

ICOM

IC-756PROIII

HF/50MHz All Mode Transceiver



+30dBm class IP3 (in 14 MHz band) and further improved 3rd order IMD characteristics.

Real time spectrum scope with miniscope function.

RTTY decoder and RTTY transmit message memory.

Selectable SSB transmission passband width (Each for higher and lower -pass frequency).

Digital IF filter allows you to select 51 types of filter shapes while receiving a station.

And much, much more...

Available at:

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IC-756PROIII - HF/50MHz All Mode Transceiver



Making its debut at the Leicester Amateur Radio show is the latest transceiver in the IC-756PRO series. The IC-756PROIII incorporates many of the features that made its predecessors so successful. However, the integration of the latest technology employed in the IC-7800 such as receiver technology, +30dBm class IP3, miniscope makes this new rig the very pinnacle of the IC-756PRO series.

KEY SELLING POINTS

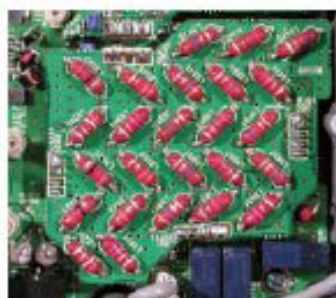
- ❑ +30dBm class IP3 (in 14 MHz band) and further improved 3rd order IMD characteristics
- ❑ Real time spectrum scope with miniscope function
- ❑ RTTY decoder and RTTY transmit message memory
- ❑ Selectable SSB transmission passband width (Each for higher and lower -pass frequency)
- ❑ Digital IF filter allows you to select 51 types of filter shapes while receiving a station
- ❑ And much, much more...

NEW FEATURES

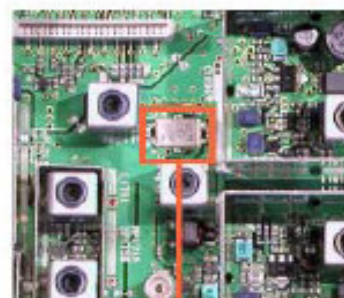
+30dBm class IP3 (in 14MHz band), Excellent distortion resistance characteristics

The IC-756PROIII design focuses on distortion-free receiver performance. Basic analogue and digital technology used in the IC-7800 has been incorporated into the IC-756PROIII receiver. The front-end mixer at the RF stage is designed in a 4-element configuration. At the BPF switching stage, diodes which have superior wide dynamic range frequency characteristics and distortion-free characteristics are used.

Magnetic saturation sometimes occurs in traditional coils when a strong signal is received. To avoid this magnetic saturation, large inductors have been used at the RF stage.



Large inductors at the RF stage



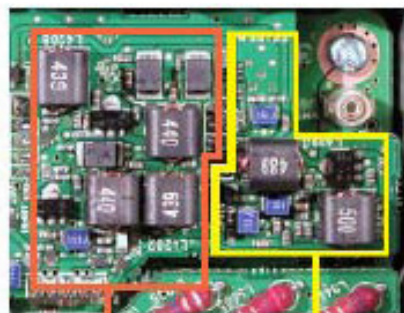
Roofing Filter

The 15 kHz crystal roofing filter uses the same component as the IC-7800 in the fundamental mode to provide good distortion-free characteristics. Finally, each stage's level distribution behind the 1st mixer stage and the AGC gain are optimised. The IC-756PROIII realises +30dBm class IP3*. (in 14MHz band)

* Under the following conditions: Receive frequency 14.2MHz, Input frequencies 14.3MHz and 14.4MHz, Pre-amp OFF, mode USB BW: 2.4 kHz

Newly designed pre-amplifiers

The IC-756PROIII has two pre-amplifiers, which offer advantages in bad band conditions. Both pre-amplifiers of the IC-756PROIII have basically the same circuit construction as the IC-7800's preamplifiers. The preamp-1 is a noiseless feedback type with push-pull amplifiers. It has a high intercept point and covers a wide frequency range. The preamp-2 is a high gain pre-amplifier using bipolar transistors. It offers excellent advantages in using narrow band antennas such as a small loop or short Yagi antenna. This combination will provide the optimum receiver performance under any conditions.



Pre-amplifier 1

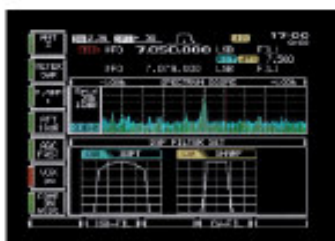
Pre-amplifier 2

Real time spectrum scope with mini scope function

The real time spectrum scope is now an indispensable tool for high-class HF radios. The IC-756PROIII's spectrum scope adds the mini scope function answering the many requests from end users to add this feature. The mini scope function allows you to monitor the scope screen while you are using other function menus. For example, you can monitor the scope screen even while you are changing the IF filter shape or other level settings. The scope range can be set in 4 steps ± 12.5 kHz, ± 25 kHz, ± 50 kHz and ± 100 kHz, centred on the receiving frequency. In addition, the spectrum scope has 3 levels of attenuator (10dB, 20dB and 30dB).



Normal spectrum scope screen



Mini scope screen

8 channels of RTTY transmit memory

The IC-756PROIII has 8 channels of RTTY transmit memory. You can edit up to 62 character pre-fixed messages for each memory channel without a PC or other external unit. The transmit memory is displayed on the screen so that you will not send the wrong message. The built-in RTTY demodulator and decoder allow you to check the callsign of the station instantly. It is not necessary for you to prepare an external demodulator when you receive an RTTY message. The twin peak audio filter controlled by the DSP Unit reduces the interference, which appears between tones. The tuning indicator visually assists you to zero-in to the RTTY signal, which makes important tuning more easy.



RTTY transmit memory screen

* When transmitting an RTTY message on site, a Terminal Unit, TNC or PC and dedicated software is required.

SSB transmit bandwidth adjustable

The built-in audio equaliser has separate bass and treble adjustment for a total of 121 combinations, so you can tone your voice up or down when you want. In addition, the SSB transmit bandwidth is selectable from 100, 300, 500Hz at the high-pass edge, and 2500, 2700, 2900Hz at the low-pass edge respectively. 3 types of high and low combinations can be stored in the memory. With this flexibility of DSP based waveform shaping, transmit audio quality is adjustable depending on the operating situation.

@ code for memory keyer

The 4 memory keyer messages store often-used CW sentences. Each memory has up to 55 character capability. The "@" code used in e-mail addresses can be sent from the memory keyer. The "@" code, (•-•-•-•-) has been added to the International Morse code list recently. In addition, the serial contest number can be counted automatically. Ø19 cut number function is included.

Other new features

- 2 clocks ... the IC-756PROIII has 2 clocks built-in which show both local and UTC time at once.
- Screen saver function ... when the IC-756PROIII has not been operated for a while, a screen saver will be shown on the display.

RETAINED FEATURES

32-bit floating-point DSP and 24-bit AD/DA converter

The 32-bit floating-point DSP and 24-bit AD/DA converter maximises the IC-756PROIII digital capabilities. This makes it possible to work a lot of digital features. In practice, the AD/DA converter realises surprisingly wide dynamic range. It provides clean and clear transmit, and crystal clear audio reception.

AGC loop operation

The 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 rarely suffer from blocking of the AGC gain. In addition, the AGC constants are easily adjustable for each operating mode.

Sharp and soft IF filter shape are independently selectable for SSB and CW mode

Sharp and soft IF filter shapes for SSB and CW have become part of the DSP unit programming. You can change the filter shape to pick up desired signals, even while listening to the signals.

- *SSB sharp filter; for selectivity and audio quality*

The ideal filter shape factor and flatness in the receive bandwidth, that only DSP can achieve. This setting eliminates adjacent signals that are out of the intended bandwidth, and reproduces the signal in the bandwidth with high fidelity. This is ideal for ragchew and placing importance on the receive audio quality.

- *SSB soft filter; improves the clarity of weak signals*

This filter has a rounded filter shape. It keeps down the band noise in high and low frequencies, and improves the signal-to-noise ratio. This setting makes it easy to distinguish very weak signals, even in low level noise, especially in the 50MHz band. This filter also has sharp skirt characteristics, similar to the SSB sharp filter

- *CW sharp filter, ultimate sharpness*

The ideal 'sharp' filter shape factor, only digital technology can bring you. This setting is suitable for picking up weak DX signals in crowded band conditions. The signal quality, not seen with analogue filters, can be clearly recognised.

- *CW soft filter; broadens the filter skirts*

This filter improves the audio quality at the edge of the filter skirt. This setting is useful when you run into pileups in contests or in DX peditions.

Digital Twin PBT

The digital twin PBT, using the DSP unit, narrows the passband width to efficiently reduce interfering signals by in

50Hz steps. IF passband width, IF shift width and IF shift direction are indicated on the LCD display for easy recognition.

RF speech compressor

The 32-bit DSP is used for the RF speech compressor providing the maximum punch without the fuzzy sound. Even when the compression is set at a higher level, the IC-756PROIII increases the readability without distortion. The tone gradation is very similar to the original sound so that the IC-756PROIII provides excellent audio at any compression level.

Manual notch function and automatic notch function

An incredible 70dB of attenuation is at your command with the manual notch. Eliminate strong adjacent signals or beat tone noise, without reducing the performance of the AGC gain. The automatic notch will eliminate 2 or more interfering signals simultaneously without signal loss or distortion. This is very helpful on all bands.

Noise reduction

The 32-bit DSP processing power produces real results by separating a signal component from the noise with the 16-step variable noise reduction. By suppressing the noise components, an outstanding signal-to-noise ratio is achieved, providing clean, clear audio in all modes without distortion of the target signal.

Digital voice memories

A total of 8 memories, 4 each for transmit and receive are built-in. A total 90 seconds of storage space allows you up to 4 separate transmit memories. 15 seconds of storage space for each of the 4 receive memories. 1 of the 4 receive memories can be assigned for the dedicated record/play switch on the front panel. You can use the memory with one touch operation regardless of the display contents. This receive memory can continuously record for 30 minutes and calls up the last 15 seconds.

External control for voice memory and memory keyer

Transmit voice memories and 4 memory keyer messages can be controlled from a simple external switch box through the microphone connector. This function can give you the edge in contests.

Extended functions for SSB-Data mode

For various digital data communications, a 1/4 tuning function is extended to the SSB-D mode as well as CW and RTTY modes. Dial control is reduced to a 1/4 step of normal tuning.

RETAINED FEATURES

100W output with full duty cycle

Powerful bipolar transistors are employed in the PA unit providing excellent signal quality and low IMD characteristics. 100W full duty cycle operation is achieved for reliable operation.

High frequency stability

A high stability POC unit is utilised for the PLL unit, allowing ± 0.5 ppm of highly stable operation. This ensures stable operation even during RTTY and SSTV operation.

Dual watch function*

Dual watch allows you to receive 2 signals on the same band simultaneously. This function is convenient for monitoring a DX station while operating on another frequency.

* Same band only.

Triple band stacking register

Hop around the band with Icom's exclusive triple-band stacking registers. Each band remembers the last 3 frequencies, mode and other settings used.

Variable level setting noise blanker

A newly designed noise blanker effectively works against pulse type noises. The noise blanker level is variable up to 100 steps.

5-inch TFT colour LCD

A large, 5-inch TFT colour LCD provides a variety of information at a glance with a wide viewing angle. 8 colours and 7 types of fonts can be selected. Dual frequencies, memory frequency, channel name, IF filter passband width,

time, RTTY tuning indicator and various status information are indicated on the upper half of the screen. The real-time spectrum scope, voice memory, memory keyer contents, decoded RTTY signal, memory list, etc. are indicated on the lower half. The lower half screen space can be widened.

Other outstanding features

- Easy to see analogue S/Rf meter over white background
- Auto antenna tuner covers both HF and 50MHz band.
- Dual antenna system, including internal antenna tuner and RX antenna terminal
- 30 kHz – 60MHz general coverage receiver
- Default CW mode is selectable from USB and LSB.
- Built-in CTCSS tone encoder
- VOX standard
- All mode power control
- Multi-function electronic keyer
- Two key jacks
- Memo pad (5/10 Ch)
- Variety of scans; program, memory, select memory, and Δ scan
- Digital meter indicates relative output power, SWR, ALC level and compression level
- Dial lock
- Band edge alarm
- Built-in AH-4 control circuit
- CI-V capability for PC control
- One-touch RIT/ Δ Tx clear function
- CW Carrier Point Selectable
- SSB/CW Synchronous Tuning



SPECIFICATIONS

The specifications below are target values and may change before the product's launch.

■ GENERAL

• Frequency coverage:

Europe, UK versions

Rx 0.030 – 60.000MHz*1

Tx 1.810 – 1.999MHz

3.500 – 3.800MHz

7.000 – 7.200MHz

10.100 – 10.150MHz 14.000 – 14.350MHz

18.068 – 18.168MHz 21.000 – 21.450MHz

24.890 – 24.990MHz 28.000 – 29.700MHz

50.000 – 52.000MHz

*1 Guaranteed 0.1–29.999MHz and 50.0–54.0MHz only

• Mode: SSB, CW, RTTY, AM, FM

• No. of memory channels : 101 (99 regular, 2 scan edges)

• Frequency resolution : 1Hz

• Frequency stability : Less than ± 0.5 ppm (from 1min. after power ON at 0°C to +50°C)

• Power supply requirement: 13.8V DC ± 15 %

• Current drain (at 13.8V DC):

Transmit	Max. power	23A
Receive	Stand-by	3.0A typ.
	Max. audio	3.3A typ.

• Temperature range : –10°C to +50°C
; +14°F to +122°F

• Antenna connector : SO-239-2 and phono
(for HF and 50MHz; 50.)

• Dimensions (W/H/D) : 340 x 111 x 285mm
(Projections not included) 13 3/8 x 4 3/8 x 11 7/32 in

• Weight (approx.) : 9.6kg; 21lb 2oz

• CI-V connector : 2-conductor 3.5 (d) mm (1/8")

• ACC 1 connector : 8-pin DIN

• ACC 2 connector : 7-pin DIN

■ TRANSMITTER

• Modulation system :	
SSB	PSN modulation
AM	Low level modulation
FM	Phase modulation
• Output power :	
SSB, CW, FM, RTTY	5–100W
AM	5–40W

• Spurious emissions	: Less than –50dB (HF bands) Less than –60dB (50MHz band)
• Carrier suppression	: More than 40dB
• Unwanted sideband	: More than 55dB
• Δ TX variable range	: ± 9.999 kHz
• Microphone connector	: 8-pin connector (600.)
• ELE-KEY connector	: 3-conductor 6.35 (d) mm (1/4")
• KEY connector	: 3-conductor 6.35 (d) mm (1/4")
• SEND connector	: Phono (RCA)
• ALC connector	: Phono (RCA)

■ RECEIVER

• Sensitivity (typical) :	
SSB, CW, RTTY	0.16 μ V*1 (1.8–29.990MHz) 0.13 μ V*2 (50–54MHz)
(at 10dB S/N)	
AM	13 μ V (0.5–1.799MHz) 2.0 μ V*1 (1.8–29.990MHz) 1.0 μ V*2 (50–54MHz)
(at 10dB S/N)	
FM	0.5 μ V*1 (28–29.990MHz) 0.32 μ V*2 (50–54MHz)
(at 12dB SINAD)	

*1Pre-amp-1 ON *2Pre-amp-2 ON

• SQL sensitivity (threshold; pre-amp OFF):	
SSB, CW, RTTY	Less than 5.6 μ V
FM	Less than 1.0 μ V
• Selectivity:	
SSB, RTTY (BW: 2.4 kHz)	More than 2.4 kHz/–6dB Less than 3.6 kHz/–60dB
CW (BW: 500Hz)	More than 500Hz/–6dB Less than 700Hz/–60dB
AM (BW: 6 kHz)	More than 6.0 kHz/–6dB Less than 15.0 kHz/–60dB
FM (BW: 15 kHz)	More than 12 kHz/–6dB Less than 20 kHz/–50dB

• Spurious and image rejection response ratio:	More than 70dB*
	*except IF through on 50MHz band
• Audio output power	: More than 2.0W at 10% distortion with an 8. load
(at 13.8V DC)	
• RIT variable range	: ± 9.999 kHz
• PHONES connector	: 3-conductor 6.35 (d) mm (1/4")
• EXT SP connector	: 2-conductor 3.5 (d) mm (1/8")

IC-756PROIII - HF/50MHz All Mode Transceiver, New!

Supplied with Hand Microphone (HM-36), DC power cable, Spare fuses and CW keyer plug (AP-330)

	List	Inc	MLS
IC-756PROIII.....	2123.40	...2495.00	...2099.00

- +30dBm class IP3 (in 14MHz band)
- Newly designed pre-amplifiers
- Real time spectrum scope with mini scope function
- 8 channels of RTTY transmit memory
- SSB transmit bandwidth adjustable
- Digital IF filter (select 51 types of filter shapes while receiving a station)
- 32-bit floating-point DSP and 24-bit AD/DA converter
- AGC loop operation

Product	Description	List	Inc
AH-2b	Mobile whip & bracket	199.00	...233.83
AH-4	100 W HF+50 automatic antenna tuner	254.47	...299.00
CT-17	CI-V converter	85.0999.99
HM-36	Hand microphone	32.3337.99
PS-125	25A Power Supply unit	251.88	...295.99
Service	Service manual.....	50.0058.75
SM-20	Deluxe desktop microphone	123.39	...144.99
SP-21*	External speaker (Designed for base station operation).....	63.8274.99
SP-23*	External speaker (4 audio filters; headphone jack; can connect to 2 transceivers)	108.35	..119.95
UT-102	Voice synthesiser unit	28.0832.99

* Input impedance: 8 Maximum input power: 5 W

Also available:

SP-23 External Speaker



See www.hamradio.co.uk for more info