ICOM

HF ALL BAND TRANSCEIVER

IC-765



By popular demand: refined HF excellence for the serious DX performer.

Icom Inc.

Full-featured HF transceiver for today's DX enthusiasts.

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IC-765

HIGH INTERCEPT POINT AND WIDE DYNAMIC RANGE

The IC-765's superb RF circuits reduce intermodulation and cross modulation effects. Icom's DFM (Direct Feed Mixer) ensures an improved intercept point of +23 dBm* and a dynamic range of 105 dB*. The IC-765 can receive weak signals from DX stations even when strong signals appear on nearby frequencies. The IC-765 is designed with an up-conversion scheme to obtain minimum image and spurious response.

*On the 14 MHz band, CW mode, IF passband width 500 Hz/−6 dB, preamplifier is OFF.

BAND STACKING REGISTER

Icom's advanced band stacking register stores the last-used frequency, mode, and IF filter (narrow or wide) information* for each band. This information is immediately recalled when the desired operating band is selected. No need to worry about troublesome settings for changing bands quickly during contest operations.

*For CW, RTTY and AM modes.

INNOVATIVE DDS SYSTEM

Icom's state-of-the-art DDS (Direct Digital Synthesizer) System is built in, ensuring high-speed PLL lock-up times, high C/N (carrier-to-noise) ratios, and effective reduction of phase noise. Blocking characteristics are also greatly improved. The DDS System ensures very fast CW full break-in capability and data communications when operating packet or AMTOR.

VERSATILE SCANNING

The programmed scan function scans a specific frequency range. The memory scan function scans the entire memory channel range in sequence. The selected memory channel scan function scans only desired memory channels, allowing you to skip unnecessary channels. The scan speed can be adjusted to suit your desired speed. Find stations you're looking for in a hurry.

HIGH-SPEED AUTOMATIC ANTENNA TUNER

The IC-765 has a fully automatic antenna tuner designed to obtain maximum output power radiation. No manual tuning is ever necessary. The antenna tuner adjusts the minimum SWR to any frequency in the HF amateur band. No need to think about antenna matching conditions during busy QSY's. The antenna tuner has the following features:

• TUNING DATA MEMORY CAPABILITY

The built-in CPU memorizes previously matched conditions for variable capacitor positions on each band*, using them as preset positions. When the same frequency as the one previously used is selected, the antenna tuner automatically and quickly returns to the previous condition without transmitting. Antenna tuner setting is immediately performed when the desired band is selected. Call DX stations quickly and easily.

* 18 and 21, 24.5 and 28 MHz bands use the common memories.

• ADVANCED RE-TRY FUNCTION

Even if the automatic antenna tuner cannot tune from a previously memorized preset position, the re-try function changes the preset positions of the variable capacitors and memorizes the new preset positions. Tuning is automatically performed from the new preset position to obtain minimum SWR. What an advantage over older automatic antenna tuners!

NUMEROUS MEMORY CHANNELS

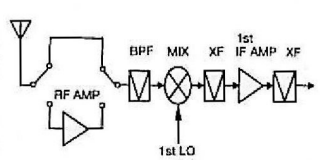
The IC-765 is packed with 99 convenient memory channels plus programmed scan edge memories. The operating frequency, mode currently being used, and other useful information can be conveniently stored in each memory channel.

In addition, memory channels 90 to 99 can store separate transmit and receive frequencies in each memory channel. These memory channels are convenient for DX split operation or for accessing 29 MHz FM repeaters.

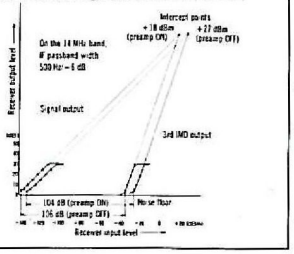
RIT AND ⊿TX FUNCTIONS

The RIT function is useful for fine tuning stations which call off frequency or for compensating for frequency drift. The ⊿TX function allows the transmit frequency to be shifted without adjusting the receive frequency. The shifted frequency can be added to the displayed frequency, if desired. The receive or transmit frequency can be shifted by up to ±9.99 kHz in 10 Hz tuning steps. These functions are handy when using split operations with DX-pedition stations.

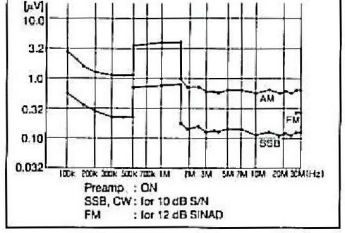
• Icom's Direct Feed Mixer Method



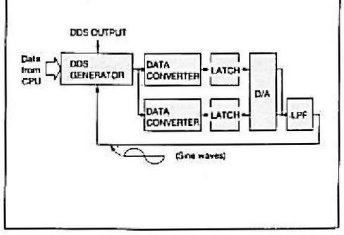
• Dynamic range characteristics



• Receiver sensitivity characteristics



• DDS block diagram





COMPLETE CW FUNCTIONS

• ELECTRONIC KEYER

Automatic keying is easy to use. The keying weight (dot: space: dash ratio) and keying speed are adjustable for your particular keying needs. The electronic keyer provides you with lambic operation capability.

• FULL BREAK-IN OPERATION

DX ing is assured with full break-in and semi break-in operations.

• CW NARROW FILTERS

The built-in CW narrow filters (500 Hz/−6 dB) ensure a good shape factor and effectively remove QRM in crowded bands.

• CW PITCH CONTROL

Received CW signal audio pitch can be adjusted to a comfortable frequency (approx. 400~900 Hz) without changing the operating frequency.

COMPLETE COOLING SYSTEM FOR FULL-DUTY OPERATION

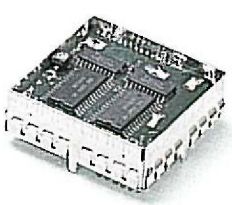
The IC-765 has a specially designed heatsink and cooling fan for full-duty operation. The CPU changes the cooling fan rotation speed and controls internal temperature. This cooling system provides continuous operation in CW and RTTY modes.

HIGH SENSITIVITY RECEIVER

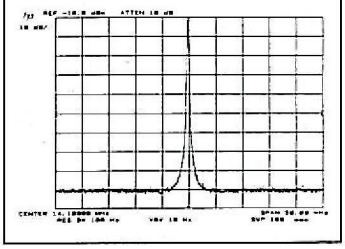
The IC-765's sensitivity is less than 0.15 μV for 10 dB S/N*. This means you can receive very weak signals from DX stations even when propagation conditions are poor.

*1.6~30.0 MHz, SSB, CW or RTTY mode, preamplifier is ON.

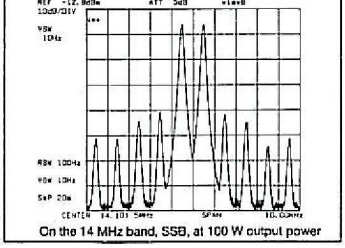
• DDS unit



• Transmission C/N characteristics

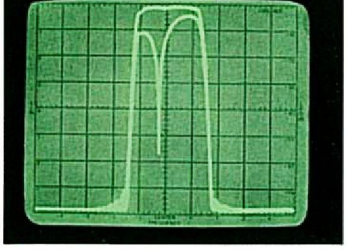


• Transmission two-tone IMD characteristics



On the 14 MHz band, SSB, at 100 W output power

• Notch filter characteristics





RF ATTENUATOR AGAINST STRONG SIGNALS

The IC-765 has a built-in 10, 20 and 30 dB level selectable RF attenuator which prevents saturation of the RF circuit caused by strong signals such as local stations or broadcasting stations.

IF SHIFT CIRCUIT FOR CROWDED BANDS

The IF shift circuit shifts the center frequency of the passband to effectively reject nearby interfering signals in SSB, CW and RTTY modes. These functions ensure clear reception even during crowded band conditions.

SHARP NOTCH FILTER TO ELIMINATE BEAT SIGNALS

The deep notch filter can be tuned to a particular frequency in the IF passband. The notch filter eliminates interfering beat signals that exist within the IF passband, ensuring clear reception.

RF SPEECH COMPRESSOR

A specially designed RF speech compressor is built into the IC-765 to increase talk power and intelligibility. DX contact is therefore available right at your fingertips.

NOISE BLANKER

The IC-765 noise blanker reduces noise from engine ignition systems and is selectable for level and wide/narrow blank widths. Using a wide blank width removes troublesome "woodpecker" noise and key clicks from strong CW signals on nearby frequencies.

FILTER SELECTION VERSATILITY

Narrow or wide IF filters can be selected from the front panel switches in CW, RTTY or AM mode operation. No internal switching is necessary for normal operations.

DIRECT FREQUENCY ENTRY

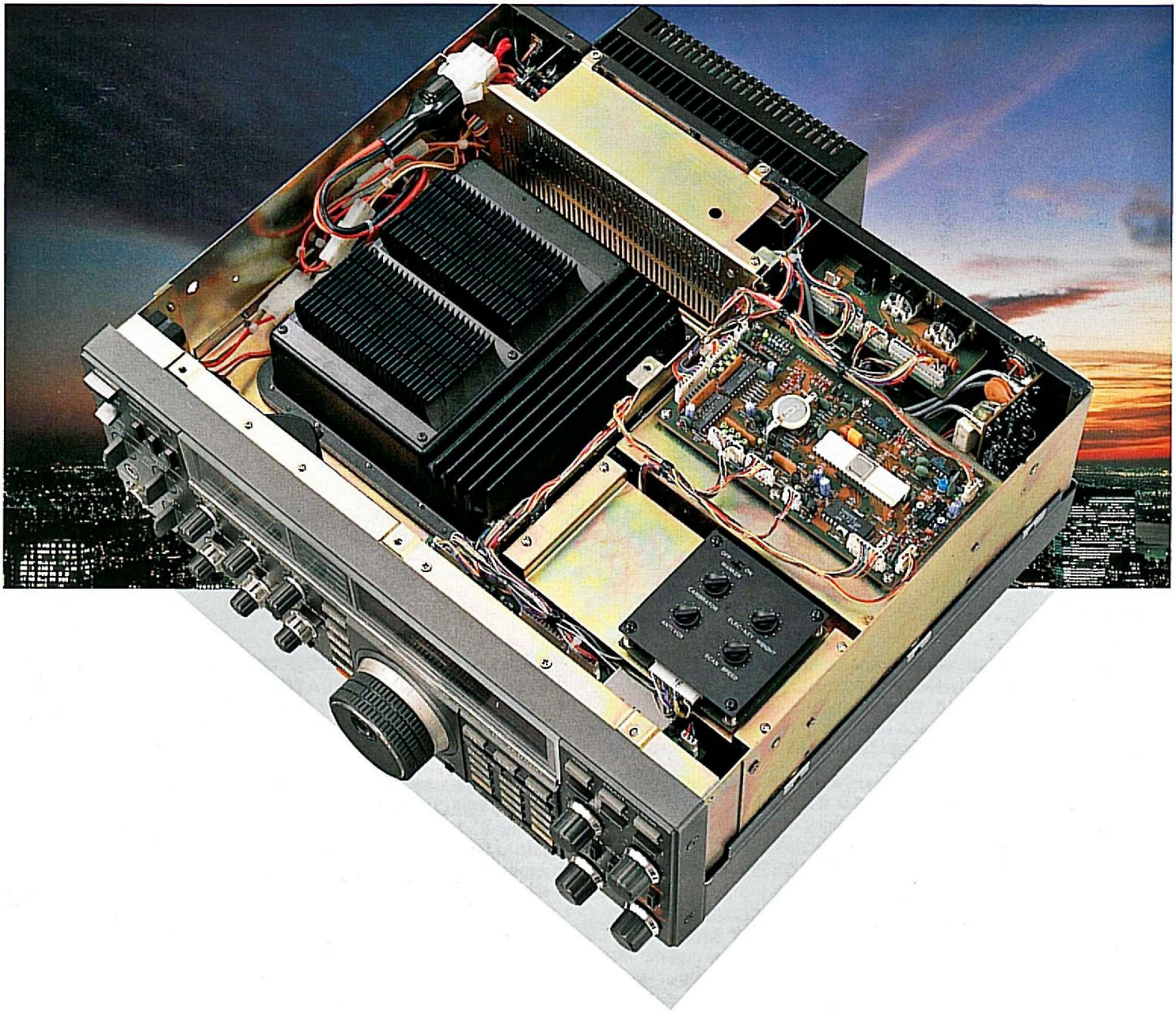
With the IC-765 you can immediately select a desired frequency accurate to 10 Hz or an amateur band with the KEYBOARD. This function is especially convenient when the frequency is already known, as with a schedule or an expedition QSO.

MISCELLANEOUS FEATURES

- **Dual VFO system**
- **VOX function**
- **TS switch for quick tuning**
- **DATA switch for packet and AMTOR operation**
- **All mode squelch**
- **Built-in heavy duty power supply system**
- **Preamplifier for weak signals**
- **100 kHz~30 MHz general coverage receiver**
- **Variable transmit and receive tone control functions**
- **Easy-to-read function display**
- **Advanced transmitter protection circuit**
- **Calibration-free SWR meter**
- **CI-V System for personal computer control**
- **Transmission signal monitor function**

All measurements in graphs are examples.

Half the fun is listening.



We enjoy listening. It's a part of what we do well. So when Icom heard you talking, our engineers designed a rig specifically for you — the serious DX enthusiast with worldwide contacts in mind. The result is the new, super advanced IC-765, an HF all band transceiver built to expand your HF world.

The IC-765 is equipped with Icom's exclusive DDS (Direct Digital Synthesizer) System, a fully automatic antenna tuner, and many other advanced features for CW enthusiasts: an electronic keyer with iambic operation capability and a full break-in function and more.

HF ALL BAND TRANSCEIVER

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SPECIFICATIONS

GENERAL

- Frequency coverage : Receive 0.10000~30.00000 MHz
  Transmit 1.80000~ 1.99999 MHz
  3.40000~ 4.09999 MHz
  6.90000~ 7.49999 MHz
  9.90000~10.49999 MHz
  13.90000~14.49999 MHz
  17.90000~18.49999 MHz
  20.90000~21.49999 MHz
  24.40000~25.09999 MHz
  28.00000~30.00000 MHz
- Modes : SSB(A3J), CW(A1), AM(A3), FM(F3), RTTY(F1)
- Number of memory channels : 99 plus P1 and P2
- Antenna impedance : 50 Ω (unbalanced)
- Usable temperature range : −10°C~+60°C (+14°F~+140°F)
- Frequency stability : Less than ±200 Hz
  (+25°C; +77°F, up to 1 hour after power is ON for 1 minute)
  Less than ±30 Hz
  (+25°C; +77°F, after every hour)
  Less than ±350 Hz
  (0°C~+50°C; +32°F~+122°F)
- Power supply requirement : 100~117 V AC (U.S.A. version)
  220~240 V AC
  (Australia, Europe, France versions)
- Power consumption :

Transmit	At min. output	250 VA
	At max. output	650 VA
Receive	Squelched	75 VA
	At max. audio output	80 VA

- Dimensions : 424(W) × 150(H) × 390(D) mm
  16.7(W) × 5.9(H) × 15.4(D) in
  (projections not included)
- Weight : 17.5 kg (38.6 lb)

TRANSMITTER

- Output power : 10~100 W (SSB, CW, FM)
  10~40 W (AM)
  (continuously adjustable)
- Modulation system : SSB Balanced modulation
  AM Low power modulation
  FM Variable reactance frequency modulation
- Max. frequency deviation : ±5 kHz (FM)
- Spurious emissions : More then 60 dB below peak output power
- Carrier suppression : More than 40 dB below peak output power
- Unwanted sideband : More than 55 dB below peak output power
  (at 1000 Hz AF input)
- Microphone impedance : 600 Ω
- ΔTX variable range : ±9.99 kHz

RECEIVER

- Receive system : Quadruple-conversion superheterodyne
  (SSB, CW, AM, RTTY)
  Triple-conversion superheterodyne (FM)
- Intermediate frequencies :

	SSB	CW, RTTY	AM	FM
1st	9.0115 MHz	9.0106 MHz	9.0100 MHz	9.0100 MHz
2nd	9.0115 MHz	9.0106 MHz	9.0100 MHz	9.0100 MHz
3rd	455 kHz	455 kHz	455 kHz	455 kHz
4th	9.0115 MHz	9.0106 MHz	9.0100 MHz	—

- Sensitivity (when preamp is ON) : SSB, CW, RTTY (for 10 dB S/N)
  0.1~0.5 MHz Less than 0.7 μV
  0.5~1.8 MHz Less than 1.0 μV
  1.6~30.0 MHz Less than 0.15 μV
  AM (for 10 dB S/N, narrow filter selected)
  0.1~0.5 MHz Less than 4.0 μV
  0.5~1.8 MHz Less than 6.0 μV
  1.6~30.0 MHz Less than 1.0 μV
  FM (for 12 dB SINAD)
  28~30.0 MHz Less than 0.3 μV
- Squelch sensitivity : 0.3 μV (28~30 MHz, FM)
- Selectivity : SSB
  More than 2.2 kHz/−6 dB
  Less than 3.8 kHz/−60 dB
  CW (narrow), RTTY (narrow)
  More than 500 kHz/−6 dB
  Less than 1 kHz/−60 dB
  AM
  More than 6 kHz/−6 dB
  Less than 18 kHz/−50 dB
  FM
  More than 15 kHz/−6 dB
  Less than 30 kHz/−50 dB
- Audio output power : More than 2.6 W at 10% distortion with an 8 Ω load
- Audio output impedance : 8 Ω
- RIT variable range : ±9.99 kHz

ANTENNA TUNER

- Input impedance : 50 Ω (unbalanced)
- Output matching range (when TUNER switch is ON) : 16.7~150 Ω (unbalanced)
- Waiting time for band selection : Less than 3 sec.
- Auto tuning accuracy : VSWR 1.2:1 or less

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

OPTIONS

- **IC-4KL** 1 kW HF LINEAR AMPLIFIER
  An advanced new all-solid-state 1 kW HF linear amplifier equipped with a fully automatic antenna tuner.
- **CR-282** HIGH-STABILITY CRYSTAL UNIT
  Contains a temperature-compensating oven heater and crystal unit for improved frequency stability. (±100 Hz, −30°C~+60°C; −22°F~+140°F)
- **CT-16** SATELLITE INTERFACE UNIT
  Easy tuning for instant satellite communications using another Icom transceiver.
- **CT-17** CI-V LEVEL CONVERTER
  For remote control using a personal computer equipped with an RS-232C port.
- **EX-627** HF AUTOMATIC ANTENNA SELECTOR
  Allows connection of up to nine antennas to the IC-765. The most suitable antenna is automatically selected from up to seven antennas when the operating band is changed in the IC-765. Manual selection is also possible.
- **FL-53A** CW NARROW FILTER (455 kHz, 250 Hz/−6 dB)
- **FL-101** CW NARROW FILTER (9.0106 MHz, 250 Hz/−6 dB)
  These filters have good shape factors and provide you with better CW reception when band conditions are crowded.
- **FL-102** AM FILTER (9.0100 MHz, 6 kHz/−6 dB)
  This filter has a good shape factor and provides you with clearer broadcast reception.
- **GC-5** WORLD CLOCK
  Gives you worldwide coverage of every time zone.
- **HP-2** COMMUNICATION HEADPHONES
  Perfect for clear audio in noisy environments.
- **MB-19** RACK MOUNTING HANDLES
  Transceiver mounting handles for a 19-inch mounting rack.
- **SM-6** ELECTRET CONDENSER-TYPE DESK-TOP MICROPHONE
  Easy to use desktop microphone for base station operation.
- **SM-8** DESK MICROPHONE
  UP/DOWN switches included. Can be connected to two transceivers when the optional OPC-088 CABLE is connected.
- **HM-36** HAND MICROPHONE
  Hand microphone with UP/DN switches for scanning.
- **SP-20** EXTERNAL SPEAKER WITH AUDIO FILTERS
  High performance speaker with audio filters for greater sound quality. Style and size are matched with the IC-765.
- **UT-30** PROGRAMMABLE TONE ENCODER UNIT
  Subaudible tone encoder for accessing a 29 MHz FM repeater. All programmed tones are available.
- **UT-36** VOICE SYNTHESIZER UNIT
  A clear, electronically generated voice announces the displayed frequency in English.

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