



## VHF AND UHF TRANSCEIVERS

### IC-F1721D

(P25 digital VHF transceiver without 10-keypad)

### IC-F1721

(VHF transceiver without 10-keypad)

### IC-F1821D

(P25 digital VHF transceiver with 10-keypad)

### IC-F1821

(VHF transceiver with 10-keypad)

### IC-F2721D

(P25 digital UHF transceiver without 10-keypad)

### IC-F2721

(UHF transceiver without 10-keypad)

### IC-F2821D

(P25 digital UHF transceiver with 10-keypad)

### IC-F2821

(UHF transceiver with 10-keypad)

# DIGITAL



IC-F1721D, F1821D,  
F2721D, F2821D only.

**MDC 1200**  
Compatible

**AES/DES**  
upgradable



Photo includes optional separation kit, RMK-2 and separation cable, OPC-609.

Icom Inc.

# The smart migration to an APCO P25 digital radio system

For organizations who run an analog radio system and must migrate to a conventional P25 digital system, Icom provides one of the best solutions. The new F1721D series mobile allows you to program P25 digital and/or FM analog mode per channel. Flash ROM capability means future upgrades and flexible customization, tailored for your system. Moreover, built-in multiple tone signaling capability and an optional voice scrambler satisfy existing analog FM system requirements. This new Icom's frequency coverage and rugged construction ensures a flexible, long life radio for you. Icom is the smart choice for current – and future – public safety communication needs.



VHF AND UHF TRANSCEIVERS without 10-keypad

**IC-F1721D**

(VHF P25 digital version)

**IC-F1721**

(VHF Analog version)

**IC-F2721D**

(UHF P25 digital version)

**IC-F2721**

(UHF Analog version)



VHF AND UHF TRANSCEIVERS with 10-keypad

**IC-F1821D**

(VHF P25 digital version)

**IC-F1821**

(VHF Analog version)

**IC-F2821D**

(UHF P25 digital version)

**IC-F2821**

(UHF Analog version)



# Project 25 (P25) Digital Features



## Upgrade to digital option

The IC-F1721/F1821 series offers you three choices to 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 A : P25 compliant	Choice B : Digital hardware	Choice C : Analog radio
F1721D (#01), F2721D (#01,02) F1821D (#11), F2821D (#21,22)	F1721D (#02), F2721D (#03,04) F1821D (#12), F2821D (#23,24)	F1721 (#03), F2721 (#05,06) F1821 (#13), F2821 (#25,26)
+		+
EX-2785 J01, P25 software		EX-2785 J01, P25 software UT-120 (#02), DSP unit

## AES/DES digital encryption activation software

AES and DES are encryption standards required by public safety agencies. The IC-F1721D and F1821D series provides 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-F1721D, F1821D series is APCO Project 25 (P25) compliant. The mixed mode scan allows you to detect and receive both analog FM and P25 digital modes.

## APCO P25 Trunking upgrade program

See upgrade program for APCO P25 Trunking option availability details.

## Detachable front panel

With the optional remote control kit, RMK-2 and separation cable, the front panel of the radio can be detached from the main unit. It allows you flexible installation even in limited installation space. Separation cable length is selectable from 1.9, 3.0 and 8.0m.

## Dot matrix, multi-function LCD

Using a high contrast LCD, the IC-F1721/F1821 series shows operating channels, tone and other settings clearly under nearly any lighting conditions. With a dot matrix display, upper and lower case characters can be easily distinguished. In addition, you can change the display setting to show one line and 12 characters, or two lines and 24 characters via programming.



Two line setting display example

## Heavy-duty microphone, HM-148

The new heavy-duty hand microphone, HM-148, uses a dynamic design that is made to handle punishment. The oversized dimensions allow for easy use with gloves on. And the curl cord can be easily replaced by simply opening the case – easy maintenance for long term use.

## Rugged construction

With heavy-duty construction, the IC-F1721/F1821 series is built to last. The IC-F1721/F2721 series incorporates a 4W speaker in an impact resistant polycarbonate front panel for crisp clear audio, and the IC-F1821/F2821 series has a backlit 10-keypad

for extended operation. The 10-keypad version is supplied with an external speaker.

## Built-in versatile tone signaling

Use the built-in CTCSS, DTCS, 2-Tone, or 5-Tone capability to set up your own talk groups, and have your radio standby quietly when other groups are talking. You can also set up selective calls to individuals or control a repeater.

## Multiple 2-Tone, Multiple 5-Tone

Encode or decode up to 10 2-Tone, 8 5-Tone codes 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
- External out

## MDC 1200 compatible

The following selective calling and ANI features are available with the built-in MDC signaling.

- PTT ID/Caller ID
- Radio check
- Selective call
- Call alert
- Emergency, emergency mic monitoring
- Radio stun/revive
- 500 Aliases
- Status/message
- Call log

## 256 memory channels, 32 zones

Up to 256 memory channels can be divided into 32 memory zones, and allows you quick access to the intended channel.

## 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 inversion type voice scrambler

The IC-F1721/F1821 series includes a built-in inversion type voice scrambler in all models. 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.

## 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.

## Public address (PA) and RX speaker functions

When an external loud speaker is connected with the radio, you can speak through the radio's microphone. The RX speaker function allows you to relay the received audio over the loud speaker.

## Other features

- Microphone hanger action programmable (Scan, monitor, priority channel)
- Optional OPC-617 D-SUB 9 pin connector for dimmer control, modem connection
- D-SUB 25 pin connector
- Built-in audio compander (Analog mode only)
- Wide frequency coverage (136–174, 400–470 and 450–512MHz)
- LTR® Trunking system capability with the optional UT-111 installed.

**SPECIFICATIONS**

**GENERAL**

- Frequency range : IC-F1721/D, F1821/D 136–174MHz  
IC-F2721/D, F2821/D 400–470MHz, 450–512MHz
- Number of channels : 256 channels/ 32 zones
- Channel spacing : 12.5/25kHz, 15/30kHz
- 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 : 13.6V DC nominal
- Current drain (approx) : Tx 50W/45W 14.0A  
Rx Max. audio 1200mA  
Stand-by 600mA
- Dimensions (W×H×D) : 175×45×170 mm (projections not included) ; 6<sup>7</sup>/<sub>8</sub> × 1<sup>7</sup>/<sub>2</sub> × 6<sup>1</sup>/<sub>8</sub> in
- Weight (approx.) : 1.5kg; 3.3lb

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

**TRANSMITTER**

- Output power (approx) : 50W (VHF) 45W (UHF)
- Max. frequency deviation : ±5.0/2.5kHz (Wide/Narrow)
- Frequency error : ±2.0ppm
- Spurious emissions : 75dB typ.
- FM Hum and Noise : 45/40dB typ. (Wide/Narrow)
- Adjacent channel power : 70/60dB min. (Wide/Narrow)
- Audio harmonic distortion: 3% typ. (40% deviation)
- Modulation limiting : 70–100% of Max. deviation
- Ext. microphone impedance : 600Ω (8-pin modular)

**RECEIVER**

- Sensitivity : Analog (12dB SINAD) 0.25/0.3μV typ. (VHF/UHF)  
Digital (5% BER) 0.25/0.3μV typ. (VHF/UHF)
- Squelch sensitivity (at threshold) : 0.25/0.3μV typ. (VHF/UHF)
- Adjacent channel selectivity : Analog 80/75dB typ. (Wide/Narrow)  
Digital 73dB typ.
- Spurious response : 80dB typ.

- Intermodulation : Analog 77/75dB typ. (Wide/Narrow)  
Digital 77dB typ.
- Hum and noise ratio : 50/45dB typ. (Wide/Narrow)
- Audio output power : 4W typ.  
External audio (D-sub) 22W typ.  
at 10% distortion with a 4Ω load
- External speaker connector : 2-conductor 3.5 (d) mm (1/8")/4Ω

**Applicable U.S. Military Specifications**

Standard	MIL 810 C		MIL 810 D		MIL 810 E		MIL 810 F	
	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	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	510.1	I	510.2	I	510.3	I	510.4	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**

- Hand microphone, HM-148
  - Microphone hanger
  - External speaker, SP-22\*
  - DC power cable
  - Mounting bracket kit
  - Key assign stickers
- \* For IC-F1821/D, F2821/D only.

**OPTIONS**

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

**HAND MICROPHONES**



- HM-152 : Regular hand microphone.
- HM-152T : DTMF microphone.
- HM-148 : Heavy duty microphone. Same as supplied.

**DESKTOP MICROPHONE**



Convenient for dispatching, equipped with monitor switch.

**EXTERNAL SPEAKERS**



- SP-5 : Large speaker for good audio quality.
- SP-22 : Compact and easy-to-install. Same as supplied with F1821/D and F2821/D series.

**ACC CABLE**



For external connection such as dimmer control, PTT control, horn drive, etc.

**SEPARATION KIT**



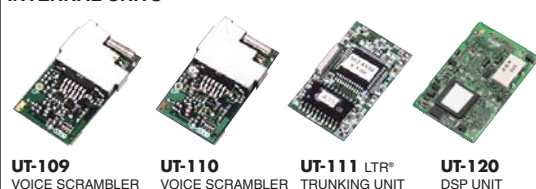
RMK-2 : For front panel detachment installation.

Use with one of the following cables: OPC-609 (1.9m; 6.2ft), OPC-607 (3m; 9.8ft), or OPC-608 (8m; 26.2ft).

**SEPARATION CABLES**



**INTERNAL UNITS**



- UT-109 : Non-rolling type voice scrambler. Version 02 required.
- UT-110 : Rolling type voice scrambler. Version 02 required.
- UT-111 : Provides LTR® trunking capabilities.
- UT-120 : Provides P25 hardware capabilities. Version 02 required.

LTR is a registered trademark of the E.F.Johnson Company. All other trademarks are the properties of their respective holders.

**Icom Inc.**

1-1-32, Kami-minami, Hirano-ku, Osaka 547-0003, Japan Phone: +81 (06) 6793 5302 Fax: +81 (06) 6793 0013 URL: <http://www.icom.co.jp/world/index.html>

**Count on us!**

**Icom America Inc.**

2380 116th Avenue NE, Bellevue, WA 98004, U.S.A.  
Phone : +1 (425) 454-8155  
Fax : +1 (425) 454-1509  
E-mail : [sales@icomamerica.com](mailto:sales@icomamerica.com)  
URL : <http://www.icomamerica.com>

**Icom New Zealand**

146A Harris Road, East Tamaki, Auckland, New Zealand  
Phone : +64 (09) 274 4062  
Fax : +64 (09) 274 4708  
E-mail : [inquiries@icom.co.nz](mailto:inquiries@icom.co.nz)  
URL : <http://www.icom.co.nz>

**Icom (UK) Ltd.**

Unit 9, Sea St., Herne Bay, Kent, CT6 8LD, U.K.  
Phone : +44 (0)1227 741741  
Fax : +44 (0)1227 741742  
E-mail : [info@icomuk.co.uk](mailto:info@icomuk.co.uk)  
URL : <http://www.icomuk.co.uk>

**Asia Icom Inc.**

6F No. 68, Sec. 1 Cheng-Teh Road, Taipei, Taiwan, R.O.C.  
Phone : +886 (02) 2559 1899  
Fax : +886 (02) 2559 1874  
E-mail : [sales@asia-icom.com](mailto:sales@asia-icom.com)  
URL : <http://www.asia-icom.com>

Your local distributor/dealer:

**Icom Canada**

Glenwood Centre #150-6165 Highway 17, Delta, B.C., V4K 5B8, Canada  
Phone : +1 (604) 952-4266  
Fax : +1 (604) 952-0090  
E-mail : [info@icomcanada.com](mailto:info@icomcanada.com)  
URL : <http://www.icomcanada.com>

**Icom (Europe) GmbH**

Communication Equipment Himmelveiger Str. 100, D-40225 Düsseldorf, Germany  
Phone : +49 (0211) 346047  
Fax : +49 (0211) 333839  
E-mail : [info@icom-europe.com](mailto:info@icom-europe.com)  
URL : <http://www.icomeurope.com>

**Icom France s.a.s.**

Zac de la Plaine, 1 Rue Brindejonec des Moulinais, BP 45804, 31505 Toulouse Cedex 5, France  
Phone : +33 (5) 61 36 03 03  
Fax : +33 (5) 61 36 03 00  
E-mail : [icom@icom-france.com](mailto:icom@icom-france.com)  
URL : <http://www.icom-france.com>

**Beijing Icom Ltd.**

10C07, Long Silver Mansion, No.88, Yong Ding Road, Haidian District, Beijing, 100039, China  
Phone : +86 (010) 5889 5391/5392/5393  
Fax : +86 (010) 5889 5395  
E-mail : [bjicom@bjicom.com](mailto:bjicom@bjicom.com)  
URL : <http://www.bjicom.com>

**Icom (Australia) Pty. Ltd.**

Unit 1 / 103 Garden Road, Clayton, VIC 3168 Australia  
Phone : +61 (03) 9549 7500  
Fax : +61 (03) 9549 7505  
E-mail : [sales@icom.net.au](mailto:sales@icom.net.au)  
URL : <http://www.icom.net.au>

**Icom Spain S.L.**

Ctra. Rubi, No. 88 "Edificio Can Castanyer" 08190, Sant Cugat del Valles, Barcelona, Spain  
Phone : +34 (93) 590 26 70  
Fax : +34 (93) 590 04 46  
E-mail : [icom@icomspain.com](mailto:icom@icomspain.com)  
URL : <http://www.icomspain.com>

**Icom Polska**

Sopot, 3 maja 54, Poland  
Phone : +48 (58) 550 7135  
Fax : +48 (58) 551 0484  
E-mail : [icompolkska@icompolkska.com.pl](mailto:icompolkska@icompolkska.com.pl)  
URL : <http://www.icompolkska.com.pl>