IDAS™
COM DIGITAL ADVANCED SYSTEM

Dual mode
Double Channels

VHF AND UHF REPEATER
IC–FR5000 VHF REPEATER
IC–FR6000 UHF REPEATER

IDAS digital/ analog FM
IDAS Trunking (With UC–FR5000)
Two RF modules in one unit (option)
50W output 25W full duty
5-Tone, DTMF CTCSS, DTCS
2U height rackmount
32ch memory, dot-matrix LCD

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19-inch rack mount, 2U height low profile design
The IC-FR5000 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-FR5000 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-FR5000/UR-FR6000 required.

25W 100% duty cycle operation*
Employing a high performance power amplifier, the IC-FR5000 series provides a reliable 100% duty cycle operation at 25W output. When need higher power, the optional UR-PA5000 series power amplifier provides 100W output power with a 50% duty cycle and 50W output with 100% duty cycle. (* Ambient temperature: 25°C)

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-FR5000 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.

Superior receiver performance
The IC-FR5000 series has 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.

D-SUB 25-pin accessory connector
The IC-FR5000 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.

* For analog mode only.

Example shows: 3 groups are sharing 1 channel with different tone/code settings.
The IC-FR5000 series is ready for IDAS™ trunking and IDAS™ conventional.

**Spectrum efficiency**
The IDAS system utilizes 6.25kHz narrowband FDMA technology. This system is not only spectrum efficient but meets the FCC 2013 deadline for narrow band compliance.

**Audio quality and coverage**
When compared to an analog FM signal, digital easily outperforms analog in audio clarity at the fringes of the communication range, thus providing more reliable audio over a greater total area, even if the coverage footprint is the same as analog FM.

**Secure conversation**
The digital modulation/demodulation makes it difficult to decode the IDAS digital signal by using the current scanner receivers at this time. The digital voice scrambler adds security on your conversation.

**IDAS™ Trunking**
The IDAS trunking conforms with NXDN™ type-D trunking protocol. The IDAS trunking is a distributed system which does not use a dedicated control channel.

**Flexible IP Network**
The IDAS multi-site trunking/conventional system integrates IP network capability in the system and extends your communication coverage. The remote communicator, RC-FS10, creates an IP-based virtual radio on a PC and works as a simple dispatcher.

**Flexible migration path**
The IDAS system allows you to scale migration to narrow band digital at your own pace and needs, while running your existing analog system. The IDAS radios can receive both analog and IDAS conventional mode signals on a single channel.

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

<table>
<thead>
<tr>
<th>IC-FR5000</th>
<th>IC-FR6000</th>
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</thead>
<tbody>
<tr>
<td><strong>GENERAL</strong></td>
<td></td>
</tr>
<tr>
<td>Number of channels</td>
<td>Max. 32 channels</td>
</tr>
<tr>
<td>Channel spacing</td>
<td>6.25/12.5/25kHz</td>
</tr>
<tr>
<td>Type of emission</td>
<td>16K0F3E, 11K0F3E/1F7E/F7D/F7W, 5K0F3E</td>
</tr>
<tr>
<td>Frequency stability</td>
<td>±0.5ppm</td>
</tr>
<tr>
<td>Antenna impedance</td>
<td>50Ω (Type-N × 2)</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>–30°C to +60°C; –22°F to +140°F</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>13.6V DC</td>
</tr>
<tr>
<td>Current drain (at 13.6V DC)</td>
<td></td>
</tr>
<tr>
<td>TX 50W 15A</td>
<td></td>
</tr>
<tr>
<td>RX Max. audio stand-by</td>
<td>500mA, 400mA (LAN, LCD backlight off)</td>
</tr>
<tr>
<td>Dimensions (W×H×D)</td>
<td>483×38×260 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>5.6kg</td>
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<tr>
<td><strong>RECEIVER</strong></td>
<td></td>
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<tr>
<td>Sensitivity</td>
<td>12dB SINAD</td>
</tr>
<tr>
<td>Adjacent channel selectivity</td>
<td>80/56dB typ. (W/N)</td>
</tr>
<tr>
<td>Spurious emissions</td>
<td>63dB typ. (Digital)</td>
</tr>
<tr>
<td>Spurious response</td>
<td>90dB typ. (W/N)</td>
</tr>
<tr>
<td>Intermodulation rejection</td>
<td>75dB typ. (W/N)</td>
</tr>
<tr>
<td>Hum and noise ratio</td>
<td>52/50/66dB typ. (W/N/D)</td>
</tr>
<tr>
<td>Audio output power</td>
<td>4.0W typ. at 5% distortion with a 4Ω load</td>
</tr>
<tr>
<td>Microphone impedance</td>
<td>600Ω (8-pin modular)</td>
</tr>
<tr>
<td><strong>TRANSMITTER</strong></td>
<td></td>
</tr>
<tr>
<td>Output power</td>
<td>50W (adjustable to 5W)</td>
</tr>
<tr>
<td>100% duty cycle</td>
<td>25W (at 25°C)</td>
</tr>
<tr>
<td>Max. frequency deviation</td>
<td>±5.0kHz±2.5kHz (W/N)</td>
</tr>
<tr>
<td>Spurious emissions</td>
<td>800μV typ.</td>
</tr>
<tr>
<td>FM hum and noise</td>
<td>52/48/64dB typ. (W/N/D)</td>
</tr>
<tr>
<td>Audio harmonic distortion</td>
<td>1% typ. (40% deviation)</td>
</tr>
<tr>
<td>FSK error</td>
<td>5% Max. (Digital)</td>
</tr>
<tr>
<td>Audio harmonic distortion</td>
<td>1% typ. (40% deviation)</td>
</tr>
<tr>
<td><strong>REAR VIEW</strong></td>
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<tr>
<td>Installation space for optional UC-FR5000.</td>
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<tr>
<td>RX Antenna Connector</td>
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<tr>
<td>TX Antenna Connector</td>
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### OPTIONS

**HAND MICROPHONE**
- SM-26

**DESKTOP MICROPHONE**
- SP-35: 2m cable
- SP-35L: 6m cable

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

**CHANNEL MODULES**
- UR-FR5000: 136–174MHz, 50W
- UR-FR6000: 400–470, 450–512, 450–520, 350–400MHz, 50W

**IDAS TRUNKING/NETWORK CONTROLLER**
- UR-FR5000 #01 IDAS single-site trunking
- #02 IDAS multi-site conventional
- #03 IDAS multi-site trunking

**VOICE SCRAMBLER UNITS**
- For analog mode

**connection cable**
- OPC-2202: IC-FR5000 and UR-PA5000 connection cable

**ICOM ACCESSORIES**
- DC power cable
- Handle kit
- Key assign stickers

**Technological and design features**

- 50W, 100% duty cycle
- 100W, 50% duty cycle
- 25kHz bandwidth
- Optional UC-FR5000
- Same as supplied with UC-FR5000

**Military specifications**

- MIL-STD-810 F: Method Procedure
  - High Temperature: 501°F
  - Low Temperature: 502°F
  - Dust: 510°F
  - Vibration: 514°F
  - Shock: 516°F

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

**General References**

- Icom America Inc.
- Icom Canada
- Icom (Australia) Pty. Ltd.
- Icom New Zealand
- Icom (Europe) GmbH
- Icom Japan Inc.
- Icom France s.a.s.
- Icom Polska
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