

## **HAM Radios and Receivers**

European Edition







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

## Find 7610 Tech Reports



# HF/50 MHz TRANSCEIVER

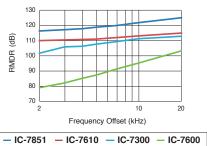
## Innovative RF Direct Sampling System Achieves 110 dB\* (typ) RMDR

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



## 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 bandpass 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. The Scroll mode automatically keeps the operating signal within the scope range.

## 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.

-



## **Base Station**



## 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 △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



## **Base Station**

#### **Experience** in video







Spectrum scope + Waterfall





#### HF/50/70 MHz TRANSCEIVER C - 7300

Class Leading Real-time Spectrum Scope with Waterfall Function

RF Direct Sampling System

Suitable for Starting FT8 Mode

#### Class Leading Real-time Spectrum **Scope with Waterfall Function**

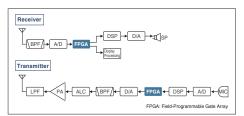
The IC-7300's real-time spectrum scope is class-leading in resolution, sweep speed and dynamic range. While listening to received audio, you can check the real-time spectrum scope and quickly move to an intended signal.

■ Real-time Spectrum Scope Specifications

IC-7300
FFT (Fast Fourier Transform)
5 kHz-1000 kHz
1 pixel minimum (approximately)
Max. 30 frames/second (approximately)
80 dB
Waterfall function, Audio scope function

#### **RF Direct Sampling System**

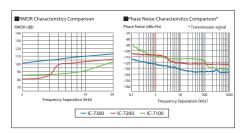
The IC-7300 employs an RF direct sampling system. RF signals are directly converted to digital data and processed in the FPGA (Field-Programmable Gate Array), making it possible to simplify the circuit construction. This system is the new benchmark technology making an epoch in amateur radio.



#### 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)



#### One-Touch FT8 Mode Preset

Preset memory offers smooth FT8 mode operation. You can start

FT8 mode operation only by selecting [FT8] from PRESET menu. Up to five preset memories can be stored.



#### 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 • "IP+" function improves the third order intercept point (IP3) performance • CW functions: Full break-in, CW reverse, CW auto tuning • 70 MHz operation is possible in the European transceiver version

## **Multi-Band**









Perfect companion of the IC-7300



Menu screen 1



Menu screen 2

# 144/430/1200 MHz ALL MODE TRANSCEIVER 1C-9700

All Mode, Tri-band Transceiver, with Built-in 1200 MHz

**RF Direct Sampling System** 

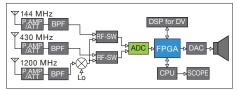
Real-time Spectrum Scope with Waterfall Display

## 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

The IC-9700 has 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 con-

dition. The Scroll mode automatically keeps the operating signal within the scope range.



## 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.

## **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 sepa-

rate DV signals. Moreover, by using the DD mode, you can browse the Internet through a repeater station.



#### **One-Touch FT8 Mode Preset**

Preset memory offers smooth FT8 mode operation. You can start FT8 mode operation only

by selecting [FT8] from PRESET menu. Up to five preset memories can be stored.



#### **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.

	Address (Vand at		
+	192.168.	0. 10	
1	2	3	
4	5	6	
7	8	9	ENT
	0	CE	U

#### Connection example (Access Point mode)



- \* These functions can be used only when using through
- 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**

- UDP Hole Punch function Photo Sharing function send, receive and display photos through the radio 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 breakin, CW memory keyer, CW reverse, CW auto tuning • SD card slot • TX/RX audio recording • Screen capture ...and more

## **Experience** in video















Display example of real-time spectrum scope and waterfall



Touch screen display



Menu screen example

#### HF/50/144/430 MHz MULTIMODE **PORTABLE TRANSCEIVER**

"Base Station" Performance in the Palm of Your Hand

**RF Direct Sampling System** 

**Real-Time Spectrum Scope** and Waterfall Display

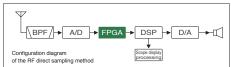
#### **HF to UHF Multimode**

From HF to 50/144/430 MHz, you can enjoy a variety of bands in the D-STAR DV, SSB, CW, RTTY, AM and FM modes. The IC-705 receives continuously from 30 kHz through the 144 MHz band. You can also enjoy FM broadcast and air band reception.

#### **RF Direct Sampling System**

The IC-705 employs an RF direct sampling system, where RF signals are directly converted to digital data. Then processed in the FPGA (Field-Programmable Gate Array), making it possible to simplify the circuit construction as well as reducing internal noise that can mask weak signals.

\* The down-conversion IF sampling method is used for 25 MHz and above



#### Real-Time Spectrum Scope and Waterfall Display

Performance seen with the IC-7300 and IC-9700 spectrum scope is at the tip of your fingers for field operation. You can quickly see band activity as well as finding an open frequency. The Scroll mode automatically keeps the operating signal within the scope range.

#### **Large Touch Screen Colour Display**

The large 4.3" colour TFT touch LCD, same size as the IC-7300 and IC-9700, offers intuitive operation of functions, settings, and various operational visual aids, such as the band scope, waterfall, and audio scope functions.

#### **One-Touch FT8 Mode Preset**

Preset memory offers smooth FT8 mode operation. You can start FT8 mode operation

only by selecting [FT8] from PRESET menu. Up to five preset memories can be stored.



#### **Compact and Lightweight Design**

"Base Station" performance in the palm of your hand! You will quickly see how this compact radio is rugged, for outdoor use, in a small, lightweight package, weighing approximately 1.1 kg.



#### **Li-ion Battery Pack** or 13.8 V DC External Power Supply

Utilizing the high capacity Li-ion battery from the ID-52E series handheld handheld radios. A 13.8 V DC external power supply can be used for operation and charging of the battery.

#### **Maximum Output Power 5 W** (Battery), 10 W (13.8 V DC)

In portable mode, the IC-705 has the maximum output power of 5 W from the BP-272 or BP-307 which can last approximately 3 or 4.7 hours\*. This is perfect for true 5 W QRP as well as the 0.5 W QRPp operations. Once you setup with a 13.8 V DC power source, you have up to 10 W.

\* TX : RX : Standby = 1 : 1 : 8 (The Power Save function ON, in the FM mode)

#### WLAN/Bluetooth® Technologies

Utilize WLAN/Bluetooth® technologies for linking and remote control, for true wireless operation. The VS-3 headset (optional) enables more comfortable operation via Bluetooth®.

#### **GPS Functions**

An internal GPS receiver and antenna enhance your operations by providing location logging\*, RX/TX locations via D-PRS, "Near Me" repeater search/scan, QSO recording with metadata\*, and internal clock synchronization.

\* A microSD memory card is required.

#### **D-STAR Functions**

Eniov the latest DV mode features with the IC-705. Have direct access to the D-STAR network with Terminal/Access point modes. Additionally, the IC-705 has the Photo Sharing feature introduced with the IC-9700. Share photos, without the need of a computer with other users.

#### Other Features

- · microSD card slot
- Micro USB connector
- Programmable speaker microphone, HM-243
- Optional antenna tuner, AH-705 (See page. 7)
- · Optional backpack, LC-192, ideal for field operations



For more information about the Multi-Function Backpack, LC-192



## **Multi-Band**





DR (D-STAR Repeater) function operation



Near repeater function



SD card slot for saving data

### HF/VHF/UHF TRANSCEIVER **C-7100**

**Intuitive Touch Screen Interface** 

**Controls at Your Fingertips** with an Angled Display

HF, 50/70/144/430 MHz Multi-band

#### Touch Screen Control with an **Angled Display**

The radio control head features a large, multifunction, "touch screen" dot-matrix LCD display that is positioned for easy view and operation. The controller is compact in size, making it ideal for limited vehicle or desktop space.

#### **Resistive Touch Screen**

The 48.6×75.9 mm; 1.91×2.99 in large resistive touch screen display can be operated while wearing gloves.



#### HF, 50/70/144/430 MHz Multi-band

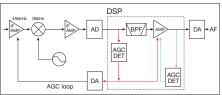
The IC-7100 fully covers the HF, 50, 70, 144, 430 MHz amateur bands in multiple modes, providing 100 W on HF/50 MHz bands, 50 W on 70/144 MHz band and 35 W on 430 MHz band.

#### 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

#### **Built-in RTTY Functions**

The built-in RTTY decoder enables you to instantly read an RTTY message on the display. Your RTTY operating log, both TX and RX, can be recorded on an SD card. The eight RTTY memories can memorize and transmit often used RTTY sentences.

#### **D-STAR DV Mode** (Digital Voice + Data)

The IC-7100 provides D-STAR (Digital Smart Technology for Amateur Radio) DV mode digital voice and low-speed data communication.

#### **IDR (D-STAR Repeater) Function Operation** The DR function operation makes the D-STAR operation simple and straightforward, even if you are new to D-STAR.

#### Repeater Search Function

With an external GPS receiver\*, this function searches nearby D-STAR repeaters from the internal database, based on your location.

\* External GPS receiver or manual position data input required.

#### **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.



#### 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

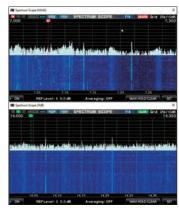
#### Other Features

• 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 multifunction 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 •  $\pm 0.5$  ppm frequency stability • Auto reply function\* • Digital callsign squelch (DSQL) and digital code squelch (CSQL)\* • 12.5 kHz IF output for DRM (Digital Radio Mondiale) receive

\* D-STAR DV mode only

## Remote Control & Antenna Tuners





Dual spectrum scope example

# 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.

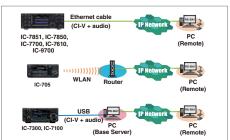
\* Only for the IC-7851, IC-7850 and IC-7610.

#### **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  $\triangle$  TX functions are added from Version 2.

#### 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.



# AH-730

1.8 – 50 MHz Frequency Coverage with 7 m or longer wire antenna

2 - 3 Seconds High Speed Tuning

**IPX4 Water Resistant** 

#### **Wide Frequency Coverage**

With a 7 m or longer wire element, all band matching is possible from the 1.8 MHz band to the 50 MHz band.

#### **Minimum RF Output for Tuning**

The AH-730 emits only 0.3 W of RF output from the antenna during tuning operation.

#### **Tuning Memories**

The AH-730 has 45 memories to store the minimum SWR settings. When re-tuning the same frequency, matching can be achieved in about 1 second.

• Compatible with IC-7610, IC-7300 and IC-7100



# AUTOMATIC ANTENNA TUNER AH-705

1.8 - 50 MHz Frequency Coverage with 30 m or longer wire antenna

SO-239 Antenna Connector for 50 Ω Antenna such as Dipole or Yagi

PL-259 Plug or Terminal Connector Supplied for a Long Wire Antenna

#### 1.8 MHz to 50 MHz Coverage

30 m or longer antenna: 1.8 – 54 MHz, 7 m or longer antenna: 3.5 – 54 MHz.

## Alkaline Batteries or External 13.8 V DC\*, 2-way Power Sources

 $^{\star}$  13.8 V DC should be taken directly from an external power supply, not through the IC-705.

## Latching Relays Used for Saving Power Consumption

#### 190 × 105 × 40 mm, 450 g\* Compact Design

- \* Battery cells are not included.
- Compatible with IC-705

## Handheld

**Bluetooth® Connection** 

wirelessly control the ID-52E.

You can easily connect to an Android™

device through Bluetooth®. The Android™

device with RS-MS1A App installed, can

Terminal/Access Point mode\*1 \*2

Connect the ID-52E to the Internet through a PC or Android™ device. The Terminal mode

and Access Point mode enable you to access

the D-STAR network, even from areas where

no D-STAR repeater is accessible.

ID-52E

# Bluetooth<sup>®</sup>

#### 2.3 inch Large Colour Display

The ID-52E is equipped with a colour display. The display size is increased to 2.3 inches,  $320 \times 280$ pixels to achieve excellent viewability. The display background colour is selectable from black and white.

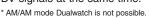


#### V/V, U/U, V/U Dualwatch

The Dualwatch function monitors the VHF/VHF, UHF/UHF and VHF/UHF bands simultaneously.\* You can also receive two DV signals at the same time.



Dualwatch example



#### Waterfall Display

You will have an overview of the band conditions at a glance. The waterfall display shows the changes of signal level in chronological order.



Waterfall display

#### Access point mode

Terminal mode



PC or

INTERNE

D-STAR repeater

- \*1 The RS-MS3W for Windows™ PC or RS-MS3A for Android™ device required. USB data cable is separately required.
- \*2 Compatible with Icom RS-RP3 gateway software only.

#### Other Features

• Independent FM broadcast receiver • DV/ FM repeater search function • DV fast data mode • Integrated GPS receiver • microSD card slot • Micro USB connector • IPX7 waterproof construction • 5 W output power and 750 mW loud audio • Voice recording functions . CS-52 software can be downloaded from the Icom website

## **VHF/UHF DIGITAL TRANSCEIVER ID-52E**

2.3 inch Large Colour Display

V/V, U/U, V/U Dualwatch **Including DV/DV Mode** 

**Picture Sharing Functions** & Bluetooth® Connection

#### **Picture Sharing Functions**

The ID-52E has the popular Picture Sharing functions introduced in the IC-9700 and IC-705. Share pictures with other users and

see received pictures on the colour display. Pictures taken on an Android™ device can be wirelessly transferred to the ID-52E through Bluetooth®.





In combination with a BTL amplifier and Icom's custom speaker, the IC-T10 delivers 1500 mW (typ.) powerful audio even in noisy environments. In addition, the optional HM-222HLWP also provides 1500 mW (typ.) loud audio from the attached speaker-microphone.



1500 mW powerful audio

Optional HM-222HLWF

## **IP67 Waterproof and Dust-Tight**

The IC-T10 can withstand submersion in 1 m depth of water for 30 minutes. This rugged construction provides dust-tight protection, making it suitable



#### **5 W of Output Power** on Both VHF and UHF Bands

VHF/UHF DUAL BAND FM TRANSCEIVER

1500 mW Powerful Audio

IP67 Waterproof and MIL-STD 810G

for outdoor operation.

## 11/10 Hours of Long Battery Life\*

With supplied 2400 mAh (typ.) large capacity BP-280 battery pack, the IC-T10 can use the radio for up to 11/10 hours\*

\* VHF/UHF with external speaker-mic rated audio. TX:RX:Standby = 1:1:8 (60: 60: 480 seconds)

#### **FM Broadcast Receiver**

The IC-T10 covers 136-174, 400-479 MHz and 76-108 MHz\*. You can listen to a FM broadcast station.

\* EUR version. Receiver working range.

#### The Home Button on the Top Panel

The IC-T10 has the home button on the top of the panel. When pushing the home button, you can quickly access the often used channel.

#### **Download Free Programming Software**

The CS-T10 programming software for Windows™ PC can be download from the Icom Website. Editing memory channels and other settings can easily be made from your PC.

#### Other Features

- · User programmable side buttons for quick access for user-selected functions • Optional AD-149H power supply adapter allows to use the radio by external DC power • BC-240, rapid charger and AC adapter are supplied
- CTCSS/DTCS code for repeater, tone squelch and pocket beep operation • 16 DTMF autodial memories • FM narrow mode
- · Priority, Program, Memory, Skip, Tone and other useful scan capabilities • VOX capability for hands-free operation • Direct-conversion system eliminates IF stages • 200 memory channels, 2 Call channel and 6 scan edges

## **Mobile**









#### 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 settings, change 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

repeaters or other channel activities



\* 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



#### **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.

## Receivers









Function menu for touch screen



Pop up menu appears by pushing DIAL B

## **COMMUNICATIONS RECEIVER** C-R8600

0.01-3000 MHz Super Wideband

**Decode Digital Protocols** (P25, NXDN™, dPMR™, D-STAR, DCR)

> Real-Time Spectrum Scope with Waterfall

#### 0.01-3000 MHz Super **Wideband Coverage**

The IC-R8600 decodes various digital protocol signals including P25 (Phase 1), NXDN™, dPMR™, D-STAR, Japanese DCR (Digital Convenience Radio). It also receives conventional analogue signals such as USB, LSB, FSK, CW, AM, S-AM (Synchronous-AM), FM and WFM modes, covering 10 kHz to 3 GHz wideband in 1 Hz steps.

#### **Software Demodulation** in FPGA Processing

The IC-R8600 utilizes FPGA (Field Programmable Gate Array) and DSP units for demodulation, decoding and most of signal processing. Direct HF signals and intermediate frequency signals, which are converted from VHF/UHF signals, are digitized in a 14-bit A/D converter and transferred

to the FPGA and DSP for optimal processing. The high-rate 122.88 MHz sampling frequency used for the A/D converter results in superior aliasing and image reception reduction.



FPGA

#### **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 • △ f scan/ ⊿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, ±2.5 MHz wide scope span (display range) and 110 dB of dynamic range (at ±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 HDSDR, and the IC-R8600 can be controlled by the HDSDR.

\* This function requires firmware version 1.3 or later. Download the IC-R8600 USB I/Q package for HDSDR.

#### 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 deemphasis • 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

## Receivers



# communications receiver

0.1-1309.995 MHz\* Wideband Coverage

100 Channels Per Second High Speed Scan

15 Hours of Continuous Receive Capability

#### 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.

#### Other Features

tube earphone, SP-27

• 1300 Memory Channels with 22 Memory Banks • Voice Squelch Control • Built-in audio low pass filter • ±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

<sup>\*</sup> Frequency range depending on version.

## ACCESSORIES FOR BASE STATIONS, MULTI-BAND & RECEIVERS

		HAND MICE	ROPHONES	SPEAKER-MICROPHONE	<b>DESKTOP MI</b>	CROPHONES	Bluetooth® HEADSET	
MODEL NAME	HM-219	HM-103	HM-151	HM-198	HM-243	SM-50	SM-30	VS-3
	3		8	8				8
IC-7610	~					~	~	
IC-7300	V					V	V	
IC-9700	V					V	V	
IC-705					V			<b>V</b>
IC-7100	(Use with OPC-589)	~	V	V		(Use with OPC-589)	(Use with OPC-589)	
IC-R9500								
IC-R8600								

		EXTI	ERNAL SPEAK	KERS		AC ADAPTER	ANTENNA ELEMENT	ANTENNA	A TUNERS
MODEL NAME	SP-33 Wooden box speaker	SP-35 2.0 m cable SP-35L 6.0 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	AD-55NS Input: 100-240 V/1.0 A, Output: 15 V/2.0 A	AH-2b Covers 7–54 MHz	AH-730 Covers 1.8-54 MHz	AH-705 Covers 1.8–54 MHz
IC-7610	~				<b>V</b>		<b>V</b>	<b>V</b>	
IC-7300	V	~	~		~		<b>✓</b>	~	
IC-9700		(Use SP-35)	V		~				
IC-705									V
IC-7100		(Use SP-35)					<b>V</b>	V	
IC-R9500									
IC-R8600				<b>V</b>	<b>V</b>	<b>V</b>			

	AUTO TUNING ANTENNA	CONTROI	L CABLES	COAXIAL CABLE	FOLDED DIPOLE ANTENNA	OMINIDIRECTIONAL ANTENNA	CARRYING HANDLES	MOBILE MOUT	ING BRACKETS
MODEL NAME	AH-740 Covers 2.5-30 MHz. (amateur band) OPC-2321 is required.	OPC-2321 (6.0 m) For use with AH-740 OPC-1465 (10 m) For use with AH-730	(5.0 m)	(5.0 m) For use with AH-705	AH-710 Covers 1.9–30 MHz 30 m; 98.4 ft	AH-8000 Covers 100–3335 MHz	MB-121 MB-123	MB-62	MB-118
IC-7610	(Use with OPC-2321)	V			V		(Use MB-121)		
IC-7300	(Use with OPC-2321)	V			V		(Use MB-123)		V
IC-9700							(Use MB-123)		V
IC-705			(Use with AH-705)	(Use with AH-705)					
IC-7100	(Use with OPC-2321)	V						V	
IC-R9500									
IC-R8600					<b>V</b>	<b>V</b>	(Use MB-123)		

: Applicable : Not applicable

## **ACCESSORIES FOR BASE STATIONS, MULTI-BAND & RECEIVERS**

	DESKTOP STAND	MOUNTING BASE	CONTROLLER BRACKET	SEPARATION CABLES	MIC ADAPTER CABLE	ADAPTER CABLE	DC POWER CABLES	PROGRAMMING SOFTWARE	REMOTE CONTROL SOFTWARE
MODEL NAME	MBF-705	MBF-1	MBA-1	OPC-2253 3.5 m OPC-2254 5.0 m	8-pin connector microphone to 8-pin modular	OPC-599 13-pin ACC socket to 7-, 8-pin ACC sockets	OPC-1457R OPC-1457-1 30 A cable OPC-2095 30 A cable OPC-2361 25 A cable OPC-2421 4 A cable	CS-9700*1 CS-705*1 CS-7100 CS-8600 A USB cable is required for programming.	RS-MS1A*2 For Android™ device
IC-7610							(Use OPC-1457-1)		
IC-7300						V	(Use OPC-1457R)		
IC-9700							(Use OPC-2361)	(Use CS-9700)	(Use with OPC-2350LU)
IC-705	V						(Use OPC-2421)	(Use CS-705)	<b>✓</b> *4
IC-7100		(Use with MBA-1)	V	V	V	V	(Use OPC-2095)	(Use CS-7100)	(Use with OPC-2350LU)
IC-R9500									
IC-R8600								(Use CS-R8600)	

		REMOTE	CONTROL SC	FTWARE		USB REMOTE ENCODER	PICTURE UTILITY SOFTWARE	GPS SOFTWARE	TIME ADJUSTMENT SOFTWARE
MODEL NAME	<b>RS-MS1I</b> *3 For iOS™ device	RS-MS3A*2 For Android™ device	RS-MS3W*1 For Windows™ PC	RS-R8600	RS-BA1 (Version 2)	RC-28	ST-4001A*1 ST-4001I*3 ST-4001W*2	ST-4002A*2	ST-4003A*2 ST-4003W*1
	COCCCO Cindand (IA)	A the second sec	Enter the state of					The state of the s	
IC-7610					~	~			~
IC-7300					~	(Use with RS-BA1)			~
IC-9700		(Use with OPC-2350LU)	(Use with OPC-2350LU)		V	(Use with RS-BA1)	V	(Use with OPC-2350LU)	~
IC-705	<b>✓</b> *5	<b>✓</b> *6	<b>✓</b> *7		<b>✓</b> *7	(Use with RS-BA1)	<b>✓</b>		~
IC-7100					V	(Use with RS-BA1)		(Use with OPC-2350LU)	<b>✓</b>
IC-R9500									
IC-R8600				~		(Use with RS-BA1)			

	DATA C	ABLES	BATTER	Y PACKS	DESKTOP CHARGER	AC ADAPTER	BACKPACK
MODEL NAME	OPC-1529R RS-232 cable for an external GPS or a PC	OPC-2350LU 2.5 mm jack to USB Type A or micro-B OPC-2417 USB micro-B to micro-B OPC-2418 USB Type C to micro-B	<b>BP-272</b> (Li-ion) 7.4 V/ 1880 mAh (min.), 2000 mAh (typ.)	<b>BP-307</b> (Li-ion) 7.2 V/ 3050 mAh (min.), 3150 mAh (typ.)	BC-202IP2 Rapid charger	BC-1235*8 12 V/1.0 A for BC-202IP2	LC-192 Multi-function backpack
IC-7610							
IC-7300							
IC-9700	~	(Use OPC-2350LU)					
IC-705		(Use OPC-2417 or OPC-2418)	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>
IC-7100	V	(Use OPC-2350LU)					
IC-R9500							
IC-R8600							

- \*¹ Free download software for Windows™ PC. Download from the Icom website: www.icomjapan.com/support/firmware\_driver/
  \*² Free download Android™ app. Download from Google Play™. \*³ Free download iOS™ app. Download from the App Store.
  \*⁴ Use with OPC-2417, OPC-2418 or Bluetooth® connection for Android™ device. \*⁵ Use Bluetooth® connection for iOS™ device.
- \*6 Use with OPC-2417 or OPC-2418 or WLAN function. \*7 Use a USB cable or WLAN function. USB cable Type-A: User supplied. Type-C: OPC-2418.

 $^{\star_8}$  AC adapter may be supplied depending on versions.

#### 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.
- 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.

✓ : Applicable

: Not applicable

- 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.

## ACCESSORIES FOR HANDHELD RADIOS & RECEIVERS

	BATTERY CASE				MULTI CHARGER	AC ADAPTERS			
MODEL NAME	BP-273 LR6(AA)×3 cells	<b>BP-272</b> (Li-ion) 7.4 V/ 1880 mAh (min.), 2000 mAh (typ.)	<b>BP-307</b> (Li-ion) 7.2 V/ 3050 mAh (min.), 3150 mAh (typ.)	<b>BP-280</b> (Li-ion) 7.2 V/ 2280 mAh (min.), 2400 mAh (typ.)	BC-202IP2 Rapid charger	BC-213 Rapid charger	BC-194 Charger stand	BC-214N For BP-280/ BP-298/BP-299	BC-167SD 12 V/500 mA
ID-52E	~	<b>V</b>	~		<b>✓</b> *1				~
IC-T10				~		<b>✓</b> *1		(Use #41-#43)	
IC-R6							(Use with BC-196SD)		

		AC AD	APTERS		CIGARETTE LIC	GHTER CABLES	DC POWE	R CABLES	POWER SUPPLY ADAPTER
MODEL NAME	<b>BC-123SE</b> 12 V/1.0 A	<b>BC-242</b> 12 V/1.0 A	<b>BC-157S</b> 12 V/7.5 A	<b>BC-196SD</b> 4.5 V/0.3 A	CP-12L with noise filter	CP-23L	OPC-254L	OPC-656	AD-149H
	189					E17	R	d	
ID-52E	(Use with BC-202IP2)				~		~		
IC-T10	(Use with BC-213)	(Use with BC-213)	/*1 (Use with BC-214N)		(Use with AD-149H)	(Use with BC-213)	(Use with AD-149H)	(Use with BC-214N)	(Use with CP-12L or OPC-254L)
IC-R6				<b>/</b>					

 $<sup>^{\</sup>star_1}$  AC adapter may be supplied depending on versions.

			SPEA	KER-MICROPH	IONES			EARPHONE-M	IICROPHONES
MODEL NAME	HM-75LS	HM-183LS Waterproof	HM-186LS	HM-222HLWP Waterproof	HM-158LA	HM-159LA	HM-168LWP Waterproof	HM-153LS	HM-166LS
				9			0	~	77
ID-52E	~	~	~					~	~
IC-T10				~	~	~	~		
IC-R6									

	<b>EARPHONE-M</b>	ICROPHONES			HEADSETS			EARPI	HONES
MODEL NAME	HM-153LA	HM-166LA	HS-94LWP Earhook type with waterproof connector	HS-95LWP Neck arm type with waterproof connector	HS-94 Earhook type with boom microphone		HS-97 Throat microphone type	SP-40	SP-27
		S.					65	<b>9</b>	0
ID-52E					(Use with OPC-2006LS)	(Use with OPC-2006LS)	(Use with OPC-2006LS)	(Use with OPC-2144)	
IC-T10	~	<b>✓</b>	V	<b>✓</b>					
IC-R6								~	~

: Applicable : Not applicable

## **ACCESSORIES FOR HANDHELD RADIOS & RECEIVERS**

	PLUG ADAPTER CABLES		Bluetooth® HEADSET	ADSET CARRYING CASES		CHARGER BRACKET	USB CABLES	
MODEL NAME	OPC-2006LS For VOX operation	OPC-2144 For straight plug microphones	Vs-3	LC-193	LC-146A	MB-130	OPC-2417 USB micro-B to micro-B	OPC-2418 USB Type C to micro-B
ID-52E	V	<b>/</b>	V	V			V	<b>/</b>
IC-T10						(Use with BC-213)		
IC-R6					V			

	PROGRAMMING CABLES		BELT CLIPS ANTENNA A		ANTENNA ADAPTER	PROGRAMMING SOFTWARE	REMOTE CONTROL SOFTWARE		PICTURE UTILITY SOFTWARE
MODEL NAME	OPC-474 Handheld to handheld	OPC-478UC Handheld to PC USB cable	MB-127 MB-133 (Photo shows MB-133)	FA-S270C	AD-92SMA BNC type antenna connector	CS-52** CS-T10** CS-R6	RS-MS1A*3 For Android™ device RS-MS1I*4 For iOS™ device	RS-MS3A*3 For Android™ device RS-MS3W*2 For Windows™ PC	ST-4001A*3 ST-4001I*4 ST-4001W*2
ID-52E			(Use MB-127)	V	<b>V</b>	(Use CS-52)	<b>✓</b> *5	<b>✓</b> *6	<b>✓</b>
IC-T10		<b>✓</b>	(Use MB-133)	V		(Use CS-T10)			
IC-R6	~	~	·		V	(Use CS-R6)			

: Applicable

: Not applicable

<sup>\*2</sup> Free download software for Windows™ PC. Download from the Icom website: www.icomjapan.com/support/firmware\_driver/
\*3 Free download Android™ app. Download from Google Play™. \*4 Free download iOS™ app. Download from the App Store.
\*5 Use with OPC-2417, OPC-2418 or Bluetooth® connection for Android™ device. Use Bluetooth® connection for iOS™ device.
\*6 USB cable required. Type-A: User supplied. Type-C: OPC-2418. micro-B: OPC-2417.

## **ACCESSORIES FOR MOBILE RADIOS**

		HAND MICROPHONES					MOUNTING BASE	MOUNTING BRACKET	CONTROLLER BRACKETS
MODEL NAME	HM-198	HM-209 Noise canceling microphone Experience in video below	HM-207	HM-154	HM-232	V5-3	MBF-1	MBF-4	MBA-2
ID-5100E	V	V	<b>/</b>	<b>V</b>	V	(Use with UT-133A)	(Use with MBA-2)	~	<b>✓</b>
IC-2730E	V	~	<b>✓</b>	<b>V</b>	V	(Use with UT-133A)	(Use with MBA-5)	~	

	CONTROLLER BRACKETS	COMBINATION BRACKET	EXTERNAL	SPEAKERS	MICROPHONE CABLES	MIC ADAPTER CABLE	CONTROLLER CABLE	DATA C	CABLES
MODEL NAME	MBA-5	MBA-4	SP-35 2.0 m cable SP-35L 6.0 m cable	SP-30 4 inch (102.5 mm) diameter speaker	OPC-440 5.0 m OPC-647 2.5 m	OPC-589 8-pin connector microphone to 8-pin modular	<b>OPC-1156</b> 3.5 m	OPC-1529R RS-232 cable	OPC-2350LU USB cable for an Android™ or a PC
ID-5100E			<b>✓</b>	<b>✓</b>	~	~	<b>✓</b>	~	<b>✓</b>
IC-2730E	V	~	~	~	<b>/</b>	~	~		

	PROGRAMMING CABLE	CLONING CABLE	Bluetooth® UNIT	PROGRAMMING SOFTWARE	REMOTE CONTROL SOFTWARE	<b>GPS SOFTWARE</b>
MODEL NAME	OPC-478UC Transceiver to PC USB cable	OPC-474 Between transceivers	UT-133A	CS-5100*1 CS-2730*1	RS-MS1A*2 For Android™ device	ST-4002A*2
ID-5100E	V		V	(Use CS-5100)	(Use with UT-133A)	(Use with OPC-2350LU)
IC-2730E	~	V	~	(Use CS-2730)		

Active Noise Canceling Microphone, HM-209 Shuts Out Annoying Background Noise.



#### Experience in video

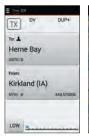
- \*1 CS-5100 and CS-2730 are available for free download from Icom website: www.icomjapan.com/support/firmware\_driver
- $^{*2}$  Free download Android™ app. Download from Google Play™

#### **RS-MS1A Remote Control App**

(Free Download Android™ Application from Google Play™)

The RS-MS1A allows you to connect the Digital transceiver with an Android<sup>TM</sup> device and remotely control various functions and settings from the Android<sup>TM</sup> device. You can take pictures with your Android<sup>TM</sup> device, or use stored pictures, and share them over the DV mode.

- \* An optional Bluetooth® unit (UT-133A) or a data cable (OPC-2350LU) may be required, depending on the transceiver. Not all functions are usable with the IC-7100.
- $^{\star}$  Some functions may not work properly, depending on Android  $^{\text{TM}}$  phones and devices used.





DR function setting example

Repeater map example © Google

: Applicable

: Not applicable

## **SPECIFICATIONS FOR BASE STATIONS & MULTI-BAND**

		IC-7610	IC-7300	IC-9700	IC-705	IC-7100
	Frequency coverage (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: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50, 70* MHz bands Rx: 30 kHz–74.8 MHz*2  1 Depending on version. 2 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	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50, 144, 430 MHz band Rx: 30 kHz–199.999 MHz, 400–470 MHz*  * Some frequency ranges are not guaranteed.	Tx: 1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50, 70*1, 144, 430 MHz bands  Rx: 30 kHz–199.999 MHz, 400–470 MHz*2*  *1 Depending on version. *2 Some frequency ranges are not guaranteed.
	Modes	USB, LSB, CW, RTTY, PSK31/63, AM, FM	USB, LSB, CW, RTTY, AM, FM	USB, LSB, CW, RTTY, AM, FM, DV, DD	USB, LSB, CW, RTTY, AM, DV, FM, WFM* (*Rx only)	USB, LSB, CW, RTTY, DV, AM, FM, WFM* (*Rx only)
General	Frequency stability	Less than ±0.5 ppm (0°C to +50°C)	Less than ±0.5 ppm (-10°C to +60°C)	±0.5 ppm (-10°C to +60°C)	Less than ± 0.5 ppm (-10°C to +60°C)	±0.5 ppm (0°C to +50°C @ 430 MHz)
ຮັ	Maximum current drain	23 A at 13.8 V DC	21 A at 13.8 V DC	Less than 18 A at 13.8 V DC	Less than 3 A at 13.8 V DC Less than 2.5 A at 7.4 V DC	22 A (HF/50/70 MHz), 16 A (144/430 MHz) at 13.8 V DC
	Antenna connector	SO-239 × 2 + BNC (50 Ω)	SO-239 (50 Ω)	SO-239 (144 MHz), Type-N (430, 1200 MHz)	BNC connector (50 $\Omega$ ) (One connector for all bands)	SO-239 × 2 (for HF/50/70 MHz and 144/430 MHz bands)
	Dimensions (W x H x D; Projections are not included)	340 × 118 × 277 mm	240 × 94 × 238 mm	240 × 94 × 238 mm	200 × 83.5 × 82 mm	Main unit: $167 \times 58 \times 225$ mm Controller: $165 \times 64 \times 78.5$ mm
	Weight (approx.)	8.5 kg	4.2 kg	4.7 kg	1.1 kg (including BP-307)	Main unit: 2.3 kg Controller: 500 g
Transmitter	SSB, CW, RTTV, PSK, EM: SSB, CW, FM, RTTY:		SSB, CW, RTTY, FM, DV, DD: 144 MHz	13.8 V DC SSB, CW, RTTY, FM, DV:0.1–10 W AM: 0.025–2.5W 7.4 V DC SSB, CW, RTTY, FM, DV:0.1–5 W AM: 0.025–1.25 W	SSB, CW, RTTY, FM, DV:  1.8-50 MHz	
	Sensitivity (typical) Preamp ON SSB, CW, RITTY, AM: at 10 dB S/N FM, WFM: at 12 dB SINAD DV: at 1% BER	SSB, CW (2.4 kHz):  1.8–29.999 MHz	SSB, CW (2.4 kHz):  1.8–29.999 MHz  0.16 µV 50–54 MHz  0.13 µV 70–70.5 MHz  12.6 µV  AM (6 kHz):  0.5–1.8 MHz  12.6 µV 1.8–29.999 Hz  2.0 µV 50–54 MHz  10 µV FM (15 kHz):  28–29.7 MHz  0.5 µV 50–54 MHz  0.25 µV 70–70.5 MHz  0.25 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	SSB, CW (2.4 kHz):  1.8-29.999 MHz:  0.15 µV  144/430 MHz:  0.5-1.799 MHz:  13.0 µV  1.8-29.999 MHz:  0.0 µV  50 MHz:  1.0 µV  144/430 MHz:  0.25 µV  144/430 MHz:  0.63 µV  144/430 MHz:  0.63 µV  144/430 MHz:  0.63 µV	SSB, CW (2.4 kHz):  1.8–29.995 MHz
Receiver	Sensitivity for RED (Less than) Preamp ON SSB, AM, FM: at 12 dB SINAD	SSB (2.4 kHz):  1.8–2.999 MHz	SSB (2.4 kHz):  1.8–2.999 MHz	(Preamp: ON, Filter: SOFT) SSB/CW (2.4 kHz): Less than $0.5~\mu V$ AM (4 kHz, 60% modulation): Less than $1.0~\mu V$ FM (7 kHz, 60% modulation): Less than $0.5~\mu V$	SSB (2.4 kHz):  1.8–2.999 MHz 10 dBµV emf 3.0–29.995 MHz 0 dBµV emf 50/70 MHz band -6 dBµV emf 144/430 MHz band -6 dBµV emf AM (4 kHz, 60% modulation):  1.8–2.999 MHz 16 dBµV emf 3.0–29.995 MHz 6 dBµV emf 50/70 MHz band 0 dBµV emf 144/430 MHz band 0 dBµV emf FM (7 kHz, 60% modulation):  28–29.700 MHz 0 dBµV emf 50/70 MHz band -6 dBµV emf	SSB (2.4 kHz):  1.8–2.999 MHz 10 dBµV emf 3.0–29.995 MHz 0 dBµV emf 50/70 MHz band -6 dBµV emf 144/430 MHz band -6 dBµV emf AM (4 kHz, 60% modulation):  1.8–2.999 MHz 16 dBµV emf 3.0–29.995 MHz 6 dBµV emf 50/70 MHz band 0 dBµV emf 144/430 MHz band 0 dBµV emf FM (7 kHz, 60% modulation):  28–29.700 MHz 0 dBµV emf 50/70 MHz band -6 dBµV emf
	Selectivity	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/-6 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/–40 dB AM: 6.0 kHz/–40 dB AM: 6.0 kHz/–40 dB FM: 12 kHz/–6 dB (15 kHz) 22 kHz/–40 dB 'Variable between 50 Hz and 3.6 kHz.	(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	(Filter: SHARP) SSB (2.4 kHz): 2.4 kHz/–3 dB 3.4 kHz/–40 dB CW (500 Hz): 500 Hz/–6 dB 700 Hz/–40 dB RTTY (500 Hz): 500 Hz/–6 dB 800 Hz/–6 dB 400 Hz/–40 dB AM (6 kHz): 6 kHz/–6 dB 10 kHz/–40 dB FM (15 kHz): 12 kHz/–6 dB 22 kHz/–40 dB DV (12.5 kHz spacing): –50 dB	SSB: 2.4 kHz/-6 dB (2.4 kHz) 3.4 kHz/-40 dB CW: 500 Hz/-6 dB (500 Hz) 700 Hz/-60 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
	Spurious and image rejection	HF More than 70 dB 50 MHz More than 70 dB* * Except for ADC Aliasing	HF More than 70 dB 50/70 MHz More than 70 dB* * Except for ADC Aliasing	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	More than 70 dB (HF/50 MHz)* (Except for ADC aliasing) More than 65 dB (144 MHz) More than 54 dB (430 MHz) *At Intermediate frequency in 25 – 30 MHz or 50 – 54 MHz: More than 50 dB	More than 70 dB (HF/50/70 MHz) More than 65 dB (144/430 MHz) (Except 1½ IF through on 50 MHz, IF through on 144 MHz)
	Audio output power (at 10% distortion)	More than 2.0 W (8 Ω load)	More than 2.5 W (8 Ω load)	More than 2.0 W (8 Ω load)	More than 530 mW (Internal SP, 12 $\Omega$ load) More than 200 mW (External SP, 8 $\Omega$ load)	More than 2.0 W (8 Ω load)
U	S Military Standards	-	-	-	MIL-ST-810-G	-

## SPECIFICATIONS FOR HANDHELDS, MOBILES & RECEIVERS

	ID-52E	IC-T10	ID-5100E	IC-2730E	
Frequency coverage (Differs according to version)  Tx 144–146, 430–440 MHz Rx A band 108–174, 225–479 B band 137–174, 375–479 FM Broadcast 76–108 MH		Tx 144–146, 430–440 MHz* <sup>1</sup> Rx 136–174, 400–479 MHz* <sup>1</sup> FM Broadcast 76–108 MHz	Europe version:  Tx 144–146, 430–440 MHz  Rx 118–174, 375–550 MHz*1  Italia version:  Tx 144–146, 430–434, 435–438 MHz  Rx 118–136.991, 144-146,  430–434, 435–438 MHz*2	Europe version:  Tx 144–146, 430–440 MHz  Rx 118–174, 375–550 MHz*  Italia version:  Tx 144–146, 430–434, 435–438 MHz  Rx 118–136.991, 144–146,  430–434, 435–438 MHz*2	
Modes	DV, FM, FM-N, WFM (Rx only), AM (Rx only), AM-N (Rx only)	FM, FM-N	DV, FM, FM-N, AM (Rx only), AM-N (Rx only)	FM, FM-N, AM (Rx only), AM-N (Rx only)	
Max. current drain	2.5 A	2.5 A	13 A	13 A	
Number of Memory channels	1054 (1000 regular, 50 scan edges and 4 call channels)	208 (200 memory channels, 2 call channel and 6 scan edges)	1054 (1000 regular, 50 scan edges and 4 call channels)	1052 (1000 regular, 50 scan edges and 2 call channels)	
<b>Dimensions</b> (W x H x D; Projections are not included)	61.1 × 121.6 × 34.8 mm with BP-272	52.2 × 111.8 × 30.3 mm with BP-280	Main unit: 150 × 40 × 172.6 mm Controller: 182.2 × 81.5 × 24.7 mm	Main unit: $150 \times 40 \times 151$ mm Controller: $150 \times 50 \times 27.2$ mm	
Weight (approx.)	330 g with antenna and BP-272	278 g with BP-280 and antenna	Main unit: 1.3 kg Controller: 260 g	Main unit: 1.2 kg Controller: 140 g	
Output power (typical values)	High: 5 W Mid: 2.5 W Low1: 1 W Low2: 0.5 W S-Low: 0.1 W	High: 5 W Mid: 2.5 W Low: 0.5 W	High: 50 W Mid: 15 W Low: 5 W (at 13.8 V DC)	Main unit: 1.2 kg Controller: 140 g	
Sensitivity (FM at 12 dB SINAD, DV at 1% BER, guaranteed range)	DV Less than 0.2 μV FM/FM-N Less than 0.18 μV (144, 430 MHz bands)	FM/FM-N Less than 0.18 μV	DV Less than 0.28 μV FM/FM–N Less than 0.18 μV (144, 430 MHz bands)	FM/FM-N Less than 0.18 µV (144, 430 MHz bands)	
Audio output power (at 10% distortion)	More than 750 mW (Internal SP, 8 $\Omega$ load) More than 200 mW (External SP, 8 $\Omega$ load)	1500 mW typ. (Internal SP, 8 $\Omega$ load) 450 mW typ. (External SP, 8 $\Omega$ load) 1500 mW typ. (HM-222HLWP, 8 $\Omega$ load)	More than 2.0 W (8 Ω load)	More than 2.0 W (8 Ω load)	
MIL-STD and IP Rating	IPX7	MIL-STD-810-G, IP67	MIL-STD-810-G	MIL-STD-810-G	

 $<sup>^{\</sup>star1}$  Guaranteed range 144–146 and 430–440 MHz.  $^{\star2}$  Guaranteed range 144–146, 430–434 and 435–438 MHz.

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

	IC-R8600		IC-R6		
Frequency coverage (Differs according to version)	0.01–3000 MHz* <sup>3</sup>		0.1–1309.995 MHz		
Mode	USB, LSB, CW, FSK, AM, FM, WFM, D-STAR (DV), P2	25, NXDN, dPMR, DCR, S-AM	FM, WFM, AM		
Frequency stability	Less than ±0.5 ppm (at 25°C after warm up)		±1.0 ppm (at 25°C)		
Maximum current drain	2.0 A		130 mA typical (at 3.0 V DC)*4		
Antenna connector	ANT1: Type-N (50 Ω), ANT2: SO-239 (50 Ω), ANT3: RCA (50	00 Ω)	SMA (50 Ω)		
Dimensions (Projections are not included)	220 (W) × 90 (H) × 230 (D) mm		58 (W) × 86 (H) × 29.8 (D) mm		
Weight (approx.)	4.3 kg		200 g with antenna and battery cells		
Sensitivity SSB, CW, RTTY, AM, FSK: at 10 dB SN FM, WFM: at 12 dB SNAD D-STAR, RXDN, dPMR, DCR: at 1% BER P25: at 5% BER	SSB/CW/FSK (Preamp ON, BW: SSB/FSK=2.4 kHz, CW=0.5 kHz) 0.1-1.799 M 1.8-29.999 I 30-1999.99 2000-3000  AM (Preamp ON, BW=6 kHz): 0.1-1.799 M 1.8-29.999 I 30-3000 MH FM (Preamp ON, BW=15 kHz): 28-1999.99 2000-3000  WFM (Preamp ON, BW=180 kHz): 30-1999.99 2000-3000  D-STAR (DV)/NXDN/dPMR/DCR (Preamp ON): 28-1999.99 2000-3000  P-25 (Preamp ON): 28-1999.99 2000-3000	Hz 0.5 μV MHz 0.2 μV 9 MHz 0.32 μV MHz 0.4 μV HHz 6.3 μV HHz 6.3 μV Hz 5.6 μV 9 MHz 0.55 μV Hz 0.63 μV 9 MHz 0.63 μV 9 MHz 1.4 μV MHz 1.8 μV 9 MHz 1.79 μV MHz 0.79 μV MHz 0.56 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 0.32 μV 1030–1309.995 MHz 0.35 μV 1030–1309.995 MHz 1.1 μV 176–21.995 MHz 1.1 μV 470–770 MHz 1.8 μV 470–770 MHz 1.8 μV 470–770 MHz 0.495–4.995 MHz 0.89 μV 118–136 MHz 0.63 μV 222–246.995 MHz 0.63 μV 2247–329.995 MHz 0.79 μV		
Sensitivity for RED Preamp ON SSB, AM, FM: at 12 dB SINAD (Only for amateur band. With CCITT filter CN)	SSB, FSK (Less than, BW=2.4 kHz)	Hz 0 dBuV emf Hz -6 dBuV emf HHz 16 dBuV emf Hz 6 dBuV emf Hz 0 dBuV emf Hz 0 dBuV emf	-		
Selectivity	SSB/FSK (BW=2.4 KHz): More than 2.4 kHz/–3 dB		AM, FM: More than 12 kHz/-9 dB Less than 30 kHz/-60 dB WFM: More than 150 kHz/-6 dB		
Audio output power (at 10% distortion)	More than 2.0 W (8 $\Omega$ load)		150 mW (Internal SP, 16 $\Omega$ load) 80 mW typical (External SP, 8 $\Omega$ load)		
MIL-STD and IP Rating	MIL-STD-810-G		MIL-STD-810-F, IPX2		

<sup>\*3</sup> Working range. \*4 External SP, backlight OFF.

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