



## VHF AND UHF REPEATER

**IC-FR5000** VHF REPEATER

**IC-FR6000** UHF REPEATER

**iDAS**<sup>TM</sup>  
ICOM DIGITAL ADVANCED SYSTEM



**Dual mode  
Double  
Channels**



IDAS digital/  
analog FM

IDAS Trunking  
(With UC-FR5000)

Two RF modules  
in one unit (option)

50W output  
25W full duty

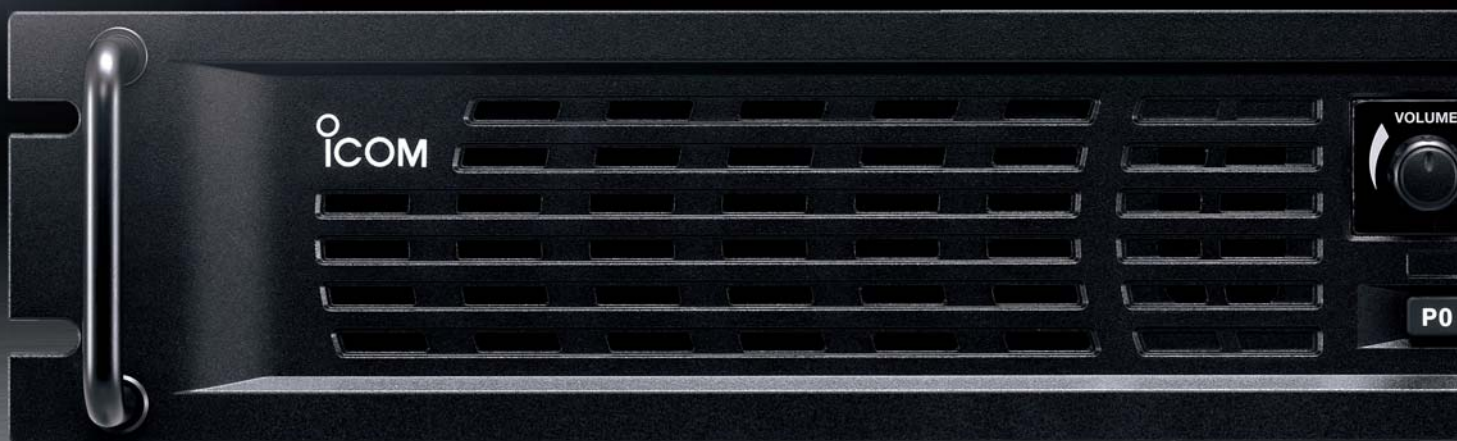
5-Tone, DTMF  
CTCSS, DTCS

2U height  
rackmount

32ch memory,  
dot-matrix LCD



# Value, Performance and



## 19-inch rack mount, 2U height low profile design

The IC-FR5000 series uses only 2U height. This low profile configuration allows you to stack multiple units in an industry standard 19-inch rack and provides great space efficiency.

## Two RF modules in one unit

The IC-FR5000 series has an internal space for installing another RF unit. Two RF modules\* can be installed and can be programmed and operated independently. LEDs on the front panel show both channel conditions.

\* Optional UR-FR5000/UR-FR6000 required.



Two RF units can be installed inside. (Left side is an option.)

## 50W output at 50% duty cycle, 25W 100% duty cycle operation\*

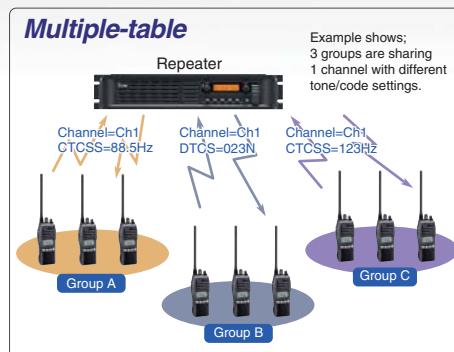
Employing a high stability  $\pm 0.5$ ppm oscillator and high performance power amplifier, the IC-FR5000 series provides a reliable 100% duty cycle operation at 25W output. When operated at the high power setting of 50W, the repeater operates with a 50% duty cycle. (\* Ambient temperature: 25°C)

## 32 channel capacity and 5 programmable buttons

The 12-digit dot-matrix display, 5 programmable buttons, 32 memory channels and internal speaker allow you to use the repeater as a simple base station or to check repeater activity.

## Multiple CTCSS, DTCS tone and RAN code decode

The IC-FR5000 series decodes multiple CTCSS and DTCS as well as digital RAN (Radio Access Number) codes on a per channel basis (up to 16 tones/codes) and downlinks the received signal with a specified tone/code. This function is useful for sharing a channel with multiple groups and provides quiet stand-by while using other groups.



## D-SUB 25-pin accessory connector

The IC-FR5000 series has a programmable D-SUB 25-pin accessory connector for connecting various trunking controllers or external remote control devices. Also, modulation/demodulation signals can be input/output from the D-SUB connector.

## Superior receiver performance

The IC-FR5000 series has class leading receiver performance of selectivity and inter-modulation rejection. It improves the quality of the repeater service even under congested band conditions.

## Voice scrambler

The built-in inversion type\* voice scrambler provides secure conversation as standard. When a more secure system is required, the 32 code non-rolling type voice scrambler UT-109R\* and 1020 code rolling type UT-110R\* are available as an option. In IDAS digital mode, a 15-bit encryption key provides over 32,000 scrambling codes.

\* These voice scramblers (inversion type, UT-109R and UT-110R) are available with analog mode only.

## Built-in audio compander\*

The built-in audio compander improves the signal to noise ratio and provide clear audio. \* Analog mode only.

## Other features

- PTT priority setting (Local Mic., external PTT or repeater operation)
- 5-Tone and DTMF encoder/decoder\*
- CW ID transmitter
- Analog wide/narrow (12.5/25kHz) channel spacing programmable\*
- Wide frequency range: VHF 136–174MHz, UHF: 400–470 or 450–520MHz
- Normal and priority scan
- Convenient key assign stickers supplied
- Quick and easy programming from a PC
- Beat cancel capability
- Low voltage alert\*

\* For analog mode only



# Flexibility: All Standard



VHF Repeater

## IC-FR5000

UHF Repeater

## IC-FR6000



*The IC-FR5000 series is ready for IDAS™ trunking and IDAS™ conventional.*



### Spectrum efficiency

The IDAS system utilizes 6.25kHz narrowband FDMA technology. This system is not only spectrum efficient but meets the FCC 2011 deadline for narrow band compliance.



### Audio quality and coverage

When compared to an analog FM signal, digital easily outperforms analog in audio clarity at the fringes of the communication range, thus providing more reliable audio over a greater total area, even if the coverage footprint is the same as analog FM.



### Secure conversation

The digital modulation/demodulation makes it difficult to decode the IDAS digital signal by using the current scanner receivers at this time. The digital voice scrambler adds security on your conversation.



### IDAS™ Trunking

The IDAS trunking conforms with NXDN™ type-D trunking protocol. The IDAS trunking is a distributed system which does not use a dedicated control channel.



### Flexible IP Network

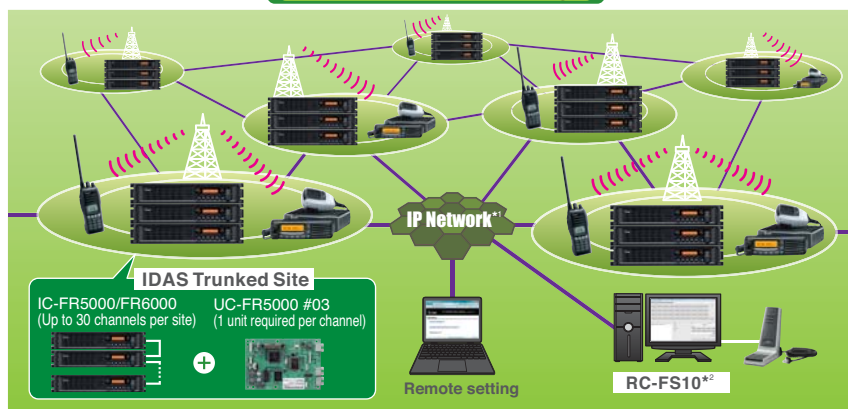
The IDAS multi-site trunking/conventional system integrates IP network capability in the system and extends your communication coverage. The remote communicator, RC-FS10, creates an IP-based virtual radio on a PC and works as a simple dispatcher.



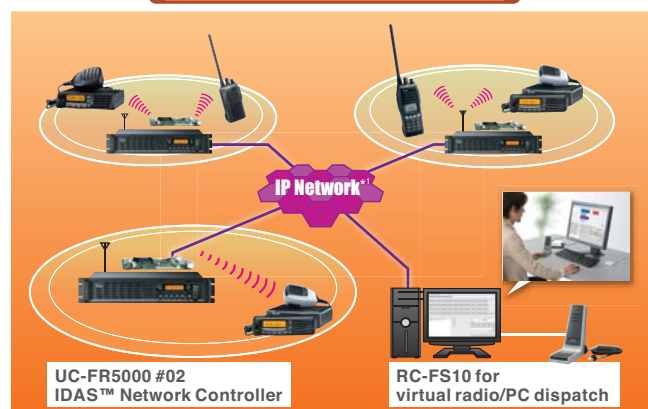
### Flexible migration path

The IDAS system allows you to scale migration to narrow band digital at your own pace and needs, while running your existing analog system. The IDAS radios can receive both analog and IDAS conventional mode signals on a single channel.

### IDAS multi-site trunking



### IDAS multi-site conventional



<sup>\*1</sup> Note: Private IP Network or VPN Tunnels through the Internet with Static endpoints. <sup>\*2</sup> RC-FS10 for IDAS multi-site trunking is available later. Please see the IDAS brochure for details.

## SPECIFICATIONS

	IC-FR5000	IC-FR6000
GENERAL		
Frequency coverage	136–174MHz	400–470, 450–512, 450–520 350–400* MHz (* Non-FCC)
Number of channels	Max. 32 channels	
Channel spacing	6.25/12.5/25kHz 7.5/15.0/30kHz	6.25/12.5/25kHz
Type of emission	16K0F3E, 11K0F3E/F7E/F7D/F7W, 8K50F3E* , 4K00F1E/F1D/F3E (* VHF EXP version only)	
Frequency stability	±0.5ppm	
Antenna impedance	50Ω (Type-N × 2)	
Operating temperature range	–30°C to +60°C; –22°F to +140°F	
Power supply voltage	13.6V DC	
Current drain (at 13.6V DC)		
TX 50W	15A	
RX Max. audio	1.9A	
Stand-by	500mA, 400mA (FAN, LCD backlight off)	
Dimensions (W×H×D)	483×88×260 mm ; 19.02×3.46×10.24 in	
Weight	5.6kg ; 12.3lb (approx.)	
TRANSMITTER		
Output power	50W (adjustable to 5W)	
100% duty cycle	25W (at 25°C)	
Max. frequency deviation	±5.0kHz/±2.5kHz (W/N)	
Spurious emissions	80dB typ.	
FM hum and noise	52/49dB typ. (W/N)	50/45dB typ. (W/N)
Audio harmonic distortion	1% typ. (40% deviation)	
FSK error	5% Max. (Digital)	
Microphone impedance	600Ω (8-pin modular)	
RECEIVER		
Sensitivity 12dB SINAD	0.30μV typ.	0.25μV typ.
5% BER	0.25μV typ.	0.25μV typ.
Adjacent channel selectivity	80/56dB typ. (W/N) 63dB typ. (Digital)	78/56dB typ. (W/N) 63dB typ. (Digital)
Spurious response	90dB typ. (W/N) 90dBμV typ.emf (Digital)	70dB typ. (W/N) 65dBμV typ.emf (Digital)
Intermodulation rejection	78dB typ. (W/N) 75dBμV typ. emf (Digital)	70dB typ. (W/N) 65dBμV typ. emf (Digital)
Hum and noise ratio	52/50/66dB typ. (W/N/D)	50/45/55dB typ. (W/N/D)
Audio output power	4.0W typ. at 5% distortion with a 4Ω load	
External speaker connector	2-conductor 3.5 (d) mm (1/8")/4Ω	

Measurements made in accordance with TIA-603-B (for FM) and EN 301 166 (for Digital).  
All stated specifications are subject to change without notice or obligation.

## Applicable U.S. Military Specifications

Standard	MIL 810 F	
	Method	Procedure
High Temperature	501.4	I, II
Low Temperature	502.4	I, II
Dust	510.4	I
Vibration	514.5	I
Shock	516.5	I

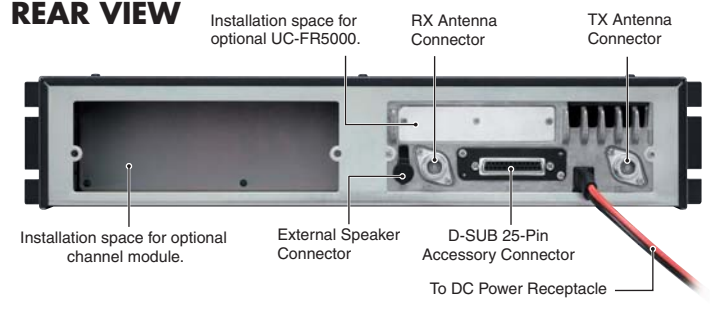
Also meets equivalent MIL-STD-810-C, -D and -E.

## Supplied Accessories

- DC power cable
- Handle kits
- Key assign stickers

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## REAR VIEW



## OPTIONS

HAND MICROPHONE  
HM-152DESKTOP MICROPHONE  
SM-26EXTERNAL SPEAKER  
SP-22

## VOICE SCRAMBLER UNITS

(For analog mode)



UT-109R



UT-110R

## CHANNEL MODULES

UR-FR5000: 136–174MHz, 50W  
UR-FR6000: 400–470, 450–512, 450–520,  
350–400MHz, 50W

IDAS TRUNKING/NETWORK CONTROLLER  
UC-FR5000

- #01 IDAS single-site trunking
- #02 IDAS multi-site conventional
- #03 IDAS multi-site trunking

IDAS multi-site conventional software  
CF-FR5000MC  
IDAS multi-site trunking software  
CF-FR5000MT

Same as supplied with UC-FR5000 #02 or #03.

## IDAS radios

## IC-F3161D series ▶



IC-F5061D series

## IC-F3101D series ▶



IC-F5121D series

## Icom Inc.

1-1-32, Kami-minami, Hirano-ku, Osaka 547-0003, Japan Phone: +81 (06) 6793 5302 Fax: +81 (06) 6793 0013

[www.icom.co.jp/world](http://www.icom.co.jp/world)

## Count on us!

## Icom America Inc.

2380 116th Avenue NE,  
Bellevue, WA 98004, U.S.A.  
Phone: +1 (425) 454-8155  
Fax: +1 (425) 454-1509  
E-mail: [sales@icomamerica.com](mailto:sales@icomamerica.com)  
URL: <http://www.icomamerica.com>

## Icom Canada

Glenwood Centre #150-6165 Highway 17,  
Delta, B.C., V4K 5B8, Canada  
Phone: +1 (604) 952-4266  
Fax: +1 (604) 952-0090  
E-mail: [info@icomcanada.com](mailto:info@icomcanada.com)  
URL: <http://www.icomcanada.com>

## Icom (Australia) Pty. Ltd.

Unit 1 / 103 Garden Road,  
Clayton, VIC 3168 Australia  
Phone: +61 (03) 9549 7500  
Fax: +61 (03) 9549 7505  
E-mail: [sales@icom.net.au](mailto:sales@icom.net.au)  
URL: <http://www.icom.net.au>

## Icom New Zealand

146A Harris Road, East Tamaki,  
Auckland, New Zealand  
Phone: +64 (09) 274 4062  
Fax: +64 (09) 274 4708  
E-mail: [inquiries@icom.co.nz](mailto:inquiries@icom.co.nz)  
URL: <http://www.icom.co.nz>

## Icom (Europe) GmbH

Communication Equipment  
Auf der Krautweide 24  
65812 Bad Soden am Taunus, Germany  
Phone: +49 (6196) 76685-0  
Fax: +49 (6196) 76685-50  
E-mail: [info@icomeurope.com](mailto:info@icomeurope.com)  
URL: <http://www.icomeurope.com>

## Icom Spain S.L.

Ctra. Rubi, No. 88 "Edificio Can Castanyer"  
Bajos A 08174, Sant Cugat del Valles,  
Barcelona, Spain  
Phone: +34 (93) 590 26 70  
Fax: +34 (93) 589 04 46  
E-mail: [icom@icomspain.com](mailto:icom@icomspain.com)  
URL: <http://www.icomspain.com>

## Icom (UK) Ltd.

Blacksole House, Altira Park,  
Herne Bay, Kent, CT6 6GZ, U.K.  
Phone: +44 (01227) 741741  
Fax: +44 (01227) 741742  
E-mail: [info@icomuk.co.uk](mailto:info@icomuk.co.uk)  
URL: <http://www.icomuk.co.uk>

## Icom France s.a.s.

Zac de la Plaine,  
1 Rue Brindejone des Moulinas, BP 45804,  
31505 Toulouse Cedex 5, France  
Phone: +33 (5) 61 36 03 03  
Fax: +33 (5) 61 36 03 00  
E-mail: [icom@icom-france.com](mailto:icom@icom-france.com)  
URL: <http://www.icom-france.com>

## Icom Polska

81-850 Sopot, ul. 3 Maja 54, Poland  
Phone: +48 (58) 550 7135  
Fax: +48 (58) 551 0484  
E-mail: [icompolska@icompolska.com.pl](mailto:icompolska@icompolska.com.pl)  
URL: <http://www.icompolska.com.pl>

## Asia Icom Inc.

6F No. 68, Sec. 1 Cheng-Teh Road,  
Taipei, Taiwan, R.O.C.  
Phone: +886 (02) 2559 1899  
Fax: +886 (02) 2559 1874  
E-mail: [sales@asia-icom.com](mailto:sales@asia-icom.com)  
URL: <http://www.asia-icom.com>

## Beijing Icom Ltd.

10C07, Long Silver Mansion, No.88, Yong Ding  
Road, Haidian District, Beijing, 100039, China  
Phone: +86 (010) 5889 5391/5392/5393  
Fax: +86 (010) 5889 5395  
E-mail: [bjicom@bjicom.com](mailto:bjicom@bjicom.com)  
URL: <http://www.bjicom.com>

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