

ICOM



# IDAS<sup>TM</sup>

ICOM DIGITAL ADVANCED SYSTEM

Digital/Analog Migration    IDAS<sup>TM</sup> Multi-site Trunking  
IDAS<sup>TM</sup> Single-site Trunking    IDAS<sup>TM</sup> Multi-site Conventional



IDAS is Icom's digital land mobile radio system using 6.25kHz narrowband FDMA technology. This brochure describes the NXDN™ CAI-based IDAS system\*. IDAS offers a complete system of hand-held radios, mobile radios, repeaters, network interface/trunking controller, remote communicator and various accessories. IDAS is a complete digital solution that system owners and managers can grow into as their own time and budgets allow.

\* IDAS has choice of an NXDN™ CAI-based protocol or an ETSI dPMR™ protocol.

## IDAS™ SYSTEM FEATURES

### Spectrum efficiency

The IDAS system utilizes 6.25kHz narrowband FDMA technology. This system is not only spectrum efficient but provides a solution to overcrowded airwaves.

### 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 to your conversation.

### IDAS™ Trunking

The IDAS trunking conforms with the NXDN™ type-D trunking protocol. IDAS trunking is a distributed system which does not use a dedicated control channel and it is an affordable digital trunking solution for high volume users.

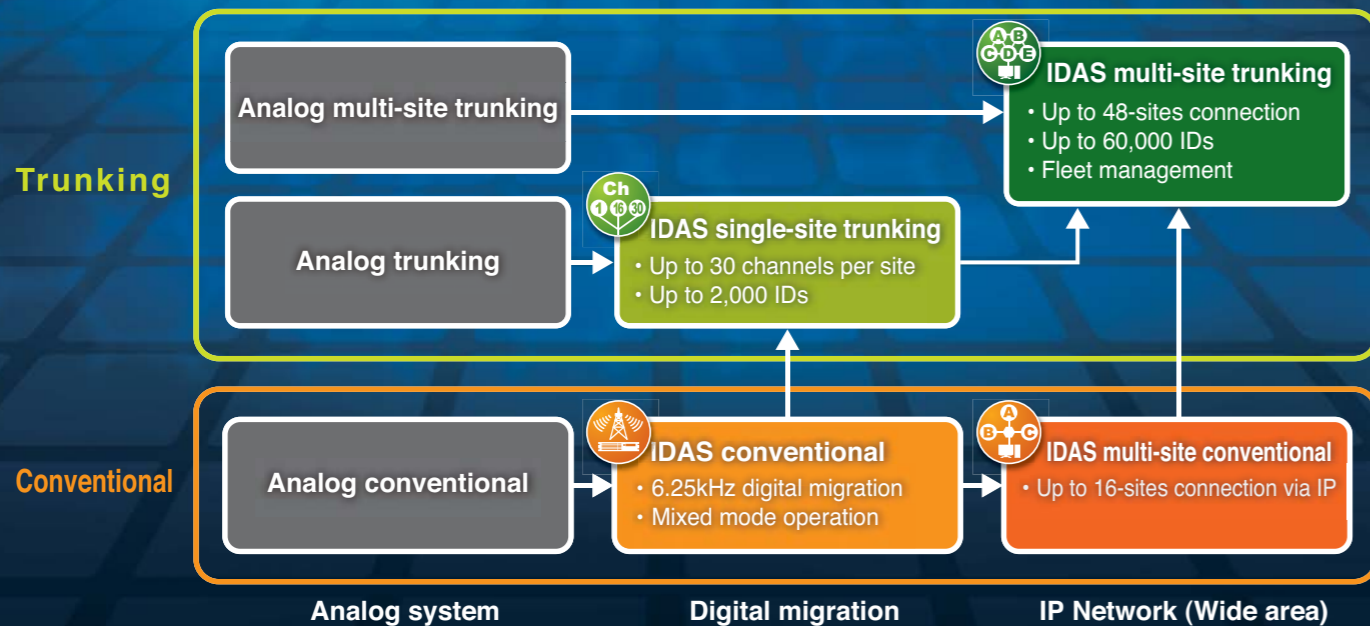
### Flexible IP Network

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.

## IDAS™ MIGRATION PATH



## IDAS™ calling features

IDAS supports following calling features in digital mode.



call. Also, the radio user can request another IDAS radio to send their status and receive it. Up to 100-character short data message can be sent and received.\*1

### GPS capability

When used with the optional GPS speaker microphone for the handheld IDAS radio or an external GPS receiver for the mobile IDAS radio, the IDAS radio can transmit accurate position data for use with vehicle management applications.

### Digital/analog mixed mode

The IDAS radio can receive both analog mode and IDAS conventional mode signals on a single channel and automatically selects the received mode to reply to the received call, while the talk back timer remains. It's a smart way to grow into digital radio – at your own pace, as your budget and comfort allow.

### Individual/group call

The IDAS radio allows you to call individual or group users. The radio automatically sends its own ID number when the PTT button is held down. The alias name or individual/group ID is displayed on the LCD\*1 while receiving a message allowing the radio user to identify who is calling.

### Emergency call functions

When the emergency button is pushed, an emergency signal will be automatically sent to the dispatcher or another radio. Other emergency features are a man down feature\*2 and a lone worker function, available for automated emergency calls (in digital and analog modes). A remote radio monitor function allows the dispatcher to turn on the PTT button from a remote location and transmit anything the microphone hears for a preprogrammed time period.

### Status message and short data message

Up to 100 status conditions can be set and sent with voice

### Radio kill, stun and revive

The radio kill function disables a lost or stolen radio over the air, eliminating security threats from undesired listeners. When the radio stun command is received, all functions will be temporary locked out until the revive command is received or the user password is entered.

### Digital voice scrambler

When secure communication is required, the IDAS system provides a digital voice scrambler using a 15-bit key (about 32,000 codes) as standard. This is added security to the digital modulation/demodulation.

### Other features

- Radio check function allows you to verify if another radio is within communication range
- Call log displays the received call history\*1
- Call alert function notifies the receiving party that a call is coming by using a beep sound and blinking icon
- RAN (Radio Access Number) code for digital code squelch
- Late entry: IDAS radio can decode the received ID and show group ID, unit ID or alias name on the display\*1 even when turned on during a conversation

\*1 Except IC-F3102D series (No-LCD) radio.

\*2 IC-F3162D series only. Optional UT-124R required.

### IDAS function chart

	IC-F3162DT/DS IC-F4162DT/DS series	IC-F5062D IC-F6062D series	IC-F3102D IC-F4102D series	IC-F5122D IC-F6122D series	RC-FS10	IC-FR5100 IC-FR6100 Base mode
IDAS multi-site conventional	✓(Rev. 2.0 or later)	✓(Rev. 2.0 or later)	✓	✓	✓	✓
IDAS single-site trunking	✓(Rev. 2.4 or later)	✓(Rev. 2.4 or later)	✓	✓	—	—
IDAS multi-site trunking	✓(Rev. 4.0 or later)	✓(Rev. 4.0 or later)	—	—	✓	—
PTT ID	✓	✓	TX only	✓	✓	✓
Individual List	✓(Max. 500 ID)	✓(Max. 500 ID)	—	✓(Max. 500 ID)	✓(Max. 500 ID)	✓(Max. 500 ID)
Talkgroup List	✓(Max. 500 ID)	✓(Max. 500 ID)	—	✓(Max. 500 ID)	✓(Max. 500 ID)	✓(Max. 500 ID)
Log for individual Call	✓	✓	—	✓	✓	—
Block Decode	✓	✓	✓	✓	✓	✓
RAN code	✓	✓	✓	✓	✓	✓
Status	✓	✓	TX only *1	✓	✓	✓
SDM (Short Data Message)	✓	✓	—	✓	✓	✓
Call Alert	✓	✓	RX only	✓	✓	✓
Radio Check	✓	✓	RX only	RX only	✓	✓
Stun/Revive/Kill	✓	✓	RX only	RX only	TX only	✓
Emergency	✓	✓	TX only	✓(No ACK TX)	✓	RX only
Remote Monitor	✓	✓	RX only	RX only	TX only	✓
Digital voice scrambler	✓	✓	✓	✓	✓	✓
GPS	✓	✓	TX only	✓	RX only	—
GPS microphone	HM-170GP	—	HM-171GP	—	—	—

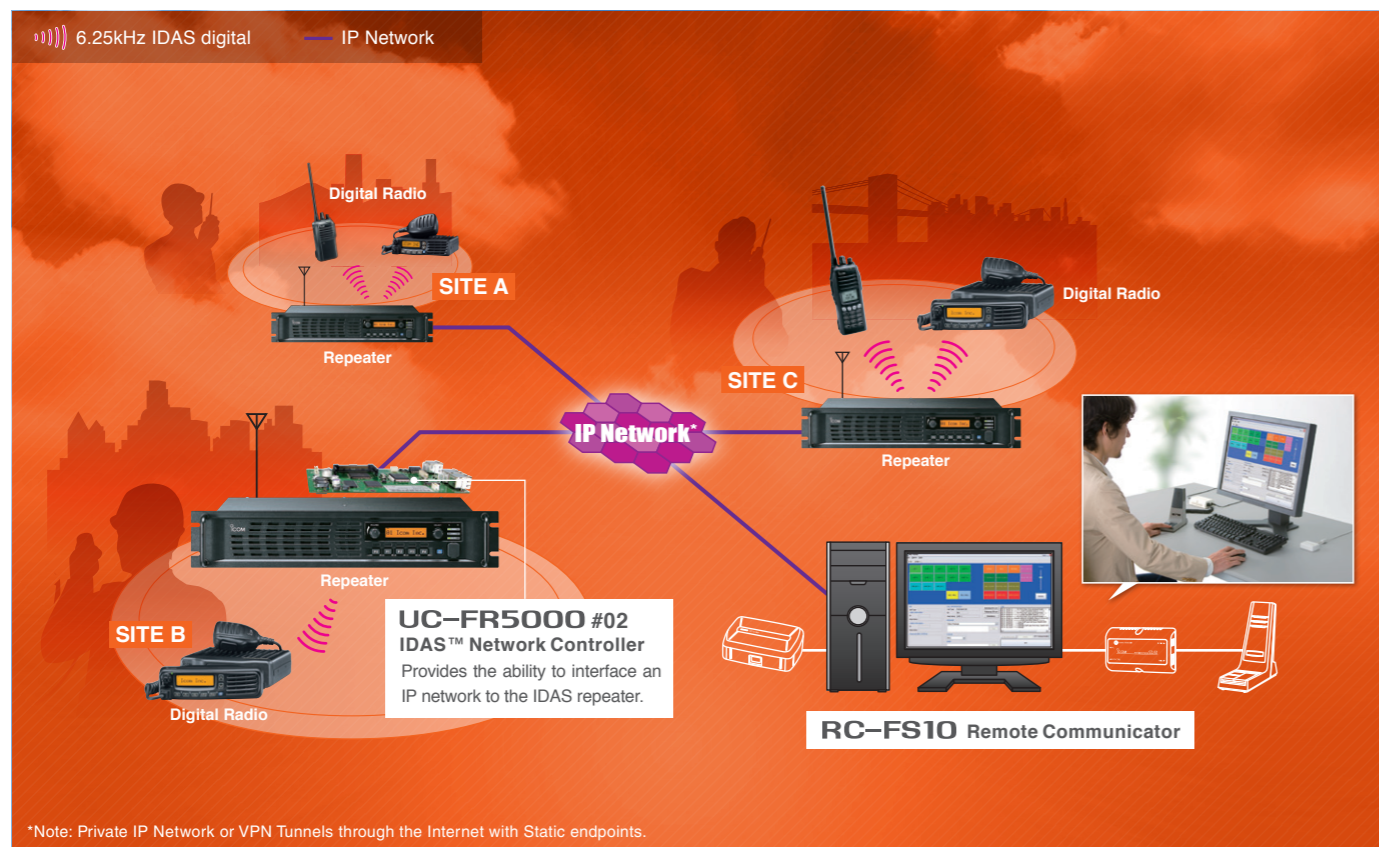
\*1 Power on/off status only.  
TX: Transmit, RX: Receive



# IDAS™ multi-site conventional

## IDAS™ conventional IP network links up to 16 repeater sites

### Communication link for distant locations



### Communication link for distant locations

An IDAS conventional IP network can extend your communication coverage. It lets you connect dispersed sites and allows you to communicate like a single site.

### Up to 16 IDAS™ repeaters connection over IP network

With the optional UC-FR5000 (#02), up to 16 IDAS repeaters can be interlinked with each other. An IDAS terminal radio user can communicate with other IDAS terminal radio users within the reach of each repeater site and/or a virtual dispatch station on the network.

\* The IDAS conventional IP network cannot relay voice traffic over the IP network if the uplink is analog.

### Low bandwidth requirement

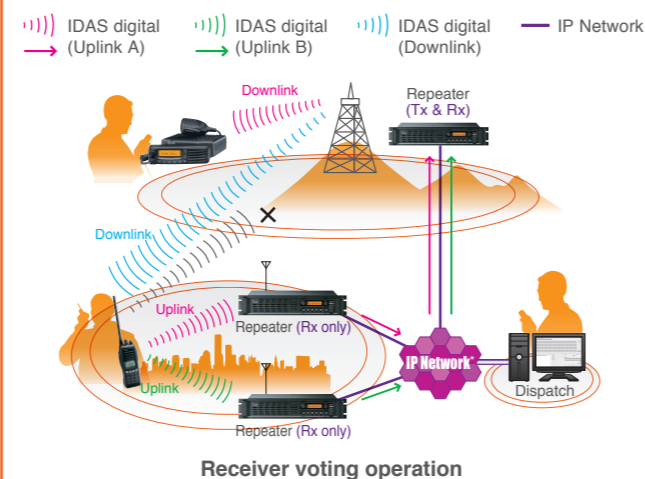
By using the AMBE+2™ vocoder compression, an IDAS multi-site conventional system requires only about 13kbps bandwidth per voice path. It means a DSL class line is sufficient for IDAS multi-site conventional.

### RC-FS10 Remote Communicator

The remote communicator creates an IP-based virtual radio on a PC and works as a simple dispatch. IDAS communication features can be used with the remote communicator software.

### Application example — Receiver voting operation

IDAS receiver voting improves the talk back capability of IDAS handheld and mobile radios. The IDAS networked receivers (where IDAS repeaters' transmission is inhibited and used as receivers) are distributed to the communication area. Each receiver receives a signal from a terminal radio and transfers it to the repeater site, and the repeater relays the best signal or transfers it to the remote dispatch. The UC-FR5000 has a built-in voting function, so an external voter device is not required.



# IDAS™ products lineup

VHF DIGITAL/ANALOG REPEATER

**IC-FR5100**

UHF DIGITAL/ANALOG REPEATER

**IC-FR6100**

25W



### Features

- 136–174, 400–470MHz coverage
- Number of channels : Max. 32 channels
- NXDN™ CAI-based IDAS
- 19-inch rack mount design, 2U height low profile design
- 12-digit dot-matrix display
- Multiple CTCSS, DTCS tone and digital RAN code decode
- 25W at 100% duty operation\* (\* ambient temperature :25°C)
- "2 channel in 1 box" configuration (Optional UR-FR5100/UR-FR6100 required)
- 5-Tone and DTMF encoder/decoder (For analog FM mode)
- Accessory connector (D-sub 25-pin) for connecting analog trunking controllers or other external devices
- ±0.5ppm high stability oscillator
- CW ID transmitter

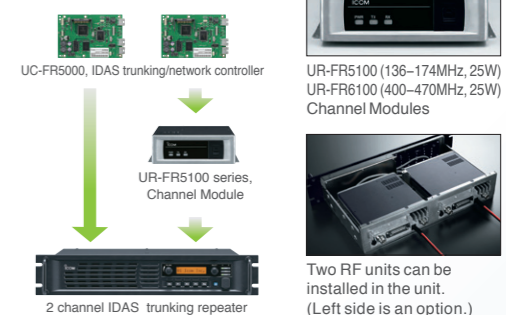
### Options

**UC-FR5000**  
IDAS Trunking/Network Controller  
UC-FR5000 #01 IDAS single-site trunking  
UC-FR5000 #02 (UC-FR5000+CF-FR5000MC)  
IDAS multi-site conventional  
UC-FR5000 #03 (UC-FR5000+CF-FR5000MT)  
IDAS multi-site trunking

**CF-FR5000MT**  
CF Card  
IDAS multi-site trunking upgrade software for UC-FR5000 #01.  
\* CF-FR5000MT is already installed to UC-FR5000 #03.

**CF-FR5000MC**  
CF Card  
Multi-site conventional upgrade software for UC-FR5000 #01.  
CF-FR5000MC is already installed to UC-FR5000 #02.

### "2 channel in 1 box" configuration



REMOTE COMMUNICATOR

**RC-FS10**

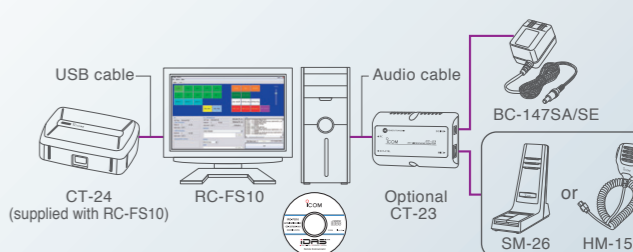
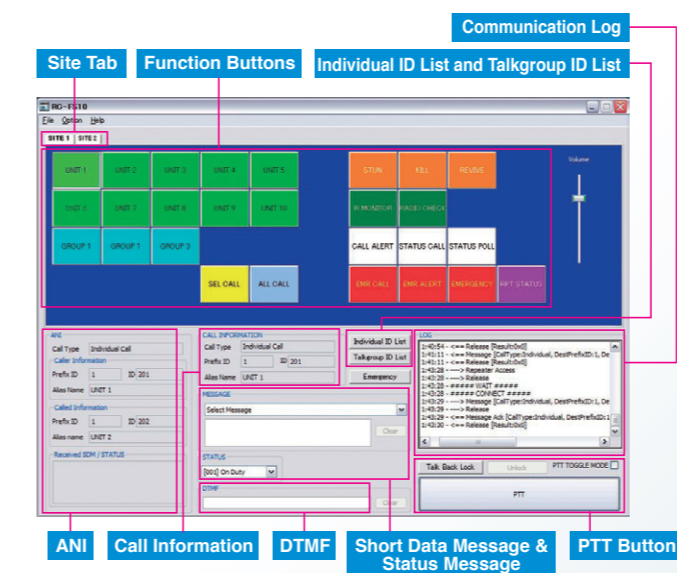
Multi-site conventional

Multi-site trunking

- The digital voice converter, CT-24, is a USB connection device that converts microphone audio to an IDAS compatible digital signal. The remote communicator software will not work if the CT-24 is not connected.
- Up to 8 different IDAS systems can be programmed. With the auto vocoder function, the CT-24 automatically assigned to the selected system.

• HM-152 or SM-26 can be connected to a PC through the CT-23 PTT microphone adapter which converts the microphone audio and PTT signal to the 3.5mm stereo jack. AC adapter BC-147SA/SE is required separately for use with the CT-23.

• Third-party PC headset or microphone may be used with RC-FS10. (Instead of SM-26/HM-152+CT-23)



VHF HANDHELD TRANSCEIVER

**IC-F3162DT IC-F3162DS**

UHF HANDHELD TRANSCEIVER

**IC-F4162DT IC-F4162DS**

VHF MOBILE TRANSCEIVER

**IC-F5062D**

UHF MOBILE TRANSCEIVER

**IC-F6062D**

**Multi-site conventional**

**Multi-site trunking**

**Single-site trunking**



**T Series**  
(10-Keypad Version)

**S Series**  
(Simple Keypad Version)



## Features

- 136–174, 400–470MHz coverage
- 512 Channels/128 zones
- NXDN™ CAI-based IDAS
- IDAS multi-site trunking
- IDAS single-site trunking
- IDAS conventional & multi-site conventional
- Digital/analog mixed mode operation
- Built-in 2-Tone / 5-Tone / CTCSS / DTCSS / MDC 1200 signaling (For analog FM mode)
- Dot matrix, multi-function LCD
- Detachable front panel with optional RMK-3 and separation cable (IC-F5062D series)
- D-Sub 25-pin accessory connector and ignition sensing line (IC-F5062D series)
- Optional GPS speaker-microphone, HM-170GP (IC-F3162D series)

VHF HANDHELD TRANSCEIVER

**IC-F3102D**

UHF HANDHELD TRANSCEIVER

**IC-F4102D**

VHF MOBILE TRANSCEIVER

**IC-F5122D**

UHF MOBILE TRANSCEIVER

**IC-F6122D**

**Multi-site conventional**

**Single-site trunking**



**IC-F3102D**

**IC-F4102D**



## Features

- 136–174, 400–470MHz coverage
- 16 Channels (IC-F3102D series), 128 Channels/8 zones (IC-F5122D series)
- NXDN™ CAI-based IDAS
- IDAS single-site trunking
- IDAS conventional & multi-site conventional
- Digital/analog mixed mode operation
- Built-in 2-Tone / 5-Tone / CTCSS / DTCSS / MDC 1200 signaling (For analog FM mode)
- Channel announcement (IC-F3102D series)
- D-Sub 25-pin accessory connector with optional OPC-2078 (IC-F5122D series)
- Optional GPS speaker-microphone, HM-171GP (IC-F3102D series)

Please note: NXDN CAI-based IDAS series products are NOT compatible with IDAS dPMR series products.

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IDAS™ multi-site conventional

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