

ICOM



# MarineCommander™



- Integrated System
- Dual Display
- Simple Installation



# Command – Your Way, Communications and Navigation Setup

## System overview

The MarineCommander™ is Icom's marine navigation system, which integrates various marine modules such as a fish finder, marine radar, AIS and VHF transceiver into the multi-function displays (MFD).

Up to two MFDs can be connected to a main processor unit (MPU) and support separate dual display operation.

If connecting two MarineCommander MPUs via a data cable, up to four MFDs can be used and the connected modules (E.g. fish finder, radar) can be shared with the other MFDs.

## Affordable Dual Display Connection Up to Four Displays in a System

The MarineCommander allows you to connect two MFDs simultaneously. All connected modules including chart data, fish finder and marine radar can be shared with two MFDs, which can provide separate operation. The MFD can be installed up to 20m (65.6ft)\* away from the MPU. When connecting two MarineCommanders via a data cable, up to 4 displays can be used and C-MAP™ chart data can be shared in the system.

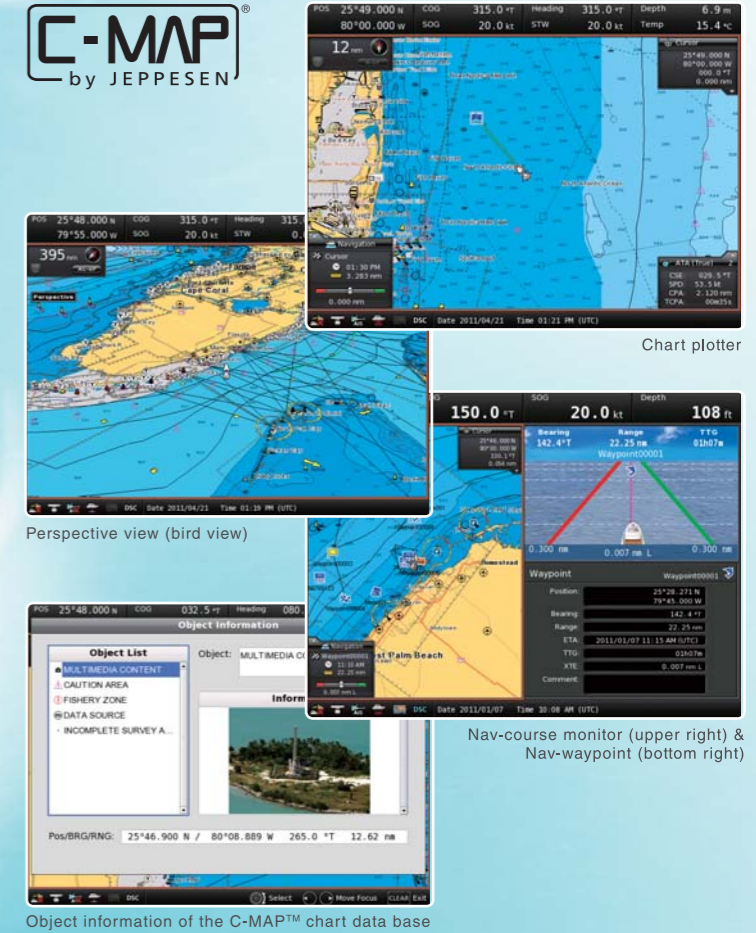
\* Three optional EX-3187 extension cables are required.



## C-MAP™ MAX Compatible

The MarineCommander is compatible with the C-MAP™ MAX chart by JEPPESEN in an SD card format\*. The MarineCommander provides quick and fast responding rendering performance. The C-MAP™ MAX chart provides guardian alarm, route-check, perspective view and Port database for safe and easy navigation.

\* Chart data is not supplied from Icom.



## Slim Dimensions and Easy Installation

The MFD has 69.2mm (2.7 inch) slim dimensions and is light weight for easy flush mount installation. The MFD has IPX7 submersible construction protecting it from water intrusion. The MFD can be connected with a main processor unit (MPU) using a single cable connection and power supplied via the MPU.



IPX7 water protection

## Daylight Viewable Display

The 12.1 inch size MFD provides 800x600 pixels resolution. The 900cd/m<sup>2</sup> high brightness, color LCD with anti-reflecting surface coating glass offers bright, vivid indication in detail even under direct sunlight. The color palette is selectable for day and night mode.



Anti-reflective surface

## Simple Operation

The MarineCommander offers a simple graphical user interface and intuitive operation with minimum buttons and rotary knob. The display layout can be split into up to 4 panes, providing an easily customized layout with simple operation.



4 panes layout

Layout select menu

## MXG-5000S GPS Receiver

The MXG-5000S is a 66 channel GPS receiver with WAAS, EGNOS, MSAS and GAGAN differential corrections. It offers accurate position information and features IPX6 high-pressure water jet resistance.



GPS Receiver  
MXG-5000S

## USB Flash Drive Connection

The MFD has a USB slot to connect with a USB flash drive. Waypoint, track and route information and memo data can be backed up to a USB flash and imported to other MarineCommanders or a PC.



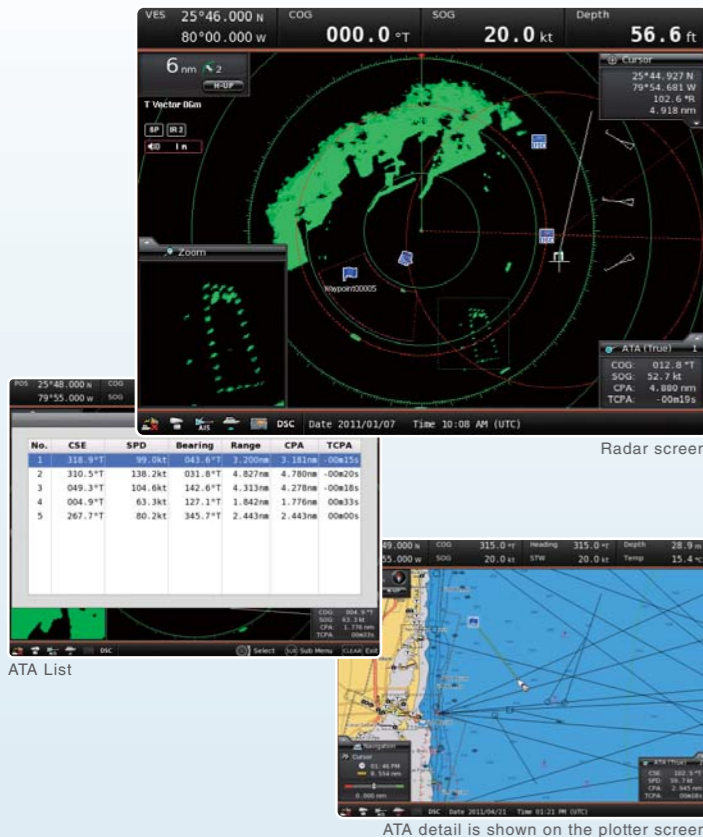
SD card slot (above) and USB slot



• Marine Radar



The MXR-5000R/T marine radar provides clear target discrimination. Waypoint and AIS target can be overlaid on the radar screen. The marine radar helps collision avoidance and increases your safety at sea. The radar images can be overlaid on the plotter screen in the same scale and helps you to detect dangerous objects.



ATA List

ATA detail is shown on the plotter screen

**Simplified ATA (Automatic Tracking Aid)**

The simplified ATA function allows you to plot up to 10 targets and the radar continues to track the targets automatically. The ATA targets can be overlaid on the plotter screen.

Marine Radar

**MXR-5000T**

4kW, 4 feet (120cm) open array scanner  
Up to 48NM observation  
48 rpm high rotation speed



or

**MXR-5000R**

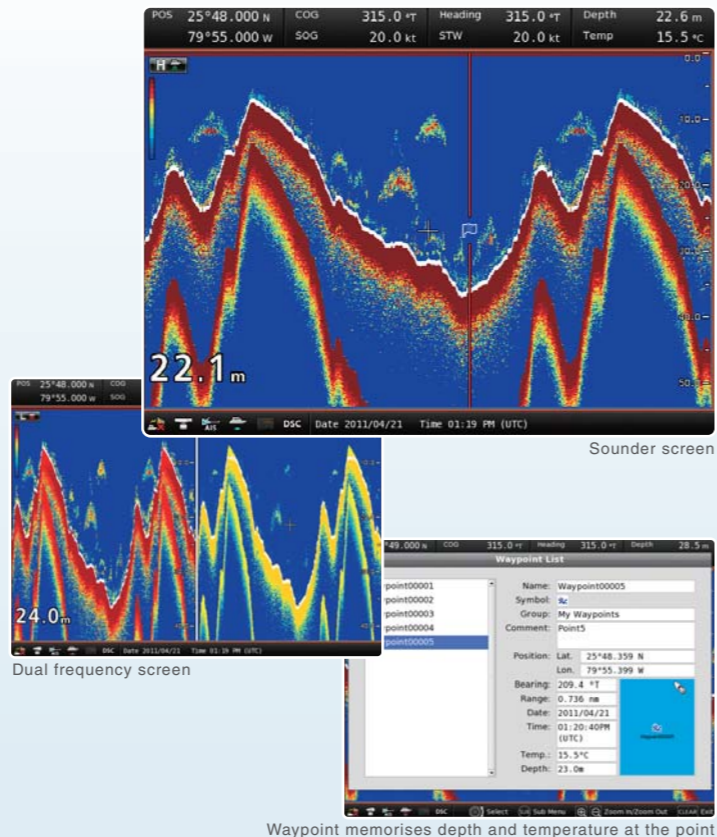
4kW, 2 feet (60cm) radome scanner  
Up to 36NM observation  
48 rpm high rotation speed



• Fish Finder



When a fish finder module is connected, the MarineCommander system can have a dual frequency sounder function. Using the 50kHz/200kHz dual frequency mode, the MarineCommander enhances the separation and helps in fish detection.



Sounder screen

Dual frequency screen

Waypoint memorises depth and temperature at the point

**Additional data for waypoints**

When used with the fish finder module, the MarineCommander memorises the waypoint information with depth and temperature data.

Fish Finder

**EX-3193**  
600W transom transducer  
Depth, speed and temperature in one housing  
50kHz and 200kHz dual frequency



or

**EX-3194**  
600W thru-hull transducer  
Depth, speed and temperature in one housing  
50kHz and 200kHz dual frequency



or

**EX-3195**  
1kW thru-hull transducer  
Depth and fast-response water-temperature sensor  
50kHz and 200kHz dual frequency

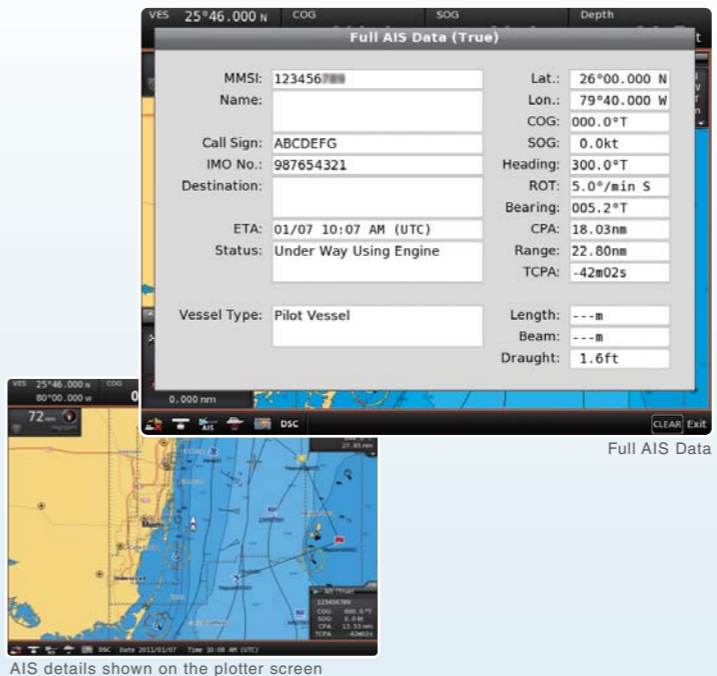


or  
Fish finder  
**MXF-5000**

• AIS (Automatic Identification System)



AIS (Automatic Identification System) receives real-time vessel traffic information broadcasted by other AIS equipped vessels. Using the optional MA-500TR or MXA-5000, the AIS data can be overlaid on the plotter and radar screen.



Full AIS Data

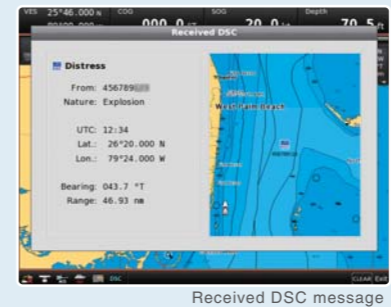
AIS details shown on the plotter screen

• VHF Transceiver



The MarineCommander has the capability to be connected to compatible Icom VHF transceivers.\* Various types of DSC calls, including individual, group, all ship, position and polling request\*, can be initiated from the MarineCommander. Received DSC messages and position information can be shown on the plotter display.

\*DSC call types available are dependant on VHF transceiver capability.



Received DSC message

AIS & VHF Transceivers



AIS transponder  
**MA-500TR**



AIS receiver  
**MXA-5000**



VHF marine transceivers  
**IC-M506 IC-M506EURO**  
**IC-M424 IC-M423**  
**IC-M323 IC-M400BB**  
**IC-M412**

• Engine Monitoring



When connected to engine/environment/positioning sensors with an NMEA 2000 interface, the MarineCommander shows current data on a virtual engine meter. This data can also be shown on the status-bar or data-bar according to your setting.



Graphic screens

• Video Camera Monitoring



The MarineCommander has four video input ports with RCA connectors for connecting up to 4 surveillance video cameras (NTSC or PAL format) and allows you to monitor surroundings and crew members on the MarineCommander display.



• Other Features

- The external display connector (analog RGB) allows you to output to an external display
- Multiple language display (English/French/Spanish)
- External NMEA2000 Connection (Engine, Fuel, Engine Temperature, Wind, GPS, Compass, STW)
- Simulator mode can demonstrate key system functions using only the MXP-5000 and MXD-5000
- Memo function allows you to store a comment with picture data\* and position information.

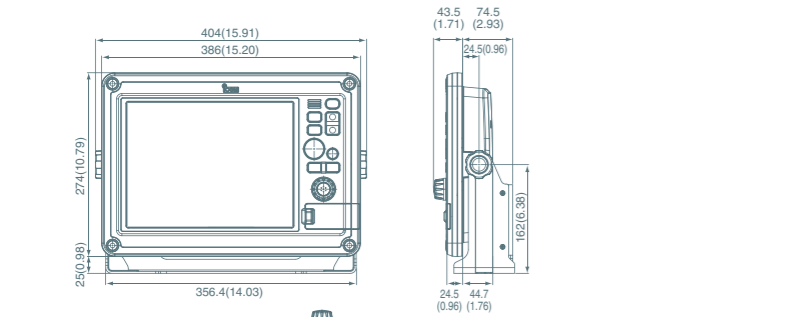
\* To show picture data, the picture data must be stored in the connected USB flash drive.





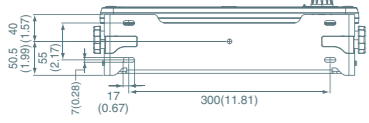
## Specifications

Unit:mm (inch)



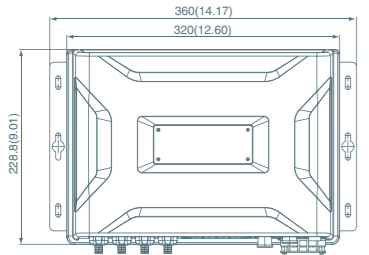
### Multi-function display

MXD-5000	
Multi-function display	12.1 inch TFT
Screen size	246x184.5 mm
Screen resolution	SVGA 800x600 dots
Screen brightness	900 cd/m <sup>2</sup> (Max.)
Contrast ratio	500
Viewing angle (Contrast ratio ≥10)	Vertical Top 50° to Bottom 70° Horizontal Left 70° to Right 70°
Power supply	30V DC (Supplied from MXP-5000)
Dimensions (WxHxD)	386x274x69.2 mm; 15.2x10.79x2.72 in (without bracket) 404x299x102 mm; 15.91x11.77x4.02 in (with bracket)
Weight (approx.)	3.3kg; 7.28lb (without bracket) 3.8kg; 8.38lb (with bracket)
Usable temperature range	-20°C to +60°C; -4°F to +140°F
Waterproofing	IPX7
Cable length	5m; 16.4ft
Optional extension cable	EX-3187 (5m;16.4ft)



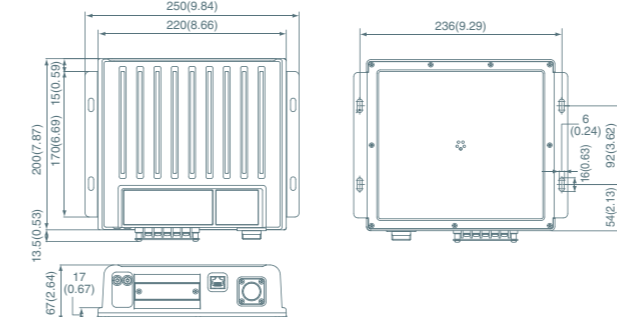
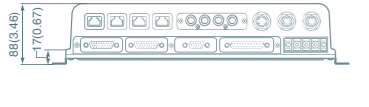
### Main processor unit

MXP-5000	
Power supply	12/24V DC (10.8 to 31.2V DC)
Current drain(at 12V DC)	Less than 4.7A (One MXD-5000) Less than 7.7A (Two MXD-5000s)
Dimensions (WxHxD)	360x88x228.8mm; 14.17x3.46x9.01 in
Weight (approx.)	4.25kg; 9.37lb
Usable temperature range	-20°C to +60°C; -4°F to +140°F
Waterproofing	IPX4



### Fish Finder

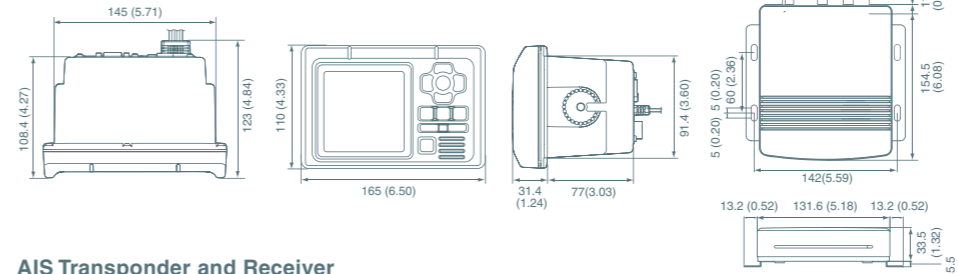
MXF-5000	
Power supply	12/24V DC (10.8 to 31.2V DC)
Current drain (at 12V DC)	Less than 0.6A (Water depth range: 40m, output power 600W) Less than 1.0A (Water depth range: 40m, output power 1kW)
Output power	600W/1kW
Transmission frequency	50kHz ±1kHz 200kHz ±1kHz
Dimensions (WxHxD)	250x67x200 mm; 9.84x2.64x7.87 in
Weight (approx.)	2.18kg; 4.8lb
Usable temperature range	-20°C to +60°C; -4°F to +140°F
Waterproofing	IPX4
Optional data cable	OPC-1895 (20m; 65.6ft)



### Radar Units

	MXR-5000R	MXR-5000T
Power supply	12/24V DC (10.8 to 31.2V DC)	12/24V DC (10.8 to 31.2V DC)
Current drain (at 12V DC)	Less than 5.0A	Less than 5.5A
Dimensions (WxHxD)	250x67x200 mm; (Projections not included) 9.84x2.64x7.87 in	250x67x200 mm; (Projections not included) 9.84x2.64x7.87 in
Weight (approx.)	2.1kg; 4.6lb	2.1kg; 4.6lb
Usable temperature range	-20°C to +60°C; -4°F to +140°F	-20°C to +60°C; -4°F to +140°F
Waterproofing	IPX4	IPX4
Optional data cable	OPC-1895 (20m; 65.6ft)	OPC-1895 (20m; 65.6ft)

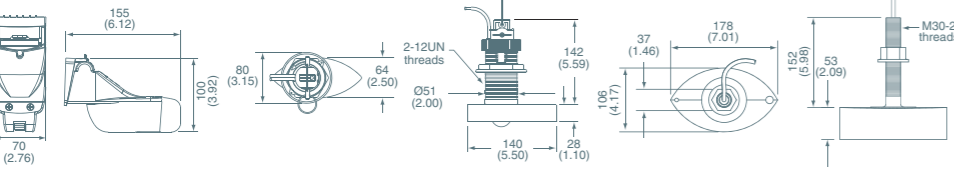
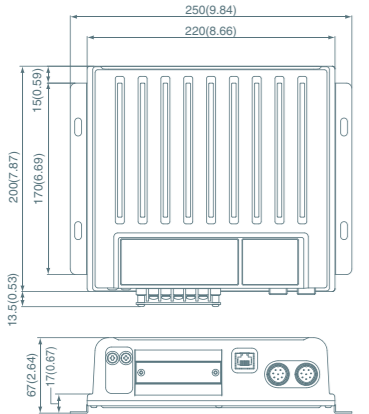
Complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.



### AIS Transponder and Receiver

	MA-500TR	MXA-5000
Frequency range (Unit:MHz)	161.975, 162.025 (default) 156.025-162.025	Rx: 161.975, 162.025 Simultaneous reception
Type of emission	16K0GXM (GMSK)	16K0F1D (GMSK)
Power supply requirement	12.0V DC (9.6-15.6V)	12.0V DC (10.8-15.6V)
Dimensions (Projections not included; WxHxD)	165x110x123 mm; 6.5x4.33x4.84 in	132x34x155 mm; 5.2x1.34x6.1 in
Weight (approx.)	1000g; 2.2lb	460g; 1.0lb
Current drain	Transmit 1.5A Receive 0.7A	0.25A
Sensitivity	-110dBm	-116dBm typ.
Intermodulation rejection	65dB	65dB
RF output power	2W	-
Waterproofing	IPX7 (1m depth/30 min)**	-
Data interface	IEC 61162-1:2000 or IEC 61162-2 selectable	Input: IEC 61162-1:2000 Output: IEC 61162-2

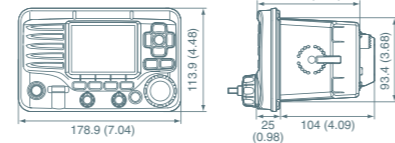
Measurements made in accordance with IEC 62287-1. \*\* Main unit only.



### Transducer

	EX-3193	EX-3194	EX-3195
Type	600W transom type, built-in boat speed and temperature sensors	600W thru-hull type, built-in boat speed and temperature sensors	1kW thru-hull type, built-in temperature sensors
Output power	600W	600W	1kW
Operating frequency	50kHz, 200kHz	50kHz, 200kHz	50kHz, 200kHz
Beamwidth	50kHz: 45°, 200kHz: 11°	50kHz: 45°, 200kHz: 11°	50kHz: 15°x21°, 200kHz: 3°x5°
Vessel speed sensor	18,000 p/nm	19,000 p/nm (with fairing) 21,500 p/nm (without fairing)	-
Speed range	1kt-44kt	1kt-44kt	-
Weight (approx.)	0.5kg; 1.1lb	2.5kg; 5.5lb	3.6kg; 7.9lb
Optional transducer ext. cable	OPC-1929 (6m; 19.7ft)	OPC-1929 (6m; 19.7ft)	OPC-1929 (6m; 19.7ft)

### IC-M506/M506EURO



### VHF Marine Transceivers

	IC-M506	IC-M506EURO	IC-M424 (USA)	IC-M423 (EURO)	IC-M323 (EURO)	IC-M400BB (USA)	IC-M400BB (EURO)	IC-M412 (USA)
Frequency range (Unit:MHz)	TX: 156.025-157.425 RX: 156.050-163.275	TX: 156.000-161.450 RX: 156.000-163.425	TX: 156.025-157.425 RX: 156.050-163.275	TX: 156.000-161.450 RX: 156.000-163.425	TX: 156.000-161.450 RX: 156.000-163.425	TX: 156.025-157.425 RX: 156.050-163.275	TX: 156.025-157.425 RX: 156.000-163.425	TX: 156.025-157.425 RX: 156.050-163.275
Type of emission	16K0G3E, 16K0G2B	16K0G3E, 16K0G2B	16K0G3E, 16K0G2B	16K0G3E, 16K0G2B	16K0G3E, 16K0G2B	16K0G3E (FM), 16K0G2B (DSC)	16K0G3E (FM), 16K0G2B (DSC)	16K0G3E, 16K0G2B
Power supply requirement	13.8V DC (11.7V-15.9V DC)	13.8V DC (10.8V-15.6V DC)	13.8V DC (±15%)	13.8V DC (10.8V-15.6V DC)	13.8V DC (10.8V-15.6V DC)	13.8V DC (10.8V-15.6V DC)	13.8V DC (10.8V-15.6V DC)	13.8V DC (±15%)
Dimensions (Projections not included; WxHxD)	178.9x113.9x113.8 mm; 7.04x4.48x4.48 in	178.9x113.9x113.8 mm; 7.04x4.48x4.48 in	180x82x119.9mm; 7.09x3.23x4.72 in	180x82x119.9mm; 7.09x3.23x4.72 in	180x82x119.9mm; 7.09x3.23x4.72 in	IC-M400BB: 216x79x125mm; 8.5x3.11x4.92 in HM-195B/SW: 67.5x144.5x37mm; 2.66x5.69x1.46 in	IC-M400BB: 216x79x125mm; 8.5x3.11x4.92 in HM-195B/SW: 67.5x144.5x37mm; 2.66x5.69x1.46 in	164x78x139.5 mm; 6.46x3.07x5.49 in
Weight (approx.)	1400g; 3.09lb	1400g; 3.09lb	1200g; 2.65lb	1200g; 2.65lb	1200g; 2.65lb	IC-M400BB: 830g; 1.83lb HM-195B/SW: 400g; 1.41oz	IC-M400BB: 830g; 1.83lb HM-195B/SW: 400g; 1.41oz	1060g; 2.3lb
Current drain	Transmit 5.5A Receive 5.0A (RX hailer ON)	Transmit 5.5A Receive 5.0A (RX hailer ON)	5.5A 5.0A	5.5A 5.0A	5.5A 5.0A	5.5A 3.5A	5.5A 3.5A	5.5A 1.5A
Sensitivity	0.22µV typ. (12dB SINAD)	0.22µV typ. (20dB SINAD)	0.22µV typ. (12dB SINAD)	0.22µV typ. (20dB SINAD)	0.22µV typ. (20dB SINAD)	0.22µV typ. (12dB SINAD)	0.22µV typ. (12dB SINAD)	0.22µV typ. (12dB SINAD)
Intermodulation rejection	75dB (DSC 68dBµ)	75dB (DSC 68dBµ)	70dB (DSC 68dBµ)	68dB (DSC 68dBµ)	68dB (DSC 68dBµ)	70dB (DSC 73dBµ)	68dB (DSC 68dBµ)	70dB
Audio output power (10% dist./4Ω load)	15W typical	15W typical	10.0W typical	10W	2W	2W (HM-195B/SW), 10W (RX Speaker)	2W (HM-195B/SW), 10W (RX Speaker)	4.5W typical
RF output power	25W/1W	25W/1W	25W/1W	25W/1W	25W/1W	25W/1W	25W/1W	25W/1W
Waterproofing	IPX8 (1.0m depth/60 min)	IPX8 (1.0m depth/60 min)	IPX7 (1.0m depth/30 min)	IPX7 (1.0m depth/30 min)	IPX7 (1.0m depth/30 min)	IPX7 (1.0m depth/30 min.)	IPX7 (1.0m depth/30 min.)	IPX7 (1.0m depth/30 min.)

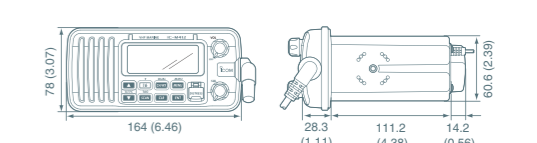
Measurements made in accordance with TIA/EIA 603 or EN 301 025.

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

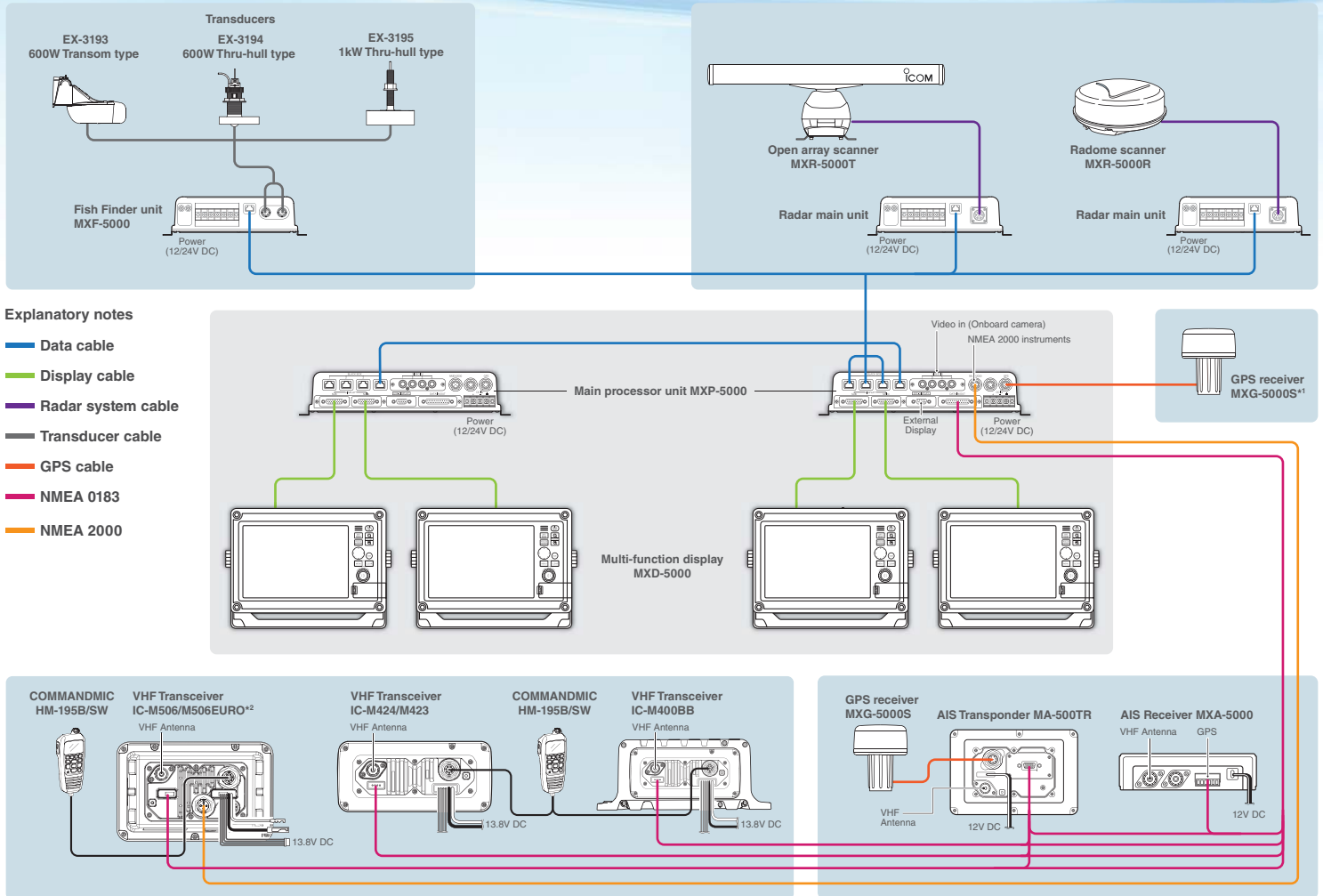
### GPS Receiver

MXG-5000S	
Receiving frequency	1575.42MHz
Receiving channels	66
Receiving codes	L1, C/A-codes, SPS
Satellite differential type	WAAS, EGNOS, MSAS, GAGAN
Time to First Fix	Cold start 40 sec. typ. Warm start 4 sec. typ.
Power supply	4.75 to 5.25V DC (Supplied from the MXP-5000)
Dimensions(Diameterx H)	78x96.5 mm; 3.07x3.8 in
Weight (approx.)	460g; 1.01lb
Usable temperature range	-20°C to +60°C; -4°F to +140°F
Waterproofing	IPX6
Cable length (approx.)	10m; 32.8ft

### IC-M412



# Wiring Diagram



## Explanatory notes

- Data cable
- Display cable
- Radar system cable
- Transducer cable
- GPS cable
- NMEA 0183
- NMEA 2000

<sup>\*1</sup> When the MXG-5000S GPS receiver is connected to the MPX-5000 through the MA-500TR or MXA-5000, this GPS receiver is not required. <sup>\*2</sup> Some versions of IC-M506 do not have a NMEA 2000 connector. The IC-M506/EURO cannot be used as the AIS related data source for MarineCommander system.

# Option Cables



**EX-3187**  
Display extension cable  
(5m; 16.4ft)  
Up to three EX-3187  
cables are connectable.



**OPC-1895**  
Data cable (20m; 65.6ft)  
For connection from MPU to  
radar or fish finder and  
between MPU and MPU.



**OPC-1929**  
Transducer extension cable  
(6m; 19.7ft)



**OPC-2339** (20m; 65.6ft)  
**OPC-2340** (30m; 98.4ft)  
Radar system cables for connection  
between radar main unit and scanner unit.  
OPC-2339 is for MXR-5000R only.

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