



## 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)



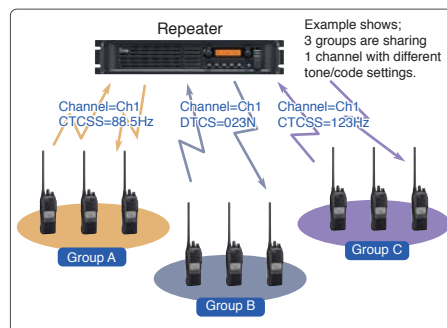
IC-FR5100H series has built-in power amplifier unit.

## 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

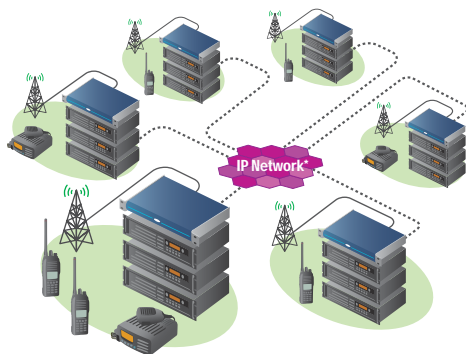
**IC-FR6100** (25W version)

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



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

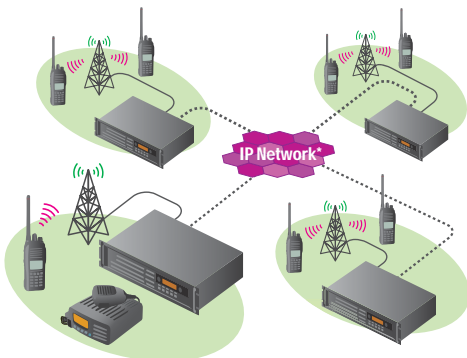
### dPMR™ Mode 3 Digital Trunking



- 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\*

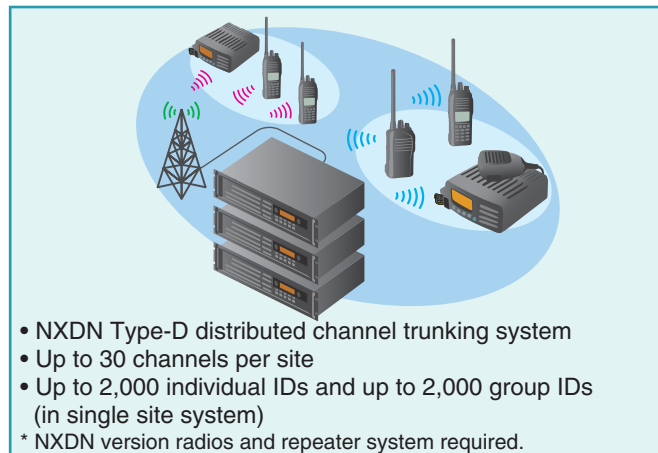
\* These services will be released throughout 2012.

### 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 (W×H×D) (Projections not included)	483×88×260mm	
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) 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) (at 5% BER)	–4dBμV typ. (emf) –6dBμV typ. (emf)
Adjacent channel selectivity	86/83/77dB typ. (W/M/N) 67dB typ. (Digital)
Spurious response rejection	86dB typ. (W/M/N) 95dBμV typ. (emf, digital)
Intermodulation	73dB typ. (W/M/N) 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

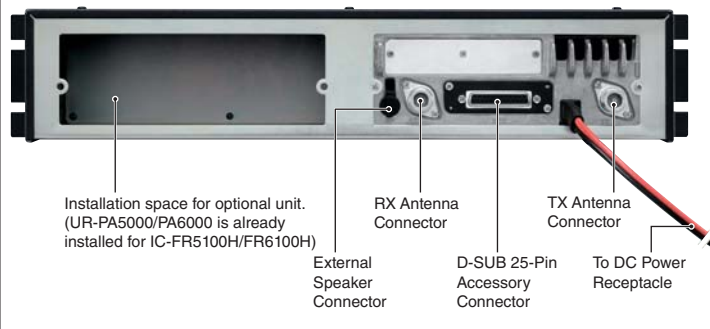
OPC-2203

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

UT-109R

UT-110R

## REAR VIEW



Icom, Icom Inc. and the Icom logo are registered trademarks of Icom Incorporated (Japan) in the United States, the United Kingdom, Germany, France, Spain, Russia and/or other countries. IDAS and IDAS logo are trademarks of Icom Incorporated. dPMR is a trademark of the dPMR MoU Association. NXDN is a trademark of Icom Incorporated and JVC KENWOOD Corporation. All other trademarks are the properties of their respective holders.

Icom Inc.

1-1-32, Kami-minami, Hirano-ku, Osaka 547-0003, Japan Phone: +81 (06) 6793 5302 Fax: +81 (06) 6793 0013

www.icom.co.jp/world