



# NEW PRODUCT INFORMATION

## VHF FM REPEATERS

**IC-FR3000** (50W-U.S.A./GEN)

**IC-FR3100** (25W-EUR)

## UHF FM REPEATERS

**IC-FR4000** (50W-U.S.A./GEN)

**IC-FR4100** (25W-EUR)



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## SELLING POINTS

- Meets both FCC and ETS standards**
- Full duty operation with built-in power supply unit**
- Compact design. Desktop, wall or rack mounting possible**
- Most signaling systems are equipped as standard**
- Fully compatible with Icom F series radios**
- Compatible with Trunking systems**  
(LTR®/PassPort®/SmarTrunkII™/MPT1327 systems)

## FEATURES

### Meets both FCC and ETS standards

The IC-FR3000/IC-FR4000 meets Part 90 of the FCC Rules and EIA/TIA-603, and the IC-FR3100/IC-FR4100 meets ETS 300-086, 300-113, 300-219, 300-489 and R&TTE requirements.

### Full duty operation

Employing a large heatsink, cooling fans and high performance power amplifier, the repeater provides a stable 50W at full duty cycle operation.

### Built-in AC power supply

The repeater has a built-in power supply unit. The AC power source is arranged to suit either 100-120V or 220-240V (depending on version) so there is a version for all markets. When connected to an external battery, the repeater automatically changes the power source for backup, even if the AC power fails. The result, no lost communications.

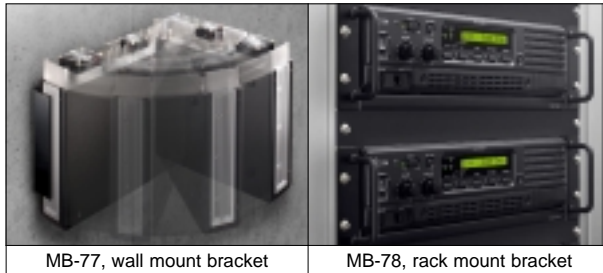
### Compatible with Trunking systems

The ACC connector (D-sub 25-pin) provides interfacing for a SmarTrunk II™, LTR®, PassPort® or MPT1327 trunking controller or control console.

## FEATURES

### Desktop, wall or rack mounting possible

With an optional microphone, the repeater can be placed on a desktop as a base station. The optional MB-77 wall mount bracket allows you to set the repeater on a wall. A 19" 3U height rack mount bracket, MB-78, is also available.



MB-77, wall mount bracket

MB-78, rack mount bracket

### Internal space for duplexer and isolator\*

A duplexer allows the use of a single antenna for transmitting and receiving. An isolator protects the PA unit from strong adjacent signals and reduces intermodulation. The repeater has an internal space to allow a duplexer and isolator to be freely installed. The controls of the duplexer are accessible from the front of the repeater, allowing easy maintenance and adjustment.

\* Recommended duplexers and isolators are listed on the last page.

### Telephone line connector

The repeater has a 4-pin modular connector allowing telephone interconnection.

### 32 memory channels

The repeater has 32 memory channels. Each memory channel stores a 10-character channel name, wide/narrow (25/12.5kHz) channel spacing, repeater/base operation etc, as well as frequency setting.

### 16-digit display

The 16-digit alphanumeric LCD displays channel number, channel name, decoded ID (with 5-Tone and DTMF), etc. Great for use as a base station.

### Multiple CTCSS/DTCS tone memories

Each channel has a max. 16 Rx and Tx CTCSS and DTCS tone memories that are freely programmable. These memories allow multiple groups to share a single channel.

### Built-in 2-Tone, 5-Tone, DTMF encoder and decoder

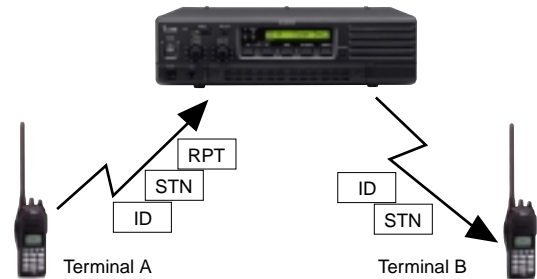
Four 2-Tone codes, nine 5-Tone codes and 20 DTMF codes are programmable. You can also combine these tones with CTCSS or DTCS tones to control repeater access.

### ID transmission function

Own ID code or callsign can be sent at the beginning and/or end of the transmission. The ID code is used for identifying the repeater with the ANI (Automatic Number Identification) function. The ID format is selectable from CW, DTMF and 5-Tone.

### 5-Tone relay function

In a system that has 5-Tone capability, the repeater relay is opened by the matched 5-Tone signal. The repeater begins relaying the moment it receives the Repeater code. The Station and ID codes are relayed to the intended station.



### 2-Tone/5-Tone auto TX function

When a matched 2-Tone/5-Tone is received, the auto TX function automatically starts the transmission. The external source is selectable from MIC, ACC and Remote lines. With this function it is possible to listen to activity near the repeater itself from a remote location. This for example, allows you to know if unauthorized persons are near the repeater by being able to hear them talking.

### Backup functions

An automatic alert function detects an internal error and alerts with a beep sound or a telephone call. If the repeater fails from an internal error, the Master repeater will automatically switchover to a sub-unit (Master/Slave switchover).

### Optional Voice scrambler unit

The optional voice scrambler units, UT-109 or UT-110 provide secure communication by scrambling voice signals. Up to 32 codes with the UT-109 and 1020 codes (255 codes  $\times$  4 groups) with the UT-110 are available, respectively.

### Programmable key assign function

The following functions can be assigned to the [PROG] button.

- Priority A
- Display select
- High/Low
- Call
- Emergency Single
- Scrambler
- Null
- Priority A (Rewrite)
- Lock
- Wide/Narrow
- Call A, B (PMR mode only)
- Emergency Repeat
- Special Function 1, 2

SmarTrunk II is a trademark of SmarTrunk System, Inc.

LTR is a registered trademark of E.F. Johnson Company.

PassPort is a registered trademark of Trident Datacom Technologies, Inc.

## PROGRAMMABLE ITEMS WITH CS-FR3000

### Key & Display Assign

#### Common Setting

- CTCSS/DTCS
- Auto Reset
- Base TOT/Lockout
- Scrambler
- Repeat TOT
- Hang ON
- RPT log

#### EXPERT SCREEN

- CTCSS/DTCS
- Beep
- Emergency
- CW ID
- Alert
- Security

### Memory Channel Screen

- Scrambler
- 5-Tone Switch Action
- TX 5-Tone signaling
- RX 5-Tone Ch. number

#### DTMF Autodial Screen

- TX Code Ch (autodial)
- DTMF Rx System Code
- DTMF Tx System Code
- DTMF Setting
- Code Setting
- System Control
- TEL Function
- TEL Restriction
- Dial
- Ringer
- On-Hook

### Multiplex Tone Screen

#### 2-Tone Code Screen<sup>\*L</sup>

- RX Code Channel
- RX Code Setting
- TX Code

#### 5-Tone Code Screen<sup>\*P</sup>

- RX Code Channel
- RX Code Setting
- TX Code Channel
- TX Code Setting
- User Tone
- Format

<sup>\*P</sup> : PMR mode only

<sup>\*L</sup> : LMR mode only

## SPECIFICATIONS

Specifications described below are target values. They may be subject to change.  
DO NOT incorporate this information in your advertisements until it has been confirmed.

### ■ GENERAL

- Frequency range :
 

IC-FR3000/FR3100	136–150MHz, 150–174MHz
IC-FR4000/FR4100	400–430MHz, 430–450MHz, 450–480MHz, 480–512MHz
- Channel spacing : 12.5/25kHz type
- PLL channel step : 5, 6.25kHz
- Number of channels : Max. 32 Ch.
- Antenna impedance : 50Ω (Type-N×2)
- Operating temp. range : –30°C to +60°C (EIA)  
–25°C to +55°C (ETS)
- Power supply requirement : 100–120V AC (50/60Hz)\*,  
220V–240V AC (50/60Hz)\*,  
13.6V DC  
(\* Depending on version.)
- Current drain (at 13.6V DC) :
 

Transmit	20A typ (50W) 15A typ (25W)
Receive	2A typ (AF max.) 1A typ (stand-by)
- Dimensions : 410(W)×110(H)×360(D) mm  
(projections not included) ;6(W)×2<sup>5</sup>/<sub>8</sub>(H)×5<sup>1</sup>/<sub>2</sub>(D) in.
- Weight (approx.) : 12kg; 26.4lb

### ■ TRANSMITTER

- Output power :
 

IC-FR3000/FR4000	50W
IC-FR3100/FR4100	25W
- Spurious emissions : 70dB (EIA)  
0.25μW/–36dBm (ETS)
- AF distortion : 3.0% typ.
- Adjacent channel power: 60dB (narrow)  
70dB (wide)
- Hum and noise : 34dB (narrow)  
40dB (wide)

### ■ RECEIVER

- Sensitivity : 0.5μV typ. (at 12dB SINAD)  
+6dBμV emf typ. (at 20dB SINAD)
- Adjacent Ch. selectivity : 60dB (narrow)  
70dB (wide)
- Spurious response : 70dB
- Intermodulation : 70dB  
rejection ratio
- Hum and noise ratio : 34dB (narrow)  
40dB (wide)
- Audio output power : 2.5W at 10% distortion with a  
4Ω load

## OPTIONS

- **CS-FR3000\*** CLONING SOFTWARE
- **HM-100N** HAND MICROPHONE
- **HM-100TN** DTMF HAND MICROPHONE
- **MB-77\*** WALL MOUNT BRACKET
- **MB-78\*** 19" RACK MOUNT BRACKET
- **OPC-478** CLONING CABLE  
+ **OPC-592** CLONING CABLE ADAPTER
- **SM-25** DESK TOP MICROPHONE
- **UT-109** VOICE SCRAMBLER UNIT (Version #01)  
Non-rolling type. Not compatible with the UT-110.
- **UT-110** VOICE SCRAMBLER UNIT (Version #01)  
Rolling type. Not compatible with the UT-109.

\*New options

## RECOMMENDED DUPLEXERS AND ISOLATORS

### Duplexers

Radio Frequency Systems

- **636-6A-1-2** (144–154MHz)
- **636-6A-2-2** (154–164MHz)
- **636-6A-3-2** (164–174MHz)
- **633-6A-1N** (406–450MHz)
- **636-6A-2N** (450–470MHz)
- **636-6A-5N** (406–450MHz)
- **636-6A-6N** (450–470MHz)
- **636-6A-7N** (470–512MHz)
- **636-6A-8N** (355–406MHz)
- **636-6A-9N** (470–512MHz)

### Isolators

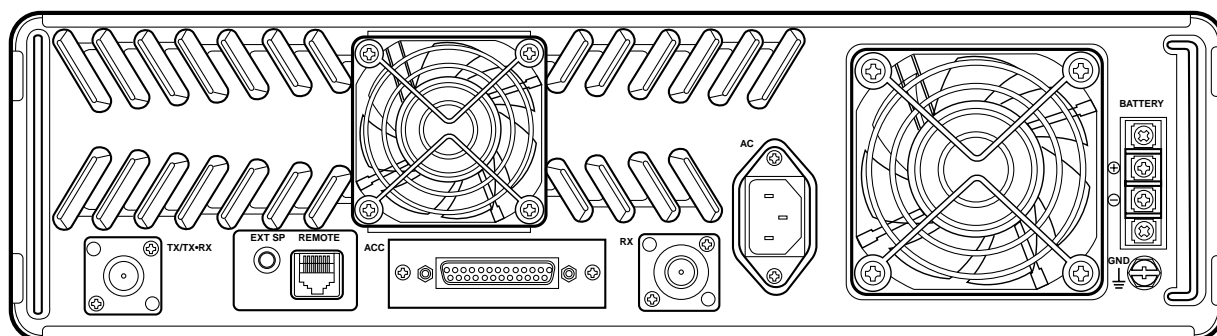
Hitachi Metals, LTD.

- **SI-50R0143M(N-J)** (136–150MHz)
- **SI-50R0162M(N-J)** (150–174MHz)
- **SI-50R0425M(N-J)** (400–450MHz)
- **SI-50R0481M(N-J)** (450–512MHz)

TDK Corporation

- **CU74RA5L-IT** (400–450MHz)
- **CU74RA5L-IT** (450–512MHz)

## REAR VIEW



The illustration shows rear view of the IC-FR4000.  
The rear view will differ slightly from this illustration depending on version.