver and microphone at least 1 meter away from your vessel's magnetic navigation compass.

- ☞ **NOTE:** Check the installation angle; the function display may not be easy to read at some angles.

DASHBOARD MOUNTING (with optional MB-69)

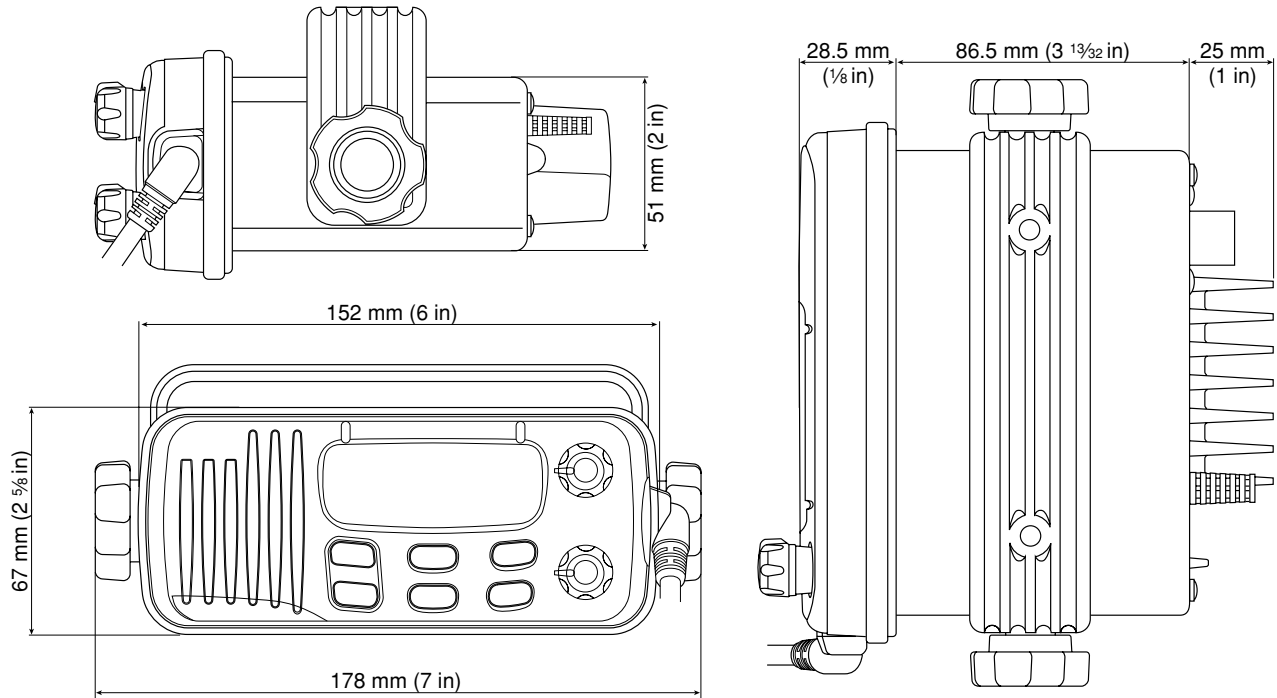


OVERHEAD MOUNTING



5 CONNECTIONS AND MAINTENANCE

■ Dimensions



PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
No power comes on.	<ul style="list-style-type: none"> • Power cord not connected properly. • Blown fuse. 	<ul style="list-style-type: none"> • Check the power cord connection. • Check the polarity of the power connection, then, replace the fuse. 	p. 14 p. 13
No sound comes from the speaker.	<ul style="list-style-type: none"> • [SQUELCH] is rotated too far clockwise. 	<ul style="list-style-type: none"> • Rotate [SQUELCH] counterclockwise to a suitable position. 	p. 7
No beeps sound even when a switch is pushed.	<ul style="list-style-type: none"> • Beep function is turned OFF. 	<ul style="list-style-type: none"> • Set beeps to ON in SET mode. 	p. 12
Sensitivity is low and only strong signals are audible.	<ul style="list-style-type: none"> • [SQUELCH] is rotated too far clockwise. • Antenna feedline or the antenna connector solder has poor contact or is short circuited. 	<ul style="list-style-type: none"> • Rotate [SQUELCH] counterclockwise to a suitable position. • Check, and if necessary, replace the feedline or solder the antenna connector again. 	p. 7 p. 14
Transmitting is impossible or high power cannot be selected.	<ul style="list-style-type: none"> • Transmission is restricted on some channels. 	<ul style="list-style-type: none"> • Change channels. 	p. 18
Desired channel cannot be selected.	<ul style="list-style-type: none"> • Different channel group is selected. 	<ul style="list-style-type: none"> • Push [CH] to select the appropriate channel group . 	p. 6
No display backlighting.	<ul style="list-style-type: none"> • Backlight function is turned OFF. 	<ul style="list-style-type: none"> • While pushing [H/L • DIM], push [UP]/[DN] to select the desired brightness. 	p. 10
Scan does not start.	<ul style="list-style-type: none"> • No "TAG" channels are programmed. 	<ul style="list-style-type: none"> • Set channels to be scanned as "TAG" channels. 	p. 9

◇ International channels

CH	Frequency (MHz)		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		Transmit	Receive
01	156.050	160.650	11	156.550	156.550	21	157.050	161.650	62	156.125	160.725	72	156.625	156.625	84	157.225	161.825
02	156.100	160.700	12	156.600	156.600	22	157.100	161.700	63	156.175	160.775	73	156.675	156.675	85	157.275	161.875
03	156.150	160.750	13	156.650	156.650	23	157.150	161.750	64	156.225	160.825	74	156.725	156.725	86	157.325	161.925
04	156.200	160.800	14	156.700	156.700	24	157.200	161.800	65	156.275	160.875	77	156.875	156.875	87	157.375	161.975
05	156.250	160.850	15*1	156.750	156.750	25	157.250	161.850	66	156.325	160.925	78	156.925	161.525	88	157.425	162.025
06	156.300	156.300	16	156.800	156.800	26	157.300	161.900	67	156.375	156.375	79	156.975	161.575			
07	156.350	160.950	17	156.850	156.850	27	157.350	161.950	68	156.425	156.425	80	157.025	161.625			
08	156.400	156.400	18	156.900	161.500	28	157.400	162.000	69	156.475	156.475	81	157.075	161.675			
09	156.450	156.450	19	156.950	161.550	60	156.025	160.625	70*2	156.525	156.525	82	157.125	161.725			
10	156.500	156.500	20	157.000	161.600	61	156.075	160.675	71	156.575	156.575	83	157.175	161.775			

*1 Low power only *2 Receive only

■ Specifications

General

- Frequency coverage : Transmit 156–157.5 MHz
Receive 156–163 MHz
- Usable channels : All International channels
- Mode : 16KOG3E
- Power supply requirement : 13.8 V DC \pm 15% (negative ground)
- Current drain : Transmit
(at 13.8 V DC) high power 6.0 A
Receive
max. audio output 1.2 A
- Frequency stability : \pm 1.5 KHz (-20°C to $+60^{\circ}\text{C}$)
- Usable temperature range : -20°C to $+60^{\circ}\text{C}$; -4°F to $+140^{\circ}\text{F}$
- Dimensions : 152(W) \times 67(H) \times 144(D) mm
(projections not included) 6(W) \times 2 $\frac{5}{8}$ (H) \times 5 $\frac{2}{3}$ (D) in
- Weight : 900 g; 2 lb

Transmitter

- Output power : High 25 W Low 1 W
- Modulation system : Variable reactance
frequency modulation
- Max. frequency deviation : \pm 5 kHz
- Spurious emissions : Less than -70 dB
- Microphone impedance : 600 Ω

Receiver

- Receive system : Double-conversion
superheterodyne
- Intermediate frequencies : 1st 30.85 MHz
2nd 450 kHz
- Sensitivity : 0.3 μV at 12 dB SINAD
- Intermodulation rejection : More than 68 dB
- Adjacent channel selectivity : More than 70 dB
- Spurious response rejection ratio : More than 70 dB
- Audio output power : More than 2 W at 10%
(at 13.8 V DC) distortion with a 4 Ω load
- Audio output impedance : 4 Ω

■ Options

MB-69 FLUSH MOUNT

For mounting the IC-M45EURO to a panel. Available in black or white.

SP-5 EXTERNAL SPEAKER

A large, external speaker for superior audio output.

SP-10 EXTERNAL SPEAKER

A compact, external speaker. Features easy installation.

Count on us!

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