ICOM

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

DIGITAL WIRELESS • SANS FIL NUMÉRIQUE • INALÁMBRICO DIGITAL

P25

IC-F1721D, F1821D, F2721D,
F2821D only.

Rugged
MIL-STD 810

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 1 : P25 compliant	Choice 2 : Digital hardware	Choice 3 : 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
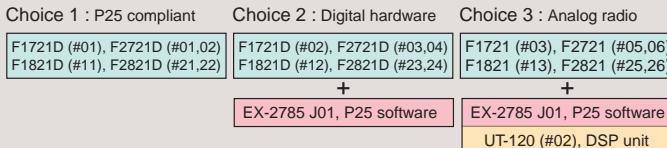
AES/DES digital encryption activation software
AES and DES are encryption standards required by public safety agencies. The IC-F1721D and F1821D series provide secure encryption with DES and AES accordingly when activated with EX-2785 J02 (for DES) and EX-2785 J03 (for AES) activation software.

Interoperability
The IC-F1721D, F1821D 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.

Mechanical and Analog Features

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

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 for future PC connection
- 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.
- PC programming capability

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) ; 6⁷⁄₈ ×1²⁵⁄₃₂ ×6¹¹⁄₁₆ 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		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   HM-152T   HM-148

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

SM-25
DESKTOP MICROPHONE

Convenient for dispatching, equipped with monitor switch.

EXTERNAL SPEAKERS

SP-5   SP-22

- 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.

OPC-617
ACC CABLE

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

SEPARATION KIT   SEPARATION CABLES

RMK-2

OPC-607 (3m; 9.8ft)   OPC-608 (8m; 26.2ft)   OPC-609 (1.9m; 6.2ft)

- 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).

INTERNAL UNITS
- **UT-109** (Ver. 02) VOICE SCRAMBLER UNIT
- **UT-110** (Ver. 02) VOICE SCRAMBLER UNIT
- **UT-111** LTR® TRUNKING UNIT
- **UT-120** (Ver. 02) DSP UNIT
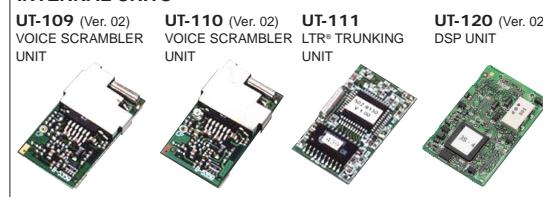
- UT-109 (Ver. 02) : Non-rolling type voice scrambler.
- UT-110 (Ver. 02) : Rolling type voice scrambler.
- UT-111 : Provides LTR® trunking capabilities.
- UT-120 (Ver. 02) : Provides P25 hardware capabilities.

ZONE COPY CABLES
- **OPC-1532** : Mobile to mobile zone copy cable.
- **OPC-1533** : Mobile to handy zone copy cable.

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

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