



VHF AND UHF REPEATERS

IC-FR5100

(VHF Repeater)

IC-FR6100

(UHF Repeater)

IDAS
ICOM DIGITAL ADVANCED SYSTEM



**Dual mode
Double
Channels**

- IDAS digital/
analog FM
- Two RF modules
in one unit (option)
- 25W full duty
- 5-Tone, DTMF
CTCSS, DTCS
- 2U height
rackmount
- 32ch memory,
dot-matrix LCD



b0 b1 b5 b3 b4

Value, Performance and



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

The IC-FR5100 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. LEDs on the front panel show both channel conditions.

* Optional UR-FR5100/UR-FR6100 required.



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

25W 100% duty cycle operation

Employing a high stability ± 0.5 ppm oscillator and high performance power amplifier, the IC-FR5100 series provides a reliable 100% duty cycle operation at 25W output.

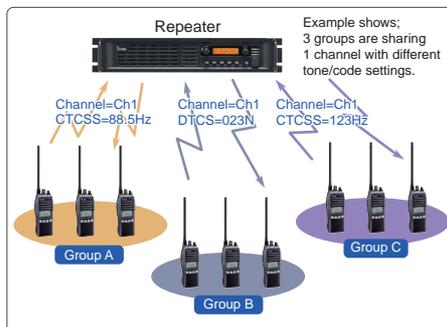


32 channel capacity and 5 programmable buttons

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-FR5100 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-FR5100 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 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 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 (12.5/25, 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 analog mode only

Flexibility: All Standard



VHF Repeater

IC-FR5100

UHF Repeater

IC-FR6100

IDAS

ICOM DIGITAL ADVANCED SYSTEM

The IC-FR5100 series is ready for IDAS digital mode.



Flexible migration path from analog to digital

The IC-FR5100 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

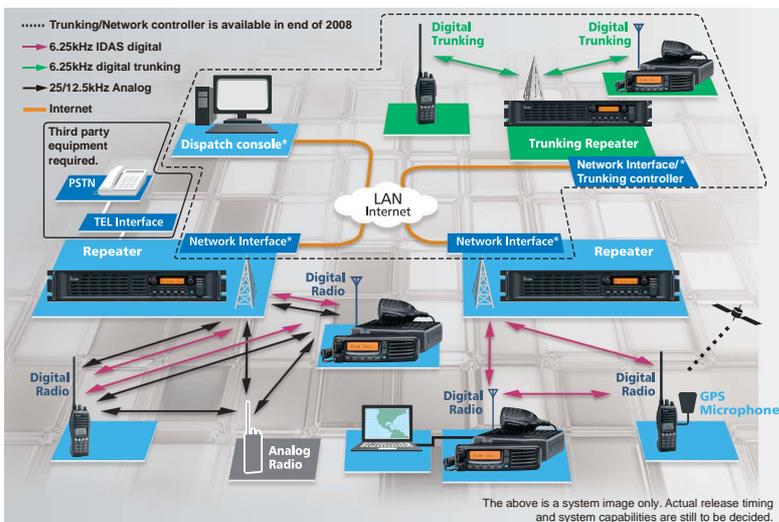
Enjoy noise free audio over a greater comparable area than analog FM. The IDAS radio uses the AMBE+2™ codec the latest evolution in vocoding technology.



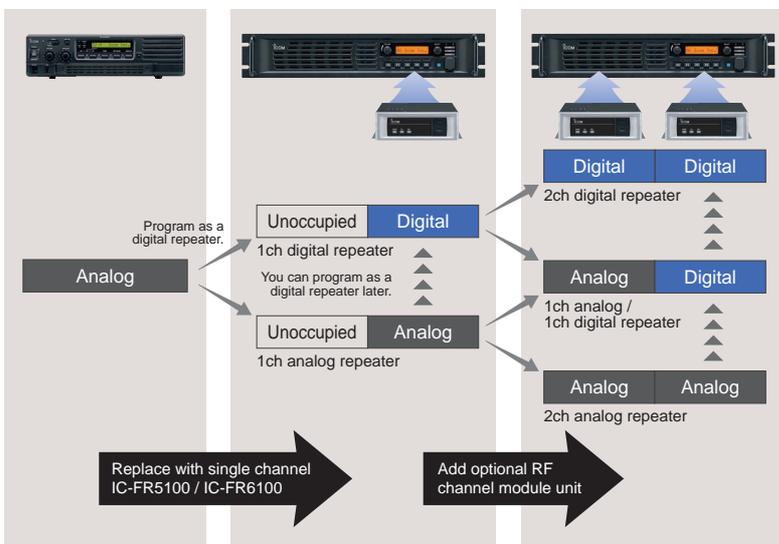
Digital trunking*

The IC-FR5100 series will offer optional single site digital trunking capability in the near future* for effective channel management, and fleet management.

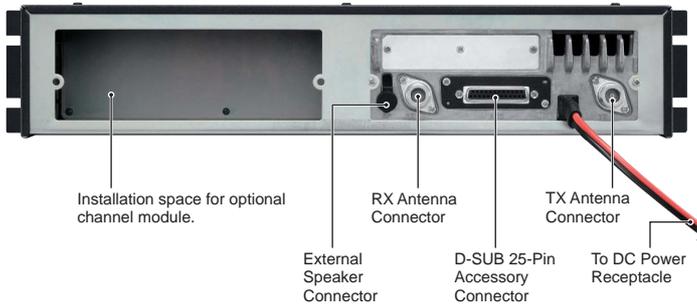
* Optional trunking controller required. (Planned availability: End of 2008.)



Example of Digital Migration Path



REAR VIEW



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

Offers an integrated system

Take advantage of Icom's integrated system design for a total digital system. The IC-F3162 and IC-F5062 series are IDAS compatible components with the following digital features.

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 scrambler
- Emergency call
- Call alert • Call log



SPECIFICATIONS

GENERAL

- Frequency coverage : IC-FR5100 136-174MHz, IC-FR6100 400-470MHz
- Number of channels : Max. 32 channels
- Channel spacing : 6.25*/12.5/20/25kHz
- PLL channel step : 2.5, 3.125kHz
- Antenna impedance : 50Ω (Type-N x 2)
- Power supply voltage : 13.2V DC
- Current drain (at 13.2V DC) : TX 25W 8.0A/7.0A (VHF/UHF), RX Max. audio 1.9A, Stand-by 500mA (FAN, LCD backlight off), 400mA (FAN, LCD backlight off)
- Operating Temp. range : -25°C to +55°C
- Dimensions (WxHxD) : 483x88x260 mm
- Weight : 5.6kg (approx.)

* Digital mode turned off from factory.
 Measurements made in accordance with EN 300 086 (analog).
 All stated specifications are subject to change without notice or obligation.

TRANSMITTER

- Output power : 25W (adjustable to 2.5W) 100% duty cycle
- Max. frequency deviation : ±5.0/4.0/2.5kHz (W/M/N)
- Frequency stability : ±0.2±0.5kHz (VHF/UHF)
- Spurious emissions : 0.25μW (≤1GHz), 1.0μW (>1GHz)
- Adjacent channel power : 73/73/65dB min. (W/M/N)
- Audio harmonic distortion : 1% typ. (40% deviation)
- Intermodulation : 40dB min.
- Microphone impedance : 600Ω (8-pin modular)

RECEIVER

- Sensitivity FM (W/M/N) : -4dBμV typ. (emf, at 20dB SINAD), Digital -6dBμV typ. (emf, at 5% BER)
- Squelch sensitivity : -4dBμV typ. (emf, threshold)
- Adjacent channel selectivity VHF : 86/83/77dB typ. (W/M/N), UHF 80/78/70dB typ. (W/M/N)
- Spurious response : 70dB min. (W/M/N)
- Intermodulation rejection : 70dB min. (W/M/N)
- Audio output power : 3.5W min. at 5% distortion with a 4Ω load
- Ext. speaker connector : 2-conductor 3.5 (d) mm (1/8"/4Ω)

Supplied Accessories

- DC power cable
- Handle kits
- Key assign stickers

Applicable U.S. Military Specifications

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

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

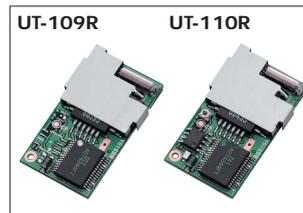
OPTIONS

Some options may not be available in some countries. Please ask your dealer for details.

- **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-FR5100 VHF CHANNEL MODULE**
136-174MHz, 25W
- **UR-FR6100 UHF CHANNEL MODULE**
400-470MHz, 25W

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



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Icom Inc.

1-1-32, Kami-minami, Hirano-ku, Osaka 547-0003, Japan Phone: +81 (06) 6793 5302 Fax: +81 (06) 6793 0013 URL: <http://www.icom.co.jp/world/index.html>

Count on us!

Icom America Inc.

2380 116th Avenue NE, Bellevue, WA 98004, U.S.A.
 Phone: +1 (425) 454-8155
 Fax: +1 (425) 454-1509
 E-mail: sales@icomamerica.com
 URL: <http://www.icomamerica.com>

Icom New Zealand

146A Harris Road, East Tamaki, Auckland, New Zealand
 Phone: +64 (09) 274 4062
 Fax: +64 (09) 274 4708
 E-mail: inquiries@icom.co.nz
 URL: <http://www.icom.co.nz>

Icom (UK) Ltd.

Unit 9, Sea St., Herne Bay, Kent, CT6 8LD, U.K.
 Phone: +44 (01227) 741741
 Fax: +44 (01227) 741742
 E-mail: info@icomuk.co.uk
 URL: <http://www.icomuk.co.uk>

Asia Icom Inc.

6F No. 68, Sec. 1 Cheng-Teh Road, Taipei, Taiwan, R.O.C.
 Phone: +886 (02) 2559 1899
 Fax: +886 (02) 2559 1874
 E-mail: sales@asia-icom.com
 URL: <http://www.asia-icom.com>

Icom Canada

Glenwood Centre #150-6165 Highway 17, Delta, B.C., V4K 5B8, Canada
 Phone: +1 (604) 952-4266
 Fax: +1 (604) 952-0090
 E-mail: info@icomcanada.com
 URL: <http://www.icomcanada.com>

Icom (Europe) GmbH

Communication Equipment Himmelgeister Str. 100, D-40225 Düsseldorf, Germany
 Phone: +49 (0211) 346047
 Fax: +49 (0211) 333639
 E-mail: info@icom-europe.com
 URL: <http://www.icomeurope.com>

Icom France s.a.s.

Zac de la Plaine, 1 Rue Brindejonn des Moulains, BP 45804, 31505 Toulouse Cedex 5, France
 Phone: +33 (5) 61 36 03 03
 Fax: +33 (5) 61 36 03 00
 E-mail: icom@icom-france.com
 URL: <http://www.icom-france.com>

Beijing Icom Ltd.

10C07, Long Silver Mansion, No.88, Yong Ding Road, Haidian District, Beijing, 100039, China
 Phone: +86 (010) 5889 5391/5392/5393
 Fax: +86 (010) 5889 5395
 E-mail: bjicom@bjicom.com
 URL: <http://www.bjicom.com>

Icom (Australia) Pty. Ltd.

Unit 1 / 103 Garden Road, Clayton, VIC 3168 Australia
 Phone: +61 (03) 9549 7500
 Fax: +61 (03) 9549 7505
 E-mail: sales@icom.net.au
 URL: <http://www.icom.net.au>

Icom Spain S.L.

Ctra. Rubi, No. 88 "Edificio Can Castanyer" Bajos A 08174, Sant Cugat del Valles, Barcelona, Spain
 Phone: +34 (93) 590 26 70
 Fax: +34 (93) 589 04 46
 E-mail: icom@icomspain.com
 URL: <http://www.icomspain.com>

Icom Polska

81-850 Sopot, ul. 3 Maja 54, Poland
 Phone: +48 (59) 550 71 35
 Fax: +48 (58) 551 04 84
 E-mail: icompolska@icompolska.com.pl
 URL: <http://www.icompolska.com.pl>

Your local distributor/dealer:

Call our experts on 01274 602504
DIGITAL COMMS
www.digital-comms.co.uk