

ICOM

NEW PRODUCT INFORMATION

HF/VHF ALL MODE TRANSCEIVERS

IC-7400

(EURO)



The above photo is the IC-7400.

The IC-746 has achieved a fantastic reputation as a middle range base station transceiver between the IC-756PRO and the IC-706MKIIG. The IC-746PRO/IC-7400 aims to be a worthy successor to the IC-746, covering HF, 50MHz and 144MHz bands, all with a same powerful 100W of output. However, don't be fooled by the visual likeness in the IC-746. The 32-bit floating point DSP and the 24-bit AD/DA converter in the IF stage derived from the IC-756PROII makes the IC-746PRO/IC-7400 an astonishing rig that is completely new and different. These chips upgrade the IC-746PRO/IC-7400 to a level close to the IC-756PROII in its functionality. Many digital features are applied from the IC-756PROII such as selectable filter width and shape, manual notch, RTTY demodulator and decoder and so on. The IC-746PRO/IC-7400 will continue the legacy of the IC-746 for years to come, while maintaining the price advantage of the IC-746.

SELLING POINTS

- 32-bit floating point DSP and 24-bit AD/DA converter
- Digital IF filter creates 51 types of filter widths and Soft and Sharp filter shapes
- Covers HF through 144MHz with all mode capability
- 100W of RF output power for all bands
- All mode digital modulation and demodulation
- Built-in RTTY demodulator and decoder
- Digital twin PBT capability
- Digital HF speech compressor
- Microphone equalizer
- Band scope function
- SSB/CW Synchronous Tuning

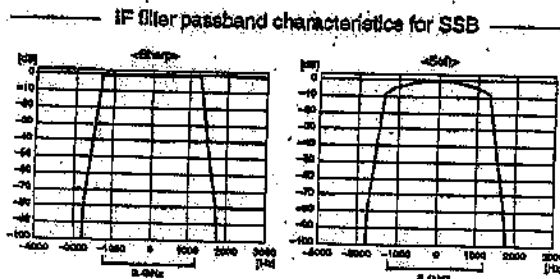
FEATURES

32-bit floating point DSP and 24-bit AD/DA converter
The IC-746PRO/IC-7400 adopts the 32-bit floating-point DSP and 24-bit AD/DA converter in the IF stage. This combination dramatically improves the precision and the scale of the signal processing, and provides a wide dynamic range from HF to 144MHz band.

Selectable filter shapes each in SSB and CW modes
You can change the filter shape to pick up desired signals including 144MHz band, while listening to the signals.

SSB sharp filter; for sharp selectivity and signal fidelity
The ideal filter shape factor when signal fidelity is needed. A sharp slope from the filter edges gives full audio response while eliminating any adjacent interference.

SSB soft filter; Providing Good Readability
The rounded filter shape resembles a traditional analog filter, by rolling off the high and low ends of the band pass. Although maintaining the steep filter skirt characteristics of a digital filter, the soft filter increases the signal to noise ratio of the intended signal.

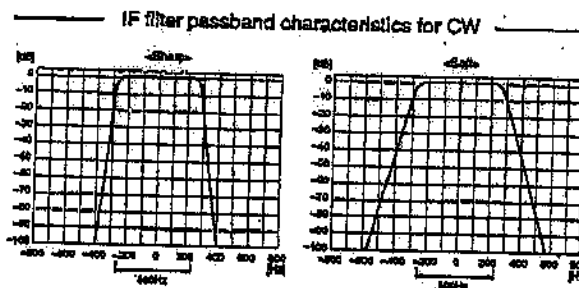


CW sharp filter, ultimate sharpness

The steep filter form will allow you to pick out a desired signal that is buried by a stronger signal. DX hunters will have to try this one to really see the magic of the Sharp CW filter.

CW soft filter; broadens the filter skirts

Running a pile-up has become easier with the soft CW filter. By broadening the filter skirt, the characteristics of the soft filter performs much like a mechanical filter.



Digital IF filter

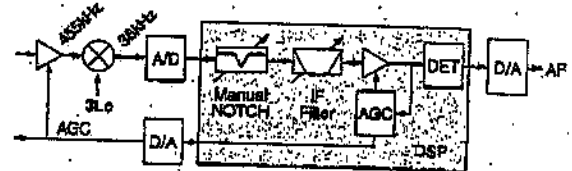
DSP is used for the IF filters from HF to 144MHz band. This means no optional IF crystal filters are required for bandwidth selection—IF passband width is variable to 51 types according to operator needs from 50Hz to 3600Hz.

Mode	Passband width range	
	50-500Hz	800-3600Hz
SSB	10 types* by 50Hz step	31 types by 100Hz step
CW	10 types* by 50Hz step	

* Filter characteristics are different between SSB and CW.

AGC loop management

Digital IF filter and manual notch are included in the AGC loop controlled by the DSP unit. It basically rejects blocking by extremely strong adjacent signals out of the filter pass bands. Therefore, you will never suffer from blocking of the AGC gain. In addition, the AGC constants (slow, medium, and fast presets are user selectable) are flexibly adjustable for each operating mode.



HF + 50MHz + 144MHz all band coverage

The IC-746PRO/IC-7400 covers the 1.8MHz to 144MHz amateur bands in all modes (including RTTY). Also the receiver continuously covers from 30kHz to 60MHz and 108-174MHz.*

* Specifications guaranteed 1.8-29.99, 50-54MHz and 144-148MHz only.

Powerful 100W output for all bands

The IC-746PRO/IC-7400 generates a powerful 100W of RF output power not only for HF and 50MHz, but also for the 144MHz band. The ample RF output power on the 144MHz allows it to be a practical transceiver for VHF base station use.

PSN (Phase Shift Network)

All of the modulation and demodulation, including FM and RTTY utilizes the DSP unit. Especially in the SSB mode, the PSN generates a very clear and high quality transmit signal. The SSB demodulation reproduces received signals with a high S/N (Signal-to-Noise Ratio) which is improved 10dB or more than that of the IC-746.

Digital twin PBT capability

The digital twin PBT actually changes the IF passband. The twin PBT narrows and shifts the IF passband to efficiently eliminate interfering signals. Useful during crowded band conditions such as pileups, or contests, etc.

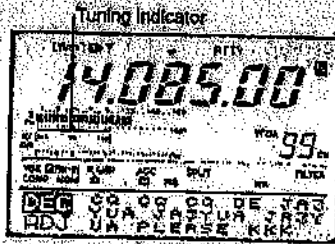
Notch functions

The manual notch function attenuates beat tones. More than 70dB can be achieved without malfunctioning of the AGC gain. In addition, the automatic notch function eliminates 2 or more interfering signals simultaneously.

FEATURES

Built-in RTTY demodulator

The baudot RTTY demodulator and decoder is built-in. External units and PC are no longer required for the RTTY decoding. Twin peak audio filter, using the DSP unit reduces interfering signals overlapping the tones. The built-in tuning indicator, located at the top of the LCD, can visually recognize the tuning condition.



Example of receiving an RTTY signal.

Digital RF Speech compressor

The IC-746PRO/IC-7400 utilizes the 32-bit DSP for the RF speech compressor providing the maximum punch without the fuzzy sound.

Microphone equalizer

The bass and treble level of transmit audio are adjustable in 11 levels, respectively. A total of 121 varieties of equalized audio can be set with the built-in microphone audio equalizer, according to operating style and microphone characteristics. In addition, the transmit bandwidth for SSB is selectable from 2.2, 2.4 and 2.8kHz to suit operating band conditions, etc.

Noise reduction

By suppressing the noise components, the noise reduction improves the signal-to-noise ratio. The noise reduction pulls out a signal component with a 16-step variation.

Highly stable transmitter

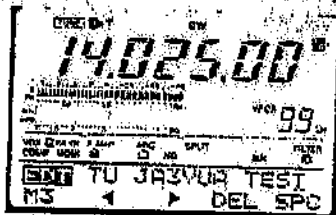
The IC-746PRO/IC-7400 employs a pair of 2SC2694 bipolar transistors in the PA stage. The IC-746PRO/IC-7400 generates stable 100W of output power, while maintaining clear and clean output.

Optional CR-338 for high frequency stability

An optional CR-338, POC type crystal oscillator, ensures ± 0.5 ppm (-10°C to 50°C) of high frequency stability. Suitable for digital mode operations.

Memory keyer

A built-in memory keyer stores station information, calling CQ and callsign in 4 memory channels. Each memory has a capacity of 55 characters, as well as other time saving functions such as automatic repeat, serial contest number auto counter, and morse cut number functions.



Editing the memory keyer.

Noise Blanker

The built-in noise blanker attenuates pulse type noise caused by engine ignition, sparks, etc. The noise blanker level is adjustable in 101 steps.

Automatic antenna tuner

The IC-746PRO/IC-7400 has total 3 antenna connectors: one for 144MHz and two for HF/50MHz bands. The built-in antenna tuner automatically matches to the operating band and memorizes the selected antenna for HF and 50MHz bands*. Very convenient for high speed tuning. *Guaranteed for amateur bands only.

SSB/CW Synchronous Tuning

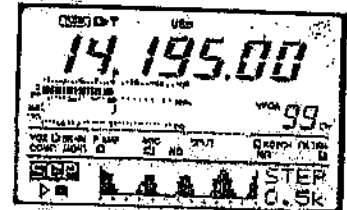
You no longer have to worry about losing a CW signal while tuning through the bands. With the SSB/CW Synchronous Tuning, the frequency automatically shifts when you change modes.

Ample functions for CW operators

An electronic keyer is standard and has adjustable keyer speed, CW pitch and dot/dash ratio, CW reverse reception, paddle polarity reverse functions, etc. Speed is adjustable in the range 6-60 WPM, CW pitch from 300-900 Hz and dot/dash ratio from 2.8:1-4.5:1. Of course, full break-in (QSK) is also available. In addition, the carrier point of the normal (default) CW mode is selectable from USB and LSB.

Other outstanding features

- Band scope function visually shows the band condition
- Triple band stacking resistor stores 3 frequencies and modes in each band
- 1/4 dial tuning function and BPF (Band Pass Filtering) function in SSB mode
- SWR plot measurement
- Tx monitor function
- The multi-function meter indicates S-meter and, RF output, SWR and ALC levels
- Receive audio equalizer adjustable bass and treble in 11 levels
- High contrast, easy-to-see, LCD
- 9600bps data terminal on rear panel
- 50 CTCSS and 108 DTCSS encoder and decoder
- Up to 10 channels of memory pad temporarily stores operating frequency and mode
- Quick split function with split lock capability
- RTT and ATX control
- 102 memory channels with 9 characters of memory name
- Optional UT-102 VOICE SYNTHESIZER UNIT announces displayed frequency, operating mode and S-meter level
- VOX (Voice-operated Transmit) standard
- Combined SQL and RF gain control
- Adjustable main dial torque
- Programmed, Memory, Select memory and ΔF scans
- Band edge beep
- AH-4 antenna tuner control circuit is built-in
- 2 preamplifier levels (single-step preamplifier for 144 MHz band)
- 20dB of attenuation
- CI-V capability for PC control
- Adjustable LCD contrast, backlight and switch/meter backlight levels



Example of the band scope.

SPECIFICATIONS

Specifications described below are target values. They may be subject to change.
DO NOT incorporate this information in your advertisements until it has been confirmed.

■ GENERAL

- Frequency coverage

Rx	0.030-50.000 MHz**	108.000-174.000 MHz**
Tx	1.800-1.999 MHz**	3.500-5.999 MHz**
	7.000-7.300 MHz**	10.100-10.150 MHz
	14.000-14.350 MHz	18.068-18.168 MHz
	21.000-21.450 MHz	24.890-24.990 MHz
	28.000-29.700 MHz	50.000-54.000 MHz**
	144.000-148.000 MHz**	
- Mode : USB, LSB, CW, RTTY, AM, FM
- No. of memory channels : 102 (99 regular, 2 scan edges and 1 call)
- Frequency stability : Less than ± 7 ppm from 1 min. to 60 min. after power ON. After that, rate of stability change is less than ± 1 ppm at 25°C (+77°F). Temperature fluctuations (0°C to +50°C; +32°F to +122°F) less than ± 5 ppm.
- Power supply requirement : 13.8 V DC ± 15 %
- Current drain (at 13.8 V DC):

Receive	Stand-by	2.2A
	Max. audio	3.0A
Transmit	Max. power	23.0A
- Antenna connector : SO-239 x 3 (2 for HF/50 MHz and 1 for 144 MHz bands; 50 Ω)
- Dimensions (projections not included):
287(W)x122.5(H)x316(D) mm
11 5/16(W)x4 9/16(H)x12 7/32(D) in
- Weight (approx.) : 9.0 kg; 19 lb 13.5 oz

■ TRANSMITTER

- Output power : 5-100 W (except AM)
5-40 W (AM only)
- Modulation system : PSN modulation
AM Low power modulation
FM Phase modulation
- Spurious emissions : Less than -50dB (HF)
Less than -60dB (50/144MHz)

- Carrier suppression : More than 40dB
- Unwanted sideband suppression: More than 55dB
- Δ TX variable range : ± 9.99 kHz
- Microphone connector : 8-pin (600 Ω)

■ RECEIVER

- Sensitivity (typical)

USB, LSB, CW, RTTY (10dB S/N)	0.16 μ V** (1.8-29.990MHz)
	0.13 μ V** (50-54MHz)
AM (10dB S/N)	0.11 μ V** (144-148MHz)
	13 μ V (0.5-1.799MHz)
	2.0 μ V** (1.8-29.990MHz)
	1.0 μ V** (50-54MHz)
	1.0 μ V** (144-148MHz)
FM (12dB SINAD)	0.5 μ V** (28-29.990 MHz)
	0.25 μ V** (50-54MHz)
	0.18 μ V** (144-148MHz)
- Selectivity

USB, LSB (2.4kHz)	More than 2.4kHz/-6dB
	Less than 3.2kHz/-40dB
	Less than 3.6kHz/-60dB
	Less than 4.3kHz/-80dB
CW (500Hz)	More than 500Hz/-6dB
	Less than 700Hz/-60dB
RTTY (350Hz)	More than 360Hz/-6dB
	Less than 650Hz/-60dB
AM (6kHz)	More than 6kHz/-6dB
	Less than 15kHz/-60dB
FM (15kHz)	More than 12kHz/-6dB
	Less than 20kHz/-60dB
- Squelch sensitivity

USB, LSB, CW, RTTY	Less than 5.6 μ V
FM	Less than 1 μ V
- Spurious and image rejection ratio: (except IF through in 50 MHz band) More than 70dB (HF/50MHz)
- RIT variable range : ± 9.99 kHz
- Audio output power : More than 2.0W at 13.8V DC with an 8 Ω load

**Preamp-1 ON, **Preamp-2 ON, **Preamp ON

OPTIONS

- **AH-2b** ANTENNA ELEMENT (7-50MHz)
- **AH-4** HF+50 MHz AUTOMATIC ANTENNA TUNER (3.5-50MHz)
- **CR-338** HIGH STABILITY CRYSTAL UNIT (± 0.5 ppm; 0°C to +50°C)
- **CT-17** C-I-V LEVEL CONVERTER
- **HM-36** HAND MICROPHONE
- **IC-PW1*** HF+50 MHz 1 kW LINEAR AMPLIFIER
* Cannot use with the IC-7400 in the EU countries
- **PS-125** POWER SUPPLY (13.8V DC/25A)
- **SM-20** STAND MICROPHONE
- **SP-21** EXTERNAL SPEAKER
- **UT-102** VOICE SYNTHESIZER UNIT