HF/50MHz ALL MODE TRANSCEIVER
IC-7600

The Flagship’s Lineage
Pushing performance to the pinnacle

The latest DSP technologies developed for the IC-7800/7700 plus over 45 years of analog circuit expertise give the IC-7600 the performance advantage. The flagship's lineage: dual DSP units, 3kHz 1st (roofing) filter, double-conversion superheterodyne, all direct descendents of the IC-7800/7700.

Separate DSP units for transmitter/receiver and spectrum scope.

The double-conversion superheterodyne system and the image rejection mixer improve inband IMD.

Three built-in 1st IF (roofing) filters: 3, 6 and 15kHz.

HF/50MHz ALL MODE TRANSCEIVER
IC-7600
High-resolution real-time spectrum scope using a dedicated DSP unit.

Easily connect keyboards, flash memory drives, and PCs.

Built-in PSK and RTTY operation with a USB keyboard - PC not required.

5.8-inch WQVGA (400×240 pixel) ultra-wide viewing angle TFT display with long-life LED backlighting.
Two separate 32-bit DSP units power the transmitter/receiver and spectrum scope. These processors give the IC-7600 high performance comparable to our top-of-the-line IC-7800 and IC-7700, thanks to the combination of dual DSP and our analog RF design expertise.

The IC-7600 has dual AGC loops, one analog and one digital, both under DSP control. This architecture prevents strong adjacent signals from "pumping" the AGC and allows maximum dynamic range in the DSP.

Dynamic range characteristics

Antenna Input [dBm]

Icom's long years of analog RF circuit experience combined with the latest digital technology results in an astonishing 104dB receiver dynamic range and +30dBm IP3 in the HF bands without sacrificing receiver sensitivity. Even a weak signal adjacent to strong signals is clearly received by the IC-7600.

Digital IF filter setting example

The IC-7600 employs a double-conversion superheterodyne system which has an image rejection mixer for the 2nd mixer stage. When compared to a typical triple-conversion system, the double-conversion system is more difficult to implement but it dramatically reduces signal distortion and provides a high-fidelity RF signal to the DSP processor.

Three built-in 1st IF (roofing) filters, including 3kHz

The IC-7600 has three built-in 1st IF (roofing) filters ahead of the 1st IF amplifier stage. The 3kHz filter is especially effective in CW and SSB modes to eliminate overloading caused by strong signals just outside the passband.

Digital IF filter

The IC-7600 DSP allows you to "build your own" digital IF filter. You can quickly choose bandwidth, shape factor, and center frequency, so that you can work that rare DX station while your competition's still tweaking their transceiver controls. Three filter memories allow you to change filter settings instantly, a great help during contesting or other high-rate operating.
After “building your own” digital IF filter, you can use digital twin Passband Tuning (PBT) to shift and narrow the IF passband until the interference is gone and you can clearly hear that weak signal.

**Digital twin PBT**

Signals such as heterodynes and AM carriers can be eliminated with automatic notch filter technology, making interference from RF sources such as beat signals and RTTY signals a thing of the past. You can also choose three shape factors for the notch filter, to optimize interference rejection.

**Digital notch filter**

The processing power of the 32-bit DSP produces results you can hear! The 16-step variable noise reduction can significantly enhance the receiver’s signal-to-noise ratio, giving you a clean, clear audio signal that may make the difference between making the contact or not.

**Noise reduction**

The IC-7600 provides ±0.5ppm frequency stability using a high stability temperature-compensate crystal oscillator (0˚C to +50˚C). This high stability TCXO unit offers stable operation even during continuous transmission on RTTY or PSK31 mode.

**High stability TCXO unit**

**Noise blanker**

A 100-step digital noise blanker reduces interference from pulse-type noise sources such as engine ignition systems.

**Dualwatch function**

Dualwatch allows you to receive two signals in the same band simultaneously. For example, you can listen to a DX station transmitting on 14.025MHz while also listening to the pileup calling him on 14.030MHz.
Versatile Functions and Intuitive Operation

5.8 inch ultra-wide viewing angle TFT display

The IC-7600’s ultra-wide viewing angle display has excellent color rendition and high contrast ratio with fast response time. These features allow the spectrum scope and simulated analog meters to move smoothly and naturally. White LED backlighting offers faster start-up, stable brightness, and very long life.

Digital voice memory

With digital voice memory, you can record the incoming signal and immediately replay the audio, a must-have feature for DXing and contesting. Because the transceiver is recording continuously, time-shift playback can replay the 15 seconds of audio that you heard before you pushed the Rec button! The IC-7600 has a 4 channel transmit memory (maximum 90 seconds per channel) and 20 channel receive memory (maximum 30 seconds per channel, total 200 seconds with 20 channels). In addition, the recorded incoming signal can be saved on a USB flash drive.

Multi-function meter

The multi-function meter allows you to observe the transmit/receive conditions at a glance. In addition to the signal strength, transmit power level, ALC, compression level and SWR meters, the IC-7600 shows the drain terminal voltage of the final amplifier (Vd), the drain current of the final amplifier (Id) and temperature of the PA circuit (TEMP).

RF speech compressor

The digital RF compressor boosts average RF output power, improving signal strength and readability.

RTTY/PSK31 operation with a USB keyboard

Simply plug in a USB keyboard to operate RTTY and PSK! The digital twin-peak filter greatly reduces interference and a tuning indicator helps you zero-beat the signals. Eight RTTY and PSK transmit memories store up to 62 characters per channel.

Triple band stacking register

The triple band stacking register quickly memorizes and calls up the operating frequency and mode for 3 channels on each band. Just push the band key button (ten-key pad), and you can call up the last operating frequency and mode. This function is convenient especially when switching bands during contests, etc.
Programmable band edge beep

You can program the band edge not only according to the amateur radio band plan but also more specific frequencies like contest frequencies, CW operating mode, etc. If you try to operate on the OFF band, the transceiver alerts you with a beep sound. You can also inhibit transmitting in the OFF band.

Built-in memory keyer

Built-in memory keyer provides 4 channels for CW mode and 8 channels each for RTTY and PSK31 modes, capable of storing up to 70 characters for each channel. The memory keyer is useful for sending CQ or exchanging numbers during contests. When not contesting, you can store and send your name, QTH, rig, etc. With a USB keyboard, you can send memory contents using a function key on the keyboard.

USB connectors on the front and rear panel

The IC-7600 has one USB connector on the front panel and one on the rear panel. You can connect a USB keyboard or USB flash drive to the front panel (type A plug) and connect a PC to the rear panel (type B plug). Using the CI-V data format and external software*, you can control the IC-7600 from a PC via the USB port. You can also transfer audio, both transmit and receive, via the USB port. * Software is not supplied from Icom.

Built-in high-speed automatic antenna tuner

The antenna tuner memorizes its settings based on your transmit frequency, so that it can rapidly tune when you change bands. High-voltage capacitors allow continuous-duty-cycle full-power operation.

High power final amplifiers

High-power FET transistors, RD100HHF1, are used in the PA unit providing excellent signal quality and low IMD characteristics. With a large heat sink and cooling fans, reliable 100W output at high duty cycle can be used, for example in contesting or data modes.

Microphone equalizer and adjustable transmit bandwidth

The built-in audio equalizer has separate bass and treble adjustments for a total of 121 combinations, so you can adjust the tonal quality of your voice as you want. In addition, the transmit bandwidth is selectable from 100, 200, 300, 500Hz at the low-pass edge, and 2500, 2700, 2800, 2900Hz at the high-pass edge, respectively. Three types of high and low combinations can be stored in the memory as favorite settings. With this flexibility of DSP-based waveform shaping, transmit audio quality is adjustable to your preference.

Two types of send relay settings

For amplifier keying (SEND jack), you can select either a mechanical relay (max. 16V/500mA) or a FET switch (max. 250V/200mA). The FET switch is designed to key older tube-type amplifiers that may have high voltage on the SEND line.

Other outstanding features

[Antenna connectors]
- Two Tx/Rx antenna connectors with automatic antenna selector
- Rx antenna In/Out connector for receiver antenna or external attenuator
[Receiver]
- General coverage receiver* covers from 30kHz to 60MHz
  (* Some frequency bands are not guaranteed, depending on version)
- Two types of receiver preamplifiers: Preamp 1: Increases low level signal improving intermodulation characteristics Preamp 2: High gain preamplifier
- Built-in 3-step RF attenuator (6, 12 and 18dB)
[Transmitter]
- Tx monitor + 50 CTCSS tone encoder and decoder + VOX capability (Voice operated transmission)
- All mode power control
[CW mode]
- DSP controlled CW keying waveform shaping
- Multi-function electronic keyer with adjustable keying speed, dot-dash ratio, paddle polarity and bug keyer
- CW pitch control from 300Hz to 900Hz + Double key jack
- Full break-in function and semi break-in function
- Adjustable CW envelope
[Operation]
- Digital meter indicates output power, ALC level, SWR, COMP (compression level), Id (drain current of the final amplifier) and Vd (voltage of the final amplifier)
- Built-in voice synthesizer announces the frequency, mode and S-meter level in English.
- Set mode function for flexible and speedy setting
- Memory pad stores up to 5 or 10 operating frequencies
- Quick split function and frequency lock function + Single knob control from RF gain to squelch
- RIT and delta Tx variable up to ±9.999kHz + Two clocks to show local and UTC time
- 1Hz pitch tuning and indication + 101 memories with 10-character name
- Program, memory, select memory and log scan + Auto tuning step function
- Adjustable tuning dial function + Dial lock + Band edge beep (Can be disabled)
- AH-4 control circuit + Automatic tuning speed for data mode operation
- CI-V interface with optional CT-17 + Screen saver function

Ground Terminal
Antenna Connectors
DC Power Socket
Transverter Jack
Receive Antenna Connectors
ALC Input Jack
SEND Control Jack
Tuner Control Socket
Accessory Sockets
Key Jack
Meter Jack
USB Connector
CI-V Remote Control Jack
External Speaker Jack

The real performance of the IC-7600 is apparent in the front lines of a DX contest.
**HF/50MHz ALL MODE TRANSCEIVER**

**IC-7600**

### SPECIFICATIONS

**GENERAL**
- **Frequency coverage**: U.S.A. version (800)
  - Rx: 0.030~65.000MHz
  - Tx: 1.800~1.999MHz
- **Modulation system**: SSB, AM, FM
- **Power supply**: 13.8V DC ±15%
- **Dimensions (WxHxD)**: 340 x 164 x 279.3 mm
- **Weight**: 10.8 kg, 22.9 lb

**TRANSMITTER**
- **Output power**: SSB, CW, FM, RTTY, PSK31
  - 2-100W
  - 1-30W
- **Modulation system**: Digital PSK modulation
- **Power supply**: Digital PM modulation
- **Spurious emissions**: Less than 60dB
- **Carrier suppression**: Less than 40dB
- **Unwanted sideband suppression**: More than 55dB
- **Microphone impedance**: 600Ω (8-pin connector)

**RECEIVER**
- **Reception system**: Double conversion superheterodyne
- **Intermediate frequencies**: 1st 64.45MHz, 2nd 369kHz
- **Sensitivity (typical)**: SSB, CW
  - (BW=2kHz, at 10dB S/N)
  - 1.8~29.9995MHz: 0.15μV
  - 50~64.0MHz: 0.13μV
- **AM**: 0.1~1.1MHz, 6.3μV
- **FM**: 1.8~29.995MHz: 0.2μV
  - 50~64.0MHz: 1.7μV
  - 29~79.7MHz: 0.3μV
- **Selectivity (after filter)**: SSB (BW=2kHz)
  - More than 2.4kHz/6dB
  - Less than 3.8kHz/60dB

### OPTIONS
- **IC-PW1/EURO HF-50 MHz 1 kW HF LINEAR AMPLIFIER**
  - Covers all HF and 50 MHz bands, provides clean, stable 1 kW output. Automatic antenna tuner and compact detachable controller are standard. 2 exoter inputs are available.

- **HM-36 HAND MICROPHONE**
  - Same as supplied with the radio.

- **SM-50 DESKTOP MICROPHONE**
  - Dynamic desktop microphone
  - Includes [UP]/[DOWN] switches and low cut function.

- **SM-20 DESKTOP MICROPHONE**
  - Electret desktop microphone
  - Includes [UP]/[DOWN] switches and low cut function.

- **PS-126 POWER SUPPLY UNIT**
  - 4-pin cable type power supply unit
  - Output: 13.8V DC (25A max.)

- **SP-23 EXTERNAL SPEAKER**
  - 4 audio filters; headphone jack
  - Input impedance: 8Ω
  - Power output: 2W Max.

### ANTENNA TUNER
- **Matching range**: HF bands 16/7 to 150Ω unbalanced
  - **50Ω band**: 20Ω to 125Ω unbalanced
  - **Less than 50Ω**: 2.11Ω
- **Minimum operating power**: HF bands 8W
  - 50Ω band 15W
- **Tuning accuracy**: Less than 0.5kHz (Motor stopped)
- **Insertion loss**: Less than 1.0 dB
  - (after tuning at 100W output)

### SUPPLIED ACCESSORIES
- **DC power cable**
- **Spade fuses**
- **Carrying handles, MM-121**

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**Icom America Inc.**
1-1-2, Kami-matsudo, Hitachi-shi, Ibaraki-ken, Japan
Phone: +81 (0)6 6793 5302, Fax: +81 (0)6 6793 0155
URL: http://www.icom.co.jp/world/index.html

**Icom Inc.**
1-1-2, Kami-matsudo, Hitachi-shi, Ibaraki-ken, Japan
Phone: +81 (0)6 6793 5302, Fax: +81 (0)6 6793 0155
URL: http://www.icom.co.jp/world/index.html

**Icom America Inc.**
2380 116th Avenue NE, Bellevue, WA 98004, USA
Phone: +1 (206) 454-6125, Fax: +1 (206) 454-1400
Email: sales@icomamerica.com
URL: http://www.icomamerica.com

**Icom Canada**
Glencoe Castle #1, 100-1651 Highway 17, Delia, B.C., V9K 5H9, Canada
Phone: +1 (864) 952-4296, Fax: +1 (864) 952-4416
Email: info@icomcanada.com
URL: http://www.icomcanada.com

**Icom (Australia) Pty. Ltd.**
Unit 1 / 103 Garden Road, Clayton, VIC 3168 Australia
Phone: +61 (3) 9598 6111, Fax: +61 (3) 9598 7955
Email: sales@icom.net.au
URL: http://www.icom.net.au

**Icom New Zealand**
164A Harris Road, East Tamaki, Auckland, New Zealand
Phone: +61 (09) 274-6082, Fax: +61 (09) 274-7480
Email: sales@icom.co.nz
URL: http://www.icom.co.nz

**Icom (Europe) GmbH**
Communication Equipment
Himmelweilerstr. 100
4-03325 Düsseldorf, Germany
Phone: +49 (0)211 340947, Fax: +49 (0)211 332959
Email: info@icom-europe.com
URL: http://www.icom-europe.com

**Icom France s.a.s.**
Zac de l’Aube Plaine
1 Rue Bélinaise-des Moulins, BP 48644
31050 Toulouse Cedex 5, France
Phone: +33 (0) 5 36 30 03 03, Fax: +33 (0) 5 36 30 03 02
Email: icom@icom-france.com
URL: http://www.icom-france.com

**Icom Polska**
81-800 Sopot, ul. 3 Maja 54, Poland
Phone: +48 (082) 501-733, Fax: +48 (082) 501-7324
Email: commercial@icom-pl.com
URL: http://www.icom-pl.com

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