

 ICOM

HF/50/70MHz TRANSCEIVER

IC-7300

# Revolutionary

The Real HF Fun Starts Here



The SD card shown in the photo is not included.

# IC-7300 – The Innovative HF Transceiver with High Performance Real-Time Spectrum Scope

## Class Leading Real-Time Spectrum Scope

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. When you first touch the scope screen around the intended signal, the touched part is magnified. A second touch of the scope screen changes the operating frequency and allows you to accurately tune.

## Real-Time Spectrum Scope Specifications

|                                       |   |
|---------------------------------------|---|
| Scope system                          | FFT (Fast Fourier Transform)  |
| Sweep speed                           | Max. 30 frames/second (approx.), Selectable from slow, mid or fast  |
| Span width                            | 5kHz–1000kHz  |
| Resolution*                           | 1 pixel minimum (approximately)   |
| Waveform display area (vertical axis) | 80dB  |
| Reference level adjustment            | –20dB to +20dB  |
| Peak level hold function (Max. hold)  | ON/OFF/last 10 seconds  |
| Other functions                       | <ul style="list-style-type: none"> <li>Averaging indication</li> <li>Touch screen operation</li> <li>VBW (Video Band Width) adjustment</li> </ul> |

\* Number of pixels shown at the 60dB level, when receiving a signal.

## High-Resolution Waterfall Function

The combination of the waterfall function and the real-time spectrum scope assists in maximum receive performance of the IC-7300 and increases QSO opportunities without missing weak signals. The waterfall function shows a change of signal strength over a period of time and allows you to find weak signals that may not be apparent on the spectrum scope.



Spectrum scope + Waterfall

## Audio Scope Function

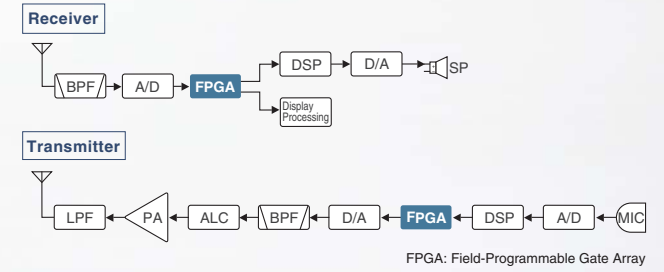
The audio scope function can be used to observe various AF characteristics such as microphone compressor level, filter width, notch filter width and keying waveform in the CW mode. Either the transmit or receive audio can be displayed on the FFT scope with the waterfall function and the oscilloscope.



FFT scope/Oscilloscope

## 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 a leading technology making an epoch in amateur radio.



## New "IP+" Function

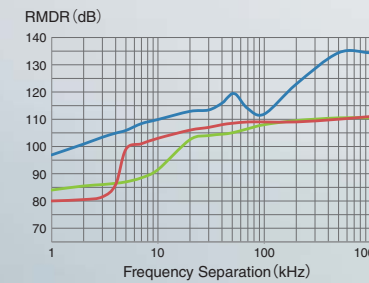
The new "IP+" function improves 3rd order intercept point (IP3) performance. When a weak signal is received adjacent to strong interference, the AD converter is optimized against signal distortion.

## Class Leading RMDR (Reciprocal Mixing Dynamic Range) and Phase Noise Characteristics

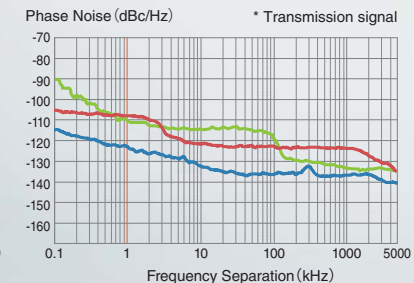
The IC-7300's RMDR is improved to about 97dB\* (typical value) and Phase Noise characteristics are improved about 15dB (at 1 kHz frequency separation) compared to the IC-7200. The superior Phase Noise characteristics reduce noise components in both receive and transmit signals.

\* At 1 kHz frequency separation (received frequency: 14.2MHz, MODE: CW, IF BW: 500Hz)

### RMDR Characteristics Comparison



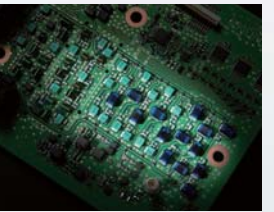
### Phase Noise Characteristics Comparison\*



— IC-7300 — IC-7200 — IC-7100

## 15 Discrete Band-Pass Filters

The IC-7300 has 15 discrete RF band-pass filters. The RF signal is only passed through one of the band-pass 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.



## Built-In Automatic Antenna Tuner

The antenna tuner memorizes its settings based on your transmit frequency, so that it can rapidly tune when you change operating bands. The Enforced Tuning function\* allows a wide range of temporary antennas to be tuned.



\* Do not use the Enforced Tuning function except in case of an emergency. Transmission power may be reduced.



HF/50/70MHz TRANSCEIVER  
**IC-7300**

Actual size

## Large Touch Screen Colour TFT LCD

The large 4.3 inch colour TFT touch LCD offers intuitive operation. Using the software keypad of the touch screen, you can easily set various functions and edit memory contents.



Touch screen interface



Setting screen

Band stacking register screen

Menu screen

Memory name entry screen

## Multi-Dial Knob for Smooth Operation

The combination of the multi-dial knob and the touch screen 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 turning the multi-dial knob.



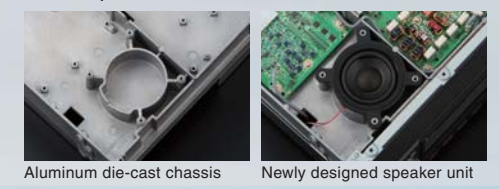
Menu screen

## SD Memory Card Slot for Saving Data

The IC-7300 can store various contents into SD card such as received and transmitted audio, voice memories, RTTY/CW memories, RTTY decode logs and captured screen images. Personal and firmware updating data can also be stored to the SD card for easy setting.

## Superior Sound Quality

To offer superior sound quality, a new speaker unit has been incorporated and is allocated dedicated space in the aluminum die-cast chassis.



Aluminum die-cast chassis

Newly designed speaker unit

## Other features

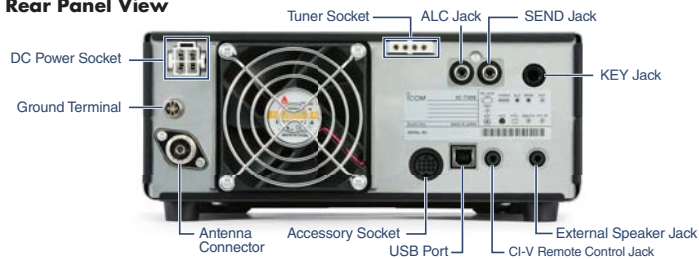
- New HM-219 hand microphone supplied
- Effective large cooling fan system
- A Multi-function meter
- 101 memory channels (99 regular, 2 scan edges)
- Optional RS-BA1 IP remote control software (the spectrum scope with the waterfall can be observed)
- CW functions: Full break-in, CW reverse, CW auto tuning

## SPECIFICATIONS

| GENERAL   |   |
|---|---|
| Frequency coverage  | (Unit: MHz)   |
| Receiver*1  | 0.030-74.800*2  |
| Transmitter*1   | 1.800-1.999, 3.500-3.800, 7.000-7.200, 10.100-10.150, 14.000-14.350, 18.068-18.168, 21.000-21.450, 24.890-24.990, 28.000-29.700, 50.000-52.000, 70.000-70.500 |
| *1 70 MHz band is for EUR version. Each frequency range is differ according to versions.<br>*2 Guaranteed range: 0.500-29.999, 50.000-54.000, 70.000-70.500MHz. |   |
| Mode  | SSB, CW, RTTY, AM, FM   |
| Number of channels  | 101 (99 regular, 2 scan edges)  |
| Antenna connector   | SO-239 (50Ω)  |
| Power supply requirement  | 13.8V DC ±15%   |
| Power consumption   | Tx 21A (at 100W output power)<br>Rx 0.9A typical (Standby), 1.25A (Maximum audio)   |
| Operating temperature range   | -10°C to +60°C; 14°F to 140°F   |
| Frequency stability   | Less than ±0.5ppm (-10°C to +60°C; 14°F to 140°F)   |
| Frequency resolution  | 1Hz   |
| Dimensions (W×H×D)  | 240×94×238mm; 9.45×3.7×9.37in (projections not included)  |
| Weight (approximately)  | 4.2kg; 9.26lb   |
| TRANSMITTER   |   |
| Output power  | SSB, CW, FM, RTTY 2-100W (HF/50MHz), 2-50W (70MHz)<br>AM 1-25W (HF/50MHz), 1-12.5W (70MHz)  |
| Modulation system   | SSB Digital P.S.N. modulation<br>AM Digital Low power modulation<br>FM Digital Reactance modulation   |
| HF bands  | Less than -50dB   |
| Spurious emissions  | 50MHz band Less than -63dB<br>70MHz band Less than -60dB  |
| Carrier suppression   | More than 50dB  |
| Unwanted sideband   | More than 50dB  |
| Microphone impedance  | 600Ω  |
| RECEIVER  |   |
| Receiver system   | Direct Sampling Superheterodyne   |
| Intermediate frequency  | 36kHz   |
| Sensitivity*3   | 0.5-1.8MHz 1.8-29.995MHz 50MHz band 70MHz bands   |
| SSB/CW (BW: 2.4kHz at 10dB S/N)   | - 0.16μV 0.13μV 0.16μV  |
| AM (BW: 6kHz at 10dB S/N)   | 12.6μV 2.0μV 1.0μV 1.0μV  |
| FM (BW: 15kHz at 12dB SINAD)  | - 0.5μV 0.25μV 0.25μV   |
| *3 HF: Preamp 1 ON, 50/70MHz: Preamp 2 ON   |   |
| Squelch sensitivity*3 (Threshold)   | SSB: Less than 5.6μV, FM: Less than 0.3μV   |
| *3 HF: Preamp 1 ON, 50/70MHz: Preamp 2 ON   |   |
| Selectivity (sharp filter shape)  | More than Less than   |
| SSB (BW: 2.4kHz)  | 2.4kHz/-6dB 3.4kHz/-40dB  |
| CW (BW: 500Hz)  | 500Hz/-6dB 700Hz/-40dB  |
| RTTY (BW: 500Hz)  | 500Hz/-6dB 800Hz/-40dB  |
| AM (BW: 6kHz)   | 6.0kHz/-6dB 10kHz/-40dB   |
| FM (BW: 15kHz)  | 12.0kHz/-6dB 22kHz/-40dB  |
| Spurious and image rejection ratio  | HF: More than 70dB<br>50/70MHz: More than 70dB (Except for ADC Aliasing)  |
| Audio output power  | More than 2.5W (at 10% distortion with an 8Ω load, 1kHz)  |
| TUNER   |   |
| Frequency range   | 1.9-70MHz bands   |
| Matching impedance range  | 16.7Ω-150Ω unbalanced (VSWR better than 1:3)  |
| Tuning accuracy   | VSWR 1: 1.5 or less   |
| Tuning time   | 2-3 seconds (Maximum 15 seconds)  |

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

### Rear Panel View



## OPTIONS

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

|   |   |   |  |
|---|---|---|--|
| <b>PS-126</b><br>DC POWER SUPPLY<br><br>13.8V DC, 25A max. output.                                | <b>AH-4</b><br>HF+50MHz AUTOMATIC ANTENNA TUNER<br><br>Covers 3.5-54MHz with a 7m (23ft) or longer wire antenna.    | <b>AH-2b</b><br>ANTENNA ELEMENT<br><br>Covers 7-54MHz. Use with AH-4.   | <b>AH-740</b><br>AUTOMATIC TUNING ANTENNA<br><br>Covers 2.5-30MHz (amateur band). OPC-2321 is required.                              |
| <b>HM-219</b><br>HAND MICROPHONE<br><br>Same as supplied.   | <b>AH-710</b><br>FOLDED DIPOLE ANTENNA<br><br>Covers 1.9-30MHz bands.   | <b>AH-5NV</b><br>NVIS KIT<br><br>Fiberglass mobile mounting antenna element for use with AH-740. Covers 2.2-30MHz (amateur band) with AH-740. |  |
| <b>EXTERNAL SPEAKERS</b>  |   |   |  |
| <b>SP-23</b><br>4 audio filters; headphone jack<br>Max. input power: 5W                           | <b>SP-33</b><br>Wooden box speaker.<br>Max. input power: 5W   | <b>SP-34</b><br>4 audio filters; headphone jack<br>Max. input power: 5W   | <b>SP-35</b><br>(2m; 6.6ft cable)<br><b>SP-35L</b><br>(6m; 19.7ft cable)<br>Compact mobile external speaker.<br>Max. input power: 7W |
| <b>DESKTOP MICROPHONES</b>  | <b>IC-PW1EURO</b><br>HF+50MHz 1kW HF LINEAR AMPLIFIER<br><br>OPC-599 is required.                                   |   |  |
| <b>SM-50</b><br>Dynamic desktop microphone<br>Includes [UP/DOWN] switches and a low cut function. | <b>SM-30</b><br>Compact, lightweight electret desktop microphone.   |   |  |
| <b>MB-118</b><br>MOBILE MOUNTING BRACKET<br><br>For mounting the radio in a vehicle.              | <b>CT-17</b><br>CI-V LEVEL CONVERTER<br><br>For remote transceiver control from a PC equipped with an RS-232C port. | <b>RS-BA1</b><br>IP REMOTE CONTROL SOFTWARE<br><br>For use with RS-BA1.   | <b>RC-28</b><br>USB REMOTE ENCODER<br><br>For use with RS-BA1.   |

- **MB-123** CARRYING HANDLE
- **OPC-420** CONTROL CABLE for connection with AH-4 (10m)
- **OPC-2321** CONTROL CABLE for connection with AH-740 (6m)
- **OPC-599** CABLE ADAPTER Converts 13-pin ACC connector to 7-pin + 8-pin ACC connectors.

**Supplied accessories:** (May differ depending on version)  
 • Hand microphone, HM-219 • DC power cable • Fuses • Plugs

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