



# VHF AND UHF REPEATER

## IC-FR5000 VHF REPEATER

## IC-FR6000 UHF REPEATER

# IDAS

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 Flexibility: All Standard



VHF Repeater  
**IC-FR5000**

UHF Repeater  
**IC-FR6000**

## 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.)

## 25 W 100% duty cycle operation\*

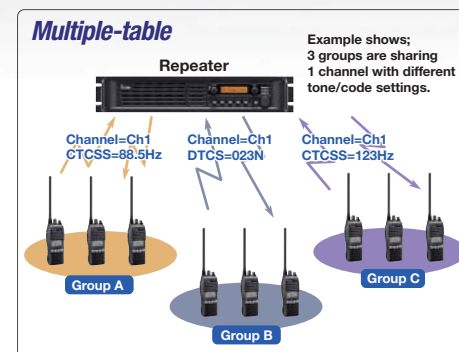
Employing a high performance power amplifier, the IC-FR5000 series provides a reliable 100% duty cycle operation at 25 W output. When need higher power, the optional UR-PA5000 series power amplifier provides 100 W output power with a 50% duty cycle and 50 W output with 100% duty cycle. (\* Ambient temperature: 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 intermodulation 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
- ±0.5 ppm high stability oscillator
- Normal and priority scan
- Convenient key assign stickers supplied
- Quick and easy programming from a PC
- Home repeater maintenance features for Type-D multi-site trunking
- Beat cancel capability
- Low voltage alert\*
- \* For analog mode only



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

### Spectrum efficiency

The IDAS system utilizes 6.25 kHz narrowband FDMA technology. This system is not only spectrum efficient but meets the FCC 2013 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

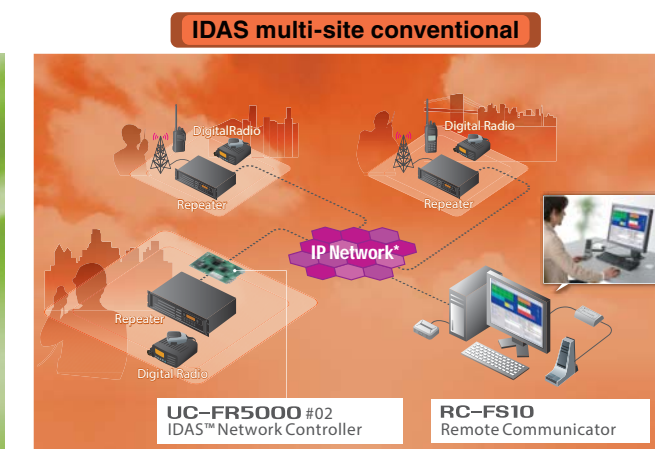
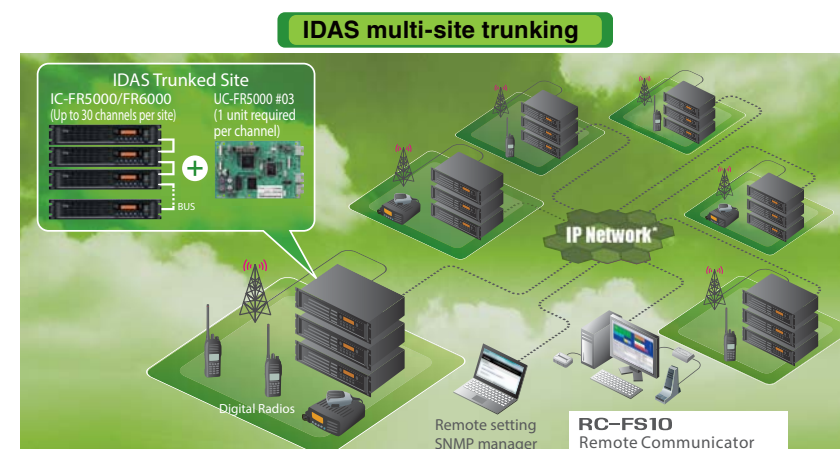
The IDAS trunking conforms with NXDN™ type-D trunking protocol. The IDAS trunking is a distributed system which does not use a dedicated control channel.

### 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.



\* Note: Private IP Network or VPN Tunnels through the Internet with Static endpoints. Please see the IDAS brochure for details.

**SPECIFICATIONS**

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

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.  
 \* 25 kHz bandwidth is no longer available for FCC Part 90 licensees for USA versions. Ask your dealer if you need 25 kHz bandwidth.

**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

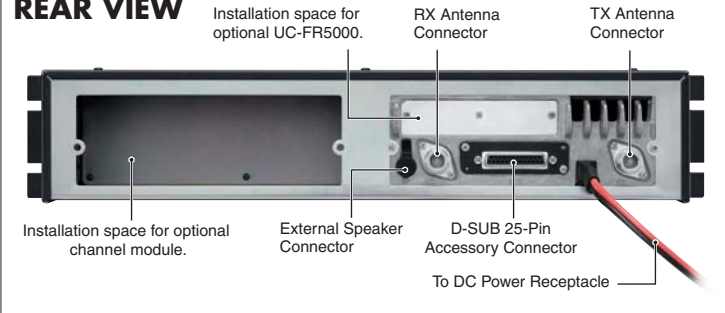
Also meets equivalent MIL-STD-810-C, -D and -E.

**Supplied Accessories**

- DC power cable
- Handle kits
- Key assign stickers

**6.25 kHz FDMA True RF Efficiency** Check our web site to know more about 6.25 kHz FDMA narrow band. [www.icom.co.jp/world/fdma/](http://www.icom.co.jp/world/fdma/)

**REAR VIEW**



**OPTIONS**

**HAND MICROPHONE HM-152**



**DESKTOP MICROPHONE SM-26**



**EXTERNAL SPEAKERS SP-35: 2 m cable SP-35L: 6 m cable**



**POWER AMPLIFIERS**

**UR-PA5000:** 136–174 MHz, 50 W  
**UR-PA6000:** 400–470, 450–520 MHz, 50 W 100% duty, 100 W 50% duty



**CHANNEL MODULES**

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



**IDAS TRUNKING/NETWORK CONTROLLER UC-FR5000**

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

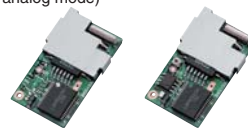


**IDAS multi-site conventional software CF-FR5000MC IDAS multi-site trunking software CF-FR5000MT**



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

**VOICE SCRAMBLER UNITS (For analog mode)**



UT-109R

UT-110R

**CONNECTION CABLE**

**OPC-2202:** IC-FR5000 and UR-PA5000 connection cable.



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