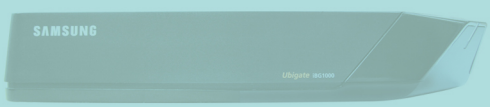
SAMSUNG

Experience the power of one

Ubigate iBG1000™

Installation Manual



www.samsungnetwork.com

The purposes of Safety Concerns are to ensure user's safety and to prevent property losses.
Please read this document carefully for proper use.

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TRADEMARKS

This manual should be read before the installation and operation, and the operator should correctly install and operate the product by using this manual.

This manual may be changed for the system improvement, standardization and other technical reasons without prior notice.

If you have a question for the content of manual or want to obtain further information on the updated manual, please contact the homepage below.

Homepage: http://www.samsungdocs.com

GENERAL USER INFORMATION

RADIO FREQUENCY INTERFERENCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC REQUIREMENTS

This equipment, the Ubigate iBG1000, complies with Part 68 of the FCC rules and the requirements adopted by the ATCA. On the bottom of this equipment is a label that contains, among other information, a product identifier in the format **US: A3LIS00BiBG1000**. If requested, this number must be provided to the telephone company.

UNAUTHORIZED MODIFICATIONS

Any changes or modifications performed on this equipment that are not expressly approved in writing by SAMSUNG ELECTRONICS, CO., LTD. could cause non-compliance with the FCC rules and void the user's authority to operate the equipment.


NOTE

Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC's rules.

TELEPHONE CONNECTION REQUIREMENT

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ATCA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

FCC Part 68

This equipment complies with Part 68 of the FCC rules. The FCC Part 68 label is located on the bottom chassis panel. This label contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to your telephone company.

INCIDENCE OF HARM

If this equipment, the Ubigate iBG1000, causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

SERVICE CENTER

If trouble is experienced with the Ubigate iBG1000, please contact your local office of SAMSUNG ELECTRONICS, CO., LTD. for repair or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

FIELD REPAIRS

Only technicians certified on the Ubigate iBG1000, are authorized by SAMSUNG ELECTRONICS, CO., LTD. to perform system repairs. Certified technicians may replace modular parts of a system to repair or diagnose trouble. Defective modular parts can be returned to SAMSUNG ELECTRONICS, CO., LTD. for repair.

GENERAL

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

Electrical Safety Advisory

Parties responsible for equipment requiring AC power should consider including an advisory notice in their customer information suggesting the customer use a surge arrestor. Telephone companies report that electrical surges, typically lightning transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem.

SAFETY WARNING

High touch current earth connection is essential before making telecommunication network connection.

Energy Hazard-careful treatment is needed.

Every wire for communication should be larger than 26 AWG.

Double pole/neutral fusing.

UNDERWRITERS LABORATORIES

The Ubigate iBG1000 system has been tested to comply with safety standards in the United States and Canada. This system is listed with Underwriters Laboratories. The cUL Mark is separately shown on the label.
The following statement from Underwriters Labs applies to the Ubigate iBG1000 System:

1. Separation of TNV and SELV - Pluggable A:
   INSTRUCTION: The separate protective earthing terminal provided on this product shall be permanently connected to earth.

2. Separation of TNV and SELV - Pluggable B:
   INSTRUCTION: Disconnect TNV circuit connector(s) before disconnecting power.

3. Warning to service personnel:
CAUTION: Double pole/neutral fusing

4. Telephone line cord:
CAUTION: To reduce the risk of fire, use only No. 26 AWG or larger (e.g., 24 AWG) UL Listed or CSA Certified Telecommunication Line Cord

5. Leakage currents due to ringing voltage - Earthing installation instructions: 1. A supplementary equipment earthing conductor is to be installed between the product or system and earth, that is, in addition to the equipment earthing conductor in the power supply cord.
2. The supplementary equipment earthing conductor may not be smaller in size than the unearthed branch-circuit supply conductors.
The equipment earthing conductor is to be connected to the product at the terminal provided, and connected to earth in a manner that will retain the earth connection when the power supply cord is unplugged.
The connection to earth of the supplementary earthing conductor shall be in compliance with the appropriate rules for terminating bonding jumpers in Part K of Article 250 of the National Electrical Code, ANSI/NFPA 70 and Article 10 of Part 1 of the Canadian Electrical Code, Part 1, C22.1. Termination of the supplementary earthing conductor is permitted to be made to building steel, to a metal electrical raceway system, or to any earthed item that is permanently and reliably connected to the electrical service equipment earthed.
3. Bare, covered, or insulated earthing conductors are acceptable.
A covered or insulated conductor must have a continuous outer finish that is either green, or green with one or more yellow stripes.

6. Safety Instructions - Rack Mount ‘Rack Mount Instructions -
The following or similar rack-mount instructions are included with the installation instructions:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in a rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).'

INTRODUCTION

Purpose

Ubigate iBG1000™ Installation Manual provides instructions on installing the Ubigate iBG1000, including hardware descriptions, safety information, chassis installation, module installation, interconnection, and troubleshooting descriptions.

Document Content and Organization

This manual is composed of three Chapters and two Annexes.

CHAPTER 1. Ubigate iBG1000 Overview

Describes Ubigate iBG1000 characteristics.

CHAPTER 2. Pre-Installation Requirements

Describes the safety regulations and how to prepare for installation.

CHAPTER 3. Ubigate iBG1000 Installation

Describes how to install Ubigate iBG1000.

ANNEX A. Specifications

ANNEX B. Cable Specifications

Conventions

The following types of paragraphs contain special information that must be carefully read and thoroughly understood. Such information may or may not be enclosed in a rectangular box, separating it from the main text, but is always preceded by an icon and/or a bold title.

WARNING

Provides information or instructions that the reader should follow in order to avoid personal injury or fatality.

CAUTION

Provides information or instructions that the reader should follow in order to avoid a service failure or damage to the system.

NOTE

Indicates additional information as a reference.

Information for Product and Technical Support

For questions regarding the product and technical supports:

http://www.samsungnetwork.com

Revision History

EDITION	DATE OF ISSUE	REMARKS
00	05. 2008.	First edition
01	06. 2008.	Added caution for power adapter
02	10. 2008.	Modified tabletop installation

SAFETY CONCERNS

The purpose of the Safety Concerns section is to ensure the safety of users and prevent property damage. Please read this document carefully for proper use.

Symbols

Caution

Indication of a general caution.

Restriction

Indication for prohibiting an action for a product.

Instruction

Indication for commanding a specifically required action.

WARNING

Electric hazard exists. Verify the power is turned off. Do not work on energized equipment. Working on energized equipment can result in serious electrical shock.

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits (as found in LAN ports) to telephone-network voltage (TNV) circuits (as found in WAN ports).

CAUTION

This equipment must be installed and maintained by properly trained service personnel. Make sure the proper electrical service is available before plugging this unit in and turning it on. Disconnect the telecommunications lines before unplugging the main power connector.

Do not place any items that weigh more than 10 pounds (4.5 kilograms) on top of the chassis, and do not stack routers on a tabletop.

Use only the adapter provided with the Ubigate iBG1000. Using other adapter can result in overheating or explosion and may cause malfunction.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1. Ubigate iBG1000 Overview

Chapter 1 provides an overview of the Ubigate iBG1000.

This chapter provides an overview of Ubigate iBG1000 including information about chassis components and hardware characteristics.

Ubigate iBG1000 Chassis

This section describes chassis components of the Ubigate iBG1000. Additional information is also provided about external cables, wiring, and connection points.

Ubigate iBG1000 Top Side

The top side of Ubigate iBG1000 has LEDs in order to indicate the router's performance and operation status. Each LED's description is shown as follows.

Figure 1.1 Ubigate iBG1000 Top View

LED Description

LED	Indication & Color	Description
SYS	Solid green	System is operating normally.
	Solid red	System is not operating normally.
	Amber	System diagnostic mode.
	Off	Router is not receiving power.
P0~P3 (T1/E1)	Solid green	T1/E1 port is operating normally.
	Solid red	T1/E1 port cable is not connected properly or critical alarm detected.
	Amber	User alarm detected.
	Off	Router is not operating normally.

(Continued)

LED	Indication & Color	Description
P0~P1 (Ethernet)	Solid green	Ethernet port link is detected.
	Blinking green	Ethernet port activity is detected.
	Off	Ethernet port link is not detected.
⏻ (Power)	Solid blue	Power supply installed and operating normally.
	Amber	Power supply installed but power fault condition detected.
	Off	Power supply not present or power supply failure

Ubigate iBG1000 Rear Side

Ubigate iBG1000 rear side has four T1/E1 ports, two Fast Ethernet UTP ports, one auxiliary port, and one console port.

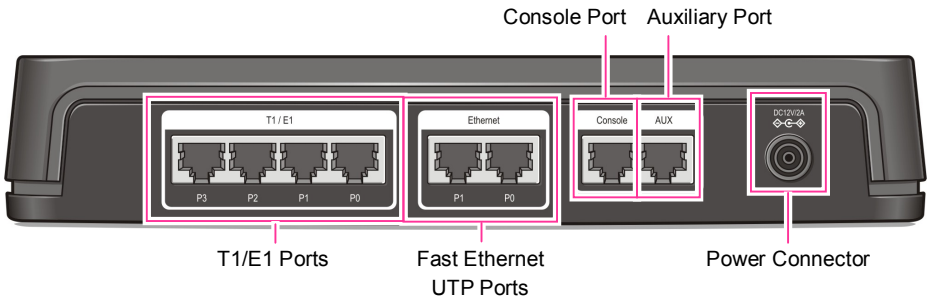

Figure 1.2 Ubigate iBG1000 Rear Connector

Connector	Description
T1/E1 Port	T1/E1 WAN connection
Fast Ethernet UTP Port	Fast Ethernet LAN connection
Console Port	Serial port for local monitoring and configuring
Auxiliary Port	Serial port for remote monitoring
Power Connector	DC power connector

Ubigate iBG1000 Hardware

Memory

The Ubigate iBG1000 supports the following types of memory:

- Double-Data-Rate II Synchronous Dynamic Random Access Memory (DDR II SDRAM): This type of memory stores the running configuration and routing tables. It also buffers packets at the network interfaces. The base configuration shipped from the factory is 512 MB of main memory. The Small Outline Dual In-line Memory Module (SODIMM) slot can be used to upgrade the main memory to a maximum of 1 GB.
- SD memory card: The base configuration shipped from the factory is a 1 GB SD memory card, which can be upgraded to a maximum of 2 GB. SD memory is used to store application code images.
- Internal Flash Memory: Ubigate iBG1000 includes 2 MB of internal flash memory which is used to boot the router.

Power Supply

Ubigate iBG1000's AC power adapter provides +12 VDC with an AC input between 100 and 240 VAC.

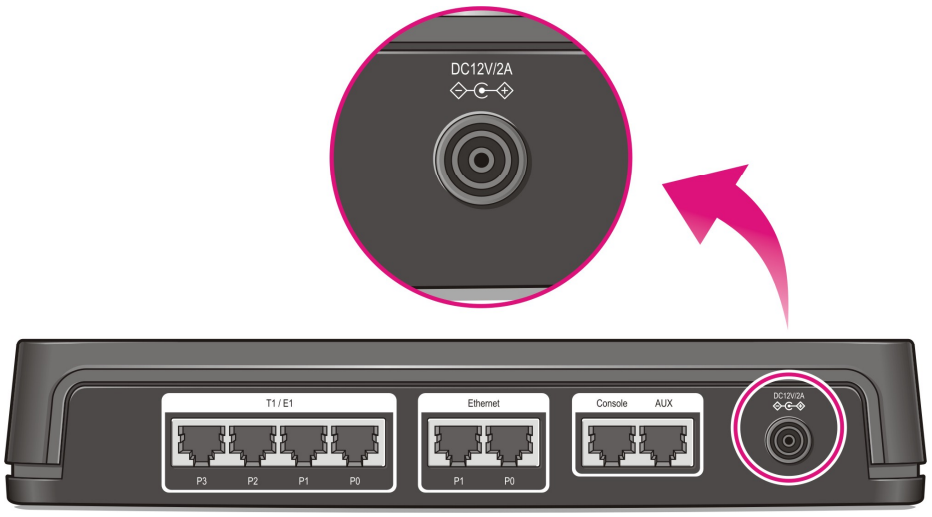

Figure 1.3 Power Supply

Ventilation

On both sides, there are grids of holes where air comes in and goes out. When installing Ubigate iBG1000, ensure to make room around the system in order not to block air flow.

Figure 1.4 Ventilation

Real-Time Clock

Ubigate iBG1000 provides a real-time clock so that Ubigate iBG1000 can maintain the correct date and time.

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CHAPTER 2. Pre-Installation Requirements

Chapter 2 describes how to prepare for installing an Ubigate iBG1000.

This chapter describes how to prepare for an Ubigate iBG1000.
Before you install an Ubigate iBG1000, familiarize yourself with the network interface, power, and ground connections described in the following paragraphs.

Safety Recommendations

The safety warnings that appear in this document (such as the one below) indicate a procedure that can harm you if not done correctly.

Electric hazard exists. Verify the power is turned off. Do not work on energized equipment. Working on energized equipment can result in serious electrical shock.

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits (as found in LAN ports) to telephone-network voltage (TNV) circuits (as found in WAN ports).
Be sure to follow connection instructions carefully.

This equipment must be installed and maintained by properly trained service personnel. Make sure the proper electrical service is available before plugging this unit in and turning it on. Disconnect the telecommunications lines before unplugging the main power connector.

Cover Panels

Do not operate the Ubigate iBG1000 with missing cover panel. The cover prevents exposure to hazardous voltages and currents inside the chassis. It is important to maintaining proper air flow through the chassis. It also prevents electromagnetic interference (EMI) that might disrupt other equipment.

Best Practices-Safety

Practice these techniques to prevent accidents or injury at the installation site.

- Make sure that the site is safe from hazards such as damp or wet floors, improper or missing circuit breakers, poor grounds, etc.
- Do not wear jewelry, metal objects, or loose clothing while working on electrical equipment.

General Maintenance Guidelines

Keep Ubigate iBG1000 dry and dust-free, and stored in electrical equipment friendly environments.

General Site Requirements

Site Preparation

Before installing an Ubigate iBG1000, ensure that the site conditions comply with the following requirements and that the mounting equipment, tools, and cables are available at the designated site.
For safety, Ubigate iBG1000 is intended to be installed in a restricted access location by a service person.

See Required Tools and Materials for information about tools and materials required for installation.

Environment

Site location is important for the proper operation of Ubigate iBG1000.
Place the unit in a clean and dry environment with adequate air circulation.
Allow two to three feet additional clearance around the router for access to the cable connectors on the rear panel.
The selected installation site must meet basic environmental requirements.
The following figure shows a top view of the path of cooling air through the chassis. Clearance must be maintained near the air intake and exhaust vents to prevent overtemperature conditions, which could result in router failure or performance degradation.

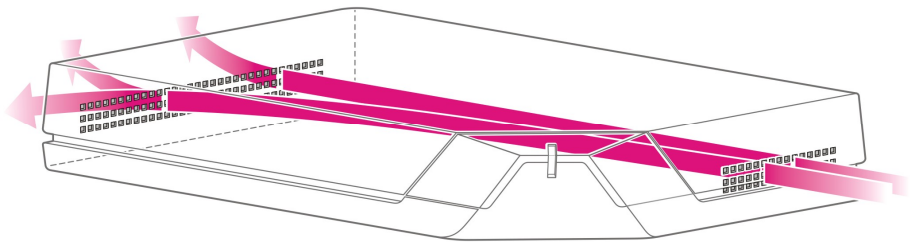

Figure 2.1 Air flow of the Ubigate iBG1000

Inspecting the Ubigate iBG1000

After opening the shipping carton, remove and save all packing materials and boxes.


NOTE

Save the packing materials. If you need to return the product, you will need to repack the unit.

Check the packing slip and contents of the shipping carton to ensure that you have received the following:

- Ubigate iBG1000 body
- Console cable DB-9 to RJ-45 cable adapter
- AC/DC Power adapter
- Plastic anchor and screw 2 sets
- Quick Start Guide
- Manual CD

Inspect the Ubigate iBG1000 for damage that may have occurred during shipping. If you discover damage or missing items, contact Technical Support:

http://www.samsungnetwork.com

Required Tools and Materials

The following additional items may be required to install these routers in your operating environment. This is dependent on router configuration and how the router will be managed.

Tools

The following tools are required to install these routers.

- Electric drill
- Phillips screwdriver
- Hammer

Cables

The following cables may be required for operation of these routers in your environment. The console cable is provided with the router. (See the Annex B for pinout information.)

- Console cable (for console connection to terminal
- Ethernet 10/100Base-T, CAT-5 UTP cable (for a LAN connection)

Materials

The following additional material is required to install these routers.

- Cable ties

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CHAPTER 3. Ubigate iBG1000 Installation

Chapter 3 describes how to install Ubigate iBG1000 for operation in a network facility.

Installing the Ubigate iBG1000

This section describes how to prepare the Ubigate iBG1000 for operation either as a tabletop or a wall-mounted unit.

Installing on a tabletop

Allow sufficient room at the front, rear, and side of the unit for interface cabling, power cord clearance, and adequate ventilation.

Set the device on a flat surface, making sure there are sufficient spaces on all sides for proper air flow.

Do not place any items that weigh more than 10 pounds (4.5 kilograms) on top of the chassis, and do not stack routers on a tabletop.

Installing on a Wall

This section describes how to install Ubigate iBG1000 on a wall.

1. Mark two holes, horizontally or vertically, on a desired wall. The hole distance is about 130 mm.

2. Make holes on the marked position with an electric drill. Make the depths and the diameters of the holes more than 33 mm and around 5.5 mm to insert the plastic anchors easily, respectively.

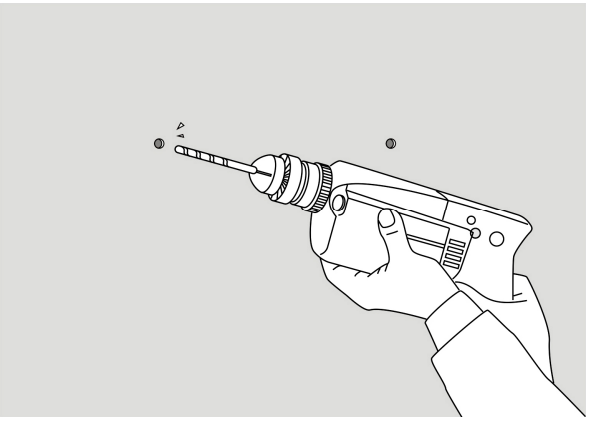

Figure 3.1 Making holes

3. With a hammer, insert plastic anchors into the holes.

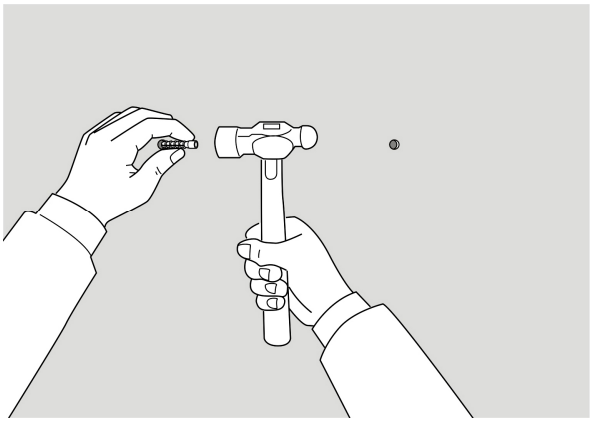

Figure 3.2 Insert plastic anchors

4. Insert screws to each hole and tighten the screws with a Phillips screwdriver. Be sure to remain screws untightened about 2 mm.

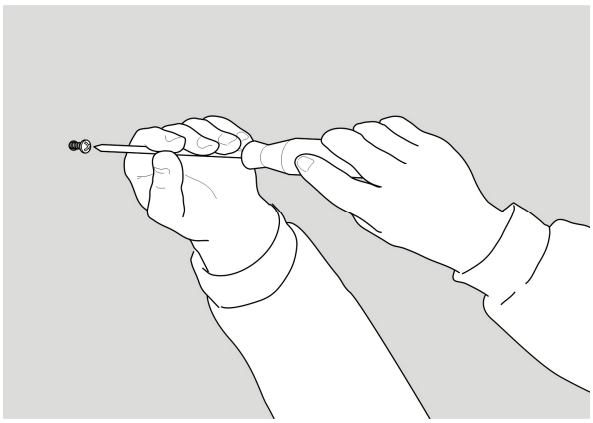

Figure 3.3 Tightening screws

5. Align the screws to the bottom holes of Ubigate iBG1000 and fix it.

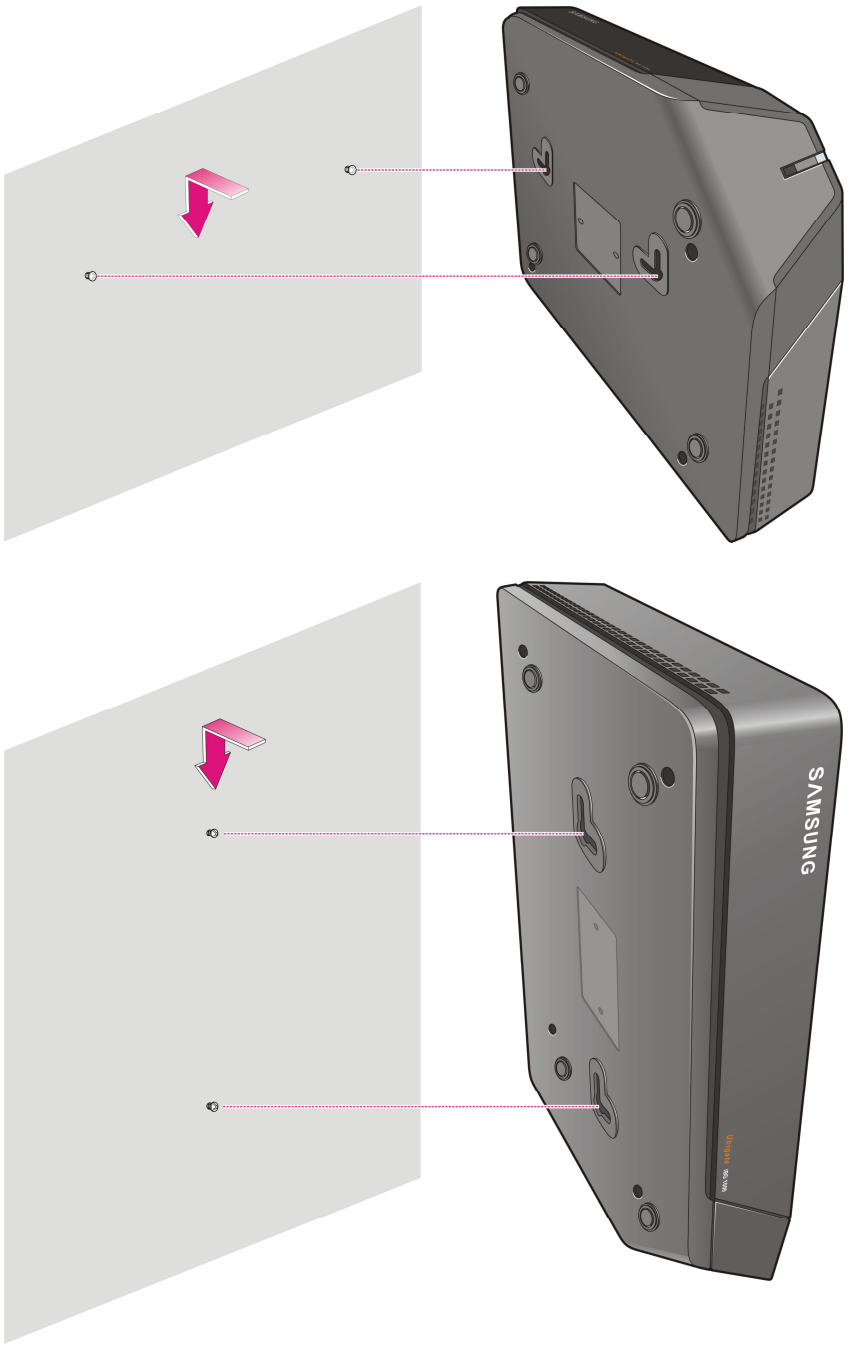

Figure 3.4 Fixing on a wall

Port Numbering

This section describes the port number conventions used by Ubigate routers such as iBG3026, iBG2016, iBG2006, and iBG1000.

Ports on a network module are numbered in a format: *network module slot-number/interface-number*, and ports on a mini-module are numbered in a format: *network module slot-number/mini-module slot number/interface-number*.

Network modules are numbered from right to left, starting with slot number one. If there is more than one row, the bottom row is numbered first, from right to left, starting at slot one, then the next row up is numbered, from right to left, starting with the next slot number based on the lower rows last (left most) numbered slot. The main board is considered as network module slot 0.

Mini modules are numbered from right to left, starting with slot number zero. If there is more than one row, the bottom row is numbered first, from right to left, starting at slot zero, then the next row up is numbered, from right to left, starting with the next slot number based on the lower rows last (left most) numbered slot.

Ports on any mini module or network module are numbered from right to left, starting with port number zero. If there is more than one row of ports on a given module, the bottom row is numbered first, from right to left, starting at port zero, then the next row up is numbered, from right to left, starting with the next port number based on the lower rows last (left most) numbered port.

iBG1000 Port Numbering

Since iBG1000 which is considered as network module slot 0 does have any pluggable module unlike the others, all the ports are numbered in *0/x* format. Therefore, the Fast Ethernet ports are numbered 0/0 and 0/1, starting from right to left. Likewise, the T1/E1 ports are numbered 0/0, 0/1, 0/2, and 0/3, starting from right to left.

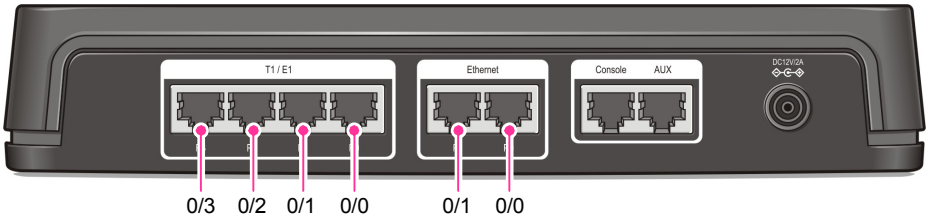

Figure 3.5 iBG1000 Port Numbering

Connecting the Ubigate iBG1000

This section describes how to connect the Ubigate iBG1000 to various network interfaces. Follow the procedure for the interface appropriate for your network facility environment.

LAN Interface

The Ubigate iBG1000 accommodates several network connections. Use a Category 5 (minimum) Ethernet cable with RJ-45 connectors to connect to the network.

1. Insert the RJ-45 connector on one end of the cable in any of the Ethernet ports.

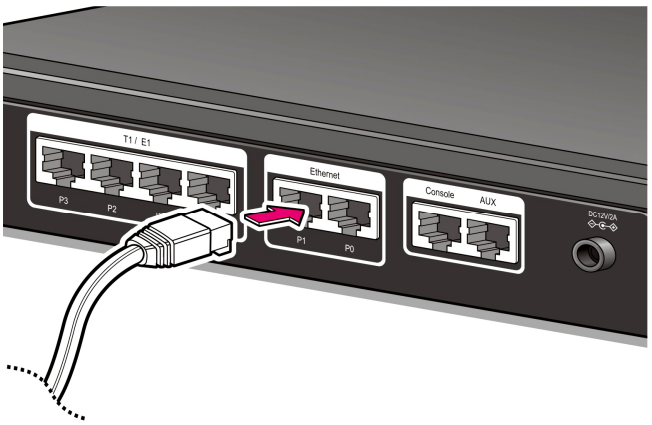

Figure 3.6 Connecting LAN Cables

2. Connect the RJ-45 connector on the other end of the cable to the designated network. Make sure that the cable connectors are locked and secure in the ports.

T1/E1 Interface

The Ubigate iBG1000 accommodates several network connections. Use a cable with RJ-45 connectors to connect to the T1/E1 network.

1. Insert the RJ-45 connector on one end of the cable in any of the T1/E1 ports.

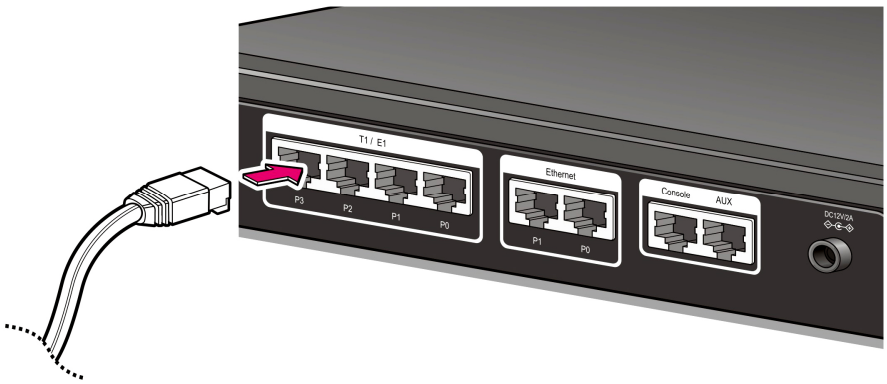

Figure 3.7 Connecting T1/E1 Cables

2. Connect the RJ-45 connector on the other end of the cable to the designated network. Make sure that the cable connectors are locked and secure in the ports.

Console Interface

A terminal (VT-100 or equivalent) or workstation with terminal emulation software can be used for the operator console. Connect the console to the Ubigate iBG1000 with an RJ-45 cable. For connection to a PC running terminal emulation software, your Ubigate iBG1000 is provided with an RJ-45 to DB-9 adapter cable.

To assemble and connect the console cable:

1. Connect the RJ-45, 8-conductor to the console port on the Ubigate iBG1000.

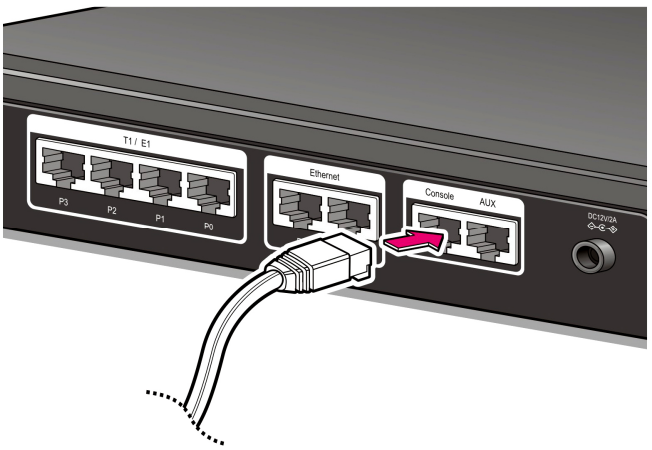

Figure 3.8 Connecting Console Cable

2. Connect the adapter with the female DB-9 connector to the communications port on the workstation or terminal.

3. Configure the workstation or terminal for 9,600 bps, 8 data bits, 1 stop bit, no parity, and no flow control.

Auxiliary Interface (for Remote Access)

The Ubigate iBG1000 and a terminal can be connected to modems and phone lines for remote access. (Use a null-modem cable at the Ubigate iBG1000 to establish a modem connection.) This configuration allows you to dial into the router from a remote location.

Below is a list of tested modems that operate properly with the Ubigate iBG1000 system. It is recommended to use tested modems below or compatible modems with them.

- US Robotics: V.92 5686
- D-Link: DFM-562E
- MutiTech System: MT5634 ZBA

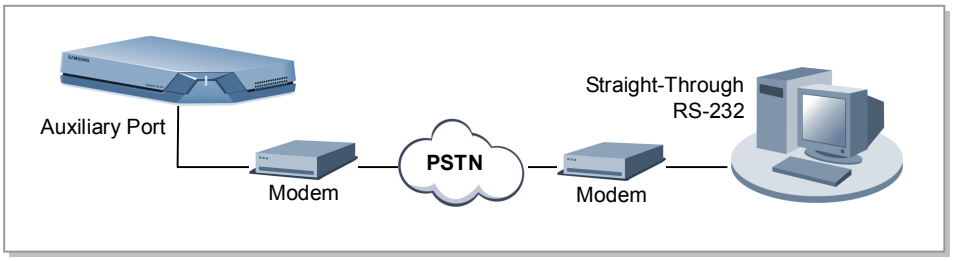

Figure 3.9 Remotely Accessing an Ubigate iBG1000

NOTE

The default Serial configuration is DTE. To use the Ubigate iBG1000 as DCE equipment, you must reconfigure the interface and reboot the router.

NOTE

Do not configure the modem to ‘send result codes’ or ‘echo’ commands. Doing so may cause the router to hang.

Refer to your modem documentation for guidelines about establishing an asynchronous DCE-to-DCE connection between these two devices through the public switch telephone network (PSTN). Use an RJ-45 to DB-9 (or DB-25) adapter cable to connect the router to a modem.

1. Connect the RJ-45 connector of the adapter cable to the Auxiliary port on the Ubigate iBG1000.

2. Connect the other end of the adapter cable, the DB-9 (or DB-25) connector cable to the modem.

3. Connect the modem to a telephone line using a standard twisted-pair cable with modular RJ-11 connectors.

4. Repeat steps 2 and 3 on the remote terminal or workstation side.

5. Configure modems for 9600 bps, 8 data bits, 1 stop bit, no parity, and hardware flow control.
   Refer to your modem documentation if necessary. If a workstation is used for the console, use VT-100 terminal emulation software or equivalent, and configure the software as specified for modems.


NOTE

A modem connected to the Console port of an Ubigate iBG1000 and set for verbose mode (configured to 'send result codes' or 'echo' commands) can prevent the router from booting up properly. Ubigate iBG1000 recommends that the user configures the modem to quiet (nonverbose) mode when it is connected to the router Console port.

Powering Up the Ubigate iBG1000

Ubigate iBG1000 is shipped with 24 Watt AC Power Adaptor by default. This chapter describes how to power up the Ubigate iBG1000.

> **CAUTION**
>
> Use only the adapter provided with the Ubigate iBG1000. Using other adapter can result in overheating or explosion and may cause malfunction.

Connecting Power

To connect power to the Ubigate iBG1000, connect the AC power connector to the power supply. Connect the other end to a grounded power receptacle rated for the Ubigate iBG1000.

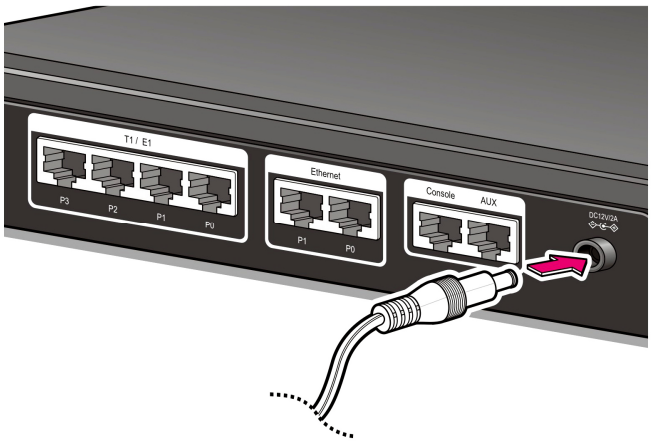

Figure 3.10 Power Connection

Applying Power

Before applying power to a Ubigate iBG1000, make sure that appropriate procedures have been completed, and that an operator console has been connected to the router.

Ensure that the Ubigate iBG1000 is connected to a power source.

Then, the power LED illuminates blue. After that, the router starts a booting sequence. Upon successful boot-up, the system LED illuminates green. Other status LEDs will be in various states.
This is a normal condition when the router is not configured for specific network line conditions.

The login prompt is displayed on the console screen.

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ANNEX A. Specifications

Ubigate iBG1000 Product Specifications

ITEM	Specification
Router Memory	- Typical: 512 MB - Maximum: 1 GB
Internal Storage	SD Memory: 1 GB
Boot Flash	2 MB
AC Power Adapter	- Input Voltage: 100~240 V - Frequency: 50~60 Hz - Power Consumption: 24 W
High Temperature (Operating)	104˚F (+40˚C)
Low Temperature (Operating)	32˚F (0˚C)
High Temperature (Non-Operating)	158˚F (+70˚C)
Low Temperature (Non-Operating)	-13°F (-25˚C)
Humidity (Operating)	5 to 95%, non-condensing
Dimension (H × W × D)	- Height: 1.75-inch (44.45 mm) - Width: 10.24-inch (260 mm) - Depth: 7.48-inch (190 mm)
Weight	1 Kg
Altitude	0 to 13,123 ft (0 to 4, 018 m)
Regulatory & Safety Compliance	- MIC Type Approval/EMC Registration - IEC 60950-1/EN 60950-1/UL 60950-1 - EN 55022/EN 55024/EN 61000-3-2/ EN 61000-3-3 - FCC Part 15 Class A - FCC Part 68

Interface

The following tables provide specifications for T1 WAN and Ethernet LAN interfaces.

E1 WAN Interface

Specifications	Descriptions
Receive line rate	2.048 Mbps ± 50 ppm (payload = 1.984 Mbps)
Line code	HDB3
Framing CRC	non-CRC (ITU G.704), and unframed
Input signal	DSX-1, 0 to -24 dB
Output signal build out	long-haul or short-haul
Impedance	75 or 120 ohm
Connectors	RJ-48C
Timing	Internal or network
Pulse density	ITU G.703

T1 WAN Interface

Specifications	Descriptions
Receive line rate	1.544 Mbps ± 32 ppm
Line code	B8ZS or AMI
Framing	D4 or ESF
Interface ESF FDL	- AT & T TR-54016-1986 - AT & T TR-54016-1989 - ANSI T1.403-1989
Input signal	DSX-1, 0 to -24 dB
Output signal build out	0, -7.5 dB, -5 dB
Equalization	0 to 655 ft. (DSX-1)
Impedance	100 Ω
Connectors	RJ-48C
Timing	Internal or network
Pulse density	AT & T TR-62411; HDLC Inversion, forced

Ethernet LAN Interface

Specifications	Descriptions
Data flow	Full-duplex or half-duplex
Connectors	RJ-45
Data speed	10/100 Mbps, auto negotiating

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ANNEX B. Cable Specifications

Console Port Cable

Cable Shape

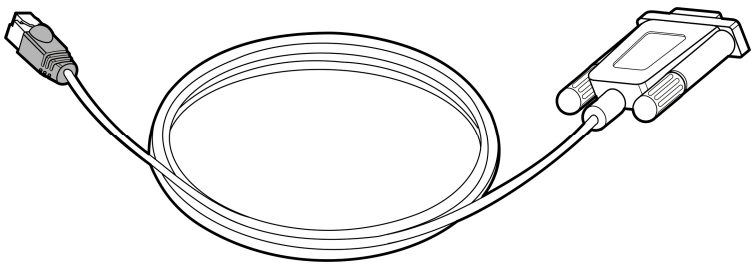

Figure B.1 Console Port Cable

Cable Signaling and Pinout

Console Port (DTE)	RJ-45 to RJ-45 Rollover Cable	RJ-45 to DB-9 Terminal Adapter (connected to Rollover Cable)	Console Device
Signal	**RJ-45 Pin**	**DB-0 Pin**	**Signal**
RTS	1	8	CTS
DTR	2	6	DSR
TxD	3	2	RxD
GND	4	5	GND
GND	5	5	GND
RxD	6	3	TxD
DSR	7	4	DTR
CTS	8	7	RTS

Auxiliary Port Cable

Cable Shape

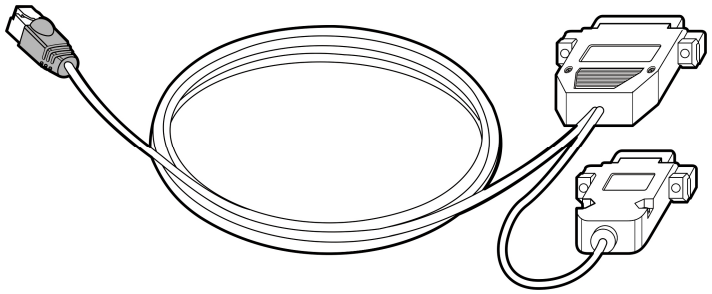

Figure B.2 Auxiliary Port Cable

Cable Signaling and Pinout

Auxiliary Port (DTE)	-	-	RJ-45 to DB-25 Modem Adapter	Modem
Signal	**RJ-45 Pin**	**DB-9 Pin**	**DB-25 Pin**	**Signal**
RTS	1	7	4	RTS
DTR	2	4	20	DTR
TxD	3	3	2	TxD
GND	4	5	7	GND
GND	5	5	7	GND
RxD	6	2	3	RxD
DSR	7	6	8	DCD
CTS	8	8	5	CTS

Ethernet Cable

Cable Shape

- Cable Length: 6/10 feet
- Standard, Straight-Through Wiring (both ends are the same)
- 10/100Base-T interfaces

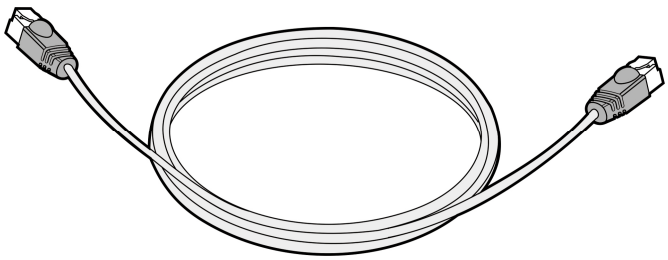

Figure B.3 Ethernet LAN Interface Cable

Cable Signaling and Pinout

RJ45 Pin #	Wire Color (T568A)	1000Base-T Signal
1	White/Green	BI_DA+
2	Green	BI_DA-
3	White/Orange	BI_DB+
4	Blue	BI_DC+
5	White/Blue	BI_DC-
6	Orange	BI_DB-
7	White/Brown	BI_DD+
8	Brown	BI_DD-

T1/E1 Cable

Cable Shape

- RJ-48C to RJ-48C Cable

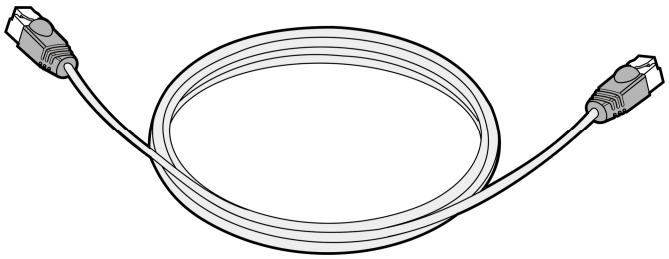

Figure B.4 T1/E1 WAN Interface Cable

Cable Signaling and Pinout

1	RXPING	←	4	TXRING
2	RXTIP	←	5	TXTIP
4	TXRING	→	1	RXRING
5	TXTIP	→	2	RXTIP

Ubigate iBG1000™

Installation Manual

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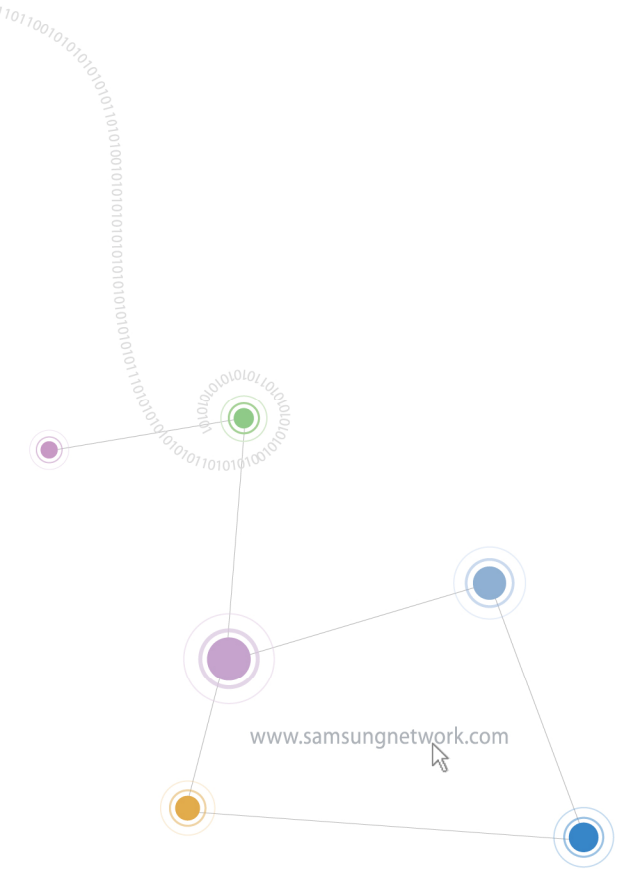
Installation Manual



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