

-
- If multiple TCP/IP connections are listed, select the one that contains "Ethernet", "NIC", or "10/100 MB" in its name, go to step 4.
 - If TCP/IP is not listed, install it:
 - i Click **Add**.
The Select Network Component Type window opens.
 - ii Select **Protocol** from the list.
 - iii Click **Add**.
The Select Network Protocol window opens.
 - iv Select **Microsoft** from the Manufacturers list.
 - v Select **TCP/IP** from the Network Protocols list.
 - vi Click **OK**.
 - vii Insert the Windows 98 or ME CD or reboot the computer if prompted to do so.
 - viii If the PC reboots, repeat steps 1 to 3.
- 4 Check TCP/IP properties:
- i Click **Properties** with the correct TCP/IP connection selected.
The TCP/IP Properties window opens to the IP Address tab.
 - ii Make sure the **Obtain an IP address automatically** radio button is enabled.
 - iii Click the DNS Configuration tab.
 - iv Make sure the **Disable DNS** radio button is enabled.
 - v Click **OK** on the TCP/IP Properties window.
 - vi Click **OK** on the Network window.
 - vii Restart the computer if prompted to do so.
- 5 Check your Internet connection by launching a Web browser on the computer connected to the indoor unit.
- If your browser automatically opens to your service provider's Web site, full service has already been activated and you can begin using your SOMAport for Internet service.
 - If your browser does not automatically open to your service provider's Web site, go to step 6.
- 6 Enter a valid Internet address (such as www.google.com) in the Address field and press Enter.
- If the Web page opens, full service has already been activated and you can begin using your SOMAport for Internet service.

-
- If your service provider's Web page opens, activate full service by following the sign-up procedure that is provided on the Web site.
 - If your computer attempts an Internet connection using an old dial-up connection, see "The Computer Uses an Old Dial-Up Connection" on page 46.
 - If you do not establish an Internet connection, see "Finding Causes of Computer Problems" on page 36.

► To change network settings in Windows 2000

- 1 Right-click the My Network Places icon and choose **Properties** from the pull-down menu.

The Network and Dial-up Connections window opens.

- 2 Select the Local Area Connection icon.

- If there are multiple local area connections, read the device name beside each icon and double-click the one that is associated with the Ethernet card.
- If there is no icon, the Ethernet card has not been properly installed. Install the Ethernet card by following the manufacturer's instructions, then return to this procedure.

The Local Area Connection Status window opens.

- 3 Click **Properties**.

The Local Area Connection Properties window opens.

- 4 Select **Internet Protocol (TCP/IP)**.

If **Internet Protocol (TCP/IP)** is not listed, install it as follows:

- i Click **Install**.

The Select Network Component Type window opens.

- ii Select **Protocol** from the list.

- iii Click **Add**.

The Select Network Protocol window opens.

- iv Select **Internet Protocol (TCP/IP)**.

- v Click **OK**.

- vi Insert the Windows 2000 CD or reboot the computer if prompted to do so.

- vii If the PC reboots, repeat steps 1 to 4.

-
- 5 Check TCP/IP properties:
 - i Click **Properties**.
 - ii The Internet Protocol (TCP/IP) Properties window opens to the General tab.
 - iii Make sure the **Obtain an IP address automatically** radio button is enabled.
 - iv Make sure the **Obtain DNS server address automatically** radio button is enabled.
 - v Click **OK** on the Internet Protocol (TCP/IP) Properties window.
 - vi Click **OK** on the Local Area Connection Properties window.
 - vii Click **Close** on the Local Area Connection Status window.
 - viii Restart the computer if prompted to do so.
 - 6 Check your Internet connection by launching a Web browser on the computer connected to the indoor unit.
 - If your browser automatically opens to your service provider's Web site, full service has already been activated and you can begin using your SOMAport for Internet service.
 - If your browser does not automatically open to your service provider's Web site, go to step 7.
 - 7 Enter a valid Internet address (such as www.google.com) in the **Address** field.
 - If the Web page opens, full service has already been activated and you can begin using your SOMAport for Internet service.
 - If your service provider's Web page opens, activate full service by following the sign-up procedure that is provided on the Web site.
 - If your computer attempts to connect to the Internet using an old dial-up connection, see "The Computer Uses an Old Dial-Up Connection" on page 46.
 - If you do not get an Internet connection, see "Finding Causes of Computer Problems" on page 36.

► To change network settings in Windows XP

- 1 Choose **Start** → **Settings** → **Network Connections**.

The Network Connections window opens.

- 2 Select the **Local Area Connection** icon.

- If there are one or more **Local Area Connection** icons, double-click the Local Area Connection icon that is associated with the Ethernet card.
- If there is no icon, the Ethernet card has not been properly installed. Install the Ethernet card by following the manufacturer's instructions, then return to this procedure.

The Local Area Connection Status window opens.

- 3 Click **Properties**.

The Local Area Connection Properties window opens.

- 4 Select **Internet Protocol (TCP/IP)**.

If **Internet Protocol (TCP/IP)** is not listed, install it as follows:

- i Click **Install**.

The Select Network Component Type window opens.

- ii Select **Protocol** from the list.

- iii Click **Add**.

The Select Network Protocol window opens.

- iv Select **Internet Protocol (TCP/IP)**.

- v Click **OK**.

- vi Insert the Windows XP CD or reboot the computer if prompted to do so.

- vii Once TCP/IP has been installed, repeat steps 1 to 4.

- 5 Check TCP/IP properties:

- i Click **Properties**.

The Internet Protocol (TCP/IP) Properties window opens to the General tab.

- ii Make sure the **Obtain an IP address automatically** radio button is enabled.

- iii Make sure the **Obtain DNS server address automatically** radio button is enabled.

- iv Click **OK** on the Internet Protocol (TCP/IP) Properties window.

-
- v Click **OK** on the Local Area Connection Properties window.
 - vi Click **Close** on the Local Area Connection Status window.
 - vii Restart the computer if prompted to do so.
- 6 Check your Internet connection by launching a Web browser on the computer connected to the indoor unit.
 - If your browser automatically opens to your service provider's Web site, full service has been activated.
 - If your browser does not automatically open to your service provider's Web site, go to step 6.
 - 7 Enter a valid Internet address (such as www.google.com) in the **Address** field and press Enter.
 - If the Web page opens, full service has already been activated and you can begin using your SOMAport for Internet service.
 - If your service provider's Web page opens, activate full service by following the sign-up procedure that is provided on the Web site.
 - If your computer attempts an Internet connection using an old dial-up connection, see "The Computer Uses an Old Dial-Up Connection" on page 46.
 - If you do not get an Internet connection, see "Finding Causes of Computer Problems" on page 36.

► To change network settings in Mac OS 8 and 9

NOTE: Your computer must have an Ethernet card and Open Transport networking software to connect to the Internet.

- 1 Click the Apple icon and choose **Control Panels > TCP/IP**.
 The TCP/IP window opens.
- 2 Select **Ethernet** from the Connect via pop-up menu.
- 3 Select **Using DHCP Server** from the **Configure** pop-up menu.
- 4 Close the TCP/IP control panel.
 If you made any changes, save them when prompted.
- 5 Restart your computer.
- 6 Check your Internet connection by launching a Web browser on the computer connected to the indoor unit.

-
- If your browser automatically opens to your service provider's Web site, full service has already been activated.
 - If your browser does not automatically open to your service provider's Web site, go to step 7.
- 7 Enter a valid Internet address (such as [www. google.com](http://www.google.com)) in the **Address** field.
- If the Web page opens, full service has already been activated and you can begin using your SOMAport for Internet service.
 - If your service provider's Web page opens, activate full service by following the sign-up procedure that is provided on the Web site.
 - If you do not establish an Internet connection, see "Finding Causes of Computer Problems" on page 36.

► To change network settings in Mac OS X

- 1 Click the Apple icon and choose **System Preferences**.
- 2 Choose **View** → **Network**.
- 3 Choose **Built-in Ethernet** from the **Show** pop-up menu.
- 4 Click the TCP/IP tab, if necessary.
- 5 Choose **Using DHCP** from the Configure pop-up menu.
- 6 Click **Apply Now**.
- 7 Restart your computer.
- 8 Check your Internet connection by launching a Web browser on the computer connected to the indoor unit.
 - If your browser automatically opens to your service provider's Web site, full service has already been activated.
 - If your browser does not automatically open to your service provider's Web site, go to step 6.
- 9 Enter a valid Internet address (such as www.google.com) in the **Address** field and press Enter.
 - If the Web page opens, full service has already been activated and you can begin using your SOMAport for Internet service.

-
- If your service provider's Web page opens, activate full service by following the sign-up procedure that is provided on the Web site.
 - If you do not establish an Internet connection, see "Finding Causes of Computer Problems" on page 36.

IP ADDRESS NEEDS TO BE RENEWED

If you cannot connect to the Internet even after you have checked all cabling and network settings and have rebooted the computer, follow the appropriate procedure in this section to manually obtain a new IP address.

► To obtain a new IP address (Windows 95 only)

- 1 Choose **Start** → **Run**.
- 2 Enter `winipcfg` in the Open field and click **OK**.
The IP Configuration window opens.
- 3 Select the network interface that has a default gateway of `192.168.1.1` from the pull-down list.
- 4 Click **Release All**.
- 5 Force your computer to obtain a new IP address by clicking **Renew All**.

Wait until the fields in the IP Configuration window have values in them or an error message appears. If you close this program before it has completed its task, you will have to reboot your computer before you can use your Internet service.

- 6 Close the IP Configuration window.

► To obtain a new IP address (all other versions of Windows)

- 1 Open a command window using one of the following methods:
 - In Windows 2000 or XP, choose
Start → **Programs** → **Accessories** → **Command Prompt**.
 - In Windows 98 or ME, choose **Start** → **Programs** → **MS-DOS Prompt**.

The command window opens.

-
- 2 Force your computer to obtain a new IP address by typing the appropriate command from the following table:

Operating System	Command
Windows 98 or ME	ipconfig /renew_all ↵
Windows 2000 or XP	ipconfig /renew ↵

The Windows IP configuration is displayed.

- 3 Look for the output section related to the network interface for the SOMAport.

Example:

```
Ethernet adapter:  
IP address..... : 65.94.64.233  
Subnet Mask..... : 255.255.255.0  
Default Gateway... : 192.168.1.1
```

- 4 Close the MS-DOS Prompt or Command Prompt window.

Troubleshooting
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SPECIFICATIONS

Release	Outdoor SOMAport R3.0	
Internal antenna	Type: internal passive-steered array antenna Internal antenna gain: 4.5 dBi Reciever noise figure: 6 dB Transmitted EIRP: 31.5 dBm RF output power: 27 dBm	
Device ports and Interfaces	Telephone Telephone terminal interface (RJ-11 jacks) (2) Data Data terminal interface (RJ-45 Ethernet 10Base-T) AC Adapter AC Adapter (Coaxial DC Power Jack, 30AV/2A) Between Outdoor Unit and Indoor Unit CAT-5 Ethernet w/Power feed and two telephone lines	
Lights (Indoor Unit)	Power, Network	
Power Requirements	Power Supply Type: U.S./International 100/240V AC-DC external power supply Cable: Power cord with non-wall-mounted AC-to-DC transformer	
Environmental Specifications (Outdoor Unit)	Temperature Operating: 5°C to 40°C (+46°F to +104°F) (w/o Heater) Humidity Operating: 0% to 85%, noncondensing Altitude Operating: 2438 m (8000 feet) Water Proof IP25	
Packaging	Dimensions Outdoor Unit Height: 18.5 cm (7.3 inches) Width: 21 cm (8.3 inches) Depth: 21 cm (8.3 inches) Weight: 3 kg (6.7 pounds) Volume: 8000 cc	Indoor Unit 4.6 cm (1.8 inches) 10.4 cm (4.1 inches) 8.4 cm (3.3 inches) 0.3 kg (0.7 pounds) 400 cc
Regulatory Certifications	IEC 61000-4-5 class 3 CE CB Scheme (IEC60950-1) FCC Part 15B, Part 24 (PCS Only)	



OUTDOOR SOMAPORT INSTALLATION GUIDE

Part 006217 revision 01

WARNING: The installation procedures described in this chapter are intended only for qualified technicians. Non-qualified personnel should not perform this installation.

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INTRODUCTION

This chapter provides an overview of the Outdoor SOMAport.

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OVERVIEW

The Outdoor SOMApport™ subscriber terminal provides high-speed Internet access and telephone service. The SOMApport works like a cell phone, in that it communicates with your service provider's network over the air and does not require a special wire connection.

The SOMApport consists of two parts: an outdoor unit and an indoor unit. After installing the SOMApport, simply plug-in the indoor unit and connect it to your computer using the provided Ethernet cable. The SOMApport will automatically connect to your service provider and you can setup your account using a Web browser.

If you are using your SOMApport to provide telephone service, you can connect ordinary telephones to it.

Internet service

The SOMApport provides a high-speed, "always on" internet connection, which means you can be connected to the Internet and still use your telephone. The SOMApport is designed to be left on – it should not be turned off when not in use.

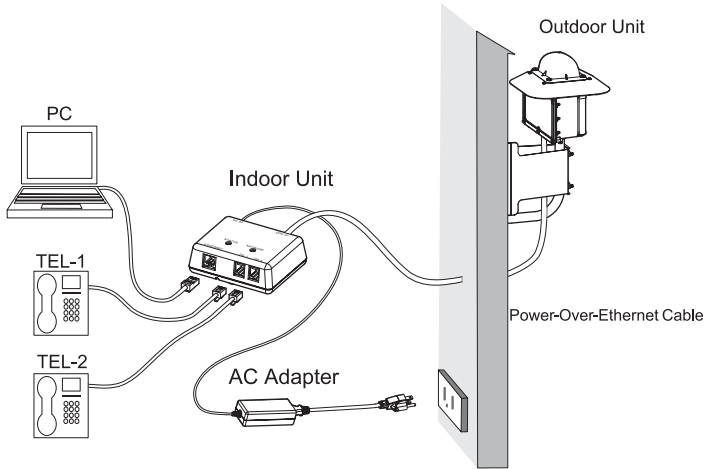
Telephone service

The telephone service provided by the SOMApport is independent and separate from your phone service. Wireless services may differ from your traditional wired services. Consult with your wireless service provider for details.

SYSTEM COMPONENTS

Introduction

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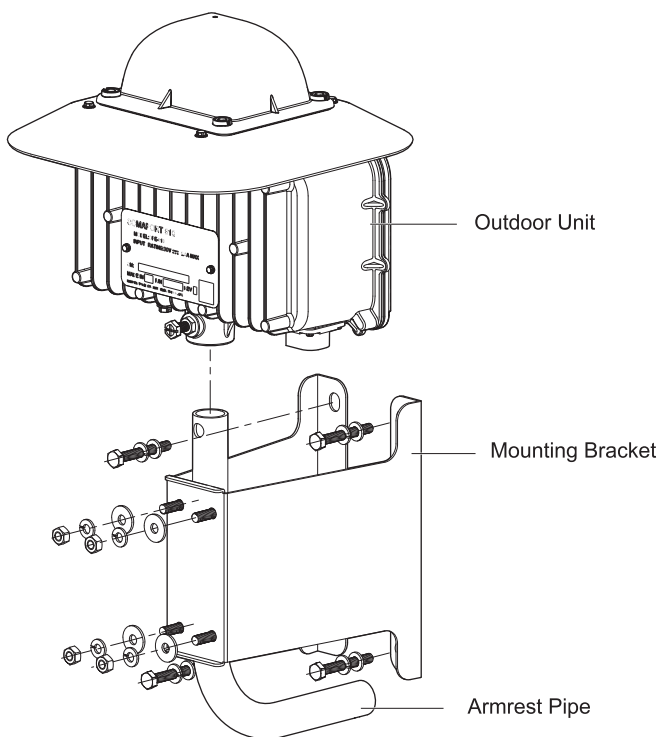
Outdoor Unit: The outdoor unit is a ruggedized box, typically pipe-mounted, that contains a radio modem and an internal antenna. It uses a single cable (CAT5) that transmits data, telephone, and power to and from the indoor unit.

Indoor Unit: The indoor unit is placed inside subscriber's residence and connects to the subscriber's computer and telephones. The indoor unit also functions as an AC adapter for the outdoor unit.

THE OUTDOOR UNIT ASSEMBLY

The following illustration shows the three main pieces that are shipped and that must be assembled as part of the installation.

- Outdoor unit
- Mounting bracket
- Armrest pipe



Do You HAVE EVERYTHING?

Before you begin, make sure you have everything you will need during the installation.

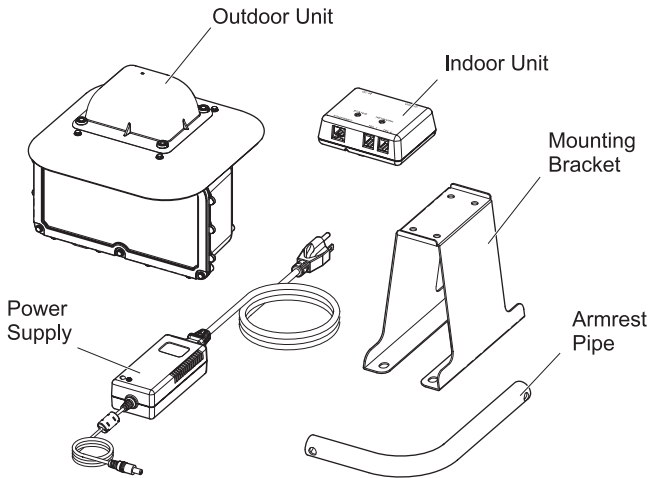
Introduction

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The basic Outdoor SOMAport kit

Verify that the kit contains the following parts:

- Outdoor unit
- Armrest pipe
- Mounting bracket
- Power supply
- Indoor unit
- Wood screws 3.1 x 32 (4)
- Hexagon P-Less anchors 6 x 45 (4)
- Flat washers, nominal diameter 6 (8)
- Spring washers, nominal diameter 6 (8)
- Hexagon nuts M6 (4)
- U-bolts M6 (2)
- User Guide
- Installation Guide



The installation kit

The installation kit is an optional set of mounting hardware provided for subscribers who want to install the outdoor unit themselves. The kit contains the hardware you need to install the outdoor unit on a variety of surfaces (wall or roof). If you have this kit, verify that it contains the following parts

- CAT5 cable assembly kit
- Cable: AWG26 4P EM-TPMC-C5 (SLA) (Oki Electric Cable)

Outdoor unit side RJ-45 connector:

CN078P-080-001 (YAMAICHI)

CN078A-2023 (YAMAICHI)

CN078A-2010 (YAMAICHI)

CN078A-2003 (YAMAICHI)

Indoor unit side RJ-45 connector:

CN078P-080-0001 (YAMAICHI)

CN078A-2001 (YAMAICHI)

- Oxide-inhibiting compound
- 10 cable clips

Materials and tools

In addition, you need the following materials and tools, which are not supplied with the basic Outdoor SOMApport or installation kits:

- 8, 10, 13 mm socket or open-end or box-end wrench or small adjustable wrench
- Phillips-head screw driver No.2
- Pencil or chalk
- Carpenter's level
- Silicone sealant
- Double-expansion anchors
- Electric drill with one of the following drill bits:
 - Diameter (Ø) 2.0, Ø4.5 Woodworking drill (if installing on wood or a roof)
 - Ø5.3 concrete drill (if installing on concrete or brick)
 - Ø10-20 mm woodworking or concrete drill (if you make hole for passing the cable)
- Sticking-by-pressure tool (for RJ-45)
- Covering slit tool (for RJ-45)
- Guide insertion tool (for RJ-45)
- Network cable tester (for RJ-45)

ANTENNA

The outdoor unit communicates with a cellular tower operated by your wireless service provider. The outdoor unit contains an antenna that automatically steers itself toward the best signal when you plug in the SOMAport. It also periodically checks to see if the current antenna direction is optimal and adjusts automatically if required.



WARNING: While this device is in operation, a separation distance of at least 20 centimeters (8 inches) must be maintained between the radiating antenna and any person exposed to the transmitter in order to meet the FCC RF exposure guidelines. No change to the antenna or device is permitted. Doing so may result in the installed system exceeding RF exposure requirements. This device must not be co-located or operating in conjunction with any other antenna or radio transmitter. Installers and end users must follow the installation instructions provided in this guide.

SAFETY PRECAUTIONS

In addition to the safety instructions on page 11, follow these guidelines when installing the Outdoor SOMAport:

Introduction

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- Carefully survey the job site before beginning the installation to locate secure handholds, dangerous conditions (such as power lines and weak roofs), and the safest and most convenient placements for ladders.
- Do not climb on a wet or icy roof.
- Do not attempt high installations on windy days.
- Use only the sturdiest commercial-grade ladders – those with wide, slip preventive rungs and bases.
- Do not position ladders at an angle steeper than 70°. Steeper angles can cause a ladder to slip sideways.
- Dig the base of the ladder into the ground if possible.
- Do not place ladders on slate that is wet or hot.
- Wear rubber-soled, low-heeled shoes or boots.
- Wear a pair of durable but flexible protective gloves whenever they won't interfere with the installation process.
- Take care not to bump or bang the outdoor unit against anything.
- Perform as many installation steps as possible on the ground.



WARNING: The outdoor unit must not be used indoors. It must be mounted on a permanent outdoor structure.



WARNING: Do not connect any third-party devices to the outdoor unit, CAT5 cable, or indoor unit. Damage may occur.



INSTALLING THE OUTDOOR UNIT

This chapter describes how to install the outdoor unit using a variety of mounting options. Be sure to read the important safety information in the front pages of this manual before beginning an installation.

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Assembling Mounting Bracket and Pipe	82
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INSTALLATION OVERVIEW

Before you begin the installation, make sure you have read the important notice on page 13 and the safety instructions on page 11.

Installation tasks

To install the outdoor unit, you must carry out the following tasks in the specified order.

Step		Page
1	Choose a site.	78
2	Estimate cabling requirements.	81
3	Assemble mounting bracket and armrest pipe.	82
4	Install the outdoor unit on one of the following surfaces.	
	■ External wall with a wood or lap siding surface	87
	■ External wall with a brick or poured concrete surface	91
	■ External hollow or cinder block wall	94
	■ Rooftop	96
5	Attach the outdoor unit to the armrest pipe.	99

INSTALLATION GUIDELINES AND REQUIREMENTS

Guidelines

Follow these guidelines to optimize the received radio signal. The outdoor unit works best when:

- Installed at the highest possible point
- Placed as far away as possible from obstructions, such as trees or tall buildings

Installing
the outdoor unit
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Requirements

The installation must meet the following requirements:

- The outdoor unit must not be used indoors. The outdoor unit must be installed on an outdoor permanent structure such as a roof or an external wall.
- All four sides of the outdoor unit must be unobstructed. Leave a clear zone of at least 6 cm (2.4 inches) around the outdoor unit.
- The installed height of the outdoor unit must be at least 3 m (10 feet) to ensure that it is safely out of reach. For example, if the outdoor unit is installed on the side of a building, it should be at least 3 m (10 feet) off the ground. If installed on a rooftop that is accessible, the outdoor unit must be at least 3 m (10 feet) above the rooftop.



WARNING: While this device is in operation, a separation distance of at least 25 cm must be maintained between the radiating antenna inside the outdoor unit and the bodies of all persons exposed to the transmitter in order to meet the FCC RF exposure guidelines. Making changes to the antenna or the device is not permitted. Doing so may result in the installed system exceeding RF exposure requirements. This device must not be co-located or operated in conjunction with any other antenna or radio transmitter. Installers and end users must follow the installation instructions provided in this guide.



WARNING: Do not touch (or allow the outdoor unit or any cabling or ladder to touch) power lines, electric lights, and power circuits, as contact with them may be fatal. Locate the outdoor unit more than 6 m (20 feet) from overhead power lines. If any part of the outdoor unit comes into contact with a power line, call your local power company. Do not try to remove it yourself.

ESTIMATING CABLE REQUIREMENTS

After you have selected the location for the installation, decide where you want the cable to enter the building and estimate how much cable you will need.

Cable restrictions

You must use CAT5 cable to connect the outdoor unit to the indoor unit. The total length of the CAT5 cable must not exceed 50 m (167 feet). You cannot use a line amplifier.

Installing
the outdoor unit
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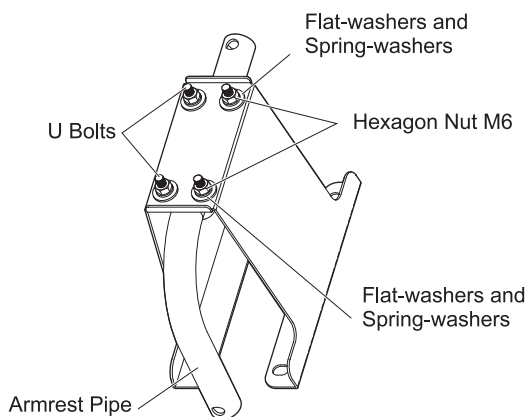
► To estimate how much cable is required

- 1 Identify where the indoor unit is located.
- 2 Estimate the amount of cable required for a CAT5 cable.

ASSEMBLING MOUNTING BRACKET AND PIPE

This section describes how to attach mounting bracket to the outdoor unit. The recommended procedure is to attach the bracket-and-pipe assembly to the mounting surface (wall or roof) and then attach the outdoor unit to the armrest pipe. This makes it easier to handle the assembly while attaching it to the mounting surface.

Installing
the outdoor unit
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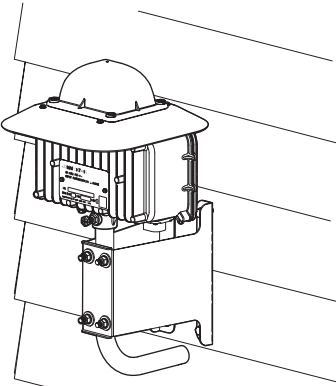
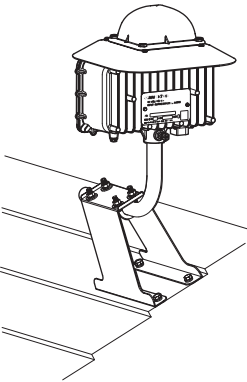
Tools and materials

Make sure you have the following items on hand before you begin.

Materials	Mounting bracket
	Armrest pipe
	Flat washers, nominal diameter 6 (4)
	Spring washers, nominal diameter 6 (4)
	Hexagon nuts M6 (4)
	U-bolt M6 (2)
Tools	8, 10 mm open-end or box-end wrench or a small adjustable wrench

Mounting Options

The way in which you assemble mounting bracket and armrest pipe depends on the mounting option you choose. The following table shows sample wall and rooftop installations to illustrate how the parts must be assembled for each mounting option. The procedure on page 85 describes how to attach the armrest pipe to mounting bracket for the various mounting options.

Option	Sample Installation
Wall	
Rooftop	

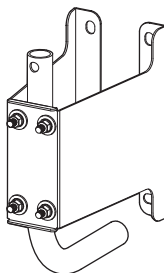
► To assemble the mounting bracket and pipe

- 1 Slide the mounting bracket over the long end of the armrest pipe and then assemble it according to the mounting option you have chosen:

Option	Assembly
--------	----------

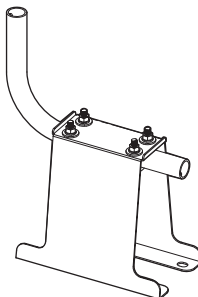
Wall

Set free end of the armrest pipe toward the installation surface.



Rooftop

Set free end of the armrest pipe vertical against the ground surface.



Installing
the outdoor unit
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-
- 2 Put two U-bolts through the hole of the mounting bracket from inside of the bracket.
 - 3 Attach flat washers, spring washers, and nuts in this order onto U-bolts sticking out of the mounting bracket.
 - 4 Insert longer straight end of the armrest pipe into the space between U-bolts and the mounting bracket, then tighten the nuts of U-bolts.

NOTE: Do not fully tighten the hex nuts yet. You may need to adjust the orientation of the pipe.

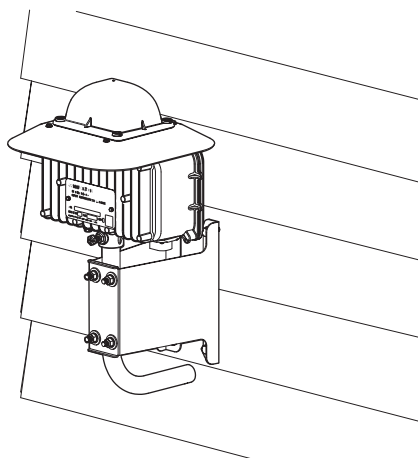
- 5 Fully tighten the nuts to fix the armrest pipe in the direction suitable for the installation position.



WARNING: Make sure the indoor unit is powered off before you install the outdoor unit and connect any cables to it.

INSTALLING THE OUTDOOR UNIT ON SOLID WOOD OR LAP SIDING

The following illustration shows an installation on an external wall with wood or lap siding.



Installing
the outdoor unit
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WARNING: Do not mount the outdoor unit on any type of aluminum or vinyl siding or on any type of composite paneling, such as fiber board, particle board, or strand board. If the surface is made of wood, make sure it is structurally sound.



WARNING: Do not touch (or allow the outdoor unit or any cabling or ladder to touch) power lines, electric lights, and power circuits, as contact with them may be fatal. Locate the outdoor unit more than 6 m (20 feet) from overhead power lines. If any part of the outdoor unit comes into contact with a power line, call your local power company. Do not try to remove it yourself.

Tools and materials

Make sure you have the following items on hand before you begin.

Materials	Hex P-Less anchors 6 x 45 (4)
	Flat-washers, nominal diameter 6 (4)
	Spring-washers, nominal diameter 6 (4)
Tools	Woodworking Ø4.5 mm drill bit
	Carpenter's level
	Screwdriver
	Hammer
	8, 10 mm open-end or box-end wrench or a small adjustable wrench
	Pencil or chalk

► **To install the mounting assembly on a wall made of wood or lap siding**

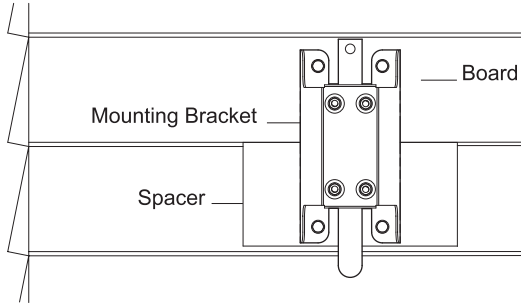
- 1 Locate the center of a stud if you are mounting the outdoor unit on:
 - Lap siding
 - Wood siding that is less than 3.5 cm thick.

ATTENTION: Do not mount the outdoor unit near the edge of a stud. Make sure you mount it on the center of a stud.

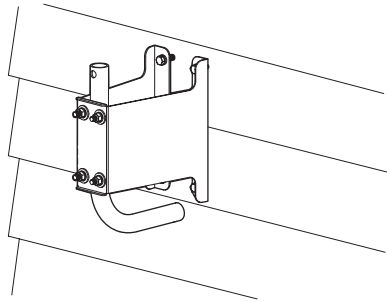
- 2 Hold mounting bracket-and-pipe assembly in a position in which its center line is centered on a stud or solid wood surface.
- 3 Use a level to verify that the center line of mounting bracket is perfectly vertical.
- 4 Use a pencil or a piece of chalk to mark the position of the holes in mounting bracket:
 - If you are installing the outdoor unit on a stud, mark the locations of the two center holes, which are positioned over the stud.
 - If you are not installing the outdoor unit on a stud, mark the positions of the four holes that are located in the four corners of mounting bracket. Do not mark the center holes.
- 5 Remove mounting bracket-and-pipe assembly.
- 6 If the mounting bracket spans two pieces of siding, use a spacer made of solid wood or plastic.
 - i Position the mounting bracket-and-pipe assembly so that most of the mounting bracket's base is on the top board.

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- ii Install the spacer on the bottom board to help hold the bottom of the mounting bracket in place.



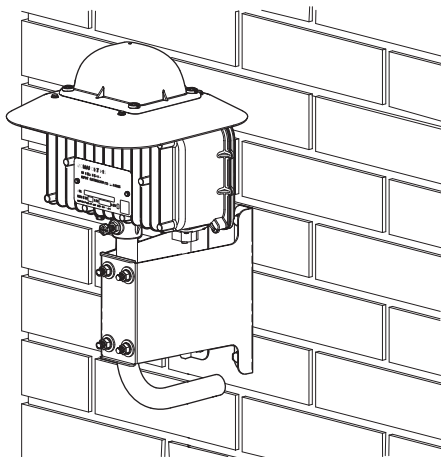
- 7 Drill a 4.5 mm hole in each of the locations you marked.
- 8 Hold mounting bracket-and-pipe assembly over the holes so that the long end of the pipe points straight up.
- 9 Insert 6 x 45 mm Hex P-Less anchor in each of the holes to attach the mounting bracket to the wall.
- 10 Tighten the screws to secure mounting bracket-and-pipe assembly to the wall.



- 11 Attach the outdoor unit to the mounting assembly as described in the section "Attaching the Outdoor Unit to the Mounting Assembly" on page 99.

INSTALLING THE OUTDOOR UNIT ON BRICK OR POURED CONCRETE

The following illustration shows an installation on an external wall that is made of brick or poured concrete.



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the outdoor unit
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This installation option requires the use of wall anchors, which must have a strength of at least 135 kg (300 pounds) of pull-out pressure. Equivalent double-expansion anchors are recommended.

Tools and materials

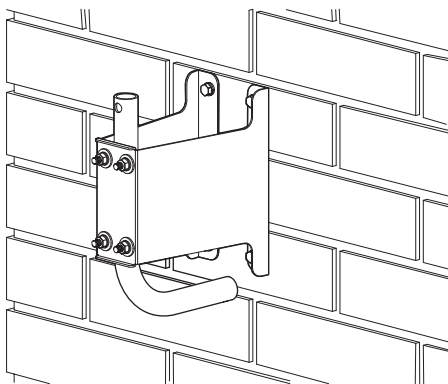
Make sure you have the following items on hand before you begin.

Materials	Four equivalent double-expansion anchors
	Four machine screws of a size appropriate for the double-expansion anchors
Tools	Electric drill with a masonry bit of a size that is appropriate for the double-expansion
	Carpenter's level
	Screwdriver
	Hammer
	8, 10, 13 mm open-end or box-end wrench or a small adjustable wrench
	Pencil or chalk

► To install the outdoor unit on brick or poured concrete

- 1 Hold mounting bracket-and-pipe assembly in position on the mounting surface.
NOTE: Do not drill into mortar joints. Ensure the holes are positioned over brick.
- 2 Use a level to verify that the center line of mounting bracket is perfectly vertical.
- 3 Use a pencil or a piece of chalk to mark the position of the four holes that are located in the four corners of mounting bracket.
- 4 Remove mounting bracket-and-pipe assembly.
- 5 Drill a hole of sufficient diameter in each of the locations you marked to a depth equal to or slightly greater than the length of the expansion anchor.
- 6 Insert a double-expansion anchor in each hole. The top end of the anchor should be flush or slightly below the base material surface.
- 7 Hold mounting bracket-and-pipe assembly over the holes so that the long end of the armrest pipe points straight up.

-
- 8** Insert a machine screw in each of the holes to attach the mounting bracket to the wall.



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the outdoor unit
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- 9** Tighten the screws to secure mounting bracket-and-pipe assembly to the wall.
- 10** Attach the outdoor unit to the mounting assembly as described in the section "Attaching the Outdoor Unit to the Mounting Assembly" on page 99.

INSTALLING THE OUTDOOR UNIT ON A CINDER-BLOCK OR HOLLOW WALL

Tools and materials

Make sure you have the following items on hand before you begin.

Materials	Toggle bolts (4)
Tools	Electric drill with a masonry bit of a size appropriate for the toggle bolts
	Carpenter's level
	Screwdriver
	Hammer
	8, 10, 13 mm open-end or box-end wrench or a small adjustable wrench
	Pencil or chalk

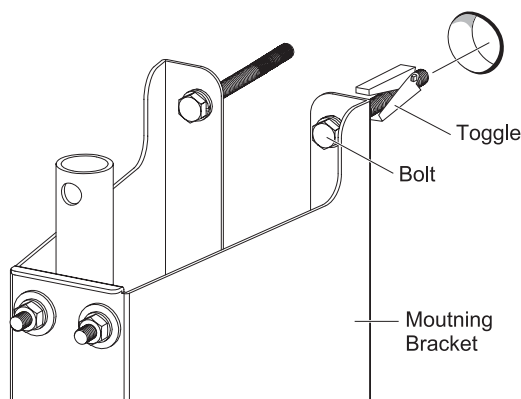
► **To install the outdoor unit on a hollow or cinder block wall**

- 1 If you are installing the outdoor unit on cinder block, you must install the toggle bolts in the core of the block. To find the correct location on the block:
 - i Measure 19 cm (7.5 inches) from one side of the block.
 - ii Mark this location on the block.
- 2 Hold the mounting bracket-and-pipe assembly in position on the mounting surface (centered on the mark you made if installing the outdoor unit on cinder block).
- 3 Use a level to verify that the center line of the mounting bracket is vertical.
- 4 Use a pencil or a piece of chalk to mark the positions of the two center holes of the mounting bracket.
- 5 Remove the mounting bracket-and-pipe assembly.
- 6 Drill a hole of sufficient diameter in each of the locations you marked.

- 7 Attach the toggle bolts to the mounting bracket:
 - i Remove the toggle (the wing-shaped anchor) from the bolt by unscrewing it.
 - ii Screw the bolt into one of the center holes in the mounting bracket.
 - iii Screw the toggle back onto the bolt.

NOTE: Do not screw the toggle on very far or it will not open when you put it through the wall.

 - iv Repeat steps i to iii for the other hole.
- 8 Attach the bracket-and-pipe assembly to the wall:
 - i Hold the mounting bracket-and-pipe assembly over the drilled holes so that the long end of the mounting pipe is vertical.

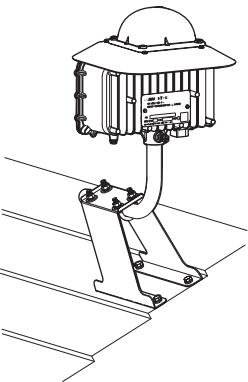


- ii Insert the toggle bolts into the drilled holes.
 - iii Tighten the toggle bolts, making sure that the long end of the mounting pipe is vertical.
- 9 Attach the outdoor unit to the mounting assembly as described in the section "Attaching the Outdoor Unit to the Mounting Assembly" on page 99.

INSTALLING THE OUTDOOR UNIT ON A ROOF

The following illustration shows a rooftop installation.

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the outdoor unit
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When installing the outdoor unit on a roof, install it in the highest possible location to maximize the signal you receive.

ATTENTION: Under some conditions, walking on the roof can cause damage, and improperly sealed mounting holes can cause leaks. Use caution when installing the outdoor unit on the roof.

Tools and materials

Make sure you have the following items on hand before you begin.

Materials	Hex P-Less anchors 6 x 45 (4)
	Flat-washers, nominal diameter 4
	Spring-washers, nominal diameter 4
	Roofing sealant

Tools

Woodworking Ø4.5 mm drill bit

Carpenter's level

Screwdriver

Hammer

8, 10, 13 mm open-end or box-end wrench or a small adjustable wrench

Pencil or chalk

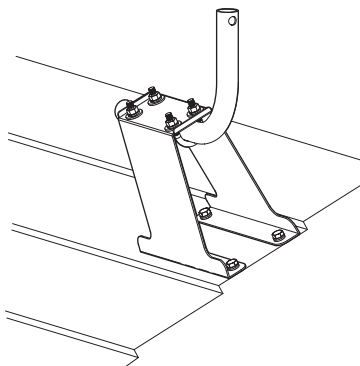
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the outdoor unit
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► To install the mounting assembly on a roof

- 1 Locate a rafter.

NOTE: At least two of the holes in the bracket must be positioned over the rafter.

- 2 Hold the long end of the bracket base across a rafter so that it is perpendicular to, rather than parallel to, the center line of the rafter.



- 3 Use a carpenter's level to make sure the center line of the bracket is perfectly horizontal.
- 4 Use a pencil or a piece of chalk to mark the positions of the four holes that are located in the four corners of mounting bracket.

-
- 5 Remove mounting bracket-and-pipe assembly.
 - 6 Drill a 4.5 mm hole in each of the locations you marked.
 - 7 Fill the holes you drilled with silicone sealant.
 - 8 Hold mounting bracket-and-pipe assembly over the holes.
 - 9 Insert a 6 x 45 mm lag Hex P-Less anchor in each of the holes to attach the mounting bracket to the roof.
 - 10 Tighten the screws to secure mounting bracket-and -pipe assembly in place.
 - 11 Use a level to see if a short end of the armrest pipe is pointing straight up, if it is not perfectly vertical:
 - i Use a wrench to loosen the two U-bolts that secure mounting bracket to the pipe.
 - ii Grasp the armrest pipe and rotate it until the short end of the pipe is pointing up and is perfectly vertical.
 - iii Tighten the two U-bolts to hold the armrest pipe securely in a vertical position.
 - 12 Seal mounting bracket with roof sealant.
 - 13 Attach the outdoor unit to the mounting assembly as described in the section "Attaching the Outdoor Unit to the Mounting Assembly" on page 99.

ATTACHING THE OUTDOOR UNIT TO THE MOUNTING ASSEMBLY

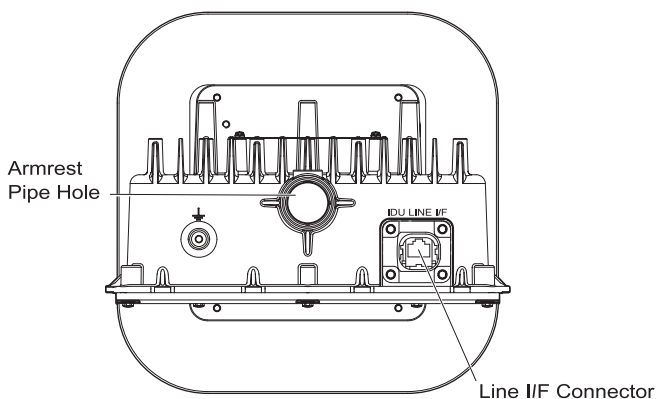
Once mounting bracket-and-pipe assembly is securely attached to the mounting surface and the armrest pipe is pointing straight up, you can attach the outdoor unit to the mounting assembly.

At this point you should also attach the CAT5 cable to the bottom of the outdoor unit in preparation for the wiring procedure that follows.

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The bottom of the outdoor unit

The armrest pipe, CAT5 cable are attached to the bottom of the outdoor unit, as described in this section.



Tools and materials

Make sure you have the following items on hand before you begin.

Materials	Outdoor Unit
	CAT5 cable and self-bonding tape
Tools	Screwdriver
	Sticking-by-pressure tool (for RJ-45)
	Covering slit tool (for RJ-45)
	Guide insertion tool (for RJ-45)
	Network cable tester (for RJ-45)

▶ **To attach the outdoor unit to the armrest pipe**

- 1 Attach the outdoor unit to the armrest pipe by sliding the hole on its base over the armrest pipe.
- 2 Secure the outdoor unit by tightening the M6 bolt at the outdoor unit mount section.
- 3 Secure detent of the M6 bolt with the M6 lock nut.

▶ **To attach the CAT5 cable to the outdoor unit**

- 1 Attach the waterproof RJ-45 connector (manufactured by YAMAICHI) to one end of the CAT5 cable.
- 2 Attach the waterproof RJ45 connector to Line I/F connector of the outdoor unit.
NOTE: Make sure the connector is attached in the right direction, and hooks on either side of the connector are securely locked.
- 3 Draw the other end of CAT5 cable inside to the installation position of the indoor unit.
- 4 Attach RJ-45 connector to the end of CAT5 cable to connect to the indoor unit.



INSTALLING THE INDOOR UNIT

This chapter describes how to connect computer and telephone equipment to the indoor unit.

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Choosing the Best Location for the Indoor Unit	103
Routing Cable to the Indoor Unit	104
Connecting the Power Supply and Powering on the Indoor Unit	107
Connecting Computers and Telephones to the Indoor Unit	108

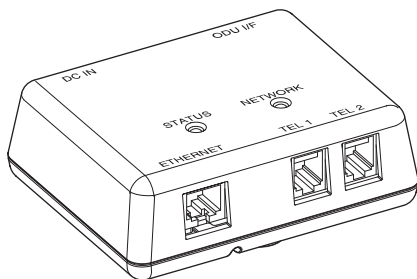
AN OVERVIEW OF THE INSTALLATION

The following is an overview of the sequence of installation tasks required to connect equipment to and power on the indoor unit.

Task	See
1. Install the outdoor unit.	"Install the Outdoor Unit" on page 77.
2. Choose a location for the indoor unit.	"Choosing the Best Location for the Indoor Unit" on page 103.
3. Connect the power supply to the indoor unit and plug in the indoor unit to power it on.	"Connecting the Power Supply and Powering on the Indoor Unit" on page 107.
4. Connect your computer to the indoor unit.	"Connecting a Computer via Ethernet" on page 25.
5. If telephone service is available in your area and you subscribe to it, connect your telephone to the indoor unit.	"Connecting Telephones to the Indoor Unit" on page 26.
6. Connect to the Internet.	"Activating Service" on page 30.
NOTE: You may have to activate full service if your service provider has not already done so.	

CHOOSING THE BEST LOCATION FOR THE INDOOR UNIT

The indoor unit must be installed near a wall outlet. Choose the location feasible to connect a PC and/or a telephone. Do not locate close to interfering appliances such as a microwave.



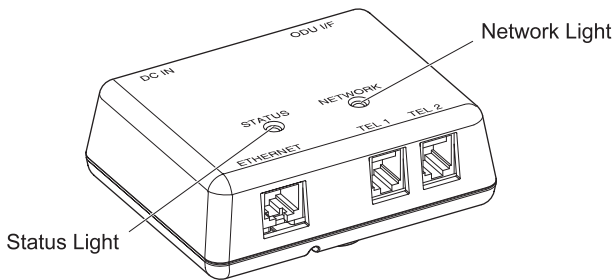
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ROUTING CABLE TO THE INDOOR UNIT

When routing cable to the indoor unit, you should select the shortest possible path and always protect cable from physical damage.

The indoor unit

The figure below shows the location of lights on the top of the indoor unit. The Status light indicates the indoor unit is energized and the power is supplied to the outdoor unit. The Status light is off when the SOMAport is powered off. See “Status light” on page 21 for more information about the status light.



Tools and materials

Make sure you have the following items on hand before you begin.

Materials	CAT5 cable
	Cable clips
	Silicone sealant

Tool

Drill with a 10-20 mm drill bit appropriate for the type of material (such as wood or masonry)

Screwdriver

► **To route the CAT5 cable from the outdoor unit to the indoor unit**

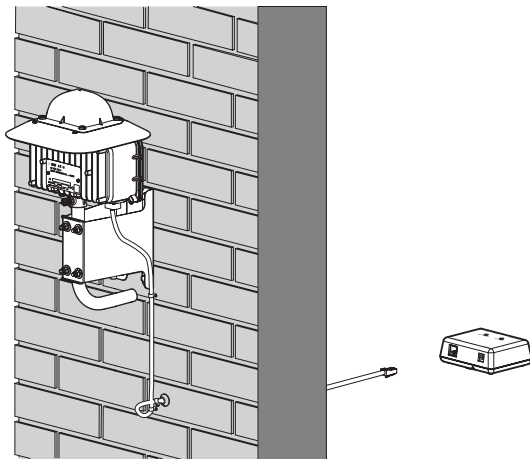
- 1 Verify that there are no wires or pipes blocking the location where you will be feeding the CAT5 cable into the building.
- 2 Drill a hole in the wall where you want the CAT5 cable to enter the building.
- 3 Cable to the wall using cable clips.
- 4 Make sure the outdoor unit is off.

ATTENTION: The outdoor unit must be off before you connect the CAT5 cable to it.

- 5 Feed the CAT5 cable into the building through the drilled hole. Add a loop to the cable before it enters the building.
- 6 Feed the CAT5 cable from the outdoor unit into the ODU I/F port on the side of the indoor unit.

If you secure the indoor unit onto the wall, insert wood screws (3.1 x 32 mm) into two mount holes in the box and tighten them, then close the cover. If not, simply close the cover. In case of securing it onto the wall, ensure that the strength between the indoor unit and the wall shall be 50 N or above.

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the indoor unit
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- 7 Seal the access point into the building with silicone sealant.
- 8 Turn on the SOMApport. The SOMApport takes a few minutes to start and connect to the network.
- 9 Test the equipment that is attached to the SOMApport.

CONNECTING THE POWER SUPPLY AND POWERING ON THE INDOOR UNIT

The indoor unit does not have a power switch. You turn on the indoor unit by plugging it into a power outlet, and turn it off by unplugging it. When you plug in the indoor unit, it starts, connects to your service provider's network, and tunes itself (acquires a radio channel).

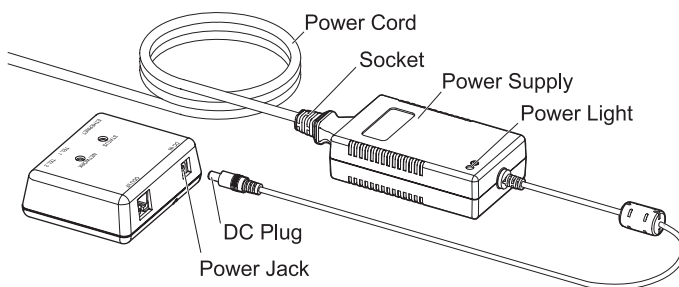


WARNING: Use only the power supply and power cord that came with the indoor unit. Using another power supply may damage your equipment and poses the risk of shock or electrocution.

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the indoor unit
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► To install the power supply and power on the indoor unit

- 1 Insert the DC plug into the power jack of the indoor unit.



- 2 Insert the socket end of the power cord into the power supply's receptacle.
- 3 Insert the plug end of the power cord into a three-prong grounded power outlet. The indoor unit powers on when you plug it in. There is no power button. The light on the power supply turns on if it is receiving power.
- 4 The SOMAport takes up to five minutes to start, acquire a radio signal, and connect to the network.

NOTE: If you ever need to disconnect the power supply, disconnect the power cord from the power outlet first. Then unplug the connector from the back of the indoor unit.

CONNECTING COMPUTERS AND TELEPHONES TO THE INDOOR UNIT

For information about connecting a computer, see “Connecting a computer via Ethernet” on page 25.

For information about connecting telephones, see “Connecting Telephones to the Indoor Unit” on page 26.

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