



Industrial Managed Ethernet Switch Hardware User Manual

GEMS2-8T+2G

GEMS2-8T+2G/AT

Version 1.0.0

EDGE NETWORKS

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Overview

This user manual is for GEMS2-8T+2G and GEMS2-8T+2G/AT. These are industrial grade, fully managed, gigabit layer 2 Ethernet switches with the following hardware features:

Interface

- MDI/MDI-X function supported on all copper ports
- Embedded 8x Gigabit Ethernet ports with optional 8x 30W PSE
- 2x 1000 SFP Slot
- Store-and-forward switching architecture

Switch Properties

- Up to 16K MAC Address Table supported
- Up to 9216bytes Jumbo Frame supported
- Up to 12Mbits Packet Buffer supported

Power Input

- GEMS2-8T+2G: Redundant 12-48VDC
- GEMS2-8T+2G/AT: Redundant 48-57VDC power

Temperature

- Operating temperature: -40°C ~ 75°C (-40°F ~ 167°F)
- Storage temperature: -40°C ~ 85°C (-40°F ~ 185°F)

Mechanical Construction

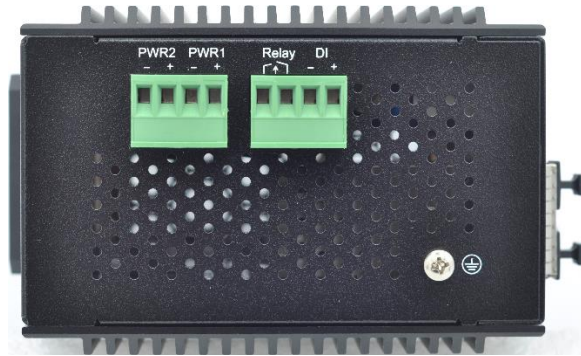
- Class IP30 protection
- DIN-Rail Mounting, optional Wall Mounting

PACKAGE CHECK LIST

The GEMS2-8T+2G(/AT) is shipped with the following items. Ensure that all the items are in the box. If any item is missing or damaged, contact us for assistance.

- GEMS2-8T+2G or GEMS2-8T+2G/AT switch x 1
- Protective caps for 8x copper ports, 2x SFP slots, 1x USB port, and 1x RJ45 console port
- Wall mount brackets and screws (usage optional)
- RJ45 to RS232 Serial console cable x 1
- 4 pin removable screw terminal for Power supply
- 4 pin removable screw terminal for Fault alarm and data input

TOP VIEW



This is the top view of the GEMS2-8T+2G(/AT) containing the power inputs, fault alarm relay, digital input and chassis ground screw.

LED INDICATORS

System LEDs

| LED | Color | Status | Description |
|-------|-------|----------|---|
| PWR1 | Green | On | Power is supplied on power input 1. |
| | | Off | Power is not detected on power input 1. |
| PWR2 | Green | On | Power is supplied on power input 2. |
| | | Off | Power is not detected on power input 2. |
| Fault | Green | On | The system boots up and in normal operation. |
| | | Off | The system is powered off or is booting. |
| | Red | On | A configured failure event is triggered. |
| RM | Green | On | This device is the Ring Master. |
| | | Off | This device is NOT the Ring Master. |
| Ring | Green | On | The Ring protocol is enabled and is working normally. |
| | | Flashing | The Ring protocol is enabled but working abnormally. |
| | | Off | The Ring protocol is disabled. |

Interface Status LEDs

| LED | Color | Status | Description |
|------------------------------------|-------|----------|--|
| SFP Slot P9 to P10 (1000M) | Green | On | The 1000Mbps link of the fiber port is active. |
| | | Flashing | Data is transmitted on the fiber port at 1000Mbps. |
| | | Off | The 1000Mbps link of the fiber port is inactive. |
| LAN Port P1 to P8 (1000M) | Green | On | The 1000Mbps link of the port is active. |
| | | Flashing | Data is transmitted on the port at 1000Mbps. |
| | | Off | The 1000Mbps link of the port is inactive. |
| LAN Port P1 to P8 (10/100M) | Amber | On | The 10/100Mbps link of the port is active. |
| | | Flashing | Data is transmitted on the port at 10/100Mbps. |
| | | Off | The 10/100Mbps link of the port is inactive. |
| PoE P1 to P8 (/AT unit only) | Amber | On | An IEEE 802.3at/af powered device is connected. |
| | | Flashing | PoE overload or power budget exceeded. |
| | | Off | No IEEE 802.3at/af powered device is connected. |

RESET BUTTON

A multifunctional reset button is provided. Use a pointed object such as toothpick or paper clip (straightened) to press the reset button.

| Continuous Seconds | Action |
|--------------------|--|
| 1 | Save the running configuration to the USB device named "running-config". |
| 4 | Reboot the system. |
| More than 7 | Reset the system to factory default and reboot it. |

Note: The reset button can be disabled in software to prevent unauthorized access. Refer to Software user's guide for details.

CONSOLE AND USB PORT

Both a Serial console port and a USB port are located on the front panel of the switch.



To use the console port, connect the included RJ45 to DB9 adapter to a computer's serial port or USB to serial adapter. The complete parameters are COMX/115200/8/N/1. Refer to the software user manual for detailed information.

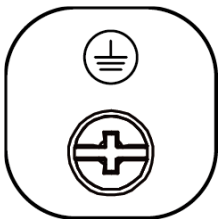
The USB port provides the following features:

- Backup/Restore Configurations
- Auto-Load configuration from USB
- Auto-Backup configuration to USB
- Save system logs to USB

Refer to the Software user manual for details.

EARTH GROUNDING

The earth grounding and cautious wire routing are helpful to suppress the effects of noise from electromagnetic interference (EMI). The switch should be installed on a well-grounded surface such as a metal panel or rack.



The location of earth ground screw is near the location of power inputs on the top of the switch

Note: Connect the ground from the ground screw to the surface of ground before wiring the power inputs.

Hardware Installation

SFP SELECTION

There are 2x 1000 SFP Slot SFP Slots on the GEMS2-8T+2G switch. 100FX mode is not supported in this model. Edge Networks recommend the following SFP's for use in this unit, but other 1000FX SFP's are supported.

| Part No. | SFP Type | Fiber Mode | Distance |
|------------------|------------------------------------|-------------|----------|
| SFP-GM2L-1313-2 | SFP-1000LX, 2 Fiber, LC connectors | Multi-Mode | 2km |
| SFP-GS2L-1313-20 | SFP-1000LX, 2 Fiber, LC connectors | Single-Mode | 20km |

Insert SFP Module

Remove the dust cap and insert the SFP as shown. Push the SFP all the way in to lock. Connect Fiber cables.

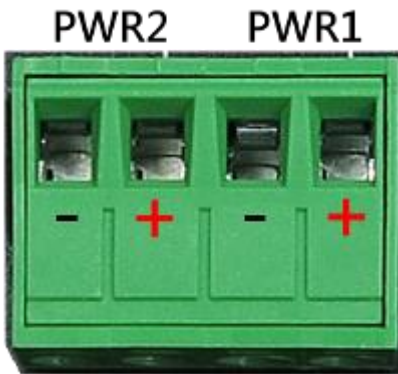


Remove SFP Module

Remove fiber cables. Open the bale lever to and pull to remove SFP. Re-install dust cap if you are no longer using the port.

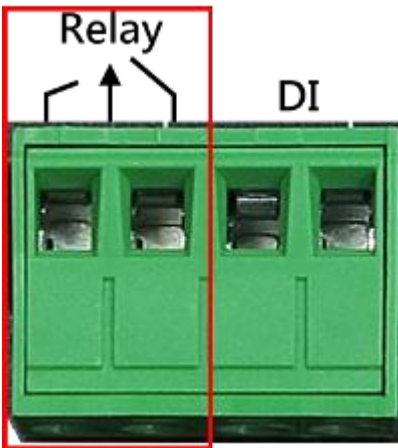


WIRING POWER INPUTS



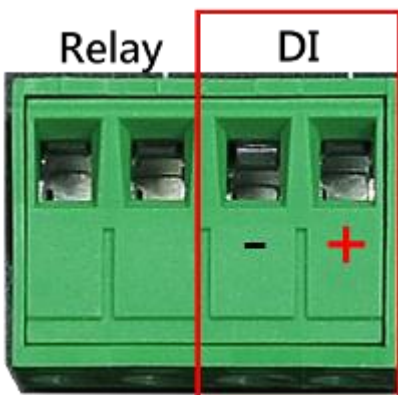
1. Insert the positive and negative wires into the PWR1 (+,-) and/or PWR2 (+,-) on the 4-contact terminal block connector.
2. Tighten the screws to insure a good connection.

WIRING FAULT ALARM



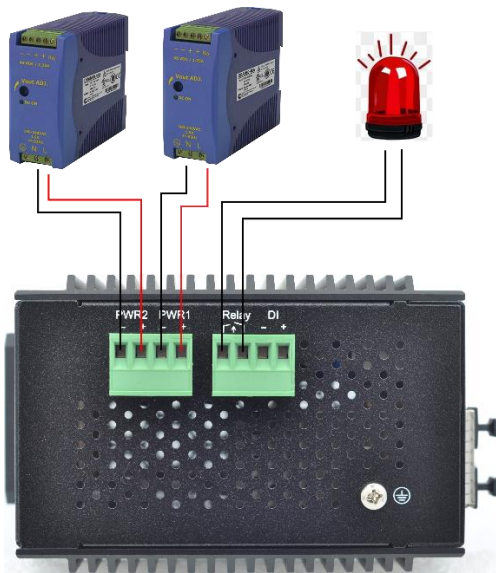
1. Insert the wires into the left two contacts of the 4-contact terminal block (Fault Alarm Relay).
2. Tighten the screws to insure a good connection.
3. The relay will detect the power and link failure.
4. Users can connect the relay to an alarm and buzzer so that when the relay forms an open circuit, the users will be notified.

WIRING DIGITAL INPUTS



1. Insert the positive and negative wires into the right two contacts (+,-) of the 4-contact terminal block (DI).
2. Tighten the screws to prevent the wires from loosening.
3. The system will detect the voltage go through the DI.
 - +13 to +30V for state "1"
 - -30 to +3V for state "0"
 - Max. input current: 8mA

DOUBLE-SECURE POWER INPUT FAULT ALARM



The power inputs are designed as a "common negative", which implies that the negative input is connected, but "double-secure" is supported to prevent the unnoticed failure of power from one of the negative inputs. Should one of the negative power inputs fail, the system will detect the failure. **NOTE:** the system will trigger an event occurrence only if the user has set the fault alarm or event log for power.

MOUNTING

Din-Rail Mounting



The DIN mounting bracket comes pre-installed from the factory. If it was removed for wall mounting, reinstall using three screws provided.

Installation and Removal:

With the provided DIN bracket, the switch is easily attached and detached from the DIN rail.

To install, insert the bottom spring-loaded portion of the bracket under the rail and push upwards on the switch so that the spring compresses. Pivot the top tabs over the top of the rail and lower the switch to release tension on the spring so that the top tabs of the bracket are resting on the top of the rail and are bearing the weight of the switch. The lower spring loaded tabs should still be engaged securing the unit.

To remove, lift up on the switch to compress the springs and pivot the top of the switch away from the rail. Lower the switch to disengage the lower tabs and remove.

Wall Mounting



For wall mounting, first remove the DIN bracket, saving the bracket and three screws for future use.

Next install the wall brackets as shown above using the provided screws. Be careful not to overtighten.

Secure the switch to the surface using 4 - #6 sheetrock screws or whatever is appropriate for your mounting surface through the cross holes in the wall brackets.

Note: The upper bracket will cover the product label so take note of any information needed prior to mounting.

INSTALLATION STEPS

1. Unpack the unit from the box.
2. Verify Contents by making sure all the items listed in the **Package Check List** section are in the box.
3. Mount the unit on DIN rail or wall as described in **Mounting** section.
4. Connect power to the unit. Refer to the **Wiring Power Inputs** section. The power LEDs are described in the **LED Instruction** section.
5. Connect Ethernet ports using **RJ45 cable and fiber**. Insert the RJ45 cable into one of the switch ports and insert the other end to the host such as PC. The link LEDs are described in the **LED Instruction** section.
6. Configure system using console port, or ethernet connection to log in and setup switch as desired. Refer to Software user manual for detailed instructions on configuration.