ICOM

radiocoms

# SATELLITE PTT Radios

# What is SATELLITE PTT?

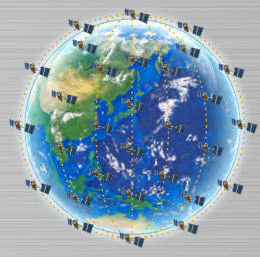
The Icom IC-SAT100/M are the dedicated satellite push-to-talk (PTT) radios, and are the only PTT radios offering real-time communications at the push of a button between a group of individuals, each of whom can be anywhere on the planet*1. The IC-SAT100/M use the Iridium® satellite communication network, which covers the entire globe, including both poles.

# Main Features

## One-to-Many Communication

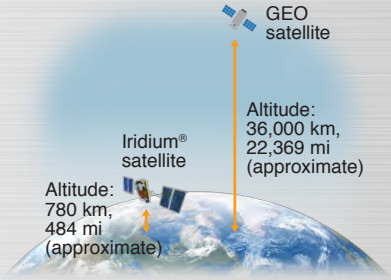
IC-SAT100/M users can immediately start talking to all the radios in the same talkgroup, with just a push of the transmit (PTT) button.

## Total Global Coverage, Including the Poles



The Iridium® satellite network covers the entire globe, including both poles, and can provide global communications anywhere on the planet*1.

## Real-Time Communication




Using 66 Low Earth Orbit (LEO) Iridium® satellites, the IC-SAT100/M provides low-latency communication, and broader, more reliable network coverage, compared to Geosynchronous Equatorial Orbit (GEO) satellites.

## Interoperability with Conventional Radios

With a VE-PG4 RoIP gateway, the IC-SAT100/M can interconnect with an IP phone, WLAN, LTE, IDAS digital*2, analog transceivers and other communication systems.

*1 Subscription contracts are required for using the IC-SAT100/M. Depending on the country or region, carrying and/or use of the IC-SAT100/M may be prohibited.
*2 Type-D multi-site trunking and conventional systems.

# Compact Handheld Satellite PTT Radio

SATELLITE PTT

# IC-SAT100

- **IP67 waterproofing and dust-tight protection**
- **1500 mW of powerful audio**
- **14.5 hours* of long lasting battery life**
- **Emergency key on the top panel**
- **Short Data Message**
- **Voice Recording function**
- **Built-in Bluetooth® capability**
- **AES 256-bit encryption for security**

## And More

- Multiple language display (English, Chinese, French, Japanese, and Spanish)
- Integrated GPS receiver shows a received signal position information on the display
- SMA type antenna connector for an external antenna
- AquaQuake™ function clears any water ingress that may penetrate the speaker grill of the unit
- USB charging
- Tested to the MIL-STD-810 environmental tests

* TX : RX : standby = 5 : 5 : 90.

**Supplied Accessories**

• BP-300 Li-ion battery pack • BC-241 desktop charger • BC-242 AC adapter • FA-S102U antenna • MBB-5 belt clip

## Optional Accessories (for the IC-SAT100)

### *Docking Station for In-Vehicle Use*

DOCKING STATION
**BC-247**
Charger cradle for in-vehicle and in-building use. 12/24 V battery compatible.

ONE-TOUCH ANTENNA CONNECTOR
**FA-S103U**
Easily replace the antenna tip to an external antenna. (SMA to BNC)

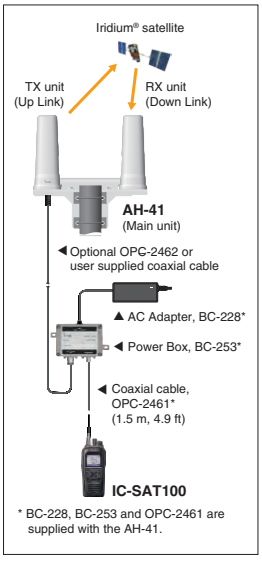
EXTERNAL ANTENNA
**AH-40**
Magnet mount antenna with 1.5 m, 4.9 ft coaxial cable.

SPEAKER-MICROPHONE
**HM-222H**
Use the HM-222H (or an external headset) to transmit, while the radio is attached to the BC-247.

### *Active Antenna for In-Building Use*

EXTERNAL ANTENNA
**AH-41**
Maximum 169 m; 554.5 ft* coaxial cable for installing in a clear location to obtain a line-of-sight path to the satellite.

* Use optional OPC-2462 (59 m; 193.5 ft) or user supplied coaxial cable (Max. 169 m; 554.5 ft) to meet Iridium® performance requirements, and comply with FCC regulations.




* BC-228, BC-253 and OPC-2461 are supplied with the AH-41.

HEADSET
**VS-3**
Bluetooth® headset

MULTI-CHARGER
**BC-214N***
Charges up to six batteries (with/without transceivers) at the same time. (BC-157S, AC adapter supplied.)

COAXIAL CABLE
**OPC-2422**
Coaxial cable (5D-HFA) for the AH-40.
5 m, 16.4 ft

EXTERNAL ANTENNA
**AH-38**
Pole mount passive antenna. OPC-2113 coaxial cable separately required.

COAXIAL CABLE
**OPC-2113**
Coaxial cable (5D-HFA) for the AH-38.
10 m; 32.8 ft

COAXIAL CABLE
**OPC-2462**
Coaxial cable (5D-HFA) for the AH-41.
59 m; 193.5 ft

* The AD-140 charger adapters are supplied with the BC-214N, depending on the charger version.

For more information check the Icom website:

# *In-Building and In-Vehicle Use*

## SATELLITE PTT
# IC-SAT100M

- **Install the antenna unit (with RF unit) to the rooftop, and use the radio from a vehicle, indoors, or even from the basement**
- **Easy wiring works between the antenna unit (with RF unit) and main unit using a LAN cable (Cat 5e)*1**
- **Compatible with both 13.2 and 26.4 V DC vehicle power source**
- **Antenna unit with RF unit: IP67, Main unit: IP54, Microphone: IP55**
- **1500 mW powerful audio output**

## And More

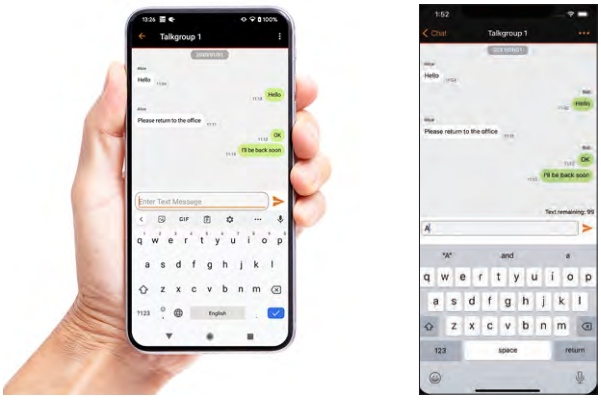
- Voice Recording function • Built-in Bluetooth® capability
- Multiple language display (English, Chinese, French, Japanese, and Spanish)
- Integrated GPS receiver shows received signal position
- Short Data Message • AES 256-bit encryption for security
- Tested to the MIL-STD-810 environmental tests

*1 User supplied LAN cable is required to replace the supplied 20m LAN cable.

**Package includes:**

• Main unit • Antenna unit with RF unit • Multi-functional speaker-microphone
• OPC-2435 DC power cable • OPC-2102 LAN cable (20 m, 65.6 ft)
• Mobile bracket for the main unit • Antenna angle and mounting kits

## *IC-SAT100/M Short Data Message Applications for iOS™/Android™ devices*



SHORT DATA MESSAGE APPLICATION
### RS-SAT100

This application lets a user send and receive a short data message from a phone through the satellite. Use Bluetooth® connection between the radio and Android™/iOS™ device.

Features
- Easy texting similar to a chat or SNS application using a large display and keyboard on the iOS™/Android™ device
- Download free on App Store or Google Play™

## Optional Accessories (for the IC-SAT100M)

EXTERNAL SPEAKER
**SP-30**

EXTERNAL SPEAKERS
**SP-35 / SP-35L**
SP-35: 2 m, 6.5 ft cable
SP-35L: 6 m, 19.6 ft cable

HEADSET
**VS-3**
Bluetooth® headset

AC ADAPTER
**BC-157S**
12 V/7.5 A output for use with the main unit.

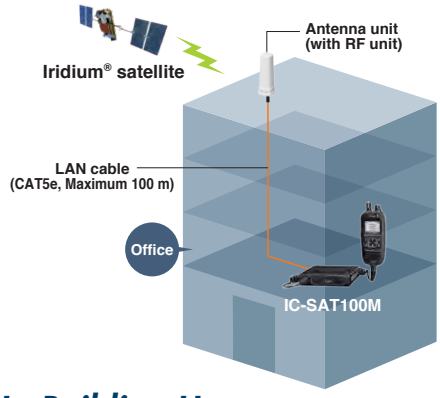
ANTENNA
**AH-40**
Magnet mount antenna
1.5 m, 4.9 ft coaxial cable for in-vehicle use.

EXTENSION CABLE
**OPC-2429**
Extension cable for use with supplied speaker-microphone
2 m, 6.5 ft

COAXIAL CABLE
**OPC-2422**
Extension cable between the AH-40 and the radio.
5 m, 16.4 ft

For more information check the Icom website:

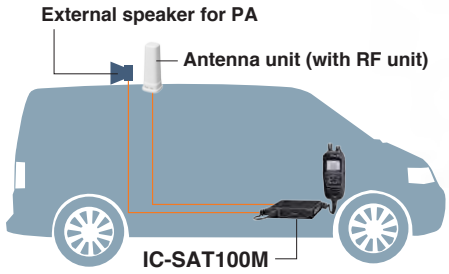
## IC-SAT100M Installation Example




### *In-Building Use*

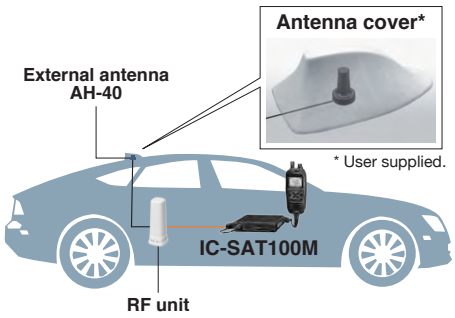
You can flexibly install the radio and the antenna (with RF unit) with only a LAN cable (Maximum 100 m, 328 ft).
Using PoE (Power over Ethernet) capability, the main unit supplies power to the antenna unit through the LAN cable. Connect your PoE injector or switch to extend the distance between the main unit and the antenna unit. (802.11at compatible)

* User supplied LAN cable is required to replace the supplied 20 m LAN cable.



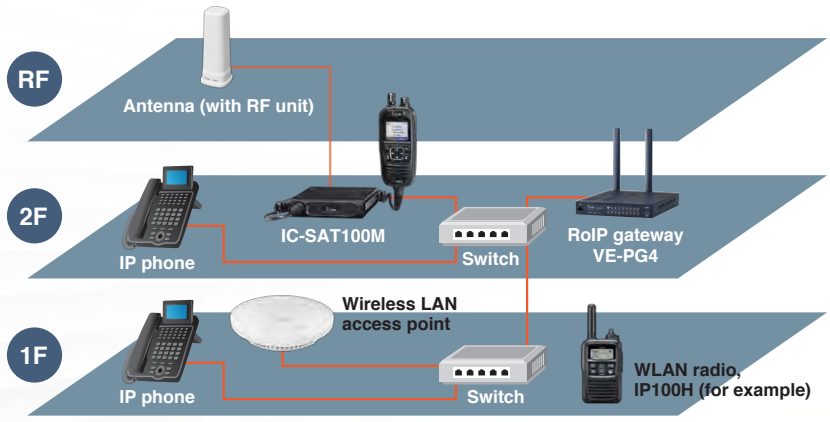

### *Mobile Use*

By attaching the antenna on the roof, you can use the radio in a vehicle. The IC-SAT100M has Bluetooth® capability, and allows hands-free operation, while driving. External speaker connection and ignition sensing are possible.




### *Low Visibility Installation for Mobile Use*

The optional AH-40 antenna provides flexible antenna installation. You can replace the supplied IC-SAT100M with the AH-40, and mount it on the roof instead of the RF unit. When you use a third-party antenna cover, you can cover the AH-40 making it look more discreet.




### *Advanced System Example with VE-PG4*

The VE-PG4 is a versatile RoIP (Radio over IP network) gateway unit, which seamlessly interconnects satellite PTT radios, LMR radios, LTE radios, WLAN radios, IP phone systems, and external devices. In addition to the IP Network (LAN/WAN), the built-in LTE module* provides virtually nationwide communication coverage.

* Service availability depends on the country. Network coverage provided by a custom SIM card.

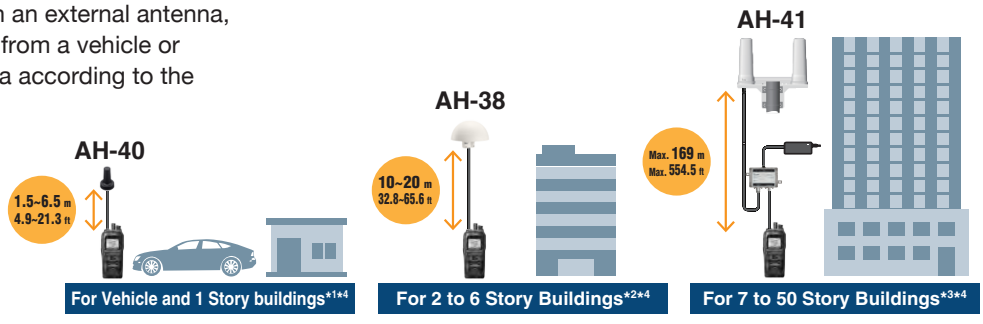
# SATELLITE PTT Radios

| | | IC-SAT100 | IC-SAT100M |
|---|---|---|---|
| Frequency range | | 1616 MHz to 1626.5 MHz | 1616 MHz to 1626.5 MHz |
| Dimensions (W × H × D, projections not included) | | 57.8 × 135 × 32.8 mm, 2.3 × 5.3 × 1.3 in | Antenna unit with RF unit: 76.8 × 200 × 76.8 mm, 3 ×7.9 × 3 in<br>Main unit: 125 × 29 × 156.5 mm, 4.9 ×1.1 × 6.2 in<br>Microphone: 59.5 × 134.6 × 30.1 mm, 2.3 × 5.3 × 1.2 in |
| Weight (approximate) | | 360 g, 12.7 oz (with BP-300 and antenna) | Antenna unit with RF unit: 500 g, 1.1 lb<br>Main unit with microphone: 1.2 kg, 2.6 lb |
| Operational temperature range | | –30°C to +60°C, –22 °F to 140 °F | –30°C to +60°C, –22 °F to 140 °F |
| Audio output power | Internal speaker | 1500 mW typical (at 5% distortion into an 8 Ω load) | 1500 mW typical (at 5% distortion into an 8 Ω load) |
| | External speaker | 1000 mW typical (at 5% distortion into an 8 Ω load) | 4 W typical (at 5% distortion into a 4 Ω load) |
| Battery life (approximate) | | 14.5 hours (TX : RX : standby = 5 : 5 : 90) | – |
| Power supply voltage | | 7.5 V DC (with BP-300) | 13.2 V / 26.4 V DC (10.5–32 V DC) |
| IP rating | | IP67 | IP67 (antenna unit with RF unit), IP55 (mic), IP54 (main unit) |
| Talkgroup | | 15 groups (maximum) | 15 groups (maximum) |
| Antenna connector | | SMA | SMA (for external antenna) |
| Power over Ethernet (PoE) Capability | | – | IEEE802.3at compatible<br>Powered Device : Max 25 W, Power Source Equipment: Max 30 W |

## Types of External Antennas for IC-SAT100 and Usage Guidelines

By replacing the IC-SAT100 antenna with an external antenna, satellite communication is possible even from a vehicle or building. Select the most suitable antenna according to the installation location and application.

※1 OPC-2422 coaxial cable (5 m, 16.4 ft) is required for more than 1.5 m, 4.9 ft extension.
※2 OPC-2113 coaxial cable (10 m, 32.8 ft) is required for AH-38 installation.
※3 Optional OPC-2462 or user supplied coaxial cable is separately required. Cable loss requirement is 12.5 - 13.0 dB loss at 1621 MHz.
※4 The distance from the main unit to the antenna is a rough guideline. The height of the building is an estimate assuming that the height of one floor is 3.5 m, 11.5 ft .




## Q&A

### What about communication fees?

**A.** Communication fees are typically charged at a flat rate through a monthly plan, and there are no additional call charges.* Communication fees differ, depending on the coverage area and the number of the IC-SAT100/M.
* Depending on the country or area, a flat charge plan may not apply, or the service may not be available.

**Coverage Area**

| Size | Small | Medium | Large | Extra Large | Jumbo |
|---|---|---|---|---|---|
| Coverage area | 100,000 km², 38,610 mi² (radius 178 km, 111 mi) | 300,000 km², 115,830 mi² (radius 309 km, 192 mi) | 750,000 km², 289,577 mi² (radius 480 km, 298 mi) | 1,500,000 km², 579,153 mi² (radius 691 km, 429 mi) | 2,250,000 km², 868,729 mi² (radius 846 km, 526 mi) |

### What is a “Talkgroup”?

**A.** Using SATELLITE PTT, you can communicate with other IC-SAT100/M radios assigned to the same Talkgroup. The coverage area of the Talkgroup is selectable from five sizes (see the table above).

### Can I use the IC-SAT100 in any location?

**A.** The IC-SAT100 can be used in open spaces, like the rooftop of a building. Receiving and transmitting may fail, depending on the satellite position or any obstacles between the radio and satellites. Your body can also be an obstacle. Hook the radio upright on your shoulder rather than on your waist.

*Ask your dealer for service plan details.

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