



**IC-F7510**  
**IC-F7520**  
**IC-F7540**

**VHF, UHF AND 700/800 MHz P25 DIGITAL TRANSCEIVERS**

## **P25 Conventional and Phase 1/2 Trunking Rugged Mobile Radio with Superior Class Leading Audio**

Combines a high visibility color LCD, improved user interface, and loud and clear audio quality, all within the radio's rugged construction, the IC-F7510 series can be upgraded to P25 Phase 1 trunking and Phase 2 trunking with a license key(s). Standard GPS receiver, Bluetooth® capability, voice recorder and microSD card slot further bring a new set of innovative and clever functions.

**P25 Phase 1 conventional, trunking\* and Phase 2 trunking\* capable**

**High visibility color LCD in both natural and low lighting conditions**

**DHS P25 CAP certified (TIA-102) compliant for multiple vendor interoperability**

**Built-in Bluetooth®, voice recording, and P25 packet data (GPS)\* functions**

**Optional FIPS 140-3 compliant AES encryption unit\***

**IP55 water jet resistant and dust protection**

**P25 voting scan\* (P25 conventional)**

**Enhanced dual-rate AMBE+2™ vocoder**

**Up to 1024 channel capacity with 128 zones**

**Optional dual head and COMMANDMIC™ configurations**

\* License key upgrade required. Pending FIPS 140-3 approval.

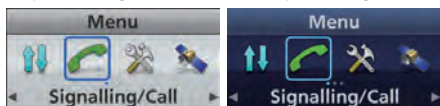


IC-F7510



## General Features

- 136 ~ 174, 380 ~ 470, 450 ~ 512, 450 ~ 520, 700/800 MHz versions
- 1024 channels / 128 zones
- High resolution color LCD and intuitive user interface
- Large sized functions and four-direction buttons
- Day and night mode display settings



Day and night mode example

- Functions and menu items can be set in a language other than English (For example, French, Spanish, and Russian)
- MIL-STD-810 G such as shock, vibration and temperature
- IP55, water jet resistance and dust protection
- Front panel programming option (ISL-P25FP License key required)
- DTMF autodial

## Operating Mode

- P25 Phase 1 Conventional
- P25 Phase 1 Trunking (ISL-P25TR License key required)
- P25 Phase 2 Trunking (ISL-P25P2 and ISL-P25TR License keys required)
- Analog mode
- Analog/Digital mixed operation

## Digital Functions (Voice and Data)

- Over-the-Air Programming (OTAP) function (Conventional only) (CS-OTPM2 manager software required)
- Individual, Group calls
- Unit ID and Talkgroup display on receive
- Status update and Status query
- Short data messages (Up to 100 characters)
- GPS position and Transparent Data transmission (ISL-P25DS License key and UX-241 GPS antenna required)
- Call Alert
- Phone number list
- Call Log

## Analog Functions

- CTCSS and DTCSS tone squelch supported
- 2-Tone paging (encode and decode) supported
- MDC signaling supported

## Security and Safety

- Optional UT-125FIPS FIPS 140-3 compliant AES/DES encryption unit and UT-134 non-FIPS AES/DES unit (ISL-P25AES License key required for AES encryption)
- Capable of storing 64 AES/DES keys. Programmable for 32 Common Key Reference (CKR)
- ARC4 40-bit software encryption (ISL-P25AES/ARC4 and UT-125FIPS or UT-134 required)
- 8 software encryption keys using ARC4
- Over-the-Air Rekeying (OTAR)
- LLA function (P25 Radio Authentication) provides both Unit (infrastructure initiated) and Mutual Authentications (unit and infrastructure authenticate each other) methods
- Analog inversion voice scrambler (16-codes)
- Power ON password
- Tactical group temporarily reconfigures user groups
- Radio Stun/Kill/Revive      • Remote monitor
- Radio check                      • Power OFF emergency
- Emergency button              • Lone worker function
- Advanced System Key (ASK) protects the radio from unauthorized programming (trunking system)

## Scan Functions

- Priority scan      • Talkgroup scan
- Voting scan for automatically selecting optimal repeater site (ISL-P25VS License key required)

## Voice/Audio Functions

- Voice announcement (Channel number and zone)
- VOX function for hands-free operation
- Voice recording/playback is saved to a microSD card (Up to 500 hours with a 32 GB card) (User supplied)
- TX/RX active noise canceler
- TX/RX audio equalizer (Flat, high/mid/low boost, low cut)
- AF volume equalizing function adds high-pass filter to provide clear, intelligible audio, when increases the volume
- Programmable ringer beep

## Hardware Features

- Built-in Bluetooth® (Version 2.1 + EDR) for wireless audio and data
- Third-party wireless Bluetooth® headset (Like a 3M™ Peltor™ WS™ 5) can be used
- Wireless radio programming over Bluetooth®
- USB connector for data transfer or microSD card reader mode
- Programmable D-SUB connector for external PTT, channel, horn, PA/RX speaker, ignition switch and dimmer control
- Internal clock with time auto adjustment
- Low voltage alert
- Optional detached controller, dual head controller or COMMANDMIC™ configurations
- Intercom function between dual head controller or COMMANDMIC™

			IC-F7510	IC-F7520	IC-F7540
GENERAL					
Frequency coverage* (* Depending on the version)			136 ~ 174 MHz	380 ~ 470 MHz, 450 ~ 512 MHz, 450 ~ 520 MHz	769 ~ 775, 851 ~ 869 MHz (RX/TX), 799 ~ 805, 806 ~ 824 MHz (TX)
Number of channels			1024 channels /128 zones		
Type of emission* (* Depending on the version)			16K0F3E*1, 11K0F3E, 8K50F3E, 8K10F1E/F1D, 8K10F1W		16K0F3E, 14K0F3E, 11K0F3E, 8K50F3E, 8K10F1E/F1D, 8K10F1W
Power supply requirement			13.6 V DC nominal		
Current drain (approx.)	TX		14.0 A (at 50 W)	14.0 A (at 45 W)	14.0 A (at 35 W)
	RX	Max. audio	1.2 A (external SP)		
		Standby	400 mA		
Antenna impedance			50 Ω		
Operating temperature range			-30 °C ~ +60 °C, -22 °F ~ +140 °F		
Dimensions (W × H × D; Projections not included)			174 × 55 × 150 mm, 6.9 × 2.2 × 5.9 in		
Weight (approx.)			1500 g, 3.3 lb		
TRANSMITTER					
Output power (Hi, L2, L1)			50 W, 25 W, 5 W	45 W, 25 W, 5 W	30 W, 15 W, 2 W (769 ~ 775, 799 ~ 805 MHz), 35 W, 15 W, 2 W (806 ~ 824, 851 ~ 869 MHz)
Frequency stability			±1.0 ppm		
Spurious emissions			80 dB typ.		
FSK error			1% typ. (C4FM), 3% typ. (H-CPM)		
Maximum frequency deviation			±5.0 kHz (25 kHz), ±2.5 kHz (12.5 kHz)		±5.0 kHz (25 kHz), ±4.0 kHz (20 kHz), ±2.5 kHz (12.5 kHz)
FM hum and noise			55 dB typ.		
Audio harmonic distortion			0.5% typ. (AF 1kHz 40% deviation)		
RECEIVER					
Sensitivity	Digital (5% BER)		0.22 μV typ. (C4FM, H-DQPSK)		
	Analog (12 dB SINAD)		0.22 μV typ.		
Adjacent channel selectivity	Digital		63 dB typ. (C4FM, TIA-102) 63 dB typ. (H-DQPSK, TIA-102)	63 dB typ. (C4FM, TIA-102) 60 dB typ. (H-DQPSK, TIA-102)	65 dB typ. (C4FM, TIA-102) 63 dB typ. (H-DQPSK, TIA-102)
	Analog		80/57 dB typ. (25/12.5 kHz, TIA-603B), 80/76 dB typ. (25/12.5 kHz, TIA-603)	75/57 dB typ. (25/12.5 kHz, TIA-603B), 75/75 dB typ. (25/12.5 kHz, TIA-603)	75/70/57 dB typ. (25/20/12.5 kHz, TIA-603B) 75/70/68 dB typ. (25/20/12.5 kHz, TIA-603)
Spurious response rejection			80 dB typ.		
Intermodulation rejection	Digital		77 dB typ.	75 dB typ.	75 dB typ.
	Analog		77 dB typ.	75 dB typ.	75 dB typ.
Audio output power	Internal SP		4.0 W typ. (at 5% distortion with 4 Ω load)		
	External SP		4.0 W typ. (at 5% distortion with 4 Ω load)		

Measurements made in accordance with TIA-102 (P25), TIA-603 (FM Wide/narrow).

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

\*1 ISL-P25W is required for 25 kHz bandwidth operation for the USA versions.

#### Applicable U.S. Military Specifications & IP Rating

Standard	MIL 810G	
	Method	Procedure
Low Pressure	500.5	I, II
High Temperature	501.5	I, II
Low Temperature	502.5	I, II
Temperature Shock	503.5	I-C
Solar Radiation	505.5	I
Rain Blowing/Drip	506.5	I, III
Humidity	507.5	II
Salt Fog	509.5	—
Dust Blowing	510.5	I
Vibration	514.6	I
Shock	516.6	I, IV

Also meets equivalent MIL-STD-810-C, -D, -E and -F.

Ingress Protection Standard	
Dust & Water	IP55 (Dust-protection and water jet resistance)

#### Supplied accessories: (May differ depending on the transceiver version)

- Hand microphone, HM-220
- DC power cable
- Mounting bracket kit
- Microphone hanger

## HAND MICROPHONES AND DESKTOP MICROPHONE

**HM-220:** Heavy duty microphone. IP54 protection  
**HM-220T:** Heavy duty microphone with DTMF keypad. IP54 protection  
**HM-221:** Hand microphone with emergency button. IP55 protection  
**HM-221T:** Hand microphone with DTMF keypad and emergency button. IP55 protection  
**SM-29:** Desktop microphone with monitor and monitor lock buttons



## COMMANDMIC™ AND SEPARATION KITS

**HM-218:** COMMANDMIC™ for use with RMK-5. IP55 protection  
**RMK-5:** Separation kit. For detached controller configuration  
**RMK-7:** Dual-head separation kit. Separation kit and secondary controller for dual head configuration



## SEPARATION CABLES

**OPC-2364:** 1.9 m, 6.2 ft separation cable for RMK-5 or RMK-7  
**OPC-2365:** 3 m, 9.8 ft separation cable for RMK-5 or RMK-7  
**OPC-2366:** 5 m, 16.4 ft separation cable for RMK-5 or RMK-7  
**OPC-2367:** 8 m, 26.2 ft separation cable for RMK-5 or RMK-7  
**OPC-2373:** 1.9 m, 6.2 ft separation cable for HM-218, COMMANDMIC™  
**OPC-2374:** 8 m, 26.2 ft separation cable for HM-218, COMMANDMIC™

## HEADSET

**VS-3:** Bluetooth® headset



## EXTERNAL SPEAKERS

**SP-30:** External speaker.  
 Cable length 2.6 m, 8.5 ft  
**SP-35/L:** Compact external speaker.  
 SP-35 cable length: 2 m, 6.6 ft  
 SP-35L cable length: 6 m, 19.7 ft



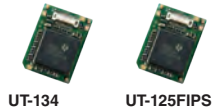
## GPS ANTENNA

**UX-241:** External GPS antenna.  
 Cable length 5 m, 16.4 ft



## AES/DES ENCRYPTION UNITS

**UT-134:** AES/DES encryption unit  
**UT-125FIPS:** AES/DES encryption unit  
 (\* Pending FIPS 140-3 approval)  
 ISL-P25AES is additionally required for AES encryption.  
 No additional software is needed for DES encryption.  
**KVL125:** DES/AES keyloader  
**OPC-IAKVL1:** KVL125 keyloading cable (Requires IAOPC1075 and RJ45 adapter)  
**IAOPC1075:** KVL3000/KVL4000 Encryption Keyloading Cable  
 (Requires OPC-1534 and RJ45 adapter)



## ZONE COPY, PROGRAMMING AND DC POWER CABLES

**OPC-2362:** Zone copy cable. Mobile to handheld cable  
**OPC-2363:** Programming cable  
**OPC-1132:** DC power cable. Cable length 3 m, 9.8 ft  
**OPC-347:** DC power cable. Cable length 7 m, 23 ft



## SOFTWARE AND ACTIVATION KEYS

**CS-F7500:** Programming software  
**CS-F7500ASK:** P25 advanced system key manager software  
 (Available only to trunking system owners)  
**CS-OTPM2:** OTAP manager software  
**ISL-P25VS:** P25 conventional voting scan upgrade key  
**ISL-P25TR:** P25 Phase 1 trunking upgrade key  
**ISL-P25P2:** P25 Phase 2 trunking upgrade key. ISL-P25TR P25 Phase 1 license key is also required  
**ISL-P25DS:** P25 packet data service (GPS and transparent data) upgrade key  
**ISL-P25AES:** AES encryption upgrade key. Either UT-134 or UT-125FIPS is required  
**ISL-P25ARC4:** ARC4 encryption upgrade key. In addition to ISL-P25ARC4, ISL-P25AES and either UT-134 or UT-125FIPS are required  
**ISL-P25FP:** Front panel programming key  
**IASKF7P:** P25 advanced system owner master key (Available only to trunking system owners)  
**IASKF7S:** P25 accessory advanced system key (Required for trunking programming)

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



### Detached Controller

Optional RMK-5  
 and separation cable required.

### Dual Head Controller

Optional RMK-7, hand microphone  
 and separation cables required.

### COMMANDMIC™ and Detached Controller

Optional RMK-5, COMMANDMIC, HM-218  
 and separation cables required.

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