**Experience in video**

http://www.icom.co.jp/r/ic-7851_me/

**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**

---

**HF/50MHz 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: 1.2 kHz

---

**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.

**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.

---

**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.

---

**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.

---

<table>
<thead>
<tr>
<th>LO C/N Characteristics Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive Frequency: 14.2 MHz Mode: CW 1st LO frequency: 78.655 MHz</td>
</tr>
<tr>
<td>SPAN = 20 kHz, RBW = 30 Hz, VBW = 10 Hz</td>
</tr>
<tr>
<td>-10</td>
</tr>
<tr>
<td>IC-7800</td>
</tr>
<tr>
<td>IC-7851</td>
</tr>
</tbody>
</table>

---

**Scope Comparison**

<table>
<thead>
<tr>
<th>Scope Comparison</th>
<th>IC-7851</th>
<th>IC-7800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Span Width</td>
<td>3 kHz–1500 kHz</td>
<td>3 kHz–500 kHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.5 pixel minimum</td>
<td>20 pixel minimum*</td>
</tr>
<tr>
<td>Sweep Speed</td>
<td>20.3 nanoseconds</td>
<td>4 nanoseconds</td>
</tr>
<tr>
<td>Display Dynamic Range</td>
<td>100 dB</td>
<td>20 dB</td>
</tr>
<tr>
<td>Noise Floor Level</td>
<td>–30 dB</td>
<td>–19 dB</td>
</tr>
</tbody>
</table>

* Above the channel at various RBW levels, when receiving a signal

---

**Experience in video**

http://www.icom.co.jp/r/ic-7851_me/
+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.

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] • 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
ICOM

### IC-7610

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

The RF direct sampling system directly converts the analog 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**

<table>
<thead>
<tr>
<th>Frequency Offset (kHz)</th>
<th>RMDR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>115</td>
</tr>
<tr>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>15</td>
<td>105</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

* * At 2 kHz frequency separation.

**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 Analog 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.

**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.

* This function will be provided with a future firmware update.

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 color TFT LCD  • Simplified remote control capability with the optional RS-BA1 (Version 3)  • 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  • Autotuning step function  • AGC control for fine tuning of the AGC time constant  • Screen saver function
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.

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
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.

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 optimised against signal distortion.

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 Color TFT LCD

The large 4.3 inch color 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 IP remote control software (the spectrum scope with the waterfall can be observed)
- CW functions: Full break-in, CW reverse, CW auto tuning
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.

* Already built-in to USA version.

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 • Preemclfier 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/RF meter

Low Latency, High Quality Audio Over an IP Network

The RS-BA1 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 is not available. To obtain the new features in the RS-BA1, the purchase of a new software package is required.
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 multifunction 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, 50/144/430 MHz Multi-band

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

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.

DR (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 mode repeater channels
- 4 TX voice memories
- ±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
HF to 1200 MHz Multi-band, Dual Independent Receiver

The IC-9100 covers 100 W on HF, 50 MHz and 144 MHz, 75 W on 430/440 MHz bands and 10 W on the 1200 MHz band.* The radio has three independent receiver circuits from the antenna connector to the second IF mixer (image rejection mixer) and simultaneously receives two different bands (1. HF/50 MHz + 144 MHz, 2. 144 MHz + 430/440 MHz, 3. 430/440 MHz + 1200 MHz) at a time.

* Optional UX-9100 1200 MHz band unit required.

+30 dBm Class IP3

Using receiver design techniques introduced in Icom's highest grade HF transceivers, the IC-9100 has an IP3 of +30 dBm* in the HF band. Even a weak signal adjacent to strong signals is clearly received by the IC-9100.

* Typical in 14 MHz band. Spacing=100 kHz

Satellite Mode Operation

The IC-9100 has a top class receiver performance in the VHF/UHF bands, which is indispensable for obtaining weak signals in the satellite communication. The satellite mode synchronizes the uplink (transmitting) and downlink (receiving) frequencies, and tracks the frequencies in the same tuning step. Twenty satellite Memory channels store frequencies, mode and tone settings for quick setup.

Optional 1200 MHz Band Unit

By installing the optional UX-9100 1200 MHz band unit, the IC-9100 extends the coverage to the 1200 MHz band. You can also enjoy L/V or L/U mode satellite operation.

Optional D-STAR DV Mode

The optional UT-121 provides D-STAR DV mode digital voice and low speed data communication. Linking of D-STAR repeaters over the Internet enables you to communicate virtually anywhere. The D-STAR repeater (DR) function makes it easy to access D-STAR repeaters.

USB Connector for PC Control

The IC-9100 has a standard type B USB connector and can be connected to a PC. Modulation input, audio output, RTTY demodulator output and CI-V command can be controlled through the USB cable.

Other Features

- 32-bit DSP and double conversion superheterodyne system • AGC loop management • Digital IF filter • Digital twin PBT and IF shift • Noise reduction • Noise blanker • RF speech compressor • Adjustable transmit bandwidth • RTTY demodulator and decoder • Ample CW functions • Built-in antennatunerorHF/50MHz band/Digital notch filter • Large, multi-Function LCD • Optional CS-9100 programming software • Optional RS-BA1(Version 2) IP remote control software

Three First IF Filters (3/6/15 kHz) for HF/50 MHz Band

The IC-9100 comes with a built-in 15 kHz 1st IF filter, and can accept up to two optional filters (3 kHz FL-431 and 6 kHz FL-430). By changing the first IF filter width, depending on the operating mode, the desired signal is protected from adjacent inband signals at the later stages, for better receiver performance.
Terminal Mode*1 *2
Connect the ID-51A PLUS2 or ID-31A PLUS 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*1 *2
Use an ID-51A PLUS2 or ID-31A PLUS radio 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.

DV Fast Data Mode*
By using data in place of voice frames, the ID-51A PLUS2 or ID-31A PLUS transfers data 3.5 times faster (3480 bps) than in the conventional DV mode (with voice). Pictures taken by an Android™ device can be transmitted in the DV Fast Data mode faster.
* The DV Fast Data mode is not compatible with the DV mode low-speed data communication.

Integrated GPS Receiver
The integrated GPS receiver provides fast start-up time and accurate location. GPS location information can be used for Auto Reply function. When receiving a call addressed to your call sign, the radio can automatically reply your current location information.

microSD Card Slot
When used with a microSD card, various contents including communication contents, voice audio, communication log, RX history log and GPS log data can be stored. Memory channels and other settings can be saved and loaded into the transceiver.

IPX7 Waterproof Construction
Both radios have superior IPX7 waterproof protection (one meter depth for 30 minutes). They can be used in harsh outdoor environments, or when hiking, mountain biking, touring and doing various outdoor sports.

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.

Red, Gold and Silver Color Versions* (ID-31A PLUS only)
The ID-31A PLUS has red, gold and silver color choices for your preference.
* Red, gold and silver color versions are not available in all areas.

D-Star Repeaters

<table>
<thead>
<tr>
<th>Repeater Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-RP2C</td>
<td>Repeater controller</td>
</tr>
<tr>
<td>ID-RP2D</td>
<td>1.2 GHz DD mode module</td>
</tr>
<tr>
<td>ID-RP2V</td>
<td>1.2 GHz DV mode module</td>
</tr>
<tr>
<td>ID-RP2000V</td>
<td>144 MHz DV mode module</td>
</tr>
<tr>
<td>ID-RP4000V</td>
<td>430/440 MHz DV mode module</td>
</tr>
<tr>
<td>RS-RP3C</td>
<td>Internet gateway software</td>
</tr>
</tbody>
</table>

*2 Compatible with Icom RS-RP3 repeaters only.

Access Point Mode*1 *2
Use an ID-51A PLUS2 or ID-31A PLUS radio 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.

** Terminal Mode**
- Connect the ID-51A PLUS2 or ID-31A PLUS 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-51A PLUS2 or ID-31A PLUS radio 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.

** DV Fast Data Mode**
- By using data in place of voice frames, the ID-51A PLUS2 or ID-31A PLUS transfers data 3.5 times faster (3480 bps) than in the conventional DV mode (with voice). Pictures taken by an Android™ device can be transmitted in the DV Fast Data mode faster.

** Integrated GPS Receiver**
- The integrated GPS receiver provides fast start-up time and accurate location. GPS location information can be used for Auto Reply function. When receiving a call addressed to your call sign, the radio can automatically reply your current location information.

** microSD Card Slot**
- When used with a microSD card, various contents including communication contents, voice audio, communication log, RX history log and GPS log data can be stored. Memory channels and other settings can be saved and loaded into the transceiver.

** IPX7 Waterproof Construction**
- Both radios have superior IPX7 waterproof protection (one meter depth for 30 minutes). They can be used in harsh outdoor environments, or when hiking, mountain biking, touring and doing various outdoor sports.

** 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.

** Red, Gold and Silver Color Versions**
- (ID-31A PLUS only)
  - The ID-31A PLUS has red, gold and silver color choices for your preference.
  - Red, gold and silver color versions are not available in all areas.

** Other Features**
- 200 GPS Memory channels
- 5 W output power
- Three hour rapid charging with supplied wall charger (BP-271)
- Long lasting battery pack
- CS-51PLUS2 or CS-31PLUS programming software supplied
- Dplus Reflector link commands
- Enhanced D-PRS functions
**Intuitive Touch Screen Operation**

The intuitive touch screen interface provides quick and smooth operation. The large 5.5 inch display (320 × 128 pixels) responds naturally to the touch – allowing you to change settings, enter frequencies and edit Memory channels with ease.

**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-5100A 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.

* 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**

- DV fast data mode
- DV-FM remote control software
- Duplex reflector linking
- SD card slot
- Wireless audio with optional UT-133A Bluetooth® unit
- 50 W output power
- Memory channels increased to 1500
- CTCSS and DTCS with Split tone function
- 8.33 kHz air band channel reception
- Auto repeater function (USA version only)

**Terminal/Access Point Mode**

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. Please see p.10 for function details.

*2 compatible with Icom RS-RP3 repeaters 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 (11.5 ft) 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-4100A.

**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-MS1I) 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
- Auto repeater function (USA version only)
- HM-207S remote-control microphone (supplied as standard)

* Receiver range differs depending on version.
Mobile

VHF/UHF DUAL BAND TRANSCEIVER
IC-2730A

50 Watts of Output Power on Both VHF and UHF Bands

VHF/VHF, UHF/UHF Simultaneous Receive

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 Wireless Remote Control Bluetooth® Headset VS-3

Optional VS-3 Bluetooth® Headset
The optional VS-3 Bluetooth® headset can wirelessly control the IC-2730A 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-2730A.

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
• 16 DTMF auto dial memories
• CI-V remote control capability (through the OPC-478UC)

* Receiver range differs, depending on the version.

VHF/UHF, UHF/UHF Simultaneous Receive
The IC-2730A 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.

A Total of 207 Memory Channels
The IC-2300H has a total of 207 Memory channels, including 200 regular channels, six scan edges and one call channel. The channel name is programmable with sixz characters for easy recognition.

Multiple Scan Functions
The IC-2300H supports various scan types for maximum reception and ease of use. The DMS (Dynamic Memory Scan) system enables you to scan selected banks from 10 memory banks by simply adding and deleting bank links.

Other Features
• Tested to the MIL-STD 810 G specifications
• Simple operation
• Multiple scan functions
• Power supply voltage display
• Wide/narrow channel setting
• 4.5 W (typical) loud audio
• Reduced depth dimensions
• DTMF autodial
• Time-out timer
• Repeater lockout
• Automatic power off
• S-meter squelch
• Selectable LCD backlight color (amber, yellow and green)
• Weather channel receive and alert function (USA version only)
• Automatic repeater function (USA version only)
• Selectable squelch delay from short and long
• Squelch attenuator reduces suppression from strong signals
• PC to transceiver and transceiver to transceiver cloning capability

Stable 65 W of Output Power
The IC-2300H can generate 65 W of output power. The rugged aluminum die-cast provides effective heat dissipation and keeps RF output even during high-duty cycle continuous transmission.

Built-in CTCSS and DTCS Encoder/Decoder
The CTCSS and DTCS tones are built-in for quiet stand-by and repeater access. The tone scan function detects the subaudible tone that is used for repeater access. The pocket beep function gives you an audible and visual indicator of an incoming call. The DTCS encoder function (DTCS transmit only) is also available.

144MHz FM TRANSCEIVER
IC-2300H

65 Watts of RF Output Power with Heavy-Duty Endurance

Powerful 4.5 W Audio Output Provides Loud and Clear Audio

Tested to the MIL-STD 810 G Specifications
COMMUNICATIONS RECEIVER
IC-R9500

0.005–3335 MHz Wideband Coverage

Superb Receiver Performance

Five Roofing Filters
The IC-R9500 has 5 independent roofing filters (240, 50, 15, 6 and 3 kHz) for improved selectivity. In very crowded RF spectrum conditions, it is extremely important to prevent overload and from strong signals. The 3 kHz roofing filter provides a 130 dB (approx.)* blocking dynamic range.

* At 15 MHz reception, with 5 kHz separation signals.

±0.05 ppm High Frequency Stability
The IC-R9500 uses an OCXO (Oven Control Crystal Oscillator) unit which provides ±0.05 ppm frequency stability from 0°C to 50°C. The 10 MHz reference frequency can either be supplied to or input from external equipment.

Multi Function Spectrum Scope
Using a dedicated DSP unit improves the dynamic range of the spectrum scope. The IC-R9500 has four different display modes such as normal/wide and center/fixe width. The spectrum scope normally covers a range from ±2.5 kHz to ±5 MHz, while the wide band spectrum scope* observes up to ±500 MHz (±10 MHz, ±25 MHz, ±50 MHz, ±100 MHz ±250 MHz and ±500 MHz selectable). When using the normal spectrum scope mode, the digital scope's filter width can vary from 200 Hz to 20 kHz with a variable sweep speed. The peak search function automatically moves the display marker to the strongest signal on the scope screen. In addition to these features, the scope has 3 levels of attenuation (10 dB, 20 dB, 30 dB).

* While using the wide band scope function, AF output is muted.

7-inch Wide Color TFT LCD
The large 7-inch wide (800 × 480 pixels) active matrix display delivers quick response time, high resolution and has a wide viewing angle. The multi-function spectrum scope is displayed in vivid color. The background color is selectable from black or blue for your preference. In addition, the IC-R9500 has a VGA connector allowing you to connect an external monitor.

Multiple RSSI
S-meter, dBμ, dBμ (emf) and dBm meter types are selectable in the IC-R9500. The dBμ, dBμ (emf) and dBm meter have ±3 dB of accuracy*.

* 10 to 70 dBμ signal from 100 kHz to 3335 MHz at 25°C

Other Features
[Receive assist functions]
• Digital voice recorder • Dual DSP • Digital IF filter • Digital twin PBT • Noise blanker • Noise reduction • Notch filter • Synchronous AM detection • FSK demodulator and decoder • 10 VFOs • 1220 Memory channels • Multiplescan functions • Voice synthesizer • USB connector • SSB/CW/AM mode auto tuning function • AFC function compensates for frequency shifts (FM/WFM mode only) • CW-R (reverse) mode • Preamp and attenuator • 1/4 tuning step function and dial click function • APF (Audio Peak Filter) • AGC (Automatic Gain Control) • VSC (Voice Squelch Control) • Input overload protection (HF bands only) • Optional P25 digital mode reception • CI-V interface and RS-232C for PC remote control • 4 antenna connectors: an SO-239, a phono (RCA) connector and two type-N connectors • S/P DIF output jack • Video input/output • Clock function • IF output jack (10.7 MHz) • CTCSS and DTCS tone squelch • Simplified frequency calibration using WWV or WWVH...
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 analog 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.

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.

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 color 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.

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.

Remote Control Software RS-R8600

The RS-R8600 remotely controls the IC-R8600 through an IP Network or a USB cable (direct PC connect), and provides high quality audio with low latency. Up to 256 network receivers can be registered (select one of these receivers to operate.) Record received audio using the PC Utility and save it on a PC storage device.

Other Features

• SD card slot for receiver recorder • 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 modes • 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

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

**IC-R30**

**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*.

* SF mode: 0.1 MHz–1.3 GHz.

**Wireless Operation with a Bluetooth® Headset**
With the optional VS-3 Bluetooth® headset, you can wirelessly listen to received audio. The VS-3 has volume UP/DOWN buttons and four programmable buttons to remotely control certain functions.

**VSC (Voice Squelch Control)**
The VSC opens the squelch only when a modulated signal is detected, and ignores unmodulated beat noise. It is a handy feature for those listeners who are scanning for talk, news and music, but not data bursts or beacons.

**Other Features**
- 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-R30 programming software
- VS (Voice Squelch Control) (FM, FM-N, WFM, AM, AM-N)
- ATC (Auto Frequency Control) (FM, FM-N, WFM)
- Noise blanker (SSB, CW)
- ANL (Auto Noise Limiter) (AM, AM-N)
- RF gain control (10 steps)
- ATT function (3 steps)
- Key lock function
- Volume function
- Power save function (3 steps)
- Volume or frequency setting with dial or side buttons
- Clock
- GPS 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.

**IC-R6**

**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 ×2), the IC-R6 provides up to 15 hours of continuous receive capability*.

* At 50 mW output using external speaker.

**1300 Memory Channels with 22 Memory Banks**
With 1300 alphanumeric Memory channels, 50 scan edges and 200 auto write memories, the IC-R6 gives you flexible scanning. Use the bank link scan feature to choose from and connect any of the 22 memory banks.

**Other Features**
- 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 CTSS 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
- Reversable up/down buttons and dial knob for volume, frequency, memory channel, scan direction and set mode settings
- Optional tube earphone, SP-27
- Black, metallic red and metallic blue color choices*.

* Metallic red and metallic blue color versions are not available in all areas.

**Receivers**

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.

**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.

**Other Features**
- Integrated GPS receiver
- 2.3” large LCD and intuitive user interface
- Band scope function
- Speech function
- IP57 dust-protection and waterproof protection
- Up to 8.3 hours of long battery life*
- USB charging and PC connection
- Optional BP-293 AA (LR6) × 3 battery case
- 2000 regular Memory channels
- Earphone cord antenna for AM aviation as well as FM broadcast
- Ferrite bar antenna for AM broadcast
- DTCS and CTSS tone squelch and reverse tone squelch
- Optional CS-R30 programming software
- VS (Voice Squelch Control) (FM, FM-N, WFM, AM, AM-N)
- AFC (Auto Frequency Control) (FM, FM-N, WFM)
- Noise blanker (SSB, CW)
- ANL (Auto Noise Limiter) (AM, AM-N)
- RF gain control (10 steps)
- ATT function (3 steps)
- Key lock function
- Volume function
- Power save function (3 steps)
- Volume or frequency setting with dial or side buttons
- Clock
### Options for Base Station Transceivers and Receivers

#### Table: Options

<table>
<thead>
<tr>
<th>Device Model</th>
<th>Hand Microphones</th>
<th>Desktop Microphones</th>
<th>External Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HM-36</td>
<td>HM-219</td>
<td>SP-23</td>
</tr>
<tr>
<td>IC-7851</td>
<td>✔</td>
<td></td>
<td>4 audio filters</td>
</tr>
<tr>
<td>IC-7610</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-7700</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-7300</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-718</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-7100</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-9100</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-R9500</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-R8600</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

#### Table: External Speakers

<table>
<thead>
<tr>
<th>Device Model</th>
<th>SP-33 Wooden Box Speaker</th>
<th>SP-34 4 audio filters</th>
<th>SP-35 2 m cable: 6.6 ft cable</th>
<th>SP-35L 6 m cable: 19.6 ft cable</th>
<th>SP-38 Best Design matched for the IC-730C</th>
<th>SP-39AD With DC power supply</th>
<th>SP-41 With two input lines</th>
<th>AD-55NS Input: 100–240 V/1 A, Output: 15 V/2 A</th>
<th>AH-2b Covers 7–54 MHz for use with AH-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-7851</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7610</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7700</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7300</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-718</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7100</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-9100</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R9500</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R8600</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Table: Antenna Tuners

<table>
<thead>
<tr>
<th>Device Model</th>
<th>AF-180 Covers 18–54 MHz. (Amateur band except 5 MHz)</th>
<th>AH-740 Covers 2.5–30 MHz. (Amateur band) OPC-2321 is required</th>
<th>AH-5NV Fiberglass antenna element to use with AH-4 NV Covers 2.3–30 MHz (Amateur band) with AH-740.</th>
<th>OPC-2321 (6m: 19.6 ft) For use with AH-740.</th>
<th>OPC-420 (10m: 32.8 ft) For use with AH-4.</th>
<th>AH-710 Covers 1.9–30 MHz</th>
<th>AH-8000 Covers 100–3335 MHz</th>
<th>FL-430 6 kHz 1st IF filter (For HF/50 MHz band)</th>
<th>FL-431 3 kHz 1st IF filter (For HF/50 MHz band)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-7851</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7610</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7700</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7300</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-718</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7100</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-9100</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R9500</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R8600</td>
<td>(Use with OPC-2321)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes
- **✔** Applicable
- **Not applicable**
### OPTIONS FOR BASE STATION TRANSCIEVERS AND RECEIVERS

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>HIGH STABILITY CRYSTAL UNIT</th>
<th>DSP UNIT</th>
<th>LINEAR AMPLIFIER</th>
<th>CARRYING HANDLES</th>
<th>MOBILE MOUNTING BRACKETS</th>
<th>MOUNTING BASE</th>
<th>CONTROLLER BRACKET</th>
<th>SEPARATION CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-7851</td>
<td>CR-338</td>
<td>UT-106</td>
<td>IC-PW1</td>
<td>MB-23</td>
<td>MB-121</td>
<td>MB-123</td>
<td>MBA-1</td>
<td>OPC-2253 (3.5 m)</td>
</tr>
<tr>
<td>IC-7610</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OPC-2234 (5.0 m)</td>
</tr>
<tr>
<td>IC-7700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7300</td>
<td></td>
<td></td>
<td></td>
<td>(Use OPC-599)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7718</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Use MB-23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Use with MBA-1)</td>
</tr>
<tr>
<td>IC-9100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R9500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R8600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### MIC ADAPTER CABLE

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>ADAPTER CABLE</th>
<th>DC POWER CABLES</th>
<th>PROGRAMMING SOFTWARE</th>
<th>REMOTE CONTROL SOFTWARE</th>
<th>P RF REMOTE CONTROL SOFTWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-7851</td>
<td>OPC-589 8-pin connector microphone to 8-pin modular microphone 13-pin ACC to 8-pin ACC</td>
<td>OPC-599 13-pin ACC to 7-pin ACC</td>
<td>OPC-025A 20 A cable OPC-1457 30 A cable OPC-2361 25 A cable</td>
<td>CS-9100 A USB cable (A-B type) is required for programming.</td>
<td>CS-7100</td>
</tr>
<tr>
<td>IC-7610</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-718</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-9100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R9500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R8600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Free download Android™ app. Download from Google Play™.**

**USB REMOTE ENCODER**

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>1200 MHz BAND UNIT</th>
<th>D-STAR UNIT</th>
<th>P25 DIGITAL UNIT</th>
<th>DATA COMMUNICATION CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-7851</td>
<td>RC-28</td>
<td>UX-9100</td>
<td>UT-121</td>
<td>OPC-1529R RS-232 cable for an external GPS or a PC OPC-2350LU USB cable for an Android™ device or a PC</td>
</tr>
<tr>
<td>IC-7610</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7700</td>
<td>(Use with RS-BA1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-7300</td>
<td>(Use with RS-BA1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-718</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-9100</td>
<td>(Use with RS-BA1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R9500</td>
<td>(Use with RS-R8600)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-R8600</td>
<td>(Use with RS-R8600)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**This function requires firmware version 1.2 or later.**
<table>
<thead>
<tr>
<th>OPTIONS FOR HANDHELD TRANSCEIVERS AND RECEIVERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BATTERY CASES</strong></td>
</tr>
<tr>
<td>MODEL NAME</td>
</tr>
<tr>
<td>BP-273 (LR6(AA)×3 cells)</td>
</tr>
<tr>
<td>BP-293 (LR6(AA)×3 cells)</td>
</tr>
<tr>
<td>BP-273 (Li-ion) 7.4V/1150 mAh (min.), 1200 mAh (typ.)</td>
</tr>
<tr>
<td>BP-271 (Li-ion) 7.4V/1800 mAh (min.), 2000 mAh (typ.)</td>
</tr>
<tr>
<td>BP-287 (Li-ion) 3.6V/3120 mAh (min.), 3280 mAh (typ.)</td>
</tr>
<tr>
<td>✔</td>
</tr>
<tr>
<td>ID-51A PLUS</td>
</tr>
<tr>
<td>ID-31A PLUS</td>
</tr>
<tr>
<td>IC-R30</td>
</tr>
<tr>
<td>IC-R6</td>
</tr>
</tbody>
</table>

*1 BC-123SA for USA plug, SE for European plug and SV for Australian plug.

<table>
<thead>
<tr>
<th>AC ADAPTERS</th>
<th>WALL CHARGER</th>
<th>CIGARETTE LIGHTER CABLES</th>
<th>DC POWER CABLES</th>
<th>SPEAKER-MICROPHONES</th>
<th>EARPHONE-MICROPHONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
</tr>
<tr>
<td>BC-153S* 6 V/1 A</td>
<td>BC-167S* 12 V/500 mA</td>
<td>CP-12L with noise filter</td>
<td>OPC-254L</td>
<td>HM-75LS</td>
<td>HM-183LS Waterproof</td>
</tr>
<tr>
<td>BC-194 Rapid charger</td>
<td>BC-223 Rapid charger</td>
<td>BC-1235* 12 V/1 A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Use with BC-194)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Use with BC-194)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Use with BC-223)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>ID-51A PLUS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>ID-31A PLUS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>IC-R30</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>IC-R6</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

*2 BC-153SA for USA plug, SD for European plug and SV for Australian plug.

<table>
<thead>
<tr>
<th>HEADSETS</th>
<th>EARPHONES</th>
<th>PLUG ADAPTER CABLES</th>
<th>Bluetooth HEADSET</th>
<th>CARRYING CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
</tr>
<tr>
<td>HS-94 Earhook type with boom microphone</td>
<td>HS-95 Behind-the-head type</td>
<td>HS-97 Throat microphone type</td>
<td>SP-40</td>
<td>SP-27</td>
</tr>
<tr>
<td>OPC-2006LS</td>
<td>OPC-2144</td>
<td>VS-3</td>
<td>LC-178</td>
<td></td>
</tr>
<tr>
<td>(Use with OPC-2006LS)</td>
<td>(Use with OPC-2006LS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Use with OPC-2006LS)</td>
<td>(Use with OPC-2006LS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Use with OPC-2144)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ID-51A PLUS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ID-31A PLUS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-R30</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-R6</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARRYING CASES</th>
<th>SILICONE JACKET CASE</th>
<th>DATA CABLE</th>
<th>PROGRAMMING CABLES</th>
<th>BELT CLIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
<td>MODEL NAME</td>
</tr>
<tr>
<td>LC-179</td>
<td>LC-189</td>
<td>LC-146A</td>
<td>SJ-1 For use with BP-271</td>
<td>OPC-2350LU USB cable or keyboard device or a PC</td>
</tr>
<tr>
<td>OPC-474 Handheld to handheld</td>
<td>OPC-478 Handheld to PC RS-232C cable</td>
<td>OPC-478UC Handheld to PC USB cable</td>
<td>MB-127 Alligator type</td>
<td></td>
</tr>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ID-51A PLUS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ID-31A PLUS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-R30</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-R6</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
## OPTIONS FOR HANDHELD TRANSCEIVERS AND RECEIVERS

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>BELT CLIPS</th>
<th>ANTENNAS</th>
<th>ANTENNA ADAPTER</th>
<th>PROGRAMMING SOFTWARE</th>
<th>REMOTE CONTROL APP</th>
<th>TERMINAL/ACCESS POINT MODE APP/SOFTWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS-51 PLUS2</td>
<td>MB-133</td>
<td>FA-5270C</td>
<td>AD-925MA BNC type antenna connector</td>
<td>CS-51 PLUS2</td>
<td>RS-MS1A</td>
<td>RS-MS3A, RS-MS3W</td>
</tr>
<tr>
<td>CS-31 PLUS</td>
<td>FA-570B</td>
<td>FA-S270C</td>
<td>(Use CS-51 PLUS2)</td>
<td>For Android device</td>
<td>For Android device</td>
<td>For Windows PC</td>
</tr>
<tr>
<td>CS-R30</td>
<td></td>
<td></td>
<td>(Use CS-51 PLUS2)</td>
<td></td>
<td>(Use with OPC-2350LU)</td>
<td>(Use with OPC-2350LU)</td>
</tr>
<tr>
<td>CS-R6</td>
<td></td>
<td></td>
<td>(Use CS-51 PLUS2)</td>
<td></td>
<td>(Use with OPC-2350LU)</td>
<td>(Use with OPC-2350LU)</td>
</tr>
</tbody>
</table>

* CS-51 PLUS2 and CS-31 PLUS are 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/

**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.

### 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.
## OPTIONS FOR MOBILE TRANSCEIVERS

### HAND MICROPHONES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-5100A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>ID-4100A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>IC-2730A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>IC-2300H</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

### CONTROLLER BRACKETS

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>MBA-2</th>
<th>MBA-8</th>
<th>MBA-5</th>
<th>MBA-4</th>
<th>SP-35</th>
<th>SP-30</th>
<th>OPC-440A</th>
<th>OPC-589</th>
<th>OPC-1156</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-5100A</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>ID-4100A</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-2730A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IC-2300H</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DATA COMMUNICATION CABLES

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>OPC-1529R</th>
<th>OPC-2350LU</th>
<th>OPC-478UC</th>
<th>OPC-474</th>
<th>UT-133A</th>
<th>UT-137</th>
<th>CS-5100*3</th>
<th>CS-4100*4</th>
<th>RS-MS3A*3</th>
<th>RS-MS3W*4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-5100A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ID-4100A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-2730A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC-2300H</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### REMOTE CONTROL SOFTWARE

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>RS-MS1A*3</th>
<th>RS-MS1I*5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-5100A</td>
<td>✔ (Use with UT-133A)</td>
<td>✔</td>
</tr>
<tr>
<td>ID-4100A</td>
<td>✔ (Use with UT-137)</td>
<td>✔</td>
</tr>
<tr>
<td>IC-2730A</td>
<td>✔ (Use with UT-133A)</td>
<td>✔</td>
</tr>
<tr>
<td>IC-2300H</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

* CS-5100, CS-4100 and CS-2730 are available for free download from Icom website: http://www.icom.co.jp/world/support/index.html
* Free download Android™ app. Download from Google Play™.
* 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.
## SPECIFICATIONS FOR BASE STATION TRANSCEIVERS

### General

**Transmitter**
- **Output power**
  - FM, WFM: at 12 dB SINAD
  - SSB, CW, RTTY, PSK31/83, AM, FM: at 10 dB S/N

**Dimensions**
- **USB, LSB, CW, RTTY, PSK31/83, AM, FM**: at 10 dB S/N
- **SSB, CW, RTTY, PSK31, AM, FM**: at 10 dB S/N

**Selectivity**
- **USB, LSB, CW, RTTY, PSK31, AM, FM**: at 10 dB S/N
- **AM**: at 10 dB S/N

**Weight**
- 23.5 kg; 51.8 lb

### Receiver

**Sensitivity**
- **SSB, CW, RTTY, PSK, FM**: at 100–200 W
- **AM**: at 50–54 MHz

**Spurious and image rejection**
- More than 70 dB

**Audio output power**
- More than 2.0 W (10% distortion, 8 Ω load)

### Table: Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency Coverage</th>
<th>Power Output</th>
<th>Sensitivity</th>
<th>Spurious and Image Rejection</th>
<th>Audio Output Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-7700</td>
<td>144–430 MHz</td>
<td>1–25 W</td>
<td>2.4 kHz/–60 dB (2.4 kHz)</td>
<td>More than 70 dB**</td>
<td>More than 2.0 W (10% distortion, 8 Ω load)</td>
</tr>
<tr>
<td>IC-7851</td>
<td>144–430 MHz</td>
<td>2–50 W</td>
<td>2.4 kHz/–60 dB (2.4 kHz)</td>
<td>More than 70 dB**</td>
<td>More than 2.0 W (10% distortion, 8 Ω load)</td>
</tr>
<tr>
<td>IC-7610</td>
<td>144–430 MHz</td>
<td>50–500 W</td>
<td>2.4 kHz/–60 dB (2.4 kHz)</td>
<td>More than 70 dB**</td>
<td>More than 2.0 W (10% distortion, 8 Ω load)</td>
</tr>
</tbody>
</table>

**Notes:**
- **IC-7851**: 11 kg; 24.3 lb
- **IC-7610**: 950 g; 2.1 lb
- **IC-7700**: 11 kg; 24.3 lb
- **TX Element**: 240 x 94 x 238 mm; 9.4 x 3.7 x 9.4 in
- **RX Element**: 245 x 149 x 437 mm; 16.7 x 5.87 x 17.2 in
- **IC-7910**: 11 kg; 24.3 lb

**** Depending on version. **Some frequency ranges are not guaranteed. **
## Specifications for Handheld and Mobile Transceivers

<table>
<thead>
<tr>
<th>Model</th>
<th>ID-51A PLUS</th>
<th>ID-31A PLUS</th>
<th>ID-5100A</th>
<th>ID-4100A</th>
<th>IC-2730A</th>
<th>IC-2300H</th>
</tr>
</thead>
</table>
| **Frequency coverage**  
(Differs according to version) | USA version: 
Tx 144–148, 430–450 MHz*  
Rx (A) 137–174, 380–479 MHz  
(B) 108–174, 380–479 MHz  
Broadcast 520–1710 kHz, 88–108 MHz  
EXP: Tx/Rx 400–479 MHz  
EXP-01: Tx 400–440 MHz, Rx 400–479 MHz | USA version: 
Tx 144–148, 430–450 MHz*  
Rx (A) 118–174, 230–550 MHz  
(B) 108–174, 380–479 MHz  
EXP: Tx 137–147, 400–470 MHz  
EXP-01: Tx 137–147, 400–470 MHz  
EXP-0’1: Tx 400–440 MHz, Rx 400–479 MHz | USA version: 
Tx 144–148, 430–450 MHz  
Rx (A) 118–174, 230–550 MHz  
(B) 108–174, 380–479 MHz  
EXP: Tx 137–147, 400–470 MHz  
EXP-01: Tx 137–147, 400–470 MHz  
EXP-0’1: Tx 400–440 MHz, Rx 400–479 MHz | USA version: 
Tx 144–148, 430–450 MHz  
Rx (A) 118–174, 230–550 MHz  
(B) 108–174, 380–479 MHz  
EXP: Tx 137–147, 400–470 MHz  
EXP-01: Tx 137–147, 400–470 MHz  
EXP-0’1: Tx 400–440 MHz, Rx 400–479 MHz | USA version: 
Tx 144–148 MHz  
Rx 136–174 MHz*  
EXP: Tx/Rx 136–174 MHz*  
EXP-01: Tx/Rx 136–174 MHz*  
EXP-0’1: Tx 400–440 MHz, Rx 400–479 MHz |
| **Modes** | DV, FM, FM-N, AM (Rx only)  
DV, FM, FM-N, AM-N (Rx only)  
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) | DV, FM, FM-N  
DV, FM, FM-N, AM (Rx only)  
DV, FM, FM-N, AM-N (Rx only)  
DV, FM, FM-N, 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)  
FM, FM-N  
FM, FM-N | DV, FM, FM-N, AM (Rx only), AM-N (Rx only)  
FM, FM-N, AM (Rx only), AM-N (Rx only)  
FM, FM-N  
FM, FM-N | DV, FM, FM-N, AM (Rx only), AM-N (Rx only)  
FM, FM-N, AM (Rx only), AM-N (Rx only)  
FM, FM-N  
FM, FM-N |
| **Max. current drain** | 2.5 A  
2.5 A  
13 A  
13 A  
11 A | 2.5 A  
2.5 A  
13 A  
13 A  
11 A | 2.5 A  
2.5 A  
13 A  
13 A  
11 A | 2.5 A  
2.5 A  
13 A  
13 A  
11 A | 2.5 A  
2.5 A  
13 A  
13 A  
11 A |
| **Number of Memory channels** | 554  
(500 regular, 50 scan edges and 4 call channels)  
+ 750 repeater Memory channels | 1054  
(1000 regular, 50 scan edges and 4 call channels)  
+ 1500 repeater Memory channels | 1054  
(1000 regular, 50 scan edges and 4 call channels)  
+ 1500 repeater Memory channels | 1052  
(1000 regular, 50 scan edges and 2 call channels)  
+ 1500 repeater Memory channels | 207  
(200 regular, 6 scan edges and 1 call channel) |
| **Dimensions**  
(W×H×D; Projections are not included) | 58 × 105.4 × 26.4 mm; 2.3 × 4.1 × 1.0 in | 58 × 95 × 25.4 mm; 2.3 × 3.7 × 1.0 in | 1054  
Main unit: 150 × 40 × 172.6 mm; 5.9 × 1.6 × 6.8 in  
Controller: 182.2 × 81.5 × 24.7 mm; 7.2 × 3.2 × 1.0 in | 1054  
Main unit + Controller: 150 × 40 × 171.9 mm; 5.9 × 1.6 × 6.8 in  
Controller: 122 × 40 × 29.7 mm; 4.8 × 1.6 × 1.1 in | 140 × 40 × 162 mm; 5.5 × 1.6 × 6.4 in |
| **Weight** (approx.) | 255 g; 9.0 oz  
with antenna and BP-271 | 220g; 7.8 oz  
with antenna and BP-271 | 1504  
Main unit: 1.3 kg; 2.9 lb  
Controller: 260 g; 9.2 oz | 1052  
Main unit: 1.1 kg; 2.4 lb  
Controller: 100 g; 3.5 oz | 1.1 kg; 2.4 lb |
| **Output power** (approx.)  
(Differs according to version) | 5.5, 2.5, W, 1.0 W, 0.5 W, 0.1 W  
(Hi, Mid, Low, Low2, S-Low) | 5.5, 2.5, W, 1.0 W, 0.5 W, 0.1 W  
(Hi, Mid, Low, Low2, S-Low) | 50 W, 15 W, 5 W  
(Hi, Mid, Low) | 50 W, 15 W, 5 W  
(Hi, Mid, Low) | 65 W, 25 W, 10 W, 5 W  
(Hi, Mid-Hi, Mid-Lo, Low) |
| **Sensitivity**  
(FM at 12 dB SINAD  
DV at 1% BER  
Guaranteed range) | DV Less than 0.28 μV  
FM/FM-N Less than 0.18 μV  
(144, 430, 440 MHz bands) | DV Less than 0.28 μV  
FM/FM-N Less than 0.18 μV  
(144, 430, 440 MHz bands) | DV Less than 0.22 μV  
FM/FM-N Less than 0.18 μV  
(144, 430, 440 MHz bands) | DV Less than 0.22 μV  
FM/FM-N Less than 0.18 μV  
(144, 430, 440 MHz bands) | FM/FM-N Less than 0.18 μV  
(144, 430, 440 MHz bands) |
| **Audio output power**  
(40 % distortion) | More than 2.0 W  
(8 Ω load)  
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) | More than 2.0 W (8 Ω load) | More than 2.0 W (8 Ω load) | More than 2.0 W (8 Ω load) | 4.5 W typ. (4 Ω load) |

* Guaranteed range 144–148 and 440–450 MHz.  
*+ Guaranteed range 144–148 and 430–440 MHz.  
*+ Guaranteed range 440–450 MHz.  
*+ Guaranteed range 430–440 MHz.

All stated specifications are subject to change without notice or obligation.
## SPECIFICATIONS FOR RECEIVERS

### IC-R9500

<table>
<thead>
<tr>
<th>Frequency coverage</th>
<th>USA version: Rx 0.005–821.999 MHz, 851–866.999 MHz, 896–3335 MHz</th>
<th>USA version: Rx 0.01–821.999 MHz*, 851–866.999 MHz, 896–3304.999 MHz</th>
<th>A band: Rx 0.1 – 821.999 MHz, 851–866.999 MHz, 896–3304.999 MHz*</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP version</td>
<td>Rx 0.005–3335 MHz*</td>
<td>Rx 0.01–3000 MHz**</td>
<td>Exp version: Rx 0.1–10909.995 MHz</td>
</tr>
<tr>
<td>Mode</td>
<td>USB, LSB, CW, FSK, AM, FM, WFM, P25*, D-STAR, NXDN, dPMR</td>
<td>USB, LSB, CW, FSK, AM, FM, WFM, D-STAR (DV), P25, NXDN, dPMR, DCR, DCN, AM</td>
<td>FM, WFM, AM</td>
</tr>
<tr>
<td>Mode (Preamp ON)</td>
<td>AM: 100 VA (Power consumption) 2.0 A</td>
<td>AM: (≤1300 MHz) FM, FM-N, WFM, AM,N, AM, SSB, D-STAR (DV), P25, FM-N, AM,N, AM, SSB, D-STAR (DV), P25, NXDN, dPMR, SSB, D-STAR (DV), P25, AM, WFM, AM,N</td>
<td>FM, WFM, AM</td>
</tr>
<tr>
<td>Frequency stability</td>
<td>±0.05 ppm (25°C after 5 min. warm up)</td>
<td>±0.05 ppm (at +25°C after warm up)</td>
<td>±0.10 ppm (at 25°C)</td>
</tr>
<tr>
<td>Maximum current drain</td>
<td>100 VA (Power consumption) 2.0 A</td>
<td>330 mA typical (at 3.6 V DC)**</td>
<td>130 mA typical (at 3.0 V DC)**</td>
</tr>
<tr>
<td>Antenna connector</td>
<td>SO-239 (S or Q, for HF), Type-N (50 /Ω), Type-N (50 Ω)</td>
<td>SMA (50 Ω)</td>
<td>SMA (50 Ω)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>(Repeable are not included) 424 (W) x 149 (H) x 340 (D) mm; 16.7 (W) x 5.9 (H) x 13.4 (D) in</td>
<td>58 (W) x 143 (H) x 30.5 (D) mm; 8.7 (W) x 3.5 (H) x 9.1 (D) in</td>
<td>58 (W) x 86 (H) x 28.9 (D) mm; 2.3 (W) x 5.6 (H) x 1.2 (D) in</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>20 kg, 44.1 lb</td>
<td>4.3 kg, 9.5 lb</td>
<td>4.3 kg, 9.5 lb</td>
</tr>
<tr>
<td>Audio output power</td>
<td>2.6 W (8 Ω load)</td>
<td>More than 2.0 W (8 Ω load)</td>
<td>More than 400 mW (internal SP, 16 Ω load)</td>
</tr>
<tr>
<td></td>
<td>20 mW (8 Ω load)</td>
<td>More than 200 mW (External SP, 8 Ω load)</td>
<td>More than 150 mW (external SP, 8 Ω load)</td>
</tr>
</tbody>
</table>

** Optional UT-122 required. ** Each one for 30–1149.999 MHz, 1150–3335 MHz. ** Guaranteed range: 0.1–821.999 MHz. ** Guaranteed range: 0.1–3200 MHz.  
** Depending on the receiver version. Guaranteed range: 0.1–3304.999 MHz. ** FM mode single receive, voice recording OFF, GPS OFF, back light OFF. ** External SP, back light OFF.  
All stated specifications are subject to change without notice or obligation.

### IC-R8600

<table>
<thead>
<tr>
<th>Frequency coverage</th>
<th>USA version: Rx 0.005–821.999 MHz, 851–866.999 MHz, 896–3335 MHz</th>
<th>A band: Rx 0.1 – 821.999 MHz, 851–866.999 MHz, 896–3304.999 MHz*</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP version</td>
<td>Rx 0.005–3335 MHz*</td>
<td>Exp version: Rx 0.1–10909.995 MHz</td>
</tr>
<tr>
<td>Mode</td>
<td>USB, LSB, CW, FSK, AM, FM, WFM, D-STAR, NXDN, dPMR</td>
<td>USB, LSB, CW, FSK, AM, FM, WFM, D-STAR (DV), P25, NXDN, dPMR, DCR, DCN, AM</td>
</tr>
<tr>
<td>Mode (Preamp ON)</td>
<td>AM: 100 VA (Power consumption) 2.0 A</td>
<td>AM: (≤1300 MHz) FM, FM-N, WFM, AM,N, AM, SSB, D-STAR (DV), P25, FM-N, AM,N, AM, SSB, D-STAR (DV), P25, NXDN, dPMR, SSB, D-STAR (DV), P25, AM, WFM, AM,N</td>
</tr>
<tr>
<td>Frequency stability</td>
<td>±0.05 ppm (25°C after 5 min. warm up)</td>
<td>±0.05 ppm (at +25°C after warm up)</td>
</tr>
<tr>
<td>Maximum current drain</td>
<td>100 VA (Power consumption) 2.0 A</td>
<td>330 mA typical (at 3.6 V DC)**</td>
</tr>
<tr>
<td>Antenna connector</td>
<td>SO-239 (S or Q, for HF), Type-N (50 /Ω), Type-N (50 Ω)</td>
<td>SMA (50 Ω)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>(Repeable are not included) 424 (W) x 149 (H) x 340 (D) mm; 16.7 (W) x 5.9 (H) x 13.4 (D) in</td>
<td>58 (W) x 143 (H) x 30.5 (D) mm; 8.7 (W) x 3.5 (H) x 9.1 (D) in</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>20 kg, 44.1 lb</td>
<td>4.3 kg, 9.5 lb</td>
</tr>
<tr>
<td>Audio output power</td>
<td>2.6 W (8 Ω load)</td>
<td>More than 2.0 W (8 Ω load)</td>
</tr>
<tr>
<td></td>
<td>20 mW (8 Ω load)</td>
<td>More than 200 mW (External SP, 8 Ω load)</td>
</tr>
</tbody>
</table>

** Optional UT-122 required. ** Each one for 30–1149.999 MHz, 1150–3335 MHz. ** Guaranteed range: 0.1–821.999 MHz. ** Guaranteed range: 0.1–3200 MHz.  
** Depending on the receiver version. Guaranteed range: 0.1–3304.999 MHz. ** FM mode single receive, voice recording OFF, GPS OFF, back light OFF. ** External SP, back light OFF.  
All stated specifications are subject to change without notice or obligation.