



INSTRUCTION MANUAL



MARINE PLOTTER

MXP-5000

DISPLAY UNIT

MXD-5000

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.

Icom Inc.

PREFACE

Thank you for choosing Icom's **MXP-5000** MARINE PLOTTER and **MXD-5000** DISPLAY UNIT.

IMPORTANT

READ THIS INSTRUCTION MANUAL CAREFULLY before attempting to operate the Marine Commander™.

SAVE THIS INSTRUCTION MANUAL. This instruction manual contains important safety and operating instructions for the MXP-5000 and MXD-5000.

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.

For Users in California (USA)

The MXP-5000 uses a Coin Lithium Battery which contains Perchlorate Material—special handling may apply.
See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>

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

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

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All other products or brands are registered trademarks or trademarks of their respective holders.

SUPPLIED ACCESSORIES

	Qty.
MXP-5000 (MAIN UNIT)	
• DC power cable	1
• Ferrite EMI Filter	1
• OPC-1897 (Connection cable: D-SUB 25 pin)	1
• Spring washers (M5)	12
• Flat washers (M5)	12
• Nuts (M5)	6
• Bolts (M5×30 mm)	6
• Fuse (FGB 7.5 A for a 24 V power source)	1
• Spare fuse (FGB 15 A for a 12 V power source)	1
MXD-5000 (DISPLAY UNIT)	
• Front cover	1
• Mounting bracket kit	1 set
- Mounting bracket	1
- Knob bolts	2
- Hex head bolts (M6×30 mm)	5
- Flat washers (M6)	10
- Spring washers (M6)	10
- Nuts (M6)	5
• Mounting bolts (M6×35 mm)	4
• Flat washers for wall mounting (M6)	4
• Spring washers for wall mounting (M6)	4
• Nuts for wall mounting (M6)	4
• Caps	4
EX-3187 (DISPLAY EXTENSION UNIT)	
• Self-tapping screws (A0 4×20 mm)	2
• Flat washers (M4)	2
• Spring washers (M4)	2

FCC INFORMATION

• FOR CLASS A UNINTENTIONAL RADIATORS:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

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PRECAUTIONS

Common (MXP-5000/MXD-5000/EX-3187):

⚠ **WARNING! NEVER** let metal, wire or other objects protrude into the unit or into connectors on the rear panel. This may result in an electric shock.

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

⚠ **WARNING! NEVER** operate the unit during a lightning storm. It may result in an electric shock, cause a fire or damage the unit. Always disconnect the power source and antenna before a storm.

DO NOT place these units near heating equipment or in direct sunlight or where hot or cold air blows directly onto them.

DO NOT place the unit where normal operation of the vessel may be hindered, or where it could cause bodily injury.

DO NOT place or leave the unit in areas with temperatures below -20°C (-4°F) or above $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

DO NOT place these units in areas that will block air passage or put anything around these units. This will obstruct heat dissipation.

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

KEEP these units out of the reach of children.

For MXP-5000 (Main unit):

⚠ **WARNING! NEVER** directly connect the Main unit to an AC outlet. This may cause a fire, or result in an electric shock.

⚠ **WARNING! NEVER** apply more than 32 V DC to the DC input terminals of the Main unit or use reverse polarity. This may pose a fire hazard or damage the Main unit.

⚠ **WARNING! NEVER** cut the DC power cable between the DC plug and the fuse holder. If an incorrect connection is made, the Main unit may be damaged.

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

DO NOT place the unit in excessively dusty environments, or in direct sunlight.

KEEP the Main unit away from heavy rain, and never immerse it in the water.

The Main unit meets IPX4 requirements for splash resistance when the supplied connection cables are connected, and the connector cap is installed on the other connector.

However, once the unit has been dropped, or the waterproof seal is cracked or damaged, waterproof protection cannot be guaranteed because of possible damage to the case or the waterproof seal.

For MXD-5000 (Display unit):

DO NOT place the unit in excessively dusty environments, or in direct sunlight.

BE CAREFUL! The Display unit meets IPX7 requirements for waterproof protection when the rear cover, and the access cover on the Front panel is closed. However, once the unit has been dropped, or the waterproof seal is cracked or damaged, waterproof protection cannot be guaranteed because of possible damage to the case or the waterproof seal.

NOTE: The LCD display may have cosmetic imperfections that appear as small dark or light spots. This is not a malfunction or defect, but a normal characteristic of LCD displays.

For EX-3187 (Display extension unit):

KEEP the Display extension unit away from heavy rain, and never immerse it in the water.

The Display extension unit meets IPX4 requirements for splash resistance when the connection cables are connected.

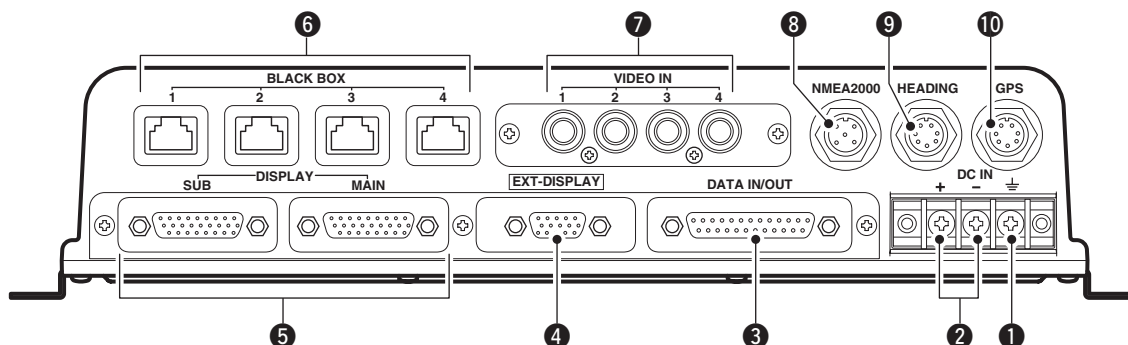
However, once the unit has been dropped, or the waterproof seal is cracked or damaged, waterproof protection cannot be guaranteed because of possible damage to the case or the waterproof seal.

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.

■ MXP-5000 (Main unit)



① GROUND TERMINAL

Connect a ground wire to ground to prevent an electric shocks.

② DC POWER INPUT TERMINALS

Connect the 12 V/24 V DC power source through the DC power cable.

③ DATA IN/OUT CONNECTOR [DATA IN/OUT]

Connect an Icom AIS Transponder, Marine VHF transceiver or navigation equipment.

See page 14 for the [DATA IN/OUT] connector information details.

④ EXTERNAL DISPLAY CONNECTOR [EXT-DISPLAY]

Connect an external monitor or a PC monitor with a D-sub 15-pin connector (DE-15).

The monitor shows the same display as the MAIN display.

- The monitor resolution of 800 × 600 pixels or higher is required.
- The monitor shows the same display as the MAIN display.

⑤ MAIN DISPLAY UNIT CONNECTOR [MAIN] SUB DISPLAY UNIT CONNECTOR [SUB]

Connect the MXD-5000 Display unit. Two display units can be connected.

⑥ BLACK BOX CONNECTORS

• Connector 1 to 3

Connect a black box unit such as, an MXR-5000R/T Radar unit, an MXF-5000 Fish finder unit or another MXP-5000 Main unit.

• Connector 4

Not used.

If you connect an MXR-5000R/T or MXF-5000 to this connector, these units will not operate.

⑦ VIDEO IN CONNECTORS

Four video inputs, such as onboard cameras, can be connected. An RCA type connector is used for these connectors. NTSC or PAL format is compatible.

⑧ NMEA2000 CONNECTOR [NMEA2000]

Connect NMEA 2000 sensors to monitor, the engine, fuel, engine temperature, wind, GPS, Compass and STW.

⑨ HEADING CONNECTOR [HEADING]

Connect a heading sensor.

This connector is the same as port 2 of the [DATA IN/OUT] connector.

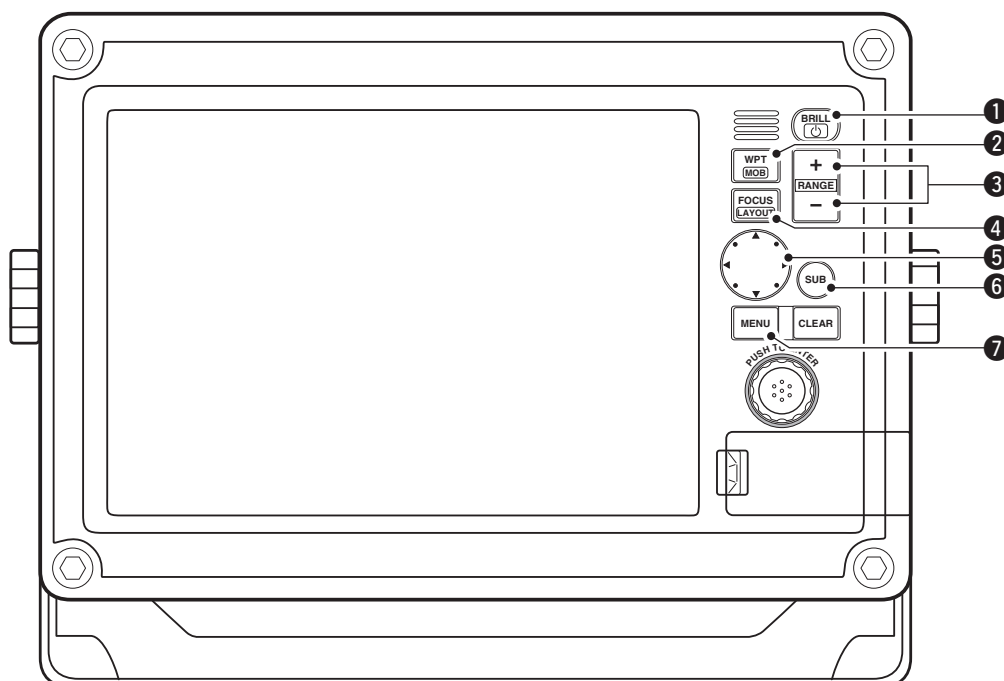
See page 14 for the [DATA IN/OUT] connector information details.

⑩ GPS RECEIVER CONNECTOR [GPS]

Connect the MXG-5000 GPS receiver.

■ MXD-5000 (Display unit)

◇ Front panel



❶ POWER/DISPLAY BRILLIANCE SWITCH [⏻/BRILL]

- **While the MarineCommander's power is OFF**
Push to turn ON the MarineCommander's power.
- **While the MarineCommander's power is ON**
 - ➔ Push to open Quick Menu 1.
 - The Quick Menu 1 includes the Display Brilliance, Radar TX setting, Panel Brilliant and Color Palette.
 - Push two or more times to increase or decrease the display brilliance level.
 - ➔ Hold down for 3 seconds to turn OFF the MarineCommander's power.

❷ WAYPOINT/MAN OVERBOARD SWITCH [WPT/MOB]

- ➔ Push to open the Waypoint screen.
 - The Waypoint window appears.
- ➔ When a crew member falls overboard, hold down for 3 seconds to mark the man overboard point on the screen.
 - The MOB readout shows the bearing and distance to the MOB point. (Position and bearing data are necessary.)
 - Hold down [MOB] for 3 seconds to cancel the function.

❸ RANGE UP/ DOWN SWITCHES [+]/[-]

- ➔ Push [+] or [-] to set a suitable screen range.

❹ FOCUS/DISPLAY LAYOUT SWITCH [FOCUS/LAYOUT]

- ➔ Push to change the active screen.
 - An orange border indicates the active screen.
- ➔ Hold down for 3 seconds to open the display selection screen.

❺ UP, DOWN, LEFT, RIGHT KEYS [▲] [▼] [◀] [▶]

- ➔ Push arrow [▲], [▼], [◀] or [▶] to move the cursor up, down, left or right on the active screen. Push the dot to move at an angle.
- ➔ In the Menu screen, push [▲] or [▼] to select an item.
- ➔ In Quick Menu 1 or Quick Menu 2, push [◀] or [▶] to select an item.
- ➔ In Quick Menu 1 or Quick Menu 2, push [▲] or [▼] to select an option or adjust a level.

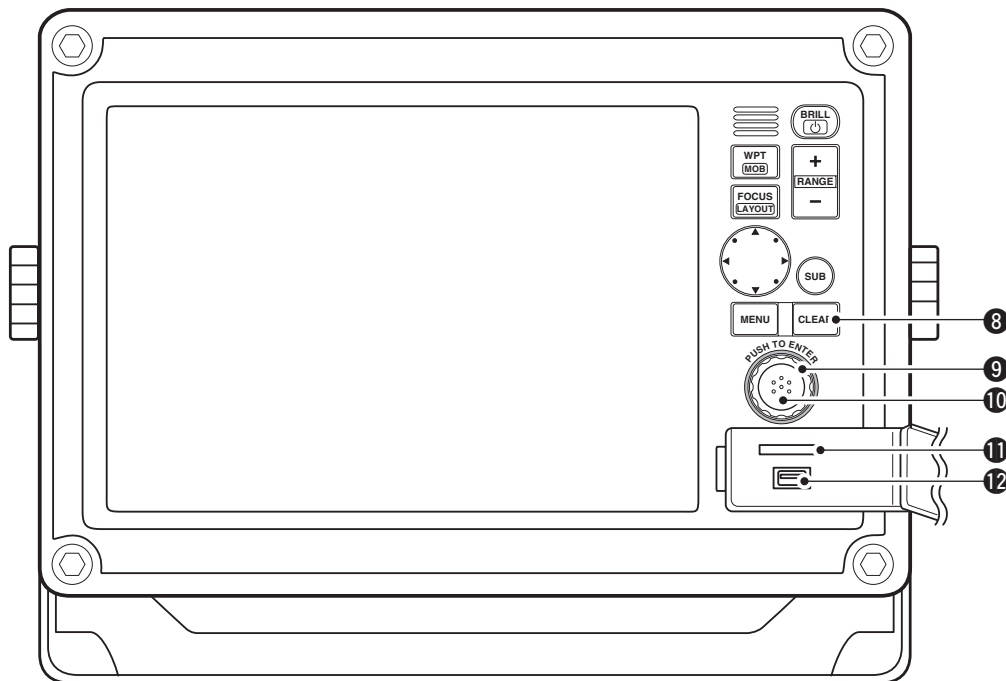
❻ SUB MENU SWITCH [SUB]

- ➔ On the Menu screen, push to enter the Sub Menu.

❼ MENU SWITCH [MENU]

- ➔ Push to select the Menu screen.

◆ Front panel



8 CLEAR SWITCH [CLEAR]

Push to cancel the current function.
While opening the Menu screen, push to cancel and return to the upper menu, or cancel the Menu screen.

9 SELECTION DIAL [DIAL]

- In the Menu screen, rotate to select a menu item or option.
- In Quick Menu 1 or Quick Menu 2, rotate to select an option or adjust a level.

On the Plotter screen

- Rotate to set the heading position.

10 ENTER SWITCH

- In the Menu screen, push to access the selected menu or function.
- Push to access Quick Menu 2.

On the Plotter screen

- Quick Menu 2 includes the Center Ship and Perspective Angle functions.

On the Radar screen

- Quick Menu 2 includes the GAIN, SEA, RAIN, Radar TX menu and Heading line OFF functions.

On the Sounder screen

- Quick Menu 2 includes the GAIN 50kHz, GAIN 200kHz, STC 50kHz and STC 200kHz control functions.

11 SD CARD PORT

Insert an SD Card which contains C-MAP MAX chart* by C-MAP Italy S.r.l.

* Chart data is not supplied by Icom.

- An unmount operation should be performed before removing the SD Card. If you do not unmount the SD Card, the MarineCommander™ will stop operating.



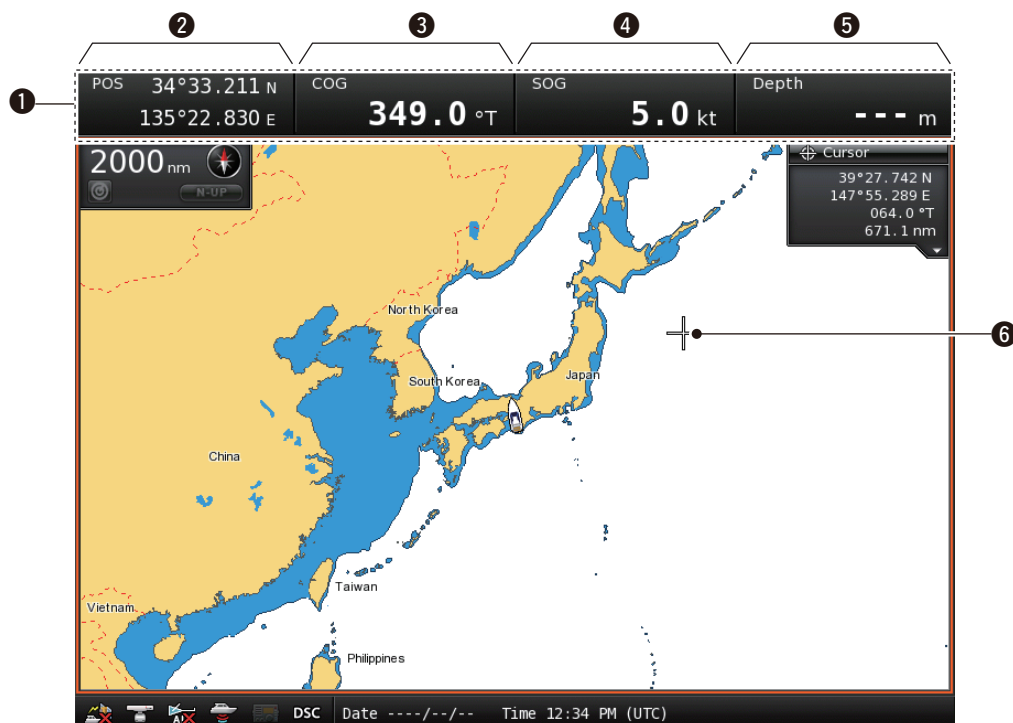
12 USB MEMORY PORT

Connect a USB flash drive.

- An unmount operation should be performed before removing the USB flash drive. If you do not unmount the USB flash drive, the MarineCommander™ will stop operating.

1 PANEL DESCRIPTION

◇ Display



1 DATA-BAR

Shows various information on palettes 1 to 4.

- A total of 20 options are selectable.

The Selectable options are Date/Time, Position, COG/SOG, COG, SOG, Heading/STW, Heading, STW, Depth/Temp., Depth, Temp., Trip Log, Waypoint, XTE, ETA/TTG, ETA, TTG, Cursor, Status and Wind.

2 PALETTE1

Shows various information.

(Default: Position)

Shows the current position data* in latitude/longitude.

*Depending on the presetting, Loran-C Time differences are displayed instead of the position data.

- When the position data is invalid, the position data is shown in red for 1 minute. After 1 minute has passed, “—” (invalid data) will appear.

3 PALETTE2

Shows various information.

(Default: COG)

Shows your vessel's course over ground.

- “T” shows true north bearing, and “M” shows magnetic north bearing.

4 PALETTE3

Shows various information.

(Default: SOG)

Shows your vessel's speed over ground.

If no speed data is found, “—” will appear.

5 PALETTE4

Shows various information.

(Default: Depth)

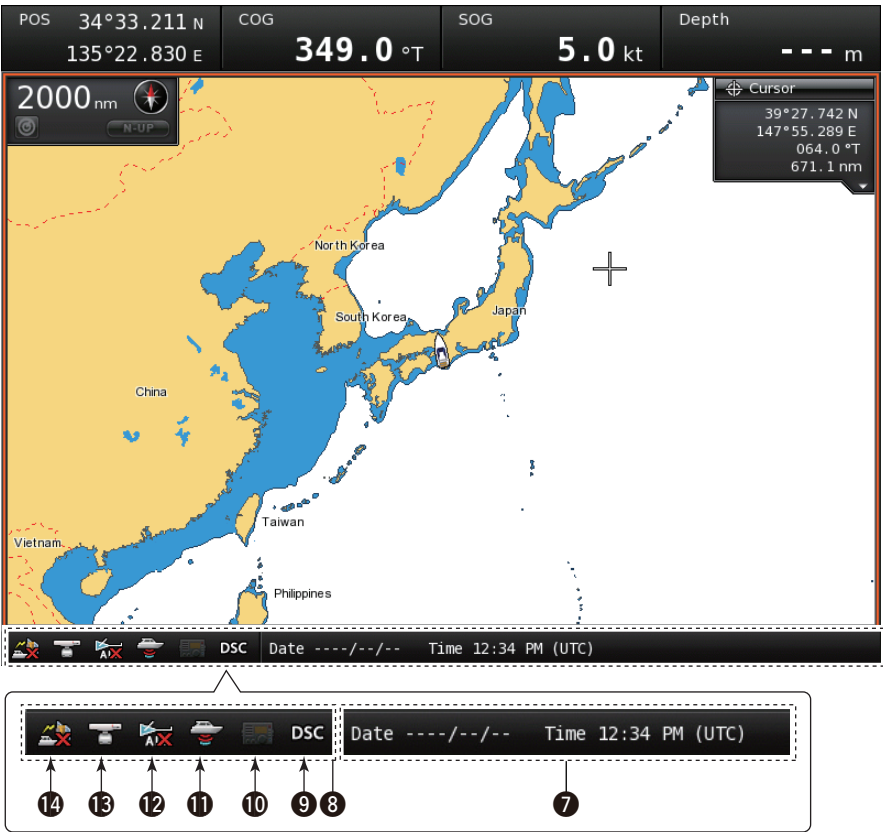
Shows the current depth of the sea bottom, under the vessel.

When a companion Icom fish finder is not connected to the main unit, or the sea bottom is not detected, “—” (invalid data) will appear.

6 CROSS HAIR CURSOR

Appears and moves on the screen when [▲], [▼], [◀] or [▶] is pushed.

◇ Display



7 STATUS-BAR

- Shows the status data.
 - A total of 19 options are selectable.
The selectable options are Date/Time, Position, COG/SOG, COG, SOG, Heading/STW, Heading, STW, Depth/Temp., Depth, Temp., Trip Log, Waypoint, XTE, ETA/TTG, ETA, TTG, Wind and Cursor.
 - When several options are set to be displayed, the data will be displayed in order.

(Default: Date/Time)

- Shows the current time.
 - “--:--” appears when no time data is received.
- Shows the current date.
 - “----/--/--” appears when no date data is received.
- When a menu or dialogue is displayed on the screen, an operation guide for that is displayed here, instead of the status data.

8 FOCUS BAR

This field shows and selects the icons. When this bar is selected, the color of the bar changes to orange.

9 DSC MESSAGE ICON

Blinks when there is an unread message.

10 TRANSCIVER ICON

Appears when a companion Icom transceiver is connected to the Main unit.

11 FISH FINDER ICON

- Display as an animation when a companion Icom fish finder is connected and operating.
- Appears, but not as an animation, when the fish finder is connected but not operating.
- An “X” appears on the icon when the fish finder is not connected to the main unit.

12 AIS UNIT ICON

Appears, but with an “X” below the icon when the AIS unit is not connected to the Main unit. The “X” disappears when an AIS unit is connected to the Main unit and an AIS signal is received.

13 RADAR ICON

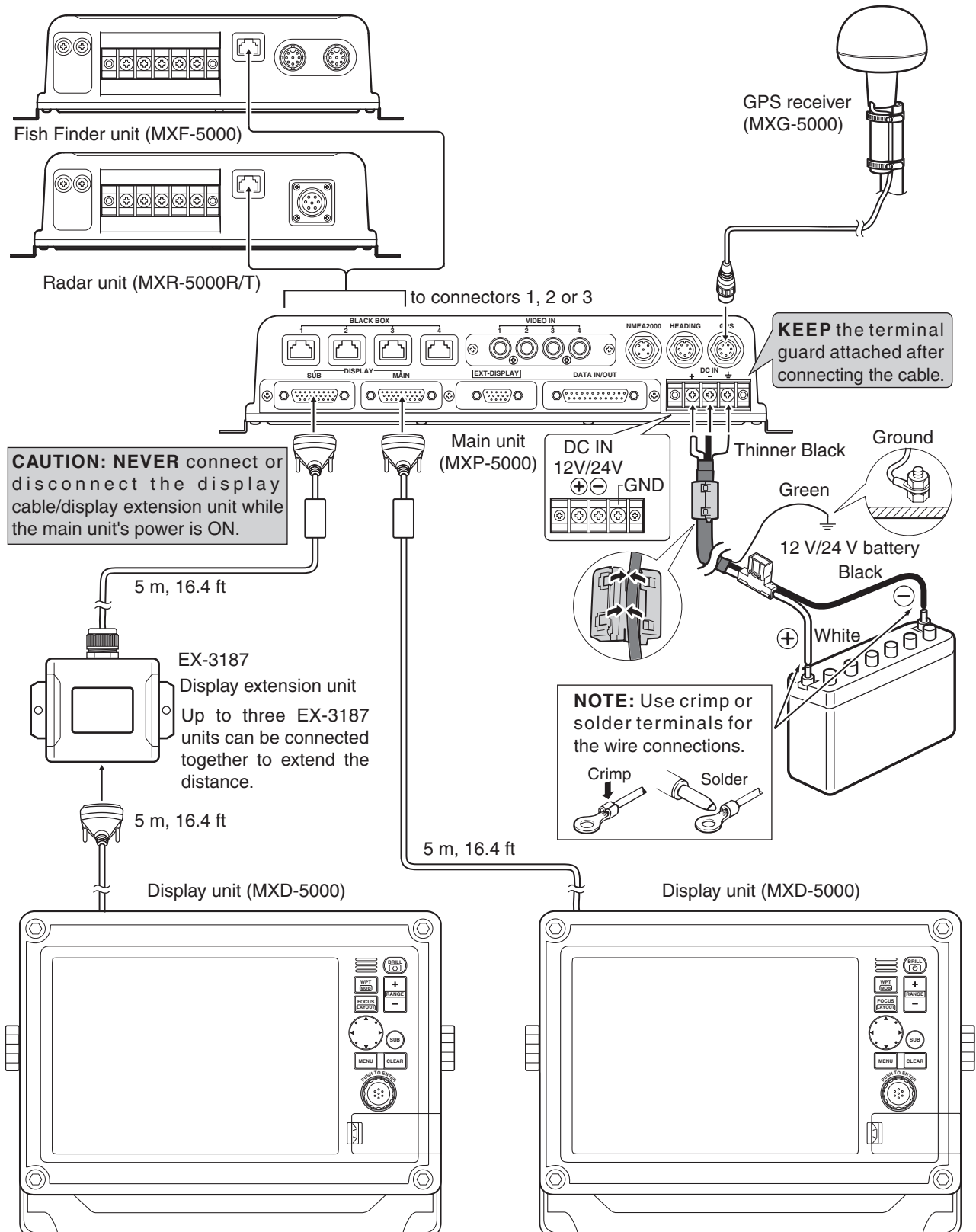
- Appears when a companion Icom radar unit is connected and is in the stand-by mode.
- Appears and rotates when the radar is operating.
- An “X” appears on the icon when the radar is not connected to the main unit.

14 GPS RECEIVER ICON

- Appears when position data is received.
 - An “X” appears on the icon when the position data is not received, or is invalid.

■ Connection

CAUTION: Before making connections, be sure to disconnect the DC power cable from the power source.

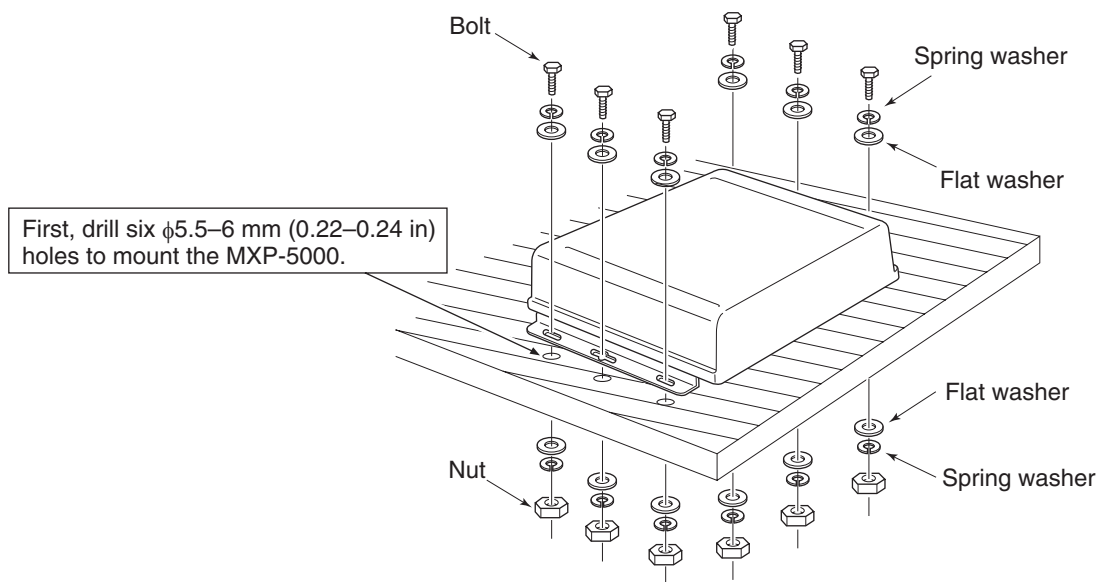


■ Mounting the Main unit

First, drill four $\phi 5.5\text{--}6$ mm (0.22–0.24 in) holes to mount the Main unit, using the unit's base as a pattern.

Securely mount the Main unit to a flat surface which supports more than approximately 7 kg (15 lb), using the six supplied bolts (M5×30 mm).

CAUTION: KEEP the Main unit at least 1 meter (3.28 ft) away from your vessel's magnetic navigation compass.



■ Power source requirement

CAUTION: Before connecting the DC power cable, check the following important items. Make sure:

- Output voltage of the power source is 12 V/24 V DC.
- DC power cable polarity is correct.
 - White : Positive \oplus terminal
 - Black : Negative \ominus terminal
 - Green* : Ground
 - * Main unit side is thinner black.
- Fuse rating of the DC power cable is correct. (The 15 A fuse is pre-installed.)
 - 7.5 A : For a 24 V power source
 - 15 A : For a 12 V power source

■ Ground connection

To prevent electrical shocks and other problems, ground the Main unit using the [GND] terminal. For best results, connect a heavy gauge wire or strap to the nearest grounding point on the boat. The distance between the [GND] terminal and the ground point should be as short as possible.

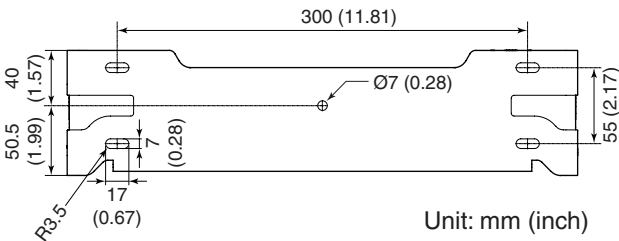
■ Installing the Display unit

◇ Location

Select a place for installation which meets the following important conditions:

- The display unit should be placed near the wheel in the cabin so that the operator may easily view the radar screen while facing the bow.
- To minimize interference, **KEEP** the unit **AT LEAST THE COMPASS SAFE DISTANCE** away from the compass and the navigation receiver. The distance is stated on the rear panel serial number label.
- Select a position where there is no danger of salt or fresh water spray or immersion.
- Select a location where it is easy to perform maintenance or adjustments after installation.
- Select a location which can support the weight of the display unit.
- **DO NOT** select areas subject to extreme heat, cold, vibrations or direct sunlight.

• Mounting Bracket Diagram (Fig. 1)

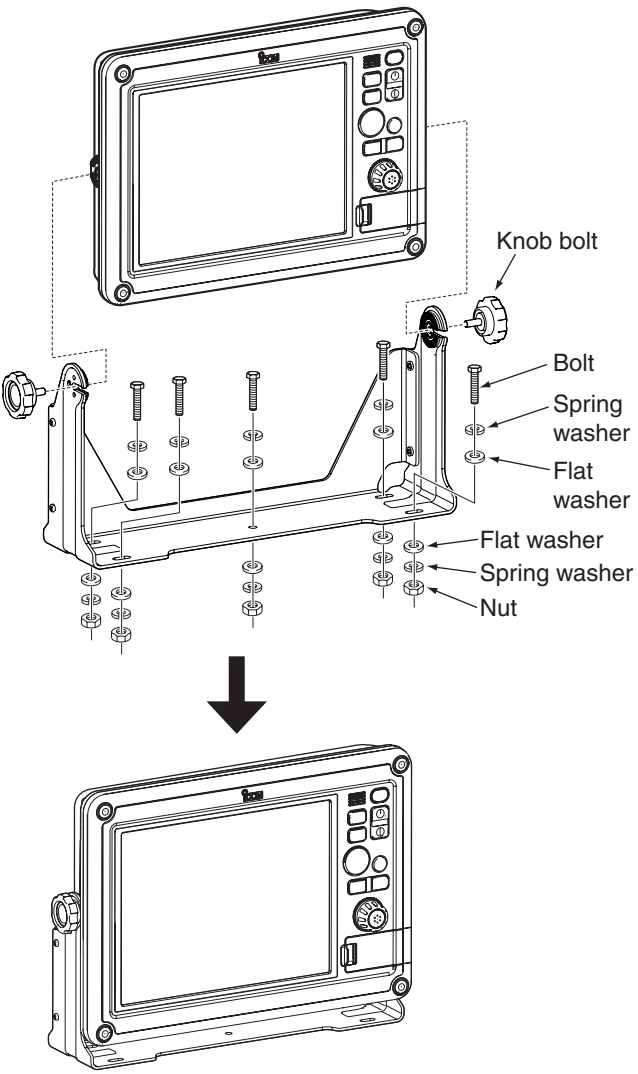


◇ Mounting

The mounting bracket supplied with the display unit allows “dashboard” or “overhead” mounting.

- ① Hold the mounting bracket up to the selected location, and mark pilot holes for the five installation bolts.
- ② Drill five holes, according to the diagram, as shown to the left. (Fig. 1)
- ③ Install the bracket using the bolts, nuts or washers. Attach the display unit to the bracket using the knob bolts, and adjust the display for the desired viewing angle. (Fig. 2)

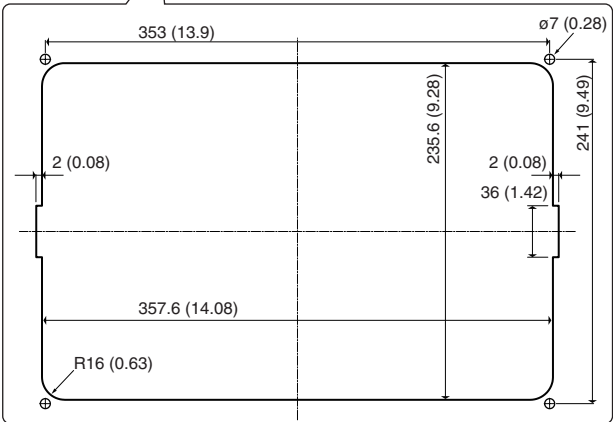
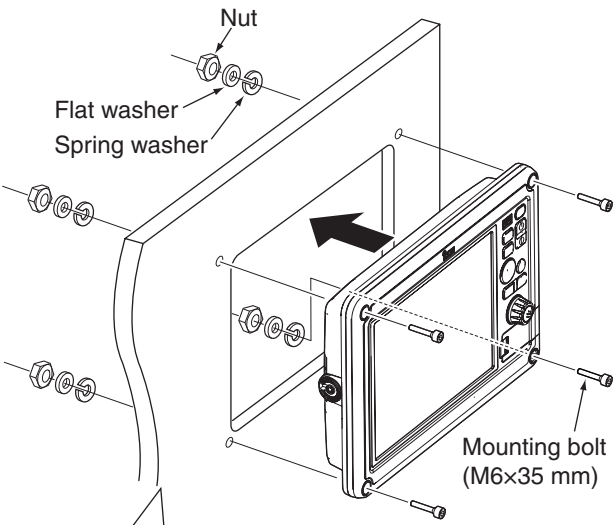
• Mounting Bracket installation (Fig. 2)



◆ Wall mounting

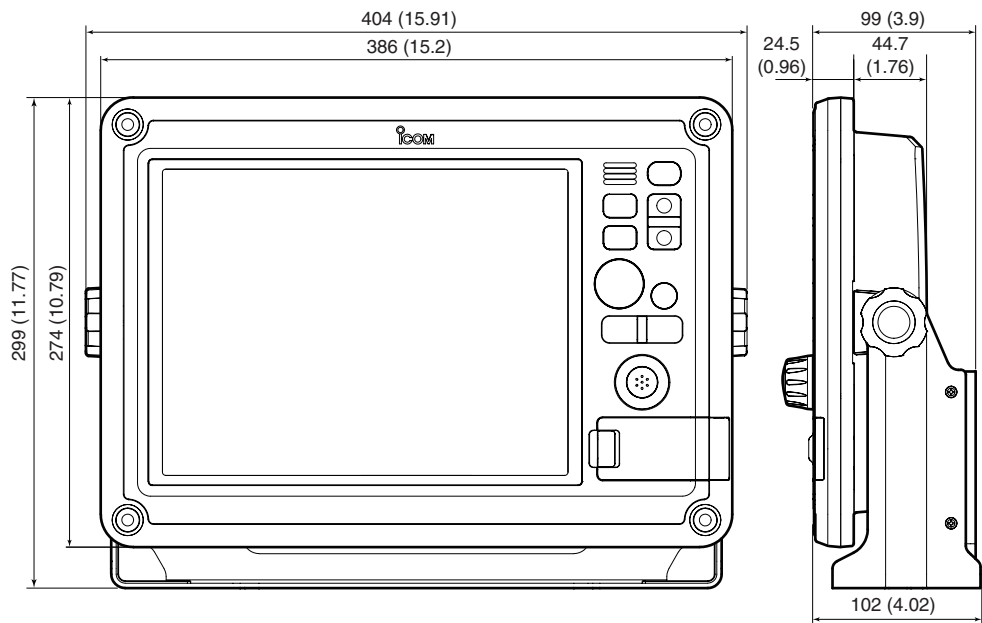
The display unit can be mounted to a flat surface, such as an instrument panel, using the mounting bolts (M6×35 mm).

- ① Remove the four bolts from the four corners of the display unit.
- ② Carefully cut a hole in the instrument panel, or wherever you plan to mount the display unit.
- ③ Drill four holes for the mounting screw.
- ④ Slide the display unit through the hole.
- ⑤ Attach the four corners of the display unit using the supplied flat washers, spring washers, nuts and mounting bolts (M6×35 mm).



Unit: mm (inch)

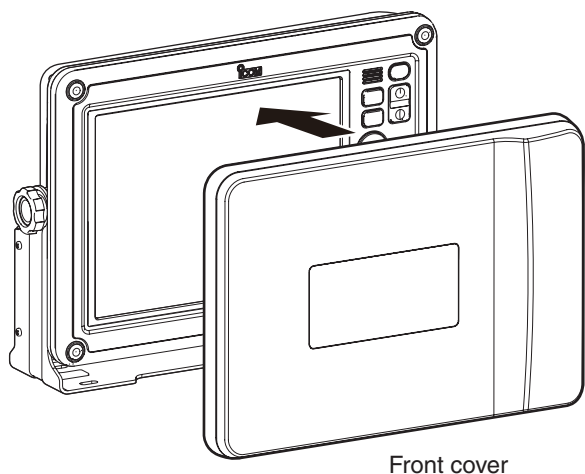
• Dimensions



Unit: mm (inch)

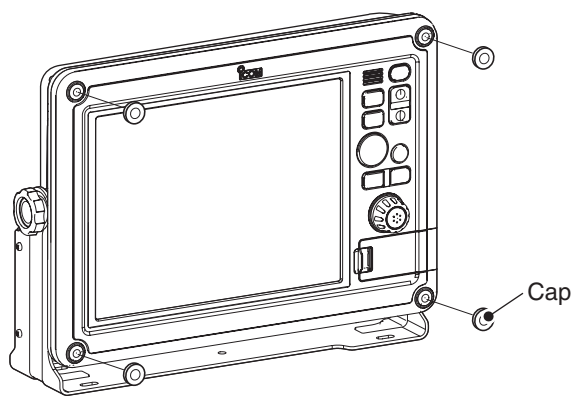
■ Front cover attachment

If desired, attach the supplied front cover to the front of the display unit.



■ Bolt cap attachment

If desired, attach the supplied bolt caps to the four corner bolts to protect them from dust and moisture.



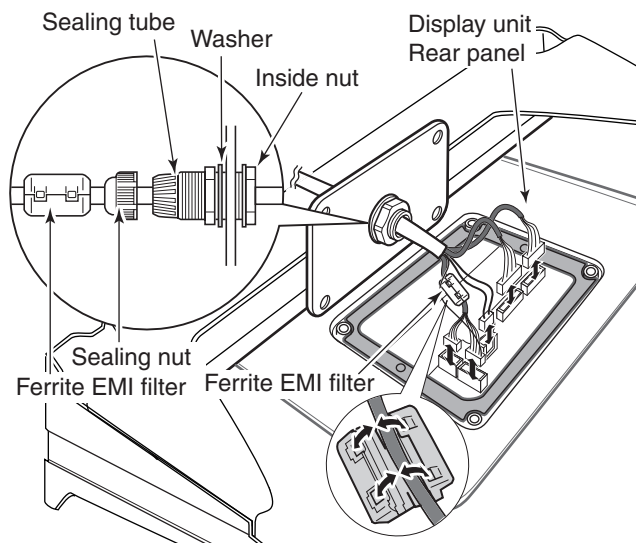
■ Removing the display cable

The display cable can be installed through a hole in a wall where the display connector cannot pass through. Remove the cable from the display unit, as shown below, then pass it through the hole.

BE CAREFUL! The display unit meets the IPX7 requirement for waterproof protection when the display cable is originally connected. However, once the unit has been opened, waterproof protection cannot be guaranteed.

CAUTION: NEVER cut the display cable.

- ① Remove the four screws from the display's rear plate.
- ② Remove the five connectors from the board and the ferrite EMI filter, as shown below.
- ③ Unscrew the sealing nut from the sealing tube.
- ④ Unscrew the inside nut from the sealing tube.
- ⑤ Remove the cable from the display's rear plate.
- ⑥ After installing the cable at the desired place, replace the connectors, filter and the sealing nut.



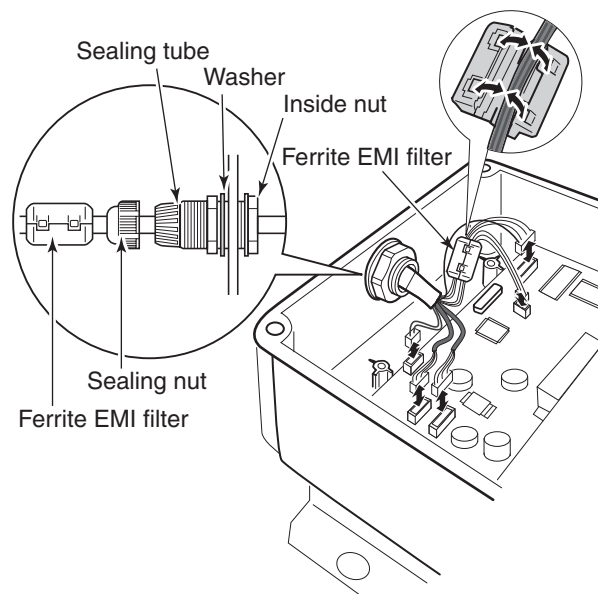
■ Removing and installing the EX-3187's cable

The display extension cable can also be installed through a hole in a wall where the cable connector cannot pass through. Remove the cable from the EX-3187, as shown below, then pass it through the hole.

BE CAREFUL! The EX-3187 meets the IPX4 requirement for splash resistance when the connection cable is originally connected. However, once the unit has been opened, splash resistance cannot be guaranteed.

CAUTION: NEVER cut the display cable or display extension cable.

- ① Remove the four screws from the corners of the EX-3187.
- ② Remove the five connectors from the board and the ferrite EMI filter, as shown to the right.
- ③ Unscrew the sealing nut from the sealing tube.
- ④ Unscrew the inside nut from the sealing tube.
- ⑤ Remove the cable from the EX-3187's case.
- ⑥ After installing the cable at the desired place, replace the connectors, filter and the sealing nut.



Continued, reliable operation of the main unit depends on how you care for your equipment.

The simple maintenance tips that follow can help you save time and money, and avoid premature equipment failures.

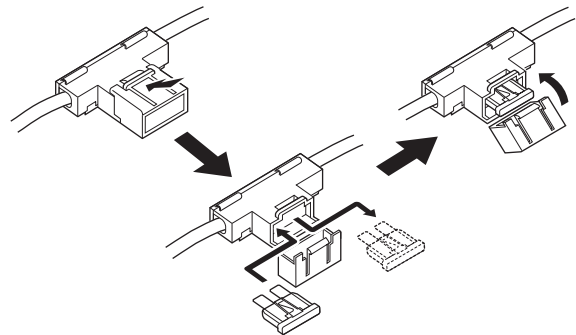
⚠ WARNING! BE SURE the MarineCommander's power is OFF before performing any maintenance.

■ Periodic maintenance

- ① Keep the equipment as clean as possible.
 - Use a soft cloth to remove dirt, dust and water.
- ② Check all hardware for loose screws, bolts, etc.
- ③ Check cables and terminal connections.

■ Fuse replacement

If the fuse blows or the MarineCommander™ stops functioning, find the source of the problem and have it repaired. Then, replace the blown fuse with a new, properly rated one, as shown to the right.



Fuse rating: 15 A for 12 V power source
7.5 A for 24 V power source

■ Options

- **EX-3187** DISPLAY EXTENSION UNIT
5 m (16.4 ft) extension cable for the Display unit.
Allows you to install the Main unit and Display unit up to 20 m (65.6 ft) apart. (one Display cable+three EX-3187s)
- **MXR-5000R/T** RADAR UNIT
Allows you to add Radar to the MarineCommander™.
- **MXF-5000** FISH FINDER UNIT
Allows you to add the Fish Finding to the MarineCommander™.
- **MXA-5000** AIS RECEIVER
Allows you to receive other vessel's information, such as the vessel name, MMSI code, vessel type, position data, speed, course, destination and more.
- **MXG-5000** GPS RECEIVER
Allows you to receive GPS information.
- **OPC-1895** CONNECTION CABLE
Allows you to connect the Icom MarineCommander™ system. (20 m: 65.6 ft)

Approved Icom optional equipment is designed for optimal performance when used with Icom equipment. Icom is not responsible for the destruction or damage to Icom equipment in the event the Icom equipment is used with equipment that is not manufactured or approved by Icom.

◇ MXP-5000 (Main unit)

- DC input voltage: 10.8 V to 31.2 V DC
- Power consumption: Less than 4.7 A at 12.0 V
(With one MXD-5000 at maximum brightness)
Less than 7.7 A at 12.0 V
(With two MXD-5000s at maximum brightness)
- Usable temperature range: −20°C to +60°C, −4°F to 140°F
- Dimensions (projections not included): 360 (W)×88 (H)×228.8 (D) mm, 14.2 (W)×3.5 (H)×9.0 (D) inch
- Weight: Approximately 4.25 kg, 9.37 lb

◇ MXD-5000 (Display unit)

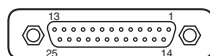
- LCD display: 12.1-inch SVGA Color display
- DC input voltage: 30 V DC supplied from MXP-5000 (Main unit)
- Power consumption: Less than 1.0 A (at maximum brightness)
- Usable temperature range: −20°C to +60°C, −4°F to 140°F
- Dimensions: (without Bracket) 386 (W)×274 (H)×69.2 (D) mm, 15.2 (W)×10.8 (H)×2.7 (D) inch
(with Bracket) 404 (W)×299 (H)×99 (D) mm, 15.9 (W)×11.8 (H)×3.9 (D) inch
- Cable length: Approximately 5 m, 16.4 ft
- Weight: (without Bracket) Approximately 3.3 kg, 7.3 lb (EUR version)
Approximately 3.6 kg, 7.9 lb (Others)
(with Bracket) Approximately 3.8 kg, 8.4 lb (EUR version)
Approximately 4.1 kg, 9.0 lb (Others)

◇ EX-3187 (Display extension unit)

- DC input voltage: 30 V DC supplied from MXP-5000 (Main unit)
- Power consumption: Less than 110 mA
- Usable temperature range: −20°C to +60°C, −4°F to 140°F
- Dimensions (without Bracket): 110 (W)×81 (H)×55 (D) mm, 4.3 (W)×3.2 (H)×2.2 (D) inch
- Cable length: Approximately 5 m, 16.4 ft
- Weight (without cable and Bracket): Approximately 800 g, 1.7 lb

All stated specifications are subject to change without notice or obligation.

DATA IN/OUT



Port	Cable Color	Line/ Color	Pin No	Pin Name	Specifications	Sentence Format	Description
			13	SGND	—	—	Connects to ground.
Port 2 (Heading)	Pink	Black 2 (— —)	23	HEADING IN (—)	• Input level : Less than 2 mA (with 2 V applied)	HDG, HDT, HDM, THS	Connects to a heading sensor. The data communication speed (baud rate) can be selected between 4800 bps, 9600 bps and 19200 bps. (Default: 4800 bps)
	Pink	Red 2 (— —)	10	HEADING IN (+)			
Port 3 (AIS)	Yellow	Black 1 (—)	17	AIS-2 IN (—)	• Input level : Less than 2 mA (RS-422 balanced type)	GGA, GNS, GLL, GSA, GSV, RMC, VDM, VTG, ZDA, ALR	Connects to the Icom MA-500TR or to the Icom MXA-5000 or to an AIS receiver. (IEC61162-2) The data communication speed (baud rate) can be selected between 4800 bps, 9600 bps, 19200 bps and 38400 bps. (Default: 38400 bps) • When AIS-2 IN is used, the AIS-1 IN cannot be used.
	Yellow	Red 1 (—)	4	AIS-2 IN (+)			
	Pink	Black 1 (—)	18	AIS OUT (—)	• Output level : 5 V/40 mA maximum (RS-422 balanced type)	GNS, GLL, HDT, RMC	Combines with AIS-2 IN (IEC61162-2) or AIS-1 IN (IEC61162-1).
	Pink	Red 1 (—)	5	AIS OUT (+)			
	White	Black 1 (—)	16	AIS-1 IN (—)	• Input level : Less than 2 mA (with 2 V applied)	GGA, GNS, GLL, GSA, GSV, RMC, VDM, VTG, ZDA, ALR	Connects to an AIS receiver. (IEC61162-1) The data communication speed (baud rate) is selectable between 4800 bps, 9600 bps, 19200 bps and 38400 bps. (Default: 38400 bps) • When AIS-1 IN is used, the AIS-2 IN cannot be used.
	White	Red 1 (—)	3	AIS-1 IN (+)			
	Grey	Black 1 (—)	15	AIS COMMON	—	—	Common line for AIS-2.
Port 4 (VHF)	Orange	Black 2 (— —)	19	DSC IN (—)	• Input level : Less than 2 mA (with 2 V applied)	DSC, DSE, \$PICOA	Connects to the NMEA input/output connector of a transceiver to transmit an Individual DSC call. The data communication speed (baud rate) can be selected between 4800 bps, 9600 bps and 19200 bps for each Input/ Output port. (Default: 4800 bps)
	Orange	Red 2 (— —)	6	DSC IN (+)			
	Grey	Black 2 (— —)	20	DSC OUT (—)	• Output level : 5 V/40 mA maximum (RS-422 balanced type)	DSC, DSE, GGA, GNS, GLL, RMC, \$PICOA	
	Grey	Red 2 (— —)	7	DSC OUT (+)			
Port 5 (General Purpose)	White	Black 2 (— —)	21	NMEA IN (—)	• Input level : Less than 2 mA (with 2 V applied)	GGA, GNS, GLL, GSA, GSV, HDG, HDT, HDM, MWV, RMC, THS, VHW, VTG, ZDA	Connects to a piece of navigation equipment. The data communication speed (baud rate) can be selected between 4800 bps 9600 bps and 19200 bps for each Input/ Output port. (Default: 4800 bps)
	White	Red 2 (— —)	8	NMEA IN (+)			
	Yellow	Black 2 (— —)	22	NMEA OUT (—)	• Output level : 5 V/40 mA maximum	APB, BWC, BWR, DBT, DPT, GGA, GNS, GLL, HDG, HDT, MTW, MWV, RMA, RMB, RMC, TTM, VHW, VTG, WPL, XTE, ZDA	
	Yellow	Red 2 (— —)	9	NMEA OUT (+)			
ALM	Gray	Red 1 (—)	2	ALM CLOSE	—	—	Disconnects between pins 2 and 14 when the alarm buzzer sounds.
	Orange	Black 1 (—)	14	ALM COMMON	—	—	Common relay for the alarm buzzer
	Orange	Red 1 (—)	1	ALM OPEN	—	—	Pins 1 and 14 are connected together when the alarm buzzer sounds.
AUX	Gray	Black 3 (— — —)	25	AUX DATA IN (—)	• Input level : Less than 2 mA (with 2 V applied)	HDT, HDM	AUX format
	Gray	Red 3 (— — —)	12	AUX DATA IN (+)			
	Orange	Black 3 (— — —)	24	AUX CLOCK IN (—)	• Input level : Less than 2 mA (with 2 V applied)		
	Orange	Red 3 (— — —)	11	AUX CLOCK IN (+)			

Count on us!



Five horizontal lines spanning the width of the page, providing a space for writing or drawing.