IC-F7540

700/800 MHz P25 DIGITAL TRANSCEIVER

Great Choice for Public Organizations Rugged P25 Mobile Radio, Phase 1 and 2

The IC-F7540 is a P25-compliant 700/800 MHz radio, and combines a high visibility color LCD, improved user interface and, loud and clear audio, all within the radio's rugged construction. The IC-F7540 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.

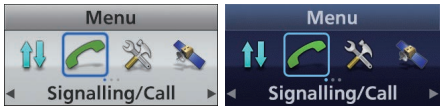
- **P25 Phase 1 conventional, trunking* and Phase 2 trunking* capable**
- **Optional FIPS 140-2 compliant AES encryption unit***
- **P25 voting scan* (P25 conventional)**
- **Up to 1024 channel capacity with 128 zones**
- **High visibility color LCD in both natural and low lighting conditions**
- **Built-in Bluetooth®, voice recording, and P25 packet data (GPS)* functions**
- **IP55 water jet resistant and dust protection**
- **Enhanced dual-rate Vocoder, AMBE+2™**
- **Optional dual head and COMMANDMIC™ configurations**

* License key upgrade required

IC-F7540

General Features

- 700/800 MHz frequency bands
- 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, or 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 (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-F7540
GENERAL		
Frequency coverage (* Depends on the transceiver version)	USA	769–775 MHz (RX/TX), 799–805 MHz (TX), 806–824 MHz (TX), 851–869 MHz (RX/TX)
	EXP	764–776 MHz (RX/TX), 794–806 MHz (TX), 806–825 MHz (TX), 851–870 MHz (RX/TX)
Number of channels		1024 channels /128 zones
Type of emission (* Depends on the transceiver version)		16K0F3E, 14K0F3E, 11K0F3E, 8K50F3E, 8K10F1E/F1D, 8K10F1W
Power supply requirement		13.6 V DC nominal
Current drain (approx.)	TX	14.0 A (at 35 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
TRANSMITTER		
Output power (Hi, L2, L1)	USA	30 W, 15 W, 2 W (769–775, 799–805 MHz), 35 W, 15 W, 2 W (806–824, 851–869 MHz)
	EXP	30 W, 15 W, 2 W (764–776, 794–806 MHz), 35 W, 15 W, 2 W (806–825, 851–870 MHz)
Frequency stability		±1.0 ppm
Spurious emissions		80 dB typical
FSK error		1% typical (C4FM), 3% typical (H-CPM)
Maximum frequency deviation		±5.0 kHz (25 kHz), ±4.0 kHz (20 kHz), ±2.5 kHz (12.5 kHz)
FM hum and noise		55 dB typical (25/20/12.5 kHz)
Audio harmonic distortion		0.5% typical (AF 1kHz 40% deviation)
RECEIVER		
Sensitivity	Digital (5% BER)	0.22 µV typical (C4FM/H-DQPSK)
	Analog (12 dB SINAD)	0.22 µV typical (25/20/12.5 kHz)
Adjacent channel selectivity	Digital	65 dB typ. (@C4FM, TIA-102) 63 dB typ. (@H-DQPSK, TIA-102)
	Analog	75/70/57 dB typical (25/20/12.5 kHz, TIA-603B) 75/70/68 dB typical (25/20/12.5 kHz, TIA-603)
Spurious response rejection		80 dB typical
Intermodulation rejection	Digital	75 dB typical (C4FM/H-DQPSK)
	Analog	75 dB typical (25/20/12.5 kHz)
Audio output power	Internal SP	4.0 W typical (at 5% distortion with 4 Ω load)
	External SP	4.0 W typical (at 5% distortion with 4 Ω load)

Measurements made in accordance with TIA-102 (P25), TIA-603 (FM Wide/middle/narrow).
All stated specifications are subject to change without notice or obligation.

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 the 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.

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-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.

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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