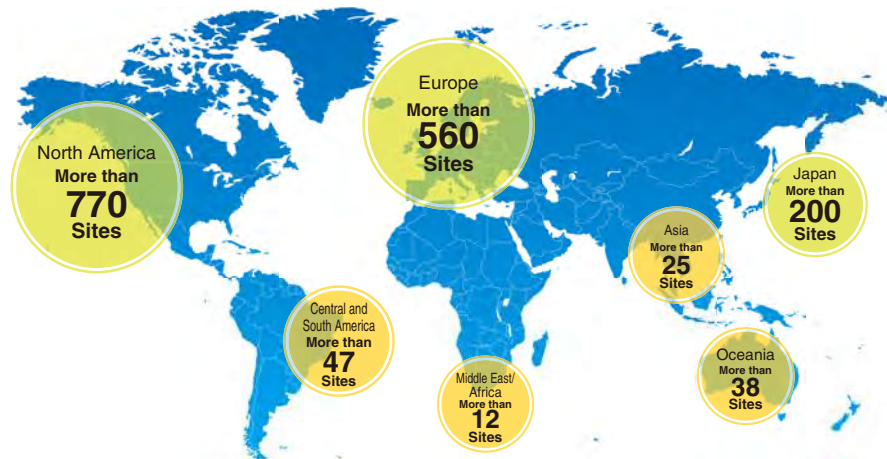




# Worldwide Digital Repeater Network



\* Some repeaters may not be connected to an IP network.

## Internet Resources and Digital Amateur Radio Community

There are already many D-STAR user communities on the Internet, and below are some major Internet resources.

<http://www.dstarinfo.com/>

This site is dedicated to helping D-STAR users world wide. From basic information on what D-STAR is, to detailed technical information.

- Repeater List
- Reflector List
- Application List

<http://www.dstarusers.org/>

Your source for D-STAR information.

- Last Heard List
- Repeater List

## D-STAR QSO PARTY

The biggest D-STAR QSO party in the world is held every September.

## D-STAR Repeater



### ID-RP2C Repeater controller

One unit is required for each repeater site and connects up to four RF modules. Transfers the received signal to the specified RF module, or to the Internet gateway server.



Photo shows ID-RP2V.

### ID-RP2V 1200 MHz DV mode RF module

### ID-RP2000V 144 MHz DV mode RF module

### ID-RP4000V 430 MHz DV mode RF module

These are DV mode RF modules for the respective bands. With a combination of these RF modules, cross band operation between the 144,430 and 1200 (you can go between all various bands) MHz bands is possible.



### ID-RP2D 1200 MHz DD mode RF module

The ID-RP2D is the DD mode RF module for 1200 MHz. It provides 128 kbps data speed communication.



### RS-RP3C Internet gateway software

The Internet gateway connects the D-STAR repeater site to the Internet, and links multiple D-STAR repeaters through the Internet.

## Repeater Compatibility Chart with Icom Digital Transceiver

	ID-51E (PLUS2)	ID-31E PLUS	ID-5100E	ID-4100E	IC-7100	IC-9100+UT-121	ID-1*1
ID-RP2000V (144 MHz DV mode)	✓	—	✓	✓	✓	✓	—
ID-RP4000V (430 MHz DV mode)	✓	✓	✓	✓	✓	✓	—
ID-RP2V (1200 MHz DV mode)	—	—	—	—	—	—	✓
ID-RP2D (1200 MHz DD mode)	—	—	—	—	—	—	✓

\*1 Discontinued product.

\* Repeater access using radio frequency. Cross band operation between ID-RP2000V, ID-RP4000V and ID-RP2V is possible.

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[www.icom.co.jp/world](http://www.icom.co.jp/world)

**Count on us!**

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URL: <http://www.icomeurope.com>

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Bajos A 08174, Sant Cugat del Valles,  
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Phone: +34 (93) 590 26 70  
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URL: <http://www.icom-france.com>

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Phone: +61 (03) 9549 7500  
Fax: +61 (03) 9549 7505  
E-mail: [sales@icom.net.au](mailto:sales@icom.net.au)  
URL: <http://www.icom.net.au>

### Shanghai Icom Ltd.

No.101, Building 9, Caifuxingyuan Park,  
No.188 Maoting Road, Chedun Town,  
Songjiang District, Shanghai, 201611, China  
Phone: +86 (021) 6153 2768  
Fax: +86 (021) 5765 9987  
E-mail: [bjicom@bjicom.com](mailto:bjicom@bjicom.com)  
URL: <http://www.bjicom.com>

Your local distributor/dealer:

## Upgraded Entry Model with New Functions

- 430 MHz single band
- 3 colour variations (Silver/Red/Gold)
- DV enhanced functions with an Android™ device\*1



UHF DIGITAL TRANSCEIVER (GPS Integrated)

# ID-31E PLUS

## Enhanced Functions and Great Digital Features

- 144/430 MHz, dualwatch (VHF/VHF, UHF/UHF, VHF/UHF)
- Independent AM/FM receiver
- DV enhanced functions with an Android™ device\*1



VHF/UHF DIGITAL TRANSCEIVER (GPS Integrated)

# ID-51E PLUS2

## Enjoy D-STAR More Actively and Comfortably

- 144/430 MHz dual band
- Compact, detachable controller for flexible installation
- DV enhanced functions with iOS™ and Android™ devices\*2



VHF/UHF DIGITAL TRANSCEIVER (GPS Integrated)

# ID-4100E

## Innovation and Mobility Taken to the Next Level

- 144/430 MHz, dualwatch (VHF/VHF, UHF/UHF, VHF/UHF)
- Intuitive touch screen operation
- DV enhanced functions with an Android™ device\*3



VHF/UHF DIGITAL TRANSCEIVER (GPS Integrated)

# ID-5100E

## Intuitive Touch Screen, Quick Response, Multi-band Radio

- HF/50/70/144/430 MHz multi-band
- Compact with separated front panel
- Controls at your fingertips with an angled display



HF/VHF/UHF TRANSCEIVER

# IC-7100

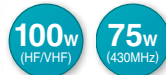
## The All-Round Transceiver, IC-9100

- HF/50/144/430 MHz band DV mode (UT-121 required)
- Satellite Mode Operation
- Independent dual receivers, one each for HF/50 MHz, 144 MHz and 430 MHz Bands.



HF/VHF/UHF TRANSCEIVER

# IC-9100



\*1 Optional data communication cable OPC-2350LU and RS-MS1A (for Android™) are required.

\*2 Optional Bluetooth® unit UT-137 and RS-MS1A (for Android™) or RS-MS11 (for iOS™) are required.

\*3 Optional Bluetooth® unit UT-133A and RS-MS1A (for Android™) are required.

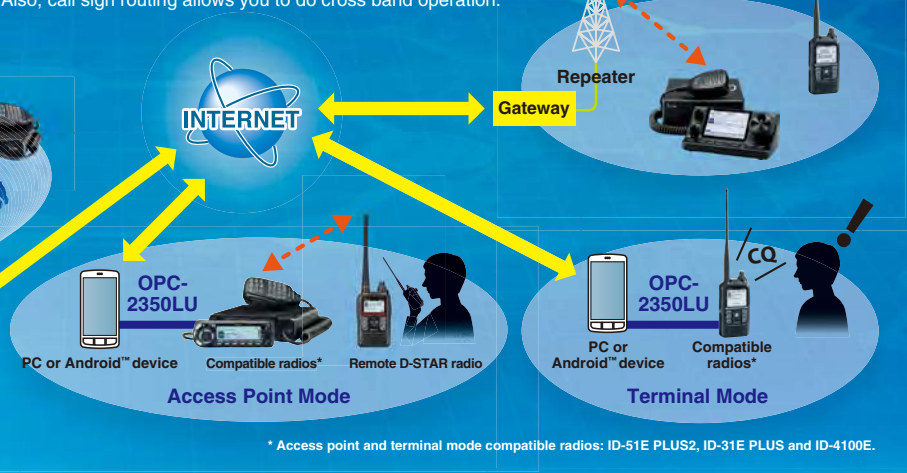
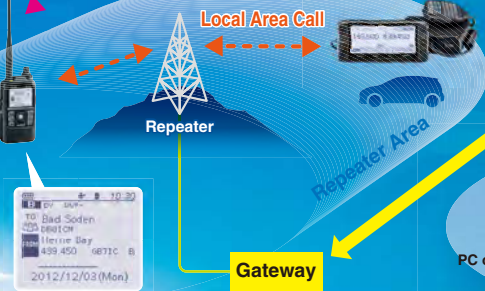
## Simplex Calls

Call another station directly, not using a repeater.



## Call Sign Routing

The call is automatically routed to the repeater that the called user last used. Also, call sign routing allows you to do cross band operation.



\* Access point and terminal mode compatible radios: ID-51E PLUS2, ID-31E PLUS and ID-4100E.

# Long Distance Communications At Your Finger Tips

The biggest appeal of D-STAR is long distance communication over the Internet gateway through repeaters. Even with a handheld radio, you can communicate with a friend in another city or country with clear audio. You can access to your local repeater and route to a different repeater, even from the opposite side of the earth.

## What is D-STAR?

The term D-STAR is Digital Smart Technology for Amateur Radio. It is an open protocol for digital communications established by JARRL (Japan Amateur Radio League).

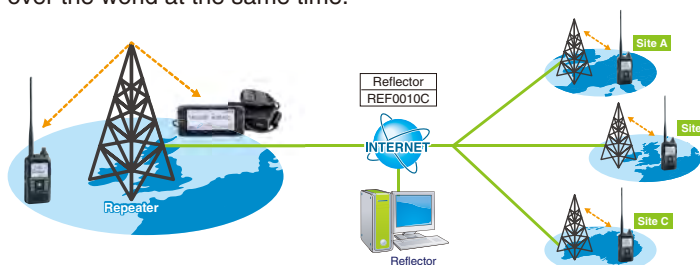
## Digital Modulation For Clear Audio

As the digital voice incorporates GMSK modulation with AMBE™'s Forward Error Correction, the result is clear intelligible audio with digital clarity using only 6 kHz occupied bandwidth\*. It provides clearer audio than analog FM mode without typically increasing white noise level at the fringes of the communication range.

\* Emission designator: 6K00F7W.

## Routing and Linking

One of the great features of D-STAR is the user's ability to talk anywhere they want via call sign commands. With the basic call sign routing, you can route your communications to a specific user or repeater. You are not required to know where repeater the person you want to communicate with is located. For those repeaters running dplus software, you have the capability of linking to another repeater or a group of repeaters through a reflector. Reflectors are a great way to meet new people and have communications with a group of users from all over the world at the same time.



## Terminal Mode and Access Point Mode

The Terminal mode and Access point mode enable you to make D-STAR calls through the Internet, even from areas where no D-STAR repeater is accessible by RF signal.

### Terminal Mode

Connect a D-STAR radio (either ID-31E PLUS, ID-51E PLUS2 or ID-4100E) to the Internet through a PC or Android™ device, and send your voice and/or data through the Internet gateway to a destination repeater.

### Access Point Mode

Use an ID-31E PLUS, ID-51E PLUS2 or ID-4100E radios connected to the Internet through a PC or Android™ device, as an Access point. You can use another D-STAR radio to send your voice and/or data through the Access point radio, and communicate with D-STAR stations all over the world.

## DD Mode Operation

DD mode is a 128 kbps data mode in a 10 W mobile package on the 23 cm band.\* It is possible to connect to the Internet via gateway. You can browse the homepage by connecting a personal computer.

\* A new DD mode compatible model will be available in the near future.

Note for the Terminal mode and Access Point mode:

- You need an Internet connection with an IPv4 Global IP address. If you use a cellular system, you need an IPv4 Global IP address assigned to your Windows® or Android™ device.
- Before operating in the Terminal mode of the Access Point mode, BE SURE to check your local regulation or laws.
- When operating in the Access Point mode, you need two call signs. One for the Access Point transceiver and one for the Remote D-STAR transceiver.
- For Access point or Terminal mode operation, you must register your MY and Access point call signs with a Gateway repeater/server that has the RS-RP3C installed.
- When using the terminal mode or access point mode through a PC, an optional free download software, RS-MS3W, is required to be installed in the PC.
- When using the terminal mode or access point mode through an Android™ device, an optional free download application, RS-MS3A, is required to be installed in the Android™ device.

PC OS: Windows® 10, Windows® 8.1, Windows® 7 Android™ OS: Android™ 4.0/4.1/4.2/4.3/4.4/5.0/6.0/7.0



# Enhance Your D-STAR Experience with Android™ /iOS™ Applications

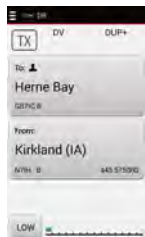
## Share Pictures

Pictures on your iOS™ or Android™ device can be shared over D-STAR network. Pictures of your shack, operating place in the field, rigs, or friends can be sent to other D-STAR radio that are also using the application. Add images and make QSOs even more enjoyable. Pictures can be sent in the DV Fast Data mode or conventional DV mode (with voice).



## DR Functions and Remote Settings

You can set the radio's "FROM" and "TO" fields and change some of the radio's function settings from your iOS™/Android™ device. When using with the optional VS-3 Bluetooth® headset, you can wirelessly talk through the ID-4100E or ID-5100E from a short distance\* away from your rig.



\* Communication range of Bluetooth® is approximately 10 meters (33 feet).

## Repeater List Viewer

The repeater list viewer shows repeater information including frequencies, call signs and frequency offsets in the repeater list. You can use it to manually set your radio when you are in a different area from your usual operating environment.

## Receive History

The receiver history enables to read and edit the receiver station's information. Additional information from an Internet database, such as QRZ.com or APRS.fi, can be downloaded.

## Text Messaging

Text messaging enables you to chat with other D-STAR users that are using the application. Use the function when texting is better than exchanging information over voice. By using iOS™/Android™ devices, you can exchange messages in your preferred language.

## D-STAR Stations and Repeater Sites Mapping

See the location of other stations or repeater sites on a map using received position data. The radio's "FROM" and "TO" can be automatically set by tapping a repeater site or a D-PRS station on the map. When used with a locally cached map, your own and other station's locations can be shown without needing an Internet connection (Offline map function\*).



Repeater map example ©2014 Google - Map data ©2014 Google

\* For only the RS-MS1A.

## Call Sign List

The application enables you to add and edit destination call signs and names used in the DR function.

## Import and Export\*

A user-programmable repeater list or a repeater list on the Internet can be imported from a PC to the application. In addition, receive history can be exported from the application to a PC.

\* iTunes is required for the RS-MS11.

## Other Functions

- **Transceiver Setting** Sets certain transceiver's settings.
- **Application Setting** Sets the RS-MS1A/I settings.

## Transceivers and Compatible Application

Transceivers	Compatible application	Required options
ID-51E PLUS2	RS-MS1A <sup>1</sup> for Android™	OPC-2350LU data communication cable
ID-31E PLUS	RS-MS1A <sup>1</sup> for Android™	
IC-7100 <sup>2</sup>	RS-MS1A <sup>1</sup> for Android™	UT-133A Bluetooth® unit
ID-5100E	RS-MS1A <sup>1</sup> for Android™	
ID-4100E	RS-MS1A <sup>1</sup> for Android™	UT-137 Bluetooth® unit
	RS-MS11 <sup>2</sup> for iOS™	

<sup>1</sup> Download free from Google Play™. (OS: Android™ 4.0 or later)

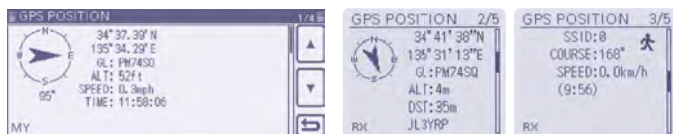
<sup>2</sup> Download free from App Store. (OS: iOS™ 8.0.1 or later) <sup>3</sup> You can not change transceiver setting. The RS-MS11/RS-MS1A may not work, depending on the OS version, installed applications, and so on.



# GPS Location Reporting Functions

## Displays Your Own and Received Location Data

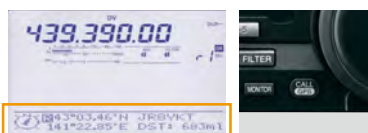
The ID-51E PLUS2, ID-31E PLUS, ID-5100E or ID-4100E have an integrated GPS receiver and show your own location, course, speed and altitude on the display. The GPS location data can be transmitted with voice. Received location information is also shown with distance and direction from your location.



Own (MY) position example (ID-5100E)

Location data example (ID-51E PLUS2)

The IC-7100 and IC-9100 enable you to manually input the current position or connect an external GPS receiver.



Display example of IC-9100

GPS Button (IC-9100)

## Automatic Location Reply Function\*

When receiving a call addressed to your call sign, this function automatically replies your current location data. Replied location data will pop up on the caller's display.

Received position information example



\*ID-31E PLUS, ID-51E PLUS2, ID-4100E and ID-5100E

## GPS Log Function\*

The GPS log function logs your location data at regular intervals (1 second–60 seconds, depending on setting) and memorizes this in the SD card or microSD card to export to your PC. You can import the data into Google Earth or other map applications.



\*SD card/microSD card required. \*ID-31E PLUS, ID-51E PLUS2, ID-4100E and ID-5100E

## Export to the Android™ or iOS™ Application

When connected with an Android™ or iOS™ device\*, received location data can be plotted on a Map Application.

\*ID-51E PLUS2, ID-31E PLUS, ID-5100E and ID-4100E with RS-MS1A for Android™ device. ID-4100E with RS-MS11 for iOS™ device.



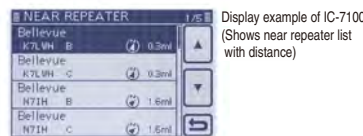
© Google

## Repeater Search Function

The repeater search function\* assists you in accessing nearby repeaters, even in areas you are visiting for the first time. The function searches for a nearby repeater using the repeater memories with the GPS location data.

\*ID-51E PLUS2, ID-31E PLUS, ID-5100E, ID-4100E and IC-7100 functions.

To use the near repeater search function, the position data of the repeater is required. The radios will be shipped with the D-STAR repeater memories preprogrammed, but the position data of some D-STAR repeaters may not be entered or exact.



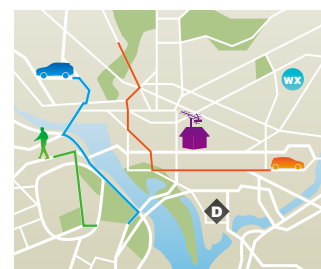
Display example of IC-7100 (Shows near repeater list with distance)



Display example of ID-51E PLUS2

## D-PRS (Digital Packet Reporting System)

D-PRS converts the D-STAR GPS information to APRS™ compatible strings and presents it to the APRS-IS (APRS Internet Server) and other APRS™ clients. The APRS™ maps show real-time APRS™ information and tracks D-STAR stations on the Internet.







# VHF Handheld Transceivers



## Slim Buoyant Handheld DSC Transceiver

VHF MARINE TRANSCEIVER WITH DSC  
**IC-M93D EURO**

### FEATURES

- 2.3" large high visibility LCD
- Slim buoyant DSC transceiver
- Intuitive user interface
- Built-in class H DSC with a CH70 receiver
- Float'n flash and MOB auto set function
- Integrated GNSS receiver
- Active noise cancelling technology

• IPX7 waterproof • Navigation function • 50 waypoint memories • Dual watch and Tri-watch functions • Favorite channel function • AquaQuake™ prevents audio degradation from a water-logged speaker • Supports 4-digit channels

\* Available functions may be subject to local regulations.

### Supplied Accessories

- BP-285 battery pack • BC-220 battery charger
- BC-123SE/SUK\* AC adapter • MB-133 belt clip
- FA-SC59V antenna • Hand strap

\* May differ depending on the transceiver version.



## Slim, Stylish, Powerful VHF with Professional Features

VHF MARINE TRANSCEIVERS  
**IC-M73EURO PLUS**  
**IC-M73EURO**

### FEATURES

- Last call voice recording\*
- Active noise cancelling technology\*
- Bass Boost Function\*
- IPX8 advanced waterproofing
- 6 W RF output, 700 mW 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™ • Auto power save • Priority and normal scan • Tag scan and favorite channel function • Optional speaker-microphones, HM-167/HM-202 • Supports 4-digit channels

\* Available functions may be subject to local regulations.

### Supplied Accessories

- BP-245H battery pack • BC-210 battery charger
- BC-123SE\* AC adapter • MB-103 belt clip
- FA-S64V\* antenna • CP-25H\* cigarette lighter cable
- Hand strap

\* May differ or not supplied, depending on the transceiver version.



## Buoyant 6 Watt VHF with up to 12 Hours of Operation

VHF MARINE TRANSCEIVER  
**IC-M37E**

### FEATURES

- Large keys and easy-to-grip design
- 6 W RF output power
- 700 mW audio output
- More than 12 hours of long-lasting operating time with BP-296
- Channel history function stores the last five channels
- Float'n Flash function

• IP57 dust-protection and waterproof protection • Low Battery Alert function • Voice Loud and Mute function • Dualwatch and Tri-watch functions • Instant access to Ch 16 and call channel • AquaQuake™ • Favorite channel function • Optional speaker-microphone, HM-213 • Supports 4-digit channels

\* Available functions may be subject to local regulations.

### Supplied Accessories

- BP-296 battery pack • BC-235 desktop charger
- BC-217SE/SV\* AC adapter • MB-133 belt clip
- FA-SC59V antenna • Hand strap

\* May differ or not supplied, depending on the transceiver version.





# VHF Handheld Transceivers



# Satellite PTT



Metallic Gray

Pearl White

Marine Blue

## Slim, Lightweight with High Performance

### VHF MARINE TRANSCEIVER IC-M25EURO

#### FEATURES

- Slim, lightweight with high performance
- Large LCD and intuitive user interface
- USB charging (Micro-B USB type)
- Buoyant with flashing LED light
- 11 hours of long operating time
- 5 W RF output, 550 mW clear audio
- IPX7 waterproof protection

• Dual watch and Tri-watch function • Instant access to Ch 16 and call channel • Favorite channel function • Auto scan function\* • AquaQuake™ • 2-step power save • Built-in 3 hours rapid charger (with BC-217SE) • Optional speaker-microphone, HM-213 • Supports 4-digit channels  
\* Available functions may be subject to local regulations.

#### Supplied Accessories

- BC-217SE\* USB charger • MB-133 belt clip
- FA-SC59V antenna • Hand strap • Battery cell is built-in
- \* May differ or not supplied, depending on the transceiver version.



## Compact Marine VHF with 100 PMR Channels

### VHF MARINE TRANSCEIVER IC-M85E

#### FEATURES

- Compact and lightweight
- 100 programmable PMR channels\*  
\* Appropriate licence is required.
- Automated emergency alarm with Man Down, Lone Worker and MOB Alarm functions
- 700 mW loud audio
- IP67 dust-tight and waterproof protection

• Built-in voice scrambler compatible with UT-112/A (Acceptable to use depending on the country.) • Built-in CTCSS and DTCS tones • Dual watch and Tri-watch functions • Instant access to Ch 16 and call channel • AquaQuake™ • Tag scan and favorite channel function • 14 hours of long battery life (TX:RX:Standby=5:5:90.) • Self check function • MIL-STD rugged construction • Internal VOX capability for hands-free operation • Variety of audio accessories • Supports 4-digit channels  
\* Available functions may be subject to local regulations.

#### Supplied Accessories

- BP-290 battery pack • BC-227 rapid charger • BC-123SE\* AC adapter
- MBB-3 belt clip • FA-SC58V antenna • Hand strap
- \* May differ or not supplied, depending on the transceiver version.



## Real-Time Communications Across the Globe

### SATELLITE PTT IC-SAT100

#### FEATURES

- One-to-many communications
- Total global coverage\*<sup>1</sup>
- Uses the Iridium® satellite network
- Emergency button on the top panel
- 1500 mW powerful audio
- IP67 waterproof, durable body
- Short data message function
- AES 256-bit encryption

• Interoperability with conventional radios and IP phones through the optional VE-PG4, RoIP gateway\*<sup>2</sup> • 14.5 hours of long lasting battery life\*<sup>3</sup> • Voice Recording function • Multiple language display • Bluetooth® capability • Integrated GPS receiver • SMA type antenna connector • AquaQuake™ • USB charging (USB Micro-B type)  
\*<sup>1</sup> Depending on the country or region, carrying and/or use of the IC-SAT100 may be prohibited.  
\*<sup>2</sup> Optional connection cable (OPC-2412) is required to connect to the VE-PG4.  
\*<sup>3</sup> TX : RX : standby = 5 : 5 : 90.

#### Supplied Accessories

- BP-300 battery pack • BC-241 rapid charger
- BC-242 AC adapter • FA-S102U antenna • MBB-5 belt clip



# Intrinsically Safe Transceivers

## For Marine Channels



### ATEX Intrinsically Safe Marine Channels

VHF MARINE TRANSCEIVER  
**IC-M87** ATEX (1 W)

#### FEATURES

- **ATEX Certifications**  
Gas: II 2G Ex ib IIA T3 Gb  
(Tamb=-20°C to +55°C)
- **Tough and compact body**
- **Marine and land channel groups**
- **22 programmable land channels**
- **Built-in voice scrambler\***

• IPX7 waterproof protection • 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 • Supports 4-digit channels  
\* May differ depending on the transceiver version.

#### Supplied Accessories

- BP-227AX battery pack • BC-152N battery charger
- BC-147SE\* AC adapter • MB-86 belt clip
- FA-S59V antenna • Hand strap

\* May not supplied depending on the transceiver version.

## For PMR Channels



### ATEX Intrinsically Safe PMR Channels

VHF TRANSCEIVER  
**IC-F51** ATEX (1 W)  
UHF TRANSCEIVER  
**IC-F61** ATEX (1 W)

#### FEATURES

- **ATEX Certifications**  
Gas: II 2G Ex ib IIA T3 Gb  
Dust: II 2D Ex tb IIIC T160°C Db IP67  
(Tamb=-20°C to +55°C)
- **IP67 dust-tight and waterproof protection**
- **Built-in 2-Tone, 5-Tone, CTCSS and DTCS**

• Lone Worker function • BIIS 1200 capability • MDC 1200 compatibility • Eight DTMF autodial memories • Compact body; 56 (W) x 97 (H) x 36.4 (D) mm • Optional speaker-microphone, HM-138 • 136-174 and 400-470 MHz, 1 W

#### Supplied Accessories

- BP-227AXD, battery pack • MB-98, belt clip • Antenna

DO NOT use the transceiver with any other equipment not specified in the option list (Pages 10-11). Please ask your dealer to ensure the ATEX and IECEx ratings are acceptable for the intended place of use.



### IECEx/ATEX Intrinsically Safe Digital Radio

VHF TRANSCEIVER  
**IC-F3202DEX** (1 W)  
UHF TRANSCEIVER  
**IC-F4202DEX** (1 W)

#### FEATURES

- **ATEX Certifications**  
Mining: I M2 Ex ib I Mb  
Gas: II 2G Ex ib IIC T4 Gb  
Dust: II 2D Ex tb IIIC T110°C Db  
-20°C ≤ Tamb ≤ +55°C
- **IEC Certifications**  
Ex ib I Mb  
Ex ib IIC T4 Gb  
Ex ib IIIC T110°C Db  
-20°C ≤ Tamb ≤ +55°C
- **IP67 dust-tight and waterproof protection**
- **IDAS™ digital and analogue mixed mode**
- **Built-in 2-Tone, 5-Tone, CTCSS and DTCS**

• DTMF autodial • 16 memory channels • MDC 1200 (limited functions)\* (\* Depending on version) • BIIS 1200 (limited functions)\* (\* Depending on version) • Optional HM-203EX speaker-microphone • 136-174 and 400-470 MHz, 1 W

#### Supplied Accessories

- BP-277EX, battery pack • BC-212EX, desktop charger
- BC-123SE/SUK\*, AC adapter • MB-94EX, belt clip • Antenna

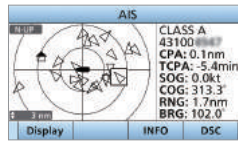
\* May differ depending on the transceiver version.



# VHF Fixed Mount Transceivers

## 4.3 inch Colour TFT LCD, Built-in AIS Receiver and Flexible Remote Control Configurations

### VHF MARINE TRANSCEIVER **IC-M605EURO**



AIS plotter

TARGET LIST (93)			
MMSI/Name	RNG	BRG	
DAIEMARU NO.3	3.3	154	
GYOKO MARU	3.4	147	
MIRAI	3.4	249	
TOKUYO MARU NO21	3.9	259	

AIS target list



Night mode



Supplied GPS antenna

### FEATURES

- Wide viewing angle, high contrast 4.3 inch colour TFT LCD
- Remote control with up to three COMMAND HEAD™/COMMANDMIC™
- Integrated AIS receiver (AIS RX data can be output through NMEA 0183-HS)
- NMEA 2000™ connectivity • Intuitive user interface
- Class leading receiver performance (Selectivity and IMD: 80 dB typ.)
- Active noise cancelling technology • Last call voice recording for two minutes
- Voice scrambler with optional UT-112/A • 15 W loud audio and 30 W two-way hailer
- Integrated GNSS receiver (GPS, GLONASS and SBAS) • Built-in Class D DSC

- NMEA 0183-HS (High Speed) Version 1.01 connectivity (38.4 kbps)
- IPX8 advanced waterproof (1m depth water for 60 minutes)
- Fog horn • Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™ prevents audio degradation from a water-logged speaker
- Priority scan function
- Display and keypad backlighting
- External speaker connection
- Supports 4-digit channels

### Flexible Remote Control Scenario

The IC-M605EURO can be remotely controlled with up to three COMMAND HEAD™/COMMANDMIC™. All functions (including Distress) of the IC-M605EURO can be controlled with the RC-M600. With the RC-M600 and/or HM-229B/W\* connected, the IC-M605EURO provides an intercom system allowing two way private communications.

\* Optional connection cable, OPC-2384 is required.



### Full Remote Control from Optional Command Station

#### COMMAND HEAD™ **RC-M600**



### Space-Saving Compact Body for Daily Operations

#### COMMANDMIC™ **HM-229B/W**

- Black or white colour version
- External microphone-type controller without Distress key



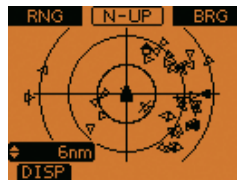
\* Photo shows HM-229B.



# VHF Fixed Mount Transceivers

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

### VHF MARINE TRANSCEIVER **IC-M506GE**



AIS plotter

TARGET LIST (139)		
MMSI/Name	RNG	BRG
431003	1.1	331
TAMAKI PRIN	1.4	003
EIWAMARU	1.4	280
OVAL LP NO.1	1.6	266
KANRYUMARU	1.7	006

AIS target list



Functions menu



Supplied GPS antenna



COMMANDMIC™, HM-195 series capable



#### FEATURES

- Integrated AIS Receiver
- NMEA 2000™ connectivity
- 2 minutes last call voice recording
- Intuitive user interface
- Active Noise Cancelling Technology
- Built-in GPS receiver (GPS antenna supplied)
- 15 W loud audio and 25 W two-way hailer
- Optional COMMANDMIC™, HM-195 series
- IPX8 advanced waterproof (1 m depth water for 60 minutes)
- Built-in Class D DSC
- Meets ITU-R M493-14 specifications
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™
- Priority scan function
- Display and keypad backlighting
- External speaker connection
- Option voice scrambler UT-112/A
- Large dot-matrix display
- Rear panel microphone version
- Supports 4-digit channels

## Easy-to-Use and Even Easier to Hear!

### VHF MARINE TRANSCEIVER **IC-M423GE**



COMMANDMIC™, HM-195 series capable



Supplied GPS antenna



#### FEATURES

- Intuitive user interface and white backlight display
- Active Noise Cancelling Technology
- 10 W loud audio, public address and foghorn
- Optional HM-195GB/GW COMMANDMIC™
- Built-in Class D DSC
- Meets ITU-R 493-14 specifications
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™
- Priority scan function
- Display and keypad backlighting
- External speaker connection
- RX speaker function
- Black or super white colour version
- Speaker-microphone, HM-205B/SW
- Supports 4-digit channels



# VHF Fixed Mount Transceivers

## Black Box Transceiver When Space is at a Premium

VHF MARINE TRANSCEIVER

### IC-M400BBE



Supplied GPS antenna



#### FEATURES

- Space saving, fully functional VHF/DSC
- Controlled by COMMANDMIC™ HM-195B/SW/GB/GW\*
- Active Noise Cancelling Technology
- 10 W loud audio, public address and foghorn
- Meets ITU-R 493-14 specifications
- Built-in Class D DSC
- Intuitive user interface
- Built-in GPS receiver (GPS antenna supplied)
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™
- Display and keypad backlighting
- External speaker connection
- RX speaker function
- Supports 4-digit channels

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

## Top Performance Ultra Compact VHF

VHF MARINE TRANSCEIVER

### IC-M330GE



Supplied GPS antenna



Available in black or white.

#### FEATURES

- Ultra compact body (W×H×D; 156.5 × 66.5 × 110.1 mm)
- Uncompromised receiver performance (Selectivity and IMD: more than 70 dB)
- Intuitive user interface
- Easy-to-read full dot-matrix display
- Meets ITU-R 493-14 specifications
- Built-in Class D DSC
- Dynamic clear audio from bass to treble
- Built-in GPS receiver (GPS antenna supplied) (IC-M330GE)
- IPX7 waterproof
- Dual watch and Tri-watch functions
- Instant access to Ch 16 and Call channel
- Tag scan and favorite channel functions
- AquaQuake™
- Priority scan function
- Display and keypad backlighting
- External speaker connection
- Supports 4-digit channels

\* IC-M330E (without GPS receiver) also available depending on the country.



## COMMANDMIC™

### Full Remote Control Capability

REMOTE-CONTROL MICROPHONES

#### HM-195GB/GW

(White backlight LCD)

#### HM-195B/SW

(Amber backlight LCD)



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

#### FEATURES

- Full control 2nd station capability for IC-M506GE or M423GE
- Remote-Controller head for IC-M400BBE
- Intercom function with IC-M506GE or M423GE
- Distress button on the rear panel



## AIS Transponder

### Fully Capable Class B AIS Transponder

CLASS B AIS TRANSPONDER

#### MA-500TR



#### FEATURES

- Class B AIS transponder
- CPA and TCPA collision-risk management
- AIS target call with Icom VHF transceivers

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

# GMDSS

Global Maritime Distress and Safety System

The Global Maritime Distress and Safety System (GMDSS) is the International radio safety system for ships mandated by the International Maritime Organization (IMO). The GMDSS system provides automated distress alerting and distress communication service with location information.

## Class A DSC VHF Radio with Wide Viewing Angle Colour TFT LCD

VHF MARINE TRANSCEIVER

### GM600



PS-310 DC-DC converter

## Reliable Long Distance MF/HF Communication

MF/HF MARINE TRANSCEIVER

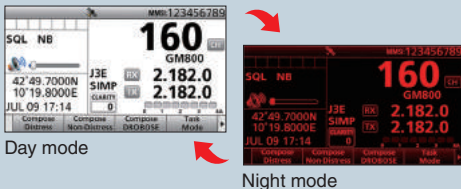
### GM800





## FEATURES

- Meets VHF GMDSS requirements for SOLAS ships
  - Certified for European Maritime Equipment Directive (MED)
  - ITU Class A DSC
  - Large and high contrast 4.3-inch colour TFT LCD
  - Intuitive user interface for straightforward operation
  - 10 W audio output power with external speaker
  - Dedicated DSC watch receiver for continuous Channel 70 monitoring
- Printer connector (D-SUB 25-pin) • VDR (Voyage Data Recorder)/External speaker connector
  - IEC 61162-1 input/output • Superior sound quality with a wide frequency range and a flat frequency response
  - Optional handset, HS-98 (#16) • IPX7 waterproof for front panel
  - Dual watch and Tri-watch functions • Instant access to Ch 16 and call channel
  - Tag scan and favorite channel functions • Priority scan function
  - Unified design with GM800 (MF/HF) • Supports 4-digit channels
- Please Note:** PS-310 MUST BE USED with GM600 for MED certification compliance.



## FEATURES

- Meets MF/HF GMDSS requirements for SOLAS ships
  - Certified for European Maritime Equipment Directive (MED)
  - ITU Class A DSC
  - Large and high contrast 4.3-inch colour TFT LCD
  - Intuitive user interface for straightforward operation
  - Dedicated DSC watch receiver for continuous scanning of the six distress channels
  - Optional automatic antenna tuner, AT-141
- Output power: 150 W\* PEP into 50 Ω (at radio terminal) • Built-in 24 V DC-DC converter
  - Parallel printer port • External SP connector
  - IEC 61162-1 input/output • Superior sound quality with a wide frequency range and a flat frequency response
  - Supplied handset, HS-98 (#17) • IPX7 waterproof for controller
  - Maximum 160 programmable channels • Program scan, channel scan and channel resume scan
  - Unified design with GM600 (VHF)
- \* 125 W (4.0–27.5 MHz) (at tuner-output), 85 W (1.6–3.999 MHz) (at tuner-output)
- Please Note:** The complete GMDSS installation for MF/HF DSC (Class A) and telephony additionally requires the optional antenna tuner, AT-141.



MED



## SURVIVAL CRAFT 2-WAY RADIO IC-GM1600E GMDSS Portable for Survival Craft

### FEATURES

- Meets strict environmental requirements for GMDSS
  - 2 W output power for long lasting battery
  - Primary (non-rechargeable) lithium battery pack, BP-234
  - Highly visible yellow-coloured body
- Instant access to Ch 16 and call channel • Auto power save
  - 4-step battery indicator
- Included Accessories**
- BP-252 battery pack • BC-173 battery charger
  - BC-147SE AC adapter • MB-103Y belt clip
  - FA-S61V antenna (Fixed type) • Neck strap
- Please Note:** BP-234 MUST BE USED with IC-GM1600E to comply with the GMDSS requirements.



# IP ADVANCED RADIO SYSTEM

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



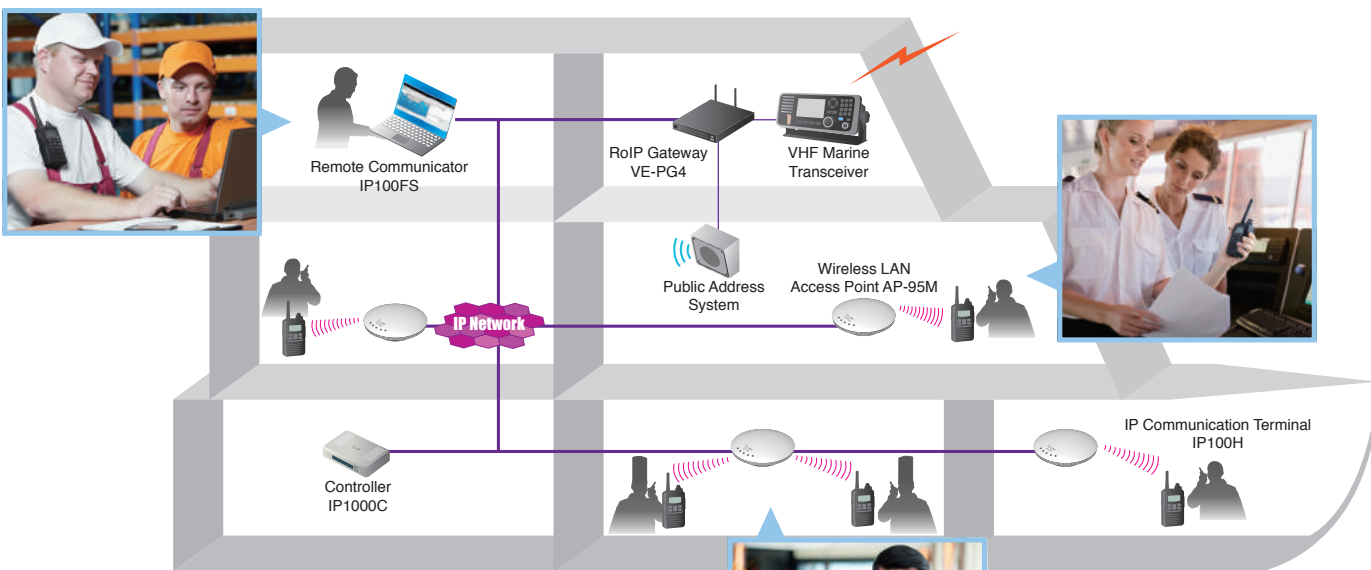
### System Features

Wireless Communication System for Ships Crew

Individual, Group or Area Communication

Hands-free, Full-duplex Communication with Optional Earphone-mic or Headset

Interconnect between VHF Marine Transceiver and 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 (1 m depth water for 30 minutes)
- Compact 58 × 95 × 26.4 mm body and 205 g (approximate) light weight
- Vibration alert function for incoming calls
- Tested to the MIL-STD 810G specifications
- Emergency function



### 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 connection to access points
- Can be installed on a Windows® based tablet PC as well as laptop PC



### Controller **IP1000C**

- The IP1000C controls all terminal configurations and voice traffic
- Capable of controlling up to 100 terminals (including IP100FS)



### Wireless Lan Access Point **AP-95M**

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






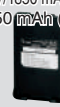





### RoIP Gateway **VE-PG4**

- Versatile radio over IP gateway linking land mobile radios, IP communication terminals, IP phone systems and external devices
- Wireless LAN IP Advanced Radio System controller (Equivalent to the IP1000C function) built-in, capable of controlling up to 50 IP communication terminals
- IDAS™ Conventional and NXDN™ Type-D multi-site trunking connection
































# Options for Handheld Transceivers

	BATTERY CASES			BATTERY PACKS					
MODEL NAME	BP-291 LR6 (AA)×5 cells 	BP-297*1 LR03 (AAA)×3 cells 	BP-227AX (Li-ion) For intrinsically safe radios 7.4 V/1850 mAh (min.) 1950 mAh (typ.) 	BP-227AXD (Li-ion) For intrinsically safe radios 7.4 V/1850 mAh (min.) 1950 mAh (typ.) 	BP-277EX (Li-ion) For intrinsically safe radios 7.4 V/1800 mAh (min.) 1900 mAh (typ.) 	BP-285 (Li-ion) 7.2 V/1485 mAh (min.) 1570 mAh (typ.) 	BP-245H (Li-ion) 7.2 V/2100 mAh (min.) 2250 mAh (typ.) 	BP-252 (Li-ion) 7.4 V/940 mAh (min.) 980 mAh (typ.) 	BP-296 (Li-ion) 3.6 V/2200 mAh (min.) 2350 mAh (typ.) 
IC-M93D EURO						✓			
IC-M73EURO							✓		
IC-M37E		✓							✓
IC-M25EURO*2									
IC-M85E	✓								
IC-M87ATEX			✓						
IC-F51 ATEX IC-F61 ATEX				✓					
IC-F3202DEX IC-F4202DEX					✓				
IC-GM1600E								✓ (On-board use only)	

\*1 The IC-M37E floats when used with most common brand AAA batteries. Battery weight varies by manufacturer. Please check your IC-M37E for buoyancy in a shallow area when using AAA batteries.  
\*2 As the Lithium-ion battery cell (3.7 V 1500 mAh) is built-in to the IC-M25EURO, the user cannot replace the battery cell.










	BATTERY PACKS			DESKTOP CHARGERS					
MODEL NAME	BP-290 (Li-ion) 7.2 V/1910 mAh (min.) 2010 mAh (typ.) 	BP-234 (Lithium) 9.0 V/3300 mAh (non-rechargeable) 	BC-212EX*3 Rapid charger for intrinsically safe radios 	BC-220 Rapid charger 	BC-210 Rapid charger 	BC-235 Desktop charger 	BC-173 Regular charger 	BC-219N Rapid charger 	BC-225 Intelligent rapid charger 
IC-M93D EURO				✓					
IC-M73EURO					✓				
IC-M37E						✓			
IC-M25EURO									
IC-M85E	✓							✓	✓
IC-M87ATEX									
IC-F51 ATEX IC-F61 ATEX									
IC-F3202DEX IC-F4202DEX			✓						
IC-GM1600E		✓ (For survival craft)						✓ (On-board use only)	










	DESKTOP CHARGERS				MULTI-CHARGERS				AC ADAPTERS
MODEL NAME	BC-226 Connectable type. Connects up to six BC-226 units. 	BC-227 Rapid charger 	BC-119N*3 Rapid charger 	BC-152N*3 Regular charger 	BC-214*4 Rapid charger 	BC-197*5 Rapid charger 	BC-238*6 Rapid charger 	BC-121N*3 Rapid charger 	BC-123SE/SUK 12 V/1 A 
IC-M93D EURO					✓ (Use #13, AD-133 installed)				✓ (Use with BC-220)
IC-M73EURO						✓ (Use #33, AD-129 installed)			✓ (Use with BC-210)
IC-M37E							✓ (AD-138 installed)		
IC-M25EURO									
IC-M85E	✓	✓			✓ (Use #23, AD-132N installed)				✓ (Use with BC-219N, BC-225 or BC-227)
IC-M87ATEX			✓ (Use with AD-100)	✓				✓ (Use with AD-100)	
IC-F51 ATEX IC-F61 ATEX			✓ (Use with AD-100)	✓				✓ (Use with AD-100)	
IC-F3202DEX IC-F4202DEX									✓ (Use with BC-212EX)
IC-GM1600E									

	AC ADAPTERS				USB CHARGER	CHARGER ADAPTERS	CIGARETTE LIGHTER CABLES		DC POWER CABLES
MODEL NAME	BC-145SE/SUK 16 V/0.93 A 	BC-147SE 12 V/330 mA 	BC-157S 12 V/7.5 A 	BC-228 15 V/4 A 	BC-217SE 5 V/1 A 	AD-100 AD-129*5 AD-132N*4 AD-133*4 AD-138*6 	CP-25H 	CP-23L 	OPC-515L 
IC-M93D EURO			✓ (Use with BC-214)			✓ (Use AD-133 with BC-214)	✓ (Use with BC-220)		
IC-M73EURO			✓ (Use with BC-197)			✓ (Use AD-129 with BC-197)	✓ (Use with BC-210)		✓ (Use with BC-210)
IC-M37E					✓ (Use with BC-235)	✓ (Use AD-138 with BC-238)			
IC-M25EURO									
IC-M85E			✓ (Use with BC-214)	✓ (Use with BC-226)		✓ (Use AD-132N with BC-214)		✓ (Use with BC-219N, or BC-227)	✓ (Use with BC-219N, BC-225 or BC-227)
IC-M87ATEX	✓ (Use with BC-119N)	✓ (Use with BC-152N)	✓ (Use with BC-121N)			✓ (Use AD-100 with BC-119N/121N)			
IC-F51 ATEX IC-F61 ATEX	✓ (Use with BC-119N)	✓ (Use with BC-152N)	✓ (Use with BC-121N)			✓ (Use AD-100 with BC-119N/121N)			
IC-F3202DEX IC-F4202DEX									
IC-GM1600E		✓ (Use with BC-173, On-board use only)							










\*3 The battery charger must not be used in an explosive atmosphere. \*4 Either AD-133 or AD-132N is supplied with the BC-214, depending on version. \*5 AD-129 is supplied with the BC-197, depending on version.  
\*6 DC power cable is supplied with the BC-238, depending on version.

# Options for Handheld Transceivers

MODEL NAME	DC POWER CABLES	READER SOFTWARE	SPEAKER-MICROPHONES						
	OPC-656 	RS-BC225 	HM-203EX For intrinsically safe radios <b>Waterproof</b> 	HM-228 <b>Waterproof</b> 	HM-165 <b>Waterproof</b> 	HM-202 <b>Waterproof</b> 	HM-167 <b>Waterproof</b> 	HM-213 <b>Waterproof</b> 	HM-222 <b>Waterproof</b> 
IC-M93D EURO	✓ (Use with BC-214)			✓	✓	✓	✓		
IC-M73EURO	✓ (Use with BC-197)					✓	✓		
IC-M37E								✓	
IC-M25EURO								✓	
IC-M85E	✓ (Use with BC-214)	✓ (Use with BC-225)							✓
IC-M87ATEX									
IC-F51 ATEX IC-F61 ATEX									
IC-F3202DEX IC-F4202DEX			✓						
IC-GM1600E									

MODEL NAME	SPEAKER-MICROPHONES		TIE-CLIP MICROPHONE	HEADSETS			PTT SWITCH CABLE	EARPHONES	
	HM-236 <b>Waterproof</b> 	HM-138 <b>Waterproof</b> 	HM-163MC 	HS-94 Earhook type with boom microphone 	HS-95 Behind-the-head type 	HS-97 Throat microphone type 	VS-5MC Manual PTT/VOX operation 	EH-15B 	SP-26 2.5 mm plug SP-27 3.5 mm plug Tube earphone 
IC-M93D EURO									
IC-M73EURO									
IC-M37E									
IC-M25EURO									
IC-M85E	✓		✓	✓ (Use with VS-5MC)	✓ (Use with VS-5MC)	✓ (Use with VS-5MC)	✓	✓ (Use with HM-163MC)	✓*1
IC-M87ATEX		✓							
IC-F51 ATEX IC-F61 ATEX		✓							
IC-F3202DEX IC-F4202DEX									
IC-GM1600E									

\*1 SP-26 is use with HM-163MC. SP-27 is use with HM-222 or AD-135.

MODEL NAME	EARPHONES			ACC ADAPTERS		BELT CLIPS			
	SP-28 2.5 mm plug 	SP-29 3.5 mm plug 	SP-32 Tube earphone adapter 	SP-40 3.5 mm plug 	AD-118 6-Pin Hirose plug adapter 	AD-135 3.5 mm jack earphone adapter 	MB-94EX For intrinsically safe radios 	MB-86 MB-136 Swivel type 	MB-98 MB-103/103Y MB-133 MBB-3 Alligator 
IC-M93D EURO									✓ (Use MB-133)
IC-M73EURO								✓ (Use MB-86)	✓ (Use MB-103)
IC-M37E									✓ (Use MB-133)
IC-M25EURO									✓ (Use MB-133)
IC-M85E	✓ (Use with HM-163MC)	✓ (Use with HM-222 or AD-135)	✓ (Use with EH-15B)	✓ (Use with HM-222 or AD-135)	✓	✓		✓ (Use MB-136)	✓ (Use MBB-3)
IC-M87ATEX								✓ (Use MB-86)	✓ (Use MB-98)
IC-F51 ATEX IC-F61 ATEX								✓ (Use MB-86)	✓ (Use MB-98)
IC-F3202DEX IC-F4202DEX							✓		
IC-GM1600E									✓ (Use with MB-103Y)

MODEL NAME	BELT HANGERS			CARRYING CASES		ANTENNAS			
	MB-96N Swivel type 	MB-96F Fixed type 	MB-96FL Long type 	LC-187 Charging is possible while the case is attached 	LC-188 	FA-S59V FA-S64V FA-SC58V FA-SC59V 	FA-S24V 136–150 MHz FA-S59V 150–174 MHz FA-S27U 400–470 MHz FA-S56U 450–520 MHz	FA-S62VS 150–162 MHz FA-S63VS 160–174 MHz FA-S57US 450–490 MHz 	FA-SC25V 136–150 MHz FA-SC55V 150–174 MHz FA-SC25U 400–430 MHz FA-SC57U 430–470 MHz
IC-M93D EURO		✓	✓			FA-SC59V			
IC-M73EURO	✓	✓	✓			FA-S59V or FA-S64V			
IC-M37E						FA-SC59V			
IC-M25EURO						FA-SC59V			
IC-M85E	✓	✓	✓	✓	✓	FA-SC58V			
IC-M87ATEX		✓				FA-S59V			
IC-F51 ATEX IC-F61 ATEX		✓					✓	✓	
IC-F3202DEX IC-F4202DEX									✓
IC-GM1600E									









☑ : Applicable    ☐ : Not applicable

The IC-M87 ATEX Intrinsically Safe model should only be used with the specified Intrinsically Safe approved options. Some options may not be available in some countries. Please ask your dealer for details.




# Options for Fixed Mount Transceivers /AIS Transponder

## VHF FIXED MOUNT TRANSCEIVERS

	HAND MICROPHONES			COMMAND HEAD™	COMMANDMIC™			HORN SPEAKER	HANDSET
MODEL NAME	HM-205B/RB/SW Speaker microphone	HM-235B/W	HM-214V	RC-M600	HM-229B/W	HM-195B/SW	HM-195GB/GW	SP-37	HS-98 (#16)
IC-M605EURO	 (Use with HM-205RB)								
IC-M506GE	(Use with HM-205B)			✓	✓	✓	✓	✓	
IC-M423GE	(Use with HM-205B/SW)					✓	✓	✓	
IC-M400BBE						✓	✓	✓	
IC-M330GE		✓						✓	
GM600			✓						✓

	CONNECTION CABLE	EXTENSION CABLES			DC-DC CONVERTER	FLUSH MOUNT KITS	VOICE SCRAMBLER	GPS ANTENNA
MODEL NAME	OPC-2384 12-pin to 8-pin for use with COMMANDMIC™	OPC-2377 10 m; 32.8 ft cable	OPC-1541 6.1 m; 20 ft cable for use with COMMANDMIC™ and rear microphone connection	OPC-1000 6.1 m; 20 ft cable for use with rear microphone connection.	PS-310 (#01) 24 V input PS-310 (#02) 12 V input	MB-75 MB-132 MBF-5  Photo shows MB-75	UT-112/A Total of 32 voice scramble codes available	UX-241 5 m; 16.4 ft cable
IC-M605EURO	 (Use with HM-229B/W)	 (Use with RC-M600)	 (Use with HM-229B/W, HM-205RB)	 (For use with HM-205RB)		 (Use with MB-132, MB-75)		 (Same as supplied)
IC-M506GE			(Use with COMMANDMIC)			(Use with MB-132, MB-75)	✓	
IC-M423GE			(Use with COMMANDMIC)			(Use with MB-132)		
IC-M400BBE			(Use with COMMANDMIC)					
IC-M330GE						(Use with MBF-5)		
GM600					✓			

## AIS TRANSPONDER

	FLUSH MOUNT KITS	GPS RECEIVER	
MODEL NAME	MB-75 MB-132	MXG-5000S	
MA-500TR	 ✓	 ✓	 ✓

## MF/HF FIXED MOUNT TRANSCEIVER

	HAND MICROPHONE	HANDSET	EXTERNAL SPEAKER	ANTENNA TUNER	SHIELDED CONTROL CABLE	MOUNTING BRACKET
MODEL NAME	HM-214H	HS-98 (#17)	SP-24E (#18)	AT-141 IP56	OPC-1465 10 m; 32.8 ft	MB-108
GM800	 ✓	 ✓	 ✓	 ✓	 (Use with AT-141)	 ✓










# Options for Satellite PTT Radio








	BATTERY PACK	RAPID CHARGER	MULTI-CHARGER	SPEAKER-MICROPHONE	TIE-CLIP MICROPHONE	ACC ADAPTERS	EARPHONES		
MODEL NAME	BP-300 (Li-ion) 7.2 V/2200 mAh (min.) 2350 mAh (typ.)	BC-241 + BC-242	BC-214N* + BC-157S	HM-222 With 3.5 mm jack Waterproof	HM-163MC With 2.5 mm jack	AD-135 3.5 mm jack earphone adapter	AD-118 For use with Hirose plug accessory	EH-15B 2.5 mm plug	SP-32 Tube earphone adapter
IC-SAT100	 ✓	 ✓	 ✓	 ✓	 ✓	 ✓	 ✓	 (Use with HM-163MC)	 (Use with EH-15B)

\* The AD-140 charger adapters are supplied with the BC-214N, depending on the charger version.

✓ : Applicable      □ : Not applicable










# Options for Satellite PTT Radio


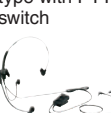







	EARPHONES					PTT SWITCH CABLE	HEADSETS		
MODEL NAME	SP-26 2.5 mm plug	SP-27 3.5 mm plug	SP-28 2.5 mm plug	SP-29 3.5 mm plug	SP-40 3.5 mm plug	VS-5MC For manual PTT, VOX operation	HS-94 Earhook type with boom microphone	HS-95 Behind-the- head type	HS-97 Throat micro- phone type
									
IC-SAT100	✓ (Use with HM-163MC)	✓ (Use with HM-222 or AD-135)	✓ (Use with HM-163MC)	✓ (Use with HM-222 or AD-135)	✓ (Use with HM-222 or AD-135)	✓	✓ (Use with VS-5MC)	✓ (Use with VS-5MC)	✓ (Use with VS-5MC)










	Bluetooth® HEADSET	BELT CLIP	ANTENNAS		DOCKING STATION	CABLES	
MODEL NAME	VS-3	MBB-5	FA-S102U	AH-40 Antenna for in-vehi- cle and in-building use	BC-247* Charger cradle for in- vehicle and in-building use	OPC-656 DC power cable.	OPC-2422 Coaxial cable for AH-40 (5 m)
							
IC-SAT100	✓	✓	✓	✓	✓	✓ (Use with BC-214N)	✓



\* AC adapter and connection cables are supplied.

# Options for IP Advanced Radio System

	BATTERY PACKS		BATTERY CASE	RAPID CHARGER	MULTI-CHARGER	SPEAKER-MICROPHONES	EARPHONE-MICROPHONES		
MODEL NAME	BP-271 (Li-ion) 7.4 V/1150 mAh (min.) 1200 mAh (typ.)	BP-272 (Li-ion) 7.4 V/1880 mAh (min.) 2000 mAh (typ.)	BP-273 LR6 (AA) × 3 cells	BC-202 + BC-123SA/SE	BC-211 + BC-157S	HM-183LS <b>Waterproof</b>	HM-186LS	HM-153LS	HM-166LS
									
IP100H	✓	✓	✓	✓	✓	✓	✓	✓	✓

	HEADSETS (Full-duplex operation)		HEADSETS (Simplex operation)			PLUG ADAPTER CABLES	PTT SWITCH CABLES		
MODEL NAME	HS-102 Earphone type	HS-85 Over-the-head type with PTT switch	HS-94 Earhook type with boom microphone	HS-95 Behind-the- head type	HS-97 Throat micro- phone type	OPC-2006LS For VOX opera- tion	OPC-2144 Slim L-type plug	OPC-2359	OPC-2328 For manual PTT operation
									
IP100H	✓ (Use with OPC-2359)	✓ (Use with OPC-2144)	✓ (Use with OPC-2006LS or OPC-2328)	✓ (Use with OPC-2006LS or OPC-2328)	✓ (Use with OPC-2006LS or OPC-2328)	✓	✓	✓	✓

	AC ADAPTERS		AUDIO CONNECTION CABLES						ACCESS POINT MANAGER
MODEL NAME	BC-207S 12 V/4.2 A	BC-147SE 12 V/330 mA	OPC-2273 For VHF radio 5 m	OPC-2275 For mobile transceiver 5 m	OPC-2276 For HM-152 or SM-26 5 m	OPC-2389 For RS-232 serial connection 5 m	OPC-2390 For IC-FR5100 series 5 m	OPC-2412 For the IC-SAT100 5 m	RS-AP3
									
IP100FS		✓							
AP-95M	✓								✓
IP1000C	✓								
VE-PG4			✓	✓	✓	✓	✓	✓	

	DESKTOP MICROPHONE	SPEAKER-MICROPHONE	HAND MICROPHONE	MICROPHONE ADAPTER
MODEL NAME	SM-26	HM-241	HM-152	CT-23
				
IP100FS	✓ (Use with CT-23)		✓ (Use with CT-23)	✓
AP-95M				
IP1000C				
VE-PG4	✓	✓	✓	

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

# Specifications for VHF Handheld Transceivers

		IC-M93D EURO	IC-M73EURO	IC-M37E	IC-M25EURO	IC-M85E
<b>Frequency range (Unit: MHz)</b>		TX: 156.000–161.450, 156.000–161.600* RX: 156.000–163.425 CH70: 156.525 (* For only HOL version)	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 TX/RX: 136–174 (PMR)
<b>Dimensions (projections not included; W x H x D)</b>		57.0 x 144.6 x 38.5 mm	52.5 x 125 x 30 mm	59.7 x 140.5 x 38.7 mm	56.6 x 134.2 x 30.5 mm	56 x 92 x 29 mm
<b>Weight (approx.)</b>		300 g (With BP-285, FA-SC59V and MB-133)	320 g (With BP-245H, MB-103 and FA-S64V)	293 g (with BP-296, FA-SC59V and MB-133)	220 g (With MB-133 and FA-SC59V)	246 g (With BP-290, FA-SC58V and MBB-3)
<b>Current drain</b>	<b>Transmit(High)</b>	1.5 A	1.5 A typical	2.75 A	2.3 A (at 3.7 V DC)	1.5 A
	<b>Max. audio</b>	250 mA typical (External SP) 450 mA typical (Internal SP)	250 mA typical (External SP) 450 mA typical (Internal SP)	200 mA (External SP) 400 mA (Internal SP)	200 mA typical (External SP) 300 mA typical (Internal SP)	450 mA
<b>Sensitivity (at 20 dB SINAD; emf)</b>		–6 dBμ typical	–4 dBμ typical	–4 dBμ typical	–6 dBμ typical	–4 dBμ typ. (Marine) –4 dBμ typ. (PMR: Wide) –2 dBμ typ. (PMR: Narrow)
<b>Intermodulation rejection</b>		68 dB	68 dB	68 dB	68 dB	68 dB (Marine) 65 dB (PMR)
<b>Audio output power</b>	<b>External SP</b>	200 mW (8 Ω load)	200 mW (8 Ω load)	200 mW (4 Ω load)	200 mW typical (4 Ω load)	700 mW typical (8 Ω load @ 1 kHz)
	<b>Internal SP @1 kHz</b>	900 mW typical (12 Ω load)	700 mW typical (8 Ω load)	700 mW typical (8 Ω load)	550 mW typical (12 Ω load)	700 mW typical (12 Ω load)
<b>RF output power</b>		5 W/1 W/0.5 W* (* For only FRG version)	6 W/3 W/1 W/0.5 W* (* For only FRG version)	6 W/1 W	5 W/1 W/0.5 W* (* For only FRG version)	5 W/3 W/1 W
<b>Operating time (approx.)</b>		9 hours (with BP-285)*1	Plus version 17 hours Basic version 20 hours (with BP-245H)*1	12 hours (with BP-296)*1	11 hours (with built-in battery)*1	14 hours (with BP-290)*1
<b>Waterproof protection</b>		IPX7 (1 m depth/30 min.)	IPX8 (1.5 m depth/30 min.)	IP57 (1 m depth/30 min.)	IPX7 (1 m depth/30 min.)	IP67 (1 m depth/30 min.)
<b>Integrated GNSS receiver</b>		✓	–	–	–	–
<b>Float'n Flash</b>		✓	–	✓	✓	–

Measurements made in accordance with EN 302-885 for IC-M93D EURO. EN 301-178 for IC-M73EURO, IC-M37E and IC-M25EURO. EN 301-178 and EN 300 086 for IC-M85E.

\*1 Typical operation, TX:RX:Stand-by=5:5:90

		IC-M87ATEX	IC-F51 ATEX	IC-F61 ATEX	IC-F3202DEX	IC-F4202DEX	IC-GM1600E
<b>Frequency range (Unit: MHz)</b>		TX: 156.000–161.450 RX: 156.000–163.425 TX/RX: 146–174 (PMR)	TX/RX: 136–174	TX/RX: 400–470	TX/RX: 136–174	TX/RX: 400–470	TX/RX: 156.300–156.875
<b>Dimensions (projections not included; W x H x D)</b>		62 x 97 x 39 mm	56 x 97 x 36.4 mm (with BP-227AXD)		63 x 144 x 50 mm (with BP-277EX)		65 x 145 x 44 mm
<b>Weight (approx.)</b>		280 g (With BP-227AX)	295 g (with BP-227AXD)		466 g (with BP-277EX, belt clip & ant.)	460 g (with BP-277EX, belt clip & ant.)	385 g (With BP-234)
<b>Current drain</b>	<b>Transmit(High)</b>	0.7 A typical	0.7 A	0.8 A	0.55 A		1.0 A/0.7 A (2 W/1 W)
	<b>Max. audio</b>	200 mA typical	300 mA		300 mA		200 mA typical
<b>Sensitivity (at 20 dB SINAD; emf)</b>		–2 dBμ typical (Marine) –4 dBμ typical (PMR)	–4 dBμV typical		–4 dBμV typical		–2 dBμ typical
<b>Intermodulation rejection</b>		68 dB (Marine) 65 dB (PMR)	67 dB typical (W/M/N)		67 dB typical (W/M/N) 73 dBμV typical (Digital, emf)		68 dB
<b>Audio output power</b>	<b>External SP</b>	200 mW (8 Ω load) (Marine) 350 mW typical (8 Ω load) (PMR)	500 mW typical (8 Ω load)		400 mW typical (32Ω load)		200 mW (8 Ω load)
	<b>Internal SP @1 kHz</b>	–	–		800 mW typical (32Ω load)		350 mW typical (8 Ω load)
<b>RF output power</b>		1 W	1 W		1 W		2 W/1 W
<b>Operating time (approx.)</b>		19 hours (with BP-227AX)*1	16.5 hours (with BP-227AXD)*2		21.5 hours (with BP-277EX)*2	19 hours (with BP-277EX)*2	Specified as IMO Res. MSC.149(77)
<b>Waterproof protection</b>		IPX7 (1 m depth/30 min.)	IP67 (1 m depth/30 min.)		IP67 (1 m depth/30 min.)		Specified as IMO Res. MSC.149(77)
<b>Integrated GNSS receiver</b>		–	–		–		–
<b>Float'n Flash</b>		–	–		–		–

Measurements made in accordance with EN 301-178 and EN 300 086 for IC-M87 ATEX. EN 300 086 for IC-F51 ATEX, F61 ATEX. EN 300-086 and EN 301-166 for IC-F3202DEX, F4202DEX. EN 301-178-2, EN 300 086 and IEC61097-12 for IC-GM1600E.

\*2 Conventional mode. 5:5:90 duty cycle, power save ON.

# Specifications for Fixed Mount Transceivers and Satellite PTT

## VHF FIXED MOUNT TRANSCEIVERS

	IC-M605EURO	IC-M506GE	IC-M423GE	IC-M400BBE	IC-M330GE	GM600
<b>Frequency range</b>	TX: 156.000–161.600 MHz RX: 156.000–163.425 MHz CH 70: 156.525 MHz AIS 1: 161.975 MHz AIS 2: 162.025 MHz	TX: 156.000–162.000 MHz RX: 156.000–163.425 MHz CH 70: 156.525 MHz AIS 1: 161.975 MHz AIS 2: 162.025 MHz	Tx: 156.000–161.450 MHz Rx: 156.000–163.425 MHz CH 70: 156.525 MHz	Tx: 156.000–161.450 MHz Rx: 156.000–163.425 MHz CH 70: 156.525 MHz	TX: 156.000–162.000 MHz RX: 156.000–163.425 MHz CH70: 156.525 MHz	TX: 156.025–161.600 MHz RX: 156.025–162.000 MHz CH70: 156.525 MHz
<b>Power supply requirement</b>	13.8 V DC (10.8–15.6 V DC)	13.8 V DC (10.8–15.6 V DC)	13.8 V DC (10.8–15.6 V DC)	13.8 V DC (10.8–15.6 V DC)	13.8 V DC (10.8–15.6 V DC)	24 V DC (21.6–31.2 V DC)*1 12 V DC (10.8–15.6 V DC)*2 (negative ground)
<b>Dimensions (projections not included; W x H x D)</b>	274 x 114 x 121.5 mm	178.9 x 113.9 x 113.8 mm	180 x 82 x 119.9 mm	IC-M400BBE 216 x 79 x 125 mm HM-195B/SW 675 x 144.5 x 37 mm	156.5 x 66.5 x 110.1 mm	274 x 114 x 121.5 mm
<b>Weight (approx.)</b>	1.5 kg	1.4 kg	1.2 kg	IC-M400BBE 830 g HM-195B/SW 400 g	730 g	1.6 kg
<b>Current drain</b>	<b>Transmit (High)</b>	6.0 A max.	5.5 A	5.5 A	5.5 A	3.3 A*1
	<b>Max. audio</b>	8.0 A max. (Ext SP, RX hailer ON, HM-229x3)	5 A typ. (Ext SP, RX hailer ON) 1.5 A (Internal SP)	5 A typ. (Ext SP, RX SP ON) 1.5 A (Internal SP)	3.5 A	2.0 A*1
<b>Sensitivity</b>	<b>Main (20 dB SINAD) DSC (1% BER)</b>	-5 dBμ emf typical -3 dBμ emf typical	-5 dBμ emf typical -4 dBμ emf typical	-5 dBμ emf typ. -4 dBμ emf typ.	-5 dBμ emf typ. -5 dBμ emf typical	-7 dBμ emf typical -7 dBμ emf typical
<b>Intermodulation</b>	<b>Main DSC (1% BER)</b>	More than 75 dB More than 73 dBμ emf	More than 75 dB More than 68 dBμ emf	More than 68 dB More than 68 dBμ emf	More than 68 dB More than 68 dBμ emf	More than 75 dB 73 dBμ emf
<b>Audio output power (10% dist./4 Ω load)</b>	More than 15 W (External speaker)	15 W (External speaker)	More than 10 W (External speaker)	More than 2 W(HM-195B/SW) More than 10 W(RX Speaker)	More than 2 W	10 W (External speaker) 2 W (Internal speaker)
<b>RF output power</b>	25 W/1 W	25 W/1 W	25 W/1 W	25 W/1 W	25 W/1 W	25 W/1 W
<b>NMEA interface</b>	NMEA 2000, NMEA 0183/0183-HS x 2	NMEA 2000/0183	NMEA 0183	NMEA 0183	NMEA 0183	IEC 61162-1
<b>AIS Receiver</b>	Built-in	Built-in	-	-	-	-

Measurements made in accordance with EN 301 025-2, -3 for IC-M605EURO, IC-M506GE, IC-M423GE, IC-M400BBE and IC-M330GE. EN301 925 for GM600.

\*1 With PS-310 (#01). \*2 With PS-310 (#02).

## AIS TRANSPONDER

	MA-500TR	
<b>Frequency range</b>	161.975, 162.025 MHz (default), 156.025–162.025 MHz	
<b>Type of emission</b>	16K0GXW (GMSK)	
<b>Power supply requirement</b>	12.0 V DC (9.6–15.6 V)	
<b>Dimensions (projections not included; W x H x D)</b>	165 x 110 x 123 mm	
<b>Weight (approx.)</b>	1.0 kg	
<b>Current drain</b>	<b>Transmit</b>	1.5 A
	<b>Receive</b>	0.7 A
<b>Sensitivity (20% error rate)</b>	-110 dBm	
<b>Intermodulation rejection</b>	65 dB	
<b>RF output power</b>	2 W	

Measurements made in accordance with IEC62287-1.

## MF/HF FIXED MOUNT TRANSCEIVER

	GM800	
<b>Frequency range</b>	TX: 1.6–27.5000 MHz (ITU marine channels) RX: 0.5–29.9999 MHz (continuously) DSC: 2.1875, 4.2075, 6.3120, 8.4145, 12.5770, 16.8045 MHz	
<b>Current drain</b>	<b>Tx/Rx</b>	J3E (USB/LSB*), H3E* (AM), J2B* (AFSK), F1B (FSK), A1A* (CW)
	<b>DSC</b>	F1B
<b>Power supply requirement</b>	24 V DC (21.6–31.2 V DC) (floating ground)	
<b>Dimensions (projections not included; W x H x D)</b>	<b>Main unit</b>	367 x 95 x 260 mm
	<b>Controller</b>	274 x 114 x 86 mm
<b>Weight (approx.)</b>	<b>Main unit</b>	8.6 kg
	<b>Controller</b>	760 g
<b>Current drain</b>	<b>Transmit (Max. power)</b>	Less than 20 A (at 1.1 kHz and 1.7 kHz two tones)
	<b>Receive (Max. audio)</b>	Less than 3.0 A
<b>Sensitivity</b>	<b>J3E, A1A (20 dB SINAD)</b>	30 dBμV emf (0.5–1.599 MHz) 16 dBμV emf (1.6–3.999 MHz) 11 dBμV emf (4.0–29.999 MHz)
	<b>J2B, F1B (1% error rate)</b>	3 dBμV emf (1.6–2.099 MHz) 0 dBμV emf (2.1–27.5 MHz)
	<b>H3E (20 dB SINAD)</b>	44 dBμV emf (0.5–1.599 MHz) 30 dBμV emf (1.6–3.999 MHz)
	<b>DSC (J2B) (1% error rate)</b>	0 dBμV emf
<b>Audio output power</b>	4 W with 4 Ω load (External speaker) 2 W with 8 Ω load (Internal speaker)	
<b>RF output power</b>	150 W PEP into 50 Ω (at radio terminal) 125 W (4.0–27.5 MHz) (at tuner-output) 85 W (1.6–3.999 MHz) (at tuner-output)	

Measurements made in accordance with EN300 373-1 for GM800.

\* Receive only.

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

Read all instructions enclosed with the transceiver carefully and completely before using the transceiver.

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# Business Radio Solutions

European Edition





# A COMPREHENSIVE RANGE OF BUSINESS RADIO SOLUTIONS THAT MEET YOUR NEEDS FLEXIBLY

No matter what your communication needs may be, we have the system for you. We go beyond the traditional VHF and UHF two-way radios providing peace of mind and keep you connected anywhere and at anytime. ICOM continues developing innovative solutions in response to diversifying user needs and can now offer a wide range of two-way radio platforms from analogue, digital, wireless LAN, LTE to satellite as a true comprehensive wireless communications company.





## Satellite PTT

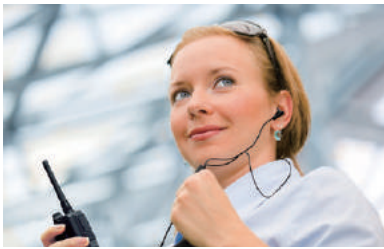
Satellite PTT (Push-To-Talk) is a two-way radio system that uses the Iridium® satellite network. It can be used as a communication tool in remote, isolated areas where there are no mobile phones or landline network infrastructure. Even if terrestrial network infrastructure is rendered unusable by human or natural disasters, Satellite PTT can provide a stable back-up, independent from other networks.



## LTE Radio

Icom's LTE radio system provides instantaneous, wide area communication using an LTE (4G) and 3G network\*. It doesn't require its own repeaters or IP network, therefore reducing the cost of building, and maintaining a wide area radio network. It enables full-duplex communication, which allows telephone style conversations as well as various types of calls such as individual, group and all call just like a traditional two-way radio, too.

\* Service availability depends on the country. Network coverage provided by a custom SIM card.



## WLAN Radio

Wireless LAN radio requires no licence to use and allows you to have several simultaneous full-duplex communications over a WLAN network. It offers secure communications with encryption and different types of calls such as individual, all, area, priority, group, conferences, status calls and short data messaging. You can also connect an IP phone or conventional radio equipment when using it with the RoIP gateway.



## Digital Radio

IDAS™ is Icom's digital land mobile radio system using the NXDN™ or dPMR™ common air interface. IDAS™ offers a complete system of handheld radios, mobile radios, repeaters, network interface/trunking controllers, remote communicator, system manager software and various accessories. IDAS™ is a proven total digital solution that system owners or operators can grow into as their time and budgets allow.



## Analogue Radio

Radio technologies and know-how cultivated for over 50 years have been applied to professional analogue radio products. Rugged, waterproof, easy to use, clear and powerful audio in a compact design, Icom's analogue products provide high performance and reliable communication. They are cost effective solutions that you can rely on and help you improve productivity and efficiency.



## RoIP Gateway

The VE-PG4, a versatile Radio over IP Gateway provides a seamless solution interconnecting various communication systems irrespective of standards and distance such as satellite PTT radio, LTE radio, WLAN radio, IDAS digital radio, analogue radio, IP phone and more. The VE-PG4 works as general IP backbone converting received audio to transmit from other radio.



## Licence-Free Radio

PMR446 licence-free radios can be used to improve your business or to just keep in touch with family and friends. There are no subscription charges or licence applications, PMR446 radios are ready to use right out of the box. Icom introduced the first digital licence-free dPMR446 radio in the industry. Digital offers higher audio clarity and security.

# Satellite PTT Radio



## IC-SAT100

## Real-Time Communications Across the Globe

- One-to-many communications
  - Total global coverage, including the poles\*1
  - Real-time, low-latency communication with the Iridium® LEO (Low Earth Orbit) satellite network
  - Emergency key on the top panel
  - IP67 dust-tight and submersible protection
  - 1500 mW of powerful audio
  - 14.5 hours of long lasting battery life\*2
  - Private conversations with AES 256-bit encryption
  - Interoperability with conventional radios and IP phones through the optional VE-PG4, RoIP gateway\*3
- Short Data Message
  - Voice Recording function
  - Multiple language display (English, Chinese, French, Japanese, and Spanish)
  - Built-in Bluetooth® capability
  - Integrated GPS receiver shows a caller's position information on the display
  - SMA type antenna connector
  - AquaQuake™ function clears any water ingress that may penetrate the speaker grill of the radio
  - USB charging (USB Micro-B type) and charging with a supplied rapid charger available
  - Dimensions\*4 (W × H × D): 57.8 × 135 × 32.8 mm
  - Weight (approximate): 360 g (with BP-300, FA-S102U)

\*1 A subscription contract is required for using the IC-SAT100. Depending on the country or region, carrying and/or use of the IC-SAT100 may be prohibited.

\*2 TX : RX : standby = 5 : 5 : 90.

\*3 Optional connection cable (OPC-2412) is required to connect to the VE-PG4.

\*4 Projections are not included.

### Docking Station (Optional accessories)

For in-vehicle and in-building applications

The image below is showing a connection example with,

- IC-SAT100
- BC-247 Charging cradle
- AH-40 Satellite antenna
- HM-222 Speaker-microphone



The product image shown above is for illustration purpose only. Actual product may vary.



## Instant Wide Area Coverage Over an LTE (4G) and 3G Network

### Full-Duplex Communication

Our LTE Radios provide full-duplex conversation, which allow users to talk and receive at the same time. This allows smooth, telephone-like conversations.

### Multiple-user Communication

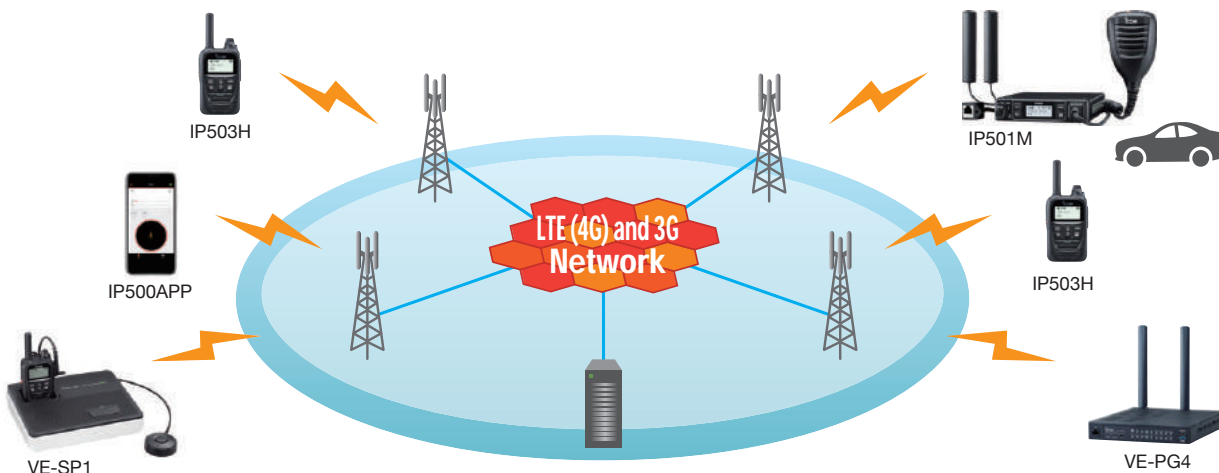
Multiple users in the call groups can initiate calls instantaneously. This removes the need to wait for available channels to communicate.

### One-to-many Communication

Unlike mobile cell phones, IP503H/IP501M users can immediately start talking to all the radios in the same talkgroup, with just a push of a (PTT) transmit button.

### Priority Interrupt Calling

Our LTE radio supports group calls with three or more people. In case of an emergency, you can break into an on-going call to transmit an important message.



## IP503H

### Compact and Durable LTE Handheld

- 900 mW loud and high quality audio with wideband, near lossless G.726 vocoder
- IP67 waterproof and dust-tight
- Emergency Call, Lone Worker and Man Down functions
- Voice Record/Playback functions
- Vibration Alert function notifies of incoming calls
- Built-in Bluetooth® capability and GPS
- Full-Duplex communication
- 17 hours battery life (with BP-272)
- Provisioning/FOTA (Firmware Over-the-Air)



## IP501M

### Mobile LTE Radio Interoperable with the IP503H

- Built-in Bluetooth® capability and GPS
- Text message reception and preprogrammed message transmission
- An Ethernet port for data communication (The optional VE-PG4 is required.)
- Emergency call and Lone Worker functions
- Noise Cancelling function (TX only)
- IP54
- D-SUB 25-PIN connector with the optional OPC-2407 cable for interfacing other devices and various controls
- Both 12 and 24 volt compatible
- Provisioning/FOTA (Firmware Over-the-Air)

## Full-Duplex communication that works over a wireless IP Network

### Wireless Communication System

By deploying access points across an existing IP network, the WLAN radio system allows you to communicate from anywhere in a facility. The IP100H can access the nearest access point, and roam between access points.

### Individual, Group, All or Area Communication

Staff spread across multiple rooms can communicate seamlessly. The IP communication terminal can receive short data messages with a vibration alert from a PC installed with IP100FS.

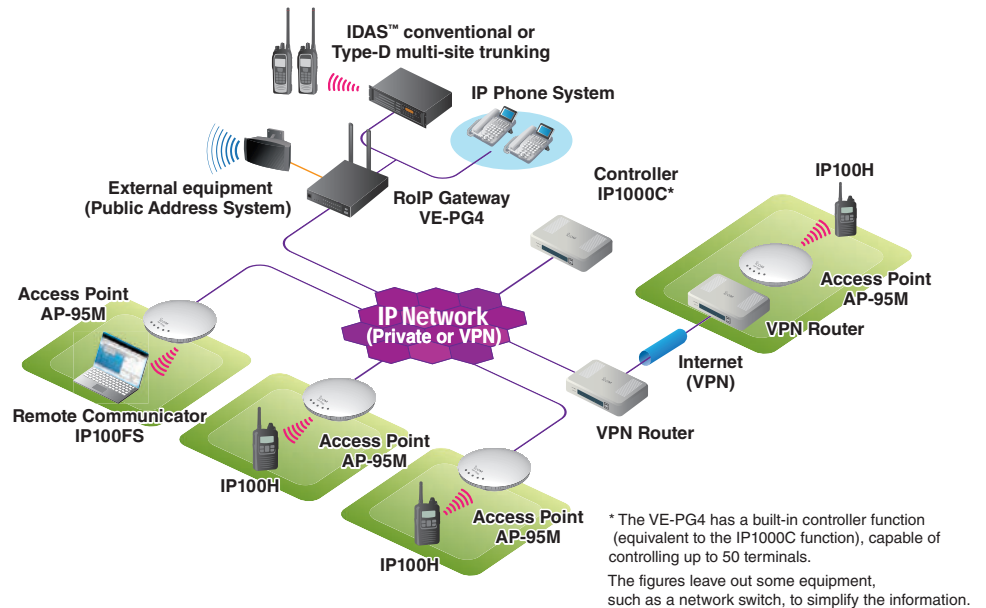
### Interconnect between IDAS™ and IP Phone Systems

With the VE-PG4 RoIP gateway, the WLAN radio system can interconnect with an IP phone system, analogue radio and IDAS™ conventional and Type-D multi-site trunking system.

### Hands-free, Full-duplex Communication

With an optional earphone-microphone or headset\*, the IP100H user can simultaneously talk and receive like a phone. Hands-free operation allows your staff to carry out other tasks at the same time.

\* For full-duplex operation, please use either HM-153LS, HM-166LS or HS-102 with OPC-2359.



## IP100H

### Compact and Professional Grade IP Communication Terminal

- Licence-free wireless LAN communication terminal using IEEE 802.11 a/b/g/n standards (2.4 GHz and 5 GHz\*)
- WPA-PSK/WPA2-PSK (TKIP/AES) authentication
- IPX7
- Vibration alert function announces incoming calls
- Text message reception and pre-programmed message transmission
- Status messages
- Emergency call function
- 20 hours battery life (with BP-271)
- Provisioning/FOTA (Firmware Over-the-Air)

\* Authorized frequency range and channels may differ depending on the country.



## AP-95M

### Wireless LAN Access Point

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

\* Authorized frequency range and channels may differ depending on the country.



## IP100FS

### Remote Communicator

- Obtain location information of each IP100H
- Can be installed on a Windows®-based tablet PC as well as laptop PC



## IP1000C

### Controller

- The IP1000C controls all terminal configurations over the air
- Capable of controlling up to 100 terminals (including IP100FS)

# IDAS™ Digital Radios



## Flexible Digital Migration Solutions with Advanced IP Network Integration

### Multiple-site Configurations

IDAS™ systems provide various digital radio solutions from simple peer to peer operation between two radios, up to multi-site wide area networks. Further coverage is enhanced with IP interconnection.

### Digital Clarity

By adopting the industry standard AMBE+2™ Vocoder and advanced FEC (Forward Error Correction) coding, IDAS™ systems provide improved communication quality, clarity and reliability.

### Effective System Management

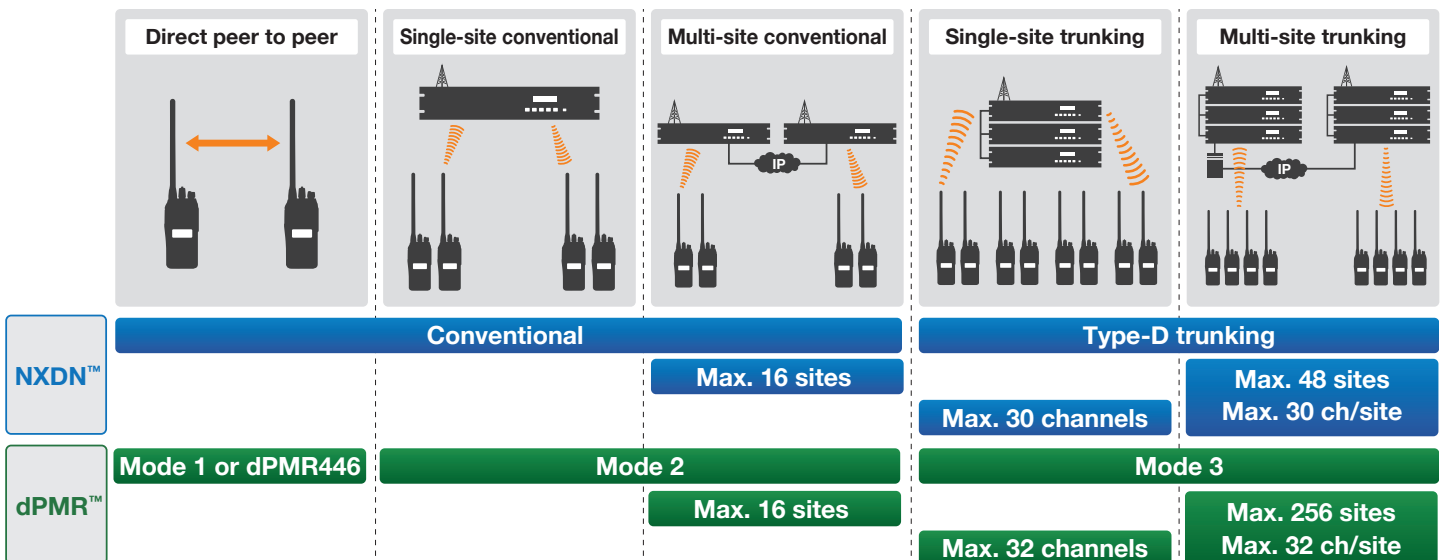
Simple and efficient management is critical for systems of any size. IDAS™ provides effective system management with such features as OTAP and administration applications.

### NXDN™/dPMR™ Protocol Choice

The IDAS™ digital radio system has two protocol choices, NXDN™ or dPMR™. Both protocols are open digital radio standards using 6.25 kHz FDMA narrowband technology. With this flexible choice, the IDAS™ radio system allows for interoperability with other manufacturers equipment to add to/replace existing NXDN™ and/or dPMR™ systems.

### System Scalability According to Communication Traffic and Coverage

Depending on the communication traffic and coverage, an IDAS™ radio system can be expanded from single site conventional to multi-site trunking, to match your communication needs.



# IDAS™ Handheld Radios



## IC-F3400D/F4400D Series

### IDAS™ Takes You to a New Level of “Smart”

- 1024 channels (32 channels for IC-F3400D/DP/F4400D/DP) • IP68 • Colour display
- Integrated GPS • Bluetooth® capability • microSD card slot • Voice recording • OTAP • OAA
- USB connector • Active noise canceller • AES/DES encryption
- 10 hours battery life (with BP-283) • Motion/Stationary sensor • Man down/Lone worker
- Vibration alert • Channel announcement • 1300 mW loud audio



## IC-F3262D/F4262D Series

### Advanced Digital Radio with Built-in GPS Receiver\*

- 512 channels • IP67 • Large multi-function full dot matrix display • Integrated GPS\*
- 10.5 hours battery life (with BP-232WP) • Man down\*/Lone worker
- Status and short data message (SDM) • Remote monitor/Ambience listening

\*Depending on the version.



## IC-F52D/F62D

### 5 W Power Pack, Super Compact Body

- 512 channels • IP67 • Full dot matrix display for 14 characters with status icons
- Bluetooth® capability • Voice recording • OTAP • OAA • Active noise canceller
- 13 hours battery life (with BP-290) • Motion/Stationary sensor • Man down/Lone worker
- Vibration alert • Channel announcement • 1300 mW loud audio



## IC-F1100D/F2100D Series

### Compact, Waterproof and Superiour Audio Clarity

- 128 channels (16 channels for IC-F1100D/F2100D) • IP67 • Motion/Stationary sensor
- Man down/Lone worker • 18 hours battery life (with BP-280) • 1500 mW loud audio • OAA
- Channel announcement



## IC-F3202DEX/F4202DEX

### IECEX/ATEX Intrinsically Safe Digital Radio

- 16 channels • IP67 • Digital/Analogue
- Channel announcement • Man down/Lone worker
- Optional speaker-microphone
- 21/19.5 hours battery life (with BP-277EX, VHF/UHF)

ATEX Certifications	IEC Certifications
Mining: I M2 Ex ib I Mb	Ex ib I Mb
Gas: II 2G Ex ib IIC T4 Gb	Ex ib IIC T4 Gb
Dust: II 2D Ex ib IIIC T110°C Db	Ex ib IIIC T110°C Db
-20°C ≤ Ta ≤ +55°C	-20°C ≤ Ta ≤ +55°C



DO NOT use the transceiver with any other equipment not specified in the option list (Pages 16–20). Please ask your dealer to ensure the ATEX and IECEx ratings are acceptable for the intended place of use.



## IDAS™ Mobile Radios



### IC-F5400D/F6400D Series

#### Superb Performance and a Comprehensive Range of Features

- 1024 channels (99 channels for IC-F5400DS/DPS/F6400DS/DPS) • Flexible configurations with detachable front panel\* • IP55 • Colour display\* • Integrated GPS • Bluetooth® capability • microSD card slot • Voice recording • OTAP • OAA • USB connector • Active noise canceller • AES/DES encryption • Lone worker • Channel announcement

\* For IC-F5400D/DP/F6400D/DP



### IC-F5062D/F6062D

#### Versatile, Multi-Function Mobile Series

- 512 channels • Front panel detachable • IP54 • Large multi-function full dot matrix display • D-SUB 25-pin ACC connector • Lone worker • Status and short data message (SDM) • Remote monitor/Ambience listening



### IC-F5122D/F6122D

#### Digital Standard Mobile Radio

- 128 channels • IP54 • 4 W powerful front mounted speaker • Lone worker • Status and short data message (SDM) • Remote monitor/Ambience listening • GPS receiver connection with optional ACC cable



# Digital Repeater / Controller / System Management

## IC-FR5100/FR6100

### Digital and Analogue, Dual Mode Repeater



- Digital conventional mode and analogue FM with auto selection
- 25 W at 100% duty cycle operation (Ambient temperature: 25°C)
- Optional network controllers for multi-site conventional or trunking system configuration
- “Two channels in one box” configuration with optional UR-FR5100/UR-FR6100
- 32 memory channels capacity
- 2U height rack mount design

NXDN™ dPMR™

## IC-FC5000E

### dPMR™ Mode 3 Trunking Controller

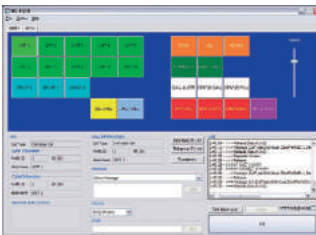


- Spectrum efficient centralized control channel trunking
- Up to 32 channels per site (One control channel, up to 31 traffic channels)
- Up to 32 site multi-site trunking with CS-FC5000SCS system control software
- Up to 256 site multi-region connection
- Call queuing and emergency call with pre-emption
- Repeater anomaly detection and alert
- A traffic channel can be configured as a secondary control channel
- 1U (44 mm) rack mount

dPMR™

## RC-FS10

### Virtual Radio/PC Dispatch

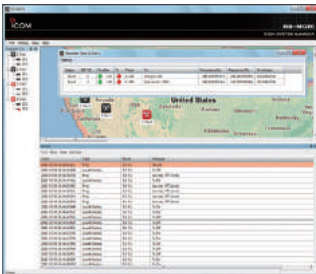


- PC remote communicator for IDAS™ conventional, NXDN™ Type-D multi-site trunking and analogue radio systems (VE-PG4 is required for analogue radio systems.)
- Up to eight different IDAS and analogue radio systems can be programmed
- Up to 40 programmable buttons. Short data message, status and DTMF can be sent
- Caller ID, called ID, name and call type information are displayed
- Optional HM-152 or SM-26 microphone

NXDN™ dPMR™

## RS-MGR1

### Enhance System Management for NXDN™ Type-D Trunking Systems

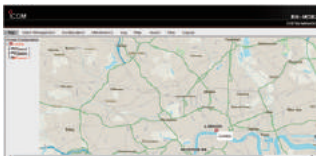


- Provides real-time monitoring, system alerts and log search functions
- Repeater properties show condition summary, system information, interface (traffic statistics), repeater condition details and ping status of each repeater
- Registration log, communication log, traffic log and search log can be searched and downloaded with extensive filter settings

NXDN™

## RS-MGR2

### Enhance System Management for dPMR™ Mode 3 Systems

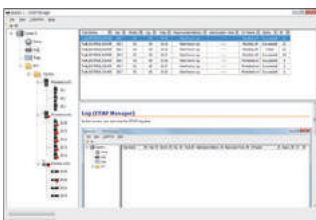


- Provides real-time monitoring, system alerts and log search functions for a dPMR™ Mode 3 system
- Real-time monitoring includes repeater view, repeater status, repeater condition, active screen and system connection
- Registration log, communication log, traffic log and search log can be searched and downloaded with extensive filter settings

dPMR™

## CS-OTPM1

### Easily Reconfigure Radios with Over-The-Air Programming



- Remotely reconfigure radios while in the field
- Radios can be reconfigured in a short period of time by transmitting only the updates
- Single programming data can transmit to a whole fleet with only one click
- Up to 10,000 sessions are logged for review and rescheduling
- Manages up to 100,000 radios

NXDN™ dPMR™



# Analogue Radios



## IC-F1000/F2000 Series

### Slim, Compact Dimensions with IP67 Waterproofing

- 128 channels (16 channels for the non-display model) • Motion/Stationary sensor
- Man down/Lone worker • 14 hours battery life (with BP-279) • 1500 mW loud audio
- Channel announcement • 16 codes inversion voice scrambler



## IC-F51 ATEX/F61 ATEX

### ATEX Intrinsically Safe Radio

- Compact design • 128 channels • IP67 • Lone worker function • 16.5 hours battery life (with BP-227AXD) • Built-in 2-Tone, 5-Tone, CTCSS and DTCS • HM-138 Optional speaker-microphone

#### ATEX Certifications

Gas: II 2G Ex ib IIA T3 Gb  
Dust: II 2D Ex tb III C T160°C Db IP67  
(Tamb=-20°C to +55°C)

DO NOT use the transceiver with any other equipment not specified in the option list (Pages 16-20).  
Please ask your dealer to ensure the ATEX and IECEx ratings are acceptable for the intended place of use.



## IC-F5022/F6022 IC-F5012/F6012

### Hardworking Mobile Radios

- 2 models for display or non-display • 128 channels (IC-F5022/F6022) or 8 channels (IC-F5012/F6012) • Lone worker function • 4 W (typical) front mounted speaker
- External device connection with optional ACC cable



# Data Radios



## IC-F5122DD/F6122DD

### General Purpose Transparent Data Modem

- 9600 bps (at 12.5 kHz) and 4800 bps (at 6.25 kHz) data mode
- 25 W, 10 W and 6 W three-step RF output power • TCP/IP protocol (IPv4) support for Ethernet
- Meets EN 300 113/EN 301 166 standards • Fast data transfer using 4-level FSK modulation

# RoIP Gateway

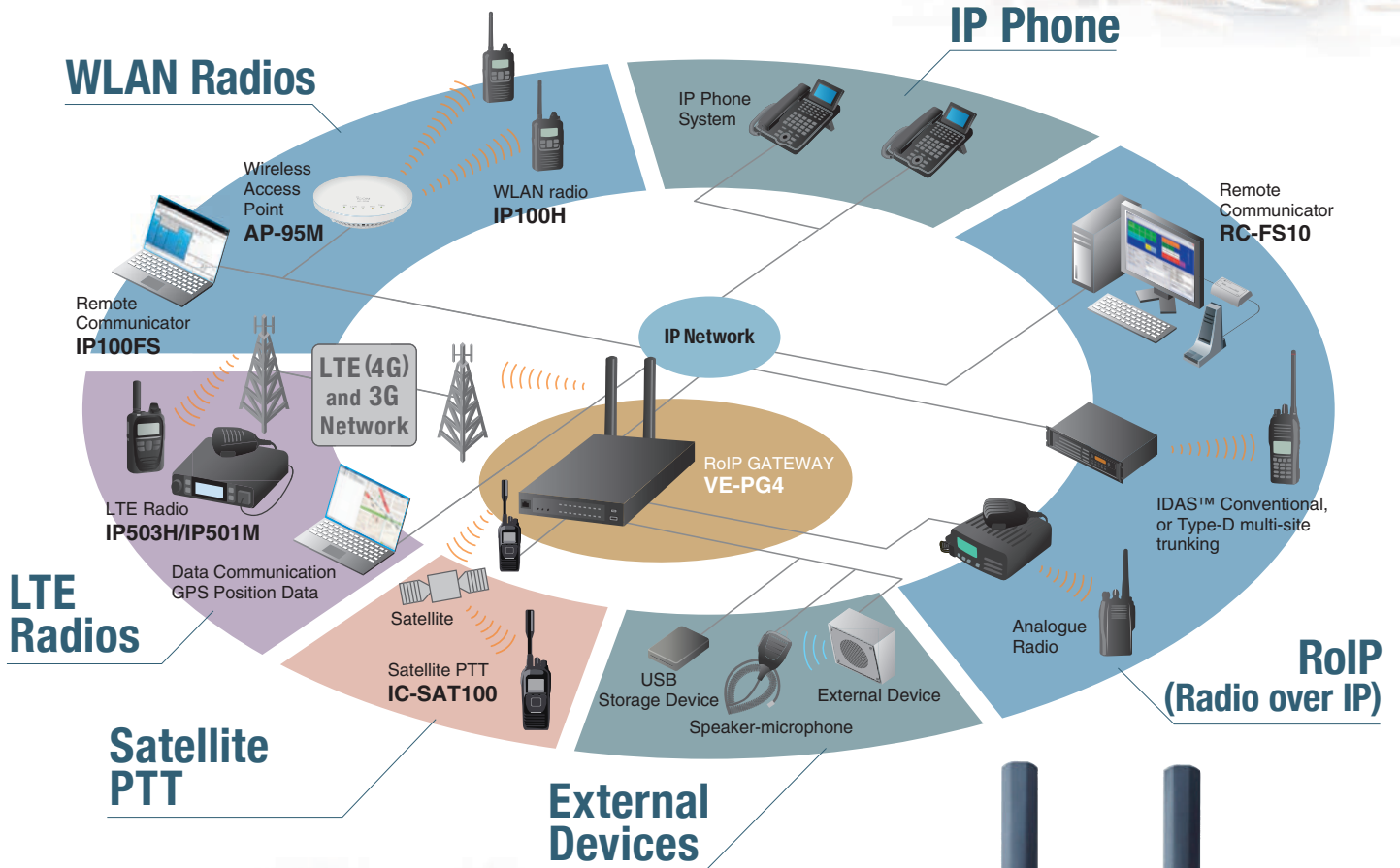
## Radio Gateway – Link LTE Radios to Digital/Analogue Radios, Satellite PTT Radio, WLAN Radio, IP Phone and More

The VE-PG4 is a versatile RoIP (Radio over IP network) gateway unit, which seamlessly interconnects various communication systems. The built-in LTE module\* provides virtually nationwide communication coverage.

\* Service availability depends on the country. Network coverage provided by a custom SIM card.



### Communication Links



**VE-PG4**



## Licence-Free Radios



### IC-F29SDR Digital/Analogue

#### Professional Licence-Free Radio Suitable for Various Industry Sectors

- dPMR 446 (Digital) and PMR 446 (Analogue) in one radio
- Digital 32 channels, Analogue 16 channels
- Display and 4 programmable keys on the front
- Status message
- CTCSS, DTCS for analogue
- IP67
- 1500 mW loud audio
- Alert-Ring function for emergency situations
- 26 hours battery life (with BP-280)
- Channel announcement
- 11 km coverage\*

\* Wide open space. Communication range will vary, depending on the terrain and conditions.



### IC-F29DR/F29DR2 Digital/Analogue

#### Professional Digital Licence-Free Radio

- dPMR 446 (Digital) and PMR 446 (Analogue) in one radio
- IC-F29DR2: Digital 32 channels, Analogue 16 channels
- IC-F29DR: Digital 16 channels, Analogue 8 channels
- CTCSS, DTCS for analogue
- IP67
- 26 hours battery life (with BP-280)
- Channel announcement
- 11 km coverage\*

\* Wide open space. Communication range will vary, depending on the terrain and conditions.



### IC-F29SR/F29SR2 Analogue

#### Slim, Waterproof PMR 446 Licence-Free Radio

- PMR 446 (Analogue)
- IC-F29SR2: Analogue 16 channels
- IC-F29SR: Analogue 8 channels
- CTCSS, DTCS
- Built-in voice scrambler for private conversation
- IP67
- 21 hours battery life (with BP-279)
- 1500 mW loud audio
- Channel announcement
- 8 km coverage\*

\* Wide open space. Communication range will vary, depending on the terrain and conditions.



## IDAS™ Handheld Radio Feature Comparison

	IC-F3400D/IC-F4400D SERIES			IC-F3262D/IC-F4262D SERIES		IC-F52D IC-F62D	IC-F1100D/IC-F2100D SERIES			IC-F3202DEX IC-F4202DEX
	IC-F3400DT/DPT IC-F4400DT/DPT	IC-F3400DS/DPS IC-F4400DS/DPS	IC-F3400D/DP IC-F4400D/DP	IC-F3262DT IC-F4262DT	IC-F3262DS IC-F4262DS	IC-F52D IC-F62D	IC-F1100DT IC-F2100DT	IC-F1100DS IC-F2100DS	IC-F1100D IC-F2100D	IC-F3202DEX IC-F4202DEX
<b>Frequency Range</b>	136–174 MHz			136–174 MHz		136–174 MHz	136–174 MHz			136–174 MHz
	380–470 MHz			400–470 MHz		400–470 MHz	400–470 MHz			400–470 MHz
<b>Channels</b>	1024*1	1024*1	32	512		512	128	128	16	16
<b>Digital Channel Spacing</b>	6.25/12.5*2 kHz			6.25 kHz		6.25/12.5*2 kHz	6.25 kHz			6.25 kHz
<b>Dimensions*3</b> (W × H × D; Projections are not included)	53.6 × 123.5 × 29.3 mm			53.5 × 142.7 × 39.5 mm		56 × 91.5 × 29 mm	52.2 × 111.8 × 34.1 mm	52.2 × 111.8 × 29.4 mm		63 × 144 × 50 mm
<b>Weight*3</b> (approx.)	305 g (VHF) 300 g (UHF)			410 g (VHF) 400 g (UHF)		230 g	277 g	266 g	258 g	466 g (VHF) 460 g (UHF)
<b>RF output power</b> (High)	5 W			5 W		5 W	5 W			1 W
<b>IP Rating</b>	IP68			IP67		IP67	IP67			IP67
<b>Operating Time*3*4</b> (hours)	10.5			12 (Non-GPS ver.) 10.5 (GPS ver.)		13	18			21.5 (VHF) 19 (UHF)
<b>Display</b>	Yes	Yes	No	Yes		Yes	Yes	Yes	No	No
<b>Keypad</b>	Full	Limited	No	Full	Limited	Limited	Full	Limited	No	No
<b>AF Output Power</b> (internal SP)	1300 mW typ.			800 mW typ.		1300 mW typ.	1500 mW typ.			400 mW typ.
<b>ATEX</b>	No			No		No	No			Yes
<b>Encryption</b>	DES (4-key)	Yes		No		No	No			No
	DES (64-key)	Optional		No		No	No			No
	AES	Optional		No		No	No			No
<b>Voice Scrambler</b> (Digital)	Yes			Yes		Yes	Yes			Yes
<b>Voice Scrambler</b> (Analogue)*5	Yes			Yes		Yes	No			No
<b>OTAP</b> (Over-the-Air Programming)	Optional			No		Optional	No			No
<b>CTCSS/DTCS</b> Encoder/Decoder	Yes			Yes		Yes	Yes			Yes
<b>2-Tone</b> Encoder/Decoder	Yes			Yes		Yes	Yes			Yes
<b>5-Tone</b> Encoder/Decoder	Yes			Yes		Yes	Yes			Yes
<b>DTMF Autodial</b>	Yes			Yes		Yes	Yes			Yes
<b>BIIS 1200</b>	Yes			Yes		Yes	Yes*6			Yes*7
<b>Man Down</b>	Yes			Yes*8		Yes	Yes			Yes
<b>Motion Detection Sensor</b>	Yes			No		Yes	Yes			No
<b>Lone Worker</b>	Yes			Yes		Yes	Yes			Yes
<b>Channel Announcement</b>	Yes			No		Yes	Yes			Yes
<b>Vibration Alert</b>	Yes			No		Yes	No			No
<b>Voice Recorder</b>	Yes			No		Yes	No			No
<b>Bluetooth® Capability</b>	Yes			No		Yes	No			No
<b>GPS Receiver</b>	Yes			Yes*8		External	External			No
<b>Short Data Message</b>	Yes*9			Yes		Yes	Yes*9			Yes*9
<b>Status Message</b>	Yes*9			Yes		Yes	Yes*9			Yes*9
<b>Emergency Call</b>	Yes			Yes		Yes	Yes			Yes
<b>Stun/Kill/Revive</b>	Yes			Yes		Yes	Yes*10			Yes*10
<b>Remote Monitor</b>	Yes			Yes		Yes	Yes*10			Yes*10
<b>NXDN™*11</b>	Conventional	Yes		Yes		Yes	Yes			Yes
	Multi-Site Conventional	Yes		Yes		Yes	Yes			Yes
	Type-D Trunking	Optional		Yes		Optional	Single Site only			Single Site only
<b>dPMR™*11</b>	Mode 1/ Mode 2	Yes		Yes		Yes	Yes			Yes
	Mode 2 Multi-site	Yes		Yes		Yes	Yes			Yes
	Mode 3 Trunking	Optional		Yes		Optional	No			No



## IDAS™ Mobile Radio Feature Comparison

	IC-F5400D/IC-F6400D SERIES		IC-F5062D IC-F6062D	IC-F5122D IC-F6122D
	IC-F5400D/DP IC-F6400D/DP	IC-F5400DS/DPS IC-F6400DS/DPS	IC-F5062D IC-F6062D	IC-F5122D IC-F6122D
<b>Frequency Range</b>	136–174 MHz 380–470 MHz		136–174 MHz 400–470 MHz	136–174 MHz 400–470 MHz
<b>Channels</b>	1024 <sup>*12</sup>	99	512	128
<b>Digital Channel Spacing</b>	6.25/12.5 <sup>*2</sup> kHz		6.25 kHz	6.25 kHz
<b>Dimensions</b> (W × H × D; Projections are not included)	174 × 55 × 150 mm		160 × 45 × 150 mm	150 × 40 × 117.5 mm
<b>Weight (approx.)</b>	1.5 kg		1.3 kg	800 g
<b>RF output power (High)</b>	25 W		25 W	25 W
<b>IP Rating</b>	IP55		IP54 <sup>*13</sup>	N/A
<b>Display</b>	Yes	2-digit numeric	Yes	Yes
<b>Keypad</b>	Yes		Yes	Yes
<b>AF Output Power (internal SP)</b>	4 W typ.		4 W typ.	4 W typ.
<b>Encryption</b>	DES (4-key)	Yes	No	No
	DES (64-key)	Optional	No	No
	AES	Optional	No	No
<b>Voice Scrambler (Digital)</b>	Yes		Yes	Yes
<b>Voice Scrambler (Analogue)<sup>*5</sup></b>	Yes		Yes	No
<b>OTAP (Over-the-Air Programming)</b>	Optional		No	No
<b>CTCSS/DTCS</b>	Encoder/Decoder	Yes	Yes	Yes
<b>2-Tone</b>	Encoder/Decoder	Yes	Yes	Yes
<b>5-Tone</b>	Encoder/Decoder	Yes	Yes	Yes
<b>DTMF Autodial</b>	Yes		Yes	Yes
<b>BIIS 1200</b>	Yes		Yes	Yes
<b>Lone Worker</b>	Yes		Yes	Yes
<b>Channel Announcement</b>	Yes		No	No
<b>Voice Recorder</b>	Yes		No	No
<b>Bluetooth® Capability</b>	Yes		No	No
<b>GPS Receiver</b>	Yes <sup>*14</sup>		No	No
<b>Short Data Message</b>	Yes		Yes	Yes
<b>Status</b>	Yes		Yes	Yes
<b>Emergency Call</b>	Yes		Yes	Yes
<b>Stun/Kill/Revive</b>	Yes		Yes	Yes <sup>*10</sup>
<b>Remote Monitor</b>	Yes		Yes	Yes <sup>*10</sup>
<b>Front Panel Separation</b>	Optional		Optional	No
<b>Multiple Controller Capability</b>	Yes	No	No	No
<b>COMMANDMIC™ Capability</b>	Yes	No	No	No
<b>I/O Control Port</b>	USB, D-SUB		D-SUB	Optional <sup>*15</sup>
<b>NXDN™<sup>*11</sup></b>	Conventional	Yes	Yes	Yes
	Multi-Site Conventional	Yes	Yes	Yes
	Type-D Trunking	Optional	Yes	Single site only
<b>dPMR™<sup>*11</sup></b>	Mode 1/ Mode 2	Yes	Yes	Yes
	Mode 2 Multi-site	Yes	Yes	Yes
	Mode 3 Trunking	Optional	Yes	No

<sup>\*1</sup> Upgrade licence (ISL-CHEX) required to enable 4000 channel capacity.

<sup>\*2</sup> NXDN™ only

<sup>\*3</sup> With standard battery pack

<sup>\*4</sup> Conventional mode. 5:5:90 duty cycle, power save ON

<sup>\*5</sup> Inversion type voice scrambler is not compatible with UT-109R/UT-110R voice scrambler.

<sup>\*6</sup> PTT ID and emergency call

<sup>\*7</sup> PTT ID only

<sup>\*8</sup> Depending on the version.

<sup>\*9</sup> The non-display model beeps and its LED indicator blinks when receiving a message.

<sup>\*10</sup> RX only

<sup>\*11</sup> Default factory setting (Protocol) differs, depending on the radio model.

<sup>\*12</sup> Upgrade licence (ISL-CHEX) required to enable 4000 channel capacity.

<sup>\*13</sup> IP dust and water tests were performed on the controller and RMK-3 only.

<sup>\*14</sup> UX-241 antenna is required.

<sup>\*15</sup> D-SUB. Digital modulation input is not available even when using accessory cables.

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



## Analogue & Licence-Free Radio Feature Comparison

	ANALOGUE HANDHELD RADIOS				ANALOGUE MOBILE RADIOS		LICENCE-FREE RADIOS		
	IC-F1000T IC-F2000T	IC-F1000S IC-F2000S	IC-F1000 IC-F2000	IC-F51 ATEX IC-F61 ATEX	IC-F5022 IC-F6022	IC-F5012 IC-F6012	IC-F29SDR	IC-F29DR2 IC-F29DR	IC-F29SR2 IC-F29SR
<b>Frequency Range</b>	136–174 MHz			136–174 MHz	136–174 MHz		PMR446: 16 ch dPMR446: 32 ch	IC-F29DR2 PMR446: 16 ch dPMR446: 32 ch	IC-F29SR2 PMR446: 16 ch
	400–470 MHz			400–470 MHz	400–470 MHz			IC-F29DR PMR446: 8 ch dPMR446: 16 ch	IC-F29SR PMR446: 8 ch
<b>Channels</b>	128	128	16	128	128	8			
<b>Channel Spacing</b>	12.5, 20, 25 kHz			12.5, 20, 25 kHz	12.5, 20, 25 kHz		6.25, 12.5 kHz	6.25, 12.5 kHz	12.5 kHz
<b>Dimensions*<sup>1</sup></b> (W × H × D; Projections are not included)	52.2 × 111.8 × 24.5 mm			56 × 97 × 36.4 mm	150 × 40 × 117.5 mm		52.2 × 111.8 × 29.4 mm	52.2 × 111.8 × 30.3 mm	52.2 × 111.8 × 24.5 mm
<b>Weight*<sup>1</sup></b> (approx.)	240 g			290 g	800 g		270 g	270 g	240 g
<b>RF output power</b> (High)	5 W (VHF) 4 W (UHF)			1 W (VHF/UHF)	25 W		500 mW (ERP)	500 mW (ERP)	500 mW (ERP)
<b>IP Rating</b>	IP67			IP67	N/A		IP67	IP67	IP67
<b>Operating Time*<sup>2</sup></b> (hours)	14			16.5	N/A		26	26	21
<b>Display</b>	Yes	Yes	No	Yes	Yes	LED lighting	Yes	No	No
<b>Keypad</b>	Full	Limited	No	Limited	Yes		Limited	No	No
<b>AF Output Power</b> (internal SP)	1500 mW typ.			500 mW typ.	4 W typ.		1500 mW typ.	800 mW typ.	1500 mW typ.
<b>ATEX</b>	No			Yes	No		No	No	No
<b>Voice Scrambler</b>	Yes			Yes* <sup>5</sup>	Optional		No	No	Yes
<b>CTCSS/DTCS</b> : Encoder/Decoder	Yes			Yes	Yes		Yes	Yes	Yes
<b>2-Tone</b> : Encoder/Decoder	Yes			Yes	Yes		No	No	No
<b>5-Tone</b> : Encoder/Decoder	Yes			Yes	Yes		No	No	No
<b>DTMF Autodial</b>	Yes			Yes	Yes		No	No	No
<b>BIIS 1200</b>	Yes* <sup>3</sup>			Yes	Yes* <sup>6</sup>		No	No	No
<b>Man Down</b>	Yes			No	No		No	No	No
<b>Lone Worker</b>	Yes			No	Yes		Yes	No	No
<b>Motion Detection Sensor</b>	Yes			No	No		No	No	No
<b>Channel Announcement</b>	Yes			No	No		Yes	Yes	Yes
<b>Status Message</b>	No			Yes	No		Yes	No	No
<b>Emergency Call</b>	Yes			Yes	Yes		No	No	No
<b>Stun/Kill/Revive</b>	Yes* <sup>4</sup>			Yes	Yes* <sup>4</sup>		No	No	No
<b>Remote Monitor</b>	Yes* <sup>4</sup>			Yes	Yes* <sup>4</sup>		No	No	No

\*<sup>1</sup> With standard battery pack

\*<sup>2</sup> 5:5:90 duty cycle, power save ON

\*<sup>3</sup> PTT ID and emergency call

\*<sup>4</sup> RX only

\*<sup>5</sup> Depending on the version

\*<sup>6</sup> PTT ID only

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

# Optional Accessories for Handheld Radios

MODEL NAME	BATTERY PACKS									
	BP-277EX (Li-ion) For intrinsically safe radios 7.4 V/1800 mAh (min.) 1900 mAh (typ.)	BP-227AXD (Li-ion) For intrinsically safe radios 7.4 V/1850 mAh (min.) 1950 mAh (typ.)	BP-300 Li-ion 7.2 V/2200 mAh (min.) 2350 mAh (typ.)	BP-284 (Li-ion) 7.2 V/3070 mAh (min.) 3210 mAh (typ.)	BP-283 (Li-ion) 7.2 V/ 1910 mAh (min.) 2010 mAh (typ.)	BP-232WP (Li-ion) 7.4 V/2200 mAh (min.) 2350 mAh (typ.)	BP-294 (Li-ion) 7.2 V/3050 mAh (min.) 3150 mAh (typ.)	BP-290 (Li-ion) 7.2 V/1910 mAh (min.) 2010 mAh (typ.)	BP-280 (Li-ion) 7.2 V/2280 mAh (min.) 2400 mAh (typ.)	
IC-SAT100			✓							
IP503H										
IP100H										
IC-F3400DT/DS/D				✓	✓					
IC-F4400DT/DS/D										
IC-F3262DT/DS						✓				
IC-F4262DT/DS										
IC-F52D							✓	✓		
IC-F62D										
IC-F1100DT/DS/D										✓
IC-F2100DT/DS/D										
IC-F3202DEX	✓									
IC-F4202DEX										
IC-F1000T/S										✓
IC-F2000T/S										
IC-F51 ATEX		✓								
IC-F61 ATEX										
IC-F29SDR										✓
IC-F29DR										✓
IC-F29DR2										✓
IC-F29SR										✓
IC-F29SR2										✓

MODEL NAME	BATTERY PACKS			BATTERY CASES				DESKTOP CHARGERS	
	BP-279 (Li-ion) 7.2 V/1485 mAh (min.) 1570 mAh (typ.)	BP-278 (Li-ion) 7.2 V/1130 mAh (min.) 1190 mAh (typ.)	BP-271 Li-ion 7.4 V/1150 mAh (min.) 1200 mAh (typ.) BP-272 Li-ion 7.4 V/1880 mAh (min.) 2000 mAh (typ.)	BP-240 LR03 (AAA) x6 cells	BP-261 LR6 (AA) x6 cells	BP-291 LR6 (AA) x5 cells	BP-273 LR6 (AA) x3 cells	BC-212EX*1 Rapid charger for intrinsically safe radios	BC-241 Rapid charger
IC-SAT100									✓
IP503H			✓						
IP100H			✓						
IC-F3400DT/DS/D							✓		
IC-F4400DT/DS/D									
IC-F3262DT/DS				✓	✓				
IC-F4262DT/DS									
IC-F52D						✓			
IC-F62D									
IC-F1100DT/DS/D	✓	✓							
IC-F2100DT/DS/D									
IC-F3202DEX								✓	
IC-F4202DEX									
IC-F1000T/S	✓	✓							
IC-F2000T/S									
IC-F51 ATEX									
IC-F61 ATEX									
IC-F29SDR	✓	✓							
IC-F29DR	✓	✓							
IC-F29DR2	✓	✓							
IC-F29SR	✓	✓							
IC-F29SR2	✓	✓							







MODEL NAME	DESKTOP CHARGERS									
	BC-219N Rapid charger	BC-225 Intelligent charger	BC-226 Connectable type. Connects up to six BC-226 units.	BC-227 Compact rapid charger	BC-160 Rapid charger	BC-171 Regular charger	BC-213 Rapid charger	BC-119N Rapid charger	BC-152N Regular charger	
IC-SAT100										
IP503H										
IP100H										
IC-F3400DT/DS/D	✓	✓	✓ (Use with BC-226)	✓						
IC-F4400DT/DS/D										
IC-F3262DT/DS					✓	✓				
IC-F4262DT/DS										
IC-F52D	✓	✓	✓ (Use with BC-226)	✓						
IC-F62D										
IC-F1100DT/DS/D							✓			
IC-F2100DT/DS/D										
IC-F3202DEX										
IC-F4202DEX										
IC-F1000T/S							✓			
IC-F2000T/S										
IC-F51 ATEX								✓ (AD-100 is required)	✓ (Use with BC-147S)	
IC-F61 ATEX										
IC-F29SDR							✓			
IC-F29DR							✓			
IC-F29DR2							✓			
IC-F29SR							✓			
IC-F29SR2							✓			

\*1 The battery charger, BC-212EX **must not be used** in an explosive atmosphere.






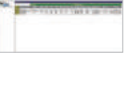

The IC-F3202DEX/F4202DEX and IC-F51/F61 ATEX intrinsically models should only be used with the specified intrinsically safe approved accessories.

☑ : Applicable ☐ : Not applicable

# Optional Accessories for Handheld Radios

MODEL NAME	DESKTOP CHARGERS			MULTI-CHARGERS			CHARGER ADAPTERS		
	BC-202IP2 Rapid charger with smart charging function	BC-218 Rapid charger cradle with Bluetooth®	BC-211 Rapid multi-charger	BC-214/N*2 Rapid multi-charger	BC-197*3 Rapid multi-charger	BC-121N Rapid multi-charger	AD-140*2 For BP-300	AD-132N*2 For BP-283, BP-284, BP-294 or BP-290	AD-122*3 For BP-232W/P
IC-SAT100									
IP503H	✓	✓	✓ (AD-127 installed)	✓ (Use #31, AD-140 installed)			✓ (Use with BC-214N)		
IP100H	✓		✓ (AD-127 installed)						
IC-F3400DT/DS/D IC-F4400DT/DS/D				✓ (Use #23, AD-132N installed)				✓ (Use with BC-214)	
IC-F3262DT/DS IC-F4262DT/DS					✓ (Use #23, AD-122 installed)				✓ (Use with BC-197)
IC-F52D IC-F62D				✓ (Use #23, AD-132N installed)				✓ (Use with BC-214)	
IC-F1100DT/DS/D IC-F2100DT/DS/D				✓ (Use #03, AD-130 installed)					
IC-F3202DEX IC-F4202DEX									
IC-F1000T/S IC-F2000T/S				✓ (Use #03, AD-130 installed)					
IC-F51 ATEX IC-F61 ATEX						✓ (Use with AD-100)			
IC-F29SDR				✓ (Use #03, AD-130 installed)					
IC-F29DR IC-F29DR2				✓ (Use #03, AD-130 installed)					
IC-F29SR IC-F29SR2				✓ (Use #03, AD-130 installed)					

MODEL NAME	CHARGER ADAPTERS		AC ADAPTERS						
	AD-130*2 For BP-278, BP-279 or BP-280	AD-100 For BP-227AXD	BC-242 12 V/1 A	BC-123S*4 12 V/1 A	BC-145S*4 16 V/0.93 A	BC-147S*4 12 V/0.33 A	BC-157S 12 V/7.5 A	BC-228 15 V/4 A	BC-207S 12 V/4.2 A
IC-SAT100									
IP503H			✓ (Use with BC-241)	✓ (Use with BC-202/IP2)			✓ (Use with BC-211)		✓ (Use with BC-218)
IP100H				✓ (Use with BC-202/IP2)			✓ (Use with BC-211)		
IC-F3400DT/DS/D IC-F4400DT/DS/D				✓ (Use with BC-219N, BC-225 or BC-227)			✓ (Use with BC-214)	✓ (Use with BC-226)	
IC-F3262DT/DS IC-F4262DT/DS				✓ (Use with BC-160)		✓ (Use with BC-171)	✓ (Use with BC-197)		
IC-F52D IC-F62D				✓ (Use with BC-219N, BC-225 or BC-227)			✓ (Use with BC-214)	✓ (Use with BC-226)	
IC-F1100DT/DS/D IC-F2100DT/DS/D	✓ (Use with BC-214)		✓ (Use with BC-213)	✓ (Use with BC-213)			✓ (Use with BC-214)		
IC-F3202DEX IC-F4202DEX				✓ (Use with BC-212EX)			✓ (Use with BC-214)		
IC-F1000T/S IC-F2000T/S	✓ (Use with BC-214)		✓ (Use with BC-213)	✓ (Use with BC-213)			✓ (Use with BC-214)		
IC-F51 ATEX IC-F61 ATEX		✓ (Use with BC-119N or BC-121N)			✓ (Use with BC-119N)	✓ (Use with BC-152N)	✓ (Use with BC-121N)		
IC-F29SDR	✓ (Use with BC-214)		✓ (Use with BC-213)	✓ (Use with BC-213)			✓ (Use with BC-214)		
IC-F29DR IC-F29DR2	✓ (Use with BC-214)		✓ (Use with BC-213)	✓ (Use with BC-213)			✓ (Use with BC-214)		
IC-F29SR IC-F29SR2	✓ (Use with BC-214)		✓ (Use with BC-213)	✓ (Use with BC-213)			✓ (Use with BC-214)		

MODEL NAME	CHARGER BRACKET	CIGARETTE LIGHTER CABLES	DC POWER CABLES		READER SOFTWARE	APPLICATION	SPEAKERPHONE UNIT
	MB-130 	CP-22 With DC-DC CONVERTER 	CP-23L 	OPC-656 	OPC-515L 	RS-BC225 	IP500APP LTE radio mobile application*5 
IC-SAT100				✓ (Use with BC-214N)			
IP503H		✓ (Use with BC-218)	✓ (Use with BC-218)			✓	✓
IP100H							
IC-F3400DT/DS/D IC-F4400DT/DS/D			✓ (Use with BC-219N or BC-227)	✓ (Use with BC-214)	✓ (Use with BC-219N, BC-225 or BC-227)	✓ (Use with BC-225)	
IC-F3262DT/DS IC-F4262DT/DS	✓ (Use with BC-160)		✓ (Use with BC-160)	✓ (Use with BC-197)	✓ (Use with BC-160 or BC-171)		
IC-F52D IC-F62D			✓ (Use with BC-219N or BC-227)	✓ (Use with BC-214)	✓ (Use with BC-219N, BC-225 or BC-227)	✓ (Use with BC-225)	
IC-F1100DT/DS/D IC-F2100DT/DS/D	✓ (Use with BC-213)		✓ (Use with BC-213)	✓ (Use with BC-214)			
IC-F3202DEX IC-F4202DEX							
IC-F1000T/S IC-F2000T/S	✓ (Use with BC-213)		✓ (Use with BC-213)	✓ (Use with BC-214)			
IC-F51 ATEX IC-F61 ATEX							
IC-F29SDR	✓ (Use with BC-213)		✓ (Use with BC-213)	✓ (Use with BC-214)			
IC-F29DR IC-F29DR2	✓ (Use with BC-213)		✓ (Use with BC-213)	✓ (Use with BC-214)			
IC-F29SR IC-F29SR2	✓ (Use with BC-213)		✓ (Use with BC-213)	✓ (Use with BC-214)			

\*2 Either AD-130, AD-132N or AD-140 is supplied with the BC-214/N, depending on the version. \*3 AD-122 is supplied with the BC-197, depending on the version.

\*4 BC-123SA/BC-145SA/BC-147SA for US plug. SE for EURO plug. SV for Australia plug. BC-123SUK/BC-145SUK for UK plug.

\*5 For iOS™: iOS™ version 12 or later. For Android™: Android™ version 8.0 or later



# Optional Accessories for Handheld Radios

MODEL NAME	SPEAKER-MICROPHONES								
	HM-203EX For intrinsically safe radios IP67	HM-222 IP68	HM-184/H IP67	HM-233GP GPS IP67	HM-168LWP IP67	HM-158LA	HM-159LA	HM-171GPW GPS IP67	HM-138 IPX7
IC-SAT100		✓							
IP503H									
IP100H									
IC-F3400DT/DS/D IC-F4400DT/DS/D		✓							
IC-F3262DT/DS IC-F4262DT/DS			✓						
IC-F52D IC-F62D		✓		✓					
IC-F1100DT/DS/D IC-F2100DT/DS/D					✓	✓	✓	✓	
IC-F3202DEX IC-F4202DEX	✓								
IC-F1000/T/S IC-F2000/T/S					✓	✓	✓		
IC-F51 ATEX IC-F61 ATEX									✓
IC-F29SDR					✓	✓	✓		
IC-F29DR IC-F29DR2					✓	✓	✓		
IC-F29SR IC-F29SR2					✓	✓	✓		

MODEL NAME	SPEAKER-MICROPHONES			EARPHONE-MICROPHONES				TIE-CLIP MICROPHONE
	HM-183LS IPX7	HM-186LS	HM-215	HM-153LA	HM-166LA	HM-153LS	HM-166LS	HM-163MC
IC-SAT100								✓
IP503H	✓	✓	✓ (Use with BC-218)			✓	✓	
IP100H	✓	✓				✓*6	✓*6	
IC-F3400DT/DS/D IC-F4400DT/DS/D								
IC-F3262DT/DS IC-F4262DT/DS								
IC-F52D IC-F62D								✓
IC-F1100DT/DS/D IC-F2100DT/DS/D				✓	✓			
IC-F3202DEX IC-F4202DEX								
IC-F1000/T/S IC-F2000/T/S				✓	✓			
IC-F51 ATEX IC-F61 ATEX								
IC-F29SDR				✓	✓			
IC-F29DR IC-F29DR2				✓	✓			
IC-F29SR IC-F29SR2				✓	✓			

MODEL NAME	HEADSETS							EARPHONES	
	VS-3 Bluetooth® headset	HS-94 Earhook type with boom microphone	HS-94LWP Earhook type with waterproof connector	HS-95 Behind-the-head type	HS-95LWP Behind-the-head type with waterproof connector	HS-97 Throat microphone type	HS-102 Earphone type	EH-15B	SP-26 Tube earphone
IC-SAT100	✓	✓ (Use with VS-5MC)		✓ (Use with VS-5MC)		✓ (Use with VS-5MC)		✓ (Use with HM-163MC)	✓ (Use with HM-163MC)
IP503H	✓	✓*7 (Use with OPC-2096LS or OPC-2328)		✓*7 (Use with OPC-2096LS or OPC-2328)		✓*7 (Use with OPC-2096LS or OPC-2328)	✓ (Use with OPC-2359)		
IP100H		✓*7 (Use with OPC-2096LS or OPC-2328)		✓*7 (Use with OPC-2096LS or OPC-2328)		✓*7 (Use with OPC-2096LS or OPC-2328)	✓*8 (Use with OPC-2359)		
IC-F3400DT/DS/D IC-F4400DT/DS/D		✓ (Use with VS-4MC)		✓ (Use with VS-4MC)		✓ (Use with VS-4MC)			
IC-F3262DT/DS IC-F4262DT/DS		✓ (Use with VS-4MC)		✓ (Use with VS-4MC)		✓ (Use with VS-4MC)			
IC-F52D IC-F62D	✓	✓ (Use with VS-5MC)		✓ (Use with VS-5MC)		✓ (Use with VS-5MC)		✓ (Use with HM-163MC)	✓ (Use with HM-163MC)
IC-F1100DT/DS/D IC-F2100DT/DS/D		✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)			
IC-F3202DEX IC-F4202DEX									
IC-F1000/T/S IC-F2000/T/S		✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)			
IC-F51 ATEX IC-F61 ATEX									
IC-F29SDR		✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)			
IC-F29DR IC-F29DR2		✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)			
IC-F29SR IC-F29SR2		✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)	✓	✓ (Use with VS-4LA or OPC-2004LA)			

\*6 Full-duplex operation can be possible with either HS-102 with OPC-2359, HM-153LS or HM-166LS.

\*7 HS-94, HS-95 and HS-97 headsets are simplex operation only.

☑ : Applicable ☐ : Not applicable

# Optional Accessories for Handheld Radios






MODEL NAME	EARPHONES					PLUG ADAPTER CABLES		PTT SWITCH CABLES	
	SP-27 Tube earphone	SP-28	SP-29	SP-32 Tube earphone adapter	SP-40	OPC-2004LA VOX operation	OPC-2006LS For VOX operation	VS-5MC For manual PTT/ VOX operation	VS-4MC For manual PTT operation
IC-SAT100	✓ (Use with HM-222 or AD-135)	✓ (Use with HM-163MC)	✓ (Use with HM-222 or AD-135)	✓ (Use with EH-15B)	✓ (Use with HM-222 or AD-135)			✓ (Use with HS-94, HS-95 or HS-97)	
IP503H							✓ (Use with HS-94, HS-95 or HS-97)		
IP100H							✓ (Use with HS-94, HS-95 or HS-97)		
IC-F3400DT/DS/D IC-F4400DT/DS/D									✓ (Use with HS-94, HS-95 or HS-97)
IC-F3262DT/DS IC-F4262DT/DS									✓ (Use with HS-94, HS-95 or HS-97)
IC-F52D IC-F62D	✓ (Use with HM-222 or AD-135)	✓ (Use with HM-163MC)	✓ (Use with HM-222 or AD-135)	✓ (Use with EH-15B)	✓ (Use with HM-222 or AD-135)			✓ (Use with HS-94, HS-95 or HS-97)	
IC-F1100DT/DS/D IC-F2100DT/DS/D						✓ (Use with HS-94, HS-95 or HS-97)			
IC-F3202DEX IC-F4202DEX									
IC-F1000T/S IC-F2000T/S						✓ (Use with HS-94, HS-95 or HS-97)			
IC-F51 ATEX IC-F61 ATEX									
IC-F29SDR						✓ (Use with HS-94, HS-95 or HS-97)			
IC-F29DR IC-F29DR2						✓ (Use with HS-94, HS-95 or HS-97)			
IC-F29SR IC-F29SR2						✓ (Use with HS-94, HS-95 or HS-97)			







MODEL NAME	PTT SWITCH CABLES			ACC ADAPTERS		BELT CLIPS			BELT HANGER
	VS-4LA For manual PTT operation	OPC-2328	OPC-2359	AD-118 Allows you to use 6-pin Hirose plug accessories	AD-135 3.5 mm jack earphone adapter	MB-94EX For intrinsically safe radios	MB-136 MB-93 MB-86 Swivel type	MB-135 MB-133 MB-127 MB-98 MB-94R MBB-3 MBB-5 Alligator type	
IC-SAT100				✓	✓			✓ (Use MBB-5)	
IP503H		✓ (Use with HS-94, HS-95 or HS-97)	✓ (Use with HS-102)					✓ (Use with MB-135)	
IP100H		✓ (Use with HS-94, HS-95 or HS-97)	✓ (Use with HS-102)					✓ (Use with MB-127)	
IC-F3400DT/DS/D IC-F4400DT/DS/D				✓			✓ (Use MB-136)	✓ (Use MB-133)	✓
IC-F3262DT/DS IC-F4262DT/DS				✓			✓ (Use MB-93)	✓ (Use MB-94R)	✓
IC-F52D IC-F62D				✓	✓		✓ (Use MB-136)	✓ (Use MBB-3)	✓
IC-F1100DT/DS/D IC-F2100DT/DS/D	✓ (Use with HS-94, HS-95 or HS-97)							✓ (Use MB-133)	
IC-F3202DEX IC-F4202DEX						✓			
IC-F1000T/S IC-F2000T/S	✓ (Use with HS-94, HS-95 or HS-97)							✓ (Use MB-133)	
IC-F51 ATEX IC-F61 ATEX							✓ (Use MB-86)	✓ (Use MB-98)	
IC-F29SDR	✓ (Use with HS-94, HS-95 or HS-97)							✓ (Use MB-133)	
IC-F29DR IC-F29DR2	✓ (Use with HS-94, HS-95 or HS-97)							✓ (Use MB-133)	
IC-F29SR IC-F29SR2	✓ (Use with HS-94, HS-95 or HS-97)							✓ (Use MB-133)	

MODEL NAME	BELT HANGERS		MOUNT BASE	BRACKET ADAPTER	CARRYING CASES				
	MB-96F	MB-96FL	MBF-1 For use with BC-218	MBA-7 For use with BC-218	LC-184 For IC-F3400DT/DS, F4400DT/DS	LC-186 For IC-F3400D, F4400D	LC-187*8 For use with BP-290	LC-188 For use with BP-290	LC-190*8 For use with BP-294
IC-SAT100									
IP503H			✓ (Use with MBA-7)	✓ (Use with MBF-1)					
IP100H									
IC-F3400DT/DS/D IC-F4400DT/DS/D	✓	✓			✓	✓			
IC-F3262DT/DS IC-F4262DT/DS	✓	✓							
IC-F52D IC-F62D	✓	✓							
IC-F1100DT/DS/D IC-F2100DT/DS/D							✓	✓	✓
IC-F3202DEX IC-F4202DEX									
IC-F1000T/S IC-F2000T/S									
IC-F51 ATEX IC-F61 ATEX	✓								
IC-F29SDR									
IC-F29DR IC-F29DR2									
IC-F29SR IC-F29SR2									

\*8 Charging is possible while the case is attached.

# Optional Accessories for Handheld Radios

MODEL NAME	CARRYING CASES		STRAP	ANTENNAS					
	LC-183*8 For use BP-271 	LC-185*8 For use BP-272 	MB-57L Long shoulder strap 	FA-S81V 136–150 MHz FA-S82V 148–162 MHz FA-S83V 160–174 MHz FA-S81U 380–430 MHz FA-S82U 430–480 MHz	FA-SC25V 136–150 MHz FA-SC55V 150–174 MHz FA-SC25U 400–430 MHz FA-SC57U 430–470 MHz	FA-SC25V 136–150 MHz FA-SC28V 148–162 MHz FA-SC29V 160–174 MHz FA-SC25U 400–430 MHz FA-SC57U 430–470 MHz	FA-S24V 136–150 MHz FA-S59V 150–174 MHz FA-S27U 400–470 MHz	FA-S102U Satellite + GPS antenna 	AH-40 Satellite + GPS antenna (1.5 m cable) 
IC-SAT100								✓	✓
IP503H	✓	✓	✓ (Use with LC-183 or LC-185)						
IP100H									
IC-F3400DT/DS/D IC-F4400DT/DS/D				✓					
IC-F3262DT/DS IC-F4262DT/DS					✓				
IC-F52D IC-F62D						✓			
IC-F1100DT/DS/D IC-F2100DT/DS/D					✓	✓			
IC-F3202DEX IC-F4202DEX					✓				
IC-F1000T/S IC-F2000T/S					✓	✓			
IC-F51 ATEX IC-F61 ATEX							✓		
IC-F29SDR									
IC-F29DR IC-F29DR2									
IC-F29SR IC-F29SR2									

MODEL NAME	CUT ANTENNAS		HIGH GAIN ANTENNAS	STUBBY ANTENNAS			OPTION BOARD	ZONE COPY CABLES	DOCKING STATION
	FA-S67VC 136–174 MHz FA-S76UC 380–520 MHz	FA-SC61VC 136–174 MHz FA-SC61UC 380–520 MHz 	FA-SC62V 150–160 MHz FA-SC63V 155–165 MHz 	FA-S81VS 136–150 MHz FA-S82VS 148–162 MHz FA-S83VS 160–174 MHz FA-S81US 400–450 MHz FA-S82US 450–490 MHz	FA-SC26VS 136–144 MHz FA-SC27VS 142–150 MHz FA-SC56VS 150–162 MHz FA-SC57VS 160–174 MHz FA-SC26US 400–450 MHz FA-SC73US 450–490 MHz	FA-S62VS 150–162 MHz FA-S63VS 160–174 MHz FA-S57US 450–490 MHz 	UT-134 AES/DES encryption unit 	OPC-1870 Handheld to handheld OPC-2362 Handheld to mobile  (Photo shows OPC-1870)	BC-247*9 Charging cradle 
IC-SAT100									✓
IP503H									
IP100H									
IC-F3400DT/DS/D IC-F4400DT/DS/D	✓			✓			✓	✓ (OPC-1870/OPC-2362)	
IC-F3262DT/DS IC-F4262DT/DS		✓	✓		✓			✓ (OPC-1870)	
IC-F52D IC-F62D		✓	✓		✓			✓ (OPC-1870)	
IC-F1100DT/DS/D IC-F2100DT/DS/D		✓	✓		✓				
IC-F3202DEX IC-F4202DEX									
IC-F1000T/S IC-F2000T/S		✓	✓		✓				
IC-F51 ATEX IC-F61 ATEX						✓			
IC-F29SDR									
IC-F29DR IC-F29DR2									
IC-F29SR IC-F29SR2									

\*9 Comes with DC power cable, AC adapter and adapter cable (DC to AC).

# Activation Keys for IDAS™ Radios

MODEL NAME	ACTIVATION KEYS				
	ISL-UGMTR NXDN™ Type-D trunking upgrade key (for NXDN™ protocol)	ISL-UGMD3 dPMR™ Mode 3 trunking upgrade key (for dPMR™ protocol)	ISL-AKAES AES encryption activation key	ISL-CHEX Channel expan- sion key increases channel number up to 4000	ISL-AKSTM Dealer set mode activation key
IC-F3400DT/DS/D IC-F4400DT/DS/D	✓	✓	✓ (Use with UT-134)	✓	✓
IC-F52D IC-F62D	✓	✓			
IC-F5400D/DS IC-F6400D/DS	✓	✓	✓ (Use with UT-134)	✓	✓

✓ : Applicable    □ : Not applicable

# Optional Accessories for Mobile Radios and Repeaters








MODEL NAME	HAND MICROPHONES								
	HM-221 IP55	HM-221T with DTMF keypad IP55	HM-220 Heavy-duty type IP54	HM-220T Heavy duty type with DTMF keypad IP54	HM-211 Noise Canceling Mic	HM-152	HM-152T with DTMF keypad	HM-148G Heavy-duty type	HM-148T Heavy duty type with DTMF keypad
IP501M									
IC-F5400D, IC-F6400D	✓	✓	✓	✓					
IC-F5400DS, IC-F6400DS	✓	✓	✓	✓					
IC-F5062D, IC-F6062D					✓	✓	✓	✓	✓
IC-F5122D, IC-F6122D					✓	✓	✓	✓	✓
IC-F5022, IC-F6022						✓	✓	✓	✓
IC-F5012, IC-F6012						✓	✓	✓	✓
IC-FR5100, IC-FR6100						✓			

MODEL NAME	SPEAKER-MICROPHONE	HEADSET	DESKTOP MICROPHONES		EXTERNAL SPEAKERS		SEPARATION KITS		
	HM-241	VS-3 Bluetooth® headset	SM-29	SM-26 SM-28	SP-30	SP-35 2 m cable SP-35L 6 m cable	RMK-5	RMK-7 Dual head	RMK-3
IP501M	✓	✓		✓ (Use SM-26)	✓	✓			
IC-F5400D, IC-F6400D			✓		✓	✓	✓ (Separation cable is required)	✓ (Separation cable is required)	
IC-F5400DS, IC-F6400DS			✓		✓	✓			
IC-F5062D, IC-F6062D				✓ (Use SM-26)	✓	✓			✓ (OPC-609 is required)
IC-F5122D, IC-F6122D				✓ (Use SM-26)	✓	✓			
IC-F5022, IC-F6022				✓ (Use SM-26)		✓			
IC-F5012, IC-F6012				✓ (Use SM-26)	✓	✓			
IC-FR5100, IC-FR6100				✓ (Use SM-26)		✓			

MODEL NAME	COMMANDMIC™		SEPARATION CABLES			MICROPHONE CABLE	ACC CABLES		
	HM-218 Secondary controller for use with RMK-5 IP55	HM-230HB IP55	OPC-2364 (1.9 m) OPC-2365 (3 m) OPC-2366 (5 m) OPC-2367 (8 m) For use with RMK-5 or RMK-7	OPC-2373 (1.9 m) OPC-2374 (8 m) For use with HM-218, COMMANDMIC	OPC-609 (1.9 m) for use with RMK-3	OPC-2355 2.5 m	OPC-1939 (15-pin) OPC-2078 (25-pin) <small>(Photo shows OPC-1939)</small>	OPC-2202 UR-PA5000/PA6000 connection cable	OPC-2407 D-SUB 25-pin type
IP501M		✓				✓ (Use with HM-230HB or HM-241)			✓
IC-F5400D, IC-F6400D	✓ (Separation cable is required)		✓	✓					
IC-F5400DS, IC-F6400DS									
IC-F5062D, IC-F6062D					✓				
IC-F5122D, IC-F6122D							✓*10		
IC-F5022, IC-F6022							✓		
IC-F5012, IC-F6012							✓		
IC-FR5100, IC-FR6100								✓	

\*10 Digital modulation input is not available even when using accessory cables.









## Optional Accessories for Mobile Radios and Repeaters

	ZONE COPY CABLE	GPS ANTENNA	OPTION BOARD	CHANNEL MODULES	POWER AMPLIFIERS	NETWORK CONTROLLER	ETHERNET BOARD
<b>MODEL NAME</b>	<b>OPC-2362</b> Mobile to handheld 	<b>UX-241</b> 5 m cable length 	<b>UT-134</b> AES/DES encryption unit 	<b>UR-FR5100</b> 136–174 MHz, 25 W <b>UR-FR6100</b> 400–470 MHz, 25 W 	<b>UR-PA5000</b> 136–174 MHz, 50 W 100% duty <b>UR-PA6000</b> 400–470 MHz, 50 W 100% duty 	<b>UC-FR5000</b> <sup>*11</sup> For IDAS™ multi-site networking 	<b>UC-FR5000SE</b> For connection with IC-FC5000E 
IP501M							
IC-F5400D, IC-F6400D	✓	✓	✓				
IC-F5400DS, IC-F6400DS	✓	✓	✓				
IC-F5062D, IC-F6062D							
IC-F5122D, IC-F6122D							
IC-F5022, IC-F6022							
IC-F5012, IC-F6012							
IC-FR5100, IC-FR6100				✓	✓	✓	✓

<sup>\*11</sup> The following versions are available.

- #01 For NXDN™ single-site trunking
- #02 For NXDN™ multi-site conventional
- #03 For NXDN™ multi-site trunking
- #12 For dPMR™ multi-site conventional

## Optional Accessories for RoIP Gateway and IP Products

	AC ADAPTERS		AUDIO/DATA CONNECTION CABLES					
<b>MODEL NAME</b>	<b>BC-2075</b> 12 V /4.2 A 	<b>BC-1475</b> <sup>*12</sup> 12 V/0.33 A 	<b>OPC-2273</b> For VHF marine transceiver 5 m 	<b>OPC-2275</b> For mobile transceiver 5 m 	<b>OPC-2276</b> For HM-152 or SM-26 5 m 	<b>OPC-2389</b> For RS-232 serial connection 5 m 	<b>OPC-2390</b> For IC-FR5100 series 5 m 	<b>OPC-2412</b> For IC-SAT100 5 m 
VE-PG4			✓	✓	✓	✓	✓	✓
AP-95M	✓							
IP100FS		✓ (Use with CT-23)						
RC-FS10		✓ (Use with CT-23)						

	SPEAKER-MICROPHONE	HAND MICROPHONES			DESKTOP MICROPHONE	MICROPHONE ADAPTER	ACCESS POINT MANAGER
<b>MODEL NAME</b>	<b>HM-241</b> 	<b>HM-152</b> 	<b>HM-152T</b> DTMF keypad type 	<b>HM-216</b> Short cable <sup>*14</sup> 	<b>SM-26</b> 	<b>CT-23</b> 	<b>RS-AP3</b> 
VE-PG4	✓	✓ <sup>*13</sup>	✓ <sup>*13</sup>	✓ <sup>*13</sup>	✓ <sup>*13</sup>		
AP-95M							✓
IP100FS		✓ (Use with CT-23 and BC-147S)			✓ (Use with CT-23 and BC-147S)	✓	
RC-FS10		✓ (Use with CT-23 and BC-147S)			✓ (Use with CT-23 and BC-147S)	✓	

<sup>\*12</sup> BC-147SA for US plug. SE for EURO plug. SV for Australia plug.

<sup>\*13</sup> The HM-152, HM-152T, HM-216 and SM-26 have no speaker function. An external speaker is required to be connected to the VE-PG4 to hear received audio with these accessories.

<sup>\*14</sup> The HM-216 has a total of 490 mm cable length including a 300 mm curl code, while the HM-152 has a total of 900 mm cable length.

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

Read all instructions enclosed with the transceiver carefully and completely before using the transceiver.

: Applicable  : Not applicable

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# SPECIFICATIONS

## HANDHELD TRANSCEIVERS

	IC-A25N IC-A25C	IC-A25NE IC-A25CE	IC-A16	IC-A16E
NAV/COM channels	VOR NAV & COM (IC-A25N) COM (IC-A25C)	VOR NAV & COM (IC-A25NE) COM (IC-A25CE)	COM	COM
Built-in GPS	✓(IC-A25N)	✓(IC-A25NE)	-	-
Bluetooth®	✓(IC-A25N)	✓(IC-A25NE)	✓(Depending on the version)	
IP rating	IP57	IP57	IP67/IP54	
Flip-flop channel recall	✓	✓	-	-
MIL-STD 810	✓(G)	✓(G)	✓(G)	✓(G)
Android™/iOS™ app for flight planning	✓(IC-A25N)	✓(IC-A25NE)	-	-
Frequency range (unit: MHz)	TX 118.000-136.992 RX IC-A25N 108.000-136.992 161.650-163.275 (Weather) IC-A25C 118.000-136.992 161.650-163.275 (Weather)	TX 118.000-136.992 RX IC-A25NE 108.000-136.992 IC-A25CE 118.000-136.992	TX 118.000-136.992 RX 108.000-136.992 161.650-163.275 (Weather)	TX 118.000-136.992 RX 118.000-136.992
Number of memory channels	300 channels (15 groups)		200 channels (10 groups)	
Channel spacing*1	25 kHz/8.33 kHz		25 kHz/8.33kHz	
Power supply requirements	7.2 V DC (BP-288) 11.0 V DC (External DC jack)		7.2 V DC (BP-280)	
Current drain	TX High: 1.8 A RX Stand-by: 90 mA typical (GPS, Bluetooth, Light:OFF) RX Max. audio: 500 mA		TX High: 1.8 A RX Stand-by: 65 mA typical RX Max. audio: 650 mA	
Dimensions*2 (WxHxD)	58.9 x 148.4 x 31.8 mm; 2.3 x 5.8 x 1.3 in		52.2 x 111.8 x 34.1 mm; 2.1 x 4.4 x 1.3 in	
Weight (approx.)	384 g; 13.6 oz (with BP-288 and ANT)		257 g; 9.1 oz (with BP-280)	
Operating temperature range	-10°C to +60°C; 14°F to +140°F		-10°C to +60°C; 14°F to +140°F	
Frequency stability	±0.4 kHz		±0.4 kHz	
Output power (PEP/carrier power)	6 W typical/1.8 W		6 W typical/1.8 W	
Microphone impedance	150 Ω		150 Ω	
Sensitivity (COM)	Less than 0 dBμ (at 6 dB S/N)		Less than 0 dBμ (at 6 dB S/N)	
Adjacent channel rejection	More than 60 dB		More than 60 dB	
Spurious response (COM)	More than 60 dB		More than 60 dB	
Audio output power (at 10% distortion)	1200 mW typical (Internal SP) 530 mW typical into an 8 Ω load (External SP)		1500 mW typical (Internal SP) More than 350 mW into an 8 Ω load (External SP)	

## PANEL MOUNT TRANSCEIVERS and MOBILE TRANSCEIVERS

	IC-A220 (TSO version)	IC-A220	IC-A210E	IC-A120	IC-A120E
TSO certification	✓	-	-	-	-
NAV/COM channels	COM	COM	COM	COM	COM
Intercom	✓	✓	✓	✓	✓
Automatic SQL	✓	✓	✓	✓	✓
Active Noise Canceling	-	-	-	✓	✓
Bluetooth®	-	-	-	✓(Use with UT-133A)	✓(Use with UT-133A)
IP rating	IP54	IP54	IP54	IP54	IP54
MIL-STD 810	✓(G)	✓(G)	✓(F)	✓(G)	✓(G)
Frequency range (unit: MHz)	TX 118.000-136.992 RX 108.000-136.992 161.650-163.275 (Weather)	TX 118.000-136.992 RX 108.000-136.992 161.650-163.275 (Weather)	TX 118.000-136.992 RX 118.000-136.992	TX 118.000-136.992 RX 118.000-136.992	TX 118.000-136.992 RX 118.000-136.992
Number of memory channels	20 channels (Regular)		10 channels (Regular)	200 channels	
Channel spacing*1	25 kHz/8.33 kHz		25 kHz/8.33 kHz	25 kHz/8.33 kHz	
Power supply requirements	13.8 V or 27.5 V DC (automatic selection)			13.75 V or 27.5 V DC (automatic selection)	
Current drain	TX High: 5.0 A maximum RX Stand-by: 500 mA RX Max. audio: 4.0 A			TX High: 5.0 A maximum RX Stand-by: 500 mA maximum RX Max. audio: 4.0 A maximum	
Dimensions*2 (WxHxD)	160 x 34 x 271 mm; 6.3 x 1.3 x 10.7 in		161 x 45 x 175 mm; 6.3 x 1.8 x 6.9 in	161 x 45 x 175 mm; 6.3 x 1.8 x 6.9 in	
Weight (approx.)	1.2 kg; 2.6 lb		1.0 kg; 2.2 lb	1.5 kg; 3.3 lb (main unit)	
Operating temperature range	-20°C to +55°C		-20°C to +55°C	-20°C to +55°C	
Frequency stability	±5 ppm		±1 ppm (0°C to +40°C)	±5 ppm (-30°C to +60°C)	
Carrier power	8.0 W		6.0 W (4.5-8 W)	9 W typical	
Microphone impedance	600Ω		600 Ω	600 Ω	
Sensitivity (COM)	-101 dBμ (at 6 dB S/N)		-101 dBμ (at 12 dB SINAD)	Less than 0 dBμ (at 6 dB S/N) Less than +5 dBμ (at 12 dB SINAD with CCITT)	
Selectivity	8.33 kHz: ±2.778/±7.37 kHz (6 dB/60 dB) 25 kHz: ±3/±22 kHz (6 dB/60 dB)		±2.8 kHz (6 dB) ±8.5 kHz (6 dB)	-	
Adjacent channel rejection	-		-	More than 60 dB	
Spurious response (COM)	74 dBμ		70 dB	74 dBμ 70 dB	
Audio output power (at 10% distortion)	5 W into a 4 Ω load (External SP) 60 mW into a 500 Ω load (Headphone)		1.5W typical (Internal SP) More than 10 W into an 8 Ω load (External SP) More than 100 mW into a 500 Ω load (Headphone)	-	

All stated specifications are subject to change without notice or obligation. \*1 Use of 8.33 kHz channel spacing may be prohibited in some countries. \*2 Projections are not included.

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# Aviation Radios

2019



# 6 W (PEP) Powerful Air Band Radio with Built-in GPS and Bluetooth® Capability

## VHF AIR BAND TRANSCEIVERS

### IC-A25N

NAV & COM channels for USA/EXP

### IC-A25C

COM channels for USA/EXP

### IC-A25NE

NAV & COM channels for EUR/AUS

### IC-A25CE

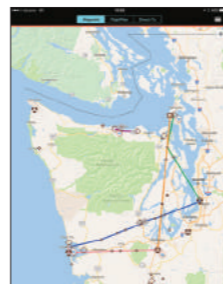
COM channels for EUR/AUS

#### General Features

- Class-leading 6 W typical (PEP) and 1.8 W typical (carrier) high power RF output
- Easy-to-use interface
- 2.3 inch large high-visibility LCD with night mode
- “Flip-Flop” channel recall
- Bluetooth® capability for hands-free operation (IC-A25N/NE)
- Intelligent battery with detailed battery status
- 25 kHz/8.33 kHz dual channel spacing

#### Navigation Functions (IC-A25N/NE)

- Built-in GPS with simplified waypoint NAV (Direct-To NAV and Flight Plan NAV)
- Flight plans with Android™ /iOS™ app RS-AERO1A/RS-AERO1I
- VOR navigation functions
- Near station search function



RS-AERO1I map screen example



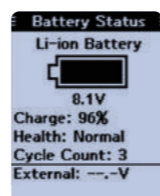
Waypoint NAV screen



VOR screen



Night mode screen



Detailed battery information screen

#### And more

- IP57 dust-protection and waterproof construction
- 2350 mAh typ. battery pack, BP-288 supplied
- BP-289 battery case supplied (depending on version)
- BNC antenna
- 121.5 MHz emergency key
- NOAA weather channels (IC-A25N/C)
- Priority watch
- VFO scan, memory channel scan and priority scan
- ANL (Auto Noise Limiter) for pulse-type noise reduction
- Side tone function enables you to hear your own voice through a third party aviation headset
- Built-in VOX capability
- 300 memory channels (in 15 memory groups) with 12 character names
- 8.33 kHz/25 kHz channel spacing (depending on version)
- External DC power jack
- Optional waterproof speaker microphone, HM-231

#### Supplied accessories: (\* Not supplied or may differ, depending on the radio version.)

- BP-288 battery pack
- BC-224 rapid charger\*
- OPC-2379 headset adapter\*
- MB-133 belt clip
- BP-289 battery case\*
- BC-123SA/SE/SV AC adapter for BC-224\*
- FA-B02AR antenna
- Hand strap



# Class Leading 1500 mW Powerful Audio with a Compact Body

## VHF AIR BAND TRANSCEIVERS

### IC-A16

For USA

### IC-A16E

For EUR

#### General Features

- 8.33 kHz and 25 kHz channel spacing
- 1500 mW loud audio provides clear communications
- 6 W (PEP) /1.8 W (carrier) RF output power
- Bluetooth® capability for Hands-Free operation\*  
\* Bluetooth® operation depends on the transceiver version.
- Large capacity battery pack provides 17 hours\* of long battery life  
\* With BP-280. Typical operation with TX : RX : Standby = 5:5:90. (Bluetooth® OFF, backlight OFF)
- Compact, waterproof and durable body (IP67/IP54 and MIL-STD-810-G)
- LCD and key backlight for night time operation
- Compatible\* with third-party aviation headsets  
\* Optional headset adapter OPC-2401 required.

#### And more

- Auto Noise Limiter (ANL) for noise reduction
- Side Tone function
- Internal VOX capability
- 200 memory channels with names up to 8 characters
- BNC type antenna connector
- VFO scan for all frequencies over the COM band and memory channel scan for tagged channels
- NOAA Weather channels (USA version only)
- Optional waterproof speaker microphone, HM-240
- Low battery indication
- 121.5 MHz emergency key
- Duplex function to call a flight service station while receiving on a VOR frequency (USA version only)



LCD and keypad backlight



IP67 waterproofing



1500 mW powerful audio

#### Supplied accessories: (\* Not supplied or may differ, depending on the radio version.)

- BP-280 battery pack
- BC-242 AC adapter for BC-213\*
- MB-133 belt clip
- BC-213 rapid charger\*
- FA-B02AR antenna
- Hand strap



## High-Quality Panel Mount Radio with TSO Certification



IC-A220 TSO version

### VHF AIR BAND TRANSCEIVER

## IC-A220

TSO version



#### And more

- 8.33 kHz/25 kHz channel spacing with the mixed selection function
- Remote control capability via the rear panel connector
- 9 V power supply operation
- 20 memory channels and 20 history memory channels
- Dualwatch and priority watch functions
- One touch access to 121.5 MHz emergency frequency
- Side tone function
- ANL (Automatic Noise Limiter) function reduces pulse type noise
- Time-out-timer
- D-SUB 25-pin connector and MIL-Spec M39029/63-368 compliant socket pins
- Two types of menu mode; settings menu and configuration menu
- Both 13.8 V and 27.5 V electrical systems compatible
- NOAA weather channel receive
- 8 W carrier power

\* For more details, see the Environmental Qualification Form at [www.icomamerica.com](http://www.icomamerica.com). The IC-A220 TSO version is manufactured and serviced by Icom America Inc. All repairs or adjustment information will be provided from Icom America. (<http://www.icomamerica.com>)

**Supplied accessory:** Mounting bracket kit

TSO certified to be used as a primary VHF radio in general aviation (Part 23) aircraft (Certified TSO C128a and C169a)

The IC-A220 TSO version is also accepted as an ETSO radio under the TSO/ETSO reciprocal acceptance policy

High visibility OLED (Organic Light Emitting Diode) screen

Easy channel selection with large “Flip-Flop” arrow button

Auto squelch function and quick squelch adjustment

Quick squelch adjustment with the Volume knob

Auto dimmer function and external dimmer control

Intercom function

## Stay Connected with Various Airport Systems



IC-A210E

### VHF AIR BAND TRANSCEIVER

## IC-A210E

For EUR

#### And more

- 8.33 kHz/25 kHz channel spacing with the mixed selection function
- Remote control capability via the rear panel connector
- 10 regular memory channels with a 6-character channel name
- 200 group memory channels (20 Chx10 banks) with a channel tag
- One touch access to 121.5 MHz emergency frequency
- Side tone function for monitoring your voice with headset
- ANL (Automatic Noise Limiter) function reduces pulse type noise
- Time-out-timer
- PC programming capability
- Squelch test function
- Dualwatch and priority watch functions
- Both 13.8 V and 27.5 V electrical systems compatible
- 6 W typ. carrier power
- Dial lock and panel lock

**Supplied accessories:** (\* Not supplied, depending on the radio version.)

- Mounting bracket kit
- MB-113 rear panel adapter\*

High visibility OLED (Organic Light Emitting Diode) screen

GPS memory function\* for transmitting frequency data of nearby airports \* External GPS receiver required.

Easy channel selection with large “Flip-Flop” arrow button

Auto dimmer function

Intercom function

Easy installation with two types of rear-panel adapters

## Ideal Communication Tool for Your Experimental/Light Sport Aircraft or Ground Use



IC-A220

### VHF AIR BAND TRANSCEIVER

## IC-A220

For USA

#### And more

- 8.33 kHz/25 kHz channel spacing with the mixed selection function
- Remote control capability through a rear panel connector
- 20 memory channels and 20 history memory channels
- Dualwatch and priority watch functions
- One touch access to 121.5 MHz emergency frequency
- Side tone function for monitoring your voice with a headset
- ANL (Automatic Noise Limiter) function reduces pulse type noise
- PC programming capability
- Dial lock and panel lock
- Time-out-timer
- D-SUB 25-pin connector and MIL-spec M39029/63-368 compliant socket pins
- Two types of menu mode; settings menu and configuration menu
- Both 13.8 V and 27.5 V electrical systems compatible
- NOAA weather channel receive
- 8 W carrier power

**Supplied accessory:** Mounting bracket kit

High visibility OLED (Organic Light Emitting Diode) screen

GPS memory function\* for transmitting frequency data of nearby airports \* External GPS receiver required.

Easy channel selection with large “Flip-Flop” arrow button

Auto squelch function and quick squelch adjustment

Auto dimmer function and external dimmer control

Intercom function

Optional PS-80 power supply for desktop use

## Enhanced Ground Crew Communications



IC-A120

### VHF AIR BAND TRANSCEIVERS

## IC-A120

For USA/EXP

## IC-A120E

For EUR

#### And more

- Dualwatch and priority scan functions
- Side tone function enables you to hear your own voice via a third party aviation headset
- A total of 200 memory channels with 12-character channel names
- Both 13.8 V and 27.5 V electrical system compatible
- 8.33 kHz and 25 kHz channel spacing (depending on version)
- 36 W (PEP) RF output power
- Power on password protection
- PC programming capability
- CI-V Commands for external control
- VE-PG4 RoIP gateway for interconnect with other radio devices
- Compliant with European E-marking for installation in vehicles (IC-A120E)

**Supplied accessories:**

- HM-216 hand microphone
- DC power cable
- Mounting bracket kit
- Microphone hanger kit
- Fuses

Full dot-matrix display, simple operation

Optional Bluetooth® headset connectivity

Active Noise Cancelling (ANC) for background noise reduction

IP54 dust-protection and water resistance

ON-hook scan function

Optional speaker-microphone, HM-217 with two programmable buttons

## OPTIONS FOR HANDHELD TRANSCEIVERS

MODEL NAME	BATTERY PACKS				BATTERY CASES	CHARGERS		MULTI-CHARGER	AC ADAPTER
	BP-288 Li-Ion: 7.2 V/2200 mAh (min.) 2350 mAh (typ.)	BP-278 Li-Ion: 7.2 V/1130 mAh (min.) 1190 mAh (typ.)	BP-279 Li-Ion: 7.2 V/1485 mAh (min.) 1570 mAh (typ.)	BP-280 Li-Ion: 7.2 V/2280 mAh (min.) 2400 mAh (typ.)	BP-289 LR6 (AA) x 6 cells	BC-224 Rapid charger	BC-213 Rapid charger	BC-214 Rapid multi-charger	BC-123S*2 12 V/1 A BC-242 12 V/1 A
IC-A25N/A25NE IC-A25C/A25CE	✓				✓	✓			✓ (Use BC-123S with BC-224)
IC-A16/A16E		✓	✓	✓			✓	✓*1	✓ (Use with BC-213)

\*1 AD-130 charger adapter is supplied with the BC-214, depending on the charger version.  
\*2 BC-123SA for USA plug. SE for Europe plug. SV for Australia plug. UK for UK plug.

MODEL NAME	AC ADAPTER	DC POWER CABLES		CIGARETTE LIGHTER CABLES		SPEAKER MICROPHONES		HEADSET ADAPTERS	Bluetooth® HEADSET
	BC-157S 12 V/7.5 A	OPC-515L	OPC-656	CP-20	CP-23L	HM-231 Waterproof	HM-240 Waterproof	OPC-2379 OPC-2401	VS-3 The side tone function is available.
IC-A25N/A25NE IC-A25C/A25CE				✓		✓		✓ (OPC-2379)	✓
IC-A16/A16E	✓ (Use with BC-214)	✓ (Use with BC-213)	✓ (Use with BC-214)		✓ (Use with BC-213)	✓	✓	✓ (OPC-2401)	✓*3

\*3 For the versions with built-in Bluetooth®.

MODEL NAME	BELT CLIP	LEATHER BELT HANGERS			CHARGER BRACKET	ANTENNA	APPLICATION	PROGRAMMING CABLES	PROGRAMMING SOFTWARE
	MB-133	MB-96F Fixed type	MB-96FL Long type	MB-96N Swivel type	MB-130	FA-B02AR	RS-AERO1A Android™ app RS-AERO1I iOS™ app	OPC-478UC USB type OPC-2144 Plug adapter cable	CS-A25 CS-A16 For Windows® PC
IC-A25N/A25NE IC-A25C/A25CE	✓	✓ (Use with MB-133)	✓ (Use with MB-133)	✓		✓	✓ (IC-A25N/A25NE)	✓ (OPC-478UC+OPC-2144)	✓ (CS-A25)
IC-A16/A16E	✓	✓ (Use with MB-133)	✓ (Use with MB-133)	✓	✓ (Use with BC-213)	✓		✓ (OPC-478UC)	✓ (CS-A16)

### RS-AERO1A/RS-AERO1I Flight Planning Software

(Free Download Android™/iOS™ Application from Google Play™/App Store)

Using the RS-AERO1A (Android™) or RS-AERO1I (iOS™) application, you can make flight plans on an Android/iOS device and import the plan into the IC-A25N/A25NE via Bluetooth®. The following four functions are available:

#### 1. Create a flight plan

You can make flight plans on an Android/iOS device by using preprogrammed waypoints.

#### 2. Set Direct-To NAV

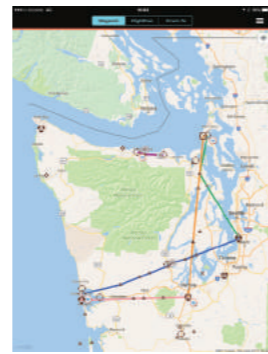
You can select a point on the map and export it to the IC-A25N/NE for Direct-To NAV.

#### 3. Display flight plan information

A flight plan in the IC-A25N/NE can be displayed on an Android/iOS device.

#### 4. Display waypoint information

Preprogrammed waypoints can be exported to an Android/iOS device and plotted on a map application.



RS-AERO1I map screen example  
©2017 Google-Map data /©2017 Google

## OPTIONS FOR PANEL MOUNT AND MOBILE TRANSCEIVERS

MODEL NAME	HAND MICROPHONES			Bluetooth® HEADSET	Bluetooth® UNIT	HEADSET ADAPTER	REAR PANEL ADAPTERS	
	HM-176 Same as supplied with PS-80 and MB-53.	HM-216	HM-217 Speaker-microphone	VS-3	UT-133A	OPC-871A	MBA-3 Card edge connector for use with PS-80.	MB-113 For D-sub 15-pin connection system
IC-A220 TSO version								
IC-A220	✓ (Use with PS-80/MB-53)							✓
IC-A210E	✓ (Use with MB-53)							✓
IC-A120/A120E		✓	✓	✓ (Use with UT-133A)	✓	✓		

MODEL NAME	EXTERNAL SPEAKER	MOUNTING BRACKET	DC POWER SUPPLY	RoIP GATEWAY	CONNECTION CABLE
	SP-35	MB-53	PS-80	VE-PG4	OPC-2275 For connection with VE-PG4. 5m; 16.4ft
IC-A220 TSO version					
IC-A220	✓	✓	✓		
IC-A210E		✓			
IC-A120/A120E				✓	✓

MODEL NAME	PROGRAMMING CABLES		PROGRAMMING SOFTWARE
	OPC-1529R RS-232 cable	OPC-478UC USB type OPC-592 Adapter cable	CS-A220 CS-A210 CS-A120 For Windows® PC
IC-A220 TSO version			
IC-A220	✓ (OPC-1529R)		✓ (CS-A220)
IC-A210E	✓ (OPC-1529R)		✓ (CS-A210)
IC-A120/A120E		✓ (OPC-478UC+OPC-592)	✓ (CS-A120)

✓ :Applicable    □ :Not applicable

Some options may not be available in some countries, or unavailable due to no T/A. Please ask your dealer for details.

## Icom GMDSS Radios

Icom's line-up of GMDSS radio communication equipment includes the GM800 MF/HF radio transceiver, GM600 VHF radio transceiver and the IC-GM1600E VHF radio for survival craft. All these radios comply with the EU Marine Equipment Directive (MED) to be carried and used on ships registered under the European Union.

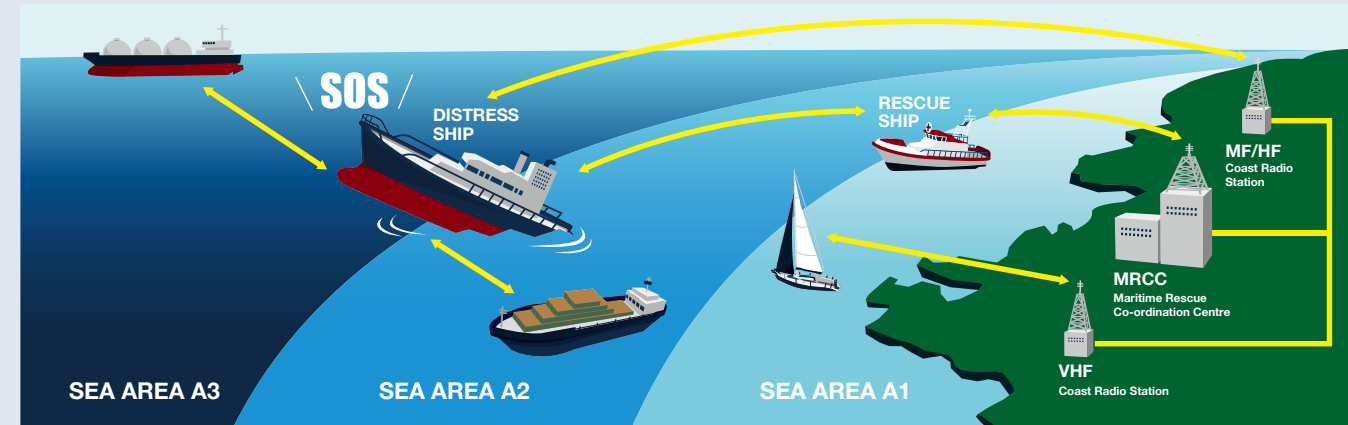


GMDSS MF/HF/VHF RADIO STATION

### Operating overview of GMDSS

The Global Maritime Distress and Safety System (GMDSS) is the International radio safety system for ships mandated by the International Maritime Organization (IMO). The GMDSS system provides automated distress alerting and distress communication service with location information.

Ships engaged in international shipping (SOLAS vessels) are obliged to carry GMDSS communication equipment. Also, most governments have specified use of selected GMDSS systems for their regulated domestic vessels and non-regulated vessels are permitted to use any GMDSS system.



### Required GMDSS Communication Radio equipment

Sea Area	Fixed mount radios	Portable radios	Other Equipment
A1: Within the coverage of VHF coast stations	VHF: GM600		
A2: Within the coverage of MF coast stations	VHF: GM600 MF: GM800	2-Way radio for survival craft: IC-GM1600E	• SART (Search and Rescue Transponder)
A3: Ocean areas within INMARSAT coverage. (Below 70 deg North Latitude and above 70 deg South Latitude)	HF: GM800 plus MF: GM800 VHF: GM600	2 sets for 300-500 GT cargo ships and 3 sets for all passenger ships and 500 GT or greater cargo ships are required.	• NAVTEX receiver • 406 MHz EPIRB • INMARSAT station
A4: Out of INMARSAT coverage area. (Polar regions)	GM600 (VHF DSC class A radio) 2 x GM800 (MF DSC class A radio and HF DSC class A radio)		

\* Level of requirements varies depending on model.

### Maintenance

Ships operating in Sea Area A1 or A2 must select at least one, and ships operating in Sea Area A3 and A4 must select at least two of the following methods of maintenance. Icom GMDSS radios offer an ideal duplication solution for replacement equipment.

- At sea maintenance
- Shore based maintenance
- Duplication of the following equipment
  - Sea Area A1 – a complete VHF radio station
  - Sea Area A2 – a complete VHF and MF radio station
  - Sea Area A3 – a complete VHF and, either MF/HF radio or INMARSAT station
  - Sea Area A4 – a complete VHF and MF/HF radio station

\* In some countries, required equipment may be different. Please ask your dealer for details.

## SPECIFICATIONS

### VHF MARINE TRANSCEIVERS

	IC-GM1600E	GM600
Frequency range (Unit: MHz)	Tx/Rx: 156.300-156.875	Tx: 156.025-161.600 Rx: 156.025-162.000 CH70: 156.525
Type of emission	16K0G3E (FM)	16K0G3E (FM), 16K0G2B (DSC)
Power supply requirement	7.2 V DC	24 V DC (21.6-31.2 V)*1 12 V DC (10.8-15.6 V)*2 (negative ground)
Dimensions (projection not included; WxHxD)	65 x 145 x 44 mm	274 x 114 x 121.5 mm
Weight (approx.)	385 g (With BP-234)	1.6 kg
RF output power	2 W/1 W	25 W/1 W
Current <sup>3</sup> drain	Transmit (Max. power) 1.0 A/0.7 A (2 W/1 W) Receive (Max. audio) 200 mA typical	3.3 A** 2.0 A**
Sensitivity	Main (20 dB SINAD) -2 dBμ emf typical DSC (1% BER) -	-7 dBμ emf typical -7 dBμ emf typical
Intermodulation	Main 68 dB DSC (1% BER) -	More than 75 dB 73 dBμ emf
Audio output power	External SP - Internal SP 200 mW (8 Ω load)	10 W (4 Ω load) 2 W
IEC 61162-1 in/out format	Input - Output -	RMC, GGA, GNS, GLL, VTG DSC, DSE

\* With PS-310 (#01). \*\* With PS-310 (#02). \*\* Approximately. Measurements made in accordance with IEC61097-12 for IC-GM1600E, EN301 925 for GM600.

### MF/HF MARINE TRANSCEIVER

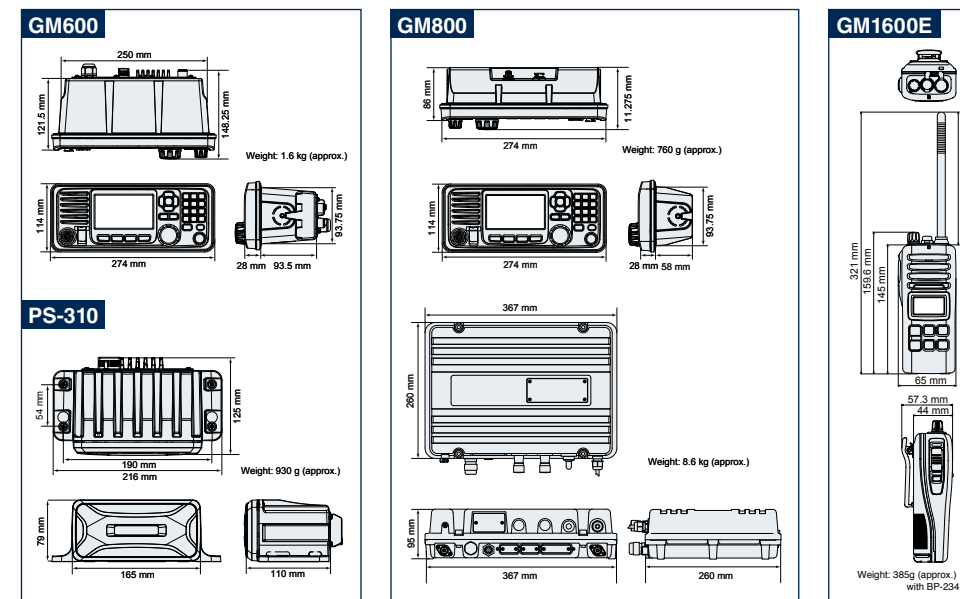
	GM800
Frequency range (Unit: MHz)	Tx: 1.6-27.5000 (ITU marine channels) Rx: 0.5-29.9999 (continuously) DSC: 2.1875, 4.2075, 6.3120, 8.4145, 12.5770, 16.8045 J3E (USB/LSB**), H3E** (AM), J2B** (AFSK), F1B (FSK), A1A** (CW) F1B
Type of emission	Tx/Rx DSC
Power supply requirement	24 V DC (21.6-31.2 V) (floating ground)
Dimensions (projection not included; WxHxD)	Main unit 367 x 95 x 260 mm Controller 274 x 114 x 86 mm
Weight (approximately)	Main unit 8.6 kg Controller 760 g
RF output power	125 W (4.0-27.5 MHz) (tuner-output) 85 W (1.6-3.999 MHz) (tuner-output)
Current drain	Transmit (Max. power) Less than 20 A (at 1.1 kHz and 1.7 kHz two tones) Receive (Max. audio) Less than 3.0 A
Sensitivity	J3E, A1A (20 dB SINAD) 30 dBμV emf (0.5-1.599 MHz) 16 dBμV emf (1.6-3.999 MHz) 11 dBμV emf (4.0-29.999 MHz) J2B, F1B (1% error rate) 3 dBμV emf (1.6-2.099 MHz) 0 dBμV emf (2.1-27.500 MHz) H3E (20 dB SINAD) 44 dBμV emf (0.5-1.599 MHz) 30 dBμV emf (1.6-3.999 MHz) DSC (J2B) (1% error rate) 0 dBμV emf
Audio output power	External SP 4 W with 4 Ω load Internal SP 2 W with 8 Ω load
IEC 61162-1 in/out format	Input GGA, GNS, GLL, RMC, FSI Output FSI, DSC, DSE

\*\* Receive only. Measurements made in accordance with EN300 373-1 for GM800.

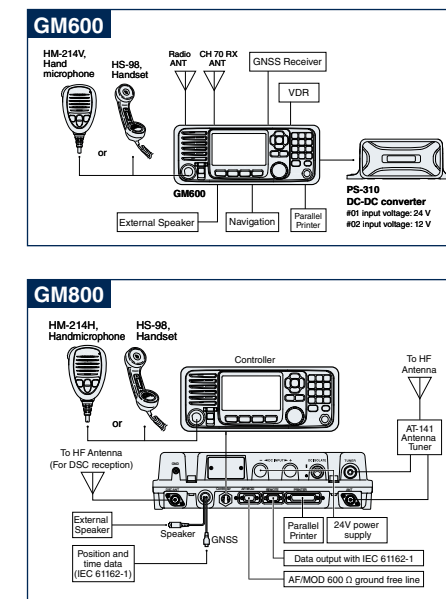
### Supplied accessories

- IC-GM1600E:
  - BP-252\* battery pack
  - BC-173\* battery charger
  - BC-147\*\* AC adapter
  - MB-103Y belt clip
  - FA-S61V antenna (fixed)
  - Neck strap
  - \* Depending on version.
- GM600:
  - HM-214V hand microphone
  - DC power cable
  - Mounting bracket kit
- GM800:
  - HS-98 handset
  - Mounting bracket kit

### DIMENSIONS



### INTERCONNECTION DIAGRAM



## GMDSS Radios



All standard specifications are subjected to change without notice or obligation.

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# VHF VHF MARINE TRANSCEIVER GM600



# MF/HF MF/HF MARINE TRANSCEIVER GM800



# VHF SURVIVAL CRAFT 2-WAY RADIO IC-GM1600E



## GMDSS Portable for Survival Craft

### Simple to Use Survival Craft Radio

The IC-GM1600E Marine VHF handheld has been designed for GMDSS compliant survival craft communications. The radio is engineered to survive and function in the extreme environmental conditions common in marine emergencies. Using this simple to use radio, and operator can transmit a distress call without hesitation in an emergency. Simple operating instructions are attached to the back of the radio.

### Meets Strict Environmental Requirements

The IC-GM1600E meets temperature, thermal shock, vibration and drop resistance (from 1 m height) requirements. After passing those environmental tests, the IC-GM1600E retains 1 m depth waterproof construction as specified by IMO resolutions A.694 (17), MSC149 (77) and related specifications.

### Optional Battery with Superior Low Temperature Characteristics

The optional high capacity primary Lithium battery, BP-234, provides more than 8 hours operating time even at -20°C. The BP-234 can be stored for five years. (Duty cycle: Tx: Rx: Stand-by = 6: 6: 48)

### Large Keypad with Positive Button Action

Clearly labeled large buttons and positive button action allows for operation in all conditions, even when wearing heavy gloves. The transparent buttons are printed from behind (not on top), so the operating label on the keypad will never be erased under hard use over many years.

### Wide Viewing Angle, High Intensity LCD

A wide viewing angle, high intensity LCD offers bright and easy to read characters. The bright LCD indicator on top of the front panel shows the operating status clearly.

## The Latest GMDSS Functionality in a Very User-Friendly Package

### Satisfies SOLAS Carriage Requirements

The GM600 and GM800 meet the GMDSS (Global Maritime Distress and Safety System) VHF and MF/HF radio requirements as required for SOLAS regulated commercial vessels engaging in international voyage. Both radios meet the MED, "wheel mark" requirements for European merchant ships.

### Meets Strict Environmental Requirements

The GM600 and GM800 meet the Marine Equipment Directive on European marine equipment requirements and have passed rigorous environmental testing and quality assurance processes. These radios are designed to provide reliable operation and long-lasting durability under harsh maritime environments. In fact, the front panel of the GM600 has IPX7\* protection (1 m depth of water for 30 minutes) and the rear panel has corrosion resistance coating.

\* GM800: IPX7 waterproofing for controller.



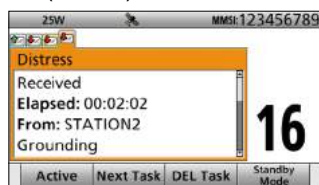
The rear panel is covered with thermosetting resin coating to resist corrosion.

\* Photo shows the GM600.

### Meets ITU-R M.493-13 DSC

#### GM600

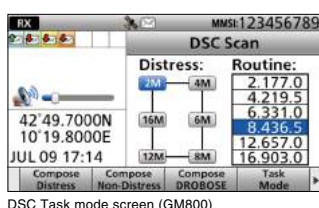
The built-in DSC provides automated distress and safety communication. The dedicated DSC receiver continuously monitors the DSC calling channel (CH 70). The DSC Multi-task mode provides straight-forward DSC operation. In this mode, the operating channel is shown at the right side of the display.



DSC Task mode screen (GM600)

#### GM800

The dedicated DSC watch-keeping receiver continuously scans the six distress channels in rotation. A total of 100 MMSI members for DSC calls can be stored with a 10-character ID name. The DSC Multi-task function shows up to seven DSC procedures. The GM800 is also capable of sending a distress relay call.



DSC Scan screen (GM800)

### 4.3 inch Wide Viewing Angle Colour Display

The 4.3 inch colour TFT LCD provides almost 180 degree wide viewing angle and displays high resolution characters and function icons. Even when the radio is installed to the instrument panel, the operator can clearly recognize the display information from various viewing angles. The night mode display ensures good readability in low light conditions.



Menu screen

Night mode screen (GM600)

### Provides Loud, Clear Audio

By adopting a new waterproof paper speaker cone, the speaker provides superior sound quality and a flat frequency response with a wide frequency range. In addition, the radio delivers a powerful 10 W (GM600)\* audio when connected to an external speaker.

\*GM800 delivers 4 W audio.

### Unified Design User Interface

The GM600 (VHF) and GM800 (MF/HF) have a unified design and offer consistent operation. A combination of the directional keypad and soft keys provides simple operation. Most used functions are assigned to soft keys (at the bottom of the display) for quick one push function access. The large ten-key pad enables you to smoothly enter channel numbers, MMSI numbers with ID names and so on.

### Other Features

- Remote Distress alarm
- Printer connector (Centronics IEEE1284)
- IEC 61162-1 interface for GNSS receiver
- 125 W\* (PEP) output power (tuner-output, GM800) \* 85 W (PEP) 1.6-3.999 MHz
- Built-in 24 V DC-DC converter (GM800)



### OPTIONS for GM600

#### DC-DC CONVERTER

**PS-310**  
Provides stable 12.6 V DC output from 12 V or 24 V DC input, depending on version.

Please Note: PS-310 MUST BE USED with GM600 for MED certification compliance.

#### HANDSET

**HS-98 (#16)**  
Comes in handy for listening privacy on board.

#### HAND MICROPHONE

**HM-214V**  
IPX7 waterproof. Same as supplied.

### OPTIONS for GM800

#### AUTOMATIC ANTENNA TUNER

##### IP56

**AT-141 (#45)**  
45 frequency memories for shorter tuning time.  
Please Note: AT-141 MUST BE USED with GM800 for MED certification compliance.

#### MOUNTING BRACKET

##### MB-108

(Photo shows installation example.)

#### HANDSET

##### HS-98 (#17)

Comes in handy for listening privacy on board.

#### HAND MICROPHONE

##### HM-214H

IPX7 waterproof.

#### EXTERNAL SPEAKER

##### SP-24E (#18)

Input impedance: 4 Ω. Maximum input power: 7 W.

#### SHIELDED CONTROL CABLE

##### OPC-1465

10 m; 32.8 ft cable. Use with AT-141.

### OPTIONS for IC-GM1600E

#### LITHIUM BATTERY PACK <For survival craft>

##### BP-234

9.0 V/3300 mAh primary battery pack for GMDSS survival craft radio.

Please Note: BP-234 MUST BE USED with IC-GM1600E for GMDSS requirement.

#### RECHARGEABLE Li-Ion BATTERY PACK <For on-board use>

##### BP-252

7.4 V/940 mAh (min), 980 mAh (typ.). Same as supplied with some versions.

#### REGULAR CHARGER <For on-board use>

##### BC-173

Regularly charges the battery pack, BP-252 in 10 hours (approx.).

#### BELT CLIP

##### BC-1475E

##### MB-103Y

# ICOM IDAS

DIGITAL RADIO COMMUNICATIONS



  
**ICOM**

**IDAS**  
ICOM DIGITAL ADVANCED SYSTEM



## ICOM UK LTD

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Based in Kent and formed in 1974, Icom UK supplies the business, maritime, aviation and Amateur radio market places with high quality two way radio communication products and solutions throughout the UK and Southern Ireland..

## ICOM

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Icom is a global leader in the communications industry. The company prides itself on their products which are renowned for their high quality, innovation, reliability, and design. With over 50 years' experience, Icom ensures that their products are delivered with excellence in design and technical capability.

Icom has an extensive range of products that are designed to withstand the most rugged and extreme conditions. Products include base-station, mobile and handheld units covering many frequency bands.





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# IDAS

IDAS is Icom's digital land mobile radio system. IDAS offers a complete range of handheld radios, mobile radios, repeaters, network interface/trunking controller, remote communicator, system manager software and various accessories. IDAS is a complete digital solution that system owners or operators can grow into as time and budgets allow.

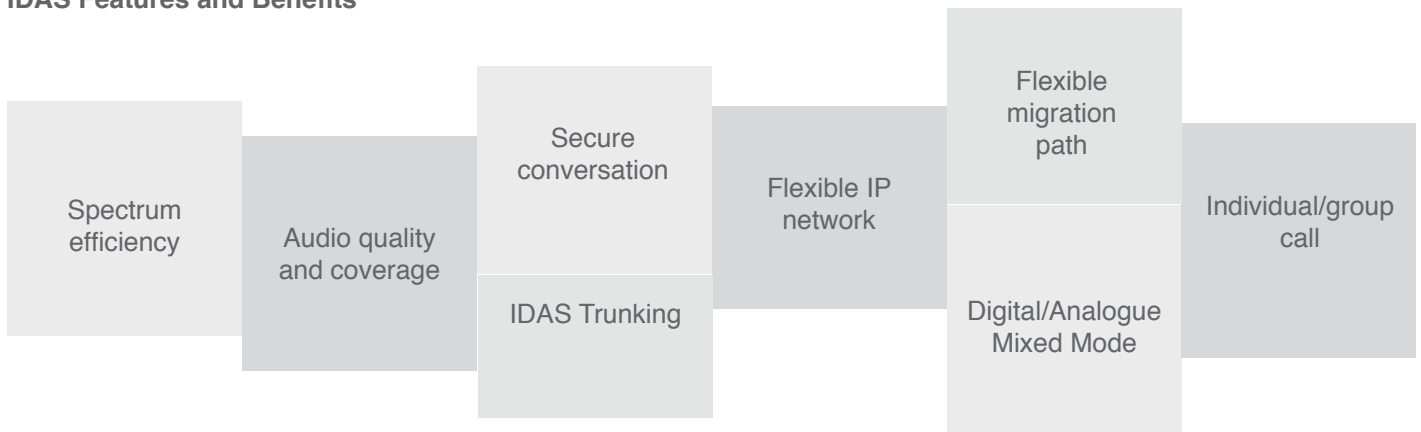
IDAS is designed to make digital migration as seamless as possible. Just put in the infrastructure and add the digital radios as your needs and budget allow. IDAS radios can operate in dual analogue/digital mode so communications are not lost between your current radios and your IDAS radios as you migrate.

Icom's range of IDAS radio products cover many applications and are versatile enough to provide a complete communications solution for both industry and business use. IDAS products are also keeping up with current industry trends, including innovations such as digital technology, secure encryption, trunking capability and IP connectivity.

IDAS digital equipment offers superb audio clarity, excellent communication range, and being true narrowband digital, allows a more efficient use of radio spectrum. No matter if you are looking for a simple back to back radio solution to a complex Multi-site digital system, you can rely on the range of IDAS digital radio products.



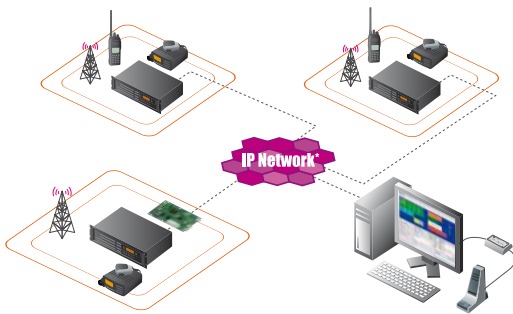
## IDAS Features and Benefits





IDAS is a digital radio system that provides both small and large organisations with a radio solution at a reasonable cost. IDAS features all the simplicity of two way radio and can be expanded to a large-scale system with multiple trunked base stations covering a large geographical area.

## IDAS RADIO NETWORK WITH UP TO 16 RADIO SITES



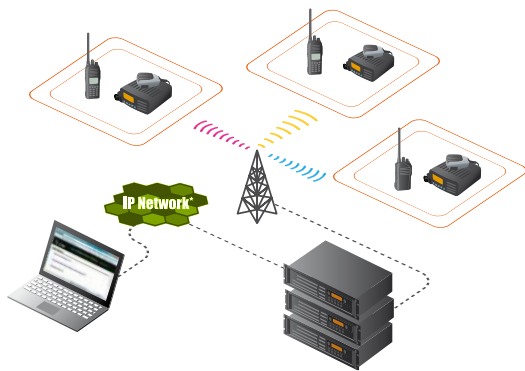
### IP-based IDAS radio system

An IDAS multi-site system connected by an IP network provides wide geographic coverage at a reasonable cost. This coverage is achieved by connecting repeaters across great distances over an IP network.

### Area of use

Suitable for users who need a simple system with a good geographical range. Suitable for businesses with multiple offices, councils, taxi operators, hotel and supermarket chains.

## IDAS RADIO NETWORK WITH UP TO 30 RADIO SITES



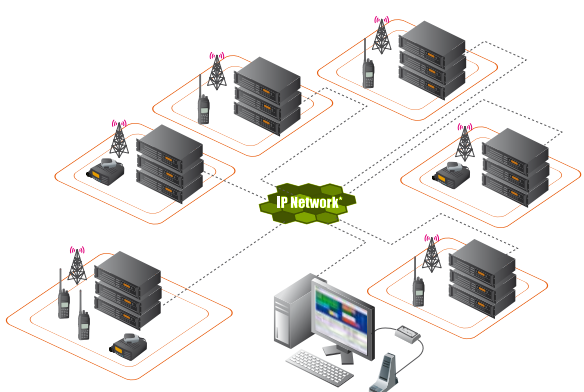
### IDAS trunked radio system

An IDAS trunked radio system provides business customers with a user-friendly and efficient radio system. You will automatically be assigned a channel from the system without having to make an active call. You can also incorporate multiple independent groups on the same system.

### Area of use

Perfect system for many users in a small geographic area. Can also be used when multiple user groups or business want to share a system. Potential users can be industrial plants, taxi operators or sports arenas/stadia.

## IDAS MULTISITE TRUNKED RADIO SYSTEM WITH UP TO 48 LOCATIONS AND 60,000 USERS



### IDAS multi-site trunked radio system

A multisite trunked radio system is an efficient and powerful system where you can customize each location for the amount of traffic and users you have in each location. The system can handle up to 60,000 users over 48 radio sites making it powerful enough for most large organisations.

### Area of use

With features such as roaming and priority in the system, most requirements for flexibility and security are met. Suitable for transport companies, major industrial companies, public service organisations.



### RS-MGR1

The RS-MGR1 system manager software allows you to obtain air time information, network connectivity/statistics and hardware status of the IDAS multi-site trunking repeater sites using syslog messages. The RS-MGR1 stores received syslog messages and reports/analyses them to assist in system administration and troubleshooting

# F3400D-series

The IC-F3400D series is the evolution in Icom's two way digital business handportable range. This new radio series incorporates cutting edge design, superb performance and a comprehensive range of features including built-in GPS and Bluetooth, 'Active Noise Cancelling' technology, digital voice playback and an USB port for easy programming and data transfer. Available in three versions for VHF and UHF each radio features a high-resolution colour LCD in a compact, waterproof body.

A flexible communication solution, suitable for any organisation's needs!



IC-F3400D (VHF)  
IC-F4400D (UHF)



IC-F3400DS (VHF)  
IC-F4400DS (UHF)



IC-F3400DT (VHF)  
IC-F4400DT (UHF)



### IC-F3400D Series, 6 versions available

The IC-F3400D series is available in VHF and UHF in three different formats to suit different customer requirements.

They are:

- No display – **IC-F3400D** (VHF) /**IC-F4400D** (UHF)
- Display with simple keypad – **IC-F3400DS** (VHF) /**IC-F4400DS** (UHF)
- Display with full numeric keypad – **IC-F3400DT** (VHF) /**IC-F4400DT** (UHF)

### High-Resolution Colour LCD

The high-resolution trans-reflective colour LCD provides great visibility in both natural and indoor lighting. Functions and menu items are clear. A night mode LCD setting is available for use at night or in low lighting conditions.



### ANC (Active Noise Cancelling) Technology

The ANC assists in providing clear communication, cancelling out undesired background noise.

### Small, Slim, Compact Body

New engineering techniques including the use of a custom SoC (System-on-a-Chip) and flat sheet keypad have made the radio's body as compact as possible. The slim dimensions together with reduced power consumption, allow for a thinner battery pack.

### Built-in GPS Receiver

Position data can be sent with 'voice call' or 'status call' and can also be used with an AVL (Automatic Vehicle Location) system. The GPS log functions logs user position data at regular intervals and can be saved to a microSD card. The radios can show direction and distance to another radio or specified point and can notify you with a beep sound if the target is in the specified range.

### Digital Voice Recording

IC-F3400D series can record incoming and outgoing communications, and replay recorded communications. When a 32 GB microSD\* card is used, a maximum of 500 recording hours is possible. The recorded audio is saved in "wav" format, allowing it to be replayed on the radio or a PC.



\* MicroSD card is required separately.

### Waterproof, Dust-tight with AquaQuake™ Function

The handheld radios in this range are IP68 waterproof and dust-tight protection. They also incorporate an AquaQuake draining function which dispels water by emitting a vibrating buzz sound.

### Motion/Stationary Detection Sensors

An emergency button and five emergency-related functions are incorporated (man down, motion detection, stationary detection, lone worker and power OFF emergency functions). The motion/stationary sensor sensitivity level is programmable in 10 levels for each function.

### Built-in Bluetooth®

The built-in Bluetooth module provides remote operation and hands-free communication when paired with a third-party Bluetooth headset\*. When connected with Bluetooth telemetric devices or PC terminals, data files can be wirelessly transferred.

\* Available functions depend on paired Bluetooth devices.

### Trunking Upgrade\*

The IC-F3400D series is compatible with IDAS digital conventional mode and analogue FM mode with auto-sensing function. The radios can be upgraded to NXDN Type-D multi-site trunking mode with a license key.

\* Requires licence key upgrade

### Vibration Alert

When a call from a specific user is received, the hand-held radio will vibrate enough to be felt through heavy clothing. Vibration patterns are programmable.

### Voice Announcement

The radios can notify channel number, zone and channel type with a voice announcement. This function is convenient for making radio adjustments without having to look at the radio.

### OTAP and OAA\*

For efficient radio programming, the OTAP (Over-the-Air-Programming) function allows remote change of programming data (for example adding a new repeater) over the radio channel. The OAA (Over-the-Air-Alias) function sends user name over the radio channel and eliminates the need to program the alias table.

\* Requires licence key upgrade

### DES/AES Encryption with OTAR\*

For added digital communication security, the radios provide basic 4-key DES encryption as standard. When used with the optional UT-134 encryption unit the 256-bit AES encryption and OTAR function are available. The OTAR function allows updating of encryption keys over the radio channel.

\* Requires licence key upgrade

### Transparent Data Modem Facility

The radios can be used as a transparent data modem and can transmit various data at 9600 bps over the radio channel using 12.5 kHz channel spacing.

### License Key Upgrade

The radios functions and protocols can be upgraded and customised to meet specific needs with various license key options.

### USB Port for PC Connection

The radios can be connected to a PC through a USB port for programming and access the installed microSD card in mass storage mode.

### Audio Equalizer

The Audio equalizer allows you to tailor the audio tone to suit speech characteristics. Five types of tone controls are available (flat, high boost, middle boost, low boost and low cut). The audio auto gain control function controls the speech audio to a constant, regardless of the input magnitudes of the voice or distance of the microphone from the mouth.

### Multiple Languages

Functions and menu items can be shown in local languages including English, French, German, Spanish, Russian and Simplified Chinese fonts. In addition, voice announcements can be recorded and changed for output in these languages.

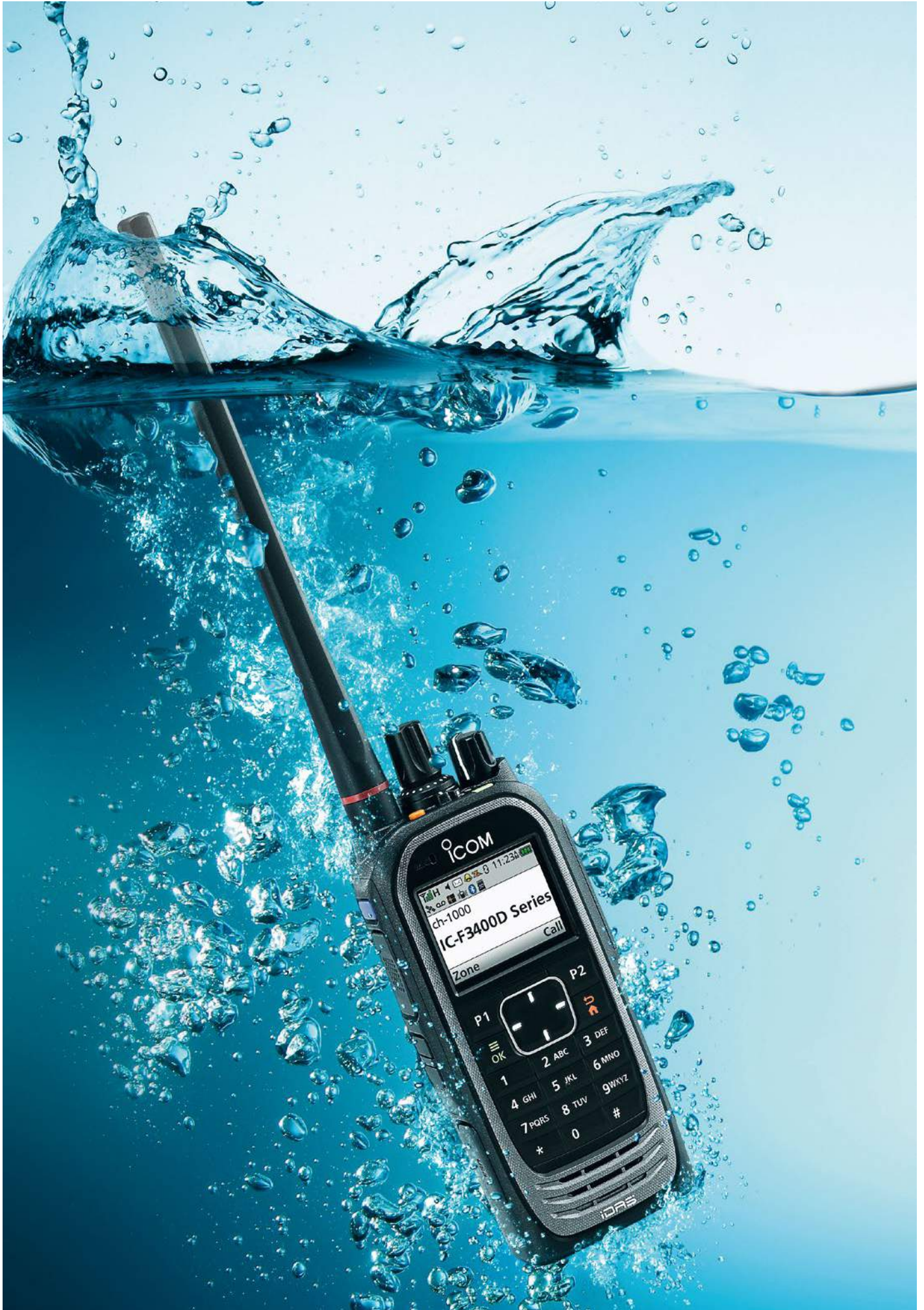


### OTHER FEATURES

- 136–174 MHz, 380–470 MHz wide frequency coverage
- 1024 memory channels with 128 zones
- 32 memory channels (IC-F3400D series only)
- MIL-STD rugged construction
- 14-pin ACC connector with BTL amplifier output
- VOX (Voice Operated transmission) function
- Internal clock
- High-speed scanning for voting and multi-site operation
- Tactical group function for temporary regroup user groups with optional zone copy cable
- Normal, priority and voting scan

### IDAS™ FEATURES

- IDAS conventional and multi-site conventional
- Type-D single-site trunking and multi-site trunking\*
- 6.25 kHz & 12.5 kHz channel spacing
- Analogue/Digital conventional mixed mode operation
- Status
- Text message
- Call alert
- Radio check
- Radio Stun/Revive/Kill
- Remote monitor



# ACCESSORIES

## ANTENNAS



**FA-S81U**  
UHF-antenna  
(SMA-P)  
380-430 MHz



**FA-S82U**  
UHF-antenna  
(SMA-P)  
430-480 MHz



**FA-S81US Stubby**  
UHF-antenna  
(SMA-P)  
400-450 MHz



**FA-S82US Stubby**  
UHF-antenna  
(SMA-P)  
450-490 MHz



**FA-S81VS Stubby**  
VHF-antenna  
(SMA-P)  
136-150 MHz



**FA-S82VS Stubby**  
VHF-antenna  
(SMA-P)  
148-160 MHz



**FA-S83VS Stubby**  
VHF-antenna  
(SMA-P)  
160-174 MHz



**FA-S81V**  
VHF-antenna  
(SMA-P)  
136-150 MHz



**FA-S82V**  
VHF-antenna  
(SMA-P)  
148-160 MHz



**FA-S83V**  
VHF-antenna  
(SMA-P)  
160-174 MHz



## HOLDERS



**Active Holder**  
Charge via  
cigarette lighter



**MB-F3400/F4400**  
Passive mobile  
holder

## BATTERIES



**BP-283**  
Li-Ion battery 7,2V  
2000mAh, 10h



**BP-284**  
Li-Ion battery 7,2V  
3000mAh, 16h

## CHARGERS



**BC-219SE**  
Rapid charger



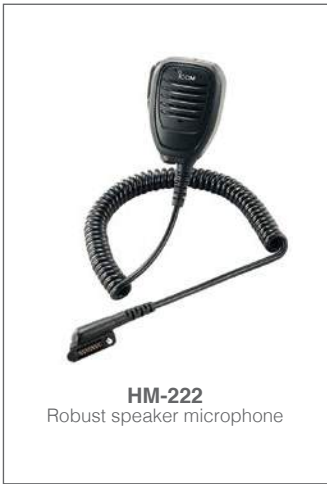
**BC-214**  
6-Multi-charger



**AD-132**  
Charger adapter



# MICROPHONES

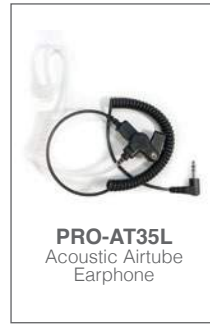


**HM-222**  
Robust speaker microphone

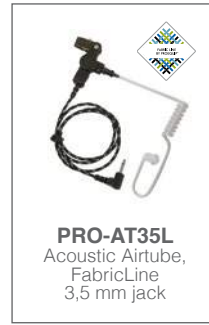


**PRO-SP485 SA**  
Compact speaker microphone with alarm button, 3.5mm jack

# EARPHONE



**PRO-AT35L**  
Acoustic Airtube Earphone



**PRO-AT35L**  
Acoustic Airtube, FabricLine 3,5 mm jack



**PRO-C30L**  
C-shell, 30 cm cable, 3,5 mm

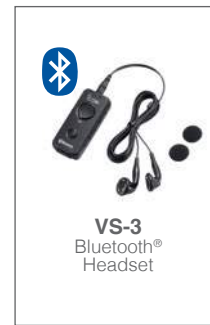


**PRO-C50L**  
C-shell, 50 cm cable, 3,5 mm

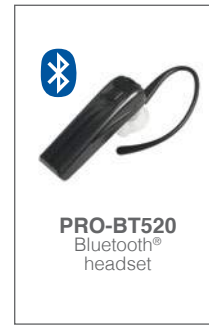


**PRO-D30L**  
D-shell, 30 cm cable, 3,5 mm

# HEADSETS



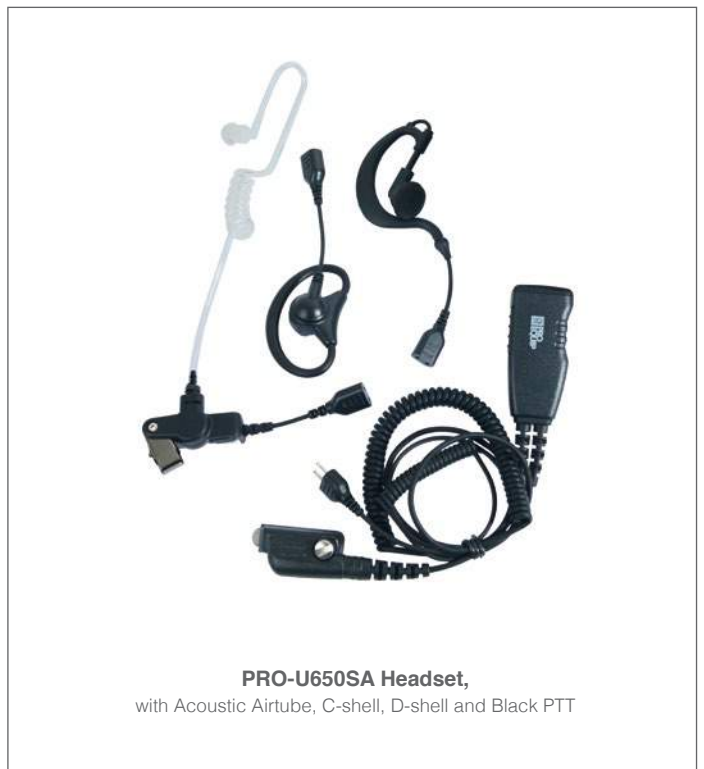
**VS-3**  
Bluetooth® Headset



**PRO-BT520**  
Bluetooth® headset



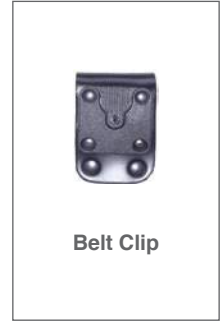
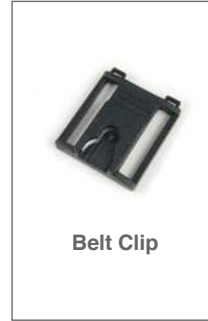
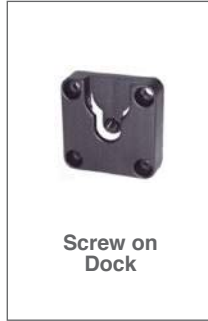
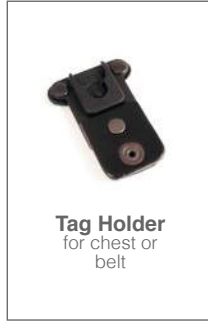
**PRO-P280 SA**  
2-wire noise canceling MIC/PTT with acoustic airtube



**PRO-U650SA Headset,**  
with Acoustic Airtube, C-shell, D-shell and Black PTT

# KLICK FAST SYSTEM

The Klick Fast System allows users the option of carrying their radios in various ways utilising an innovative slim, durable connector. Simply sliding the connector into any Klick Fast dock locks it securely in place.



# CASES



# BELT CLIPS





# UNIVERSAL KIT – BUILD YOUR OWN SOLUTION

## 1 Your radio

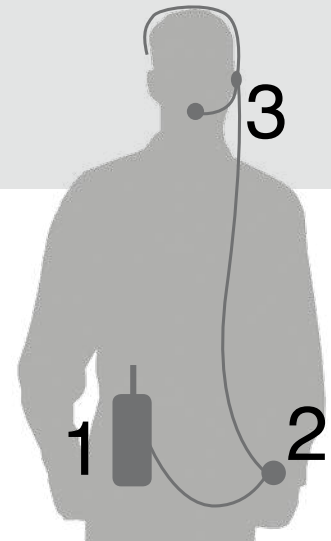
With the universal solutions connected to your radio, you can select the headset solution you want to use.

## 2 Select PTT Solution

Choose from different PTT solutions. Do you want a rugged PTT/box or a wireless PTT adapter for extra flexibility.

## 3 Select Headset Solution (2.5mm 3-pin socket)

Choose from a variety of compatible audio accessories. The flexibility of the system allows you to have different solutions depending on the job you are doing.



**1-WIRE Adapter**  
2G, 2.5 mm, 2x wireless PTT



**HS-94**  
Earhook type headset



**HS-95**  
Behind the head type headset



**HS-97**  
Throat type headset



**Temco EM20**  
Ear mic and speaker



**PRO PTT BOX**  
PTT switch (high/low)



**PRO Bone 25L**  
Ear microphone. Mic and speaker



**ComCom**  
Lightweight headset



**PRO-Surveillance**  
Headset with mic



**PRO-Surveillance**  
headset C-shell



**VS-4 MC**  
SAVOX & PTT unit



**PRO-GSM style**  
Stereo Headset



**Stereoheadset**  
iPhone5-type, 25 mm contact



**PRO-LWO 25L**  
Headset with speaker



**PRO-LWB 25L**  
Lightweight headset

# NEXUS-SYSTEM 4-POLE PELTOR STANDARD

A robust solution for users in demanding industries. The Nexus 4 pole system has now become an established industry-standard in Europe, becoming popular because of its simplicity and robust build.















# HIROSE-SYSTEM 12-POLE

Robust solution for users who want the ability to change accessories. The Hirose adapter system is easy to attach to the radio. Once in place, you can easily connect and disconnect its accessories.



# OTHER

 <p><b>UT-134</b> AES/DES Encryption unit</p>	 <p><b>OPC-2362</b> Zone cloning cable</p>	 <p><b>OPC-2338</b> Programming cable</p>	 <p><b>Air Tube</b> with plug bayonet</p>	 <p><b>Plug for Air Tube</b></p>	 <p><b>Earplug 1+1</b> Acoustic airtube</p>
 <p><b>Open ear insert</b> 3-pack, left</p>	 <p><b>Open ear insert</b> 3-pack, right</p>	 <p><b>Earfly insert</b> 3-pack, left</p>	 <p><b>Earfly insert</b> 3-pack, right</p>	 <p><b>Phonak eShell</b> Left or right ear</p>	 <p><b>Generic Earbuds</b> Phonak, Silicone</p>



# SOFTWARE/LICENCE



CS-F3400 Programming software
CS-KLD1 Encryption key
SC-OTPM1 OTAP Software manager
AES license
OTAR license
IDAS NXDN Trunking upgrade Type-D single site
IDAS NXDN Trunking upgrade Type-D multi site
Memory channel expansion (4000ch) license

# F1000D-series

The IC-F1000D series is a range of compact, waterproof digital two way radios from Icom. Available in both VHF and UHF, the radios provide intelligent emergency functions and loud audio in a slim, waterproof chassis. The IC-F1000D series features make it ideal for a diverse range of business users including those in the manufacturing, facilities, security, retail and the hospitality markets.

## IP67 Waterproof and Dust-tight Protection

The IC-F1000D/F2000D has a compact 52.2x111.8x30.3mm body and weighs only 260g (with BP-280 battery pack and belt clip). The IC-F1000D/F2000D has an extremely rugged construction providing superior protection against water (1m depth for 30 minutes), dust, sand, mud and other objects. The radio is also tested to MIL-STD 810 specifications and is designed to withstand harsh use.

## IDAS 6.25kHz Digital Operation

The IC-F1000D/F2000D operates in conventional digital, Type-D single site trunking as well as analogue mode and provides an uncomplicated mixed mode migration path for business. The NXDN protocol offers 6.25kHz spectrum efficiency, higher security and better audio clarity – even on the fringes of the communication range.

The following IDAS features are programmable:

- PTT ID (TX)
- Individual/group calls
- Radio check (RX)
- Stun/Kill/Revive (RX)
- Remote monitor (RX)
- Emergency (TX)
- Call alert (RX)
- Digital voice scrambler (15-bit)
- Status Call (Power ON/OFF status and GPS request)
- Voting scan for multi-site conventional operation

## Built in motion detection, man down and lone worker functions

To assist worker safety, the IC-F1000D/F2000D has three emergency related functions: motion detection, man down and lone worker functions. If one of these functions is activated, the transceiver automatically enters an emergency phase and starts counting down to send an emergency signal. The built-in motion sensor detects position, state of motion and non-motion.

## Long Lasting Battery Pack

The large capacity waterproof battery pack, BP-280 (2400mAh typ.), provides 18 hours of operating time\*. The supplied rapid charger BC-213\* charges the BP-280 in 3.5 hours.

*\* Tx: Rx: Standby=5:5:90. Power save function ON. BC-213 may be not supplied depending on version.*

## Easy to Hear in a Noisy Environment

The large 36mm speaker of the transceiver provides clear 800mW\* audio. The built-in BTL amplifier increases the audio output power and delivers loud and intelligible voice to a radio operator working in noisy environments.

*\* Typical with internal speaker.*

## Built-in 5-Tone (Analogue mode)

The IC-F1000D/F2000D has built-in 5-Tone, CTCSS and DTCS signalling capability for analogue mode group communication and selective calling. The IC-F1000D/F2000D can be used as an analogue transceiver ready for future digital migration.

## Optional GPS Speaker-Microphone

With the optional HM-171GPW GPS speaker-microphone, GPS position data can be attached to a voice or data transmission such as responding to a GPS request status call.

## OTHER FEATURES

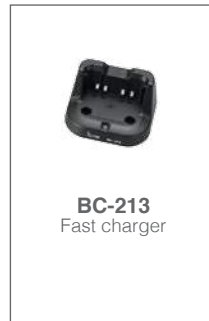
- DTMF autodial memories
- MDC functions: PTT ID, emergency call, radio check (RX) and stun/revive (RX)
- BIIS PTT ID call
- Surveillance function
- Escalating alarm
- VOX capability for hands-free operation
- Channel announcement function
- Red emergency switch on the top panel

# ACCESSORIES

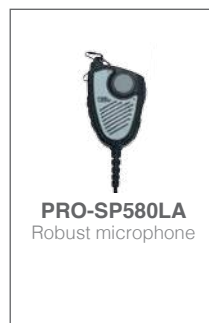
## ANTENNAS



## BATTERIES AND CHARGERS



## MICROPHONES











## HOLDERS







IC-F1000D (VHF)  
IC-F2000D (UHF)

# HEADSETS AND EARPHONES

 <p><b>PRO-P780RB</b> Robust headset with inline-PTT</p>	 <p><b>PRO-P580LWO</b> Headset, telephonist style</p>	 <p><b>PRO-U600LA</b> Universal, 2 ear, PTT</p>
 <p><b>PRO-P180LA</b> Earpiece with air hose, mini-PTT</p>	 <p><b>PRO-D30L</b> D-shell, 30 cm cable, 3,5 mm contact</p>	 <p><b>PRO-AT35L</b> Air line Fabric Line, 3,5mm connector</p>
 <p><b>PRO-P280W LS</b> 2-wire, white cable, mini-PTT</p>	 <p><b>PRO-U700LA</b> 4 in 1 for Peltor and iPhone, black PTT</p>	








## ACCESSORIES FOR HEADSETS AND EARPHONES

 <p><b>Earfly insert</b> 3-pack left/right</p>	 <p><b>Open ear insert</b> 3-pack, left/right</p>	 <p><b>Earplug 1+1</b> for acoustic airtube</p>	 <p><b>Plug for Airtube</b></p>
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## CLIPS

 <p><b>MB-133</b> Belt clip</p>
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## KLICK FAST SYSTEM

 <p><b>Klick Fast Stud Kit</b></p>	 <p><b>Screw on dock</b></p>	 <p><b>Case</b> For radio without display</p>	 <p><b>Case</b> for radio with display</p>	 <p><b>Belt Clip</b> small 80 mm</p>
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Read more about Klick Fast System on page 12.

# UNIVERSAL KIT – BUILD YOUR OWN SOLUTION

## 1 Your radio

With the universal solutions connected to your radio, you can select the headset solution you want to use.

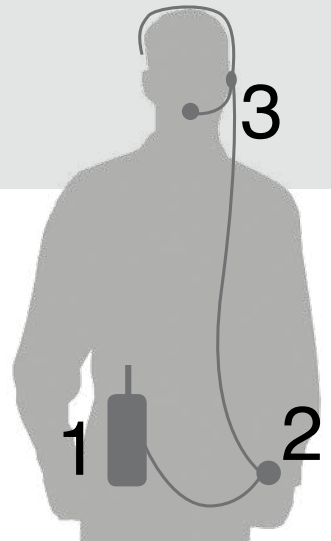


## 2 Select PTT Solution

Choose from different PTT solutions. Do you want a rugged PTT/box or a wireless PTT adapter for extra flexibility?

## 3 Select Headset Solution (2.5mm 3-pin socket)

Choose from a variety of compatible audio accessories. The flexibility of the system allows you to have different solutions depending on the job you are doing.



**PRO PTT BOX**  
Medium PTT switch  
(high/low)



**HS-94**  
Earhook type headset



**HS-95**  
Behind the head type headset



**HS-97**  
Throat type headset



**Temco EM20**  
Ear mic and speaker



**PTT-Adapter**  
wireless PTT



**PRO Bone 25L**  
Ear microphone.  
Mic and speaker



**ComCom Mussla**  
Lightweight headset



**PRO-Surveillance**  
Headset with mic



**PRO-Surveillance**  
headset C-shell



**OPC-2004LA**  
Adapter cable



**PRO-GSM style**  
Stereo Headset



**Stereoheadset**  
iPhone5-type,  
25 mm contact



**PRO-LWO 25L**  
Headset with speaker

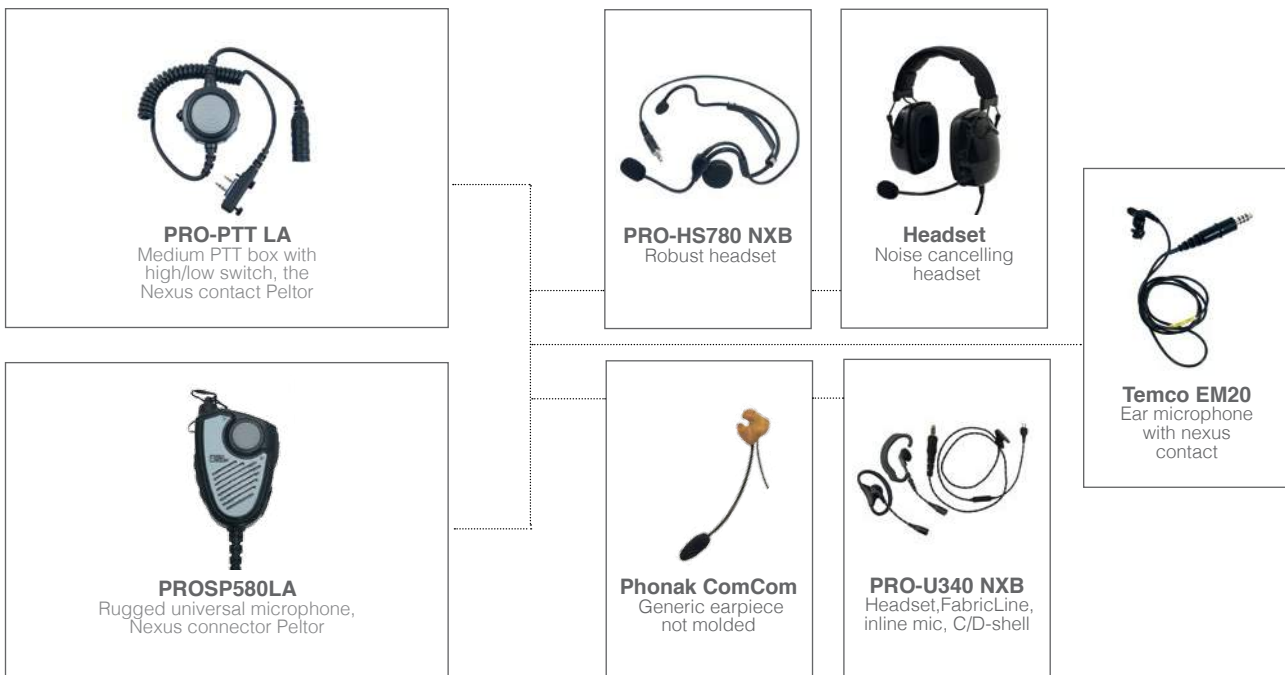


**PRO-LWB 25L**  
Lightweight headset

# ACCESSORIES CONNECTION WITH NEXUS

## NEXUS-SYSTEM 4-POLE PELTOR STANDARD

A robust solution for users in demanding industries that want the ability to easily change accessories, Nexus 4 pole system has over time become an established industry-standard that has become popular because of its simplicity and robustness and that it can withstand use in harsh environments.

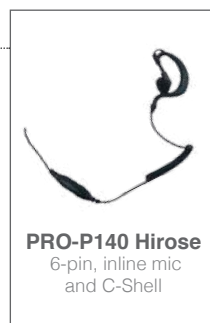
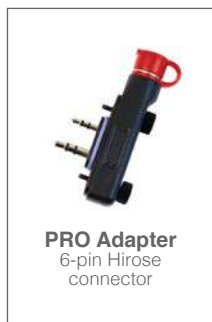




# ACCESSORIES WITH HIROSE CONNECTION

## HIROSE-SYSTEM 6-POLE

Hirose adapter is robust and easy to attach to the radio and designed to withstand use in harsh environments. You can easily build up a solution using, for example, monotone, headsets, PTT buttons and more.



# F3202DEX-series

The IC-F3202DEX ATEX is a digital two way radio series that meets IEC Ex/ATEX based I/S specifications for the oil, mining and chemical industries. In digital format the IC-F3202DEX ATEX digital series provides basic conventional operation as well as a dPMR Mode 2 multi-site radio system. The radio also features lone worker and man down functions which automatically send an emergency signal should a worker be in trouble, an extra consideration for those looking for a complete ATEX health and safety solution.

## Meets IEC Ex/ATEX based I/S specifications

### IEC Certifications

- Mining : Ex ib I Mb
- Gas : Ex ib IIC T4 Gb
- Dust : Ex ib IIIC T110°C Db
- $-20^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
- IEC 60079-0 (2011), IEC 60079-11 (2011)

### ATEX Certifications

- Mining : I M2 Ex ib I Mb
- Gas : II 2G Ex ib IIC T4 Gb
- Dust : II 2D Ex ib IIIC T110°C Db
- $-20^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
- EN 60079-0 (2012), EN 60079-11 (2012)

### IP67 Dust-tight & Waterproof Protection

The IC-F3202DEX series provides rugged protection against dust and water that is equivalent to IP67. The series can withstand 1m depth of water for 30 minutes and its dust-tight construction shuts out powder dust, sand and other objects.

### Conventional or Multi-Site Operation

The IC-F3202DEX series provides basic operation in dPMR Mode 1 or 2 conventional modes. It is compatible with Mode 2 multi-site system. The following dPMR features are programmable::

- PTT ID (TX)
- Individual/Group call
- Power ON/OFF status call (TX)
- Stun/kill/revive (RX)
- Ambience listening (RX)
- Emergency (TX)
- Lone worker/Man down function
- Digital voice scrambler
- Voting scan for Mode 2 multi-site system



IC-F3200DEX

IC-F4200DEX

## Man Down and Lone Worker Functions for Emergency Call

The IC-F3202DEX series has built-in 5-Tone, 2-Tone, CTCSS and DTCS signalling capability for analogue mode group communication and selective calling. The lone worker and man down functions automatically send an emergency signal to assist in worker safety. The radio is perfect for use as an analogue transceiver ready for future digital migration.

### Other Features

- 16 memory channels with channel announcement function
- BIIS 1200 PTT ID transmission
- DTMF autodial
- Three programmable buttons (including emergency red button)
- Low electrical resistant body; Carrying case is not required
- Up to 21 hours\* operating time with BP-277EX (\* 5:5:90 duty cycle with Power save.)
- Optional waterproof speaker-microphone, HM-203EX



HM-203EX



# F5400D-series

The IC-F5400D series is a new generation of digital mobile radios from Icom. This new series incorporates cutting edge design, superb performance and a comprehensive range of features on a flexible, upgradable multi-protocol platform. The series is available in both VHF and with UHF with either a numeric or full colour high resolution LCD. Three mobile installations are available to suit almost any vehicle application.

## Four versions Available

The **IC-F5400D** Series is available in VHF and UHF with two different versions available to suit different customer requirements.

They are:

Numeric – **IC-F5400DS** (VHF) /**IC-F6400DS** ((UHF)

Full colour display – **IC-F5400D** (VHF) /**IC-F6400D** (UHF)

## High-Resolution Colour LCD (D Version)

The high-resolution trans-reflective colour LCD provides great visibility in both natural and vehicle lighting. Functions and menu items are clearly labelled and are easy to read. A night mode LCD setting is available for use at night or in low lighting conditions.

## ANC (Active Noise Cancelling) Technology

The ANC assists in providing clear communication, cancelling out undesired background noise.

## Digital Voice Recording

IC-F5400D series can record incoming and outgoing communications, and replay recorded communications. When a 32 GB microSD\* card is used, a maximum of 500 recording hours is possible. The recorded audio is saved in "wav" format, allowing it to be replayed on the radio or a PC.

\* *MicroSD card is required separately.*

## Built-in GPS Receiver

Position data can be sent with 'voice call' or 'status call' and can also be used with an AVL (Automatic Vehicle Location) system. The GPS log functions logs user position data at regular intervals and can be saved to a microSD card. The radios can show direction and distance to another radio or specified point and can notify you with a beep sound if the target is in the specified range.

\* *For mobile radios, an optional GPS antenna, UX-241, is required separately.*

## Built-in Bluetooth®

The built-in Bluetooth module provides remote operation and hands-free communication paired with a third-party Bluetooth headset\*. When connected with Bluetooth telemetric devices or PC terminals, data or files can be wirelessly transferred.

\* *Available functions depend on paired Bluetooth devices.*



IC-F5400D (VHF)  
IC-F6400D (UHF)

## Trunking Upgrade\*

The IC-F5400D series is compatible with IDAS digital conventional mode and analogue FM mode with auto-sensing function. The radios can be upgraded to NXDN Type-D multi-site trunking mode with a license key.

\* Requires licence key upgrade

## Voice Announcement

The radios can notify channel number, zone and channel type with a voice announcement. This function is convenient for making radio adjustments without having to look at the radio.

## OTAP and OAA\*

For efficient radio programming, the OTAP (Over-the-Air-Programming) function allows remote change of programming data (for example adding a new repeater) over the radio channel. The OAA (Over-the-Air-Alias) function sends user name over the radio channel and eliminates the need to program the alias table.

\* Requires licence key upgrade

## DES/AES Encryption with OTAR\*

For added digital communication security, the radios provide basic 4-key DES encryption as standard. When used with the optional UT-134 encryption unit the 256-bit AES encryption and OTAR function are available. The OTAR function allows updating of encryption keys over the radio channel.

\* Requires licence key upgrade

## Transparent Data Modem Facility

The radios can be used as a transparent data modem and can transmit various data at 9600 bps over the radio channel using 12.5 kHz channel spacing.

## Licence Key Upgrade

The radios functions and protocols can be upgraded and customised to meet specific needs with various licence key options.

## USB Port for PC Connection

The radios can be connected to a PC through a USB port for programming and access the installed microSD card in mass storage mode.

## Audio Equalizer

The Audio equalizer allows you to tailor the audio tone to suit speech characteristics. Five types of tone controls are available (flat, high boost, middle boost, low boost and low cut). The audio auto gain control function controls the speech audio to a constant, regardless of the input magnitudes of the voice or distance of the microphone from the mouth.

## Multiple Languages

Functions and menu items can be shown in local languages including English, French, German, Spanish, Russian and Simplified Chinese fonts. In addition, voice announcements can be recorded and changed for output in these languages.

## GENERAL FEATURES

- 136–174 MHz, 380–470 MHz wide frequency coverage
- 1024 memory channels with 128 zones
- IP55 jet water resistant and dust-protection
- MIL-STD rugged construction
- D-SUB 25-pin ACC connector with programmable functions
- Built-in 20W audio amplifier for connecting with external public address system
- VOX (Voice Operated transmission) function
- Internal clock
- High-speed scanning for voting and multi-site operation
- Tactical group function for temporary regroup user groups with optional zone copy cable
- Normal, priority and voting scan

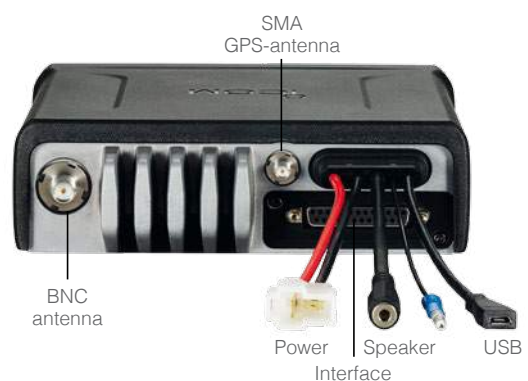
## IDAS™ FEATURES

- IDAS conventional and multi-site conventional
- Type-D single-site trunking and multi-site trunking\*
- 6.25 kHz and 12.5 kHz channel spacing
- Analogue/Digital conventional mixed mode operation
- Status
- Text message
- Call alert
- Radio check
- Radio Stun/Revive/Kill
- Remote monitor

\* Type-D multi-site trunking is a license key upgrade option.

## Analogue FM Mode Features

- 5-tone, CTCSS and DTCS built-in
- DTMF autodial and DTMF decode
- Audio compander
- Inversion voice scrambler



IC-F5400DS (VHF)  
IC-F6400DS (UHF)

# ACCESSORIES

## HOUSING



**Wooden Housing**  
Headset, speaker and power supply



**SEC-1225**  
Power Supply  
13,8VDC 23A



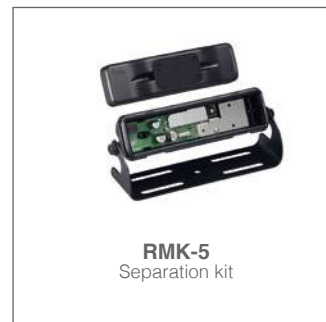
**Radio cabinet**



## COMMAND MIC



**HM-218**  
Secondary command mic for IC-F5400D/F6400D.



**RMK-5**  
Separation kit



**RMK-7**  
Dual head kit

Cables
OPC-2364 Separation cable RMK 1,9 metre
OPC-2365 Separation cable RMK 3 metre
OPC-2366 Separation cable RMK 5 metre
OPC-2367 Separation cable RMK 8 metre
OPC-2373 Separation cable Commandmic 1,9 m
OPC-2374 Separation cable Commandmic 8 m



## MULTIPLE CONTROLLER CONFIGURATIONS

Three types of controller configurations are available to suit almost any vehicle application or installation. An intercom function is available between controllers and/or COMMANDMIC.



### Detached Controller\*

Optional RMK-5 and separation cable required. A detached controller head with the separated RF unit is simple to install in almost any vehicle.



### Dual Head Controller\*

Optional RMK-7, hand microphone and separation cables required. Suitable for double cab vehicles. Install the controller head to front and rear seats respectively

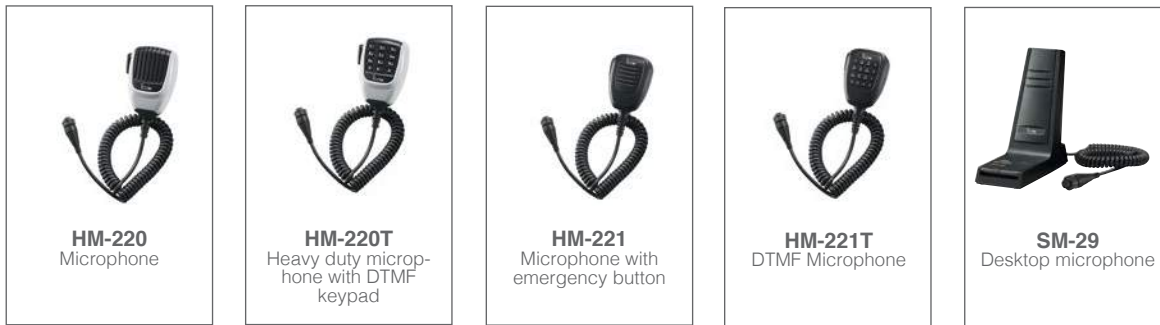


### COMMANDMIC™ and Detached Controller\*

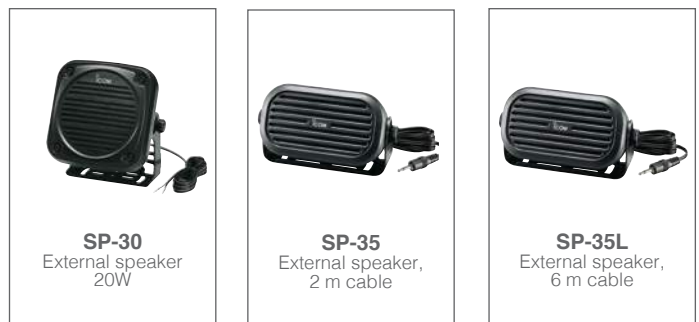
Optional RMK-5, COMMANDMIC, HM-218 and separation cables required. The COMMANDMIC is handy for installing a work platform on the rear part of the vehicle.

\* Detached Controller, Dual head and COMMANDMIC configurations are for IC-F5400D/IC-F6400D only.

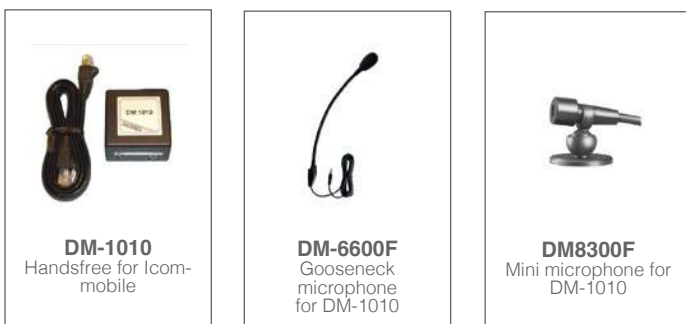
## MICROPHONES



## SPEAKERS



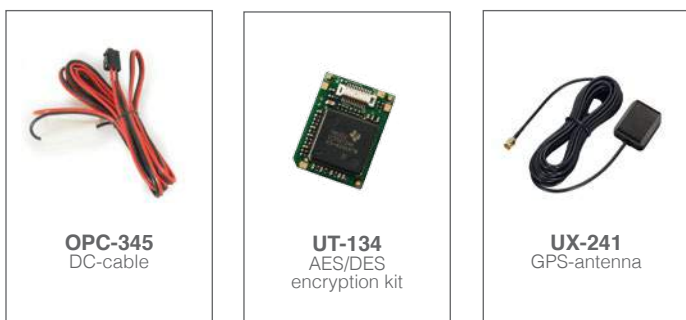
## HANDS FREE



## SOFTWARE AND LICENCES

CS-F3400 Programming software
CS-KLD1 Encryption kit
OTAP manager software
UT-134 AES/DES Encryption unit
AES-license
OTAR-license
IDAS NXDN trunking upgrade TypeD single site
IDAS NXDN trunking upgrade TypeD multi site
Memory channel expansion (4000ch) license

## OTHER



# F5122D-series

The IDAS IC-F5122D is a simple and straight forward digital mobile radio series that offers business and industry radio users 6.25 kHz channel spacing, digital/analogue mixed mode operation in a mobile. Ideal for transportation, and delivery fleets, the streamlined IC-F5122D series has an abundance of mobile features and is compatible with IDAS multi-site conventional and IDAS single-site trunking thus providing an affordable digital migration path from analogue.

## **Entry Level IDAS Digital Mobile Radio capable of multi-site conventional and single-site trunking**

The IC-F5122D series provides basic operation in IDAS digital mode. It is also compatible with IDAS multi-site conventional and IDAS single-site trunking.

## **External GPS receiver connection with optional OPC-2078 ACC cable**

The new optional OPC-2078 is a D-SUB 25-pin ACC cable can connect with an external GPS receiver or PC connection. An optional OPC-1939 D-SUB 15-pin ACC cable is also available with the IC-F5122D series.

## **Max. 128 memory channels and 8 memory zones**

The IC-F5122D series has 128 memory channels (Max.) with 8 zones. Memory channel selection can be easily selected with the up/down buttons.

## **Alphanumeric LCD**

The IC-F5122D series has an easy to read an 8-character 14 segment alphanumeric LCD. The " " icon on the upper right of the display shows the scanning is activated.

## **4W (typical) front mounted loud speaker**

The IC-F5122D series has a 4W (typical) front mounted speaker which can be clearly heard during operation.

## **Multiple signal options built-in**

The IC-F5122D series has built-in 5-Tone, CTCSS and DTCS signalling capabilities for group communication. The IC-F5122D series can decode up to eight 5-tone codes on a channel. The following actions are programmable to respond to each tone.

- Beep sound
- Bell icon
- Answer back call
- Auto TX
- Stun, kill revive
- Scanning
- External output\*

\* External device connection such as a horn honk, buzzer, etc is required.

## **Talk back function and call mode selection**

When the talk back function is enabled, the IC-F5122D series automatically selects the received channel and talkgroup or individual ID (IDAS digital mode) to reply to the received call, while scanning stops or resumes after a preset time. The talk back timer beep alerts you of the end of the talk back time with a beep sound. The user can easily make a quick response with this function.

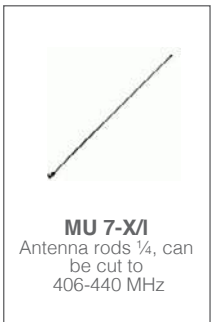
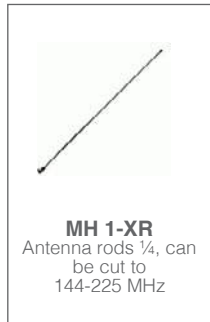


IC-F5122D (VHF)  
IC-F6122D (UHF)

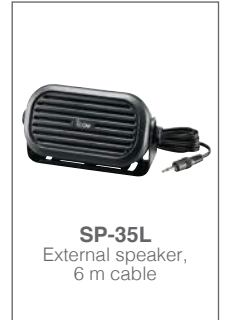
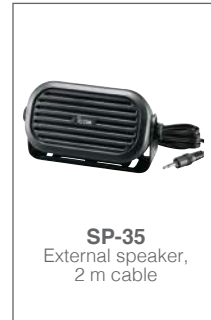
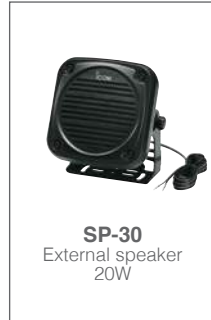


# ACCESSORIES

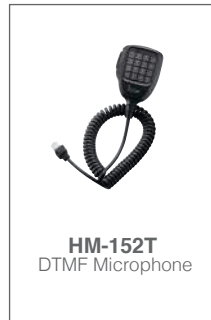
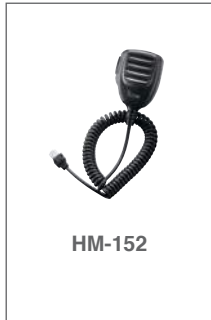
## ANTENNAS AND ANTENNA MOUNTS



## SPEAKERS



## MICROPHONE



## HANDSFREE



## HOUSING



## OTHER



# FR5 100-series

The IC-FR5100 repeater series handles both analogue and digital IDAS communication. The repeater is packed with features and is designed for continuous operation. The repeater has a compact design and fits directly into a standard 19-inch rack. It also has the option to place an additional repeater module UR-FR5100 / 6100 providing two channels in the same unit.

## Easy Configuration

The IC-FR5100 series has a rack mount bracket and handles for installation in an industry standard 19-inch rack. A 2U height configuration allows you to stack multiple units in a rack. The repeater has 5 programmable buttons, 12-character dot-matrix display and 32 memory channels that allow you to use the repeater base station.

## Two RF modules in one unit

The IC-FR5100 series has an internal space for installing, the optional UR-FR5000 RF unit. Two RF modules can be installed in the chassis reducing installation space, while the RF modules can be programmed and operated independently. Alternatively, the internal space can be used for the assembly of the duplex filters. There is an optional duplex mounting kit available.

## 25 Watts continuous operation

A high stability and high-quality power amplifier enables the repeater to serve around the clock at full power with no problems.



UR-FR5100 (VHF) Art.nr 85101  
UR-FR6100 (UHF) Art.nr 86101

## KEY FEATURES

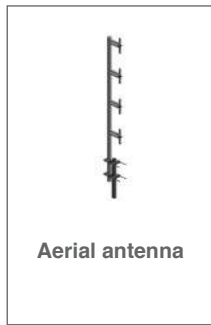
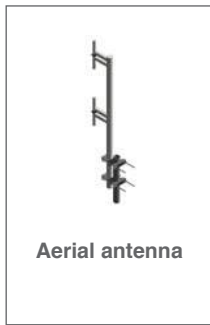
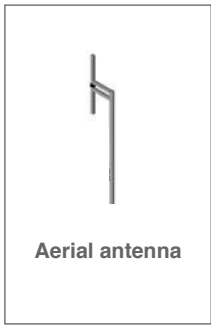
- Repeater for 19" rackmounting
- Ready for IDAS
- Up to two RF modules in one unit
- 12-character dot-matrix LCD
- 32 memory channels
- 25 Watt continuous operation



IC-FR5100 (VHF) Art.nr 85100  
IC-FR6100 (UHF) Art.nr 86100

# ACCESSORIES

## BASE ANTENNA



## ANTENNA MOUNTS



## POWER SUPPLY



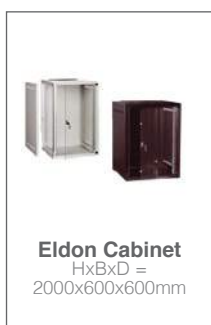
## ANTENNA CABLE



## DUPLEX-FILTER



## OTHER



# RMS-NET

RMS-Net is a digital radio management system ideal for almost any organisation that cares about security and staff safety. RMS-Net integrates voice radio communication, text/status messaging, and a range of security features in a system that logs all radio traffic onto a central computer database. The desktop dispatcher can keep in touch with radio users via their own computer. RMS-Net is designed to be fully interactive ensuring dispatchers/supervisors are able to monitor and respond rapidly to situations as they occur.

## **A powerful tool for management control, providing a detailed view of staff deployment and resources**

A major strength of RMS-Net is its reporting features. All radio traffic is logged and stored on a central database. This is ideal for management control and future resource planning including personnel database management. It may provide motivation for staff to perform their assigned tasks and provide conclusive documentation that they have done so. In addition the centralised nature of the system ensures rapid response to incidents as they occur as well as the managed prevention of potential incidents.

## **Aids Health & Safety Management Requirements**

RMS-Net satisfies the growing health and safety and management demands faced by organisations today. It provides a range of emergency alert functions with the use of Mandown, Loneworker and panic button features. It also provides extensive records/reports on all radio traffic should an organisation need it.

## **Voice Recording**

The ability to have at hand a record of an incident is important and can provide a useful training aid. Providing searchable records for health and safety is a very important issue for many organisations and businesses, should an incident ever go to court or tribunal. With RMS-Net new voice recording function, you can now record audio for a preset amount of days on a PC (normally 30 or 60 days). If voice is recorded in conjunction with an IDAS, 5 Tone or a BISS system it will log the ID of the person who is talking. This can then be extracted onto a WAV file, providing a full conversation log. This voice recording capability can also be tied in with the standard reporting functions of RMS-Net which gives you the data log of who is talking, status messages, log on/log off, emergencies, internal positioning etc.





## Connect with Dispersed Sites with IP Remote Dispatch Capability

Icom's optional VE-PG3 RoIP gateway provides IP remote dispatch capability, allowing you to remotely control your radio system from elsewhere using the internet. This essentially means that the PC does not have to be within the radio coverage of the system. In the past, most RF dispatching systems needed to be localised, but now with this new IP remote dispatch capability, it doesn't. If you have an IP network or local LAN network, you can put the radio in the optimum position and control it remotely from elsewhere in the building, in a different city or even in a different country. It can also be controlled via multiple PCs used by multiple operators.

## Interrogate database

With RMS-Net it is possible to rapidly see the database to see which radios are logged on and being used on that day. This is achieved by decoding the radio's unique ID at switch on and flagging the user as active on the system. The hand-portables are supplied pre-programmed with text and status messages so users can easily keep the central control room informed of routine operations.

## Digital/analogue mixed mode operation

RMS-Net can be used with both analogue and digital mode or a mixture of analogue digital on the same site. You can partially introduce digital radios, while using the existing analogue radios in a system. RMS-Net allows you to scale migration to narrow band digital at your own pace, while running an existing analogue system.

## OTHER FEATURES

- Various loneworker settings
- Stun/kill/revive radio facility
- Logon acknowledgement function
- Message queuing and reminders
- Message redistribution
- Emergency message functions
- Multiple channel support
- Emergency Features
- Custom reporting available pertinent to their business.
- Windows 64 & 32 bit compatible

UserID	Username	User Type	Subid	Assigned Channels	Loneworker	LogoffTime
1	Radio 1 FA20207	User		None	0	
2	Radio 2 FA18205	User		None	False	
3	Radio 3 FA20200	User		None		
1000	FA40205	User		None		
1001	FA40201	User		None		
1008	FA40200	User		None		
1400	Test Radio 1	User		None		
1401	Test Radio 2	User		None		
1402	Test Radio 3	User		None		
1403	Test Radio 4	User		None		
1404	Test Radio 5	User		None		
1405	Test Radio 6	User		None		
1406	Test Radio 7	User		None		
1407	Test Radio 8	User		None		
1408	Test Radio 9	User		None		
1409	Test Radio 10	User		None		
1410	Test Radio 11	User		None		
2000	LDC Radio	User		None		
90211	Radio 1 CHG	User		VE PG 3.2		
90212	Radio 1 CHG	User		VE PG 3.1		

Username	Channel	Type	User	RX Status	New Date	P2P Status	P2P Name
Radio 1 FA20207	VE PG 3.1	User	Logon		14/06/2016 08:04:41		
Radio 2 FA18205	VE PG 3.1	Subid	Logoff		07/10/2016 16:49:16		
Radio 1 FA20200	VE PG 3.1	Subid	Logoff		18/10/2016 12:09:54		
Test Radio 1	VE PG 3.1	None			31/08/2016 18:32:28		

# IP RADIO

Icom's innovative IP advanced radio system provides the ability to contact any member of your staff at any time utilising an existing or new IP/WLAN network. The WLAN based system offers a scalable licence-free communication system using standard wireless networking products infrastructure, infrastructures that in many cases, may already be in place.

## The system is particularly suitable for:

- Hotels and resorts
- Shopping centres and department stores
- Restaurants / catering
- Factories
- Hospitals
- Tunnels and underground buildings
- Historic Buildings and museums
- Private communications onboard vessels

## Multiple Simultaneous Use (FULL DUPLEX)

12 full duplex calls can transmit simultaneously at any one time. With an optional headset, the IP100H transceiver can talk and receive at the same time like a phone call.

## Scalable, yet Secure System

The IP/WLAN system from Icom offers a scalable licence-free communication system using standard wireless networking products infrastructure, which in most cases may already be in place. Secure encrypted communication is provided by the WPA-PSK and WPA-PSK2 wireless security protocols that encrypts calls

## Licence Free system...no call charges

Radio licences are not required for this system, when using standard wireless networking infrastructure. The system uses the IEEE 802.11 a/ b/ g/n.

## 2 Systems currently available

There are currently two versions of this IP Advanced radio system. Up to 20 users and up to 100 users.

## Information terminal position

The optional IP100FS software receives information about the location of each transceiver based on the access point to which it is recorded and represents it graphically on the screen.

## Simple system to manage

The IP1000C programs almost all transceiver configurations over the air. Individual PC programming via cable connection is not required..

## Different types of calls

The IP100H/IP100FS can make individual calls, group conference calls, all calls and area calls. The unique area call function allows you to call any user who is accessing the specified access point.

## Mixing function



IP100H



The mixing function receives multiple user's voices at the same time. Multiple communication is possible and increases efficiency of information sharing.

### Roaming

In a network consisting of two or more access points connected via IP, a transceiver can roam from an access point to another without losing communication.

### Short text messages and status

The IP100H/IP100FS can send status and short data messages\* to other users. The IP100H vibrates powerfully when receiving these messages.

\* Pre-programmed message only for IP100H.

### Functions Remote Monitor, Kill, Stun and Revive\*

In an emergency, the IP100FS can force an individual IP100H to transmit anything the microphone hears to identify the situation. If the IP100H is used by an unauthorised person, a remote kill command can be sent to disable the unit.

\* These commands can be transmitted from IP100FS.

### IPX7 waterproof (only IP100H)

The IP100H is waterproof to a depth of 1 metre for 30 minutes.

### IP Phone and Transceiver Interconnection

With the VE-PG3 RoIP gateway, the IP advanced radio system can interconnect with an IP phone, analogue transceiver and IDAS™ NXDN™ digital transceiver.



IP1000C

## Wireless LAN System Extends Your Communication Coverage.

### Individual, Group or Area Communication



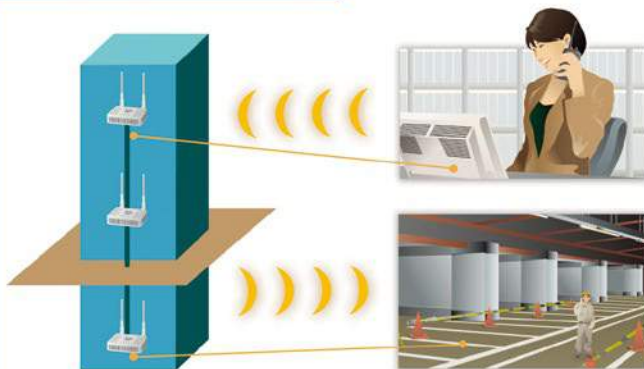
Staff spread across an extended site, such as a hotel, can communicate seamlessly.

### Hands-free, Full-duplex Communication



With an optional headset, the IP100H user can talk and receive simultaneously like a phone call. Hands-free operation allows your staff to carry out other tasks at the same time.

### Intra-building Communication



By deploying access points along the IP network, the IP advanced radio system can communicate all the way from the basement to the top floor. The IP100H can access the nearest access point and can roam between access points\*. \*Same SSIDs are required for roaming use.

### Dispersed Sites Communication



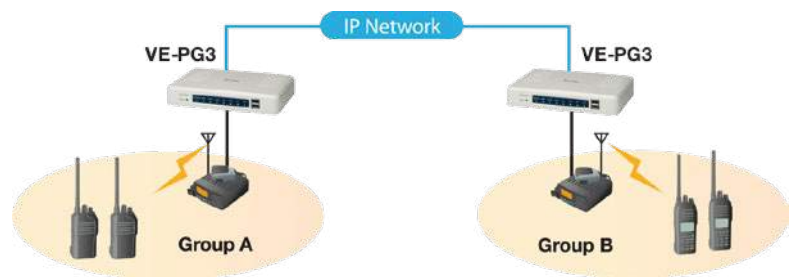
If connected over an Internet VPN, the IP100H/IP100FS can communicate between dispersed sites such as offices or shops in different cities.

# VE-PG3

The VE-PG3 is designed to enhance the functionality of a radio network and facilitate radio use via RoIP GATEWAY. The VE-PG3 has two modes; converter mode and bridge mode. Converter mode converts the radio network's audio to the IP protocol (VoIP) and allows the interconnection between connected devices. Bridge Mode can connect the radio via the network, regardless of the frequency or type of radio.

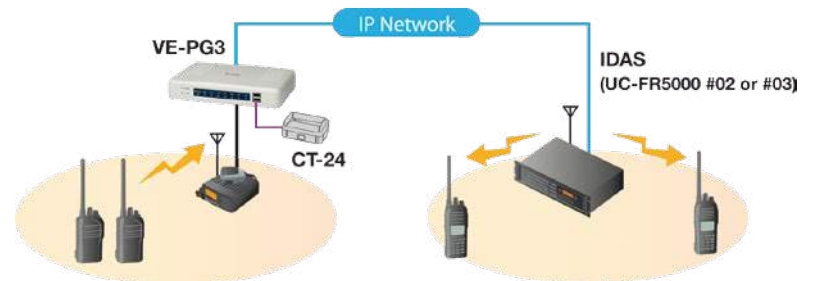
## Bridge Mode between two radios

Bridge mode connects two radios between each other over an IP network. This example shows a bridge configuration where users on one site can talk to users on another site.



## Bridging a radio and an IDAS system

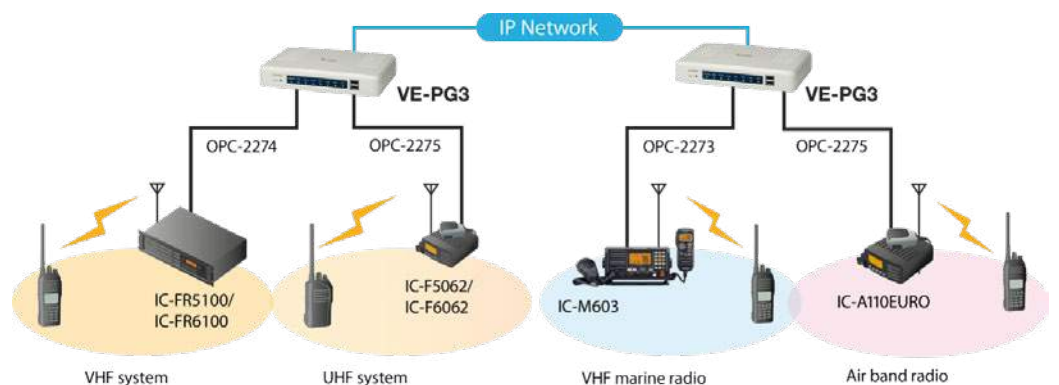
VE-PG3 can become a bridge between a radio (Analogue or Digital) over an IDAS system. As seen in this example, allowing users in the radio system to talk to the users in the IDAS system.



## Cross band connection\*

Cross band/cross category connection is possible between VHF/UHF land mobile, marine VHF and air band. Optional audio connection cables allow you to connect a transceiver or repeater easily

\* Subject to licensing conditions.





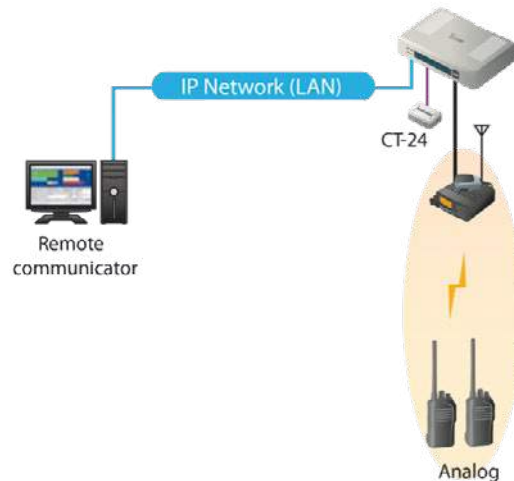


## Converter Mode

The VE-PG3 has built-in RoIP (Radio over IP), SIP gateway, IP router and IP PBX functions all in one box. This will allow you to integrate various devices including digital and analogue radios, SIP and analogue phone systems.

Available connections through VE PG3:

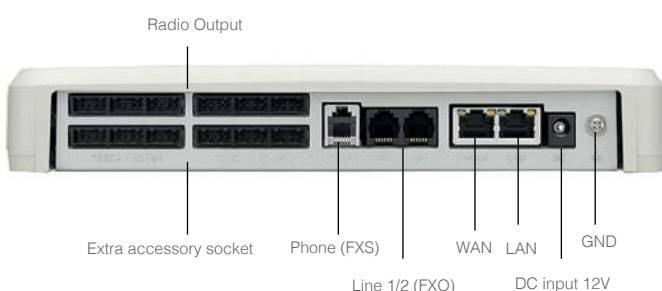
- SIP Digital PBX
- PSTN - Analogue PBX
- Analogue phones
- IP phones
- PA system
- IP connected dispatcher
- Analogue radio site
- Digital radio site IDAS



VE-PG3

## External connections

The VE-PG3 has two external equipment connectors for audio input/output, and other switching. Public address system, siren, red light, and other external equipment can be connected to the VE-PG3. The virtual serial port software allows you to control an external device via RS-232C interface.



# ACCESSORIES



# MOBILE ANTENNAS

## A SELECTION OF PROCOM VEHICLE ANTENNAS



UHF ¼W-ANTENNA  
WITH GPS

MU 1 XG/l 406-440MHz
MU 1 XG/h 430-470MHz



UHF ¼W-ANTENNA  
WITHOUT GPS

MU 1 CX/l 406-440MHz
MU 1 CX/h 430-470MHz

UHF ½W-ANTENNA WITH GPS



MU4-XG/f 406-430MHz
MU4-XG/l 420-450MHz
MU4-XG/h 440-470MHz

UHF ½W-ANTENNA WITHOUT GPS



MU4-CX/f 406-430MHz
MU4-CX/l 420-450MHz
MU4-CX/h 440-470MHz

VHF ¼W-ANTENNA



BASE STATION ANTENNA



AERIAL CABLE  
(ask for details)



# TECHNICAL DATA

	IC-F3400DT/DS/D IC-F4400DT/DS/D	IC-F1000D IC-F2000D	IC-F5400D/DS IC-F6400D/DS	IC-F5122D IC-F6122D	IC-FR5100 IC-FR6100
<b>Frequency Range</b>	136-174 MHz 380-470 MHz	136-174 MHz 400-470 MHz	136-174 MHz 380-470 MHz	136-174 MHz 400-470 MHz	136-174 MHz 400-470 MHz
<b>Number of channels</b>	1024 Channels F3400DT/DS 32 Channels F3400D	16 Channels	1024 Channels	128 Channels	32 Channels
<b>Power Consumption During transmission</b>	High 5 W, max 1.5 A	High 5 W, max 1,4 A	High 25 W, max 5 A	High 25 W, max 5 A	High 25 W, max 8 A
<b>Reception</b>	550 mA (maxvolume)	400 mA (maxvolume)	800 mA (maxvolume)	1200 mA (maxvolume)	1900 mA (maxvolume)
<b>Stand-by</b>	75 mA	110 mA	270 mA	300 mA	400 mA
<b>Operating Temperature Range</b>	- 30 C to + 60 C	- 25 C to + 55 C	- 30 C to + 60 C	- 25 C to + 55 C	- 25 C to + 55 C
<b>Transmitting Output Power</b>	5 W	5 W	25 W	25 W	25 W
<b>Audio Output Power (Internal/External)</b>	800 mW / 900 mW	800 mW / 400 mW	4 W / 4 W	4 W / 4 W	3,5 W
<b>Mil Spec</b>	IP68, MIL-STD 810 C,D,E,F,G	IP67, MIL-STD 810 C,D,E,F,G	IP55, MIL-STD 810 C,D,E,F,G	MIL-STD 810 C,D,E,F,G	MIL-STD 810 C,D,E,F,G
<b>Dimensions</b>	123 x 53 x 29 mm	111 x 52 x 30 mm	174 x 55 x 176 mm	150 x 40 x 117 mm	483 x 88 x 260 mm
<b>Weight</b>	170 g (excluding. battery and antenna)	260 g (including bat- tery and antenna)	1500 g	800 g	5600 g



**ICOM-UK**

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**LTE, IP & SATELLITE PTT  
COMMUNICATIONS**



## ICOM UK LTD

Icom UK Ltd was established in 1974 and is the sole UK & Republic of Ireland importer and distributor for Icom Inc., of Osaka, Japan. Based in Herne Bay, Kent, the company is privately owned with over 30 staff.

Icom has an extensive portfolio of radio transceiver, receiver and navigation products that are available to customers in the commercial, marine, Amateur & aviation markets. Equipment is available in fixed-base, vehicle-mobile and handheld formats to suit a wide range of customer requirements.

## ICOM

Icom is a global leader in the communications industry. The company prides itself on their products which are renowned for their high quality, innovation, reliability, and design. With over 50 years' experience, Icom ensures that their products are delivered with excellence in design and technical capability. Icom has an extensive range of products that are designed to withstand the most rugged and extreme conditions. Products include base-station, mobile and handheld units covering many frequency bands.

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# LTE ADVANCED

## Icom LTE Advanced Radio System

The LTE radio system from Icom is designed to combine the very best of cellular network coverage and radio communications. Introduced in Japan just over two years ago, Icom now boasts a huge number of users who are benefiting from the flexibility, ease of use, robustness, no licence fees or costly infrastructure and absolute reliability. Just like a conventional radio, the IP501 uses simple Push-to-Talk (PTT) operation with no dial-up or complicated setup.

## IDEAL MARKET SECTORS

### Event Management

Event companies that continuously move from site to site but don't have the time to invest in infrastructure but only need radio communications, regardless of where they are.



### Security

Security companies that operate on numerous sites and want a flexible communication system but don't want to invest in infrastructure



### Logistics and courier companies

Our LTE radio is a perfect communications platform for a logistics company, providing an incredible range and a simple communication solution at reasonable cost.



### Hotel and conference centres

Hotel and conference centres are in many cases large, complex sites which may suffer from drop outs or dead zones with a normal radio system.



### Sports Events/Sports Associations

Excellent option for sports events that cover long distances and need communication. Also works if you plan to compete abroad.



### Rail Network

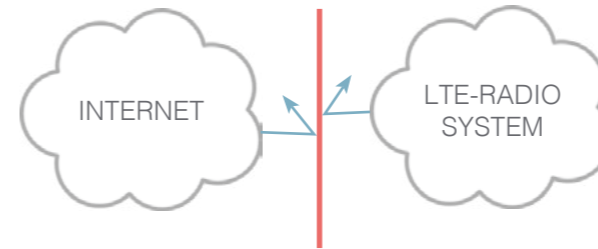
A LTE radio system can assist in providing smooth operation for maintenance, operations, guard services and security departments across a regional rail network.



## BENEFITS OF LTE-RADIO

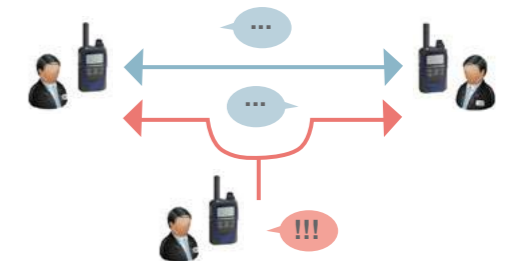
### SECURE / CLOSED SYSTEM

Users in the system are located in protected and separate clusters that are unrelated to each other or the Internet. This provides a safe and secure solution for your organisation.



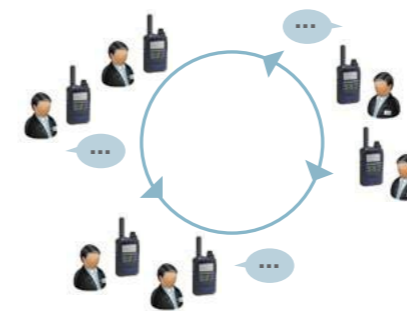
### PRIORITY

In the network, you can have different priority groups of users, which means that you can break or just enter an ongoing conversation when there is urgent information to share.



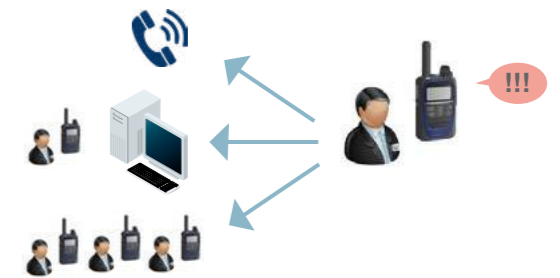
### CONFERENCE CALL

In this system you can create groups of users. You can choose whether it should be duplex or simplex communication in a group.



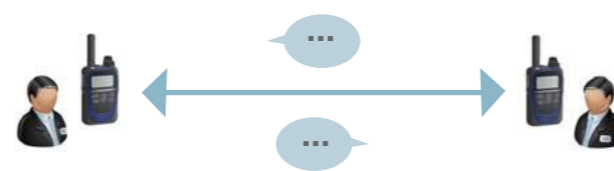
### EMERGENCY FEATURES

The IP501H LTE Radio is equipped with an emergency button and emergency related features including Man Down, motion detector, inactive movement and lone worker function. The alarm can then be sent to an individual, group or text.



### FULL DUPLEX / HANDS FREE COMMUNICATIONS

Full duplex communication can be a strong reason to choose an LTE radio system as a platform. This works both within a group and between individuals.



### GPS POSITIONING

Thanks to built-in GPS in the LTE radios you can have regular or alarm-related positioning of the handsets/radios in the system.



### ACCESSORIES

The IP501H has an extensive range of accessories designed for different market sectors. You can view these in this brochure.



### RADIO COVERAGE

The 3G / 4G mobile phone networks cover more than 90% of UK populated areas\*. Without the need for conventional radio infrastructure or expensive licencing, LTE offers almost blanket coverage.

\*Percentage based on average figures gathered from EE, O2 & Vodafone.



# IP501H

## Introducing the Icom IP501H LTE Radio

Icom's IP501H uses cellular network coverage provided by the LTE/4G and 3G network to provide you with stable communication throughout the coverage area. The custom Icom SIM card (supplied with the handset) is able to roam between the three leading network providers in the UK, allowing you to harness the strongest 4G signal available in your area. If 4G is unavailable, then the roaming SIM will automatically switch to the strongest 3G network. The Icom custom SIM card is also capable of roaming throughout Europe as standard.

The IP501H is small, lightweight and a licence-free solution which offers, clear audio over a fully secure private system.

### No Licence Required, Fully Secure System

The IP501H does not use the conventional radio spectrum. Coverage is provided by the 4G/LTE and 3G network so no licence application forms and no license fees. The system is hosted on a fully secure server located in the UK.

### Full-Duplex Communication

The IP501H enables full-duplex communication providing uninterrupted conversation where users can talk and receive at the same time in individual and group call.

### Multiple User Communication

Multiple users on the system can initiate calls respectively. There are no requirements to check or wait for channel availability.

### Priority Interrupt Calling

The IP501H supports group calls and in case of an emergency, you can break into an on-going call to transmit an important message.

### Compact and Lightweight Handset

With a compact (59x95x32 mm) and lightweight (240g) body\*, the IP501H allows non-intrusive use.

\*With BP-272 battery pack and antenna.

### IP67 Dust-Tight & Waterproof

The IP501H has waterproof performance to endure 1 m depth water for 30 minutes. This means it is ideal for outdoor use.

### Bluetooth® Functionality

The IP501H has built in Bluetooth which allows you to connect headsets\* wirelessly that allow you to operate the radio and its controls.

\*Not all third-party Bluetooth headsets are compatible with the IP501H.

### OTHER FEATURES

- High quality, clear audio using G.726 Vocoder
- Individual, Group, Talkgroup and Multiplex Talkgroup
- Emergency button, Lone Worker and Man Down functions
- Vibration alert function notifies of incoming call
- Text message reception and pre-programmed message transmission
- Up to 500 memory address book (including Group, Individual, Talkgroup and Telephone lists)
- Voice message recording
- Built-in GPS



## THE BEST OF BOTH WORLDS

Icom's new LTE radio system allows you to communicate with your two-way radio system over a 4G/LTE closed private network. Now you can benefit from licence free nationwide coverage for your business without the use of repeaters thus reducing the cost of infrastructure and maintenance cost of a wide area radio network. or 'All calls' can be made the same way as a conventional two-way radio.

Icom's new LTE radio system provides full duplex nationwide area communication using a 4G/LTE closed private network and instantaneous communication with PTT operation. The closed system will operate from a private LTE mobile data network providing an extra level of security. 'Individual calls', 'Group calls'

## COMPARING THE LTE-RADIO SOLUTION WITH OTHER TECHNOLOGIES

### SMARTPHONE vs ANALOGUE RADIO vs LTE RADIO

There are obviously pros and cons with all types of radio systems. The LTE radio provides a very useful solution for many business sectors. Read the table below and see if the LTE radio is something that suits your business.

### SMARTPHONE

#### Benefits

- High functionality
- Open standard
- Multifunction Product
- Good coverage
- License Free

#### Drawbacks

- No priority
- High delay
- Complex operation

### ANALOGUE RADIO

#### Benefits

- Simple solution
- Easy to use
- Open standard
- Low cost

#### Drawbacks

- Expensive Licensing
- Low security
- Short range
- Additional cost to expand your system

### LTE-RADIO

#### Benefits



- High security
- Good sound quality
- Full duplex communication
- National/International Coverage
- Easy operation
- Licence Free



# ACCESSORIES

BLUETOOTH®



 <b>BC-202IP2</b> Desktop charger	 <b>BC-218</b> Charger cradle with Bluetooth function	 <b>BC-211</b> 6 way multi charger including AD-127	 <b>MBA-7</b> Bracket adapter for BC-218	 <b>BP-271</b> Li-Ion battery pack 7.4V/1150mAh	 <b>BP-272</b> Li-Ion battery pack 7.4V/1880mAh
 <b>PRO-P245LP</b> D-ring headset, inline PTT with 80cm cable, black	 <b>PRO-P220LP</b> Air hose, mini-PTT, transmitting switched function	 <b>PRO-AT35L</b> Acoustic air tube, fabricline, 3.5mm jack	 <b>HS-94</b> Earhook type headset	 <b>HS-95</b> Behind the head type headset	 <b>HS-97</b> Throat type headset
 <b>CP-23L</b> Cigarette lighter cable	 <b>MB-135</b> Belt clip	 <b>HM-215</b> Speaker-microphone for BC-218	 <b>OPC 2328</b> PTT Box with transmission lock function	 <b>Pro-PTT LP</b> With 2.5mm Female Connector and PTT	 <b>Case.066</b> Leather case For IP501H inc. Klick-Fast

## BLUETOOTH® ACCESSORIES

A third-party headset\* and BT560 Bluetooth speaker microphone allow you to easily control features of your radio. They could feature volume control, USB charging, high sensitivity microphone and support PTT over Bluetooth operation. \*Please note, not all third-party Bluetooth devices are compatible with the Icom IP501H

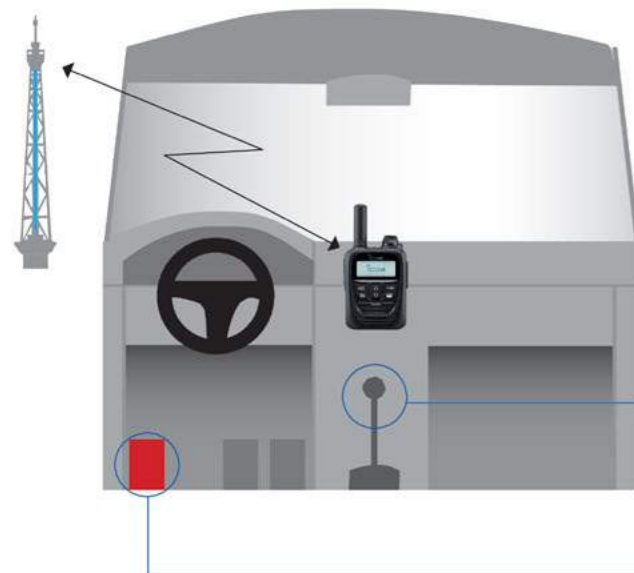



**Third Party Headset**  
Bluetooth® capable headset



**PRO-BT560 Speaker Microphone**  
High-sensitivity noise-reducing microphone, volume control, 8 hours talk time and support for Bluetooth® PTT, 3.5mm jack

### Three scenarios for using the IP501H in your vehicle





- 1 Connect the IP501H to a Peltor WS headset and get a unique and highly effective solution, where you can easily send the PTT button on the cover.



- 2 Connect the LTE radio to a third party Bluetooth capable headset\*. Depending on the Bluetooth headset used, you can control the PTT with the headset.  
\*Please note, not all third party Bluetooth headsets are compatible with the IP501H.


- 3 You can connect the radio to the BC-218 Bluetooth holder. The radio connects when it is placed in the BC-218 and a headset or hands-free kit can also be connected (via Bluetooth) to the holder. To handle the PTT function, connect a wired PTT (foot/finger-PTT) to BC-218.



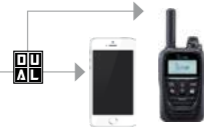

All products below have 3.5 mm connector

 <b>PRO-D30L</b> D-Shell, adjustable brace around the ear, 3.5 mm connector	 <b>PRO-AT35L</b> Air line Fabric line, 3.5mm connector
--	--

 Also suitable for other headsets / earphones with a 3.5 mm connector.



**Devices with support for 2 connections - smartphone and / or radio with Bluetooth®**



Nighthawk is a professional Bluetooth device that gives you long talk time, easy pairing, stable connectivity, and Bluetooth PTT support. Other features include volume control, convenient USB charging, a targeted microphone for high sensitivity, robust clipping and, above all, the ability to control multiple communication devices.

The PRO-BT550 Bluetooth headset also supports dual connectivity with a smart phone and your radio as well as offering the ability to control both communication devices

**PRO-BT Nighthawk**  
High-sensitivity noise-reducing microphone, volume control, 12+ hours talk time and 150 hours standby, Bluetooth®PTT support, 3.5mm jack for clam / headset.

**PRO-BT550 Headset**  
Bluetooth mini headset, volume control, 12-hour talk time, 100-hour standby time, Bluetooth PTT support and including charging cable.

**Many other accessories are available. Please contact us for more details**

**All products below have 3.5 mm connector**

<p><b>PRO-D30L</b> D-Shell, adjustable brace around the ear, 3.5 mm connector</p>	<p><b>PRO-AT35L</b> Air line Fabric line, 3.5mm connector</p>
<p>Also suitable for other headsets / earphones with a 3.5 mm connector</p>	



# IP501M

## Icom IP501M Radio

Icom's IP501M follows on from the successful IP501H LTE radio handheld. This mobile variant also uses the LTE/4G and 3G network to provide you with stable communication with nationwide coverage. The IP501M features a simple, easy to use display as well as a fist microphone or the optional command microphone (HM-230HB) which features a full user keypad.

The IP501M uses the same PTT operation as the IP501H and the two are interoperable with each other. This allows users and companies to have a mixture of handhelds (IP501H for individual use) and mobiles (IP501M for vehicle use).

## Full-Duplex Communication

Just like the IP501H, the IP501M also supports full-duplex communication for users to talk and receive at the same time during 'Individual' and 'Group Calls'.

## Priority Interrupt Calling

If you need to transmit an important message, you can break into the on-going call to deliver the emergency message.

## No Licence Required, Fully Secure System

The IP501M does not require licencing from a governing body. This allows you to install the IP501M in shared vehicles and for those that cover a large distance e.g. logistics companies, taxi companies.



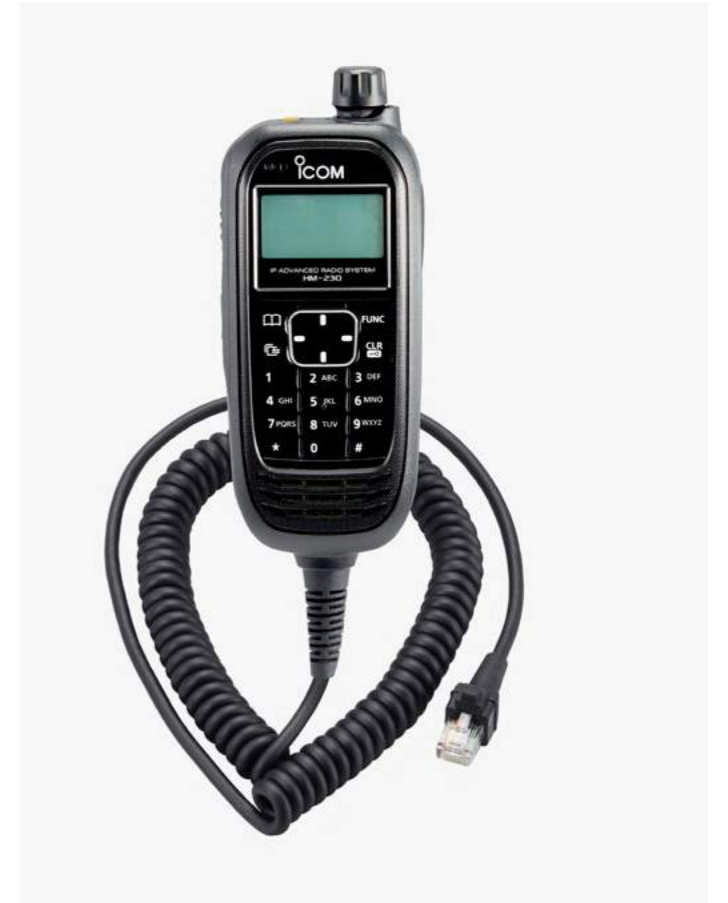
## Optional HM-230HB Command Microphone

With the optional HM-230HB command microphone connected, users have a display and 10-keypad control giving a handheld-like interface.

## Built in Bluetooth

With the built in Bluetooth, you can connect a headset\* wirelessly to provide hands-free operation of the IP501M. The Bluetooth accessories listed in the Bluetooth section of this catalogue are compatible with IP501H & IP501M.

\*Not all third-party headsets are compatible



# DISPATCHER

## LTE Dispatcher Manager \*

The LTE Dispatch Manager is an ideal application for organisations or users that prioritise security and staff safety. As the IP501H handset and IP501M mobile units feature GPS, the Dispatch Manager can provide tracking information wherever you are throughout UK & Europe. This versatile application allows organisations or users to keep track of people, vehicles & assets.



### GPS Tracking

The Dispatch Manager allows tracking of LTE radios. The time interval between GPS transmissions to the Dispatch can be programmed (from 2-minute intervals up to 1 hour). The application can also provide a GPS history to show where the radios have been.

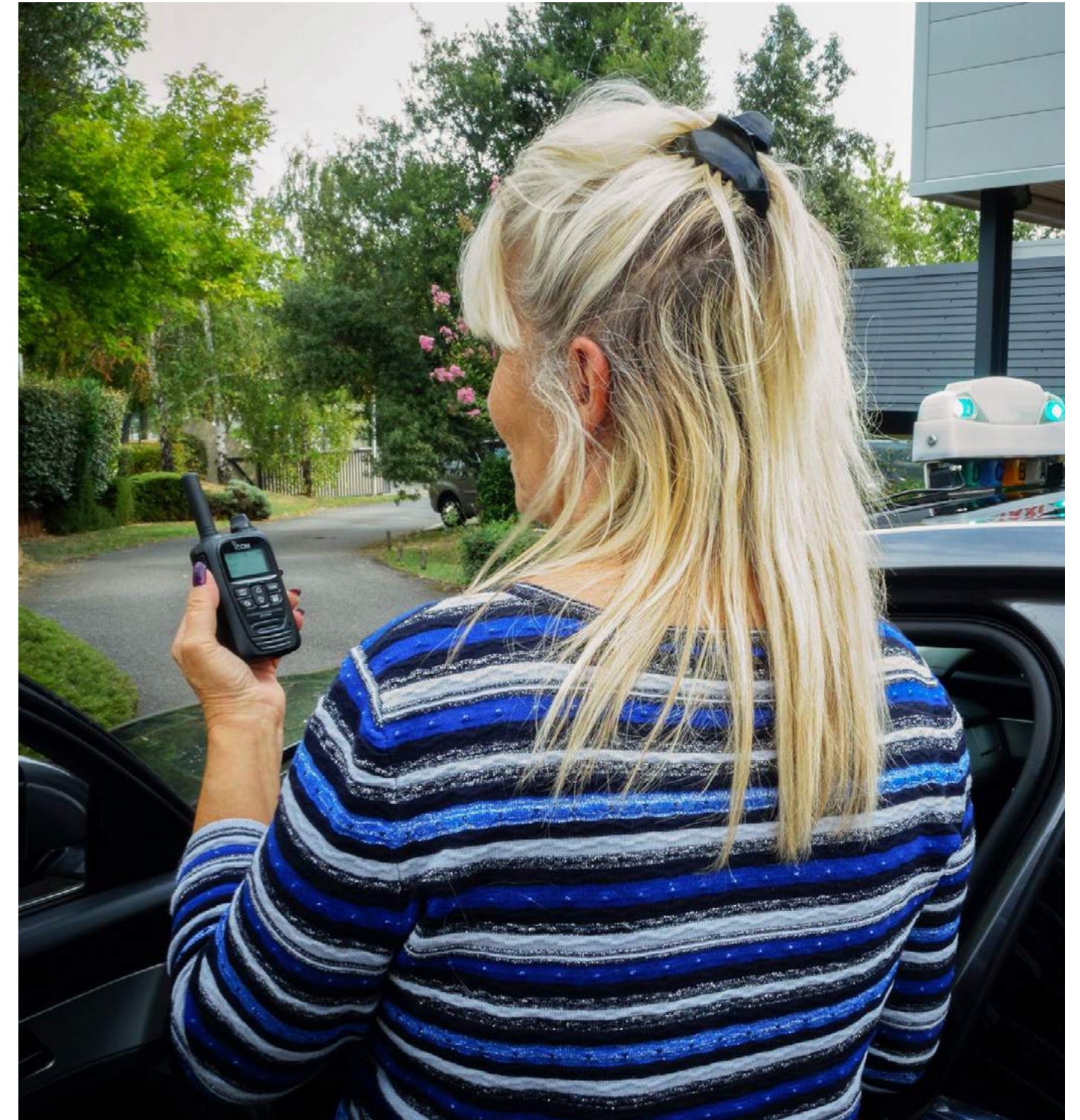
### Web Based Client

A secure web-based client will also be available so users can access GPS information wherever they are\*. This secure client application will be password protected and the dealer will have an administration interface.

\*Internet connection required.

### Downloadable App Available

The Dispatch Manager will also be available to download from Google Play and the App Store. This gives users more versatility with their radio management system as they can track the radios on a mobile or tablet.



# LTE RADIO FAQs

## LTE Radio System FAQs

After looking through the LTE radio system, IP501H & IP501M, you may have some questions. Below are the most commonly asked questions that we are faced with and hope they will help provide a greater understanding of our innovative new system.

### What is involved in the installation of an Icom LTE Radio System?

There is nothing more involved than purchasing the radios and signing up to a SIM & server contract running over two or three years. We will set up the SIM and terminal to your preference and once you have received your handsets, it is all ready to go.

### What type of scenarios would the Icom LTE radio system be useful for?

The LTE radio system can be used in many different scenarios offering users a complete communications package without a huge infrastructure to manage. Wide-area coverage is accessible without the need to setup repeaters, cables or antennas. You can just turn the LTE radios on and begin transmitting.

If you're in a built-up area where VHF/UHF use is limited or susceptible to drop outs, then the LTE radio system would be ideal. Another scenario is being able to deploy this system at short notice, such as for events like marathons, car/motorbikes exhibitions, public exhibitions etc.

### Is the IP501H just a mobile phone?

No. The IP501H is not a mobile phone. It's a push to talk two-way radio terminal that works over the 4G/LTE/3G networks. The unit is designed to be used for commercial environments where you need to talk to one or more parties straight away. There is no need to dial a number as you push to speak directly to the other person or people in the group. It is designed to withstand rough environments and meets tough IP67 standards.

### I am worried that the radios data could be used up by checking social media, private text messages etc. Should I be concerned about this?

These radios can only be used for communication purposes and can only be contacted by other radios programmed onto the same system. The LTE radios are operated just like a conventional radio where you push the PTT button and speak. You do not need to download any further apps or have an extensive menu where users can get distracted.

### Does the IP501H/IP501M require a SIM card?

Yes, the IP501H & IP501M does require a SIM card. However, it is a custom SIM which is very different from your regular smartphone or tablet. The Icom custom SIM card will not work in any other device and a phone SIM card will not work in the LTE radios.

### What is the difference between a regular SIM and Icom's custom SIM card?

While a regular SIM allows you to use voice & data, it is locked to a specific carrier. The Icom custom SIM card is a roaming SIM which is capable of roaming throughout Europe allowing you further communication capabilities then before, harnessing the strongest 4G signal in your area from one of the top 3 network providers in the UK and uses just data.

Please note, a regular SIM would not work in the LTE radios and the Icom custom SIM card will not work in other devices.

### What kind of accessories are available for the IP501H?

You can refer back to page 8 of this catalogue where a number of accessories are listed including headsets, earpieces, cases and Bluetooth accessories that allow wireless control of the IP501H. Please feel free to contact us for further information on accessories or in help in selecting accessories that match your needs.



### What is the coverage range of the Icom LTE Radio system?

A UK based customer will have coverage throughout the UK utilising EE, Vodafone and O2. As EU roaming tariffs are the same across the continent, you should have equal coverage in EU states at no additional charge. Outside of the EU, a roaming agreement is available. Please contact Icom UK for more details.

### 4G coverage in my area is inconsistent, does this mean I cannot use the radios?

As the custom Icom SIM card is not locked to one specific network and is a roaming SIM, the radios can lock onto whatever signal is strongest, whether that is 4G or 3G.

### Do I need a radio licence to operate the LTE radios?

No. The radios do not use the conventional radio spectrum and therefore do not require a governing body to licence them.

### What is the cost involved in setting up an LTE Radio System (for example, does it need a repeater)?

Unlike conventional radio, there is no requirements for infrastructure investment. No need to invest in repeaters, cabling and radio programming. Once set up by your dealer, it's as simple as turning on the unit and pushing the PTT (push-to-talk) button.

### Where is the server located that manages the network?

Our server is based in a secure location in the UK. We've worked diligently to make sure that the highest level of encryption is in place on the cloud server to secure your private data and communications as well as adhering to all data privacy handling requirements to maintain your best interest.

### Is there an app available to download for my phone or tablet?

There is an app available to download that lets you monitor the GPS positioning of your fleet of radios as well as a web-based client which you can securely access via a specified username and password.

### What is included in the Icom Data Plan?

The Icom Data Plan is:

- A 2- or 3-year contract with a fixed monthly fee (including connection)
- Each contract will include a dedicated built-in sim card that covers the three leading UK mobile phone carriers (e.g. EE, Vodafone and O2).
- Closed Private and Secure network.
- Monitoring of the system and network
- Radio firmware updates all managed by Icom

### Can the LTE radios be programmed to my specific needs?

The IP501H & IP501M can be programmed to whatever groups, contacts and emergency button functions you will need. The radios utilise Over-The-Air-Programming (OTAP) so if you change your mind about a button function, or need to add another user/radio, there is no need to get the radio back to programme. The programming change can be made, the radios turned on, and the latest update will apply.

### So, what is the next step? What do I need to get started?

The first step is to purchase IP501H handhelds or IP501M mobiles and accessories through one of our many Icom LTE dealers. We are working on many attractive packages which our dealers can offer you including buying the radio outright or with yearly plans which includes support or even hiring packages for events or jobs where only short-term radio usage is needed.



# IP ADVANCED

## IP Advanced Radio System

Icom's innovative IP advanced radio system provides the ability to contact any member of your staff at any time utilising an existing or new IP/WLAN network. The WLAN based system offers a scalable licence-free communication system using standard wireless networking products, which in many cases, may already be in place.

### The system is particularly suitable for:

- Hotels and resorts
- Shopping centres and department stores
- Restaurants / catering
- Factories
- Hospitals
- Tunnels and underground buildings
- Historic Buildings and museums
- Private communications onboard vessels

### Licence Free System...No Call Charges

As you'll be using standard wireless networking infrastructure, radio licences are not required. This means no licencing forms to fill out and no licencing fees to pay.

### Scalable, Yet Secure System

The IP/WLAN system from Icom offers a scalable licence-free communication system using standard wireless networking products. Secure encrypted communication is provided by the WPA-PSK and WPA-PSK2 wireless security protocols that encrypts calls.

### Multiple Simultaneous Use (Full Duplex)

12 full duplex calls can transmit simultaneously at any one time. With an optional headset, the IP100H transceiver can talk and receive at the same time in a smooth conversation-like manner.

### Information Terminal Position

The optional RMS-Net Dispatch Manager receives information about the location of each transceiver based on the access point to which it is recorded and represent it graphically on the screen.

### Simple System to Manage

Almost all configurations for the IP100H are programmable over the air. Individual PC programming via cable connection is not required.

### Different Types of Calls

The IP100H/RMS-Net can make individual call, group conference call, all call and area call. The unique area call function allows you to call any user who is accessing the specified access point.

### Mixing Function

The mixing function receives multiple users voices at the same time. Multiple communication is possible and increases efficiency of information sharing.



## Roaming

In a network consisting of two or more access points connected via IP, a transceiver can roam from an access point to another without losing communication.

## Short Text Messages & Status

The IP100H/RMS-Net can send status and short data messages\* to other users. The IP100H vibrates powerfully when receiving these messages.

\* Pre-programmed message only for IP100H.

## Can Be Added to The System:

- Optional RMS-Net radio dispatcher.
- The new high performance access point Icom AP-95M. The system also works with third-party access point\* (IEEE 802.11 a/b/g/n, ac).

\* Icom does not guarantee compatibility with all brands on the market

## IP Phone & Transceiver Interconnection

With the VE-PG4 RoIP gateway, the IP advanced radio system can interconnect with an IP phone, analogue transceiver, IDAS™ NXDN™ digital transceiver, PA systems and the LTE radio system.



## Wireless LAN System Extends Your Communication Coverage.

### Individual, Group or Area Communication



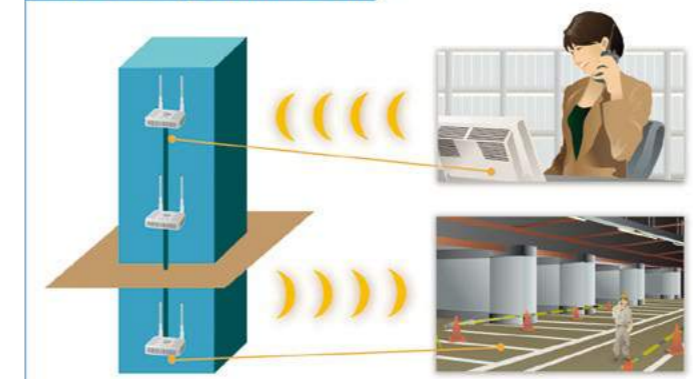
Staff spread across an extended site, such as a hotel, can communicate seamlessly.

### Hands-free, Full-duplex Communication



With an optional headset, the IP100H user can talk and receive simultaneously like a phone call. Hands-free operation allows your staff to carry out other tasks at the same time.

### Intra-building Communication



By deploying access points along the IP network, the IP advanced radio system can communicate all the way from the basement to the top floor. The IP100H can access the nearest access point and can roam between access points\*. \*Same SSIDs are required for roaming use.

### Dispersed Sites Communication



If connected over an internet VPN, the IP100H can communicate between dispersed sites such as offices or shops in different cities'

# IP100H

# ACCESSORIES

## Introducing the Icom IP100H IP Radio

Despite its size, Icom's compact IP100H WLAN/IP radio, is a powerful radio packed with many features.

The IP100H acts as a wireless network radio. Everyone in your group can hear and talk with the rest of the group using the 'Group Call' function. Individual calls are also possible as well as full-duplex calls. The radio can also move freely within the wireless network and coverage for your radio system can be easily expanded by adding further access points (AP-90M).

## Full-Duplex Capabilities

The radio can handle both individual and group calls all while utilising full-duplex communication\*.

\*Full-duplex communication capabilities available for the IP100H when an optional headset is connected.

## Excellent Audio Quality

The built-in speaker provides outstanding audio quality. Users can clearly hear what is being said and without delay.

## Long Operating Time

The IP100H has a long operating time of over 20 hours\* with the supplied BP-271 Li-Ion battery pack.

\*Tx:Rx: Stand-by=1:1:8 duty cycle

## High Security with Encrypted Communication

Secure encrypted communication is provided by the WPA-PSK and WPA-PSK2 wireless security protocols that encrypts calls.

## Vibration Alert & Emergency Call Features

When receiving incoming calls or text messages\*, the IP100H vibrates to notify you of the incoming transmission. The IP100H can also send out an 'Emergency Call' from the specified button on the handset.

\*Pre-programmed messages only for the IP100H

## IPX7 Waterproof










The IP100H is waterproof to a depth of 1 meter for 30 minutes. This means the radio can withstand outdoor work in some of the harshest environments.

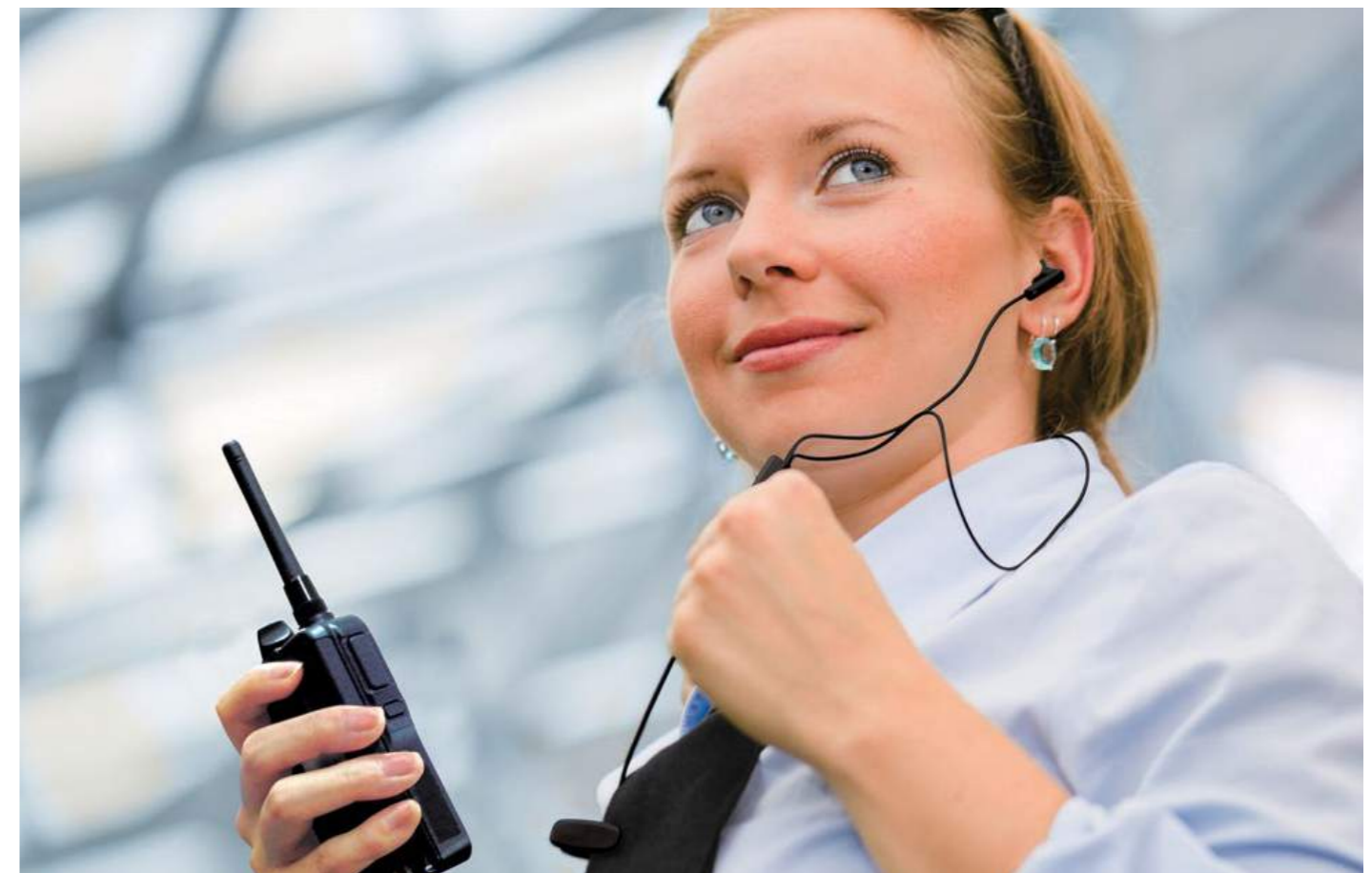
## Compact, Robust Body with Full-Dot Matrix Display

The compact (58x95x26.4 mm) and lightweight (205g\*) IP100H handheld is one of the smallest radios in the market and it fits perfectly in the users' hand whilst featuring an easy to read full-dot matrix display.

\*With BP-271 Li-Ion battery pack fitted.



 <p><b>BP-271</b> Li-Ion battery pack 7.4V/1150mAh</p>	 <p><b>BP-272</b> Li-Ion battery pack 7.4V/1880mAh</p>	 <p><b>BC-202</b> Fast charger</p>	 <p><b>BC-211</b> 6 way multi charger including AD-127</p>	 <p><b>HM-166LS</b> Earphone type microphone</p>	 <p><b>HM-186LS</b> Compact speaker microphone with 3.5mm jack</p>
 <p><b>HS-94</b> Earhook type headset</p>	 <p><b>HS-95</b> Behind the head type headset</p>	 <p><b>HS-97</b> Throat type headset</p>	 <p><b>OPC 2328</b> PTT Box with transmission lock function</p>		



# RMS NET

## RMS-Net

RMS-Net is a digital radio management system ideal for almost any organisation that cares about security and staff safety. RMS-Net integrates voice radio communication, text/status messaging, and a range of security features in a system that logs all radio traffic onto a central computer database. The desktop dispatcher can keep in touch with radio users via their own computer. RMS-Net is designed to be fully interactive ensuring dispatchers/supervisors are able to monitor and respond rapidly to situations as they occur.

### A powerful tool for management control, providing a detailed view of staff deployment and resources

A major strength of RMS-Net is its reporting features. All radio traffic is logged and stored on a central database. This is ideal for management control and future resource planning including personnel database management. It may provide motivation for staff to perform their assigned tasks and provide conclusive documentation that they have done so. In addition, the centralised nature of the system ensures rapid response to incidents as they occur as well as the managed prevention of potential incidents. .

### Aids Health & Safety Management Requirements

RMS-Net satisfies the growing health and safety and management demands faced by organisations today. It provides a range of emergency alert functions with the use of Mandown, Loneworker and panic button features. It also provides extensive records/reports on all radio traffic should an organisation need it.

### Voice Recording

The ability to have at hand a record of an incident is important and can provide a useful training aid. Providing searchable records for health and safety is a very important issue for many organisations and businesses, should an incident ever go to court or tribunal. With RMS-Net new voice recording function, you can now record audio for a pre-set amount of days on a PC (normally 30 or 60 days). If voice is recorded in conjunction with an IDAS, 5 Tone or a BIIS system it will log the ID of the person who is talking. This can then be extracted onto a WAV file, providing a full conversation log. This voice recording capability can also be tied in with the standard reporting functions of RMS-Net which gives you the data log of who is talking, status messages, log on/log off, emergencies, internal positioning etc.



### Connect with Dispersed Sites with IP Remote Dispatch Capability

Icom's optional VE-PG4 RoIP gateway provides IP remote dispatch capability, allowing you to remotely control your radio system from elsewhere using the internet. This essentially means that the PC does not have to be within the radio coverage of the system. In the past, most RF dispatching systems needed to be localised, but now with this new IP remote dispatch capability, it doesn't. If you have an IP network or local LAN network, you can put the radio in the optimum position and control it remotely from elsewhere in the building, in a different city or even in a different country. It can also be controlled via multiple PCs used by multiple operators.

### Interrogate database

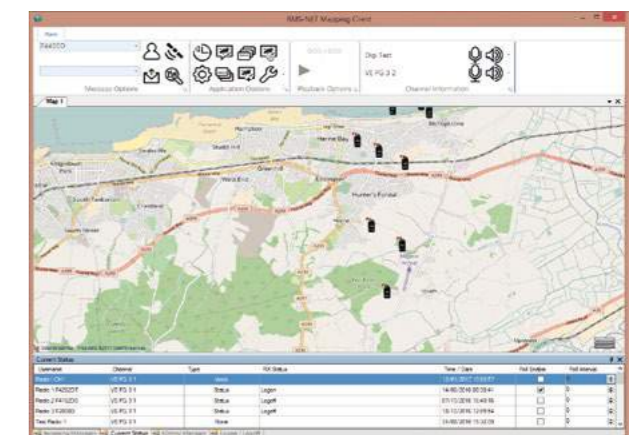
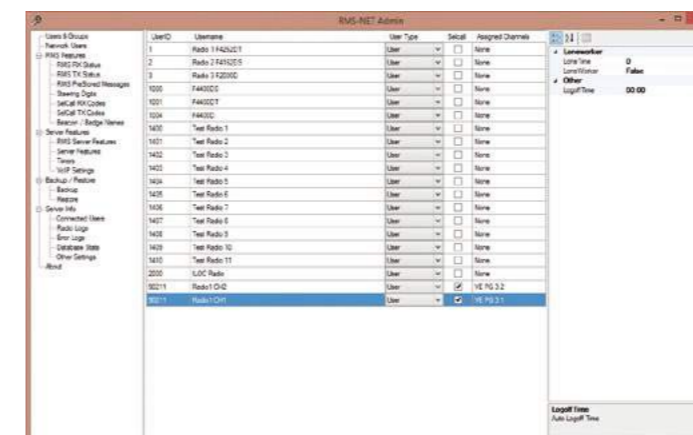
With RMS-Net it is possible to rapidly see which radios are logged on and being used on that day. This is achieved by decoding the radio's unique ID at switch on and flagging the user as active on the system. The hand-portables are supplied pre-programmed with text and status messages so users can easily keep the central control room informed of routine operations.

### Digital/analogue mixed mode operation

RMS-Net can be used in either analogue or digital mode or a mixture of analogue and digital on the same site. You can partially introduce digital radios, while using the existing analogue radios in a system. RMS-Net allows you to scale migration to narrow band digital at your own pace, while running an existing analogue system.

### OTHER FEATURES

- Various Loneworker settings
- Logon acknowledgement function
- Message queuing and reminders
- Message redistribution
- Emergency message functions
- Multiple channel support
- Emergency Features
- Custom reporting available pertinent to their business.
- Windows 64 & 32 bit compatible





# VE-PG4

VE-PG4 is designed to improve the functionality of a radio network and facilitate radio usage through the utilisation of IP networking technology. VE-PG4 has two modes; converter mode and bridge mode. The Converter mode converts the radio network audio to an IP protocol (VoIP) and enables interconnection between various connected devices. Bridge mode can connect radio channels via networks, regardless of frequency or type of radio.

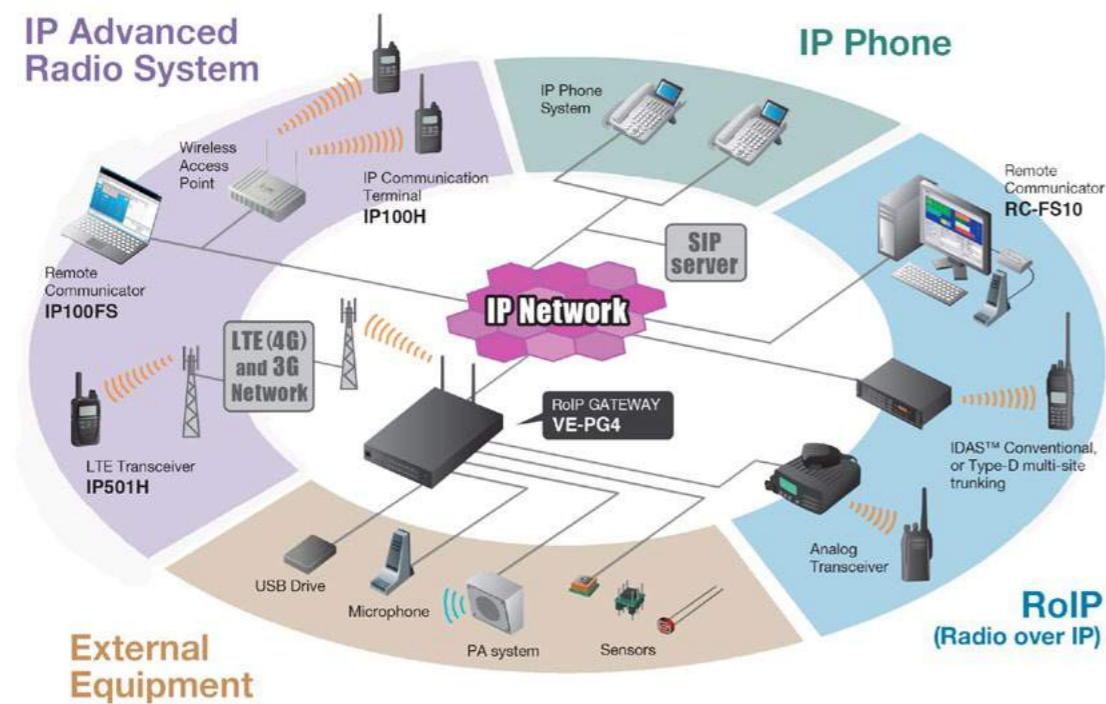
## Converter Mode

VE-PG4 has RoIP (Radio-over-IP), SIP gateway, IP router and IP PBX features built-in as standard. The VE-PG4 integrates digital and analogue devices with SIP and analogue telephone systems. Available connections through VE-PG4:

- SIP Digital Telephone Switch
- IP Phones
- PA System
- Analogue radio
- IP Radio system
- LTE Radio System
- Digital IDAS radio site

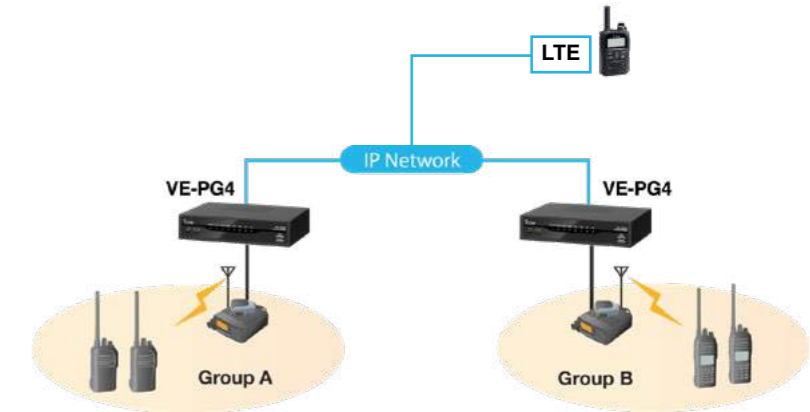


## VE-PG4 CONNECTIONS



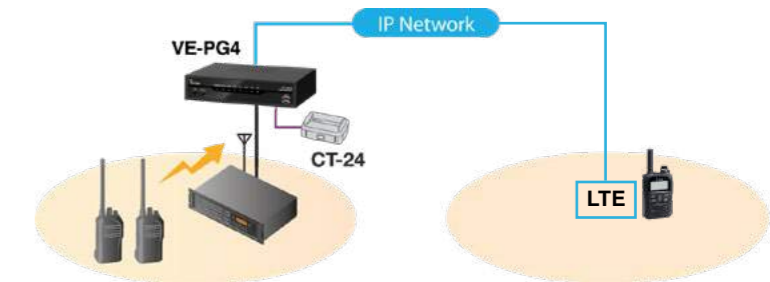
## Bridge mode between two radio systems

In bridge mode, two radios are connected to each other over an IP network. This diagram is an example of a bridge configuration where users under one site can talk to users under the other site.



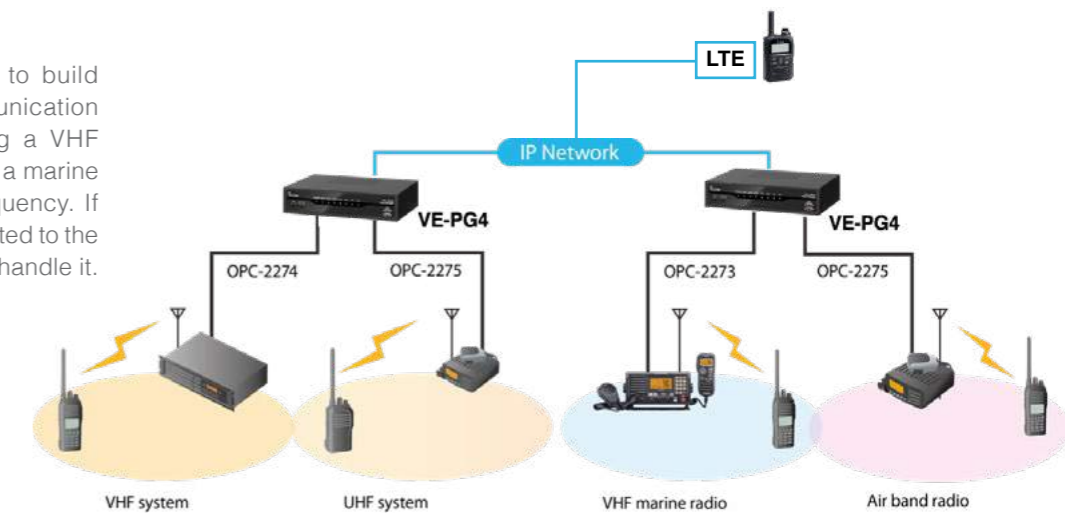
## Bridge position between two sites

VE-PG4 can be a bridge between a radio (analogue or digital) over to an IDAS system. As seen in the diagram, users of one system can talk to users in another system.



## Connection to dispatcher

With a VE-PG4 it is possible to build links between different communication systems. For example, linking a VHF network with a UHF network, or a marine frequency with an aviation frequency. If only two radios are to be connected to the same site, a single VE-PG4 will handle it.



# SATELLITE PTT

## Satellite PTT System

Icom has entered into a working partnership with Iridium to develop and manufacture a new satellite communication device called Satellite PTT. The collaboration will combine Icom's 54 years of expertise and knowledge with Iridium's satellite experience to provide a professional radio communications solution that will enable users to communicate whenever they want and wherever they are in the world.

## IC-SAT100 (Launch Date to Be Announced)

### Iridium Satellites

The IC-SAT100 will communicate through Iridium's multiple satellites offering stable and reliable connection throughout the globe. The 66 Low Earth Orbit (LEO) Iridium satellites cover the entire globe and are more reliable than the Geosynchronous Equatorial Orbit (GEO) satellites that are used in radio and television broadcasting.

### PTT Operation

The handheld will operate the same way as a conventional radio, simple PTT operation offering real-time, multi-user communication across the globe. The IC-SAT100 offers coverage in the most remote, mountainous and isolated areas where traditional mobile phones or land line network infrastructures are rendered obsolete. This makes the Satellite PTT a very stable, attractive backup.

### Icom Robust Body

Icom's expertise in making robust, rugged bodies for their radios will be fully utilised to create an ergonomically, tough satellite handheld.





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- RMDR (Reciprocal Mixing Dynamic Range) of 110 dB\* (at 1 kHz)**
- Completely Independent Dual Receivers Receive Two Bands Simultaneously**
- High-Speed, High-Resolution Spectrum Waterfall Scope**
- High Stability, High Spectral Purity Local Oscillator**
- Full Duty 200 W Output Power**
- 1.2 kHz Optimum Roofing Filter Greatly Improves In-band Adjacent Signal Performance**
- Audio Scope and Oscilloscope for Observing Receive and Transmit Audio**

\* At a 1 kHz offset frequency. Receive frequency: 14.2 MHz Mode: CW, IF BW: 500 Hz, Roofing Filter: 1.2 kHz

**Experience in video** 

[http://www.icom.co.jp/r/ic-7851\\_me/](http://www.icom.co.jp/r/ic-7851_me/)



## HF/50 MHz TRANSCEIVER IC-7851

### RMDR: 110 dB, Raising the Bar Again

Design advances developed by the Icom HF engineers for the Local Oscillator (LO) enable the IC-7851 to set a new benchmark for amateur radio receivers. The goal was to dramatically reduce the phase noise that degrades the target signal due to the sum of the entire signal present. The result was a RMDR of 110 dB\*. Below is a comparison of the improvement over the IC-7800.

\* At a 1 kHz offset frequency

Receive frequency: 14.2 MHz Mode: CW, IF BW: 500 Hz Roofing Filter IC-7800 = 3 kHz, IC-7851 = 1.2 kHz

■ RMDR Comparison

	RMDR(dB)			
	1kHz	2kHz	10kHz	20kHz
IC-7851	110	116	121	124
IC-7800	78	87	106	112

### RMDR

RMDR (Reciprocal Mixing Dynamic Range) is the relative level of an undesired signal, offset "n" kHz from the RX passband, which will raise noise floor by 3 dB. The local oscillator phase noise will mix with strong unwanted signals and unavoidably generate noise which masks a wanted signal.

### 1.2 kHz Optimum Roofing Filter

Despite the trend to switch to a down conversion or a hybrid conversion receiver design, Icom believes in the solid performance of the up-conversion design. The IC-7851 introduces a new 1.2 kHz Optimum Roofing Filter, greatly improving the in-band adjacent signal performance. This newly developed filter overcomes the gap of a narrower roofing filter in an up-conversion receiver.



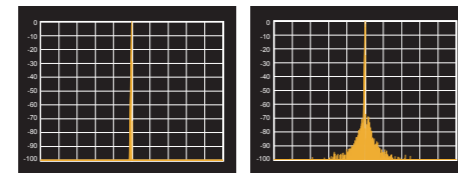
Optimum Roofing Filter

### Innovative LO Design

Breaking the boundaries of traditional designs, the IC-7851 employs a Direct Digital Synthesizer (DDS) along with a Phase Locked Oscillator for the LO (Local Oscillator). The C/N ratio excels beyond the IC-7800 and other similar class HF transceivers. This design significantly reduces noise components in both receive and transmit signals.

■ LO C/N Characteristics Comparisons

Receive Frequency: 14.2 MHz Mode: CW 1st LO frequency: 78.655 MHz SPAN = 20 kHz, RBW = 30 Hz, VBW = 10 Hz

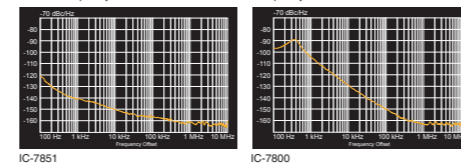


### Improved Phase Noise Characteristics

Phase noise is coherent in radio circuit design, and the new LO design introduced in the IC-7851 makes some major breakthroughs while utilizing the 64 MHz, up-conversion receiver design introduced in the IC-7800. An impressive 20 dB improvement is seen with the IC-7851's 10 kHz measurement, and more than 30 dB improvement at a 1 kHz measurement in comparison to the IC-7800.

■ Phase Noise Characteristics Comparisons

Receive Frequency: 14.2 MHz Mode: CW 1st LO frequency: 78.655 MHz



### Improved Spectrum Scope

Following the design lineage of the IC-7800, the IC-7851 uses a dedicated DSP unit for the Fast Fourier Transform (FFT) spectrum. The 2250 MFLOPS DSP processor enables a new dual scope function, significantly faster sweep speeds, and better accuracy than in the IC-7800.

■ Scope Comparison

	IC-7851	IC-7800
Span Width	5 kHz-1000 kHz	5 kHz-500 kHz
Resolution **	1 pixel minimum **	20 pixels minimum **
Sweep Speed	29.3 frames/Sec **	4 frames/Sec **
Display Dynamic Range	100 dB	80 dB
Noise Floor Level	-30 dBμ	-19 dBμ

\*\* Number of dots shown at the 60 dB level, when receiving a signal.

\*\* SPAN = More than 20 kHz, SPEED = Slow

\*\* SPAN = Less than 20 kHz, SPEED = Fast

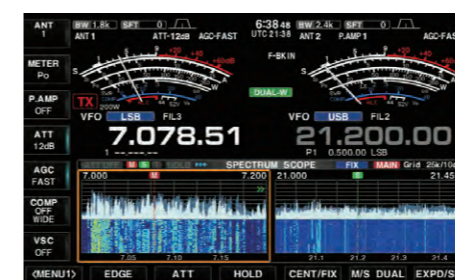
\*\* SPAN = 500 kHz, SPEED = Slow

### +40 dBm IP3 (3rd Order Intercept Point)

The IC-7851 continues the +40 dBm, 3rd order intercept point and 110 dB receiver dynamic range benchmark set by the IC-7800. To achieve this superb receiver performance, the entire analogue circuitry and components have been re-engineered to match the DSP units. A newly designed LO amplifier generates high output while keeping flat frequency characteristics over a 60 MHz wide range.

### Dual Spectrum Scope with Waterfall Function

The IC-7851 introduces the new dual scope, enabling you to observe both receivers in separate spectrum scopes. The dual scope function is vital to watch for multipliers or band openings in contests, or working all bands/modes on a DXpedition. The waterfall display captures signal strengths over time. This enables you to see signals that may not be apparent on a normal scope.



Dual scope example (Horizontally aligned)

### Full Duty 200 W Output Power

The push-pull power amplifiers using power MOS-FETs work on 48 V DC. They provide a powerful 200 W output power at full duty cycle. An effective cooling system maintains internal temperatures within a safe range and prevents thermal runaway.

### Digital IF Filter

Icom's digital IF filters give you performance that is not possible with crystal or mechanical filters. They allow the operator to adjust filter shape (sharp or soft), filter bandwidth, and center frequency characteristics, without missing the action.

### Other Outstanding Features

**[Antenna and receiver]** • Two completely independent receivers • 15 kHz, 6 kHz, 3 kHz and 1.2 kHz 1st IF Roofing filters • Four antenna connectors with automatic antenna selector • Automatic antenna tuner • 50 MHz special

preamp and mixer circuit • Digital manual notch • Digital twin PBT eliminates interference from adjacent signals • New auto digital noise blanker • ±0.05 ppm High Stability OCXO Unit **[CW mode]** • DSP-controlled CW keying waveform shaping • Multi-function electronic keyer with adjustable keying speed, dot-dash ratio and paddle polarity • Audio Peak Filter selection (soft/sharp) **[Operation]** • Simplified remote control capability with the optional RS-BA1 Version 2 • High-quality digital voice recorder memory • Built-in RTTY, PSK31 and PSK63 without needing a computer • Message memory for Voice, CW, RTTY and PSK31/63 • Digital video interface (DVI-I) • SD memory card slot • Audio scope function • Mouse control spectrum scope • AGC control • Microphone equalizer and adjustable transmit bandwidth • FFT scope averaging function for PSK and RTTY decode • Screen saver function



- RMDR (Reciprocal Mixing Dynamic Range) of 110 dB\* (at 2 kHz)**
- Independent Dual Receivers Receive Two Bands Simultaneously**
- Superior Transmit Phase Noise Characteristics**
- DIGI-SEL Preselector for Main and Sub Bands**
- High-Speed, High-Resolution Real-time Spectrum Scope**
- Touch Screen and Multi-Dial Knob for Smooth Operation**
- DVI-D Digital Connector for External Display Connection**

\* At a 2 kHz offset frequency. Receive frequency: 14.2 MHz Mode: CW, IF BW: 500 Hz



## HF/50 MHz TRANSCEIVER IC-7610

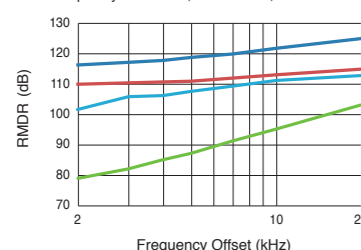
### Innovative RF Direct Sampling System Achieves 110 dB\* (typ) RMDR

The RF direct sampling system directly converts the analogue signals to digital signals, and collectively puts the data through FPGA (Field-Programmable Gate Array) processing. The master clock uses a high precision VCXO (Voltage Controlled Crystal Oscillator) which excels in low-noise characteristics. This makes it possible to provide superior receive and transmit performance, extremely low phase noise as well as high RMDR (Reciprocal Mixing Dynamic Range).

\* At 2 kHz frequency separation.

#### RMDR Characteristics

\* Receive frequency: 14.2 MHz, MODE: CW, IF BW: 500 Hz



— IC-7851 — IC-7610 — IC-7300 — IC-7600

### Independent Dual Receivers Receive Two Bands Simultaneously

The dual receivers are ideal for simultaneous monitoring of two bands and two modes. The sub receiver works independently of the main receiver. The optional RC-28 can be used as for main dial and/or the sub dial.

### Superior Transmit Phase Noise Characteristics

Breaking with the tradition of mixing a carrier signal with a local oscillator, a Digital-Up-Conversion (DUC) is used to generate required frequencies by sampling in the Digital to Analogue Converter (DAC). The superior Phase Noise characteristics provide high purity transmit signals.

### DIGI-SEL Firmly Shuts Out Interfering Signals

Both main and sub receivers are equipped with DIGI-SEL (digital preselector) units. The DIGI-SEL has steeper skirt characteristics than normal band-pass filters, so it rejects out of band strong interference, such as broadcast stations, and prevents intermodulation distortion.



DIGI-SEL Unit

### High-Speed, High-Resolution Real-time Spectrum Scope

The real-time spectrum scope of the IC-7610 shows main and sub band conditions. It provides class-leading performance in resolution, sweep speed and a 100 dB of dynamic range. The waterfall screen enables you to find weak signals by showing the spectrum change over time. Connecting a PC mouse to the USB port aids in flexible use of the spectrum scope.

### FFT Scope and Oscilloscope for Audio Observation

The audio scope function shows the FFT scope with waterfall and the oscilloscope of either transmit or receive audio. This function can be used to observe various AF characteristics such as microphone compressor level, filter width, notch filter and receive keying waveform in CW mode.

### Touch Screen and Multi-Dial Knob for Smooth Operation

The combination of the touch screen and the multi-dial knob offers quick and smooth operation. When you push the multi-dial knob, menu items are shown on the right side of the display. You can select an item with a touch of the screen, and adjust levels by rotating the multi-dial knob.

### DVI-D Connector for an External Display Connection

The IC-7610 has a DVI-D connector for an external display. Operating frequency, setting information and spectrum scopes can be observed on a large external display.

### High Sound Quality Speaker

The IC-7610's speaker offers comfortable sound quality with flat overall frequency response and loud and intelligible audio of the high-purity received signal. Insulators are placed between the speaker and chassis for preventing vibration noise.

### SD Card Slot and USB ports for Data Saving

For multi-operators using one rig, personal settings such as filter settings, Memory channels, and antenna settings, can be saved and loaded using the SD card/USB memory stick. TX Voice memories and RTTY/CW memories on the SD card/USB memory stick can be sent with a touch of a button.

### I/Q Signal Output

The I/Q signal output function\* enables you to derive digital IF signals from the I/Q output jack.

\* The IC-7610 firmware version must be 1.20 or later.

### Other Outstanding Features

[Antenna and receiver] • BNC type RX IN/OUT connectors • Built-in automatic antenna tuner • Two types of preamplifiers • 3 dB – 45 dB attenuator • IP+ function improves third order intercept point performance • RTTY demodulator and decoder • Digital twin PBT eliminates interference from adjacent signals

[Transmitter] • TX monitor function • All mode power control • VOX (voice operated transmission) capability • Microphone equalizer and adjustable transmit bandwidth • 50 CTCSS tones

[CW mode] • FPGA-controlled CW keying waveform shaping • Multi-function electronic keyer • CW pitch control from 300 Hz to 900 Hz • Auto repeat function • Contest serial number counter • Normal or short morse number style • Double key jack system • Full

break-in and semi break-in • CW auto tuning • APF (Audio Peak Filter) function adjustable filter position, width, type and AF level

[Operation] • 7-inch wide colour TFT LCD • Simplified IP remote control capability with the optional RS-BA1 Version 2 • Memo pad stores up to 10 operating frequencies and modes • Quick Split function • Quick Dualwatch function • RF gain and squelch control with a knob • RIT and  $\Delta$ TX variable up to 9.999 kHz • UTC/local clock and timer function • 1 Hz pitch tuning and display • 101 Memory channels • Dial lock function • Adjustable main dial friction • External speaker jacks for main and sub receivers • Multi-function meter • Auto tuning step function • AGC control for fine tuning of the AGC time constant • Screen saver function





## HF/50 MHz TRANSCEIVER IC-7700

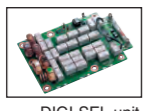
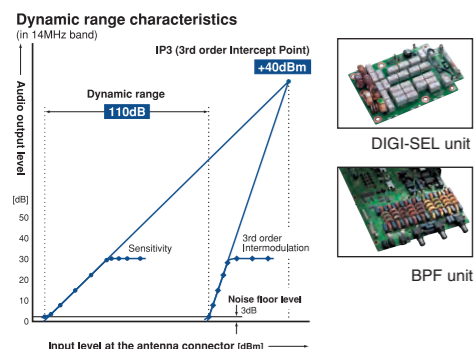
**+40 dBm Third-Order Intercept Point (in the HF Bands)**

**Spectrum Scope with Waterfall Function**

**200 W Output Power and High-stability Transmitter**

### +40 dBm IP3 (3rd order Intercept Point) and 110 dB Dynamic Range

The IC-7700 employs mechanical relay BPF switching, a digitally tuned preselector, and three hi-spec 1st IF filters (roofing filters) in a clean and simple double conversion superheterodyne design. By balancing the analogue and DSP functions, the IC-7700 provides superior sensitivity simultaneously with a superb dynamic range of 110 dB, and +40 dBm IP3 (even in the USB mode with a 2.4 kHz filter bandwidth).



### More than +110 dBm IP2 (2nd order Intercept Point)

An IP2 point of more than +110 dBm\* means 2nd order distortion from strong broadcast stations will be completely eliminated.

\* The IP2 figure is a typical value.

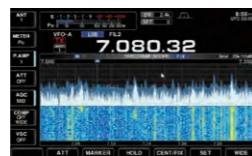
\*\* Measurements were made using custom equipment, due to the limits of normal signal generators (SG) and duplexers of +85 dBm.

### High Specification Inband IMD

All (2nd, 3rd or even higher) orders of IMD performance are superior in the IC-7700. You'll notice the difference as you copy weak signals without internal distortion or noise, especially evident in the CW mode.

### Spectrum Waterfall Display

The spectrum waterfall function can show the changing amplitude of frequency spectrum over time. A weak signal which cannot be recognized with the spectrum scope may be found in the waterfall screen. With the high performance receiver, the IC-7700 increases your chances of making QSOs.



Spectrum scope with waterfall (wide screen setting)

### Mouse Operation for Spectrum Scope

By connecting a PC mouse to the USB port, the spectrum scope operation is possible with a mouse.

### Audio Scope Function for AF Observation

The audio scope function can be used for observing various AF characteristics such as microphone compressor level, filter width, notch filter and CW keying waveform.

### 200 W Full Duty Operation

The IC-7700 uses a STAC2942 power amplifier in a push-pull configuration. The digital PSN modulator consistently produces an outstanding signal-to-noise ratio, providing clean and low IMD transmission on all bands.

### Other Outstanding Features

- Simplified remote control operation with optional RS-BA1 Version 2
- QSO recording function into USB flash drive
- 15 kHz, 6 kHz, and 3 kHz Hi-spec 1st IF filters (roofing filter)
- Image rejection mixer is used for the 2nd mixer
- Low distortion bandpass filter and mechanical relays
- DIGI-SEL automatic preselector rejects out of band strong interference
- High Intercept point and low noise preamplifier
- Two AGC loop lines improve dynamic range and blocking from strong interference
- ±0.05 ppm high stability OCXO unit
- RTTY and PSK 31 operation without PC connection
- USB connectors on the front panel
- 4 antenna connectors with automatic antenna selector
- Digital twin PBT eliminates interference from adjacent signals
- Flexible digital IF filter setting
- Manual and auto notch filter
- Microphone equalizer and adjustable transmit bandwidth
- VGA connector for an external display connection

Firmware Update Available (Free Download)  
<http://www.icom.co.jp/world/support/index.html>



## HF/50/70 MHz TRANSCEIVER IC-7300

**Class Leading Real-time Spectrum Scope with Waterfall Function**

**RF Direct Sampling System**

**New "IP+" Function**

### Class Leading Real-time Spectrum Scope with Waterfall Function

The IC-7300's real-time spectrum scope is class-leading in resolution, sweep speed and dynamic range. While listening to received audio, you can check the real-time spectrum scope and quickly move to an intended signal.

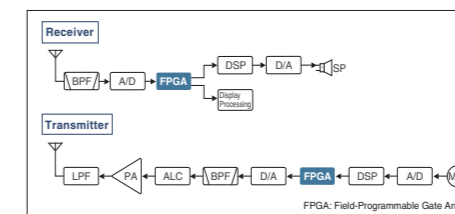
#### Real-time Spectrum Scope Specifications

	IC-7300
Scope system	FFT (Fast Fourier Transform)
Span width	5 kHz-1000 kHz
Resolution *	1 pixel minimum (approximately)
Sweep speed	Max. 30 frames/second (approximately)
Waveform display area (vertical axis)	80 dB
Other functions	Waterfall function, Audio scope function

\* Number of pixels shown at the 60 dB level, when receiving a signal.

### RF Direct Sampling System

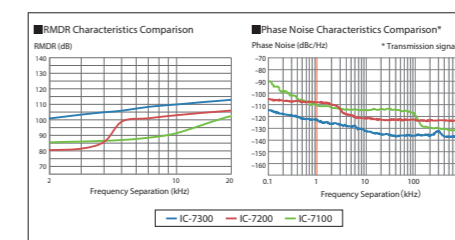
The IC-7300 employs an RF direct sampling system. RF signals are directly converted to digital data and processed in the FPGA (Field-Programmable Gate Array), making it possible to simplify the circuit construction. This system is the new benchmark technology making an epoch in amateur radio.



### Class Leading RMDR and Phase Noise Characteristics

The IC-7300's RMDR is improved to about 100 dB\* (typical value) and Phase Noise characteristics are improved about 20 dB (at 2 kHz frequency separation) compared to the IC-7200. The superior Phase Noise characteristics reduce noise components in both receive and transmit signals.

\* At 2 kHz frequency separation (received frequency: 14.2 MHz, MODE: CW, IF BW: 500 Hz)



### New "IP+" Function

The new "IP+" function improves the third order intercept point (IP3) performance. When a weak signal is received adjacent to strong interference, the AD converter is optimized against signal distortion.



Spectrum scope + Waterfall



FFT scope/Oscilloscope



Touch screen interface

### 15 Discrete Band-pass Filters

The IC-7300 has 15 discrete RF bandpass filters. The RF signal is only passed through one of the bandpass filters, while any out of range signals are rejected. High Q factor coils are used to minimize the loss in the RF band-pass filters.

### Superior Signal Quality

The RF direct sampling system is naturally superior at signal linearity and noise immunity by digitally processing the signal from RF to AF. Mathematical frequency conversions within the FPGA drastically improve the signal purity. Thanks to these features, though it is a compact radio, the IC-7300 enjoys exceptionally clear and rich sound which normally can only be expected from a higher class radio.

### Large Touch Screen Colour TFT LCD

The large 4.3 inch colour TFT touch LCD offers intuitive operation. Using the software keypad, you can easily set various functions and edit memory contents.

### Other Features

- Audio scope function
- Built-in automatic antenna tuner
- Multi-dial knob for smooth operation
- SD card slot for saving data
- New speaker unit design
- HM-219 hand microphone supplied
- A large and effective cooling fan system
- Multi-function meter
- 101 Memory channels (99 regular, 2 scan edges)
- Optional RS-BA1 Version 2 IP remote control software (the spectrum scope with the waterfall can be observed)
- CW functions: Full break-in, CW reverse, CW auto tuning
- 70 MHz operation is possible in the European transceiver version



- HF TRANSCEIVER  
**IC-718** Rugged MIL-STD 810
- Simple, Straightforward Operation with Keypad
- Front Mount Loud Speaker
- Optional DSP Capability, UT-106

**Simple, Straightforward Operation with Keypad**  
The IC-718 is equipped with a minimum number of buttons and controls for simple feature selection. The 10-key pad on the front panel enables direct entry of an operating frequency or a Memory channel number. The auto tuning step function is activated when turning the dial quickly and helps speed up tuning. The band stacking register is convenient when changing operating bands.

**Front Mount Loud Speaker**  
The IC-718 has the speaker mounted on the front panel. With the speaker facing the operator, audio will be heard clearly and directly while operating.

### Optional DSP Capability, UT-106

The optional DSP unit gives you noise reduction and auto notch filter functions for extra receiver performance.



Optional UT-106

### General Coverage Receiver

The IC-718 has 0.03-29.999 MHz\* general coverage receive capability.  
\* Guaranteed range: 0.5-29.999 MHz

### Interference rejection— IF shift

To reject interference, the IC-718 has an IF shift function which shifts the center frequency of the IF passband electronically to reduce adjacent interference.

### Other Features

- Front mounted loud speaker
- General coverage receiver
- Built-in electronic keyer
- Built-in microphone compressor
- Combined squelch and RF gain control
- Pre-amplifier and attenuator
- 101 Memory channels
- CW full break-in
- IF shift interference rejection
- 1 Hz tuning
- VOX function for hands-free operation
- Optional automatic antenna tuner
- Digital S/R/F meter



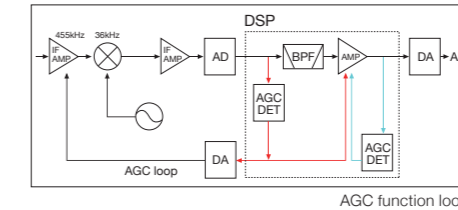
**DIGITAL**

## HF/VHF/UHF TRANSCEIVER IC-7100

- Intuitive Touch Screen Interface
- Controls at Your Fingertips with an Angled Display
- HF, 50/70/144/430 MHz Multi-band

### Digital Features Controlled by the IF DSP

A high-performance 32-bit floating point IF DSP delivers rich digital signal processing features, including digital IF filter, digital twin PBT, noise reduction, CW auto tune, etc. Those digital features work on all bands from HF to V/UHF bands.



AGC function loop

### Intuitive Touch Screen Interface

The innovative touch screen interface provides quick and smooth operation for setting and editing various functions and memories.

### One Touch Selection

For example, if you want to change the operating band, touch the frequency on the display. The band keys will be shown to select the operating band. Touching the multi-function meter indicator for 1 second will quickly change the transmit meter functions.



### Straightforward Operation

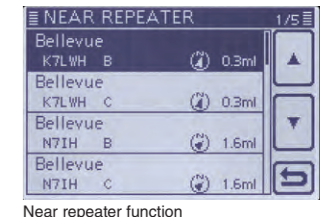
Just touch the mode, filter, function etc., you need to change. The touch screen responds naturally changing your settings.

### HF, 50/70/144/430 MHz Multi-band

The IC-7100 fully covers the HF, 50, 70, 144, 430 MHz amateur bands in multiple modes, providing 100 W on HF/50 MHz bands, 50 W on 70/144 MHz band and 35 W on 430 MHz band.



DR (D-STAR Repeater) function operation



Near repeater function



SD card slot for saving data

### Controller Mounted Speaker and Jacks

The unique remote head design is perfect for providing loud, clear audio as well as jacks for an external speaker/headphones, key and microphone.

Controller Rear Panel View



### SD Card Slot for Saving Data

When used with an SD card, the SD card can store various contents, including voice memory, Memory channels, and D-STAR repeater memories. Other personal settings can be saved to the SD card and loaded into the transceiver.

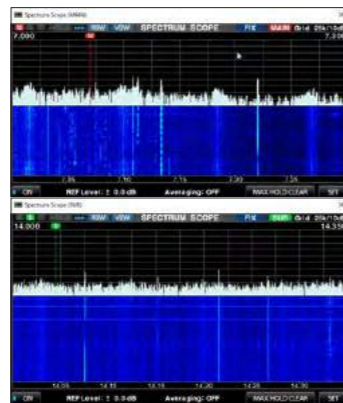
### Other Features

- DSP controlled AGC function loop
- Easy vehicle mounting with the optional MBF-1
- RS-MS1A remote control software for an Android™ devices (Send and receive pictures)
- Optional RS-BA1 Version 2 IP remote control software
- CW full break-in, CW receive reverse, CW auto tuning
- Optional multi-function microphone, HM-151
- Band scope and SWR graphic display
- RF speech compressor controlled by the DSP
- Voice memory function
- Multi-function meter
- 495 regular, 4 call, 6 scan edge and 900 DR function repeater channels
- 4 TX voice memories
- ±0.5 ppm frequency stability
- Auto reply function\*
- Digital call sign squelch (DSQL) and digital code squelch (CSQL)\*
- 12.5 kHz IF output for DRM (Digital Radio Mondiale) receive

\* D-STAR DV mode only

Firmware Update Available (Free Download)  
<http://www.icom.co.jp/world/support/index.html>

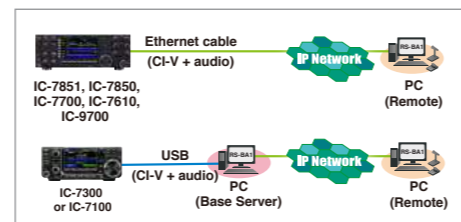
\* External GPS receiver or manual position data input required.



Dual spectrum scope example

### Low Latency, High Quality Audio Over an IP Network

The RS-BA1 Version 2 offers real-time operation with low latency, high quality audio. You can use the transceiver installed in another room using your home network, or even from a remote location over the Internet\*.



\* A static public IP address or Dynamic DNS is required to the base station (Server) PC, when you configure the remote control system through the Internet.

### Optional RC-28 Remote Encoder

The optional RC-28 USB remote encoder brings a hardware dial/transmit function for realistic dial operation.



Note for original version RS-BA1 users: Free upgrade service from RS-BA1 to RS-BA1 Version 2 is not available. To obtain the new features in the RS-BA1 Version 2, the purchase of a new software package is required.

## IP REMOTE CONTROL SOFTWARE RS-BA1 Version 2

- Dualwatch Operation with Dual Spectrum Scopes
- Covers Most Functions and Modes
- Optional USB Remote Encoder RC-28

### Dualwatch Remote Control Operation

The RS-BA1 Version 2 provides IP remote control capability. The dualwatch operation and dual spectrum scopes with the waterfall functions\* can be used on your remote PC. Single band transceiver can also be used with Version 2.

\* Only for the IC-7851, IC-7850 and IC-7610.

### Covers Most Functions and Modes

Most functions and modes of your transceiver, including interference rejection functions and IF filter settings, can be controlled using the CI-V commands. The RIT tuning knob and Δ TX functions are added from Version 2.



# Multi-Band



**DIGITAL** Terminal Mode DV Gateway Access Point Mode



Perfect companion of the IC-7300



Menu screen 1



Menu screen 2

## 144, 430, 1200 MHz ALL MODE TRANSCEIVER IC-9700

All Mode, Tri-band Transceiver, with Built-in 1200 MHz

RF Direct Sampling System

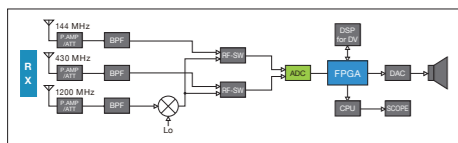
Real-time Spectrum Scope with Waterfall Display

### All Mode, Tri-band Transceiver with Built-in 1200 MHz

The IC-9700 is an all mode Tri-band transceiver, covering 2 m, 70 cm, and 23 cm. In addition to the traditional SSB, AM, FM, CW, and RTTY modes, the transceiver also incorporates D-STAR DV and DD modes. Satellite mode is also built-in!

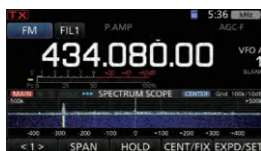
### RF Direct Sampling System

The RF Direct Sampling system, for 144 MHz and 430 MHz, is utilized in the IC-9700. The outcome is that the signal purity is very high, and clear audio can be generated.



### Real-Time Spectrum Scope and Waterfall Display

This is the first time for an Icom VHF/UHF transceiver to have a real-time spectrum scope and waterfall display comparable to an HF high tier transceiver. With the high-speed spectrum scope, you can instantly see the operating band condition.



### Independent Receiver, Full Duplex Operation

The IC-9700 can simultaneously receive on two different bands, and two different modes. This function can be a significant advantage when participating in contests or searching for weak signals. Furthermore, the IC-9700 is Full Duplex, which enables you to transmit on the main band while receiving on the sub band.

### Newly Designed Power Amplifier

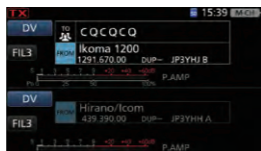
The power amplifier outputs stable power with high efficiency (144/430/1200 MHz band: 100/75/10 watts). The cooling system prevents the PA from overheating, even when operating for a long time.



This is a comparison between two transceivers' rear chassis temperatures when continuously transmitting for 15 minutes. The IC-910\* rises to 65 °C while the IC-9700 rises only to 45 °C. \* Japanese version example when testing at 50 W.

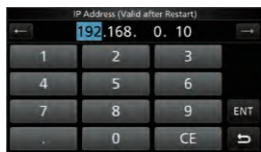
### D-STAR Operation Friendly Functions

The IC-9700 has the D-STAR Repeater (DR) function that can be simultaneously used on both the Main and Sub bands to listen to two separate DV signals. Moreover, by using the DD mode, you can browse the Internet through a repeater station.

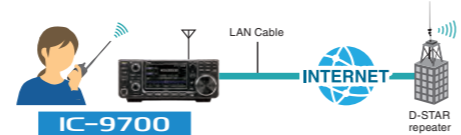
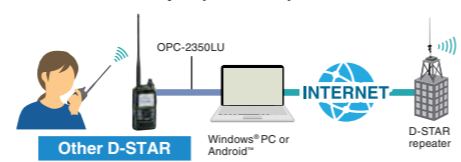


### Built-in DV Gateway Functions

A static IP address can be set to the transceiver. If you set a global IP address to your router, you can use the Terminal mode or Access Point mode without any software applications.



### Connection example (AP mode)



\* These functions can be used only when using through D-STAR G3 repeater.  
\* See the instruction manual that comes with the transceiver when operating.

### Comprehensive Menus for Satellite Operation

The Normal and Reverse Tracking Functions simultaneously increase or decrease both the downlink and uplink frequencies in the same steps. The AFC Function follows the frequency change caused by the Doppler effect, thus maintaining a stable receive condition. The IC-9700 has 99 satellite memory channels.

### Audio Scope Function

Making good use of the Audio Scope function, various audio characteristics, such as microphone compressor level, filter width, notch filter width, and keying waveform in the CW mode can be monitored. Transmit or receive audio can either be displayed on the FFT scope and the oscilloscope.

### Other Features

- Loud and clear audio
- Compatible with the RS-BA1 Version 2 and CI-V commands
- Built-in server function
- Digital Twin PBT
- CW functions: Full break-in, CW memory keyer, CW reverse, CW auto tuning
- SD card slot
- TX/RX audio recording
- Screen capture ...and more

# Handheld



**DIGITAL**

GPS

Terminal Mode DV Gateway Access Point Mode

### Lightweight & Compact Design

The ID-51E PLUS2 is a 5 W VHF/UHF dual bander, with D-STAR and integrated GPS receiver.

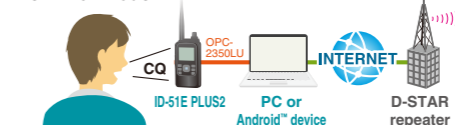
255 g; 9.0 oz



### Terminal/Access Point mode\* 1 \* 2

Connect the ID-51E PLUS2 to the Internet through a PC or Android™ device, and send your voice and/or data through the Internet gateway to a destination repeater.

#### Terminal mode



#### Access point mode



\*1 The optional free download software, RS-MS3W or RS-MS3A is required to be installed in the PC/Android™ device for terminal mode and access point mode operation. The OPC-2350LU data cable is required.

\*2 Compatible with Icom RS-RP3 gateway software only.

## VHF/UHF DIGITAL TRANSCEIVER ID-51E PLUS2

Lightweight and Compact Design

Terminal Mode and Access Point Mode

VHF/VHF, UHF/UHF, VHF/UHF Dualwatch



Rugged MIL-STD-810

## VHF FM TRANSCEIVER IC-V80E

750 mW Loud Audio

Powerful 5.5 W of Output Power

IP54 and MIL-STD-810 Rugged Construction

### 750 mW Loud Audio

The IC-V80E uses the BTL (bridge-tied load) amplifier that doubles the audio output. The 36 mm large speaker delivers 750 mW of loud and intelligible audio\*. Great for noisy environments.

\* Typical value using with internal speaker.

### Powerful 5.5 W of Output Power

The IC-V80E offers a just-right mix of power and size. 5.5 watts of high power will work to get your message through.

### 19 Hours of Long Battery Life

Get up to 19 hours\* of operating time with the BP-265 Li-ion battery pack or 13 hours with the BP-264 Ni-MH. All that power comes in an easy to hold and use size – not too big, not too small.

### IP54 and MIL-STD-810 Rugged Construction

The dust protection and water-resistance equivalent to IP54 provides reliable operation for practical outdoor operation. The IC-V80E tested to and passed 11 categories of MIL-STD-810 environmental tests.

### A Total of 207 Memory Channels

The IC-V80E has a total of 207 memory channels, including 200 regular channels, 6 scan edges and 1 call channel. The channel name is programmable with 5 characters for easy recognition.

### V/V, U/U, V/U Dualwatch

The Dualwatch function monitors VHF/VHF, UHF/UHF and VHF/UHF bands simultaneously.\* The audio and squelch levels can be set separately for the main and sub-bands.

U/U Dualwatch example

### RS-MS1A Remote Control Software

(Free download Android™ application from Google Play™) The RS-MS1A enables you to connect to the radio with an Android™ device and remotely set DR functions, link with a map application and send/receive messages over the DV mode.

\* The OPC-2350LU data cable is required.

### Other Features

- Independent AM/FM receiver
- DV/FM repeater search function
- DV fast data mode
- Integrated GPS receiver
- microSD card slot
- IPX7 Waterproof Construction
- 200 GPS Memory channels
- 5 W output power
- Three hour rapid charging with supplied wall charger (BP-271)
- Long lasting battery pack
- CS-51PLUS2 software supplied
- Dplus Reflector link commands
- Enhanced D-PRS functions

### D-STAR Repeaters

- ID-RP2C Repeater controller
- ID-RP2D 1.2 GHz DD mode module
- ID-RP2V 1.2 GHz DV mode module
- ID-RP200V 144 MHz DV mode module
- ID-RP400V 430 MHz DV mode module
- RS-RP3C Internet gateway software

### Built-in CTCSS/DTCS

The CTCSS and DTCS tone codes provide quiet stand-by and allow you to use tone-access repeaters. The pocket beep alerts you when a matching tone frequency is received. The tone scan detects the subaudible tone that is used for repeater access.

### Internal VOX function

The IC-V80E has internal VOX (Voice Operated Transmit) function for convenient hands-free operation with a compatible optional headset and plug adapter cable. Also, the VOX gain and VOX delay time are adjustable.

### Other Features

- Frequency coverage (TX/RX: 144–146 MHz)
- Program scan, memory scan, skip scan, priority scan and tone scan
- 1750 Hz tone for European repeater access
- TOT (time out timer) setting
- Repeater lockout and busy channel lockout
- PC programmable with optional CS-V80
- Transceiver-to-transceiver cloning (Optional)
- Direct keypad frequency entry
- DTMF autodial memories
- Auto power off
- Wide/narrow channel spacing

DIGITAL



## VHF/UHF DIGITAL TRANSCEIVER ID-5100E

Intuitive Touch Screen Operation

DV/DV Dualwatch

Integrated GPS Receiver

### Intuitive Touch Screen Operation

The intuitive touch screen interface provides quick and smooth operation. The large 5.5 inch display (320 x 128 pixels) responds naturally to the touch – allowing you to change settings, enter frequencies and edit Memory channels with ease.



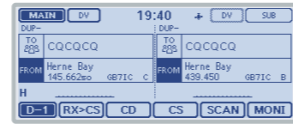
Vehicle installation example (Using optional MBF-1 mount base and MBA-2 controller bracket)

### Integrated GPS Receiver

The integrated GPS receiver shows your own location, course, speed and altitude on the display. The GPS location information can be used for exchanging location reports, tracking the GPS log, and more.

### DV/DV Dualwatch

The ID-5100E can receive both FM/FM and FM/DV mode signals simultaneously. Two DV mode signals can be monitored for receive on either channel. You can check other repeaters or other channel activities while waiting for the main repeater.



DV/DV Dualwatch (DR function) example

\* Main band audio has priority if two DV signals are received at the same time.

### DV/FM Repeater Search Function

The DV/FM repeater search function assists you in accessing nearby repeaters, even in areas you are visiting for the first time. The function searches for a nearby repeater using the repeater memories with the GPS location information.

\* To use the repeater search function, the position data of the repeater is required.

### Other Features

- SD card slot • VS-3 Bluetooth® headset • RS-MS1A Android™ application • DV fast data mode • 50 W output power • Repeater memory channels increased to 1500 • CTCSS and DTCS with Split tone function • Sub band mute auto • D-PRS functions • Convenient memory contents management using CSV format • Speech function announces the operating frequency, mode and received call sign (DV mode) • Independent main, volume and SQL knobs for A/B bands • AM airband Dualwatch • CS-5100, programming software supplied • 1750 Hz tone burst

Firmware Update Available (Free Download)  
<http://www.icom.co.jp/world/support/index.html>



## VHF/UHF DUAL BAND TRANSCEIVER IC-2730E

50 Watts of Output Power  
on Both VHF and UHF Bands

VHF/VHF, UHF/UHF  
Simultaneous Receive

Optional Wireless Remote Control  
Bluetooth® Headset VS-3

### VHF/VHF, UHF/UHF Simultaneous Receive

The IC-2730E provides VHF/VHF, UHF/UHF simultaneous receive capability, as well as VHF/UHF receive. A simple one-touch of a button enables you to change between the main (transmit) band and sub band.

### Independent Controls for Each Band

Operating two bands simultaneously is very simple with the symmetric layout with a wide LCD display showing both band settings in an easy to read, side by side format. Various operations, including frequency tuning, is straight forward and smooth.

### Optional VS-3 Bluetooth® Headset

The optional VS-3 Bluetooth® headset can wirelessly control the IC-2730E with three programmable keys and a PTT button. It also provides VOX operation for hands-free communication.

\* Optional UT-133A Bluetooth® unit must be installed in the IC-2730E.

### Easy Controller Mounting with the Optional MBF-1

The combination of the optional MBF-1 suction cup mounting base and MBA-5 controller bracket provides easy tilt and swivel adjustments. The large suction cup can be mounted on flat surfaces, and can be easily removed.

### Other Features

- Controller attachment to the main unit with optional MBA-4
- 50 W of output on VHF/UHF
- Built-in CTCSS and DTCS tones with split tone functions
- Wide band receiver (118–174 and 375–550 MHz)\*
- HM-207 remote control microphone
- CS-2730 Free download PC programming software
- Versatile scanning capability
- Squelch delay and squelch attenuator
- Sub band auto mute function
- Sub band busy beep function
- Auto power off
- 16 DTMF auto dial memories
- CI-V remote control capability (through the OPC-478UC)

\* Receiver range differs, depending on the version.

DIGITAL



Selectable LCD/key backlight colour

## VHF/UHF DIGITAL TRANSCEIVER ID-4100E

Terminal Mode and  
Access Point Mode

Compact, Detachable Controller  
for Flexible Installation

DR Function with  
the Latest Icom User Interface

### Terminal/Access Point Mode\*1 \*2

Terminal and Access Point modes\* enable you to enjoy long-distance D-STAR communication through the Internet. You can access D-STAR repeaters through the Internet, regardless of locations and conditions of nearby repeaters.

\*1 An optional RS-MS3W/RS-MS3A free download software is required to be installed in the PC/ Android™ device. See p.10 for function details.

\*2 Compatible with Icom RS-RP3 gateway software only.

### Compact, Detachable Controller

The controller can be attached or detached from the main unit for flexible installation. By using the supplied OPC-837 controller cable, you can install the controller up to 3.5 meters away from the main unit.

### DR (D-STAR Repeater) Function

The DR function makes D-STAR communications simple. By simply selecting a destination call sign in "To," and your access repeater in "From," you can talk with other D-STAR users.

### Easy-to-Read Full Dot-Matrix Display

To increase the amount of display information, a full dot-matrix display is used in the ID-4100E.



GPS position information Repeater list

### DV/FM Near Repeater Search Function

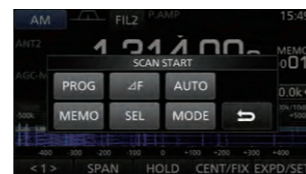
The DV/FM near repeater search function assists you in accessing nearby repeaters, even in areas you are visiting for the first time.

\* To use the repeater search function, the position data of the repeater is required.

### Other Features

- Applications for iOS™ (RS-MS11) and Android™ (RS-MS1A) devices
- Wireless audio with optional UT-137 Bluetooth® unit
- DV fast data mode
- microSD card slot
- Integrated GPS receiver
- Wide band receiver (118–174 and 230–550 MHz)\*
- Memory/Bank scan, Full scan, Band scan, Program scan, Program link scan, Duplex scan
- Tone scan and DR scan
- 16 channels of DTMF memory (24-digit)
- CTCSS and DTCS with Split tone function
- 8.33 kHz air band channel reception

\* Receiver range differs depending on version.



Scan setting screen



Function menu for touch screen



Pop up menu appears by pushing DIAL B

## COMMUNICATIONS RECEIVER IC-R8600

0.01–3000 MHz Super Wideband

Decode Digital Protocols  
(P25, NXDN™, dPMR™, D-STAR, DCR)

Real-Time Spectrum Scope  
with Waterfall

### Superb Receiver Performance

The IC-R8600 has 11 discrete RF bandpass filters in the HF bands and 13 bandpass filters in the VHF/UHF bands. To prevent overflow, only the intended signal is passed, while any out of range strong interference signals are rejected. The IC-R8600 provides +30 dBm IP3 and 105 dB dynamic range at 14.1 MHz. IP3 performance is +10 dBm at 144 MHz and 0 dBm at 440 MHz.

### Variety of Scan Functions

A variety of scan functions effectively and thoroughly search for desired stations. The IC-R8600 scans up to 100 channels per second in the memory scan mode.

- Program scan/Fine program scan •  $\Delta f$  scan/ $\Delta f$  fine scan • Priority scan • Memory scan
- Selected memory scan • Selected mode memory scan • Auto memory write scan

### Real-time Spectrum Scope with Waterfall Function

The high-resolution real-time spectrum scope provides class-leading performance in resolution, maximum 30 frames per second\* fast sweep speed,  $\pm 2.5$  MHz wide scope span (display range) and 110 dB of dynamic range (at  $\pm 2.5$  kHz span). The waterfall screen enables you to find weak signals by showing the spectrum change over time.

(\* Approximate)

### Quick, Smooth and Intuitive Operation

To efficiently acquire intended signals, the IC-R8600 user interface provides quick and accurate operation. The large 4.3-inch colour display, with touch screen function, is configured to collect operating information. By tapping indications and icons on the screen, the setting menu will pop up and parameters can easily be adjusted.

### SD Card Slot for Receiver Recorder

The recorder function can record received audio onto an SD card in WAVE format. The recorded voice audio can be played back on the receiver or a PC. When a 32 GB SD card is used, up to 270 hours of recording is possible. In addition, the screen capture function saves a snap shot of the screen in PNG or BMP format on the SD card.

\* An SD card is required.

### I/Q Signal Output

The I/Q signal output function\* enables you to derive digital IF signals from the I/Q output port to a PC through a USB cable. It can be used for analyzing spectrum or decoding signals. The IC-R8600 outputs I/Q data to the third-party software HSDR, and the IC-R8600 can be controlled by the HSDR.

\* This function requires firmware version 1.3 or later. Download the IC-R8600 USB I/Q package for HSDR.

### Other Features

- Absolute Value of RSSI (Received Signal Strength Indicator) • 2000 regular Memory channels • Remote control function through IP network or USB cable • 3 antenna connectors: an SO-239 type and a phono (RCA) connector for HF and a type-N connector
- Clock and NTP function • Center tuning meter and digital auto frequency control (AFC) for FM, WFM and digital modes
- Built-in Voice synthesizer • Audio tone functions: HPF/LPF, bass, treble and de-emphasis • Decode multiple digital code used in digital mode • IP+ function improves 3rd order intercept point performance • Main dial friction adjustment • Dial lock and panel lock • CI-V remote control command • RX history log for digital modes



## COMMUNICATIONS RECEIVER IC-R30

Dualwatch and Dual Recording

Decode Digital Protocols  
(P25, NXDN™, dPMR™, D-STAR, DCR)

0.1 – 3304.999 MHz  
Wideband Coverage

### Dualwatch and Dual Recording

The IC-R30 can receive on different bands and different modes. The audio of the two bands received while in the Dualwatch mode, can be individually recorded onto a microSD card\* in the WAV format. The recorded audio can be played back on the receiver or a PC.

\* A microSD/microSDHC card is required.

### Decodes Digital Protocols

The IC-R30 decodes various digital protocol signals including P25 (Phase 1), NXDN™, dPMR™, D-STAR and Japanese domestic DCR (Digital Convenience Radio).

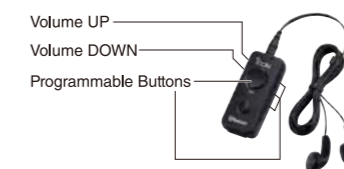
### 0.1–3304.999 MHz Wideband Coverage

The IC-R30 covers a wide frequency range from 0.1 to 3304.999 MHz, and receives conventional analog signals such as AM, FM, WFM, USB, LSB and CW as well as digital mode signals\*.

\* SSB, CW and digital modes: 0.1 MHz–1.3 GHz.

### Wireless Operation with an Optional Bluetooth® Headset

The optional VS-3 Bluetooth® headset offers flexible operating styles. You can put the IC-R30 into your pocket and wirelessly listen to received audio.



Bluetooth® headset, VS-3 (option)

### 0.1–1309.995 MHz\* Coverage

Amateur stations, AM, FM, short wave broadcasts, air band, marine VHF, PMR446 and a variety of utility communications can be found and listened to.

\* Frequency range depending on version.

### 100 Channels per Second High Speed Scan

The IC-R6 has 100 channels per second high speed scan capability\* and variety of scan functions; Auto memory scan, Tone scan, Programmed scan, Memory scan, priority scan, auto memory write scan and more.

\* VFO mode scanning.

### 15 Hours of Continuous Receive Capability\*

The IC-R6 is energy-efficient, designed to provide many hours of listening enjoyment on a single charge. With the supplied rechargeable Ni-MH cells (1400 mAh x2), the IC-R6 provides up to 15 hours of continuous receive capability\*.

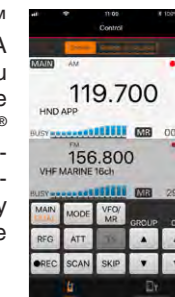
\* At 50 mW output using external speaker.

### Top Level Scan Speed – 200 Channels/Second

The IC-R30 scans approximately 200 channels per second in the A band. You can quickly find and lock in to a desired signal. The IC-R30 has variety of scan functions; VFO scan (Auto memory write scan, Program scan), Memory scan (Near station scan, Mode scan, Group scan, Group link scan), Priority scan, Tone scan and more.

### Remote Control Application RS-R30I/RS-R30A

The RS-R30I for iOS™ devices, and the RS-R30A for Android™ enable you to wirelessly connect to the IC-R30 through Bluetooth® (BLE), and remotely control VFO operation, memory channels, a variety of scans and the voice recording function.



Dualwatch screen

### Other Features

- Integrated GPS receiver • Band scope function • IP57 dust-protection and waterproof protection • Up to 8.3 hours of long battery life\*
- USB charging and PC connection • microSD card slot • DTCS and CTCSS tone squelch and reverse tone squelch • Voice squelch control\*\*
- Auto frequency control\*\* • Noise Blanker\*\*
- Auto Noise Limiter\*\* • RF gain control • ATT function • Power save function

\* The Dualwatch function is ON (A band: continuously receiving, B band: standing by), the Power Save function is set to "Auto (Short)," the internal speaker's volume is set to "20," the GPS function is ON, and the Bluetooth® function is OFF.

\*\* Usable depending on the operating mode.



## COMMUNICATIONS RECEIVER IC-R6

0.1–1309.995 MHz\*  
Wideband Coverage

100 Channels Per Second  
High Speed Scan

15 Hours of Continuous  
Receive Capability

\* Frequency range depending on version.

### Other Features

- 1300 Memory Channels with 22 Memory Banks • Voice Squelch Control • Built-in audio low pass filter •  $\pm 1.0$  ppm high frequency stability (at 25°C) • Earphone cord antenna for AM aviation as well as FM broadcast • Ferrite bar antenna for AM broadcast • DTCS and CTCSS tone squelch and reverse tone squelch
- Optional CS-R6 programming software • Receiver-to-receiver cloning (optional OPC-474 required) • Auto power OFF • Compact, drip-resistant construction • Duplex operation monitoring • Automatic LCD backlight • Dial speed acceleration • Built-in RF attenuator
- Reversible up/down buttons and dial knob for volume, frequency, memory channel, scan direction and set mode settings • Optional tube earphone, SP-27

# OPTIONS FOR BASE STATION TRANSCEIVERS AND RECEIVERS

MODEL NAME	HAND MICROPHONES				DESKTOP MICROPHONES			EXTERNAL SPEAKERS	
	HM-219	HM-103	HM-151	HM-198	SM-50	SM-30	SM-27	SP-23 4 audio filters	SP-33 Wooden box speaker
IC-7851					✓	✓			✓
IC-7610	✓				✓	✓		✓	✓
IC-7700	✓				✓	✓		✓	✓
IC-7300	✓				✓	✓		✓	✓
IC-718	✓				✓	✓	✓	✓	✓
IC-7100	(Use with OPC-589)	✓	✓	✓	(Use with OPC-589)	(Use with OPC-589)			
IC-9700	✓				✓	✓			
IC-R8600							✓		

MODEL NAME	EXTERNAL SPEAKERS					DC POWER SUPPLY	AC ADAPTER	ANTENNA ELEMENT	ANTENNA TUNERS
	SP-34 4 audio filters	SP-35 2 m cable SP-35L 6 m cable	SP-38 Best design matched for the IC-7300/IC-9700	SP-39AD With DC power supply	SP-41 With two input lines	PS-126 13.8 V/25 A 4-pin type	AD-55NS Input: 100-240 V/1 A, Output: 15V/2A	AH-2b Covers 7-54 MHz for use with AH-4	AH-4 Covers 3.5-54 MHz
IC-7851	✓								
IC-7610	✓				✓		✓	✓	
IC-7700	✓				✓		✓	✓	
IC-7300	✓	✓	✓		✓		✓	✓	
IC-718						(Depending on version)	✓	✓	
IC-7100		(Use SP-35)					✓	✓	
IC-9700		(Use SP-35)	✓						
IC-R8600				✓		✓			

MODEL NAME	ANTENNA TUNERS	AUTO TUNING ANTENNA	CONTROL CABLES	FOLDED DIPOLE ANTENNA	OMNIDIRECTIONAL ANTENNA	FILTERS	HIGH STABILITY CRYSTAL UNIT	DSP UNIT	LINEAR AMPLIFIER
	AT-180 Covers 1.8-54 MHz. (amateur band except 5 MHz)	AH-740 Covers 2.5-30 MHz. (amateur band) OPC-2321 is required.	OPC-2321 (6m) For use with AH-740 OPC-420 (10m) For use with AH-4.	AH-710 Covers 1.9-30 MHz 30 m; 98.4 ft	AH-8000 Covers 100-3335 MHz	FL-53A 250 Hz/-6 dB FL-257 3.3 kHz/-6 dB	CR-338 Frequency sta- bility: ±0.5 ppm	UT-106	IC-PW1EURO
IC-7851									✓
IC-7610		(Use with OPC-2321)	✓	✓					✓
IC-7700			✓	✓					✓
IC-7300		(Use with OPC-2321)	✓	✓					(Use with OPC-599)
IC-718	✓	(Use with OPC-2321)	✓	✓		(Accepts only one filter)	✓	(Installed depending on version)	(Use with OPC-599)
IC-7100	✓	(Use with OPC-2321)	✓	✓					(Use with OPC-599)
IC-9700									
IC-R8600				✓	✓				

✓ : Applicable □ : Not applicable

# OPTIONS FOR BASE STATION TRANSCEIVERS AND RECEIVERS

MODEL NAME	CARRYING HANDLES	MOBILE MOUNTING BRACKETS	MOUNTING BASE	CONTROLLER BRACKET	SEPARATION CABLES	MIC ADAPTER CABLE	ADAPTER CABLE	DC POWER CABLES
	MB-23 MB-121 MB-123  (Photo shows MB-23)	MB-62 MB-118	MBF-1	MBA-1	OPC-2253 3.5 m OPC-2254 5.0 m	OPC-589 8-pin connector microphone to 8-pin modular	OPC-599 13-pin ACC socket to 7-, 8-pin ACC sockets	OPC-025A 20 A cable OPC-1457R 30 A cable OPC-2095 30 A cable
IC-7851								
IC-7610	(Use MB-121)							(Use OPC-1457-1)
IC-7700								
IC-7300	(Use MB-123)							(Use OPC-1457R)
IC-718	(Use MB-23)		✓					(Use OPC-025A)
IC-7100		✓		(Use with MBA-1)	✓	✓	✓	(Use OPC-2095)
IC-9700	(Use MB-123)		✓					(Use OPC-1457R)
IC-R8600	(Use MB-123)							

MODEL NAME	PROGRAMMING SOFTWARE	REMOTE CONTROL SOFTWARE				USB REMOTE ENCODER	DATA COMMUNICATION CABLES		
	CS-9700 A USB cable (Type A-B) is required for programming.	CS-7100	CS-R8600	RS-MS1A** For Android™ device	RS-MS3A** For Android™ device	RS-R8600	RS-BA1 (Version 2)	RC-28	OPC-1529R RS-232 cable for an external GPS or a PC
IC-7851							✓	✓*2	
IC-7610							✓	✓	
IC-7700							✓	(Use with RS-BA1)	
IC-7300							✓	(Use with RS-BA1)	
IC-718									
IC-7100		✓		(Use with OPC-2350LU)			✓	(Use with RS-BA1)	✓
IC-9700	✓			(Use with OPC-2350LU)	(Use with OPC-2350LU)		✓	(Use with RS-BA1)	✓
IC-R8600			✓			✓	✓	(Use with RS-R8600)	

\*\*1 Free download Android™ app. Download from Google Play™. \*\*2 This function requires firmware version 1.2 or later.

MODEL NAME	DATA COMMUNICATION CABLES
	OPC-2350LU USB cable for an Android™ device or a PC
IC-7851	
IC-7610	
IC-7700	
IC-7300	
IC-718	
IC-7100	✓
IC-9700	✓
IC-R8600	

### Note for the Terminal mode and Access point mode (For only the IC-9700):

- Before operating in the Terminal mode or the Access Point mode, BE SURE to check your local regulations or laws.
- You need an Internet connection with an IPv4 Global IP address. If you use a cellular system, you need an IPv4 Global IP address assigned to your Windows® or Android™ device.
- When operating in the Access Point mode, you need two call signs. One for the Access Point transceiver and one for the Remote D-STAR transceiver.
- For the Access point or Terminal mode operation, please register your MY and Access point call signs with a Gateway repeater/ server that has the RS-RP3C installed.

✓ : Applicable □ : Not applicable

# OPTIONS FOR HANDHELD TRANSCEIVERS AND RECEIVERS

MODEL NAME	BATTERY CASES			BATTERY PACKS					DESKTOP CHARGERS
	BP-273 LR6(AA)×3 cells	BP-263 LR6(AA)×3 cells	BP-293 LR6(AA)×3 cells	BP-271 (Li-ion) 7.4V/ 1150 mAh (min.), 1200 mAh (typ.)	BP-272 (Li-ion) 7.4 V/ 1880 mAh (min.), 2000 mAh (typ.)	BP-264 (Ni-MH) 7.2 V/1400 mAh	BP-265 (Li-ion) 7.4 V/ 1850 mAh (min.), 2000 mAh (typ.)	BP-287 (Li-ion) 3.6 V/ 3120 mAh (min.), 3280 mAh (typ.)	
ID-51E PLUS2	✓			✓	✓				
IC-V80E		✓				✓	✓		(Use with BC-123SE)
IC-R30			✓					✓	
IC-R6									

MODEL NAME	DESKTOP CHARGERS			MULTI-CHARGER	AC ADAPTERS				
	BC-192 Charges the BP-264 in 16 hours (approx.)	BC-193 Rapid charger, Charges the BP-265 in 2.5 hours (approx.)	BC-194		BC-202 Rapid charger	BC-223 Rapid charger	BC-197** For use with BP-264/265	BC-123SE 12 V/1 A	BC-147SE 12 V/0.25 A
ID-51E PLUS2									
IC-V80E	(Use with BC-147/206SE)	(Use with BC-123SE)				(Use with BC-123SE)			
IC-R30						(Use with BC-157S)	(Use with BC-191/193)	(Use with BC-192)	(Use with BC-197)
IC-R6			(Use with BC-153SE)				(Use with BC-223)		

\*\* Either AD-120 (for BP-264) or AD-121 (for BP-265) charger adapters are supplied with the BC-197, depending on BC-197's version.

MODEL NAME	AC ADAPTERS		WALL CHARGER	CIGARETTE LIGHTER CABLES	DC POWER CABLES			SPEAKER-MICROPHONES
	BC-2065E 15 V/0.4 A	BC-1535E 6 V/1 A			CP-12L with noise filter	CP-23L	OPC-254L	
ID-51E PLUS2				✓	✓		✓	✓
IC-V80E	(Use with BC-192)						(Use with BC-191/193)	(Use with BC-197)
IC-R30								
IC-R6		(Use with BC-194)						

MODEL NAME	SPEAKER-MICROPHONES				EARPHONE-MICROPHONES			HEADSETS	
	HM-158LA	HM-159LA	HM-183LS Waterproof	HM-186LS	HM-153LS	HM-153LA	HM-166LS	HS-94 Earhook type with boom microphone	HS-95 Behind-the-head type
ID-51E PLUS2			✓	✓	✓		✓	(Use with OPC-2006LS)	(Use with OPC-2006LS)
IC-V80E	✓	✓				✓		(Use with OPC-2004)	(Use with OPC-2004)
IC-R30									
IC-R6									

✓ : Applicable    □ : Not applicable

# OPTIONS FOR HANDHELD TRANSCEIVERS AND RECEIVERS

MODEL NAME	HEADSETS	EARPHONES		PLUG ADAPTER CABLES			Bluetooth® HEADSET	CARRYING CASES	
	HS-97 Throat microphone type	SP-40	SP-27	OPC-2006LS For VOX operation	OPC-2144 For straight plug microphones	OPC-2004	VS-3	LC-179	LC-189
ID-51E PLUS2	✓			✓	✓			✓	
IC-V80E	(Use with OPC-2006LS)								
IC-R30		✓					✓		
IC-R6		✓	✓						✓

MODEL NAME	CARRYING CASES	SILICONE JACKET CASE	CHARGER BRACKET	DATA CABLE	PROGRAMMING CABLES			BELT CLIPS	
	LC-146A	SJ-1 When BP-271 is in used	MB-130	OPC-2350LU USB cable for an Android™ device or a PC	OPC-474 Handheld to handheld	OPC-478 Handheld to PC RS-232C cable	OPC-478UC Handheld to PC USB cable	MB-127 Alligator type	MB-124
ID-51E PLUS2		✓		✓				✓	
IC-V80E			(Use with BC-191/192/193)		✓	✓	✓		✓
IC-R30									
IC-R6	✓				✓	✓	✓		

MODEL NAME	BELT CLIPS	ANTENNAS	ANTENNA ADAPTER	PROGRAMMING SOFTWARE	REMOTE CONTROL SOFTWARE		
	MB-133	FA-5270C FA-B2E	AD-925MA BNC type antenna connector	CS-51 PLUS2** CS-V80 CS-R30 CS-R6	RS-MS1A** For Android™ device	RS-MS3A** For Android™ device RS-MS3W** For Windows® PC	RS-R30A** For Android™ device RS-R30I** For iOS™ device
ID-51E PLUS2		(Use FA-5270C)	✓	(Use CS-51 PLUS2)	(Use with OPC-2350LU)	(Use with OPC-2350LU)	
IC-V80E		(Use FA-B2E)		(Use CS-V80)			
IC-R30	✓		✓	(Use CS-R30)			✓
IC-R6			✓	(Use CS-R6)			

\*\* CS-51 PLUS2 is available for free download from: <http://www.icom.co.jp/world/support/index.html>

\*\* Free download Android™ app. Download from Google Play™.

\*\* Free download software for Windows® PC. Download from the Icom website: <http://www.icom.co.jp/world/support/download/firm/>

\*\* Free download iOS™ app. Download from the App store.

### Note for the Terminal mode and Access point mode:

- Before operating in the Terminal mode or the Access Point mode, BE SURE to check your local regulations or laws.
- An optional free download software, RS-MS3W is required to be installed in a PC. An optional free download application, RS-MS3A is required to be installed in the Android™ device.
- You need an Internet connection with an IPv4 Global IP address. If you use a cellular system, you need an IPv4 Global IP address assigned to your Windows® or Android™ device.
- When operating in the Access Point mode, you need two call signs. One for the Access Point transceiver and one for the Remote D-STAR transceiver.
- For the Access point or Terminal mode operation, please register your MY and Access point call signs with a Gateway repeater/server that has the RS-RP3C installed.

✓ : Applicable    □ : Not applicable

# OPTIONS FOR MOBILE TRANSCEIVERS

MODEL NAME	HAND MICROPHONES					BLUETOOTH® HEADSET	MOUNTING BASE	MOUNTING BRACKET	CONTROLLER BRACKETS
	HM-198	HM-209 Noise canceling microphone	HM-207 HM-207S	HM-154	HM-232	VS-3	MBF-1	MBF-4	MBA-2
ID-5100E	✓	✓	(Use HM-207)	✓	✓	(Use with UT-133A)	(Use with MBA-2)	✓	✓
ID-4100E	✓	✓	(Use HM-207S)	✓	✓	(Use with UT-137)	(Use with MBA-8)	✓	✓
IC-2730E	✓	✓	(Use HM-207)	✓	✓	(Use with UT-133A)	(Use with MBA-5)	✓	✓

MODEL NAME	CONTROLLER BRACKETS	COMBINATION BRACKET	EXTERNAL SPEAKERS		MICROPHONE CABLES	MIC ADAPTER CABLE	CONTROLLER CABLE	DATA CABLES
	MBA-8	MBA-5	MBA-4	SP-35 2 m cable SP-35L 6 m cable	SP-30 4 inch (102.5 mm) diameter speaker	OPC-440A 5.0 m OPC-647 2.5 m	OPC-589 8-pin connector microphone to 8-pin modular	OPC-1156 3.5 m
ID-5100E				✓	✓	✓	✓	✓
ID-4100E	✓			✓	✓	✓	✓	✓
IC-2730E		✓	✓	✓	✓	✓	✓	✓

MODEL NAME	DATA CABLES	PROGRAMMING CABLES	CLONING CABLE	BLUETOOTH® UNITS	PROGRAMMING SOFTWARE	REMOTE CONTROL SOFTWARE		
	OPC-2350LU USB cable for an Android™ or a PC	OPC-478UC Transceiver to PC USB cable	OPC-474 Between transceivers	UT-133A UT-137	CS-5100*1 CS-4100*1 CS-2730*1	RS-MS3A*2 For Android™ device	RS-MS3W*3 For Windows® PC	RS-MS1A*2 For Android™ device
ID-5100E	✓	✓	✓	✓	(Use CS-5100)	✓	✓	(Use with UT-133A)
ID-4100E	✓	✓	✓	✓	(Use CS-4100)	✓	✓	(Use with UT-137)
IC-2730E	✓	✓	✓	✓	(Use CS-2730)	✓	✓	✓

\*1 CS-5100, CS-4100 and CS-2730 are available for free download from Icom website:  
<http://www.icom.co.jp/world/support/index.html>

\*2 Free download Android™ app. Download from Google Play™.

\*3 Free download software for Windows® PC. Download from the Icom website:  
<http://www.icom.co.jp/world/support/download/firm/>

### Note for the Terminal mode and Access point mode:

• Before operating in the Terminal mode or the Access Point mode, BE SURE to check your local regulations or laws. • An optional free download software, RS-MS3W is required to be installed in a PC. An optional free download application, RS-MS3A is required to be installed in the Android™ device. • You need an Internet connection with an IPv4 Global IP address. If you use a cellular system, you need an IPv4 Global IP address assigned to your Windows® or Android™ device. • When operating in the Access Point mode, you need two call signs. One for the Access Point transceiver and one for the Remote D-STAR transceiver. • For the Access point or Terminal mode operation, please register your MY and Access point call signs with a Gateway repeater/server that has the RS-RP3C installed.

MODEL NAME	REMOTE CONTROL APP
	RS-MS11*4 For iOS™ device
ID-5100E	
ID-4100E	(Use with UT-137)
IC-2730E	

\*4 Free download iOS™ app. Download from the App Store.

## RS-MS1A/RS-MS1I Remote Control App

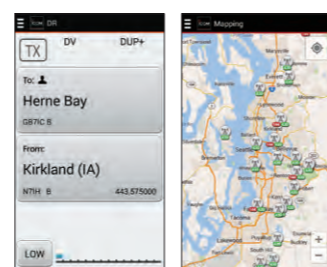
(Free Download Android™/iOS™ Application from Google Play™/App Store)

The RS-MS1A and RS-MS1I allow you to connect the Digital transceiver with an Android™/iOS™ device and remotely control various functions and settings from the Android™/iOS™ device. You can take pictures with your iOS™ or Android™ device, or use stored pictures, and share them over the DV mode.

\* An optional Bluetooth® unit (UT-133A or UT-137) or a data cable (OPC-2350LU) is required. Not all functions are usable with the IC-7100.

\* Some functions may not work properly, depending on Android™/iOS™ phones and devices used.

\* Photo shows RS-MS1A.



DR function setting example  
Repeater map example © Google

✓ : Applicable □ : Not applicable

# SPECIFICATIONS FOR BASE STATION TRANSCEIVERS

	IC-7851	IC-7610	IC-7700	IC-7300
<b>General</b>				
<b>Frequency coverage</b> (Differs according to version)	Tx: 135 kHz, 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30 kHz–60 MHz* * Some frequency ranges are not guaranteed.	Tx: 135 kHz, 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50MHz bands Rx: 30 kHz–60 MHz* * Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50 MHz bands Rx: 30 kHz–60 MHz* * Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50, 70** MHz bands Rx: 30 kHz–74.8 MHz** ** Depending on version. * Some frequency ranges are not guaranteed.
<b>Modes</b>	USB, LSB, CW, RTTY, PSK31/63, AM, FM	USB, LSB, CW, RTTY, PSK31/63, AM, FM	USB, LSB, CW, RTTY, PSK31, AM, FM	USB, LSB, CW, RTTY, AM, FM
<b>Frequency stability</b>	Less than ±0.05 ppm (0°C to +50°C; @ 54 MHz, after warm up)	Less than ±0.5 ppm (0°C to +50°C)	±0.05 ppm (0°C to +50°C, after warm up)	Less than ±0.5 ppm (–10°C to +60°C)
<b>Maximum current drain</b>	800 VA (85–265 V AC)	23 A at 13.8 V DC	800 VA (85–265 V AC)	21 A at 13.8 V DC
<b>Antenna connector</b>	SO-239 × 4 + BNC × 2 (50 Ω)	SO-239 × 2 + BNC (50 Ω)	SO-239 × 4 + BNC (50 Ω)	SO-239 (50 Ω)
<b>Dimensions</b> (W × H × D, Projections are not included)	425 × 149 × 435 mm	340 × 118 × 277 mm	425 × 149 × 437 mm	240 × 94 × 238 mm
<b>Weight (approx.)</b>	23.5 kg	8.5 kg	22.5 kg	4.2 kg
<b>Transmitter</b>				
<b>Output power</b>	SSB, CW, RTTY, PSK, FM: 5–200 W AM: 5–50 W Transverter connector (CW): More than –20 dBm	SSB, CW, RTTY, PSK, FM: 1–100 W AM: 1–25 W Transverter connector (CW): More than –20 dBm	SSB, CW, RTTY, PSK31, FM: 5–200 W AM: 5–50 W	SSB, CW, FM, RTTY: HF/50 MHz 2–100 W 70 MHz 2–50 W AM: HF/50 MHz 1–25 W 70 MHz 1–12.5 W
<b>Sensitivity (typical)</b> Preamp ON SSB, CW, RTTY, AM: at 10 dB S/N FM, WFM: at 12 dB SINAD	SSB, CW, RTTY, PSK (2.4 kHz): 0.1–1.799 MHz 0.5 μV 1.8–29.999 MHz 0.16 μV 50–54 MHz 0.13 μV AM (6 kHz): 0.1–1.799 MHz 6.3 μV 1.8–29.999 MHz 2.0 μV 50–54 MHz 1.0 μV FM (15 kHz): 28–29.700 MHz 0.5 μV 50–54 MHz 0.32 μV	SSB, CW (2.4 kHz): 1.8–29.999 MHz 0.16 μV 50–54 MHz 0.13 μV AM (6 kHz): 0.1–1.799 MHz 6.3 μV 1.8–29.999 MHz 2.0 μV 50–54 MHz 1.0 μV FM (15 kHz): 28–29.7 MHz 0.5 μV 50–54 MHz 0.32 μV	SSB, CW, RTTY (2.4 kHz): 0.1–1.799 MHz 0.5 μV 1.8–29.990 MHz 0.16 μV 50–54MHz 0.13 μV AM (6 kHz): 0.1–1.799 MHz 6.3 μV 1.8–29.990 MHz 2.0 μV 50–54 MHz 1.0 μV FM (15 kHz): 28–29.999 MHz 0.5 μV 50–54 MHz 0.32 μV	SSB, CW (2.4 kHz): 1.8–29.999 MHz 0.16 μV 50–54 MHz 0.13 μV 70–70.5 MHz 0.16 μV AM (6 kHz): 0.5–1.8 MHz 12.6 μV 1.8–29.999 Hz 2.0 μV 50–54 MHz 1.0 μV 70–70.5 MHz 1.0 μV FM (15 kHz): 28–29.7 MHz 0.5 μV 50–54 MHz 0.25 μV 70–70.5 MHz 0.25 μV
<b>Sensitivity for RED</b> (Less than) Preamp ON SSB, AM, FM: at 12 dB SINAD	SSB (2.4 kHz): 1.8–2.999 MHz 10 dBμV emf 3.0–29.999 MHz 0 dBμV emf 50 MHz band –6 dBμV emf AM (4 kHz, 60% modulation): 1.8–2.999 MHz 16 dBμV emf 3.0–29.999 MHz 6 dBμV emf 50 MHz band 0 dBμV emf FM (7 kHz, 60% modulation): 28–29.700 MHz 0 dBμV emf 50 MHz band –6 dBμV emf	SSB (2.4 kHz): 1.8–2.999 MHz 10 dBμV emf 3.0–29.999 MHz 0 dBμV emf 50 MHz band –6 dBμV emf AM (4 kHz, 60% modulation): 1.8–2.999 MHz 16 dBμV emf 3.0–29.999 MHz 6 dBμV emf 50 MHz band 0 dBμV emf FM (7 kHz, 60% modulation): 28–29.700 MHz 0 dBμV emf 50 MHz band –6 dBμV emf	SSB (2.4 kHz): 1.8–2.999 MHz 10 dBμV emf 3.0–29.990 MHz 0 dBμV emf 50 MHz band –6 dBμV emf AM (4 kHz, 60% modulation): 1.8–2.999 MHz 16 dBμV emf 3.0–29.990 MHz 6 dBμV emf 50 MHz band 0 dBμV emf FM (7 kHz, 60% modulation): 28–29.990 MHz 0 dBμV emf 50 MHz band –6 dBμV emf	SSB (2.4 kHz): 1.8–2.999 MHz 10 dBμV emf 3.0–29.999 MHz 0 dBμV emf 50/70 MHz band –6 dBμV emf AM (4 kHz, 60% modulation): 1.8–2.999 MHz 16 dBμV emf 3.0–29.999 MHz 6 dBμV emf 50/70 MHz band 0 dBμV emf FM (7 kHz, 60% modulation): 28–29.700 MHz 0 dBμV emf 50/70 MHz band –6 dBμV emf
<b>Selectivity</b>	SSB: 2.4 kHz/–3 dB (2.4 kHz) 3.6 kHz/–60 dB CW: 500 Hz/–6 dB (500 Hz) 700 Hz/–60 dB RTTY: 500 Hz/–6 dB (500 Hz) 700 Hz/–60 dB AM: 6.0 kHz/–3 dB (6 kHz) 15 kHz/–60 dB FM: 12 kHz/–6 dB (15 kHz) 20 kHz/–60 dB * Variable between 50 Hz and 3.6 kHz.	SSB: 2.4 kHz/–6 dB (2.4 kHz) 3.6 kHz/–60 dB CW: 500 Hz/–6 dB (500 Hz) 700 Hz/–60 dB RTTY: 500 Hz/–6 dB (500 Hz) 700 Hz/–60 dB AM: 6.0 kHz/–3 dB (6 kHz) 15 kHz/–60 dB FM: 12 kHz/–6 dB (15 kHz) 20 kHz/–60 dB * Variable between 50 Hz and 3.6 kHz.	SSB: 2.4 kHz/–3 dB (2.4 kHz) 3.6 kHz/–60 dB CW: 500 Hz/–3 dB (500 Hz) 700 Hz/–60 dB RTTY, PSK31: 360 Hz/–6 dB (350 Hz) 650 Hz/–60 dB AM: 6.0 kHz/–3 dB (6 kHz) 15 kHz/–60 dB FM: 12 kHz/–6 dB (15 kHz) 20 kHz/–60 dB * Variable between 50 Hz and 3.6 kHz.	SSB: 2.4 kHz/–6 dB (2.4 kHz) 3.4 kHz/–40 dB CW: 500 Hz/–6 dB (500 Hz) 700 Hz/–40 dB RTTY: 500 Hz/–6 dB (500 Hz) 800 Hz/–40 dB AM: 6.0 kHz/–6 dB (6 kHz) 10 kHz/–40 dB FM: 12 kHz/–6 dB (15 kHz) 22 kHz/–40 dB * Variable between 50 Hz and 3.6 kHz.
<b>Spurious and image rejection</b>	More than 70 dB	HF More than 70 dB 50 MHz More than 70 dB* * Except for ADC Aliasing	More than 70 dB	HF More than 70 dB 50/70 MHz More than 70 dB* * Except for ADC Aliasing
<b>Audio output power</b> (at 10% distortion with an 8 Ω load)	More than 2.6 W	More than 2.0 W	More than 2.6 W	More than 2.5 W

The LCD display may have cosmetic imperfections that appear as small or dark spots. This is not a malfunction or defect, but a normal characteristic of LCD displays.  
All stated specifications are subject to change without notice or obligation.

# SPECIFICATIONS FOR BASE STATION TRANSCEIVERS

	IC-718	IC-7100	IC-9700	
General	<b>Frequency coverage</b> <small>(Differs according to version)</small>	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28 MHz bands Rx: 30 kHz–29.999 MHz* * Guaranteed range 0.5–29.999 MHz.	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50, 70** <sup>1</sup> , 144, 430 MHz bands Rx: 30 kHz–199.999 MHz, 400–470 MHz** <sup>2</sup> ** <sup>1</sup> Depending on version. ** <sup>2</sup> Some frequency ranges are not guaranteed	Europe version: Tx/Rx: 144–146, 430–450, 1240–1300 MHz Italia version: Tx/Rx: 144–146, 430–434, 435–438, 1240–1245, 1270–1298 MHz
	<b>Modes</b>	USB, LSB, CW, RTTY, AM	USB, LSB, CW, RTTY, DV, AM, FM, WFM* (*Rx only)	USB, LSB, CW, RTTY, AM, FM, DV, DD
	<b>Frequency stability</b>	Less than ±200 Hz <small>(From 1 min. to 60 min. after power ON)</small>	±0.5 ppm <small>(0°C to +50°C @ 430 MHz)</small>	±0.5 ppm <small>(-10°C to +60°C)</small>
	<b>Maximum current drain</b>	20 A at 13.8 V DC	22 A (HF/50/70 MHz), 16 A (144/430 MHz) at 13.8 V DC	Less than 18 A at 13.8 V DC
	<b>Antenna connector</b>	SO-239	SO-239 × 2 (for HF/50/70 MHz and 144/430 MHz bands)	SO-239 (144 MHz), Type-N (430, 1200 MHz)
	<b>Dimensions</b> <small>(W × H × D, Projections are not included)</small>	240 × 95 × 239 mm	Main unit: 167 × 58 × 225 mm Controller: 165 × 64 × 78.5 mm	240 × 94 × 238 mm
<b>Weight</b> (approx.)	3.8 kg	Main unit: 2.3 kg Controller: 500 g	4.7 kg	
Transmitter	<b>Output power</b>	SSB, CW, RTTY, FM: 2–100 W AM: 2–35 W	SSB, CW, RTTY, FM, DV, DD: 144 MHz 0.5–100 W 430 MHz 0.5–75 W 1200 MHz 0.1–10 W AM: 144 MHz 0.125–25 W 430 MHz 0.125–18.75 W 1200 MHz 0.025–2.5 W	
	<b>Sensitivity</b> (typical) <small>Preamp ON SSB, CW, RTTY, AM: at 10 dB SIN FM, WFM: at 12 dB SINAD DV: at 1% BER</small>	SSB, CW: 1.8–29.999 MHz 0.16 µV AM: 0.5–1.799 MHz 13 µV 1.8–29.999 MHz 2.0 µV	SSB, CW (2.4 kHz): 1.8–29.995 MHz 0.15 µV 50–54 MHz 0.12 µV 70–70.5 MHz 0.15 µV 144/430 MHz 0.11 µV AM (6 kHz): 0.5–1.8 MHz 13 µV 1.8–29.995 MHz 2.0 µV 50/70/144/430 MHz 1.0 µV FM (15 kHz): 28–29.7 MHz 0.5 µV 50/70 MHz 0.25 µV 144/430 MHz 0.18 µV DV: 28–29.7 MHz 1 µV 50/70 MHz 0.63 µV 144/430 MHz 0.35 µV WFM: 76–108 MHz 10 µV	(Preamp: ON, Filter: SOFT) SSB/CW: Less than 0.11 µV AM: Less than 1.0 µV FM: Less than 0.18 µV DV: Less than 0.35 µV DD(1200 MHz only): Less than 1.59 µV
Receiver	<b>Sensitivity for RED</b> <small>(Less than) Preamp ON SSB, AM, FM: at 12 dB SINAD</small>	SSB (2.4 kHz): 1.8–2.999 MHz 10 dBµV emf 3.0–29.999 MHz 0 dBµV emf AM (6 kHz, 60% modulation): 1.8–2.999 MHz 16 dBµV emf 3.0–29.999 MHz 6 dBµV emf	(Preamp: ON, Filter: SOFT) SSB/CW (2.4 kHz): Less than 0.5 µV AM (4 kHz, 60% modulation): Less than 1.0 µV FM (7 kHz, 60% modulation): Less than 0.5 µV	
	<b>Selectivity</b>	SSB, CW, RTTY: 2.1 kHz/–6 dB 4.5 kHz/–60 dB 6.0 kHz/–6 dB 20 kHz/–40 dB AM: 500 Hz/–6 dB (500 Hz) 800 Hz/–40 dB AM (6 kHz): 6.0 kHz/–6 dB (6 kHz) 10 kHz/–40 dB FM: 12 kHz/–6 dB (15 kHz) 22 kHz/–40 dB	(Filter: SHARP) SSB (2.4 kHz): 2.4 kHz/–3 dB 3.6 kHz/–60 dB CW (500 Hz): 500 Hz/–3 dB 700 Hz/–60 dB RTTY (500 Hz): 500 Hz/–3 dB 700 Hz/–60 dB AM (6 kHz): 6 kHz/–3 dB 15 kHz/–60 dB FM (15 kHz): 12 kHz/–6 dB 20 kHz/–60 dB	
	<b>Spurious and image rejection</b> <small>(except IF)</small>	More than 70 dB <small>(1.8–29.999 MHz)</small>	More than 70 dB (HF/50/70 MHz) More than 65 dB (144/430 MHz) <small>(except 1/2 IF through on 50 MHz, IF through on 144 MHz)</small>	140/430 MHz SSB/CW More than 70 dB AM/FM/DV More than 60 dB 1200 MHz SSB/CW/AM/FM/DV/DD More than 50 dB
	<b>Audio output power</b> <small>(at 10% distortion with an 8 Ω load)</small>	More than 2.0 W	More than 2.0 W	More than 2.0 W

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# SPECIFICATIONS FOR HANDHELD AND MOBILE TRANSCEIVERS

	ID-51E <small>PLUS2</small>	IC-V80E
<b>Frequency coverage</b> <small>(Differs according to version)</small>	Europe version: Tx 144–146, 430–440 MHz Rx (A) 144–146, 430–440 MHz (B) 144–146, 430–440 MHz (BC) 0.52–1.71, 76–108 MHz UK version: Tx 144–146, 430–440 MHz Rx (A) 137–174, 380–479 MHz* <sup>1</sup> (B) 108–174, 380–479 MHz* <sup>1</sup> (BC) 0.52–1.71, 76–108 MHz	Tx 144–146 MHz Rx 144–146 MHz
<b>Modes</b>	DV, FM, FM-N, AM (Rx only), WFM (Rx only)	FM, FM-N
<b>Max. current drain</b>	2.5 A	1.4 A
<b>Number of Memory channels</b>	554 <small>(500 regular, 50 scan edges and 4 call channels)</small>	207 <small>(200 regular, 6 scan edges and 1 call channel)</small>
<b>Dimensions</b> <small>(W × H × D, Projections are not included)</small>	58 × 105.4 × 26.4 mm	58 × 112 × 30 mm
<b>Weight</b> (approx.)	255 g with antenna and BP-271	360 g with antenna and BP-264
<b>Output power</b> <small>(typical values)</small>	High: 5 W Mid: 2.5 W Low2: 1 W Low1: 0.5 W S-Low: 0.1 W <small>(at 7.4 V DC)</small>	High: 5.5 W Mid: 2.5 W Low: 0.5 W <small>(at 7.2 V DC)</small>
<b>Sensitivity</b> <small>(FM: at 12dB SINAD DV: at 1% BER Guaranteed range)</small>	DV Less than 0.28 µV FM/FM-N Less than 0.18 µV <small>(144, 430 MHz bands)</small>	FM/FM-N 0.14 µV typ.
<b>Audio output power</b> <small>(at 10% distortion)</small>	More than 400 mW (Internal SP, 16 Ω load) More than 200 mW (External SP, 8 Ω load)	750 mW typ. (Internal SP, 16 Ω load) 450 mW typ. (External SP, 8 Ω load)

	ID-5100E	ID-4100E	IC-2730E
<b>Frequency coverage</b> <small>(Differs according to version)</small>	Europe version : Tx 144–146, 430–440 MHz Rx 118–174, 375–550 MHz* <sup>1</sup> Italia version : Tx 144–146, 430–434, 435–438 MHz Rx 118–136.991, 144–146, 430–434, 435–438 MHz* <sup>2</sup>	Europe version : Tx 144–146, 430–440 MHz Rx 118–174, 230–550 MHz* <sup>1</sup> Italia version : Tx 144–146, 430–434, 435–438 MHz Rx 118–136.991, 144–146, 430–434, 435–438 MHz* <sup>2</sup>	Europe version : Tx 144–146, 430–440 MHz Rx 118–174, 375–550 MHz* <sup>1</sup> Italia version : Tx 144–146, 430–434, 435–438 MHz Rx 118–136.991, 144–146, 430–434, 435–438 MHz* <sup>2</sup>
<b>Modes</b>	DV, FM, FM-N, AM (Rx only), AM-N (Rx only)	DV, FM, FM-N, AM (Rx only), AM-N (Rx only)	FM, FM-N, AM (Rx only), AM-N (Rx only)
<b>Max. current drain</b>	13 A	13 A	13 A
<b>Number of Memory channels</b>	1054 <small>(1000 regular, 50 scan edges and 4 call channels)</small>	1054 <small>(1000 regular, 50 scan edges, 4 call channels.)</small>	1052 <small>(1000 regular, 50 scan edges and 2 call channels)</small>
<b>Dimensions</b> <small>(W × H × D, Projections are not included)</small>	Main unit: 150 × 40 × 172.6 mm Controller: 182.2 × 81.5 × 24.7 mm	Main unit + Controller: 150 × 40 × 171.9 mm Controller: 122 × 40 × 29.7 mm	Main unit: 150 × 40 × 151 mm Controller: 150 × 50 × 27.2 mm
<b>Weight</b> (approx.)	Main unit: 1.3 kg Controller: 260 g	Main unit: 1.1 kg Controller: 100 g	Main unit: 1.2 kg Controller: 140 g
<b>Output power</b> <small>(typical values)</small>	High: 50 W Mid: 15 W Low: 5 W <small>(at 13.8 V DC)</small>	High: 50 W Mid: 15 W Low: 5 W <small>(at 13.8 V DC)</small>	Main unit: 1.2 kg Controller: 140 g
<b>Sensitivity</b> <small>(FM: at 12dB SINAD DV: at 1% BER Guaranteed range)</small>	DV Less than 0.28 µV FM/FM-N Less than 0.18 µV <small>(144, 430 MHz bands)</small>	DV Less than 0.22 µV FM/FM-N Less than 0.18 µV <small>(144, 430 MHz bands)</small>	FM/FM-N Less than 0.18 µV <small>(144, 430 MHz bands)</small>
<b>Audio output power</b> <small>(at 10% distortion)</small>	More than 2.0 W (8 Ω load)	More than 2.0 W (8 Ω load)	More than 2.0 W (8 Ω load)

\*<sup>1</sup> Guaranteed range 144–146 and 430–440 MHz. \*<sup>2</sup> Guaranteed range 144–146, 430–434 and 435–438 MHz.  
(A) means VFO A receiver, (B) means VFO B receiver, (BC) means broadcast radio.

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



## Applicable U.S. Military Specifications

Icom makes rugged products that have been tested to and passed the MIL-STD requirements and strict environmental standards for shock and vibration.

# SPECIFICATIONS FOR RECEIVERS

	IC-R8600	IC-R30	IC-R6
<b>Frequency coverage</b> <small>(Differs according to version)</small>	0.01–3000 MHz*1	A band: 0.1 – 3304.999 MHz B band: 108 – 520 MHz	0.1–1309.995 MHz
<b>Mode</b>	USB, LSB, CW, FSK, AM, FM, WFM, D-STAR (DV), P25, NXDN, dPMR, DCR, S-AM	A band: (≤1300 MHz) FM, FM-N, WFM, AM, AM-N, SSB, CW, D-STAR (DV), P25, dPMR, NXDN, DCR (>1300 MHz) FM, FM-N, WFM, AM, AM-N B band: FM, AM, D-STAR (DV), P25, dPMR, NXDN, DCR	FM, WFM, AM
<b>Frequency stability</b>	Less than ±0.5 ppm (at 25°C after warm up)	Less than ±2.5 ppm (–20°C to 60°C)	±1.0 ppm (at 25°C)
<b>Maximum current drain</b>	2.0 A	330 mA typical (at 3.6 V DC)*2	130 mA typical (at 3.0 V DC)*3
<b>Antenna connector</b>	ANT1: Type-N (50 Ω), ANT2: SO-239 (50 Ω), ANT3: RCA (500 Ω)	SMA (50 Ω)	SMA (50 Ω)
<b>Dimensions</b> <small>(Projections are not included)</small>	220 (W) × 90 (H) × 230 (D) mm	58 (W) × 143 (H) × 30.5 (D) mm	58 (W) × 86 (H) × 29.8 (D) mm
<b>Weight</b> <small>(approx.)</small>	4.3 kg	310 g with antenna and BP-287 battery pack	200 g with antenna and battery cells
<b>Sensitivity</b> <small>SSB, CW, RTTY, AM, FSK: at 10 dB SIN FM, WFM: at 12 dB SINAD D-STAR, NXDN, dPMR, DCR: at 1% BER P25: at 5% BER</small>	SSB/CW/FSK (Preamp ON, BW: SSB/FSK=2.4 kHz, CW=0.5 kHz): 0.1–1.799 MHz 0.5 μV 1.8–29.999 MHz 0.2 μV 30–1999.999 MHz 0.32 μV 2000–3000 MHz 0.4 μV AM (Preamp ON, BW=6 kHz): 0.1–1.799 MHz 6.3 μV 1.8–29.999 MHz 2.5 μV 30–3000 MHz 5.6 μV FM (Preamp ON, BW=15 kHz): 28–1999.999 MHz 0.5 μV 2000–3000 MHz 0.63 μV WFM (Preamp ON, BW=180 kHz): 30–1999.999 MHz 1.4 μV 2000–3000 MHz 1.8 μV D-STAR (DV)/NXDN/dPMR/DCR (Preamp ON): 28–1999.999 MHz 0.79 μV 2000–3000 MHz 1 μV P-25 (Preamp ON): 28–1999.999 MHz 0.56 μV 2000–3000 MHz 0.71 μV	SSB/CW: 0.495–1.899 MHz Less than 0.4 μV 1.9–29.999 MHz Less than 0.25 μV 50–53.999 MHz Less than 0.25 μV 144–147.999 MHz Less than 0.25 μV 430–449.999 MHz Less than 0.32 μV AM: 0.495–1.899 MHz Less than 2.2 μV 1.9–29.999 MHz Less than 1.4 μV 118–136.999 MHz Less than 1.4 μV FM: 28–221.999 MHz Less than 0.4 μV 222–1299.999 MHz Less than 0.56 μV 1300–1999.999 MHz Less than 1.8 μV 2000–2699.999 MHz Less than 1.8 μV 2700–3304.999 MHz Less than 18 μV WFM: 76–107.999 MHz Less than 1.8 μV D-STAR (DV): 28–29.999 MHz Less than 0.71 μV 50–53.999 MHz Less than 0.71 μV 144–147.999 MHz Less than 0.71 μV 430–449.999 MHz Less than 1 μV 1260–1299.999 MHz Less than 1 μV NXDN/dPMR/DCR: 136–173.999 MHz Less than 0.71 μV 350–511.999 MHz Less than 1 μV P25: 136–173.999 MHz Less than 0.4 μV 400–469.999 MHz Less than 0.56 μV 763–869.999 MHz Less than 0.71 μV	FM (typical): 1.625–4.995 MHz 0.32 μV 5–29.995 MHz 0.25 μV 30–469.995 MHz 0.18 μV 470–832.995 MHz 0.32 μV 833–1029.995 MHz 0.28 μV 1030–1309.995 MHz 0.35 μV WFM (typical): 76–108 MHz 1.1 μV 175–221.995 MHz 1.1 μV 470–770 MHz 1.8 μV AM (typical): 0.495–4.995 MHz 1.3 μV 5–29.995 MHz 0.89 μV 118–136 MHz 0.63 μV 222–246.995 MHz 0.63 μV 247–329.995 MHz 0.79 μV
<b>Sensitivity for RED</b> <small>Preamp ON SSB, AM, FM: at 12 dB SINAD (Only for amateur band. With CCITT filter ON)</small>	SSB, FSK (Less than, BW=2.4 kHz) 0.1–2.999 MHz 10 dBuV emf 3–29.999 MHz 0 dBuV emf 30–3000 MHz –6 dBuV emf AM (Less than, BW=4 kHz) 0.1–2.999 MHz 16 dBuV emf 3–29.999 MHz 6 dBuV emf 30–3000 MHz 0 dBuV emf FM (Less than, BW=7 kHz) 3–29.999 MHz 0 dBuV emf 30–3000 MHz –6 dBuV emf	–	–
<b>Selectivity</b>	SSB/FSK (BW=2.4 kHz): More than 2.4 kHz/–3 dB Less than 3.6 kHz/–60 dB CW (BW=500 Hz): More than 500 Hz/–3 dB Less than 700 Hz/–60 dB AM (BW=6 kHz): More than 6.0 kHz/–3 dB Less than 15.0 kHz/–60 dB FM (BW=15 kHz): More than 12.0 kHz/–6 dB Less than 25.0 kHz/–60 dB WFM: More than 180 kHz/–6 dB	SSB/CW: More than 1.8 kHz/–6 dB AM/FM: More than 12 kHz/–6 dB, Less than 30 kHz/–60 dB (below 1305 MHz), Less than 30 kHz/–40 dB (above 1305 MHz) WFM: More than 150 kHz/–6 dB	AM, FM: More than 12 kHz/–9 dB Less than 30 kHz/–60 dB WFM: More than 150 kHz/–6 dB
<b>Audio output power</b> <small>(at 10% distortion)</small>	More than 2.0 W (8 Ω load)	More than 400 mW (Internal SP, 16 Ω load) More than 200 mW (External SP, 8 Ω load)	150 mW (Internal SP, 16 Ω load) 80 mW typical (External SP, 8 Ω load)

\*1 Working range. \*2 FM mode single receive, voice recording OFF, GPS OFF, back light OFF. \*3 External SP, backlight OFF.

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