



## VHF AND UHF REPEATERS

**IC-FR5100** (25W VHF REPEATER)

**IC-FR5100H** (50W VHF REPEATER)

**IC-FR6100** (25W UHF REPEATER)

**IC-FR6100H** (50W UHF REPEATER)

**iDAS**™  
ICOM DIGITAL ADVANCED SYSTEM



# Dual mode Double Channels



IDAS digital/  
Analogue FM

Two RF modules  
in one unit (option)

50W full duty  
(IC-FR5100H/FR6100H)

5-Tone, DTMF  
CTCSS, DTCS

2U height  
rackmount

32 Ch memory,  
dot-matrix LCD



# Value, Performance and



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

The IC-FR5100/H 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-FR5100 series has an internal space for installing another RF unit. Two RF modules\* can be installed and can be programmed and operated independently.

\* Optional UR-FR5100/UR-FR6100 required.



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

## 100% duty cycle operation

Employing a high performance power amplifier, the IC-FR5100 series provides a reliable 100% duty cycle operation at 25W output. When higher power is needed, the IC-FR5100H series provides a powerful 50W output with 100% duty cycle.

(\* Ambient temperature: 25°C)



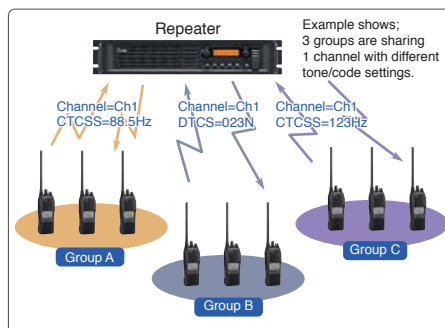
IC-FR5100H series has built-in power amplifier unit.

## 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 digital channel code decode

The IC-FR5100/H series decodes multiple CTCSS and DTCS as well as digital channel 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-FR5100/H 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-FR5100/H series has the 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 analogue mode only.

## Built-in audio compander\*

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

## Other features

- PTT priority setting (Local Mic., external PTT or repeater operation)
- 5-Tone and DTMF encoder/decoder\*
- CW ID transmitter
- Wide/narrow (12.5/25, 12.5/20kHz) channel spacing programmable\*
- Normal and priority scan
- Convenient key assign stickers supplied
- Quick and easy programming from a PC
- Beat cancel capability
- Low voltage alert\*

\* For analogue mode only

# Flexibility: All Standard



## VHF Repeaters

**IC-FR5100** (25W version)

**IC-FR5100H** (50W version)

## UHF Repeaters

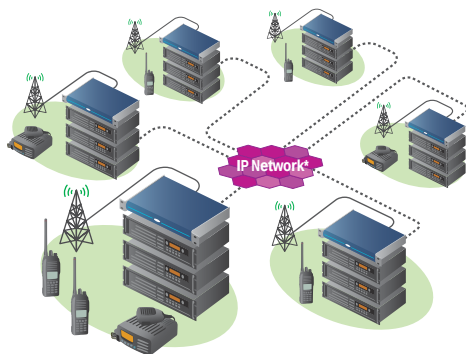
**IC-FR6100** (25W version)

**IC-FR6100H** (50W version)



*The IC-FR5100/H series is ready for dPMR™ Mode 3 digital trunking and Mode 2 conventional mode.*

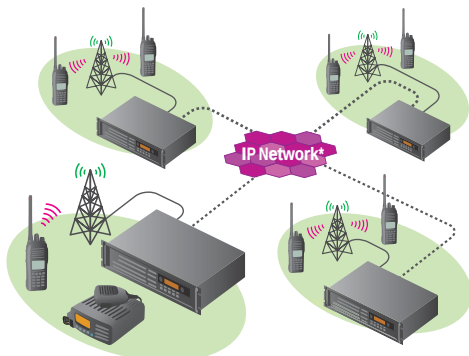
### dPMR™ Mode 3 Digital Trunking



- Unique migration solution from MPT to dPMR
- Up to 1,024 sites and 500,000 subscribers
- Web based system administration
- Scalability to nationwide networks\*
- Web based AVL and Dispatcher\*
- POTS / SIP phone connectivity\*

\* These services will be released throughout 2012.

### dPMR™ Mode 2 Conventional Repeater Mode



- Up to 16 IDAS repeater sites connection over an IP network.

### NXDN™ Simple Trunking



- NXDN Type-D distributed channel trunking system
- Up to 30 channels per site
- Up to 2,000 individual IDs and up to 2,000 group IDs (in single site system)

\* NXDN version radios and repeater system required.

\*1 Note: Private IP Network or VPN Tunnels through the Internet with Static endpoints. Please see the IDAS brochure for details.

## SPECIFICATIONS

|                                                  | IC-FR5100/IC-FR5100H                       | IC-FR6100/IC-FR6100H |
|--------------------------------------------------|--------------------------------------------|----------------------|
| <b>GENERAL</b>                                   |                                            |                      |
| Frequency coverage                               | 136–174MHz                                 | 400–470MHz           |
| Number of channels                               | Max 32 channels                            |                      |
| Type of emission                                 | 16K0F3E, 14K0F3E, 8K50F3E, 4K00F1E/F1D/F3E |                      |
| Channel spacing                                  | 6.25/12.5/20/25kHz                         |                      |
| PLL channel step                                 | 2.5/3.125kHz                               |                      |
| Power supply requirement                         | 13.2V DC nominal                           |                      |
| Current drain (approx.)                          |                                            |                      |
| Tx IC-FR5100/FR6100                              | 8A (25W)                                   | 7A (25W)             |
| IC-FR5100H/FR6100H                               | 17A (50W)                                  | 18A (50W)            |
| Rx Max. audio Standby                            | 1.9A                                       |                      |
|                                                  | 500mA, 400mA (FAN, LCD backlight off)      |                      |
| Antenna impedance                                | 50Ω (Type-N x 2)                           |                      |
| Operating temperature range                      | -25°C to +55°C                             |                      |
| Dimensions (WxHxD)<br>(Projections not included) | 483x88x260mm                               |                      |
| Weight (approx.)                                 |                                            |                      |
| IC-FR5100/FR6100                                 | 5.6kg                                      |                      |
| IC-FR5100H/FR6100H                               | 8.1kg                                      |                      |

## TRANSMITTER

|                             |                                 |
|-----------------------------|---------------------------------|
| Output power (at 13.2V DC)  |                                 |
| IC-FR5100/FR6100            | 25W (100% duty cycle)           |
| IC-FR5100H/FR6100H          | 50W (100% duty cycle)           |
| Max. frequency deviation    | ±5.0kHz/±4.0kHz/±2.5kHz (W/M/N) |
| Frequency stability         | ±0.2kHz ±0.5kHz                 |
| Spurious emissions          | 0.25μW (≤1GHz)<br>1.0μW (>1GHz) |
| Audio harmonic distortion   | 1% typ. (40% deviation)         |
| Intermodulation attenuation | 40dB min.                       |
| FSK error                   | 5% Max. (Digital)               |
| Ext. microphone impedance   | 600Ω (8-pin modular)            |

## RECEIVER

|                                            |                                                 |
|--------------------------------------------|-------------------------------------------------|
| Sensitivity (at 20dB SINAD)<br>(at 5% BER) | -4dBμV typ. (emf)<br>-6dBμV typ. (emf)          |
| Adjacent channel selectivity               | 86/83/77dB typ. (W/M/N)<br>67dB typ. (Digital)  |
| Spurious response rejection                | 86dB typ. (W/M/N)<br>95dBμV typ. (emf, digital) |
| Intermodulation                            | 73dB typ. (W/M/N)<br>76dBμV typ. (emf, digital) |
| Audio output power                         | 3.5W min. (at 5% distortion, 4Ω load)           |
| Ext. speaker connector                     | 2-conductor 3.5 (d) mm (1/8")/4Ω                |

Measurements made in accordance with EN 300 086 (analogue) & EN 301 166 (digital).  
All stated specifications are subject to change without notice or obligation.

## Applicable U.S. Military Specifications &amp; IP Rating

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

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

## Supplied Accessories

- DC power cable
- Handle kit
- Key assign stickers

## OPTIONS

HAND MICROPHONE  
HM-152DESKTOP MICROPHONE  
SM-26EXTERNAL SPEAKER  
SP-35

## POWER AMPLIFIERS

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



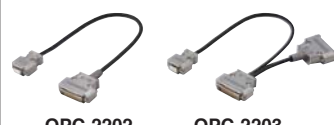
## CHANNEL MODULES

UR-FR5100: 136–174MHz, 25W  
UR-FR6100: 400–470MHz, 25W



## UR-PA5000 CONNECTION CABLES

OPC-2202: dPMR Mode 2 connection cable  
OPC-2203: dPMR Mode 3 connection cable



OPC-2202

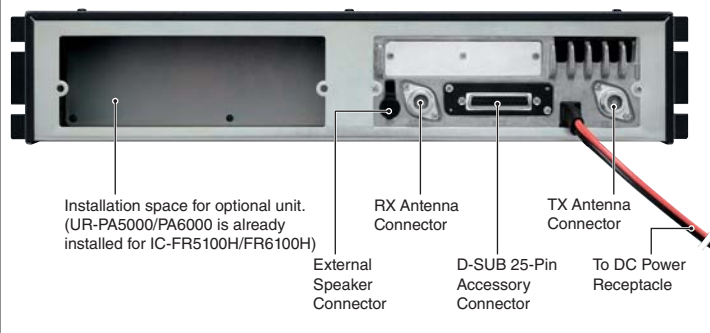
OPC-2203

dPMR Mode 2 NETWORK CONTROLLER  
UC-FR5000 (#12)VOICE SCRAMBLER UNITS  
(For analog mode)

UT-109R

UT-110R

## REAR VIEW



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