



MARINE PRODUCTS 2016 *Simply the Best.*

EUROPE EDITION

SPRmarine

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VHF Handheld Transceivers



Metallic Gray

Pearl White

Marine Blue

Supplied Accessories

- USB charger, BC-217SE*
- Belt clip, MB-133
- Antenna, FA-SC59V
- Hand strap
- Battery cell is built-in
- * May differ or not supplied, depending on version.



Supplied Accessories

- Battery pack, BP-245H
- Battery charger, BC-210
- AC adapter, BC-123SE*
- Belt clip, MB-103
- Antenna, FA-S64V*
- Cigarette lighter cable, CP-25H*
- Hand strap
- * May differ or not supplied, depending on version.

VHF MARINE TRANSCEIVER IC-M25EURO

Buoyant, Stylish and Easy to Use



FEATURES

- Slim, lightweight, and high performance
- Large LCD and intuitive user interface
- USB Charging (Micro-B USB type)
- Floating with blinking red LED light
- 11 hours of long operating time
- 5W RF output, 550mW clear audio

• IPX7 waterproof protection • Dual watch Tri-watch function* • Instant access to Ch 16 and call channel • Favorite channel function • Auto scan function* • AquaQuake™ draining function • 2 step power save • Built-in 3 hours rapid charger (with BC-217S) • Optional speaker-microphone, HM-213

*Not available in the HOL version.

VHF MARINE TRANSCEIVERS IC-M73EURO PLUS IC-M73EURO

Slim, Stylish, Powerful VHF
with Professional Features



FEATURES

- Last call voice recording*
- Active noise cancelling* reduces background noise by up to 90%
- Bass Boost Function*
- IPX8 advanced waterproofing
- 6W RF output, 700mW loud audio
- 17 hours of long lasting operating time with BP-245H

* available in IC-M73EURO PLUS version only.

• Dual watch and Tri-watch functions* • Instant access to Ch 16 and call channel • AquaQuake™ draining function • Auto power save • Priority and normal scan • Tag scan and favorite channel function • Optional speaker-microphones, HM-167/HM-202

*Not available in the HOL version.



VHF Handheld Transceivers



Supplied Accessories

- Battery pack, BP-275
 - Battery charger, BC-204
 - AC adapter, BC-147SE*
 - Belt clip, MB-109
 - Antenna, FA-SC59V
 - Hand strap
- * May differ or not supplied, depending on version.



Supplied Accessories

- Battery pack, BP-252
 - Battery case, BP-251*
 - Battery charger, BC-173
 - AC adapter, BC-147SE*
 - Belt clip, MB-109
 - Antenna, FA-SC58V
 - Hand strap
- * May differ or not supplied, depending on version.

VHF/DSC MARINE TRANSCEIVER

IC-M91D

The World's First Active Noise Cancelling Handheld with DSC, GPS and MOB



FEATURES

- Intuitive user interface and high definition dot-matrix display
- Active noise cancelling reduces background noise by up to 90%
- Built-in GPS with GPS compass
- Built-in DSC for handheld
- MOB and waypoint memories

• Dual watch and Tri-watch functions* • Instant access to Ch 16 and call channel
 • AquaQuake™ draining function • Auto power save • Priority and normal scan
 • Tag scan and favorite channel function • Optional speaker-microphone, HM-167/HM-202
 *Not available in the HOL version.

VHF MARINE TRANSCEIVER

IC-M35

“Clear Voice Boost”, and it Floats



FEATURES

- Noise cancelling microphone
- Automatic volume adjustment
- Voice boost and mute functions
- Large buttons and easy to grip
- 6W RF output, 700mW loud audio

• Dual watch and Tri-watch functions* • Instant access to Ch 16 and call channel
 • AquaQuake™ draining function • 2-step power save • Auto scan function* • Tag scan and favorite channel function • Optional speaker-microphone, HM-165
 *Not available in the HOL version.



VHF Handheld Transceivers



Supplied Accessories

- Battery pack, BP-252
- Battery charger, BC-173
- AC adapter, BC-147SE
- Belt clip, MB-103Y
- Neck strap



Supplied Accessories

- Battery pack, BP-227AX
- Battery charger, BC-152N
- AC adapter, BC-147SE*
- Belt clip, MB-86
- Antenna, FA-S59V
- Hand strap
- * Not supplied depending on version.

SURVIVAL CRAFT 2-WAY RADIO IC-GM1600E

GMDSS Portable for Survival Craft



FEATURES

- Meets strict environmental requirements for GMDSS
- 2W output power for long lasting battery
- Primary (non-rechargeable) lithium battery pack, BP-234
- Highly visible yellow-colored body

• Instant access to Ch 16 and call channel • Auto power save • 4-step battery indicator

VHF MARINE TRANSCEIVER IC-M87 ATEX

ATEX Intrinsically Safe Marine Radio









FEATURES








- ATEX intrinsically safe type approval (Approved classes: II2G Ex ib IIA T3 Gb)
- Tough and compact body
- Marine and land channel groups
- 22 programmable land channels
- Built-in voice scrambler









• Dual watch and Tri-watch functions • Instant access to Ch 16 and call channel • Auto power save • Auto scan function • Tag scan function • Optional speaker-microphone, HM-138

Options

MODEL NAME	BATTERY CASE		BATTERY PACKS				
	BP-251*1 LR03 (AAA)x5 cells		BP-227AX (Li-Ion) 7.4V/1850mAh (min.) 1950mAh (typ.)	BP-245H (Li-Ion) 7.2V/2150mAh (min.) 2200mAh (typ.)	BP-275 (Li-Ion) 7.4V/1500mAh (min.) 1590mAh (typ.)	BP-252 (Li-Ion) 7.4V/950mAh (min.) 980mAh (typ.)	BP-234 (Lithium) 9.0V/3300mAh (non-rechargeable)
IC-M25EURO*2			 For Intrinsically Safety				
IC-M73EURO				✓			
IC-M91D					✓		
IC-M35	✓					✓	
IC-GM1600E						✓ (On-board use only)	✓ (For survival craft)
IC-M87ATEX			✓				

*1 The IC-M35 floats when used with most common brand AAA batteries. Battery weight varies by manufacturer. Please check your IC-M35 for buoyancy in a shallow area first when using AAA batteries.
*2 As the Lithium-ion battery cell (3.7V 1500mAh) is built-in to the IC-M25EURO, the user cannot replace the battery cell.

MODEL NAME	DESKTOP CHARGERS						
	BC-210 Rapid charger	BC-205 Rapid charger	BC-204 Regular charger	BC-162 Rapid charger	BC-173 Regular charger	BC-119N Rapid charger	BC-152N Regular charger
IC-M25EURO							
IC-M73EURO	✓						
IC-M91D		✓	✓				
IC-M35				✓	✓		
IC-GM1600E					(On-board use only)		
IC-M87ATEX						(Use with AD-100)	✓

MODEL NAME	MULTI-CHARGERS		AC ADAPTERS				USB CHARGER	CHARGER ADAPTERS
	BC-197 Rapid charger	BC-121N Rapid charger	BC-123SE/SUK 12V/1A	BC-145SE/SUK 16V/0.93A	BC-147SE 12V/200mA	BC-157S 12V/6.6A	BC-217SE 5V/1A	AD-100 AD-124*3 AD-129*3
IC-M25EURO								 Photo shows AD-100
IC-M73EURO	(Use with AD-129)		(Use with BC-210)			(Use with BC-197)	(Use AD-129 with BC-197)	
IC-M91D	(Use with AD-124)		(Use with BC-205)		(Use with BC-204)	(Use with BC-197)	(Use AD-124 with BC-197)	
IC-M35			(Use with BC-162)	(Use with BC-162)	(Use with BC-173)			
IC-GM1600E					✓ (Use with BC-173, On-board use only)			
IC-M87ATEX		(Use with AD-100)		(Use with BC-119N)	(Use with BC-152N)	(Use with BC-121N)	(Use AD-100 with BC-119N/121N)	

*3 Either AD-124 or AD-129 is supplied with BC-197, depending on version. The IC-M87 ATEX intrinsically models should only be used with the specified intrinsically safe approved options.










: Applicable : Not applicable



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Some options may not be available in some countries. Please ask your dealer for details.

Options

MODEL NAME	CIGARETTE LIGHTER CABLES		DC POWER CABLES		SPEAKER MICROPHONES				
	CP-25/H	CP-23L	OPC-515L	OPC-656	HM-213 Waterproof	HM-202 Waterproof	HM-167 Waterproof	HM-165 Waterproof	HM-138 Waterproof
									
IC-M25EURO					✓				
IC-M73EURO	(Use CP-25H with BC-210)		(Use with BC-210)	(Use with BC-197)		✓	✓		
IC-M91D	(Use CP-25 with BC-204)	(Use with BC-205)	(Use with BC-205)	(Use with BC-197)		✓	✓		
IC-M35								✓	
IC-GM1600E									
IC-M87ATEX									✓

MODEL NAME	BELT CLIPS		LEATHER BELT HANGERS			ANTENNAS
	MB-86 Swivel type	MB-98 MB-103/103Y MB-109 MB-133 Alligator	MB-96N Swivel type	MB-96F Fixed type	MB-96FL Long type	FA-S59V FA-S64V FA-SC58V FA-SC59V
		 Photo shows MB-109				 FA-S59V (left) & FA-S64V (right)
IC-M25EURO		(Use MB-133)				FA-SC59V
IC-M73EURO	✓	(Use MB-103)	✓	✓	✓	FA-S59V or FA-S64V
IC-M91D		(Use MB-109)		✓	✓	FA-SC59V
IC-M35		(Use MB-109)				FA-SC58V
IC-GM1600E		(Use with MB-103Y)				Fixed type
IC-M87ATEX	✓	(Use MB-98)		✓		FA-S59V

: Applicable

: Not applicable

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Specifications

	IC-M25EURO	IC-M73EURO	IC-M91D	IC-M35
Frequency range (Unit: MHz)	Tx: 156.000–161.450 Rx: 156.000–163.425	Tx: 156.000–161.450 Rx: 156.000–163.425	Tx: 156.000–161.450 Rx: 156.000–163.425	Tx: 156.000–161.450 Rx: 156.000–163.425
Dimensions (projections not included; WxHxD)	56.6x134.2x30.5 mm	52.5x125x30 mm	61.2x141.4x43.2 mm	62x139.5x43 mm
Weight (approx.)	220g (With MB-133 and FA-SC59V)	320g (With BP-245H, MB-103 and FA-S64V)	318g (With BP-275, FA-SC59V, and MB-109)	295g (With BP-252, MB-109 and FA-SC58V)
Current drain	Transmit (High) 2.3A (at 3.7V DC) 300mA typ. (External SP) 200mA typ. (Internal SP)	1.5A typical 250mA typ. (External SP) 450mA typ. (Internal SP)	1.5A typical 500mA typ. (Internal SP)	1.5A typical 200mA typ. (External SP) 300mA typ. (Internal SP)
Sensitivity (at 20dB SINAD; emf)	-6dBµ typical	-4dBµ typical	-4dBµ typical	-2dBµ typical
Intermodulation rejection	68dB	68dB	68dB	68dB
Audio output power (10% distortion)	External SP 200mW typ. (4Ω load)	200mW (8Ω load)	200mW (8Ω load)	200mW (8Ω load)
	Internal SP @ 1kHz 550mW typ. (12Ω load)	700mW typ. (8Ω load)	700mW typ. (8Ω load)	700mW typ. (16Ω load)
RF output power	5W/1W/0.5W* (* For only FRG version)	6W/3W/1W/0.5W* (* For only FRG version)	5W/1W/0.5W* (* For only FRG version)	6W/1W/0.5W* (* For only FRG version)
Operating time (approx.)*	11 hours (with built-in battery)	Plus version 17 hours Basic version 20 hours (with BP-245H)	8 hours (with BP-275)	8 hours (with BP-252)
Waterproof protection	IPX7 (1m depth/30 min.)	IPX8 (1.5m depth/30 min.)	IPX7 (1m depth/30 min.)	IPX7 (1m depth/30 min.)

Measurements made in accordance with EN 301 178. * Typical operation, Tx:Rx:Stand-by=5:5:90

	IC-GM1600E	IC-M87ATEX
Frequency range (Unit: MHz)	Tx/Rx: 156.300–156.875	Tx: 156.000–161.450 Rx: 156.000–163.425 Tx/RX: 146–174 (PMR)
Dimensions (projections not included; WxHxD)	65x145x44 mm	62x97x39 mm
Weight (approx.)	385g (With BP-234)	280g (With BP-227AX)
Current drain	Transmit (High) 1.0A/0.7A (2W/1W) 200mA typical	0.7A typical 200mA typical
Sensitivity (at 20dB SINAD; emf)	-2dBµ typical	-2dBµ typical (Marine) -4dBµ typical (PMR)
Intermodulation rejection	68dB	68dB (Marine) 65dB (PMR)
Audio output power (10% distortion)	External SP 200mW (8Ω load)	200mW (8Ω load)
	Internal SP @ 1kHz 350mW typ. (8Ω load)	350mW typ. (8Ω load)
RF output power	2W/1W	1W
Operating time (approx.)*	Specified as IMO Res. MSC.149(77)	19 hours (with BP-227AX)
Waterproof protection	Specified as IMO Res. MSC.149(77)	IPX7 (1m depth/30 min.)

Measurements made in accordance with EN 301 178. EN 300 086 for IC-M87ATEX PMR. IEC61097-12 for IC-GM1600E.

* Typical operation, Tx:Rx:Stand-by=5:5:90

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ATEX Intrinsically Safe versions Approved classes

CE0081 
II 2G Ex ib IIA T3 Gb

The approved rating is II 2G Ex ib IIA T3 Gb.
Special conditions for use: • Must be used with BP-227AX
Approved accessories: • Speaker-microphone HM-138
Either the jack cover or HM-138 must be attached to the connector.
EN 60079-0 (2012), EN 60079-11 (2012)

Please Note: The optional chargers are not approved as intrinsically safe.
The battery should only be charged in non hazardous areas.
The battery should only be changed in non hazardous areas.
Ambient operating temperature: -20°C to +55°C
DO NOT use the transceiver with any other equipment not specified in the option list (Pages 4-5).

Applicable gas and vapor types

Temp.	T1	T2	T3
Class	Acetone, Ethane, Ethylacetate, Ammonia, Benzene, Acetic acid, Carbon monoxide, Methanol, Propane, Toluene	Ethyl alcohol, i-amyl acetate, n-butan, n-butyl alcohol	Benzene, Diesel-fuel, Aviation-fuel, Heating-oils, n-hexane
IIA			

* Please ensure the IC-M87 ATEX rating is acceptable for the intended place of use.

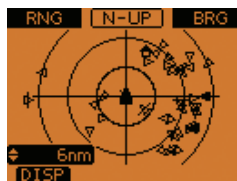




VHF Fixed Mount Transceivers

VHF MARINE TRANSCEIVER **IC-M506EURO**

Fixed Mount VHF and AIS Receiver Combo with NMEA 2000™ Connectivity



AIS PLOTTER



AIS TARGET LIST



FUNCTIONS MENU



COMMANDMIC, HM-195 series capable



FEATURES

- Integrated AIS Receiver
- NMEA 2000™ connectivity
- 2 minutes last call voice recording
- New intuitive user interface
- Active noise cancelling
- 15W loud audio and 25W two-way hailer
- Optional COMMANDMIC™, HM-195B/SW
- IPX8 advanced waterproof (1m depth for 60 minutes)
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™ draining function
- Auto scan function
- Display and keypad backlighting
- External speaker connection
- Option voice scrambler UT-112
- Large dot-matrix display
- Rear panel microphone version

VHF MARINE TRANSCEIVER **IC-M423G** (With GPS Receiver)

Easy-to-Use and Even Easier to Hear!



GPS
INTEGRATED
GPS RECEIVER



COMMANDMIC, HM-195 series capable

FEATURES

- New intuitive user interface and white backlight display
- Active noise cancelling reduces background noise by up to 90%
- 10W loud audio, public address and foghorn
- Optional COMMANDMIC™, HM-195GB/GW
- Integrated GPS Receiver simplifies wiring
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™ draining function
- Auto scan function
- Display and keypad backlighting
- External speaker connection
- RX speaker function
- Black and super white color version
- Speaker-microphone, HM-205B/SW



VHF Fixed Mount Transceivers

VHF MARINE TRANSCEIVER

IC-M400BB

Black Box Transceiver When Space is at a Premium



FEATURES

- Space Saving, Fully Functional VHF/DSC
- Controlled by COMMANDMIC™ HM-195B/SW*
- New intuitive user interface
- Active noise cancelling reduces background noise by up to 90%
- 10W loud audio, public address and foghorn
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™ draining function
- Auto scan function
- Display and keypad backlighting
- External speaker connection
- RX speaker function

* HM-195B/SW may be sold separately, depending on version.

VHF MARINE TRANSCEIVERS

IC-M323G (With GPS Receiver)

IC-M323 (Without GPS Receiver)

Top Performance, Great Value



IC-M323



GPS
INTEGRATED
GPS RECEIVER
(IC-M323G only)

IC-M323G



(IC-M323G only)

FEATURES

- Powerful, compact VHF/DSC with Icom value and reliability
- New intuitive user interface
- High definition dot-matrix display
- Class D DSC
- Integrated GPS receiver (IC-M323G only)
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™ draining function
- Auto scan function
- Display and keypad backlighting
- External speaker connection



COMMANDMIC™

REMOTE-CONTROL MICROPHONES

HM-195GB/GW (White backlight LCD)

HM-195B/SW (Amber backlight LCD)

Full Control 2nd Station Capability for IC-M506EURO or M423G

Remote-Controller head for IC-M400BB



FEATURES

- Full control 2nd station capability for IC-M506EURO or M423G
- Remote-Controller head for IC-M400BB
- Intercom function with IC-M506EURO or M423G
- New intuitive user interface
- Up to 18.3m (60.3ft) remote location installation*
- * Two optional OPC-1541 extension cables required
- Black and super white color version

Above photo shows HM-195GB
Available in black or super white.



VHF Fixed Mount Transceivers

VHF MARINE TRANSCEIVER

GM600

GMDSS VHF Radio With Class A DSC



PS-310 DC-DC converter



FEATURES

- Meets GMDSS requirements for all types of vessels MED Directive (96/98/EC) for European merchant ship
- Built-in ITU Class A DSC (Meets ITU-R M.493-13)
- Wide viewing, high contrast 4.3 inch TFT color display with day and night mode
- New intuitive user interface for simple, straightforward operation
- 10W audio output power with external speaker
- Dedicated DSC watch receiver for continuous Channel 70 monitoring

- 12V or 24V input DC-DC converter, PS-310 (May be sold separately)
- Printer connector (D-SUB 25-pin)
- VDR (Voyage Data Recorder)/External SP connector
- IEC 61162-1 input/output
- Optional handset, HS-98
- Support new VHF marine channel plan effective from January 1, 2017
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and call channel
- Tag scan and favorite channel functions
- Auto scan function

AIS Transponder and AIS Receiver



MXG-5000S GPS receiver



CLASS B AIS TRANSPONDER

MA-500TR

Fully Capable Class B AIS Transponder



FEATURES

- Class B AIS transponder
- Large full dot-matrix display
- CPA and TCPA collision-risk management
- AIS target call with Icom VHF transceivers
- 100 waypoint memories
- 3-line NMEA input/output
- MXG-5000S GPS receiver*

* The MXG-5000S may be sold separately, depending on country.

AIS RECEIVER

MXA-5000

Real-time Vessel Traffic Information for Collision-Risk Management















FEATURES

- Monitors Class AIS data
- Dual mode data output (GPS chart plotter and PC connection)
- Built-in antenna splitter to share one antenna
- GPS data multiplex
- Compact size, 132(W)x34(H)x155(D) mm dimensions

Options

VHF FIXED MOUNT TRANSCEIVERS

MODEL NAME	HAND MICROPHONES			COMMANDMIC™		HANDSET	EXTENSION CABLES		DC-DC CONVERTER
	HM-205B/RB/W Speaker microphone	HM-200B/SW	HM-214V Speaker microphone	HM-195B/SW	HM-195GB/GW	HS-98	OPC-1541 6.1 m; 20 ft cable for use with COMMANDMIC	OPC-1000 6.1 m; 20 ft cable for use with rear microphone connection.	PS-310 12V or 24V input, depending on version
IC-M506EURO									
IC-M423G	✓			✓	✓		(Use with COMMANDMIC)	(For use with rear mic version)	
IC-M400BB				✓	✓		(Use with COMMANDMIC)		
IC-M323G		✓							
IC-M323		✓							
GM600			✓			✓			✓

MODEL NAME	FLUSH MOUNT KITS		VOICE SCRAMBLER
	MB-132	MB-75	UT-112 Total of 32 voice scramble codes available
IC-M506EURO			
IC-M423G	✓	✓	✓
IC-M400BB	✓		
IC-M323G	✓		
IC-M323	✓		
GM600		✓	

AIS TRANSPONDER AND AIS RECEIVER

MODEL NAME	FLUSH MOUNT KIT
	MB-75
MA-500TR	✓
MXA-5000	

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: Applicable : Not applicable

Specifications

VHF FIXED MOUNT TRANSCEIVERS

	IC-M506EURO	IC-M423G	IC-M400BB	IC-M323G	IC-M323	GM600
Frequency range	Tx: 156.000–161.450MHz Rx: 156.000–163.425MHz CH 70: 156.525MHz AIS1,2 161.975, 162.025MHz	Tx: 156.000–161.450MHz Rx: 156.000–163.425MHz CH 70: 156.525MHz	Tx: 156.000–161.450MHz Rx: 156.000–163.425MHz CH 70: 156.525MHz	Tx: 156.000–161.450MHz Rx: 156.000–163.425MHz CH70: 156.525MHz	Tx: 156.000–161.450MHz Rx: 156.000–163.425MHz CH70: 156.525MHz	Tx: 156.025–161.600MHz Rx: 156.025–162.000MHz CH70: 156.525MHz
Power supply requirement	13.8V DC (10.8–15.6V DC)	13.8V DC (10.8–15.6V DC)	13.8V DC (10.8–15.6V DC)	13.8V DC (10.8–15.6V DC)	13.8V DC (10.8–15.6V DC)	24V DC (21.6–31.2V DC)*1
Dimensions (projections not included; WxHxD)	178.9x113.9x113.8mm	180x82x119.9mm	IC-M400BB 216x79x125mm HM-195B/SW 67.5x144.5x37mm	180x82x119.9mm		263x110x109.4mm
Weight (approx.)	1.3kg	1.2kg	IC-M400BB 830g HM-195B/SW 400g	1.2kg		1.6kg
Current drain	Transmit (High)	5.5A	5.5A	5.5A	5.5A	3.3A*1
	Max. audio	5A typ. (Ext SP, RX hailer ON) 1.5A (Internal SP)	5A typ. (Ext SP, RX SP ON) 1.5A (Internal SP)	3.5A	1.5A	2.0A*1
Sensitivity	Main (20dB SINAD)	-5dBµ emf typ.	-5dBµ emf typ.	-5dBµ emf typ.	-5dBµ emf typ.	-7dBµ emf typ.
	DSC (1% BER)	-4dBµ emf typ.	-4dBµ emf typ.	-4dBµ emf typ.	-4dBµ emf typ.	-7dBµ emf typ.
Intermodulation	Main	More than 75dB	More than 68dB	More than 68dB	More than 68dB	More than 75dB
	DSC (1% BER)	More than 68dBµ emf	More than 68dBµ emf	More than 68dBµ emf	More than 68dBµ emf	More than 73dBµ emf
Audio output power (10% dist./4Ω load)	15W (External speaker)	More than 10W (External speaker)	More than 2W (HM-195B/SW) More than 10W (RX Speaker)	More than 2W	More than 2W	10W (External speaker)
RF output power	25W/1W	25W/1W	25W/1W	25W/1W	25W/1W	25W/1W
NMEA interface	NMEA 2000/0183	NMEA 0183	NMEA 0183	NMEA 0183	NMEA 0183	IEC 61162-1
AIS Receiver	Built-in	-	-	-	-	-
GPS Receiver	External	Built-in	External	Built-in	External	External

Measurements made in accordance with EN 301 025-2, -3 for IC-M506EURO, IC-M423G, IC-M400BB, IC-M323G and IC-M323. EN301 925 for GM600. *1 With PS-310 (#01)

AIS TRANSPONDER AND AIS 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	16K0GXW (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	132x34x155 mm
Weight (approx.)	1.0kg	460g
Current drain	Transmit	1.5A
	Receive	0.7A
Sensitivity (20% error rate)	-110dBm	-116dBm typ.
Intermodulation rejection	65dB	65dB
RF output power	2W	-

Measurements made in accordance with IEC62287-1.

GPS RECEIVER

	MXG-5000S	
Receiving frequency	1575.42MHz	
Receiving channels	66	
Receiving code	L1, C/A-codes, SPS	
Satellite differential type (SBAS)	WAAS, EGNOS, MSAS, GAGAN	
Time to first fix	Cold start	40 Sec. typ.
	Warm start	4 Sec. typ.
Power supply	4.75–5.25V DC (Supplied from MA-500TR or MXP-5000)	
Dimensions (projections not included)	78 x 96.5 mm (DiameterxHeight)	
Weight (approx.)	460g	
Usable temperature range	-20°C to +60°C	
Cable length (approx.)	10m; 32.8ft	



IP ADVANCED RADIO SYSTEM

Full-Duplex Communication That Works Over a Wireless LAN and IP Network

System Features

Wireless Communication System among Ship Crews

By installing wireless access points, the IP advanced radio system can flexibly deploy along the IP network and communicate throughout in the vessel. The IP100H can access the nearest access point and can roam between access points.

Hands-free, Full-duplex Communication

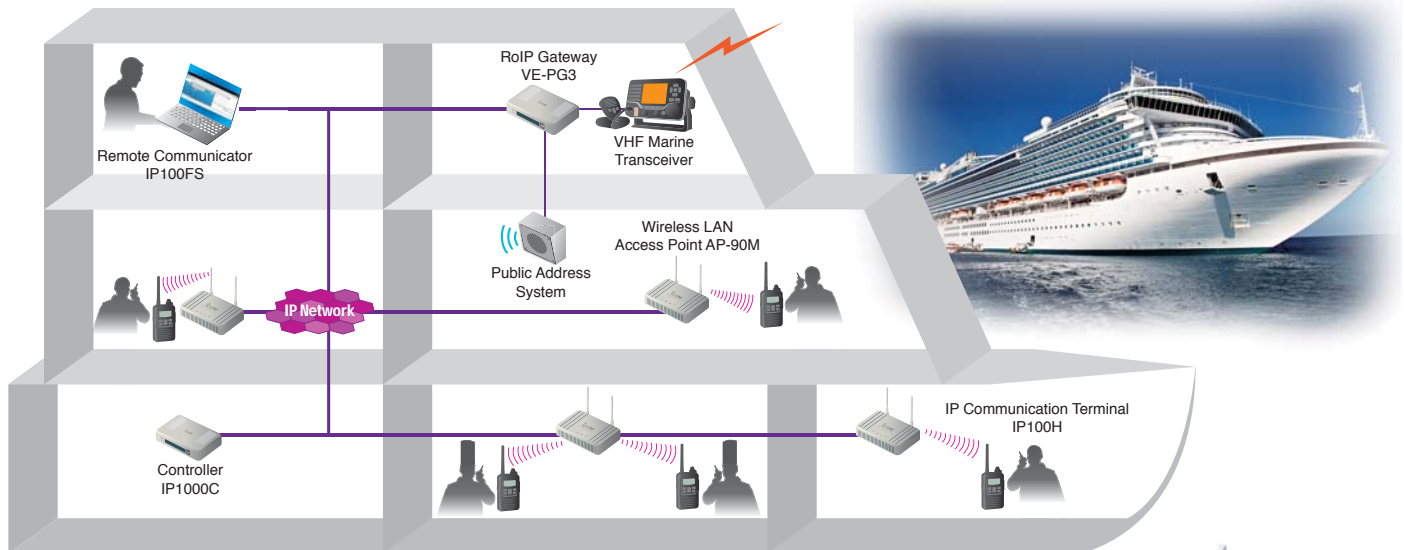
With optional earphone-mic or headset HS-102 or HS-85*, the IP100H user can simultaneously talk and receive like a phone call. Hands-free operation allows your staff to carry out other tasks at the same time.
* Either HM-153LS, HM-166LS, HS-102 with OPC-2359 or HS-85 with OPC-2144 is required.

Individual, Group or Area Communication

The IP100H/IP100FS can make individual call, group conference call, all call and area call. Crews spread across multiple rooms and cabins can communicate seamlessly. The IP communication terminal can receive Short Data Messages with a vibration alert from a PC installed IP100FS.

Interconnect between VHF Marine Transceiver and Public Address System

With the VE-PG3 RoIP gateway, the IP advanced radio system can interconnect with a VHF marine transceiver, other radio system and a public address system.



IP Communication Terminal **IP100H**

- Licence-free communication terminal using IEEE 802.11 a/b/g/n standards
- WPA-PSK or WPA2-PSK encryption
- IPX7 waterproof (1m depth water for 30 minutes)
- Compact 58x95x26.4mm body and 205g (approximate) lightweight
- Vibration alert function for incoming calls



Wireless LAN Access Point **AP-90M**

- IEEE 802.11 a/b/g/n/ac compliant
- PoE (Power over Ethernet) capability
- Optional RS-AP3, access point management software



Controller **IP1000C**

- The IP1000C controls all terminal configurations and voice traffic
 - Capable of controlling up to 100 or 20* terminals (including IP100FS)
- *Depending on version.



Remote Communicator Software **IP100FS**

(Supplied with USB flash drive for use as a USB hardware key)

- The IP100FS can communicate with IP communication terminals from a PC
- The IP100FS can obtain location information of each IP100H based on using access points
- Can be installed to a Windows® based tablet PC as well as laptop PC

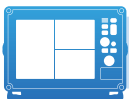


RoIP Gateway **VE-PG3**

- Interconnects IP advanced radio system and other radio system*
- Public address system connection
- Telephone interconnection with IP phone and PSTN lines

*Interconnection with VHF marine radio may be prohibited in some countries. Please confirm legal requirements in your country before 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 display (MFD).



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 and provide separate operation. 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.



Daylight Viewable Display

The 12.1 inch size MFD provides 800x600 pixels resolution. The 900cd/m² high brightness, color LCD with anti-reflecting surface coating glass offers bright, vivid indication in detail even in under direct sunlight.



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 your safe and easy navigation.



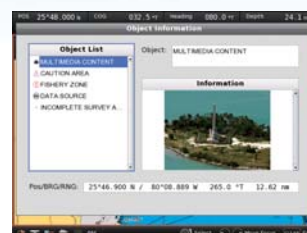
* Chart data is not supplied from Icom.



Perspective view (bird view)



Chart plotter



Object information of the C-MAP™ chart data base



Nav-course monitor (upper right) & Nav-waypoint (bottom right)



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 help you to detect dangerous objects.



Radar screen

ATA List

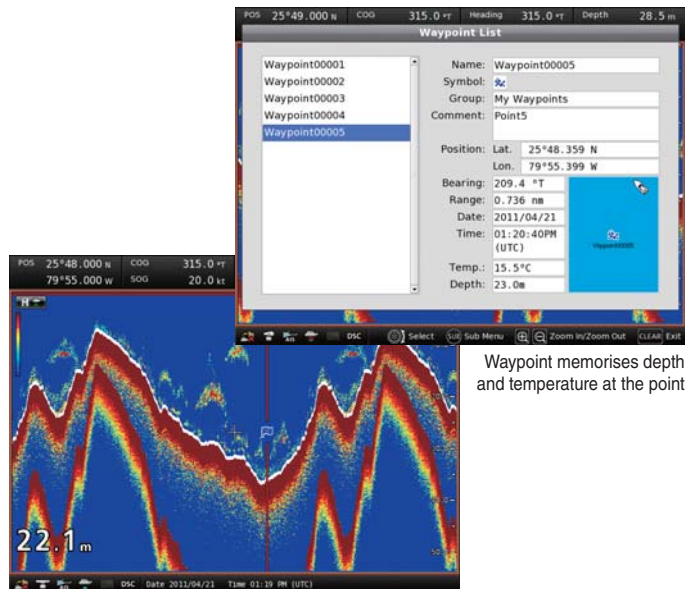
Simplified ATA (Automatic Tracking Aid)

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.



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

Waypoint memorises depth and temperature at the point

Additional data for waypoints

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

MARINE RADAR

MXR-5000T

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



or

MARINE RADAR

MXR-5000R

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



FISH FINDER

MXF-5000



+

EX-3193

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

or

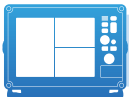
EX-3194

- 600W thru-hull transducer
- Depth 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



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.

*The IC-M506EURO AIS data is NOT compatible with the MarineCommander.



Full AIS Data



AIS TRANSPONDER
MA-500TR



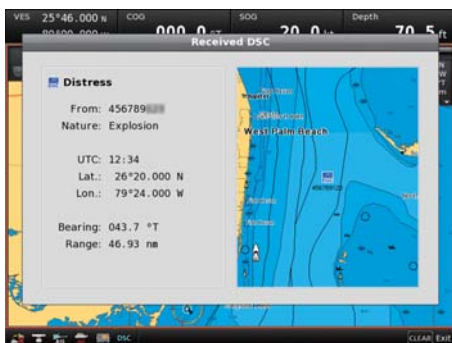
AIS RECEIVER
MXA-5000



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.

*Type of transmitting DSC calls are depending on the connected VHF transceiver's capability.



Received DSC message



VHF MARINE TRANSCEIVER
IC-M506EURO



VHF MARINE TRANSCEIVER
IC-M423G



VHF MARINE TRANSCEIVER
IC-M400BB



VHF MARINE TRANSCEIVERS
IC-M323G/M323



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



Engine Monitoring

When connected to an NMEA 2000™ engine interface, the MarineCommander shows current data on a virtual engine meter.



Graphic screens



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

Other Features

- An analogue RGB output connector (D-SUB 15-pin) for an external display connection
- Four analogue video input connectors (NTSC or PAL format)
- 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.

This product includes software (part of tcp_wrappers) developed by the University of California, Berkeley. This product includes software developed by the University of California, Berkeley and its contributors.

Specifications

MULTI-FUNCTION DISPLAY

	MXD-5000
Multi-function display	12.1 inch TFT
Screen size	246x184.5 mm
Screen resolution	SVGA 800x600 dots
Power supply	30V DC (Supplied from MXP-5000)
Dimensions (WxHxD) (Projections not included)	386x274x69.2 mm (without bracket) 404x299x102 mm (with bracket)
Weight (approx.)	3.3kg (with bracket) 3.8kg (without bracket)
Usable temperature range	-20°C to +60°C
Waterproofing	IPX7
Cable length	5m
Optional extension cable	EX-3187 (5m)

MAIN PROCESSOR UNIT

	MXP-5000
Power supply	12/24V DC (10.8 to 31.2V DC)
Current drain (at 12V DC) (at Maximum brightness)	Less than 4.7A (One MXD-5000) Less than 7.7A (Two MXD-5000s)
Dimensions (WxHxD) (Projections not included)	360x88x228.8mm
Weight (approx.)	4.25kg
Usable temperature range	-20°C to +60°C
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) (Projections not included)	250x67x200 mm
Weight (approx.)	2.18kg
Usable temperature range	-20°C to +60°C
Waterproofing	IPX4
Optional data cable	OPC-1895 (20m)

TRANSDUCERS

	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	2.5kg	3.6kg
Optional transducer ext. cable	OPC-1929 (6m)	OPC-1929 (6m)	OPC-1929 (6m)

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

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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) (Projections not included)	250x67x200 mm	250x67x200 mm
Weight (approx.)	2.1kg	2.1kg
Usable temperature range	-20°C to +60°C	-20°C to +60°C
Waterproofing	IPX4	IPX4
Optional data cable	OPC-1895 (20m)	OPC-1895 (20m)

SCANNER UNITS

	MXR-5000R Radome scanner	MXR-5000T Open array scanner
Type	2ft (60cm) radome	4ft (120cm) open array
Peak output power	4kW	4kW
Maximum range	36NM	48NM
Rotation speed	24 rpm, 36 rpm, 48 rpm	24 rpm, 36 rpm, 48 rpm
Beam width	Horizontal Vertical	Horizontal Vertical
	4°typ. 22°typ.	2°typ. 25°typ.
Side lobe	-18dB	-24dB
Polarization	Horizontal	Horizontal
Transmission frequency	9410MHz±30MHz P0N	9410MHz±30MHz P0N
Pulse width	80ns/2880Hz, 80ns/2160Hz, 250ns/2160Hz, 350ns/2160Hz, 900ns/720Hz	80ns/2880Hz, 80ns/2160Hz, 250ns/2160Hz, 350ns/2160Hz, 900ns/720Hz
Dimensions	607 (Diameter)×243 (H) mm	1205 (Diameter of rotation) ×381 (H) mm
Weight (approx.)	8kg (without cable)	17kg (without cable)
Usable temperature range	-25°C to +70°C	-25°C to +70°C
Relative humidity	Less than 95% at 40°C	Less than 95% at 40°C
Waterproofing	IPX6	IPX6
Supplied system cable	OPC-2341 (15m)	OPC-2342 (20m)
Optional radar system cables	OPC-2339 (20m) OPC-2340 (30m)	OPC-2340 (30m)