



## VHF AND UHF TRANSCEIVERS

### IC-F70DT

(P25 digital VHF transceiver with 10-keypad)

### IC-F70T

(VHF transceiver with 10-keypad)

### IC-F70DS

(P25 digital VHF transceiver without 10-keypad)

### IC-F70S

(VHF transceiver without 10-keypad)

### IC-F80DT

(P25 digital UHF transceiver with 10-keypad)

### IC-F80T

(UHF transceiver with 10-keypad)

### IC-F80DS

(P25 digital UHF transceiver without 10-keypad)

### IC-F80S

(UHF transceiver without 10-keypad)

# DIGITAL



IC-F70DT/DS, IC-F80DT/DS only.



Icom Inc.



# The Smart Migration to an APCO P25 Digital Radio System



▲ IC-F70T

▲ IC-F80S

*Icom provides an intelligent solution for digital migration to an APCO P25 digital radio system from an existing analog system in the IC-F70D/F80D series. Programmable conventional P25 digital and/or FM analog mode per channel, Flash ROM CPU for future upgrades allows you to tailor the system you connect. Moreover, advanced mechanical and analog features such as rugged waterproof construction, built-in multiple signalings and a large capacity Lithium-Ion battery pack satisfy the needs of current analog users. Icom is the smart choice for current – and future – public safety communication needs.*

## IPX7 waterproof protection

The water removal design from the speaker grill keeps the communication clear, no matter what the elements are. The IC-F70/F80 series has waterproof construction that is sealed with waterproof gaskets.

\* According to the International Standard IEC 60529 (2001). 1m depth for 30 minutes.

## Built-in multiple signaling

Use the built-in CTCSS, DTCS, 2-Tone, 5-Tone and BIIS capability to set up your own talk groups and quiet stand-by when others are talking. You can also set up selective calls to individuals or control a repeater.

## Multiple 2-Tone, Multiple 5-Tone

Up to 10 2-Tone and 8 5-Tone codes can be decoded on a single memory channel. This is perfect for professionals who require multiple district paging on one channel. When a matched tone is received, the following items are programmable for each code.

- Bell icon
- Answer back
- Stun
- Beep sound
- Auto transmit
- Scan

## VHF TRANSCEIVERS

### IC-F70DT/T

P25 digital/analog FM with 10-keypad

### IC-F70DS/S

P25 digital/analog FM without 10-keypad

## UHF TRANSCEIVERS

### IC-F80DT/T

P25 digital/analog FM with 10-keypad

### IC-F80DS/S

P25 digital/analog FM without 10-keypad

# Project 25 (P25) Digital Features



## Upgrade to digital option

The IC-F70/F80 series offers you three choices P25 digital compatibility. Choice one is P25 compliant from the factory. Choice two is a digital hardware radio and you can install the P25 activation software (EX-2785 J01) later. Choice three is analog only radio and you can install the DSP unit, UT-120 and P25 activation software (EX-2785 J01) later.

### System upgrade chart

Choice 1 : P25 compliant	Choice 2 : Digital hardware	Choice 3 : Analog radio
IC-F70DT/DS (#01,11) IC-F80DT/DS (#01,02,21,22)	IC-F70DT/DS (#02,12) IC-F80DT/DS (#03,04,23,24)	IC-F70T/S (#03,13) IC-F80T/S (#05,06,25,26)
	+	+
	EX-2785 J01, P25 software	EX-2785 J01, P25 software UT-120 (#01), DSP unit

## AES/DES digital encryption activation software

AES and DES are encryption standards required by public safety agencies. The IC-F70D, F80D series provide secure encryption with DES and AES accordingly when activated with EX-2785 J02 (for DES) and EX-2785 J03 (for AES) activation software.

## Interoperability

The IC-F70D, F80D series is APCO Project 25 (P25) compliant. It ensures interoperability with other manufacturer's P25 digital radios in conventional mode. Program digital and/or analog FM modes per channel. The mixed mode scan allows you to detect and receive both analog FM and P25 digital modes and to transmit either mode depending on programming.

# Advanced Mechanical and Analog Features

## Li-Ion battery pack

The large capacity 1600mAh Lithium-Ion (Li-Ion) battery pack, BP-235 provides a practical 8 hours\* of operating time. Li-Ion batteries allow flexible charging and have almost no memory effect.

\* Typical operation Tx:Rx: Stand-by=5:5:90

## Alphanumeric display

The large high contrast LCD clearly shows a variety of information with a full dot-matrix display. Program the display to show either 1 line with 12 characters or 2 lines with 24 characters. The functions assigned to the P buttons (P0-P3) are shown at the bottom of the display.



The bottom side shows the assigned functions.

## Tactical group function

The tactical group function allows you to copy memory channels to the tactical zone (zone 32) and dynamically regroup memory channels. Using the optional zone copy cable, memory channels in the tactical zone can be transferred from a master radio to other radios.

## Built-in voice scrambler

The IC-F70/F80 series includes a built-in inversion type voice scrambler. When a more secure system is required, the optional voice scrambler unit UT-109 or UT-110 is available.

\* These voice scrambler functions are not available in digital mode.

## Wide range coverage and large channel capacity

The IC-F70/F80 series covers a wide frequency range in one version. The large ca-

capacity of 256 memory channels with 32 memory zones allow you to divide and store a variety of channels from local to wide area network channels.

## Radio stun/kill and Power-on password function

The radio stun/kill functions disable a lost or stolen radio over the air, eliminating security threats from undesired listeners. The power-on password prevents unauthorized people turning on the radio.

## Other features

- Built-in audio compander
- 8 DTMF autodial memories
- Normal and priority scans
- 2 step power saver
- Busy, repeater lockout functions
- Wide and narrow (25/12.5kHz) channel spacing is programmable
- Power ON password, and more...

## OPTIONS

Some options may not be available in some countries. Please ask your dealer for details.



**BP-235** Li-Ion BATTERY PACK, 7.4V/1600mAh Provides 8 hours operating time\* (approx.).  
**BP-236** Li-Ion BATTERY PACK, 7.4V/2400mAh Provides 12 hours operating time\* (approx.).  
**BP-237** BATTERY CASE: AA (LR6)x6 alkaline cells. BP-237 is water-resistant, equivalent to IPX4.  
\* Tx: Rx: standby=5:5:90.



**BC-119N** DESKTOP CHARGER + **AD-110** CHARGER ADAPTER + **BC-145A** AC ADAPTER  
Rapidly charges the BP-235 in 2.5 hours and BP-236 in 3.5 hours.  
**CP-17L** : CIGARETTE LIGHTER CABLE **OPC-515L** : DC POWER CABLE  
For use with the BC-119N. (12-16V DC required)



**BC-121N** MULTI-CHARGER + **AD-110** CHARGER ADAPTER + **BC-157** AC ADAPTER  
Rapid charges up to 6 battery packs (Six AD-110s are required) in 2.5-3.5 hours.  
**OPC-656** DC POWER CABLE; For use with the BC-121N. (12-20V DC required).



**HM-138**: Full sized, water-proof construction equivalent to IPX7. (1 m/30 min.).



**HS-94**: Earhook headset with flexible boom microphone.  
**HS-95**: Behind-the-head headset with flexible boom microphone.  
**HS-97**: Throat microphone fits around your neck and picks up speech vibration.  
**VS-13C**: PTT/VOX unit. Required when using these headsets.

**BELT CLIPS**  
**MB-93** : Swivel type belt clip.  
**MB-94** : Alligator type. Same as supplied.  
**LEATHER BELT HANGERS**  
**MB-96N** : Swivel type belt hanger.  
**MB-96F** : Fixed type belt hanger. For use with MB-94.

**ACTIVATION SOFTWARE**  
**EX-2785 J01** : P25 ACTIVATION SOFTWARE  
**EX-2785 J02** : DES ACTIVATION SOFTWARE  
**EX-2785 J03** : AES ACTIVATION SOFTWARE

**INTERNAL UNITS**  
**UT-109** : Provides 32 non-rolling type scrambling codes. Version 02 required.  
**UT-110** : Provides 1020 rolling type scrambling codes. Version 02 required.  
**UT-111** : Provides LTR® trunking capabilities.  
**UT-120** : Provides P25 hardware capabilities. Version 01 required.  
Optional internal unit should be installed at an authorized loom service center only.

**INTERFACE AND ZONE COPY CABLES**  
**OPC-966** : RS-232C interface cable for connecting with a PC.  
**OPC-1533**: Handy to mobile zone copy cable  
**OPC-1536**: Handy to handy zone copy cable

**STUBBY ANTENNAS**  
**FA-SC56VS** : 150-162MHz  
**FA-SC57VS** : 160-174MHz  
**FA-SC73US** : 450-490MHz  
**ANTENNAS**  
**FA-SC25V** : 136-150MHz  
**FA-SC55V** : 146-174MHz  
**FA-SC25U** : 400-430MHz  
**FA-SC57U** : 430-470MHz  
**FA-SC72U** : 470-520MHz  
**ANTENNA ADAPTER**  
**AD-98FSC** : Allows you to connect a BNC-type antenna.  
(For maintenance use only)



## SPECIFICATIONS

## GENERAL

- Frequency range :
  - IC-F70T/S, F70DT/DS 136–174MHz
  - IC-F80T/S, F80DT/DS 400–470MHz
  - 450–520MHz
- Number of channels : 256 channels/32 zones
- Channel spacing : 12.5kHz/25kHz, 15kHz/30kHz
- PLL channel step : 2.5kHz, 3.125kHz (VHF)  
5kHz, 6.25kHz (UHF)
- Antenna impedance : 50Ω
- Operating Temp. range : -30°C to +60°C; -22°F to +140°F
- Power supply requirement : 7.2V DC
- Output power and current drain (at 7.2V DC; approx.):

	IC-F70, F70D	IC-F80, F80D
Output power	5W	4W
Transmit	High	2.2A
	Low (1W)	1.5A
Receive	AF max.	450mA
	stand-by	150mA

- Dimensions (with battery pack): 58.6 (W) × 152 (H) × 38 (D) mm;  
(projections are not included) 2<sup>5</sup>/<sub>16</sub> (W) × 5<sup>31</sup>/<sub>32</sub> (H) × 1<sup>1</sup>/<sub>2</sub> (D) in
- Weight (approx.) : 400g; 14.1oz (with BP-235)  
430g; 15.6oz (with BP-236)

## TRANSMITTER

- Max. frequency deviation : ±5.0/2.5kHz (Wide/narrow)
- Frequency error : ±2.0ppm
- Spurious emissions : 70dB typ.
- Adjacent channel power : 70/60dB min. (Wide/narrow)
- FM Hum and Noise :
  - VHF 45/40dB typ. (Wide/narrow)
  - UHF 40/35dB typ. (Wide/narrow)
- Audio harmonic distortion : 3% typ. (AF 1kHz, 40% deviation)
- Modulation limiting : 60–100% of max. deviation
- Ext. microphone connector : 9-pin multi connector/2.2kΩ

Measurements made in accordance with EIA-152C/204D, TIA-603.  
All stated specifications are subject to change without notice or obligation.

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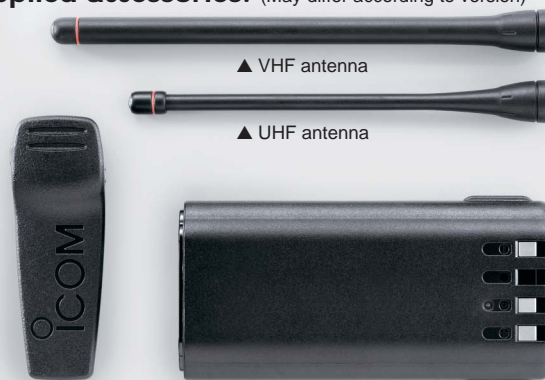
## RECEIVER

- Intermediate frequency : 1st 46.35MHz 2nd 450kHz
- Sensitivity :
  - Analog (12dB SINAD) 0.25μV typ.
  - Digital (5% BER) 0.25μV typ.
- Squelch sensitivity (at threshold) : 0.25/0.32μV typ. (VHF/UHF)
- Adjacent channel selectivity :
  - Analog VHF 80/73dB typ. (Wide/narrow)
  - UHF 78/70dB typ. (Wide/narrow)
  - Digital VHF/UHF 60dB typ.
- Spurious response : 80/75dB typ. (VHF/UHF)
- Intermodulation : 75dB typ.
- Hum and noise ratio : 45/40dB typ. (Wide/narrow)
- Audio output power : 500mW typ.  
(at 10% distortion with an 8Ω load)
- External speaker connector: 9-pin multi connector/8Ω

## Applicable U.S. Military Specifications

Standard	MIL 810C		MIL 810D		MIL 810E		MIL 810F	
	Method	Proc.	Method	Proc.	Method	Proc.	Method	Proc.
Low Pressure	500.1	I	500.2	I, II	500.3	I, II	500.4	I, II
High Temp.	501.1	I	501.2	I, II	501.3	I, II	501.4	I, II
Low Temp.	502.1	I	502.2	I, II	502.3	I, II	502.4-3	I, II
Temp. Shock	503.1	I	503.2	I	503.3	I	503.4	I
Solar Radiation	505.1	I	505.2	I	505.3	I	505.4	I
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III
Humidity	507.1	I, II	507.2	II, III	507.3	II, III	507.4	-
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	-
Dust Blowing	510.1	I	510.2	I	510.3	I	510.4	I
Immersion	512.1	I	512.2	I	512.3	I	512.4	I
Vibration	514.2	VIII, X	514.3	I	514.4	I	514.5	I
Shock	516.2	I, II, V	516.3	I, IV	516.4	I, IV	516.5	I, IV

## Supplied accessories: (May differ according to version)



• Alligator-type belt clip, MB-94

• Battery pack, BP-235

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