ICOM

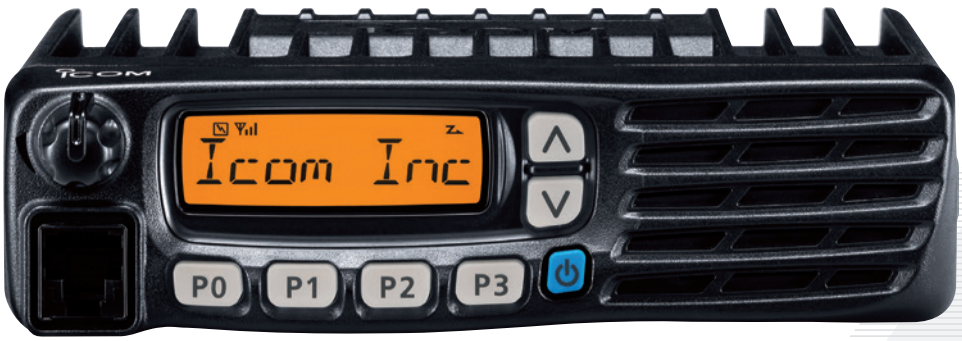
IC-F5020 Series
IC-F6020 Series

VHF AND UHF TRANSCEIVERS

An Ideal Balance of Features, Performance and Value

The IC-F5020/F6020 series is ideal for small-to-mid sized systems for public service, large industry to light commercial users. The IC-F5020 series offers multiple signaling, advanced scanning, improved external channel control capability and wide frequency coverage packed in a compact body. This rugged mobile will easily exceed your expectations with its reliable performance and communication quality.

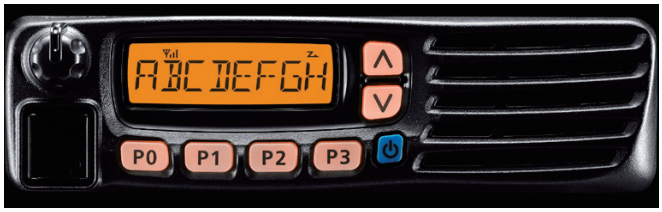
- **128 channel capacity with 8 zones**
- **Built-in 2-Tone, 5-Tone, CTCSS and DTCS (analog mode)**
- **MDC 1200 compatible**
- **Loud and clear 4 watts (typical) front mounted speaker**
- **MIL-STD-810 F rugged construction**
- **50 W (VHF), 45 W (UHF) (USA/EXP versions), 25 W (EUR/EXP versions) RF output power**
- **Lone worker function**
- **External memory channel control with optional ACC cable**



IC-F5020 series

128 memory channels

128 channels (Max.) separated into 8 memory zones. Memory channels can be identified with the 8-character channel name and selected easily with the up/down buttons.



Front mounted speaker

4 watts (typ.) front mounted speaker delivers clear and loud audio. With the speaker facing the operator, audio can be clearly heard without impediment during operation.

6 programmable buttons

A pair of up/down and P0–P3 function assignable buttons allow you to customize functions to meet specific needs. An independent volume knob offers simple, convenient operation.

MIL grade rugged construction

The tough aluminum die-cast chassis and polycarbonate front panel have been tested to the MIL standard 810-F. With this heavy-duty construction, the IC-F5020 series provides reliable operation over the long term in all manners of rugged environments.

Most popular signalings built-in

Use the built-in 2-Tone, 5-Tone, CTCSS and DTCS capabilities as standard to set up your own talk groups, PTT ID and quiet stand-by when others are talking. The IC-F5020 series also has CTCSS/ DTCS high speed decode and 2-Tone decode accuracy.

MDC 1200 compatible

The following MDC features are available with the built-in MDC signaling.

- PTT ID (TX/RX)
- Radio check (RX)
- Radio stun (RX)
- Radio revive (RX)
- Emergency TX/RX (No ACK)
- 5 alias table (Max.)

Multiple 2-Tone, Multiple 5-Tone

Up to ten 2-Tone and eight 5-Tone codes can be decoded on a channel. When a matched tone is received, the following items are programmable for each code.

- Beep sound
- Answer back
- Scan
- Bell icon
- Radio stun/kill/revive

Radio kill, stun and revive

The radio kill/stun functions disable a lost or stolen radio over the air, eliminating security threats from undesired listeners. When the stun command is received, all functions will be temporary locked out until the revive command is received or the unlock password is entered.

Lone worker function

When the radio is not operated for a preset period, the radio sounds a beep and requires you to push any button. If the radio is still not operated for a specified wait period, an emergency signal automatically transmits and informs co-workers that something may have happened to the individual worker.

Mode dependent scan

In the mode dependent setting, the scanning setting is dependent on the operating channel. When you change the operating channel, the scanning list automatically changes to the list set for that channel. It is convenient when you move to a different operating area that may require a different operating channel. No need to change the scanning setting.

TX channel setting and Talk back function

The TX channel setting allows you to program a transmission channel while scanning. Start channel, last detected channel, priority and pre-programmed channel are selectable. Prior to the TX channel setting, the talk back function allows you to talk on the last detected channel, while scanning resumes after a preset time. The user can easily make a quick response with this function.

Wide frequency coverage

The IC-F5020 series covers a wide frequency range in one version (VHF 136–174 MHz, UHF 400–470, 450–520 or 450–512 MHz).

External memory channel control with optional ACC cable

With the optional OPC-1939 D-SUB 15-pin ACC cable, the IC-F5020 series can be programmed to control an operating channel from an external device (up to 16 pre-programmed channels). The ACC connector also provides an ignition sensing function, external PTT, PC command, horn honk, audio output and modulated signal input depending on programming.

Photo includes optional OPC-1939

Other features

- Embedded ESN
- ±2.5 ppm frequency stability
- Microphone hanger action programmable
- Optional DTMF microphone (HM-152T)
- 8 DTMF autodial memories
- BIIS 1200 PTT ID transmission
- Power-on password function
- Nuisance delete function
- Time-out-timer and Lock-out penalty timer

		IC-F5021 (USA) IC-F5023H (EXP)	IC-F5022 (EUR) IC-F5023 (EXP)	IC-F6021 (USA) IC-F6023H (EXP)	IC-F6022 (EUR) IC-F6023 (EXP)
GENERAL					
Frequency coverage* (* Depending on version)		136–174 MHz		400–470 MHz (ALL), 450–512 MHz (USA), 450–520 MHz (EXP)	
Number of channels		Max. 128 channels /8 zones			
Type of emission* (* Depending on version)		16K0F3E*1, 11K0F3E (USA, EXP) 16K0F3E, 14K0F3E, 8K50F3E (EUR)			
Power supply requirement		13.6 V DC nominal (USA, EXP) 13.2 V DC nominal (EUR)			
Current drain (approximate)	TX	10 A (at 50 W)	5 A (at 25 W)	11 A (at 45 W)	5 A (at 25 W)
	RX	700 mA /250 mA (Max. audio/Standby)			
Antenna impedance		50 Ω (SO-239) (USA, EXP), 50 Ω (BNC) (EUR)			
Operating temperature range		–30 °C to +60 °C; –22 °F to +140 °F (USA, EXP) –25 °C to +55 °C; –13 °F to +131 °F (EUR)			
Dimensions (W × H × D; Projections not included)	50/45 W version	150 × 40 × 167.5 mm; 5.9 × 1.6 × 6.6 in			
	25 W version	150 × 40 × 117.5 mm; 5.9 × 1.6 × 4.6 in			
Weight (approximate)	50/45 W version	1.1 kg; 2.4 lb			
	25 W version	0.8 kg; 1.8 lb			
TRANSMITTER					
Output power (Hi, L2, L1)		50 W, 25 W, 5 W	25 W, 10 W, 6 W (EUR) 25 W, 10 W, 2.5 W (EXP)	45 W, 25 W, 4.5 W	25 W, 10 W, 6 W (EUR) 25 W, 10 W, 2.5 W (EXP)
Maximum frequency deviation		±5.0 kHz (@25 kHz), ±4.0 kHz (@20 kHz), ±2.5 kHz (@12.5 kHz)			
Frequency stability		±2.5 ppm (USA, EXP) ±1.5 kHz (EUR)			
Spurious emissions		70 dB typ. (USA, EXP) 0.25 µW (≤ 1GHz), 1.0 µW (> 1GHz) (EUR)			
FM hum and noise		46 dB typ. (@25 kHz), 40 dB typ. (@12.5 kHz) (USA, EXP)			
Residual modulation		55 dB typ. (@25 kHz), 53 dB typ. (@20 kHz), 50 dB typ. (@12.5 kHz) (EUR)			
Audio harmonic distortion		3% typ. (AF 1kHz 40% deviation)			
Modulation limiting		70–100% of Maximum deviation			
External microphone impedance		600 Ω (8-pin modular)			
RECEIVER					
Sensitivity	(at 12 dB SINAD)	0.25 µV typ. (USA, EXP)			
	(at 20 dB SINAD)	–4 dBµV emf. typ. (EUR)			
Adjacent channel selectivity		75 dB typ. (@25/20 kHz), 65 dB typ. (@12.5 kHz)			
Spurious response rejection		80 dB typ.			
Intermodulation rejection		75 dB typ. (USA, EXP) 67 dB typ. (EUR)			
Hum and noise		45 dB typ. (@25 kHz), 40 dB typ. (@12.5 kHz) (USA, EXP) 55 dB typ. (@25 kHz), 53dB typ. (@20 kHz), 50 dB typ. (@12.5 kHz) (EUR)			
Audio output power		4.0 W typ. (at 5% distortion with 4 Ω load)			
External speaker connector		2-conductor 3.5 (d) mm (⅛″)/4 Ω			

Measurements made in accordance with TIA-603 or EN 300 086.
All stated specifications are subject to change without notice or obligation.
*1 25 kHz bandwidth is no longer available for FCC Part 90 licensees for USA versions.

Applicable U.S. Military Specifications & IP Rating

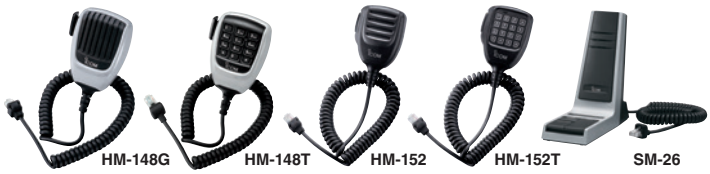
Standard	MIL 810 F	
	Method	Procedure
Low Pressure	500.4	I, II
High Temperature	501.4	I, II
Low Temperature	502.4	I, II
Temperature Shock	503.4	I
Solar Radiation	505.4	I
Humidity	507.4	–
Settling Dust	510.4	III
Vibration	514.5	I
Shock	516.5	I, IV

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

Supplied Accessories
- Hand microphone (HM-152)
- DC power cable
- Mounting bracket kit
- Microphone hanger
- Key assign stickers

■ HAND MICROPHONES AND DESKTOP MICROPHONE

HM-148G: Heavy duty microphone. IP54 protection.
HM-148T: Heavy duty microphone with DTMF keypad. IP54 protection.
HM-152: Hand microphone with emergency button.
HM-152T: Hand microphone with DTMF keypad.
SM-26: Desktop microphone with monitor and monitor lock buttons.



HM-148G HM-148T HM-152 HM-152T SM-26

■ EXTERNAL SPEAKERS

SP-35/L: Compact external speaker.
SP-35 cable length: 2 m; 6.6 ft.
SP-35L cable length: 6 m; 19.7 ft.

SP-35/SP-35L

■ ACC CABLES

OPC-1939: ACC cable enables you to connect an external terminal. D-SUB 15-pin type.
OPC-2078: ACC cable enables you to connect an external terminal. D-SUB 25-pin type.

OPC-1939
15-pin type

OPC-2078
25-pin type

■ PROGRAMMING SOFTWARE AND CABLE

CS-F5020: Programming software.
OPC-1122U: Programming cable. (USB type)

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

SPECIFICATIONS

VHF	IC-F70DT/DS, IC-F70T/S	IC-F3161DT/DS,T/S IC-F3163T/S	IC-F50V	IC-F50	IC-F33GT/GS	IC-F3021T/S IC-F3023T/S	IC-F14/S
UHF	**IC-F80DT/DS, IC-F80T/S**	**IC-F4161DT/DS,T/S IC-F4163T/S**	**IC-F60V**	**IC-F60**	**IC-F43GT/GS**	**IC-F4021T/S IC-F4023T/S**	**IC-F24/S**
Frequency range (VHF)	136–174MHz	136–174MHz	136–174MHz	136–174MHz	136–174MHz	136–174MHz	136–174MHz
(UHF)	380–450MHz 400–470MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz
Number of channels	256ch/32 zones	512ch/128 zones	128ch/8 zones	128ch/8 zones	256ch/16 zones	128ch/8 zones	16 (Rotary type) 4 (Max.; simple type)
Dimensions (projections are not included; WxHxD)	58.6×152×38mm 2 9/16×5 31/32×1 1/2 in	53×136×38.9mm 2 3/32×5 11/32×1 17/32 in	56×97×36.4mm 2 7/32×3 13/16×1 7/16 in	56×97×36.4mm 2 7/32×3 13/16×1 7/16 in	53×120×36.9mm 2 3/32×4 23/32×1 7/16 in	53×120×36.9mm 2 3/32×4 23/32×1 7/16 in	53×120×42.4mm 2 3/32×4 23/32×1 21/32 in
Weight (approx.)	400g; 14.1oz (with BP-253)	340g; 12.0oz (with BP-232U)	280g/284g; 9.9/10.0oz (with BP-227, V/U)	280g; 9.9oz (with BP-227)	340g; 12.0oz (with BP-232N)	300g; 10.6oz (with BP-232N)	300g; 10.6oz (with BP-232N)
RF output power (VHF/UHF)	5W/4W	5W/5W	5W/4W	5W/4W	5W/4W	5W/4W	5W/4W
LCD display	12 character × 2 line	12 character × 2 line	8 character	8 character	8 character	8 character	LED
PTT ID	✔	✔	✔	✔	✔	✔	Tx only
Alias Table	500	500	500	500	500	5	–
Selcall	✔	✔	✔	✔	✔	–	–
Call Alert	✔	✔	✔	✔	✔	–	–
Status Message	✔	✔	Tx only	Tx only	Tx only	–	–
Status Request	✔	✔	Rx only	Rx only	Rx only	–	–
Message	✔	✔	Tx only	Tx only	Tx only	–	–
Emergency	✔	✔	✔	✔	✔	✔ (No ACK)	Tx only
Man down function	UT-124	UT-124R	–	–	UT-124	UT-124R	UT-124
Lone Worker function	–	✔	✔	–	–	✔	–
Radio Check	✔	✔	✔	✔	✔	Rx only	–
Radio Stun/Revive	✔	✔	Rx only	Rx only	Rx only	Rx only	–
Call log	✔	✔	–	–	–	–	–
Number of profiles	5	5	5	5	5	5	1

VHF	IC-F1821/D	IC-F1721/D	IC-F5061/D, IC-F5063	IC-F5021 IC-F5023/H	IC-F121S IC-F111S
UHF	**IC-F2821/D**	**IC-F2721/D**	**IC-F6061/D, IC-F6063**	**IC-F6021 IC-F6023/H**	**IC-F221S IC-F211S**
Frequency range (VHF)	136–174MHz	136–174MHz	136–174MHz	136–174MHz	136–174MHz
(UHF)	400–470MHz 450–512MHz	400–470MHz 450–512MHz	400–470MHz 450–512MHz 450–520MHz	400–470MHz 450–512MHz 450–520MHz	400–430MHz 440–490MHz
Number of channels	256ch/32 zones	256ch/32 zones	512ch/128 zones	128ch/8 zones	8ch/2 zones
Dimensions (projections are not included; WxHxD)	175×45×170 mm 6 7/8×1 25/32×6 11/16 in	175×45×170 mm 6 7/8×1 25/32×6 11/16 in	160×45×150 mm 6 5/16×1 25/32×5 23/32 in	150×40×167.5 mm 5 29/32×1 9/16×6 19/32 in	150×40×167.5 mm 5 29/32×1 9/16×6 19/32 in
Weight (approx.)	1.5kg; 3.3lb	1.5kg; 3.3lb	1.3kg; 2.9lb	1.1kg; 2.4lb	1.1kg; 2.4lb
RF output power (VHF/UHF)	50W/45W	50W/45W	50W/45W 25W/25W (F5063/F6063)	50W/45W 25W/25W (F5023/F6023)	50W/45W
LCD display	12 character × 2 line	12 character × 2 line	12 character × 2 line	8 character	LED
PTT ID	✔	✔	✔	✔	Tx only
Alias Table	500	500	500	5	–
Selcall	✔	✔	✔	–	–
Call Alert	✔	✔	✔	–	–
Status Message	✔	✔	✔	–	–
Status Request	✔	✔	✔	–	–
Message	✔	✔	✔	–	–
Emergency	✔	✔	✔	✔ (No ACK)	Tx only
Lone Worker function	–	–	✔	✔	–
Radio Check	✔	✔	✔	Rx only	–
Radio Stun/Revive	✔	✔	✔	Rx only	–
Call log	✔	✔	✔	–	–
External out	✔	✔	✔	✔	–
Number of profiles	5	5	5	5	1

✔ : Available – : Not available **UT-124** : Requires internal unit (Eg. UT-124)

ICOM

MDC 1200
Compatible Models

MDC 1200 signaling features

Compatible with other MDC 1200 systems, take advantage of Icom quality

FEATURE	FUNCTION	BENEFIT
PTT ID*	The radio sends own ID informing everyone on the system when the PTT button is pushed/released.	Allows the dispatch and other units to know who is calling. Easily identifies callers in noisy environments as the radio notifies that user who transmitted. Use with the alias table to assign text names for easy identification.
Alias Table*	Use this feature for both transmit and receive. On transmit the user can scroll through up to 500 aliases*1 on the display. Once the user selects the name the user can then call that unit. On receive if a unit ID corresponds with an alias, then that alias is shown on the display.	Allows users to quickly identify transmissions. You don't need to cross reference names to a table or memorize a bunch of numbers. Get your message through to the correct person easily. Easily identify other users by name as they communicate.
Call Alert*	In an open channel environment it allows users to sound an alert at user's radio when they're not hearing another person's call.	Useful in noisy environments where you may not hear normal calls or when the user is away from their radio.
SelCall*	Call individual users on a channel for private communications.	Enhances channel efficiency by allowing users to call a selected radio out in the field without disturbing other users.
Emergency Call*	The emergency call function allows you to send an emergency signal to the dispatch, as well as to other units. After the dispatch acknowledges the emergency signal, the radio automatically ceases sending out the signal, clearing the channel for normal traffic.	Allows users to quickly identify who transmitted an emergency signal. The PTT ID of the unit that transmitted the emergency call is displayed on screen. Essential for public safety and plant security, as well as in any hazardous, high-risk areas. The silent mode allows the user to call for help without alerting the people around them.
Emergency Man Down*	Allows the radio to automatically initiate any of the emergency features, when a "man down" condition exists (UT-124/R man down unit is required).	If someone is in trouble, the radio will automatically activate the emergency function.
Lone Worker Function*	When the radio is not operated for a preset period, the radio sounds a beep and requires you to push any button. If a button is not pushed, the radio automatically transmits an emergency signal.	If someone is in trouble, the radio will automatically activate the emergency function. This function is similar to the man down function, but does not require the man down unit.
Emergency "Hot Mic" Monitoring*	After the dispatch acknowledges an emergency message, the radio can transmit anything the microphone hears for a preprogrammed time period.	The dispatcher can listen into the environment where the emergency is taking place to help identify if an emergency exists, or what is occurring near the user.
Auto Emergency Retransmit*	If an initial emergency attempt(s) is unsuccessful due to the radio channel traffic, the radio will automatically send multiple emergency signals until it gets through. The number of retry attempts required to activate this function is programmable.	Maximizes the chance that an emergency call can be heard in a high-traffic environment.

FEATURE	FUNCTION	BENEFIT
Call Log*	Displays the received call history of the SelCall, Call alert and Emergency call.	Log information includes the type of call, who placed the call, and when the call was placed.
Status*	Allows a user to set up to 16*2 conditions such as "on duty", "at lunch", or "in route". After a unit sends its status to the dispatch/controller, its status will be maintained in memory until changed. Also program radios to poll other units for their current status.	Immediately informs the dispatch of your current status and allows the dispatcher/controller to obtain the status at any time.
Message*	Send and receive up to 16*2 programmable messages to the dispatch.	Improves channel efficiency allowing the user to send commonly used messages using MDC instead of voice. Enables privacy by sending messages in digital format rather than voice and only the dispatcher can receive the messages.
Stun*	Send and receive stun commands. This feature will place a subscriber unit in a stunned state where no functionality is available until a revive command is received.	Program the radio to either disable other units or be remotely disabled itself in the event of an unauthorized use or a theft. Excellent for maintaining communication integrity with minimal disruption.
Revive*	Send and receive revive commands. This feature will revive a subscriber unit that previously received a stun command. Until a stunned unit receives this command, all functions will be locked out.	In the event that a radio was stunned, the dispatch can remotely revive the radio.
Radio Check*	Allows the dispatch to verify if a radio is powered on and within the communications range.	Check to see if a remote radio in the field is on, without disturbing or notifying the user. Also check for a missing radio before initiating stun.
External Output*	Available on mobile units. Program this output to become active when it receives an emergency, select or call alert call. Connect this output to an external device such as a siren or alarm strobe light.	Allows the user to customize their mobile systems for special modifications when radio receives a select call, call alert or emergency call.
Multiple MDC System Profiles*	Configure up to 5 different system combinations of all MDC functions. Store specific profiles such as PTT ID, emergency, status, etc, for the applications need on each channel.	Allows different MDC ID numbers to be used in the same radio, depending upon channel selected. Perfect for integrating one radio into multiple agency communications systems or multiple locations.
Compatible with Other MDC 1200 System	Behaviorally compatible with other brand's MDC 1200 functionality and operations.	Easily integrate Icom radios into your existing fleet using MDC 1200.

*Depending on the model, some MDC functions are not available. Please see the back page for details.
*1: 5 aliases only for IC-F3021 and IC-F5021 series. *2: 16 status and 16 messages per a MDC system profile, 5 MDC profiles available.


IC-F1821/D series


IC-F1721/D series


IC-F5061/D series


IC-F5021 series


IC-F121S series


IC-F14 series


IC-F3021 series


IC-F33G series


IC-F50/F50V series


IC-F3161/D series


IC-F70/D series

Looking for dependable powersports communication? Rely on PCI Race Radios for quality and long-lasting products.