



**IC-F51** ATEX  
**IC-F61** ATEX

VHF AND UHF TRANSCEIVERS

# *ATEX Intrinsically Safe Radio for Hazardous Locations*



Photo includes optional speaker-microphone, HM-138.

# Superior Waterproof Protection Supports Demanding Communication

Firefighters, Police, Security and Public utilities. Each profession has its own unique challenges, but all have one thing in common: the need for reliable communications. Icom's IC-F51/F61 offers a compact waterproof, MIL STD package, that's easy to use. Rain or shine, this radio keeps you in contact in nearly any environment.



## Dust and Waterproof Protection Equivalent to IP67

The gasket sealed waterproof housing provides superior dust and waterproof\* protection, equivalent to IP67.

Reliable and dependable use in harsh conditions under water or dust, make the IC-F51 / IC-F61 the radio for all situations.

\* 1 m depth of water for 30 minutes.



## Up to 7 Programmable Buttons

The [P0]–[P3], [Red] and [Up], [Down] buttons are programmable to meet specific needs. The [Red] button on the top panel can be assigned as an emergency trigger.

## Alphanumeric Display

The 8-character alphanumeric display shows channel, bank, tone code and scanning channel names on the display. 7 operational icons on the sub-line show various status at a glance.



Upper and lower case characters available.

## Built-in Voice Scrambler

The IC-F51/F61 has a built-in rolling type voice scrambler equivalent to the UT-110.

## Wide Range Coverage and Large Channel Capacity

The IC-F51 covers 136–174 MHz and the IC-F61 covers 400–470 MHz in one version. The 128 memory channels with 8 memory banks allows you to divide and store a variety of channels from local to wide area network channels. Wide, middle and narrow\* channel bandwidth is programmable to each channel.

(\* Programmable 25/12.5 kHz or 20/12.5 kHz Ch.)

## Li-ion Battery Pack

The large capacity 1950 mAh (typ.) rechargeable Lithium-ion (Li-ion) battery pack, BP-227AXD provides a practical 10 hours\* of operating time. Li-ion batteries allow flexible charging and have almost no memory effect.

\* Typical operation Tx:Rx:Stand-by=5:5:90

## Compact Body

56 (W) × 97 (H) × 36.4 (D) mm compact body with durable, dependable construction, has been tested to MIL standard specifications. The compact design fits comfortably in your palm, and is easy to carry around.

## BIIS 1200 Compatible

The following selective calling and data features are available with the BIIS system.

- 32 abbreviated call memories
- 7 group IDs
- 24-status Messages
- 8-character SDM (Short Data Message)

## Other Features

- Built-in audio compander
- 8 DTMF autodial memories
- Normal and priority scans
- 2 step power saver
- Busy, repeater lockout functions
- Power ON password, and more...

## Built-in Tone Signaling

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

## Multiple 5-Tone

Up to 8 5-Tone codes can be decoded 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
- ID decode
- Emergency cancel

## ATEX Intrinsically Safe

The IC-F51/F61 ATEX version and designated options are certified to the ATEX Protection Class II 2G Ex ib IIA T3 Gb, II 2D Ex tb IIIC T160°C Db IP67 (Tamb= -20°C to +55°C) as interpreted in the following table. It is suitable for use in hazardous areas where flammable gasses, liquids or conductive dusts are used.



### ATEX Gas Protection

II	2	G	Ex	ib	IIA	T3	Gb	Gb = GAS equipment protection level: High protection
								T3 = Device surface temperature will not exceed 200°C
								IIA = Protection in GAS group
								ib = Intrinsically safety according to EN60079-0 and EN60079-11
								Ex = Explosion proof equipment
								G = Gas, vapour and mist
								2 = High level protection for use in zone 1 (gas)
								II = Group II, other (non-mining) environments

### ATEX Dust Protection

II	2	D	Ex	tb	IIIC	T160°C	Db	IP67	IP67 = IP67 dust and waterproof protection
									Db = Dust equipment protection level: High protection
									T160°C = Maximum temperature of device surface
									IIIC = Dust group: Conductive dust
									tb = Enclosure protection according to EN60079-0 and EN60079-31
									Ex = Explosion proof equipment
									D = Dust
									2 = High level protection for use in zone 21 (dust)
									II = Group II, other (non-mining) environments

### ATEX Gas Group Classification

	T1: 450°C	T2: 300°C	T3: 200°C
I	Methane		
	Acetone	Ethyl alcohol	Benzene
	Ethane	I-amyl acetate	Diesel fuel
	Ethyl acetate	n-butane	Aircraft fuel
IIA	Ammonia	n-butyl alcohol	Heating oil
	Benzene (pure)		n-hexane
	Acetic acid		
	Carbon Monoxide		
	Methanol		
	Propane		
	Toluene		

## VHF AND UHF TRANSCEIVERS

**IC-F51 ATEX**  
VHF Transceiver

**IC-F61 ATEX**  
UHF Transceiver



\* Please ensure the IC-F51/F61 rating is acceptable for the intended place of use.

**SPECIFICATIONS**

	IC-F51 ATEX	IC-F61 ATEX IC-F61-L ATEX
<b>GENERAL</b>		
Frequency coverage	136–174 MHz	400–470 MHz 350–400 MHz (Non-RTTE)
Number of channels	Max. 128 channels/ 8 zones	
Type of emission	16K0F3E, 14K0F3E, 8K50F3E	
Channel spacing	12.5/20/25 kHz	12.5/20/25 kHz 12.5/25 kHz (IC-F61-L)
PLL channel step	2.5/3.125 kHz	5/6.25 kHz
Power supply requirement	7.2 V DC nominal	
Current drain (approx.)		
Tx High (at 1 W)	0.7 A	0.8 A
Rx Max. audio Standby	300 mA 85 mA	300 mA 85 mA
Antenna impedance	50 Ω (SMA type)	
Operating temperature range	–20°C to +55°C	
Dimensions (W × H × D) (Projections not included)	56 × 97 × 36.4 mm (With BP-227AXD)	
Weight (approx.)	290 g (With BP-227AXD)	
<b>TRANSMITTER</b>		
Output power (at 7.2 V DC)	1 W	
Max. frequency deviation	±5.0 kHz/±4.0 kHz/±2.5 kHz (W/M/N)	
Frequency stability	±2.5 ppm	
Spurious emissions	0.25 μW (≤ 1 GHz) 1.0 μW (> 1 GHz)	
Modulation limiting	60–100% of Max. deviation	
Audio harmonic distortion	3% typ. (AF 1 kHz 40% deviation)	
Ext. microphone connector	9-pin multi connector/2.2 kΩ	
<b>RECEIVER</b>		
Sensitivity (at 20 dB SINAD)	–4 dBμV typ. (emf)	
Adjacent channel selectivity	75/73/65 dB min. (W/M/N)	
Spurious response	70 dB	
Intermodulation rejection	67 dB typ.	
Hum and noise	55/53/50 dB typ. (W/M/N)	
Audio output power	500 mW typ. (at 5% distortion with 8 Ω load)	
Ext. speaker connector	9-pin multi connector/8 Ω	

Measurements made in accordance with EN 300-086.  
All stated specifications are subject to change without notice or obligation.

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

Standard	MIL 810 F	
	Method	Procedure
Low Pressure	500.4	I, II
High Temperature	501.4	I, II
Low Temperature	502.4	I, II
Temperature Shock	503.4	I
Solar Radiation	505.4	I
Rain Blowing/Drip	506.4	I, III
Humidity	507.4	–
Salt Fog	509.4	–
Dust Blowing	510.4	I
Vibration	514.5	I
Shock	516.5	I, IV

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

Ingress Protection Standard	
Dust & Water	IP67 (Dust-protection and waterproof protection)

**ATEX INTRINSICALLY SAFE TYPE APPROVAL**

The approved rating is

Gas: II2G Ex ib IIA T3 Gb

Dust: II2D Ex tb IIIC T160°C Db IP67

(Tamb= –20°C to +55°C)

Special conditions for use: Must be used with **BP-227AXD**

When the transceiver is used in hazardous areas, either the jack cover or HM-138 must be attached to the connector.

\* Note for IC-F51/F61 ATEX Non-Dust (II2G) version users, please use only the **BP-227AX** battery pack with the IC-F51/F61 ATEX Non-Dust version.

**OPTIONS**

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

**BATTERY PACK**



**BP-227AXD**  
Rechargeable Li-ion  
7.4 V 1850 mAh (min.)  
1950 mAh (typ.)

**BATTERY CHARGER<sup>2</sup>**



**BC-147S<sup>\*1</sup>**      **BC-152N**  
Charges the BP-227AXD in 9–10 hours. (approx.)

**RAPID CHARGER<sup>2</sup>**



**BC-145S<sup>\*1</sup>**      **BC-119N+AD-100**  
Rapidly charges the BP-227AXD in 2–3 hours. (approx.)

**MULTI-CHARGER<sup>2</sup>**



**BC-121N+AD-100** (6 pcs.)  
Rapid charges up to 6 battery packs in 2–2.5 hours.

**SPEAKER-MICROPHONE  
HM-138**



<sup>\*1</sup> BC-145SA/BC-147SA for 120 V AC. SE for 230 V AC. SV for 240 V AC. BC-145SUK for 230 V AC.  
<sup>\*2</sup> These chargers are not approved as intrinsically safe. Do not charge the BP-227AXD in an explosive atmosphere.

**BELT CLIPS**



**MB-98** Alligator type      **MB-86** Swivel type

**LEATHER BELT  
HANGER  
MB-96F**



**ANTENNAS**  
FA-S24V: 136–150 MHz (Blue )  
FA-S59V: 150–174 MHz (Red)  
FA-S27U: 400–470 MHz (Green)

**STUBBY ANTENNAS**  
FA-S62VS: 150–162 MHz (Red)  
FA-S63VS: 160–174 MHz (Green)  
FA-S57US: 450–490 MHz (Red)

**Supplied accessories:** (May differ according to version)

- Battery pack, BP-227AXD
- Belt clip, MB-98
- Antenna