



# IC-F7510 IC-F7520

VHF AND UHF 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®, 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 140-2 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



IC-F7510



## General Features

- 136–174, 380–470, 450–512, 450–520 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 DTCS tone
- 2-Tone
- MDC functions

## Security and Safety

- Optional UT-125FIPS FIPS 140-2 compliant AES/DES encryption unit and UT-134 non-FIPS AES/DES unit (ISL-P25AES License key required for AES encryption)
- Over-the-Air Rekeying (OTAR)
- 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
- Adjustable analog and digital volume level
- 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
<b>GENERAL</b>			
Frequency coverage* (* Depending on version)		136–174 MHz	380–470 MHz, 450–512 MHz, 450–520 MHz
Number of channels		1024 channels /128 zones	
Type of emission* (* Depending on version)		16K0F3E*1, 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)
	RX	1.2 A /400 mA (Max. audio (external SP)/Standby)	
Antenna impedance		50 Ω	
Operating temperature range		–30 °C to +60 °C, –22 °F to +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	
<b>TRANSMITTER</b>			
Output power (Hi, L2, L1)		50 W, 25 W, 5 W	45 W, 25 W, 5 W
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)	
FM hum and noise		55 dB typ. (@25 kHz), 55 dB typ. (@12.5 kHz)	
Audio harmonic distortion		0.5% typ. (AF 1kHz 40% deviation)	
<b>RECEIVER</b>			
Sensitivity	Digital (5% BER)	0.22 μV typ. (@C4FM, H-DQPSK)	0.22 μV typ. (@C4FM, H-DQPSK)
	Analog (12 dB SINAD)	0.22 μV typ. (@25/12.5 kHz)	0.22 μV typ. (@25/12.5 kHz)
Adjacent channel selectivity	Digital	63 dB typ. (@C4FM, TIA-102)	63 dB typ. (@C4FM, TIA-102)
	Analog	63 dB typ. (@H-DQPSK, TIA-102)	60 dB typ. (@H-DQPSK, TIA-102)
Spurious response rejection	Digital	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)
	Analog	80 dB typ.	80 dB typ.
Intermodulation rejection	Digital	77 dB typ.	75 dB typ.
	Analog	77 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 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 (FIPS compliant)  
 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-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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