



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

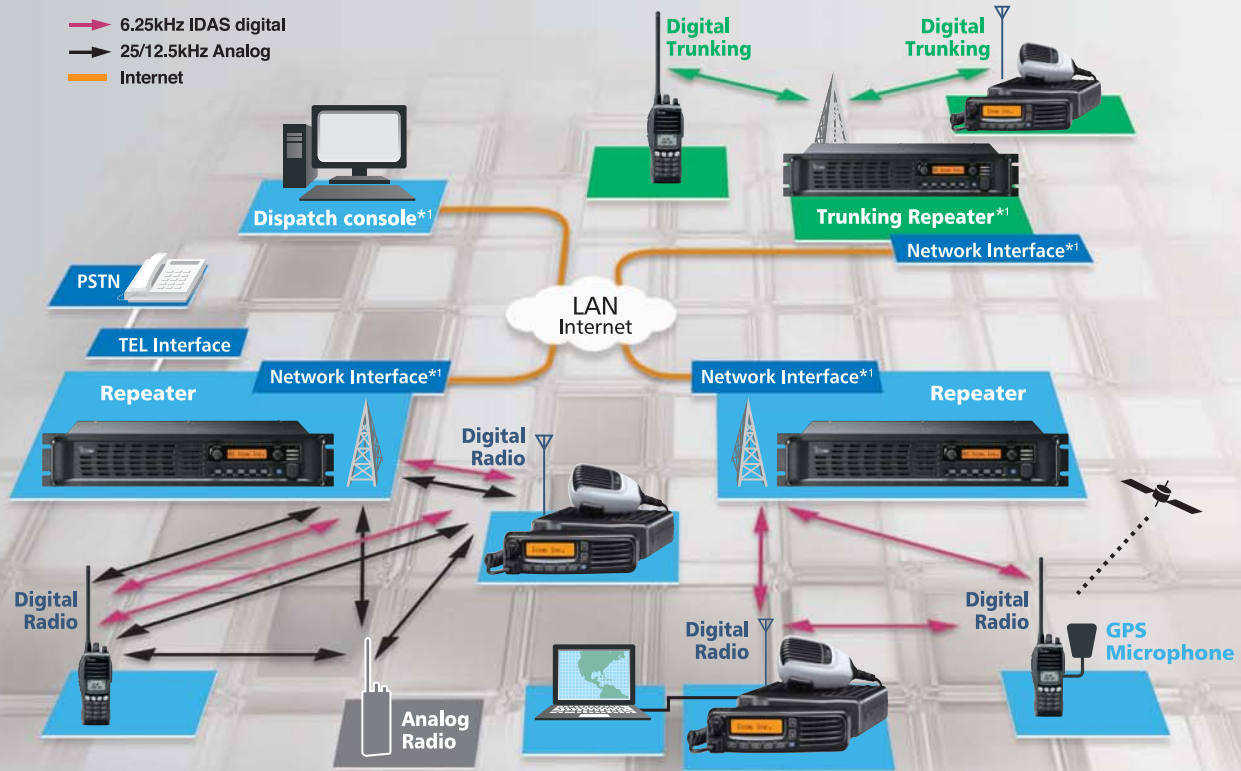
2U height  
rackmount

32ch memory,  
dot-matrix LCD



## IDAS bridges the gap between analog and digital systems

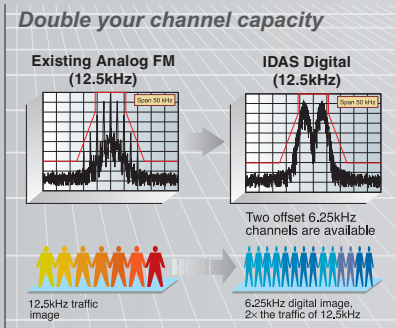
IDAS is Icom's digital land mobile radio system using the NXDN™ common air interface. It has useful calling features including selective calling, status message, radio stun/kill/revive and GPS position reporting, etc. The IDAS system is ideal for business and industry users who may want to migrate to a digital system or to the future FCC mandated narrow band spacing.



The above is system image only.

### Double your channel capacity

IDAS doubles the capacity of the current 12.5kHz channel allocation. Icom allows you to meet any narrow banding requirements today, and provides a solution to any future spectrum deficiencies.



### Digital/analog mixed mode operation

The IC-FR5000 series can receive both analog and digital signals on a single channel. You can partially introduce the IDAS system, while using the existing analog radios in a system. The IDAS system allows you to scale migration to narrow band digital at your own pace and need.

### Improved audio quality

The IDAS system occupies only 6.25kHz spacing per channel. With the improved sensitivity of narrow band communications, increased communication greater than 12.5kHz analog mode can be achieved. The IDAS system uses the AMBE+2™ codec, which provides clear audio and simultaneous data communication.

### Network interface\*1

The IDAS repeater has a network interface\* and can be connected to a LAN or the Internet via Ethernet cable. Communication range is vastly extended by the Internet connection and eliminates the need for expensive leased lines. When connected to a PC via a LAN or the Internet, you can remotely maintain the repeater configuration remotely from your PC.

\* Option (Available in the future)

### Digital trunking capability\*1

The repeater will also have digital trunking capability in the near future. This will allow you further effective channel management by sharing a minimum of channels with a large number of users.

\*1 Some features are planned and released in the future.

# Stable, Flexible and High-Performing Repeater

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

A 2U height configuration allows you to stack multiple units in an industry standard 19-inch rack.

## Two RF channel modules in one unit

Two RF modules\* can be installed in a chassis to reduce installation space, while the RF modules can be programmed and operated independently. LEDs on the front



Two RF units can be installed in the unit. (Left side is an option.)

panel show both channel conditions.

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

## 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.

## 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.

## Easy-to-see display 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 base station or to check repeater activity.

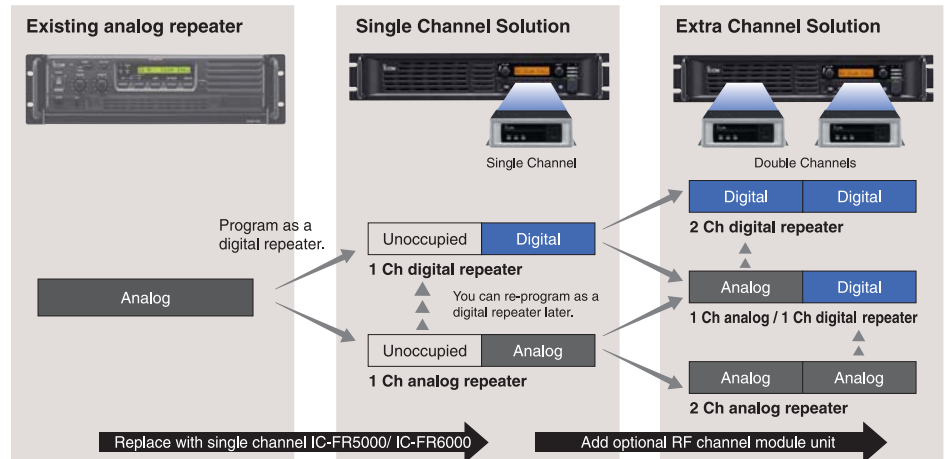
## D-SUB 25-pin accessory connector

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.

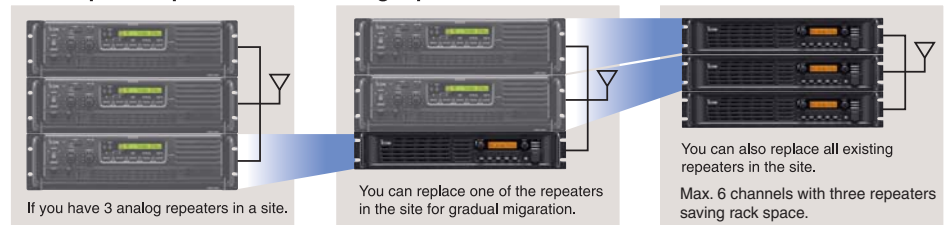
## Other features

- Audio compander\*
  - PTT priority setting (Local Mic., external PTT or repeater operation)
  - Built-in inversion type voice scrambler and optional voice scrambler UT-109R or UT-110R\*
  - 5-Tone and DTMF encoder/decoder\* and CW ID transmitter
  - Analog wide/narrow (12.5/25kHz) channel spacing programmable\*
  - Normal and priority scan
  - Convenient key assign stickers supplied
  - Quick and easy programming from a PC
- \* For analog mode only

### Example of Digital Migration Path



### Example of replacement of existing repeaters in a site solution

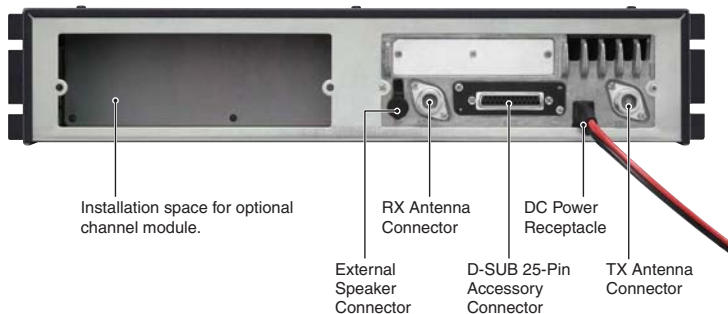


VHF REPEATER  
**IC-FR5000**

UHF REPEATER  
**IC-FR6000**



REAR VIEW



Installation space for optional channel module.

RX Antenna Connector  
External Speaker Connector

D-SUB 25-Pin Accessory Connector

DC Power Receptacle  
TX Antenna Connector

Offers an integrated system

Take advantage of Icom's integrated design that offers a value for IDAS system. The IC-F3161D and IC-F5061D series are designed for the IDAS system. Following digital features are available.

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



IC-F5061D series



IC-F3161D series

SPECIFICATIONS

GENERAL

- Frequency coverage : 136-174MHz, 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	502.4-3	I, II
Dust	510.4	I
Vibration	514.5	I
Shock	516.5	I

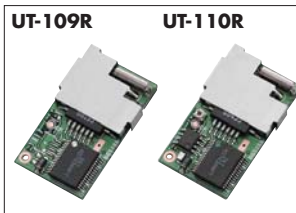
Also meets equivalent MIL-STD-810-C, -D and -E.

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-109/UT-110 voice scramblers are not compatible with In-version type voice scrambler .



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