January 2008

NEW PRODUCT INFORMATION

VHF AND UHF REPEATERS

IC-FR5000
(50W IDAS digital VHF — U.S.A., #01)
(50W analog VHF — Export, #03)

IC-FR6000
(50W IDAS digital UHF — U.S.A. #01, #11)
(50W analog UHF — Export #03, #13)

IC-FR5100
(25W analog FM VHF — Europe, #22)

IC-FR6100
(25W analog UHF — Europe, #22)

Icom proudly announces the debut of the new repeater, IC-FR5000/IC-FR6000 series. The IC-FR5000 series is designed as a mid to low tier class repeater, providing superior cost performance, while having excellent basic analog radio performance.
The IC-FR5000/FR6000 series is the first Icom "IDAS" 6.25kHz digital capable repeater, in addition to the IC-F3160, F5060 series radios. The "IDAS" system increases existing 12.5kHz channel capacity and offers easy migration from analog to digital.

> ***The IDAS*** *(Icom Digital Advanced System)* ***is a digital land mobile radio system for business and industry, using the jointly-developed NXDN™ digital modulation and common air interface protocol.***

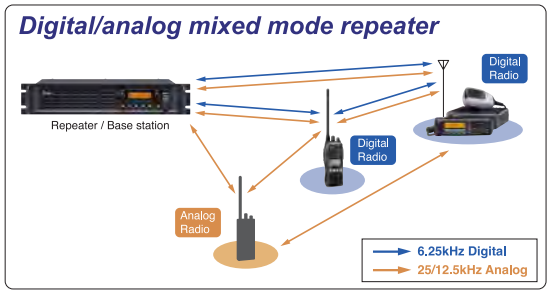
MAJOR SELLING POINTS

- ❏ ***Icom's first IDAS 6.25kHz digital capable repeater***
- ❏ ***Digital/analog mixed mode operation***
- ❏ ***Double your channel capacity— 6.25kHz channel spacing***
- ❏ ***Compatible with IDAS handheld IC-F3160D series and mobile IC-F5060D series***
- ❏ ***19-inch rack mount, 2U height low profile design***
- ❏ ***Two RF modules can be installed in one unit (Optional RF module required)***
- ❏ ***Multiple table (16 pairs of CTCSS, DTCS, RAN setting)***
- ❏ ***25W, 100% duty operation (50W, 50% duty)***
- ❏ ***Dot matrix display and 5 programmable buttons for Base station operation***
- ❏ ***Programmable D-SUB 25-PIN accessory connector***
- ❏ ***Built-in 5-Tone encoder/decoder***

IDAS DIGITAL FEATURES

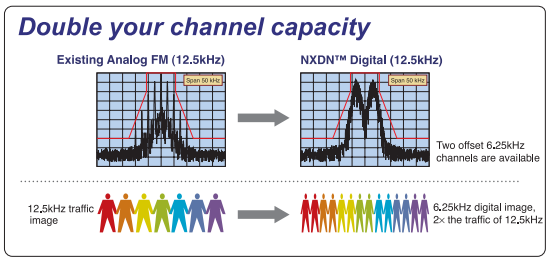
Digital/analog mixed mode operation

The IDAS radio (including repeater) can receive both analog mode and digital mode signals on a single channel. You can partially introduce the IDAS digital radios, 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, while running your existing analog system. A cost efficient way to obtain the next generation in two way radio technology.



Double your channel capacity

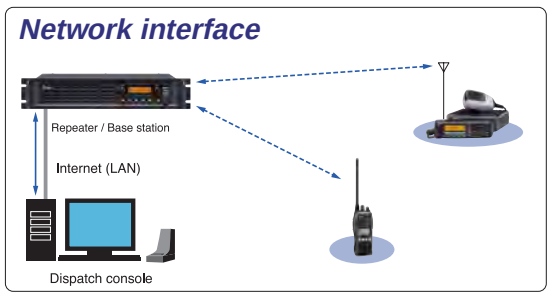
The IDAS system utilizes 6.25kHz narrow channel spacing, which when in a 12.5kHz channel, you can create two offset 6.25kHz channels. (i.e. doubling the channel efficiency and capacity.) You can use these channels, for example, in a one for voice and one for data communication configuration.



Network interface (Planned)

The IDAS repeater will have a network interface and will be able to be connected to a LAN or the Internet via Ethernet cable. Communication range will be vastly extended by the Internet connection and will eliminate the needs of expensive leased lines.

When connected to a PC via a LAN or the Internet, you can remotely operate (transmit and receive) the repeater as a dispatch station and/or remotely maintain the repeater configuration from your PC.



Digital trunking (Planned)

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

Digital voice for clear audio

The IDAS radio uses the AMBE+2™ codec providing crisp and clear communication and simultaneous data communication.

Selective call, group call and talk group ID

The IDAS system allows you to call individual or group users. The talk group ID shows group ID, unit ID or alias name on the display while receiving* a message.

* This function is similar to the analog mode PTT ID function, however, the IDAS radio can keep sending ID information during a voice transmission, so the receiving IDAS radio can decode the ID even when breaking into a conversation. (Late entry is possible)

Data communication

The IDAS system allows you 4800 bps* data communication. You can send a data message or GPS position data without an external data modem.

*Error correction, control data, etc, will reduce number of bits available for actual data communication.

Digital voice encryption

The IDAS system provides a secure communication using 15-bit key (about 32,000 keys) encryption.

RAN (Radio Access Number) for digital code squelch

The RAN code provides a digital code for accessing the IDAS repeater or digital code squelch function.

Other functions (Subscriber units only)

- Status call/request
- Radio check
- Call alert
- Remote radio stun/kill/revive
- Emergency call
- Call log
- Remote radio monitor ... Remotely turns on the PTT and transmits anything the microphone hears for a pre-programmed time period.
- Data call ... send and receive a data communication
- Simultaneous data call ... Send and receive a data such as GPS position information with a voice transmission

REPEATER FEATURES

25W, 50W versions, high duty cycle operation

Employing an effective cooling fan and high performance power amplifier, the IC-FR5000/FR6000 provides a stable 50W at 50% duty operation. And the IC-FR5100/FR6100 provides 25W output at 100% duty operation.

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

The IC-FR5000 series has a rack mount bracket and handles for installation in an industry standard 19-inch rack. A 2U height configuration allows you to stack multiple units in a rack.

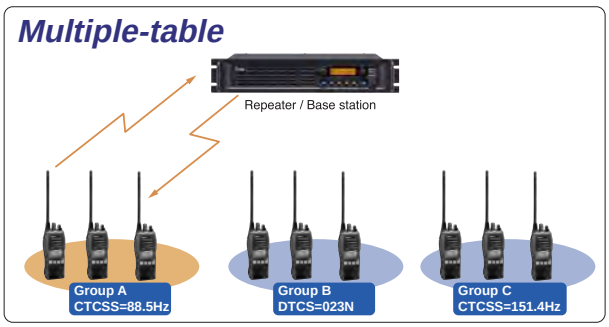
Two RF modules in one unit

The IC-FR5000 series has an internal space for installing another RF unit, the optional UR-FR5000 series. Two RF modules can be installed in the chassis and reduces installation space, while the RF modules can be programmed and operated independently.

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

Multiple-table

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



5-Tone encoder/decoder

When a preprogrammed 5-tone signal is received, the IC-FR5000 series starts and/or finishes repeater operation (downlinking).

D-SUB 25-pin accessory connector

The IC-FR5000 series has a D-SUB 25-pin accessory connector for connecting LTR™/PassPort trunking* controllers or other external devices. An operating channel can be controlled by the input signal from the D-SUB 25-pin connector. * Analog mode only.

Dot matrix, multi-function LCD

A dot matrix LCD is employed for the function display. Up to 12 characters can be displayed. There are 5 programmable buttons on the front panel allowing you to use the repeater as a base station.

32 memory channels

The IC-FR5000 series has 32 memory channels. Each memory channel stores a 12-character channel name, digital/analog channel spacing, repeater/base operation etc, as well as frequency setting.

Voice scrambler

The IC-FR5000 series has a built-in inversion type* voice scrambler. When a more secure voice scrambler system is required, the optional UT-109R/UT-110R* is also available.

* The inversion type voice scrambler and UT-109R/UT-110R voice scrambler is for analog mode only.

CW ID transmission function*

Own CW ID code or callsign can be sent at preprogrammed intervals. The ID code can be used for identifying the repeater. * Analog mode transmission only.

Other features

- Audio compander reduces background noise
- Wide frequency coverage (136–174MHz, 400–470MHz and 450–520MHz)
- High frequency stability (±0.5ppm)
- PTT priority setting (Local mic, External PTT or Repeater operation)
- Low voltage alert
- Convenient key assign stickers supplied

SPECIFICATIONS

Specifications described below are target values. They may be subject to change.

Specification for IC-FR6000
(U.S.A. and Export versions)

■ GENERAL
- Frequency coverage :
  - IC-FR6000 400–470MHz
  - 450–520MHz
- Channel spacing : 6.25*/12.5/25kHz
  - * Turned off from factory, depending on version.
- PLL channel step : 2.5, 3.125kHz
- Number of channels : Max. 32 channels
- Antenna connector : Type-N × 2 (50Ω)
- Operating Temp. range : –30°C to +60°C; –22°F to +140°F
- Power supply requirements : 13.6V DC
- Current drain (approx.) :
  - Receive Standby 500mA
  - 400mA (FAN off)
  - Max. audio 1.9A
  - Transmit 50W 15.0A
- Dimensions (W×H×D) : 483×88×260 mm
  - 19$^{1}/_{32}$×3$^{15}/_{32}$×10$^{1}/_{4}$in
- Weight (approx.) : 5.6kg; 12.3lb

■ TRANSMITTER
- Output power : 50W (adjustable to 5W)
- Modulation system : Variable reactance frequency modulation
- Maximum deviation : ±5.0/2.5kHz (W/N)
- Frequency error : ±0.5ppm
- Spurious emissions : 80dB typ.
- Adjacent channel power : 73dB min. (Wide)
  - 67dB min. (Narrow)
- Audio harmonic distortion : +2dB to –8dB of 6dB/Octave
  - from 300Hz to 2550Hz (N)
  - from 300Hz to 3000Hz (W)
- FM Hum and Noise : 50/45dB typ. (Wide/Narrow)
- Audio harmonic distortion: 1% typ. (40% deviation)

■ RECEIVER
- Intermediate frequencies : 46.35MHz/450kHz (1st/2nd)
- Sensitivity :
  - FM (Wide, Narrow) 0.30µV typ. at 12dB SINAD
  - Digital 0.25µV typ. at 5% BER
- Squelch sensitivity : 0.25µV typ. (threshold, W, N)
- Adjacent channel selectivity : 78/56dB typ. (Wide/Narrow)
- Spurious response : 90dB typ. (Wide/Narrow)
- Intermodulation : 78dB typ. (Wide/Narrow)
- Hum and noise : 50/45dB typ. (Wide/Narrow)
- Audio output power : 4.0W typ. at 5% distortion with a 4Ω load

Measurements made in accordance with TIA-603-B (analog) for USA version. Specifications for IC-FR5000 to be announced later.

Specification for IC-FR6100 (Europe versions)

■ GENERAL
- Frequency coverage :
  - IC-FR6100 400–470MHz
- Channel spacing : 12.5/20/25kHz
- PLL channel step : 2.5, 3.125kHz
- Number of channels : Max. 32 channels
- Antenna connector : N-type (50Ω)
- Operating Temp. range : –25°C to +55°C
- Power supply requirements : 13.2V DC
- Current drain (approx.) :
  - Receive Standby 500mA
  - 400mA (FAN off)
  - Max. audio 1.9A
  - Transmit 25W 7.0A
- Dimensions (W×H×D) : 483×88×260 mm
- Weight (approx.) : 5.6kg

■ TRANSMITTER
- Output power : 25W (adjustable to 5W))
- Modulation system : Variable reactance frequency modulation
- Maximum deviation : ±5.0/4.0/2.5kHz (W/M/N)
- Frequency error : ±0.5kHz
- Spurious emissions : 0.25µW (≤ 1GHz)
  - 1.0µW (> 1GHz)
- Adjacent channel power : 73/65dB min. (Wide/Narrow)
- Audio harmonic distortion : +2dB to –8dB of 6dB/Octave
  - from 300Hz to 2550Hz (N)
  - from 300Hz to 3000Hz (W, M)
- Audio harmonic distortion: 1% typ. (40% deviation)
- Intermodulation attenuation : 40dB min.

■ RECEIVER
- Intermediate frequencies : 46.35MHz/450kHz (1st/2nd)
- Sensitivity (W, M, N) : –10dBµV max. at 12dB SINAD
- Squelch sensitivity : 0.25µV typ. (threshold)
- Adjacent channel selectivity : 70/70/60dB typ. (W/M/N)
- Spurious response : 70dB (Wide/Narrow)
- Intermodulation : 70dB min. (W, M, N)
- Hum and noise : 45/43/40dB typ. (W/M/N)
- Audio output power : 3.5W min. at 5% distortion with a 4Ω load

Measurements made in accordance with EN 300 086 (Wide/narrow) for Europe version. Specifications for IC-FR5100 to be announced later.

Please note: IDAS digital capability setting from the factory
Due to type approval and licensing issues, Europe and Export versions are shipped with the IDAS digital capability DISABLED from the factory. The IDAS capability is enabled in the USA version only.

OPTIONS

■ INTERNAL UNITS (One of these units is selectable)

UT-109R : Non-rolling type voice scrambler unit. 40-pin type*.
UT-110R : Rolling type voice scrambler unit. 40-pin type*.

* The IC-FR5000 series employs the new 40-pin type slot interface, optional 30-pin type units are not compatible with the FR5000 series.

■ CLONING SOFTWARE AND CABLES (For dealers)

CS-FR5000 : Cloning software. Allows quick and simple setting from a PC. (New item)
(Microsoft® Windows® 2000, Windows® XP and Windows Vista™).
+ OPC-1122U : Cloning cable. OPC-1122U is USB type cable.

■ HAND MICROPHONE

HM-152 : Hand microphone.

■ STAND MICROPHONE

SM-25 : Desktop microphone

■ EXTERNAL SPEAKER

SP-22 : Compact and easy-to-install external speaker

■ CHANNEL MODULES

UR-FR5000 : VHF channel module (50W IDAS digital — U.S.A. #41) (New item)
UR-FR5000 : VHF channel module (50W analog — EXP #43) (New item)
UR-FR5100 : VHF channel module (25W analog — Europe #62) (New item)
UR-FR6000 : UHF channel module (50W IDAS digital — U.S.A. #41, #51) (New item)
UR-FR6000 : UHF channel module (50W analog — EXP #43, #53) (New item)
UR-FR6100 : UHF channel module (25W analog — Europe #62) (New item)

REAR PANEL VIEW

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