RG-EG2100-P V2

Hardware Installation and Reference Guide

Copyright Statement

Exemption Statement

Preface

Thank you for using our products. This manual will guide you through the installation of the device.

This manual describes the functional and physical features and provides the device installation steps, hardware troubleshooting, module technical specifications, and specifications and usage guidelines for cables and connectors.

Audience

It is intended for the users who have some experience in installing and maintaining network hardware. At the same time, it is assumed that the users are already familiar with the related terms and concepts.

Obtaining Technical Assistance

- Ruijie Networks Website: https://www.ruijienetworks.com/
- Technical Support Website: https://ruijienetworks.com/support
- Case Portal: http://caseportal.ruijienetworks.com
- Community: http://community.ruijienetworks.com
- Technical Support Email: service_rj@ruijienetworks.com
- Skype: service_rj@ruijienetworks.com

Related Documents

Documents	Description
Configuration Guide	Describes network protocols and related mechanisms that supported by the product, with configuration examples.
Command Reference	Describes the related configuration commands, including command modes, parameter descriptions, usage guides, and related examples.

Symbol Conventions

Means reader take note. Notes contain helpful suggestions or references.

Means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

Product Overview

Featured with global-leading semiconductor technologies and communication control technologies, Ruijie EG series breakout gateway is a data communication product developed by Ruijie Networks with independent intellectual property right. The EG series breakout gateway is designed according to international standards, similar to the mainstream breakout gateway products in the international market. By reading this manual, a network administrator familiar with mainstream breakout gateway configuration commands can use this device without training.

RG-EG2100-P V2

Specifications

Model	RG-EG2100-P V2
Storage	DDR3 SDRAM: 512MB
	eMMC: 4GB
	BOOTROM: 2MB
I/O Setup	WAN port: One 10/100/1000M self-adaptive fast Ethernet copper port, automatic recognition of network cables and cross-over cables. LAN1 supports WAN/LAN switchover. LAN port: Seven 10/100/1000M self-adaptive fast Ethernet copper ports, automatic recognition of network cables and cross-over cables. LAN1 supports WAN/LAN switchover.
	No management port
	One Console port
	One USB2.0 port
BYPASS	Not supported
Power Module	Built-in 150W power module
PoE Consumption	≤135W
Hardware Expansion Module	Not supported
Expansion Module	Not supported
Hot-swapping	Not supported
Interface Standard	Ethernet: 10Base-T/100Base-TX/1000Base-TX
	Console port: RS-232
Dimension (without rubber pads) (W x H x D)	200 mm × 43.6 mm × 200 mm (7.87 in. x 1.72 in. x 7.87 in.)
Voltage	100V to 240V~, 50Hz to 60Hz, 1.5A max
Power Consumption	<150W (With PoE)
Working Temperature	0°C to 45°C (32°F to 113°F)

Working Humidity	10% to 90% RH (non-condensing)

Note Not all USB disks are supported. The Kingston USB disk with FAT32 is recommended.

Caution Please avoid the vibration and collision in the process of moving and usage.

Caution Products should be transported in original package.

Appearance

Figure 0-1 Front Panel of RG-EG2100-P V2 Breakout Gateway

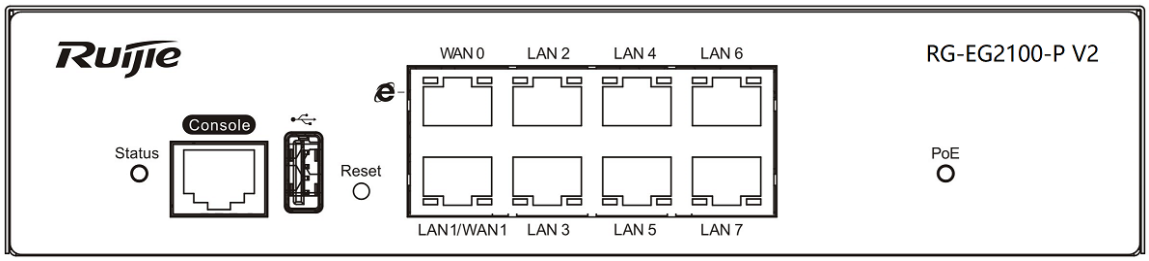
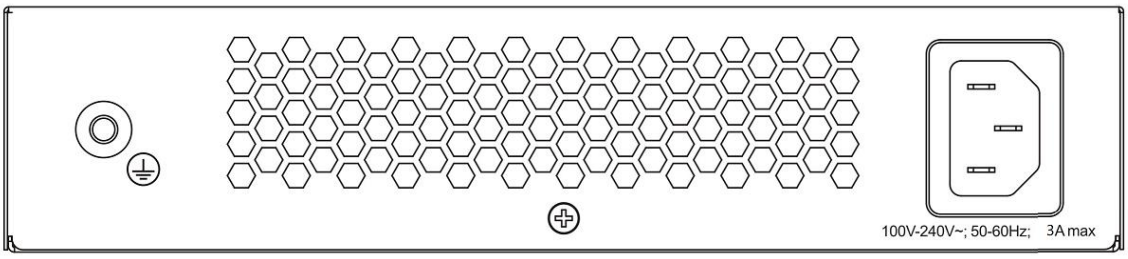


Figure 0-2 Back Panel of RG-EG2100-PV2



LED Indicator

LED Indicator	Working Status
SYS	Blinking green: The device is being initialized. Solid green: System initialization is complete. Solid red: An alarm is generated.
0-7	Solid green: The port is up. Blinking green: Data is being transceived on the port.
PoE	Solid green: PoE works normally. Red/green flashing alternately: PoE overload occurs. Solid red: An alarm is generated.

Preparation

Safety Precaution

The breakout gateway acts as the critical transfer station of network connections, and its normal service is crucial to the normal operation of the entire network.

- Do not place the device in a watery place and prevent any liquid from entering into it.
- Keep the device away from heat sources.
- Ensure the normal grounding of device.
- Wear an anti-static wrist strap to install and maintain the device.
- Do not wear loose clothes to avoid hooking any parts. Before operation, tighten your band, shawl and sleeves.
- Keep tools and parts away from the walkway to avoid damage.
- Use the uninterruptible power supply (UPS) to avoid power failure and other interferences.
- If the system time is incorrect, check whether you have set the clock. If the clock is not set, the time may not be correct; if the clock has been set precisely and the time is still incorrect, the built-in button cell of device may have ran out, which is typically happened after 10-year service.
- Install and use the device in restricted access locations.

Use of wrong battery may cause damage to the device. Do not replace the battery by yourself. Please contact the technical support for help.

This is a Class-A product which may cause radio interference in the living environment. In such a case, the user may need to take feasible measures against such interference.

Install and use the device in restricted access locations.

Invite professionals and related technicians to install this type of device.

Installation Environment

Ruijie EG series breakout gateway products are for indoor use only. To ensure normal operation and prolong their service life, the installation site must meet the following requirements:

Temperature/humidity requirements

To ensure normal operation and prolong the service life of the device, the equipment room must maintain constant temperature and humidity. If the equipment room is overheated for a long time, the insulation materials may result in defective insulation and even electric leakage. If the relative humidity is low, the insulation spacer may result in dry shrinkage, which will make screws looser and easily generate static electricity in the dry environment, thus damaging the interior circuits on the device. Excessively high temperature will accelerate the aging of insulation materials and compromise the reliability and even service life of the device. The temperature/humidity requirements are shown below (detailed difference between products is described in *Product Overview*):

Temperature		**Relative Humidity**	
Long-term	Short-term	Long-term	Short-term
15ºC to 30ºC/ 59ºF to 86ºF	0ºC to 45ºC/ 32ºF to 113ºF	40% to 65%	10% to 90%

Note The temperature/humidity of working environment indicates the value measured at 1.5 m above the floor and 0.4 m ahead of the equipment frame when there is no protection plate on the front and rear side of the equipment frame.

Note Short-term working condition refers to the continuous operation no exceeding 48 hours or accumulative operations no exceeding 15 days in a year.

Note Extremely harsh working environment generally refers to the ambient temperature and humidity which may be encountered when the equipment room air-conditioning system fails but will recover in less than 5 hours every time.

Cleanliness

The dust is also a major threat to the safe operation of device. The dust accumulated on the device may cause electrostatic adsorption and result in poor contact. It will not only compromise the service life of device but also cause communication failure. When the indoor relative humidity is low, such electrostatic adsorption will occur more easily.

Maximum Diameter (μm)	0.5	1	3	5
Maximum Density (Particles/m^3)	1.4×10^7	7×10^5	2.4×10^5	1.3×10^5

Apart from the dust, the device is also sensitive to the hydrochloric acid sulfide contained in the air. These noxious gases will accelerate metal wastage and the aging of certain parts. The upper limits of noxious gases (Sulfur dioxide, Sulfured hydrogen, Nitrogen dioxide, Ammonia and Chlorine) in the following table:

Gas	**Average (mg/m^3)**	**Maximum (mg/m^3)**
SO_2	0.2	1.5
HS	0	0.03
NO_2	0.04	0.15
N_2	0.05	0.15

Cl_2	0.01	0.3

ESD

The breakout gateway has already given consideration to electrostatic prevention during circuit design, but excessively strong static electricity will still damage the circuit board. The static electricity in the communication network connected with the device is mainly from:

- Outdoor high-voltage transmission line, lightning and other exterior electric fields.
- Indoor environment, flooring material, complete appliance structure and other in-house systems.

To avoid the damage caused by static electricity, we shall:

- Properly ground the device and floor.
- Apply indoor dust control.
- Maintain proper temperature and humidity.
- Before touching the circuit board, wear an anti-static wrist strap and an anti-static uniform.
- Place the circuit board disassembled face up on the antistatic workbench or in the electromagnetic shielded bag.
- When observing or transferring the circuit board of breakout gateway, touch the outer edge of circuit board and avoid direct contact with the components on the circuit board.

Anti-Interference

The interference as mentioned herein refers to electromagnetic or electrical interference, and the anti-interference requirements are described below:

- Effective power grid interference control measures shall be taken against the power supply system.
- The working ground of the breakout gateway shall be kept far away from the grounding device or lightning grounding device of power equipment instead of sharing.
- The gateway shall be kept far away from high-power radio-transmitting station, radar-transmitting station and other high-frequency & heavy-current devices.
- Electromagnetic shielding measures shall be taken whenever necessary.

Installation Site

No matter the breakout gateway is installed in the cabinet or on the workbench, the following requirements shall be met:

- Make sure sufficient room has been reserved for the air intake and air vent of breakout gateway to facilitate the heat elimination of the gateway chassis. It is recommended to install the breakout gateway in the 19-inch standard cabinet. Otherwise, install it on a clean and flat surface. In heated areas, the air conditioning system shall be equipped.
- Make sure the cabinet and workbench is equipped with a good ventilation and cooling system.
- Make sure the cabinet and workbench is steady enough and capable of withstanding the weight of the breakout gateway and its accessories.
- Make sure the cabinet and workbench is properly grounded.

Installation Tools and Devices

Please prepare the following tools and devices:

Installation Tools	Phillips screwdriver, ESD wrist strap
Cables	power cables, configuration cables, Ethernet cables, grounding wires
Devices	HUB or switch, configuration terminal (PC with hyper-terminal), power socket

Installing Breakout Gateway

Mounting the Breakout Gateway

Mounting the breakout gateway refers to installing the device to the specified position. Upon completion of installation preparation, fix the breakout gateway to the specified position. The installation position of breakout gateway is generally a cabinet or a workbench.

Mounting into a Cabinet

Ruijie breakout gateway products are designed based on the dimension of a standard cabinet. You can install the device with the enclosed fixing accessories.

Mounting on a Workbench

In most cases, the user does not have a standard cabinet. Instead, the user can place the device on a clean workbench. Although it is easy and simple, you shall pay attention to the following:

- Guarantee the steadiness and good grounding of the workbench.
- Attach the rubber pads onto the small holes at the bottom of the breakout gateway, and maintain a minimum of 10 cm around the device.
- Do not place heavy things on the device.

Installing Power Cables

The requirements of Ruijie EG series breakout gateway products on AC power supply are described below (refer to *Product Overview* for detailed parameters):

100–240 V / 50–60 Hz.

Breakout gateway uses 3-conductor power cables. You are suggested to use a single-phase 3-conductor outlet or a multifunction microcomputer outlet with neutral connector. The neutral point of the power supply shall be securely grounded in the building. In most buildings, the neutral point of a power supply has been grounded during the construction. You need to make sure the power supply is properly grounded.

Please take the following steps:

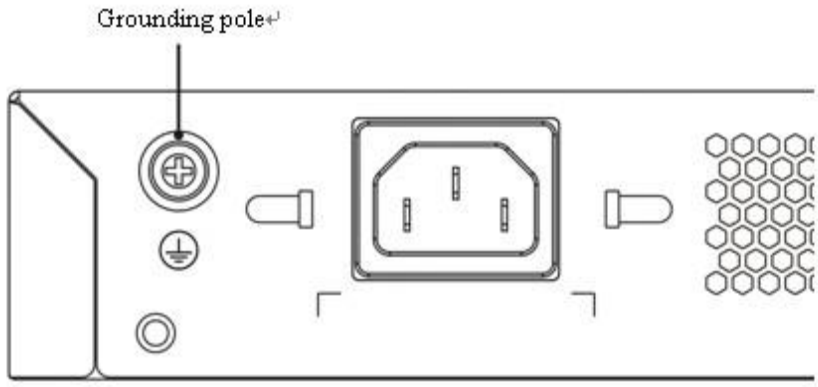
- Plug one end of the power cable into the power socket on the backpanel of a breakout gateway, and plug the other end into the AC power supply outlet.
- Check whether the power LED on the front panel of the breakout gateway lights up or not. The LED indicator will light up if the power supply is properly connected.

EMC Grounding

The grounding required for EMC design includes shielding ground, filter ground, noise and interference suppression, and level reference. All the above constitute the comprehensive grounding requirements. The grounding resistance should be

less than 1 ohm. The EG series devices are equipped with a grounding pole at the rear panel, as shown in Figure 3-2.

Figure 3-2 EMC Grounding



Checking after the Installation

After completing the mechanical installation of breakout gateway, perform the following checks before powering on the device:

- If the device is installed in a cabinet, check whether the angle bar for device installation is steady. If the device is installed on the workbench, check whether sufficient room is reversed around the device to ensure heat elimination and whether the workbench is steady.
- Check whether the power supply meets the requirements.
- Check whether the earth wire of device is properly connected.
- Check whether the device is connected correctly to the configuration terminal.

Troubleshooting

Power Supply

Refer to *Product Overview* for the normal state descriptions of LED indicators. If abnormity occurs, perform the following checks:

- Whether the power switch is turned on.
- Whether the power supply of the breakout gateway is turned on.
- Whether the power cable is properly connected.
- Whether the power supply to the breakout gateway meets relevant requirements.

Do not plug or pull the power cable when the device is powered on. If everything is ok but the PWR LED still does not light up, contact with a local distributor or technical support personnel.