# ICOM

## IP ADVANCED RADIO SYSTEM

| IP Communication Terminal | Remote Communicator | Controller |
|---|---|---|
| **IP100H** | **IP100FS** | **IP1000C** |

# Full-Duplex Communication That Works Over a Wireless LAN and IP Networks*

- **Easy system to set up and use**
- **Up to 100 users can communicate at the same time**
- **Encryption provides extra security**
- **Range is only restricted by your IP network coverage**
- **No license fee required, no call charges**

* Requires either HM-153LS, HM-166LS, HS-102 with OPC-2359 or HS-85 with OPC-2144 for full-duplex operation.
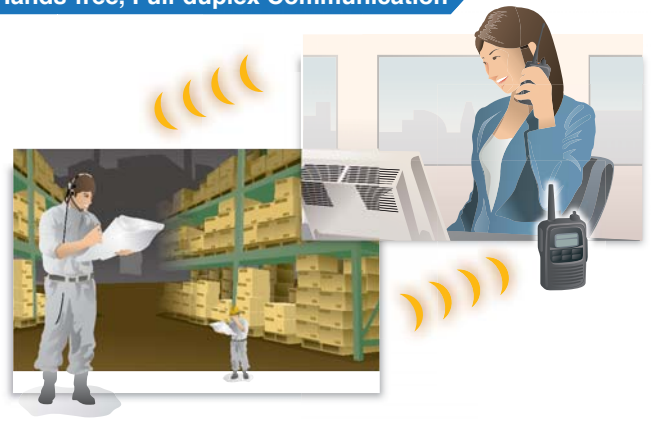
# Wireless LAN System Extends Your Communication Coverage.

## Individual, Group or Area Communication

Staff spread across an extended site, such as a hotel, can communicate seamlessly.

## Hands-free, Full-duplex Communication

With an optional earphone-mic or headset HS-102 or HS-85, the IP100H user can talk and receive simultaneously like a phone call. Hands-free operation allows your staff to carry out other tasks at the same time.

## Intra-building Communication
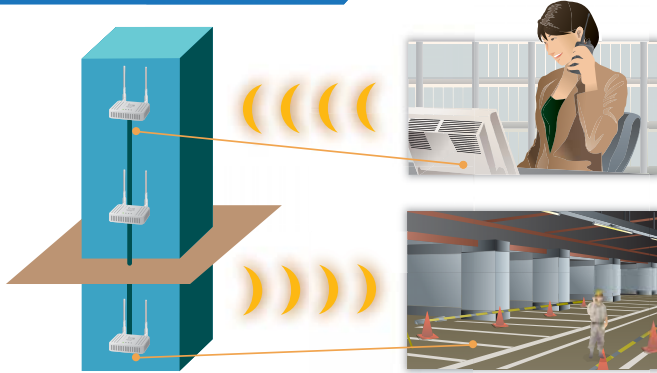
By deploying access points along the IP network, the IP advanced radio system can communicate all the way from the basement to the top floor. The IP100H can access the nearest access point and can roam between access points*. *Same SSIDs are required for roaming use.

## Dispersed Sites Communication
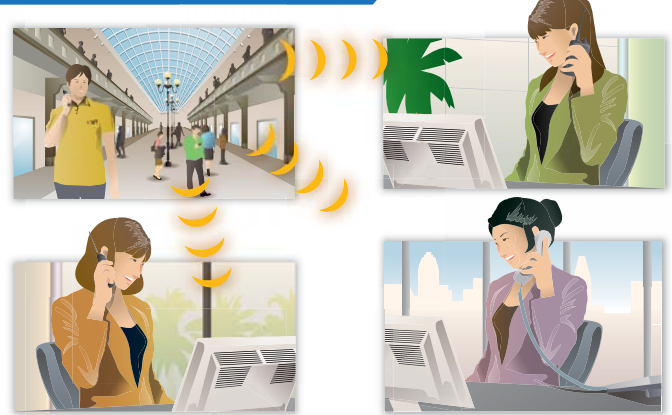
If connected over an Internet VPN, the IP100H/IP100FS can communicate between dispersed sites such as offices or shops in different cities.

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### Application examples

Hotels | Warehouse / Manufacturing | Hospitals | Security

Restaurant / Drive Thru | Supermarkets / Retail Shops

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## IP Communication Terminal
# IP100H

- IPX7 waterproof (1m depth water for 30 minutes) for outdoor work or places prone to get wet.
- Compact 58×95×26.4 mm body and 205g (approximate) lightweight.
- Vibration alert function for incoming calls.

*The IP100H can be used with an internal antenna. (Communication range will decrease to half from/to access points.)

## Wireless LAN Access Point
# AP-90M

- IEEE 802.11 a/b/g/n/ac compliant
- PoE (Power over Ethernet) capability
- Optional RS-AP3, Access point management software

## Remote Communicator
# IP100FS

(Supplied with USB flash drive for use as a USB hardware key)

- The IP100FS can communicate with IP communication terminals from a PC.
- The IP100FS can obtain location information of each IP100H based on the access point being used.
- Can be installed on a Windows® based tablet PC as well as a laptop PC.

## Controller
# IP1000C

- The IP1000C controls all terminal configurations and voice traffic.
- Capable of controlling up to 100 or 20* terminals (including IP100FS).
- Links up to 11 IP1000Cs over an IP network (Internet VPN) and increases the number of usable IP100H/IP100FS communication terminals to 1100 units.
  * Depending on the IP1000C version.

## Full-duplex Communication

With an optional earphone-mic or headset HS-102 or HS-85, the IP100H can talk and receive at the same time. All users in the system can communicate simultaneously.
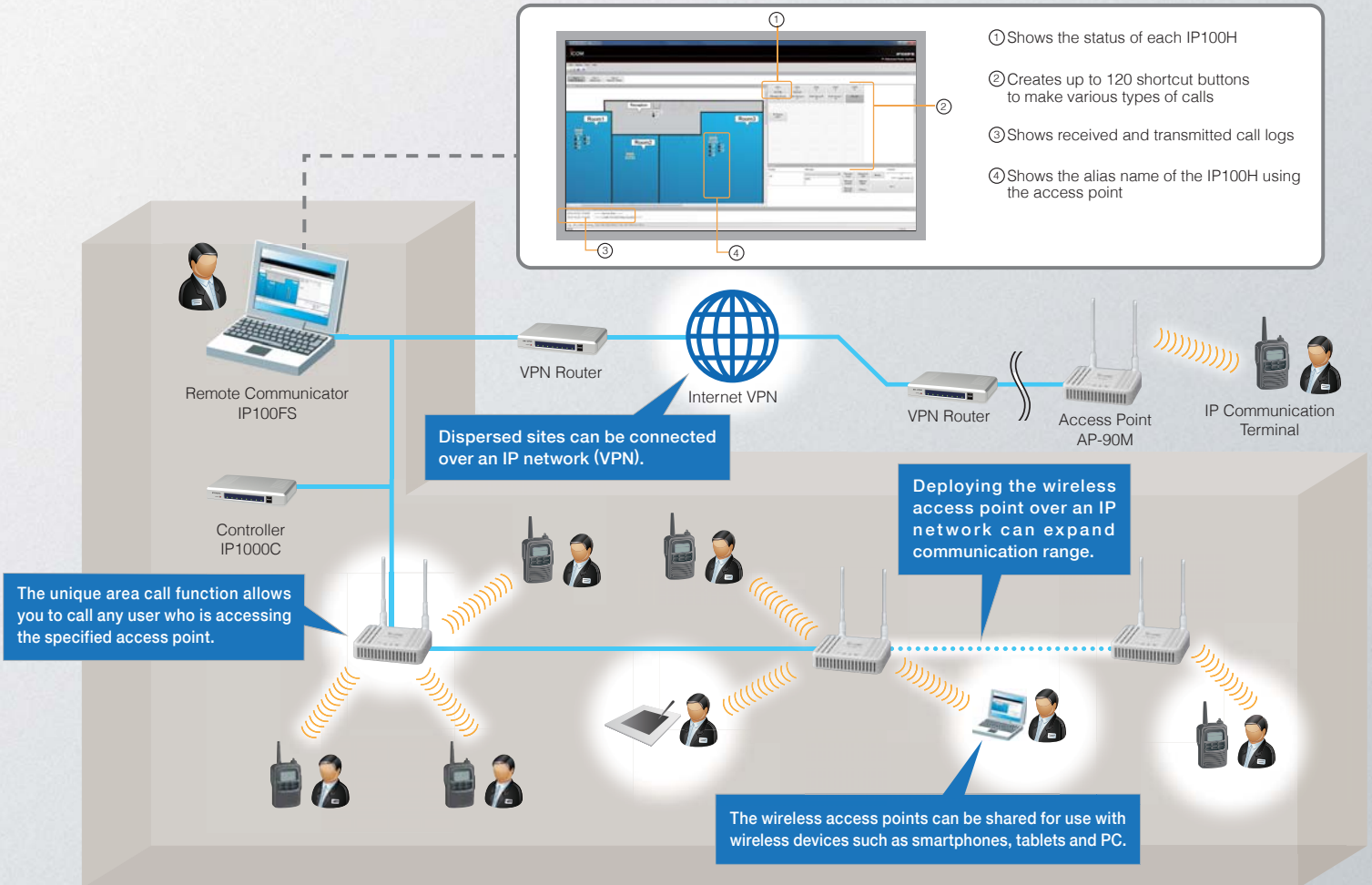
## Status and Short Data Messaging

The IP100H/IP100FS can send status and short data messages* to other users.

* The IP100H can send only preprogrammed messages.

## High Security

The wireless LAN security protocols (WPA-PSK (TKIP/AES), WPA2-PSK (TKIP/AES)) encrypt your private conversations.

## Easy System to Set Up and Use

The IP1000C programs almost all terminal configurations over the air. Individual PC programming via cable connection is not required. (Except initial setup)

① Shows the status of each IP100H

② Creates up to 120 shortcut buttons to make various types of calls

③ Shows received and transmitted call logs

④ Shows the alias name of the IP100H using the access point

Remote Communicator IP100FS

VPN Router

Internet VPN

VPN Router

Access Point AP-90M

IP Communication Terminal

Dispersed sites can be connected over an IP network (VPN).

Controller IP1000C

Deploying the wireless access point over an IP network can expand communication range.

The unique area call function allows you to call any user who is accessing the specified access point.

The wireless access points can be shared for use with wireless devices such as smartphones, tablets and PC.

## RoIP GATEWAY

### IP Phone and Transceiver Interconnection

With a VE-PG3 RoIP gateway, the IP advanced radio system can interconnect with an IP phone, analogue transceiver and IDAS™ NXDN™ digital transceiver.*1
When used with an IP phone system, the IP100H can be used as a phone handset for making internal or external calls.*2

*1 NXDN™ Type-D multi-site trunking and conventional system using the IC-FR5000 series.
*2 For interconnection with other equipment, verification tests are required before the installation. The IP100H can call a preprogrammed phone number only. (Cannot manually enter phone numbers to make a call.)
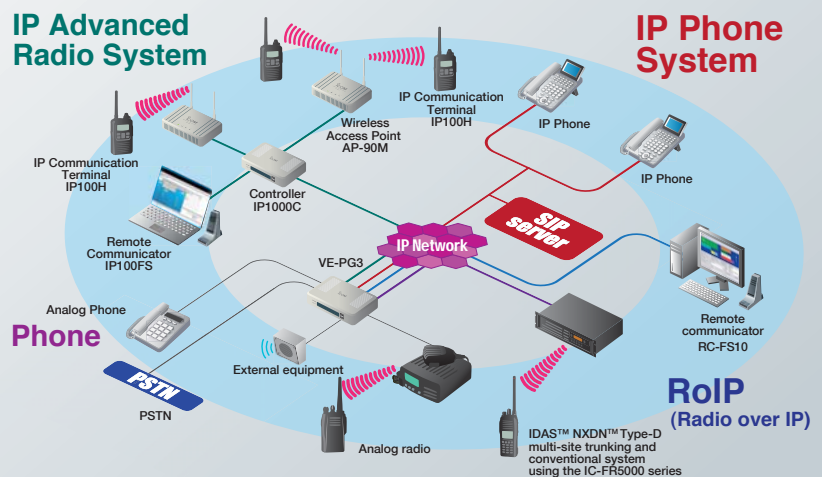
RoIP Gateway
**VE-PG3**

**Interconnection image** The IP communication terminals, radios and telephones can communicate with each other within the doughnut shaped blue ring.

**IP Advanced Radio System**

IP Communication Terminal IP100H

Wireless Access Point AP-90M

IP Communication Terminal IP100H

Controller IP1000C

Remote Communicator IP100FS

Analog Phone

**Phone**

VE-PG3

External equipment

PSTN

Analog radio

IDAS™ NXDN™ Type-D multi-site trunking and conventional system using the IC-FR5000 series

IP Network

SIP server

**IP Phone System**

IP Phone

IP Phone

IP Phone

Remote communicator RC-FS10

**RoIP**
**(Radio over IP)**

# IP ADVANCED RADIO SYSTEM

## SPECIFICATIONS

### IP100H

| | |
|---|---|
| Wireless standards | IEEE 802.11 a/b/g/n |
| Frequency range | 2.412–2.472GHz, 5.18–5.35, 5.47–5.70GHz |
| Dimensions (W×H×D)[*1] | 58×95×26.4mm; 2.28×3.74×1.04in (with BP-271) |
| Weight (approx.) | 205g; 7.2oz (with BP-271 and antenna) |
| Operating time[*2] | More than 20 hours (with BP-271) |
| RF output power | Less than 10mW/MHz |
| Voice Codec | G.711 μ-law (64kbps) |
| AF output power (10% distortion) | Internal SP 400mW (typ., 16Ω), External SP 200mW (typ., 8Ω) |
| Operating temperature | WEP (64/128-bit), WPA-PSK (TKIP/AES), WPA2-PSK (TKIP/AES) |
| Security | −10°C to +60°C; +14°F to +140°F |

[*1] Projections are not included. [*2] Tx: Rx: Stand-by=1:1:8 duty cycle

**Supplied accessories**
- BP-271 Li-ion battery pack
- MB-127 belt clip
- Hand strap
- Antenna
- Antenna cap

### IP100FS (System requirements)

| | |
|---|---|
| Operating system | Windows® 8/Windows® 8.1 (32-bit/64-bit) Windows® 7 (32-bit/64-bit) SP1 or later, Windows Vista® (32-bit/64-bit) SP2 or later, Windows®XP(32-bit)SP3/(64-bit)SP2 or later (Except for Windows® RT) |
| CPU | Intel® Core™ 2 Duo Processor E6600/ 2.4GHz or better |
| Memory | 2GB or higher |
| Hard disk space | 1GB of disk space (for saving log files) |
| Audio | DirectSound compatible audio (Frequency response up to 20kHz, sampling rate 48kHz) |
| Display resolution | 1920×1080 pixel recommended 1024×768 pixel minimum |
| Other | USB 2.0 port, 10Mbps or faster Ethernet interface, speaker, microphone or headset |

### IP1000C

| | |
|---|---|
| Power supply | 100–240V AC (With supplied AC adapter) |
| Operating temperature | 0°C to +40°C; +32°F to +104°F |
| Dimensions (W×H×D)[*3] | 232×38×168mm; 9.13×1.5×6.61in |
| Weight (approx.) | 750g; 1.65lb (Main unit only) |
| LAN | RJ-45 connector × 4 1000BASE-T/100BASE-TX/10BASE-T (Auto MDI/MDI-X) |
| USB | Standard A receptacles ×2 |
| Maintenance console | RS-232C (RJ-11) connector |

[*3] Projections are not included.

**Supplied accessories**
- BC-207S AC adapter
- Cushion sheets
- Ferrite core

### AP-90M

| | |
|---|---|
| Power supply | 12V DC ±10% or PoE (IEEE802.3af compatible) |
| Dimensions (W×H×D)[*4] | 120×29×103mm; 4.72×1.14×4.06in |
| Weight (approx.) | 300g; 10.6oz (Main unit only) |
| Wired LAN | RJ-45 connector × 1 1000BASE-T/100BASE-TX/10BASE-T (Auto MDI/MDI-X) |
| Wireless LAN | IEEE 802.11 a/b/g/n/ac |
| USB | Standard A receptacle |
| Security | WEP (64/128/152-bit), WPA, WPA2, WPA-PSK, WPA2-PSK |
| Operating temperature | 0°C to +40°C; +32°F to +140°F |

[*4] Projections are not included.

| **Supplied accessories** | • Mounting bracket |
|---|---|

All stated specifications are subject to change without notice or obligation.

## OPTIONS
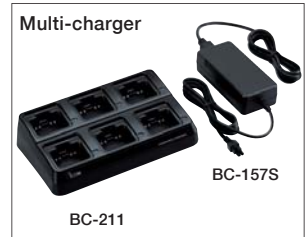
### ▶ For IP100H



**BP-271** Li-ion 1150/1200mAh (min./typ.)
**BP-272** Li-ion 1880/2000mAh (min./typ.)
**BP-273** LR6 (AA) batteries ×3

**Rapid charger**
BC-202
BC-123S* *BC-123SA for 120V AC, SE for 230V AC.

**Multi-charger**
BC-211
BC-157S

**Headsets (Full-duplex opeation)**
HS-102 Earphone type. OPC-2359 is requierd.
HS-85 Over-the-head type. OPC-2144 is required.

**Earphone-microphones (Full-duplex opeation)**
HM-153LS     HM-166LS
Use HM-153LS or HM-166LS for full-duplex operation also.

**Speaker-microphone (Simplex opeation)**
HM-186LS
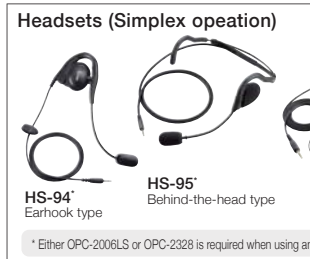
**Headsets (Simplex opeation)**
HS-94* Earhook type
HS-95* Behind-the-head type
HS-97* Throat type

* Either OPC-2006LS or OPC-2328 is required when using any of these headsets.

- **MB-127:** Belt Clip. Same as supplied.
- **OPC-2144:** Slim L-Type plug adapter cable. Required when using either HS-85, HM-153, HM-166 or SP-13.
- **OPC-2006LS:** Plug adapter cable
- **OPC-2328:** PTT switch cable
Either OPC-2006LS or OPC-2328 is required when using any of HS-94, HS-95 or HS-97.
- **OPC-2359:** PTT switch cable
OPC-2359 is required when using HS-102.
- **OPC-478UC + OPC-2144:** Setup cables. Both cables are required for initial setup.
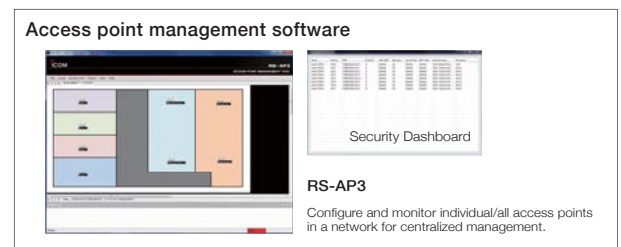
### ▶ For IP100FS

**PTT microphone adapter**
CT-23

**Desktop microphone**
SM-26

**Hand microphone**
HM-152

### ▶ For IP1000C

**Serial cable**
OPC-1402

### ▶ For AP-90M

**AC adapter**
BC-216S*
* BC-216SA for 120V AC, SE for 230V AC.

**Access point management software**
Security Dashboard
RS-AP3
Configure and monitor individual/all access points in a network for centralized management.