



HF TRANSCEIVER

# IC-78



# Reliable straight forward HF communications

The IC-78 is a high performance HF transceiver. Innovative features such as 99 memory channels, high C/N ratio, direct channel entering, data communication capabilities and more, offer easy operation for anyone. All these features come in a compact, rugged package that can be conveniently used in a base station or in a vehicle, as you prefer.

## Durable, powerful construction

The IC-78 delivers a powerful 100 W of output power, providing the talk power you need to reach the most distant locations. Its one-piece, die-cast aluminum construction combined with a large heat sink, helps keep internal temperatures down and ensures that operation is stable at high duty cycles. And its compact size of 240(W)×95(H)×239(D) mm\* makes installation easy. \*97<sup>1</sup>/<sub>16</sub>(W)×3<sup>3</sup>/<sub>4</sub>(H)×9<sup>13</sup>/<sub>32</sub>(D) in.



## Simple operation

The IC-78 is equipped with a large easy-to-read LCD. A minimum number of switches and controls allow for superior feature selectability. Keys access functions directly—there's no secondary function key. You can enter your operating frequency\*, or memory channel number directly from the 10-key pad.

\*depending on version

## Ample 99 channels with 8-digit channel name capability

An affordable 99 duplex memory channels are available for storing individual transmit and receive frequencies, operating mode, filter setting, as well as 8-character channel names. You can enter channel assignments easily from the 10-key pad. In addition, an extra 1 call memory is available for storing the most often used, or most important frequency. An independent, one-touch recall switch is available.

## Superior basic performance

A 4-element system is employed for the 1st receive mixer, providing superior receive IMD, especially from in-band, nearby interfering signals. A well-designed double-conversion system to help minimize image and spurious responses for better signal fidelity, is also built-in. A newly designed PLL circuit has been adopted to improve C/N ratio characteristics. The combination of the 4-element system mixer and new PLL circuit allows superior basic performance.

## Front mounted loud speaker

With the speaker facing the operator, audio sounds can be clearly heard without impediment during operation. It is no longer necessary to manually increase the volume to try and capture audio sounds.

## High frequency stability

When the optional CR-338 HIGH STABILITY CRYSTAL UNIT is installed, it allows up to ±0.5 ppm of extremely high stable operation.

## Flexible filter selection

An optional IF filter can be installed into the transceiver, providing 5 passband widths selectable in SSB, CW or RTTY modes.

## VFO mode operation\*

For continuous frequency operation, VFO mode operation\* capability is available. It is convenient when searching for signals, around the programmed frequencies, such as short wave broadcasts, etc.

\*depending on version

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## ■ Superior features support serious communications ■

### ■ Direct channel selection

A 10-key pad has been adopted on the front panel. A channel number, or an operating frequency\*, can be entered from the keypad directly. Also, memory channel editing is possible. A large channel selector and up/down keys are available to suit your operating style for your convenience. Total and simple operation is provided!

\*depending on version

### ■ Cloning capability

Programmed data cloning capability between transceivers is available, so that an identical transceiver setting can be made immediately.

### ■ Built-in 2-tone alarm\*

The 2-tone alarm for an emergency signal transmission is built-in\*. Independent tone switch is adopted for quick and simple emergency calls.

\*depending on version

### ■ Data communications

In addition to the current voice and key operation, FSK (First Shift Keying) type RTTY mode is available. By connecting a terminal unit or terminal node controller to the ACC socket on the rear panel, data acquisition and text-base file transfers and other data communication can be made. On RTTY, shift width, tone frequencies and polarization are also selectable.



### ■ Noise blanker

To reduce pulse-type noise, a level adjustable noise blanker is built-in. Various levels of pulse-type noise, such as from car ignitions, etc., can be reduced.

### ■ Pre-amp. and attenuator

A pre-amplifier and an RF attenuator are adopted for more pleasant reception. Convenient when weak signals or extremely strong signals are received, to present better quality readability.

### ■ SQL/RF gain controller

In addition to the squelch control, an RF gain control is available, and the controller is combined with the squelch control. The RF gain adjusts minimum response receiver gain, and ignores signals weaker than the pre-set level— providing pleasant stand-by, or scanning. The SQL/RF GAIN controller action is selectable from squelch only, RF gain only or combined, in the SET mode according to your operating style and mode.

### ■ Other features

- Built-in mic. compressor increases average talk power
- Complete CW features
- Variety of scanning function types
- IF shift interference rejection
- Built-in antenna tuner control circuit and selectable antenna tuner
- Hand microphone is supplied
- VOX capability, and more...





**SPECIFICATIONS**

**GENERAL**

- Frequency range : Rx 0.030–29.999999 MHz\*1  
Tx 1.600–29.999999 MHz\*2
- \*1 Guaranteed range: 0.5–29.999999 MHz
- \*2 Not guaranteed for some frequency bands
- Mode : USB, LSB, CW, RTTY (FSK), AM
- Number of memory Ch. : 99 (Duplex) +1 (Call channel)
- Frequency stability : Less than ±200 Hz from 1 min. to 60 min. after power ON. After that rate of stability less than ±30 Hz/hr. at +25°C (+77°F). Temperature fluctuations 0°C to +50°C (+32°F to +122°F) less than ±350 Hz
- Power supply requirement: 13.8 V DC ±15% (negative ground)
- Current drain (at 13.8 V DC):
 

Receive	Stand-by	1.3 A
	max. audio	2.0 A
Transmit	max. power	21.0 A
- Operating temp. range : -10°C to +60°C; +14°F to +140°F
- Antenna connector : SO-239 (50 Ω)
- Dimensions : 240(W)×95(H)×239(D) mm (projections not included)
- Weight (approx.) : 3.8 kg; 8 lb 6 oz
- ACC connector : 13-pin
- REMOTE connector : 2-conductor 3.5 (d) mm (1/8")

**TRANSMITTER**

- Modulation system : SSB Balanced modulation  
AM Low level modulation
- Output power : SSB, CW, RTTY 2–100 W  
AM 2–35 W
- Spurious emissions : Less than -46 dB below peak output power
- Carrier suppression : More than 40 dB
- Unwanted sideband : More than 50 dB
- Microphone connector : 8-pin connector (600 Ω)
- KEY connector : 3-conductor 6.5 (d) mm (1/4")
- SEND connector : Phono (RCA)
- ALC connector : Phono (RCA)

**RECEIVER**

- Receiver system : Double-conversion superheterodyne
- Sensitivity (10 dB S/N) : SSB, CW, RTTY 0.16 μV (1.600–29.999999 MHz) (0.5 μV at 12 dB SINAD)  
AM 13 μV (0.5–1.599999 MHz)  
2 μV (1.600–29.999999 MHz)
- SQL sensitivity : Less than 5.6 μV (SSB)
- Selectivity : SSB, CW, RTTY More than 2.1 kHz/-6 dB  
Less than 4.5 kHz/-60 dB  
AM More than 6.0 kHz/-6 dB  
Less than 20 kHz/-40 dB
- Spurious and image rejection ratio : More than 70 dB (1.600–29.999999 MHz)
- Audio output power (at 13.8 V DC) : More than 2.0 W at 10% distortion with an 8 Ω load
- PHONES connector : 3-conductor 6.5 (d) mm (1/4")
- EXT SP connector : 2-conductor 3.5 (d) mm (1/8") / 8 Ω

**Supplied accessories:**

- Hand microphone
- DC power cable
- Spare fuses

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

**OPTIONS**



**PS-126 DC POWER SUPPLY**  
Compact power supply with high current capability. 13.8V DC, 25A max. 4-pin type. (For #21, #32 versions)



**AT-140 HF AUTOMATIC ANTENNA TUNER**  
Covers 1.6–30 MHz with a 7 m (23 ft) or longer wire antenna. **AT-130/E** is also available.



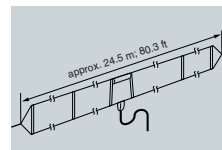
**AH-4 AUTOMATIC ANTENNA TUNER**  
Covers 3.5–30 MHz with a 7 m (23 ft) or longer wire antenna.



**AH-2b ANTENNA ELEMENT**  
For mobile operation with the AH-4. All bands between 7–30 MHz can be matched.



**AH-740 AUTOMATIC TUNING ANTENNA**  
Covers 2.5–30MHz (amateur band). OPC-2321 is required.



**AH-710 FOLDED DIPOLE ANTENNA**  
Covers from 1.9 to 30 MHz. Has a SO-239 connector. Easy to assemble (non-kink construction).



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



**SM-30 DESKTOP MICROPHONE**  
Compact, lightweight electret microphone.



**SM-27 DESKTOP MICROPHONE**  
Dynamic microphone with PTT lock switch.



**HM-36 HAND MICROPHONE**  
Same as that supplied.



**SP-23 EXTERNAL SPEAKER**  
4 audio filters; headphone jack. Input impedance: 8Ω. Max. input power: 5W



**CT-17 CI-V LEVEL CONVERTER**  
For remote transceiver control from a PC equipped with an RS-232C port.



**CR-338 HIGH STABILITY CRYSTAL UNIT**  
Contains a temp. compensating heater for improved frequency stability. Frequency stability: ±0.5 ppm



**455 kHz FILTERS**  
FL-53A CW narrow; 250Hz/-6 dB  
FL-222 SSB narrow; 1.8kHz/-6 dB  
FL-257 SSB wide; 3.3 kHz/-6 dB



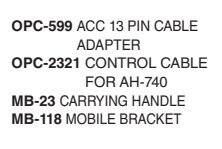
**MN-100 ANTENNA MATCHER**  
Match the transceiver to a dipole antenna without applying DC power. 8 m×2 antenna wires come attached.



**MN-100L ANTENNA MATCHER**  
Match the transceiver to a long-wire antenna without applying DC power. 15 m×1 antenna wire comes attached.



**AH-5NV NVIS KIT**  
Fiberglass mobile mounting antenna element for use with AH-740. Covers 2.2–30MHz (amateur band)



**OPC-599 ACC 13 PIN CABLE ADAPTER**  
**OPC-2321 CONTROL CABLE FOR AH-740**  
**MB-23 CARRYING HANDLE**  
**MB-118 MOBILE BRACKET**

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