



VHF AND UHF REPEATERS

IC-FR5000 (VHF Repeater)

IC-FR6000 (UHF Repeater)

iDAS
COM DIGITAL ADVANCED SYSTEM



**Dual mode
Double
Channels**

IDAS digital/
analog FM

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

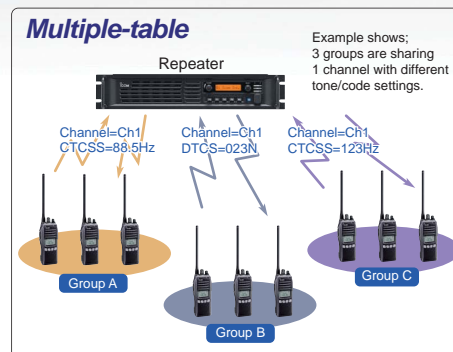
Employing a high stability ± 0.5 ppm oscillator and high performance power amplifier, the IC-FR5000 series provides a reliable 100% duty cycle operation at 25W output. When operated at the high power setting of 50W, the repeater operates with a 50% duty cycle.

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
- 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

IDAS

ICOM DIGITAL ADVANCED SYSTEM

The IC-FR5000 series is ready for IDAS digital mode.



Flexible migration path from analog to digital

The IC-FR5000 series can receive both analog and digital mode signals on a single channel. You can partially introduce IDAS digital radios, while still maintaining the existing analog radios in the system.



Double your channel capacity

The IDAS system utilizes 6.25kHz narrow channel spacing, which within a 12.5kHz channel, you can create two offset channels. (i.e. doubling the channel efficiency and capacity)



Flexible application possibilities

Being digital, integration and convergence with IP technology as well as multiple data applications will be possible to enhance the basic system.



Improved audio quality and coverage

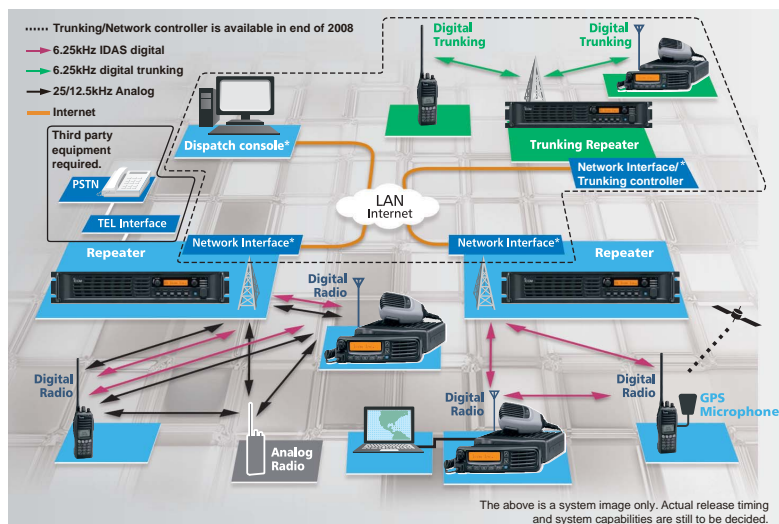
Enjoy noise free audio over a greater comparable area than analog FM. The IDAS radio uses the AMBE+2™ codec the latest evolution in vocoding technology.



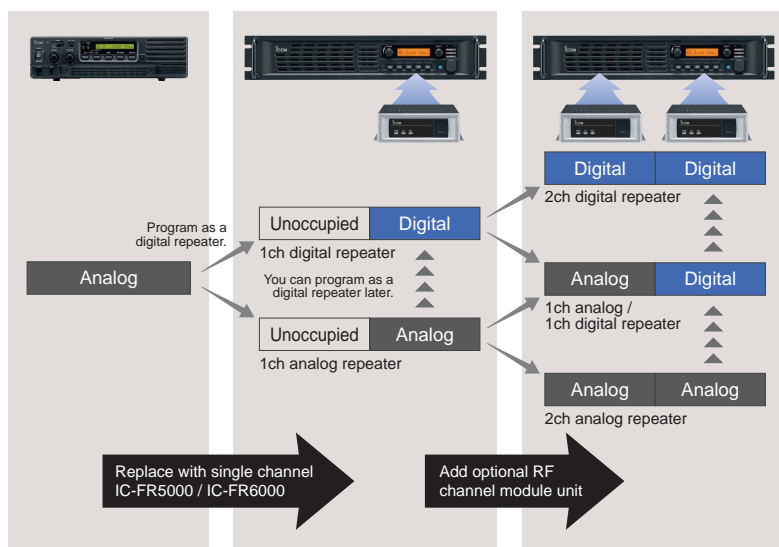
Digital trunking*

The IC-FR5000 series will offer optional single site digital trunking capability in the near future* for effective channel management and fleet management.

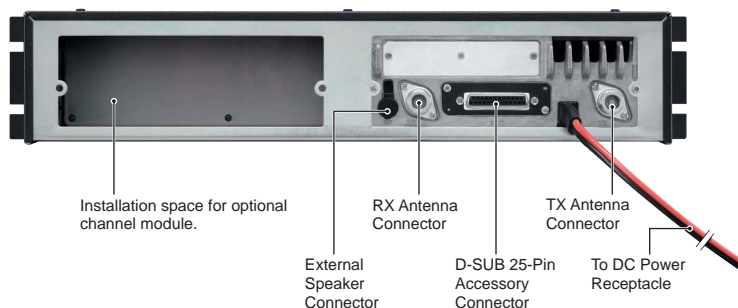
* Optional trunking controller required. (Planned availability: end of 2008)



Example of Digital Migration Path



REAR VIEW



Installation space for optional channel module.
 RX Antenna Connector
 TX Antenna Connector
 External Speaker Connector
 D-SUB 25-Pin Accessory Connector
 To DC Power Receptacle

Offers an integrated system

Take advantage of Icom's integrated system design for a total digital system. The IC-F3161D and IC-F5061D series are designed for the IDAS compatible terminal components with the following digital features.

- Selective call, group call and talk group ID
- Status call/request • Radio check
- Radio stun/kill/revive • Data call
- Digital voice scrambler
- Emergency call
- Call alert • Call log



IC-F5061D series

IC-F3161D series

SPECIFICATIONS

GENERAL

- Frequency coverage : IC-FR5000 136-174MHz, IC-FR6000 400-470, 450-520MHz
- Number of channels : Max. 32 channels
- Channel spacing : 6.25/12.5/25kHz, 7.5/15.0/30kHz
- PLL channel step : 2.5, 3.125kHz
- Frequency stability : ±0.5ppm
- 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)
- Antenna impedance : 50Ω (Type-N x 2)
- Dimensions (W×H×D) : 483×88×260 mm ; 19 1/2×3 1/2×10 1/4 in
- Weight : 5.6kg ; 12.3lb (approx.)

TRANSMITTER

- Output power : 50W (adjustable to 5W) 25W at 100% duty cycle
- Max. frequency deviation : ±5.0/2.5kHz (wide/narrow)
- Spurious emissions : 80dB typ.
- Adjacent channel power : 73/67dB typ. (wide/narrow)
- FM hum and noise : 50/45dB typ. (wide/narrow)
- Audio harmonic distortion : 1% typ. (40% deviation)
- Microphone impedance : 600Ω (8-pin modular)

RECEIVER

- Sensitivity FM (W/N) : 0.30μV typ. (at 12dB SINAD) Digital 0.25μV typ. (at 5% BER)
- Spurious response : 90dB typ.
- Intermodulation rejection : 78dB typ.
- Hum and noise ratio : 50/45dB typ. (wide/narrow)
- 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

Supplied Accessories

- DC power cable
- Handle kits
- Key assign stickers

Measurements made in accordance with TIA-603 (for Analog FM). All stated specifications are subject to change without notice or obligation.

Applicable U.S. Military Specifications

Icom makes rugged products that have been tested to and passed the following MIL-STD requirements and strict environmental standards.

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

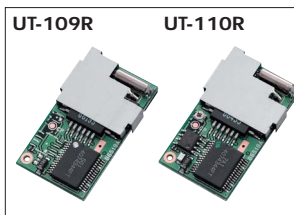
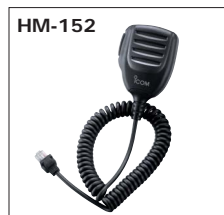
Also meets equivalent MIL-STD-810-C, -D and -E.

OPTIONS

- **HM-152 HAND MICROPHONE**
Regular hand microphone.
- **SM-25 DESKTOP MICROPHONE**
Equipped with a monitor switch.
- **SP-22 EXTERNAL SPEAKER**
Compact and easy-to-install.
- **UT-109R VOICE SCRAMBLER UNIT***
Provides operating security. Up to 32 non-rolling scrambling codes are available. (Analog mode only)
- **UT-110R VOICE SCRAMBLER UNIT***
Up to 1020 (255 codes x 4 groups) rolling scrambling codes are available. (Analog mode only)

- **UR-FR6000 UHF CHANNEL MODULE**
400-470MHz, 450-520MHz, 50W
- **UR-FR5000 VHF CHANNEL MODULE**
136-174MHz, 50W

* UT-109R/UT-110R voice scramblers are not compatible with Inversion type voice scrambler.



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