ICOM

INSTRUCTION MANUAL

MARINE RADAR

# MR-1000RII

(Radome type)

# MR-1000TII

(Open array type; 4 kW)

# MR-1000TIII

(Open array type; 6 kW)


Icom Inc.

# SYSTEM COMPONENTS

| MODEL NAME | CRT DISPLAY | SCANNER UNIT |
|---|---|---|
| MR-1000RII | SX-2713 (10-inch CRT) | EX-2714 (Radome type) |
| MR-1000TII | SX-2779 (10-inch CRT) | EX-2780 (Open array type; 4 kW) |
| MR-1000TIII | | EX-2780 (Open array type; 6 kW) |

# SUPPLIED ACCESSORIES

• **EX-2714** (Radome type unit)

| | Qty. |
|---|---|
| ① System cable (15 m) | 1 |
| ② Installation bolts (M10×50) | 4 |
| ③ Installation bolts (M10×25) | 4 |
| ④ Installation nuts (M10) | 4 |
| ⑤ Flat washers (M10) | 4 |
| ⑥ Spring washers (M10) | 4 |

• **EX-2780** (Open array type unit)

| | Qty. |
|---|---|
| ① System cable (20 m) | 1 |
| ② Installation bolts (M10×40) | 4 |
| ③ Installation nuts (M10) | 4 |
| ④ Flat washers (M10) | 4 |
| ⑤ Spring washers (M10) | 4 |
| ⑥ Allen wrench | 1 |
| ⑦ Cap bolts (M8×18 mm) | 4 |
| ⑧ Belleville washers (8L) | 4 |
| ⑨ Sealing washers (T) | 4 |
| ⑩ Flat washers (M8) | 4 |
| ⑪ Flat washers (AW) | 4 |
| ⑫ Ferrite EMI filter | 1 |

• **SX-2713/SX-2779** (10-inch CRT display unit)

| | Qty. |
|---|---|
| ① NMEA connector (PLT-167-P-R) | 1 |
| ② NMEA connector (PLT-168-P-R) | 1 |
| ③ Spare fuse (FGB 10 A) | 1 |
| ④ Spare fuse (FGB 5 A: for over 24 V power supply) | 1 |
| ⑤ DC power cable | 1 |
| ⑥ Mounting bracket | 1 |
| ⑦ Mounting knob bolts | 2 |
| ⑧ Installation bolts (A0 6×30) | 5 |
| ⑨ Spring washers (M6) | 5 |
| ⑩ Flat washers (M6) | 5 |
| ⑪ Instruction manual | 1 |
| ⑫ Operating guide | 1 |
| ⑬ Viewing hood | 1 |

The MR-1000RII/TII/TIII are supplemental aids to navigation and are not intended to be a substitute for accurate and current nautical charts.

# FOREWORD

Thank you for purchasing Icom's **MR-1000RII/TII/TIII** MARINE RADAR.

The radar is designed especially for fishing boats. It has powerful transmitting power, a 10-inch CRT display and many other advanced features.

If you have any questions regarding the operation of the radar, contact your nearest authorized Icom Inc. dealer.

# IMPORTANT

**READ THIS INSTRUCTION MANUAL CAREFULLY** before attempting to operate the radar.

**SAVE THIS INSTRUCTION MANUAL.** This manual contains important safety and operating instructions for the MR-1000RII/TII/TIII.

# EXPLICIT DEFINITIONS

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

## BE CAREFUL!

**SART** signals may not be detected and may not be displayed on the screen depending on the **SEA**, **RAIN** or **IR** settings.

Follow the settings as below to detect the SART signals on the screen.

① Select the screen range between 6 NM to 12 NM with **[+/–]**. (p. 1)
② Set the **[GAIN]** as high as possible. (p. 2)
③ Set the **[SEA]** to minimum. (p. 2)
④ Set the **[RAIN]** to minimum. (p. 2)
⑤ Turn OFF the **[IR]** function. (p. 10)
⑥ Turn OFF the **[STRETCH]** function. (p. 10)

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# PRECAUTIONS

***For Display unit:***

⚠ **WARNING! NEVER** let metal, wire or other objects touch any internal part of the display unit. This may result in an electric shock.

⚠ **WARNING! NEVER** apply AC voltage to the DC connector of the display unit. This may pose a fire hazard, result in an electric shock or damage the display unit.

⚠ **WARNING! NEVER** apply more than 42 V DC to the DC connector of the display unit. This may pose a fire hazard or damage the display unit.

⚠ **WARNING! NEVER** touch the display unit with wet hands. This may result in an electric shock or damage the display unit.

⚠ **WARNING! NEVER** open the display unit. There are no user adjustment points. This may result in an electric shock and incorrect reassembly may cause a fire hazard.

**CAUTION: NEVER** connect the display unit to a DC power source using reverse polarity. This will damage the display unit.

**CAUTION: NEVER** remove the fuse holder from the DC power cable. This will damage the display unit.

**DO NOT** place the display unit in excessively dusty environments.

**DO NOT** place the display unit near heating equipment or in direct sunlight or where hot or cold air blows directly onto it.

**DO NOT** use or place the display unit in areas with temperature below –15˚C (+5˚F) or above +55˚C (+131˚F).

**DO NOT** use harsh solvents such as benzine or alcohol when cleaning the display unit, as they will damage the display unit's surfaces.

**DO NOT** place the display unit in areas that will block air passage or put anything around the display unit. This will obstruct heat dissipation.

**DO NOT** use the display unit near any magnetic materials, such as a loudspeaker or a large power transformer, as this can cause distortion of the CRT display.

**KEEP** the display unit out of the reach of children.

**KEEP** the display unit away from heavy rain, and never immerse it in the water.
The display unit meets IPX4 requirements for splash resistance when the supplied connection cable, scanner unit are connected.
However, if it is dropped, splash resistance cannot be guaranteed because of possible damage to the case or the waterproof seals.

***For Scanner unit:***

⚠ **DANGER: HIGH VOLTAGE! NEVER** open the scanner unit. The scanner unit contains high voltage that could be fatal. And there are no user adjustment points. All repairs and adjustments **MUST** be made by a qualified electronics technician at your Marine Navigation Dealer.

***For qualified electronics technician only:***

⚠ **DANGER: HIGH VOLTAGE!** High voltages of up to 3,500 volts are used in the scanner unit. Although prudent measures for safety have been adopted, sufficient care must be taken in the operation, maintenance and adjustment of the scanner unit.
Electric shock of 1,000 volts or more may cause electrocution and death; even an electric shock of only 100 volts may be fatal.

⚠ **DANGER: HIGH VOLTAGE!** To prevent an electric shock, turn the radar's power is OFF and do not reach inside the scanner unit until you have:

- discharged the capacitors by disconnecting the system cable from the radar unit for 5 minutes.
- checked that no electric charges remain inside the device.

Also, it is safest to wear dry insulated rubber gloves. **NEVER** use both hands simultaneously; keep one hand in your pocket.

⚠ **WARNING: RADIATION HAZARD!**
Radiation emitted from the scanner unit can be harmful, particularly to the eyes. To avoid harmful radiation, turn the radar's power is OFF before beginning work on the scanner unit.

**DO NOT** use or place the scanner unit in areas with temperature below –25˚C (–13˚F) or above +70˚C (+158˚F).

**NEVER** immerse the scanner unit in the water.
The scanner units meet IPX6* requirements for high-pressure water jet resistance.
However, if these items are dropped, high-pressure water jet resistance cannot be guaranteed because of possible damage to the cases or the waterproof seals.

* Except for the cable connectors. They meet IPX4 requirements while connecting to the radar unit.

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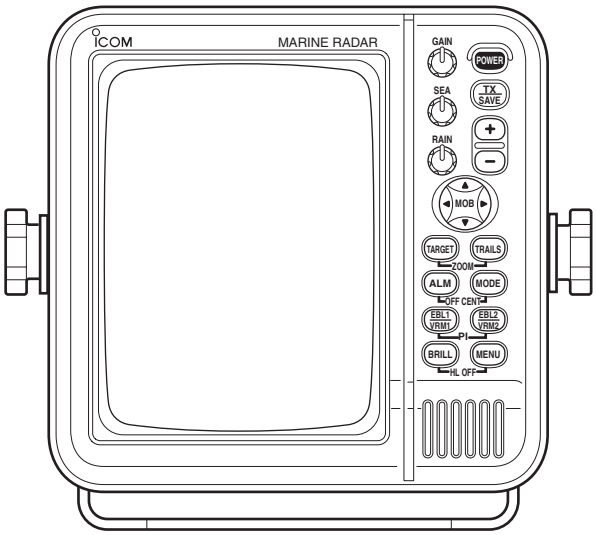
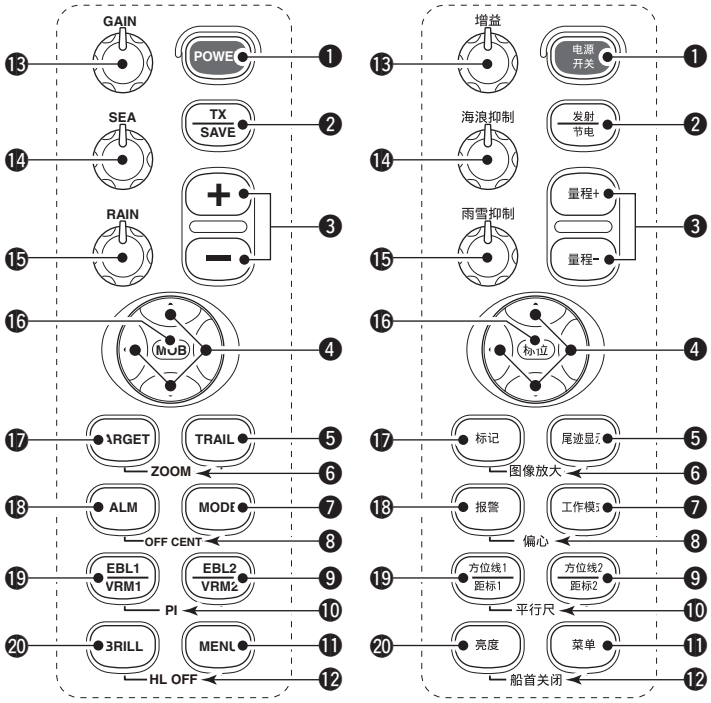
# 1 PANEL DESCRIPTION

## ■ Front panel




Control panel (English) Control panel (Chinese)

**❶ POWER SWITCH [POWER]/[电源开关]** (p. 7)
Push to turn the radar power ON or OFF.
- The standby screen appears for 90 seconds while the magnetron warms up.
- The initial screen appears and a beep sounds after the power has been turned ON.

**❷ TRANSMIT/SAVE SWITCH [TX (SAVE)]/ [发射(节电)]**
➥ Push to toggle between the TX mode and the standby mode. (p. 8)
➥ Hold down for 1 second to turn ON the power save function. The radar for TX interval scan is fixed at 10 revolutions. (p. 11)
- Select the save time in INT. SETTING menu.

**❸ RANGE UP/ DOWN SWITCHES [+]/[–]/ [量程+]/[量程–]** (p. 8)
Push [+] to increase the screen range.
Push [–] to decrease the screen range.

**❹ UP, DOWN, LEFT, RIGHT KEYS [▲] [▼] [◀] [▶]**
Set the EBLs, VRMs, alarm area, ATA target, etc. according to the key pushed.
Use [▲] [▼] to select menu item and [◀] [▶] to set the item.
Using [▲] [◀]/[▲] [▶] or [▼] [◀]/[▼] [▶] combination allows you to move the cross line cursor to the upper (or lower) left or right.

**❺ TRAILS SWITCH [TRAILS]/[尾迹显示]** (p. 11)
Push to toggle the trail function ON or OFF. This is useful for watching other ship's tracks, approximate relative speed.
- Trail Time can be set in VIDEO menu.

**❻ ZOOM FUNCTION [ZOOM]/[图像放大]** (p. 10)
Push [TARGET]/[ 标记] and [TRAILS]/[尾迹显示] simultaneously to toggle the ZOOM function ON or OFF. The ZOOM function enlarges the target to two times normal size.
- Move the cursor to the target, then turn ON the function.
- The screen zooms the middle of the screen around own ship.
- This function is not available on the 1/8 and the 32 NM or higher ranges.

**❼ MODE SWITCH [MODE]/[工作模式]**
Push to select the Head-up (H UP), Course-up (C UP), North-up (N UP) or True motion (TM) screens.
- The North-up and Course-up screens can be selected only when a bearing data input is connected. (p. 38)
- The TM screen requires bearing data and LOG or position data. (p. 38)
- TheTM screen is not selectable on the 32 NM or higher range.

**❽ OFF CENTER FUNCTION [OFF CENT]/[偏心]** (p. 9)
Push [ALM]/[ 报警] and [MODE]/[工作模式] simultaneously to turn the OFF CENTER function ON or OFF.
- This function is usable on 24NM or less ranges.

**❾ EBL2 (VRM2) SWITCH [EBL2 (VRM2)]/ [方位线2(距标2)]** (pp. 14, 15)
Push to display the electronic bearing line 2 (EBL2) and the variable range marker 2 (VRM2), and activate the [◀] [▶] for the electronic bearing line selector and [▲] [▼] for the range marker selector.
- When VRM1 and EBL1 (❾ ❷) are displayed, the center of VRM2 appears at the intersection point of VRM1 and EBL1.

**❿ PARALLEL INDEX LINE FUNCTION [PI]/[平行尺]**
Push [EBL1]/[方位线1(距标1)] and [EBL2]/[方位线2(距标2)] simultaneously to toggle the parallel index line ON and OFF.
- Push [◀] [▶] to rotate the lines, and push [▲] [▼] to adjust the line spaces.

**⓫ MENU SWITCH [MENU]/[菜单]** (pp. 5, 6)
Push [MENU]/[菜单] to toggle the VIDEO, FUNCTION, ATA, INT. SETTING and SERVICE MAN menus. Push [▲] [▼] to select the items and push [◀] [▶] to change the setting.

**⓬ HEADING LINE OFF FUNCTION [HL OFF]/ [船首关闭]** (p. 8)
Push [BRILL]/[亮度] and [MENU]/[菜单] simultaneously to turn OFF the heading line temporarily.

**⓭ GAIN CONTROL [GAIN]/[增益]** (p. 8)
Adjusts the receiver amplifier gain.
- Clockwise rotation increases the gain.
- Increased gain may increase screen noise.

**⓮ SEA CLUTTER CONTROL [SEA]/[海浪抑制]** (p. 9)
This function serves to eliminate echoes from the waves at close range.
Reduces the receiver gain for close objects within a radius of 8 nautical miles (approximately) to eliminate sea clutter.
Rotate the control fully clockwise to activate the automatic SEA control function. SEA indicator (㉖) appears in the upper left of the screen.
- Under normal conditions set the SEA to a minimum.
- Use this control with caution when the sea is rough.

**⓯ RAIN CLUTTER CONTROL [RAIN]/[雨雪抑制]** (p. 9)
This function eliminates echoes from rain, snow, fog, etc.
Rotate the control fully counter clockwise to deactivate the RAIN function.
RAIN indicator (㉘) disappears.

**⓰ MAN OVERBOARD [MOB]/[标位]**
Push to mark the man overboard point on the screen. When a crew member falls overboard, hold down [MOB]/[标位] for 1 second to display the MOB symbol (⍁) on the screen.
- The MOB readout shows the bearing, distance and estimated time to the MOB point with current speed.
- Hold down [MOB]/[标位] for 1 second to cancel the function.
- Position and bearing data are necessary.

**⓱ TARGET SWITCH [ATA]/[标记]** (pp. 17–19)
A setup of target caught by ATA (up to 10 targets can be set).
- Push [▲] [▼] [◀] [▶] to move the cross cursor on the echo which you want to plot, before turning ON the function.
- Set the "ATA" function to ON in the "ATA" menu, then set the appropriate No. DISP, VECT, OWN VECT, ALARM, CPA LIMIT and TCPA LIMIT settings.

**⓲ ALARM SWITCH [ALM]/[报警]** (p. 16)
➥ Push [ALM]/[报警] to toggle the alarm function ON and OFF.
➥ Hold down [ALM]/[报警] for 1 second to enter the alarm area setting condition.
- Push [▲] [▼] [◀] [▶] to move the cross cursor to the zone starting point, then hold down [ALM]/[报警] for 1 second. The starting ring of the zone is created. Then push [▲] [▼] [◀] [▶] to fix the finish point, and the desired alarm zone will automatically form.

**⓳ EBL1 (VRM1) SWITCH [EBL1 (VRM1)]/ [方位线1(距标1)]** (pp. 14, 15)
Push to display the electronic bearing line 1 (EBL1) and the variable range marker 1 (VRM1) and activate [◀] [▶] for the electronic bearing line selector, and [▲] [▼] for the range marker selector.
- EBL1 bearing and VRM1 distance are displayed, in the bottom window.
- When EBL1 and VRM1 are displayed, the beginning of EBL2 appears at the intersection point of EBL1 and VRM1.

**⓴ DISPLAY BRILLIANCE SWITCH [BRILL]/[亮度]** (p. 8)
➥Push to increase or decrease the brilliance of the picture on the display.
➥Hold down for 1 second to select the maximum brilliance.

The brightness of the symbols, characters and illuminations can be independently adjusted in the "SYMBOL", "CHARACTER" and "KEY ILLUM" of the INT. SETTING menu.

**Count on us!**

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