



FR5000 / FR6000 Configuration Guide



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Icom America Systems

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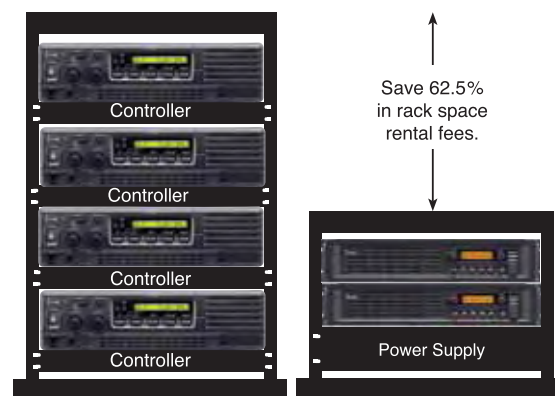
Welcome to the Icom America Systems FR5000 Configuration Guide. This versatile Analog and 6.25 NXDN™ Digital base station-repeater is modular designed, and is available in many configurations and three frequency ranges.



Included are part numbers-descriptions, specifications and pricing of our most popular internally mounted and external accessories for the FR5000 series. Some customized assembled systems may require unique cables, RF jumpers or interfaces designed to work specifically with your configuration. IAS takes great care towards ensuring your system is made to your specifications and performs to your expectations. We recommend discussing your requirements and configurations with your Regional Systems Sales Specialist.

Which 4 channel system fits your needs?

*Save rack space.
Save air space.
Go digital.*



12.5 kHz Conventional
16 RU

- 2 - FR3000 (1 ch each)
- 2 - FR4000 (1 ch each)

Total spectrum footprint: 50 kHz

(Using a 25 kHz system?
Then it's a 100 kHz footprint.)

6.25 kHz Conventional
6 RU

- 1 - FR5000 (2 channels)
- 1 - FR6000 (2 channels)

Total spectrum footprint: 25 kHz

Choose Your Specifications

FR5000 or FR6000



FR5000-01	136-174 MHz
FR6000-01	400-470 MHz
FR6000-11	450-520 MHz

Retail: \$ 2060.00

SPECIFICATIONS

Frequency coverage:	136-174 MHz, 400-470 MHz, 450-520 MHz
Number of channels:	Max 32 channels
Channel spacing:	6.25 / 12.5 / 25 kHz / 7.5 / 15/ 30 kHz
PLL channel step:	2.5, 3.125 kHz
Frequency stability:	±0.5ppm
Operating temperature:	-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 400m (Fan off)
Antenna impedance:	50Ω (Type-N x 2)
Dimensions (WxHxD):	483 x 88 x 260 mm / 19 1/32 x 3 15/32 x 10 1/4 in
Weight:	5.6kg / 12.3lb (approx.)
Output power:	50W (adjustable to 5W) 25W at 100% duty cycle
Max frequency deviation:	±5.0 / 2.5 kHz (wide / narrow)
Spurious emissions:	80dB typ.
Adjacent channel power:	76 / 69dB typ. (wide / narrow)
FM hum and noise:	50 / 45dB typ. (wide / narrow)
Microphone impedance:	600Ω (8-pin modular)
Sensitivity FM (WIN):	0.30μV typ. (at 12dB SINAD) Digital 0.25μV typ. (at 5% BER)
Adjacent Ch selectivity:	80 / 56dB typ. (wide / narrow) – TIA 603 B 85 / 77dB typ. (wide / narrow) – TIA 603
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 4Ω load
External speaker connector:	2 conductor 3.5(d) mm

ADDITIONAL UR MODULES



The FR5000 Series Chassis can house up to two UR modules. This allows for two individual repeaters or base station operation in one chassis. The second module can be either UHF or VHF.

UR FR5000 41

UR FR6000 41

UR FR6000 51

Retail: \$ 1310.00



FR5000 with two modules installed

POWER SUPPLY

The FR5000 series requires 13.6 VDC and 15 amps (One Module). IAS provides two external rack mountable power supplies for you to choose from.



- *Expandable - Add Additional Modules to Increase Current Capacity - Redundancy*

- *Auto Battery Back-Up Capable - Charges External Batteries*

- *2 RU Rack Occupancy - Saves Rack Space*

- *Alarm and Status Operational Outputs*

The ICT N+1 Redundant Series

The N+1 system offers true redundancy. Its built-in active current sharing capability ensures that load current is distributed to approximately 5% among the modules and the ORing diode prevents any interruption to the DC bus. The outcome is a highly reliable and efficient power supply system. Standalone power supplies can be placed in parallel in order to increase the output power to be equivalent to that of an N+1 system but with the following drawbacks; external wiring is required, no active current sharing would be present and the DC output will be pulled down if any of the standalone units fail.

ICT 22012-35N: One Module Power Supply - Rack Mountable

Retail: \$ 1199.00

ICT 22012-70N: Two Module Power Supply - Rack Mountable

Retail: \$ 1587.00

ICT 22012-30N: Internal Module - Mounts Inside ICT Chassis

Retail: \$ 388.00

POWER SUPPLY (continued)

ICT 22012-20 AR



SPECIFICATIONS

Input Voltage Range:	90 - 130 or 180 - 265 VAC
Input Frequency Range:	50 - 60 Hz
Output Voltage:	13.8 VDC +/- 150 mV
Output Current (Continuous):	17.0 Amps
Output Current (Peak):	20.0 Amps
Current Limiting:	20.5 Amps
Line Regulation:	0.20%
Load Regulation:	0.85%
Output Ripple (Max):	25 mV RMS
Efficiency (Min):	85%
Fuse:	5 Amp
Operating Temperature:	-50°F to 125°F -46°C to 52°C
Size (L x W x H):	7.5" x 19" x 3.5"
Weight:	4.8 lbs.

OPTIONAL



Add a second power supply by adding a ICT-22012-20 A module.

Retail: \$ 333.00

Bracket for the second power supply (ICT-RMB-LARGE).

Retail: \$ 26.00

FEATURE HIGHLIGHTS

- 120 To 220 VAC Manual Switch
- Lightweight
- Low Profile
- High Efficiency MOSFET Design
- Current Limiting
- Fuse Protection
- Battery Back-up – Float Charging
- Terminal Block Output Connector
- Input & Extra Output Filtering
- Noise-free

Retail: \$ 399.00

Duplexer

Repeater configurations utilizing a single antenna for both TX and RX functions require a duplexer.

This 50 Watt Notch Type duplexer mounts inside the FR5000 chassis (where the second RF module would go) and is factory tuned and adjusted to your frequency pair. Included are TX-RX Jumper cables.

Please provide specific RX and TX frequencies when placing your order.



Internally Mounted Notch Type

IAS FR 5000 DUP KIT

VHF requires 3 MHz minimum TX-RX separation

IAS FR 6000 DUP KIT

UHF requires 5 MHz minimum TX-RX separation

Retail: \$ 560.00

BASE STATION: Antenna Switch

Base Station operation utilizing a single antenna requires an antenna switch. Two options are available in a 19" external rack mount configuration.

This rack mountable 1RU option allows for two RF modules to be installed in the FR5000 chassis. This unit come in a single or dual configuration. Control Interface Cable and RF Jumper Cables can be provided upon request.

IAS 1RU ANTENNA SWITCH: SINGLE

Retail: \$ 583.00



External Mounting / Single

IAS 1RU ANTENNA SWITCH: DUAL

Retail: \$ 1000.00



External Mounting / Dual

PILOT TONE GENERATOR: Conventional Analog Voting System



JPS PTG 10

Retail: \$ 980.66



FR6000 UNIVERSAL MOUNTING PLATE: For JPS PTG 10

Retail: \$ 26.00

RX PRE-SELECTOR OPTIONS



FIP PR 46 4C PE

UHF 4 Cavity RX Pre-Selector
430-520 MHz

Retail: \$ 610.00



FIP PR 16 4H PE

VHF 4 Cavity RX Pre-Selector
150-174 MHz

Retail: \$ 626.00

TRUNKING CARD / UC MODULE



This card installs INSIDE the UR module that resides inside the FR5000 series chassis. Phase One development of this card provides for IDAS™ Trunking Capabilities. Subsequent development will provide for IP networking of sites and multi-site Trunking. Upgrades of this card can be accomplished via IP.

UC FR5000 01

Retail: \$ 1500.00



Accessories



HM-152 Hand Microphone

Retail: \$ 42.00



SM-25 Desktop Microphone with Monitor Switch

Retail: \$ 110.00



SP-22 External Speaker

Retail: \$ 50.00



UT-109R 21 Analog Voice Scrambler Unit with Up To 32 Non-rolling Codes

Retail: \$ 100.00



UT-110R 21 Analog Voice Scrambler unit with Up To 1020 Rolling Codes

Retail: \$ 165.00

FR5000 Configuration Check List

- | | | | |
|--------------------------|--|-----------------|----------|
| <input type="checkbox"/> | 1. Correct frequency band(s)? | Required | Page 4 |
| <input type="checkbox"/> | 2. Proper number of UR modules? | Required | Page 5 |
| <input type="checkbox"/> | 3. Proper power supply selected? | Required | Page 6-7 |
| <input type="checkbox"/> | 4. Duplexer (Repeater / one antenna) | <i>Optional</i> | Page 8 |
| <input type="checkbox"/> | 5. Antenna Switch (Base station / one antenna) | <i>Optional</i> | Page 9 |
| <input type="checkbox"/> | 6. Pilot Tone Generator (Voting systems) | <i>Optional</i> | Page 10 |
| <input type="checkbox"/> | 7. Pre-selector | <i>Optional</i> | Page 10 |
| <input type="checkbox"/> | 8. Trunking Card / UC Module / IP Control | <i>Optional</i> | Page 11 |
| <input type="checkbox"/> | 9. Accessories | <i>Optional</i> | Page 12 |

Place your FR5000 order with Icom today!

Call 1-800-USA-ICOM