



Industrial Managed Ethernet Switch Hardware User Manual

RPT-2012G/GP-4F-T

Quick Installation Guide
Version 1.0.0

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Overview

This user manual is for "RPT-2012G" and "RPT-2012G-T", where "-T" refers to the extended temperature (-40°C ~ 75°C (-40°F ~ 167°F)) that is supported. This is an industrial managed gigabit PoE+ Ethernet switch with the following hardware features:

Interface

- MDI/MDI-X function supported on all copper ports
- Embedded 8x Gigabit Ethernet ports with 30W PSE + 4x 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

- Redundant 48-57VDC power

Temperature

- Standard operating temperature: -10°C ~ 60°C (14°F ~ 140°F)
- Extended 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

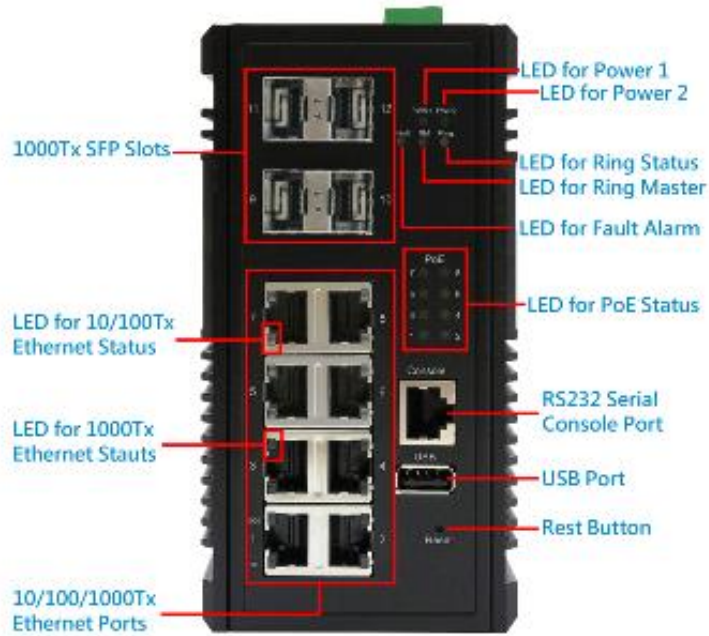
The "RPT-2012G(-T)" is shipped with the following items. Ensure that all the items are in the box. If any item is missing or damaged, contact us for assistance.

- RPT-2012G/GP-4F(-T) switch x 1
- Protective caps for 8x copper ports, 4x SFP slots, 1x USB port, and 1x RJ45 console port
- Wall mount brackets and screws (Optional)
- RJ45 to RS232 Serial console cable x 1

Hardware Description

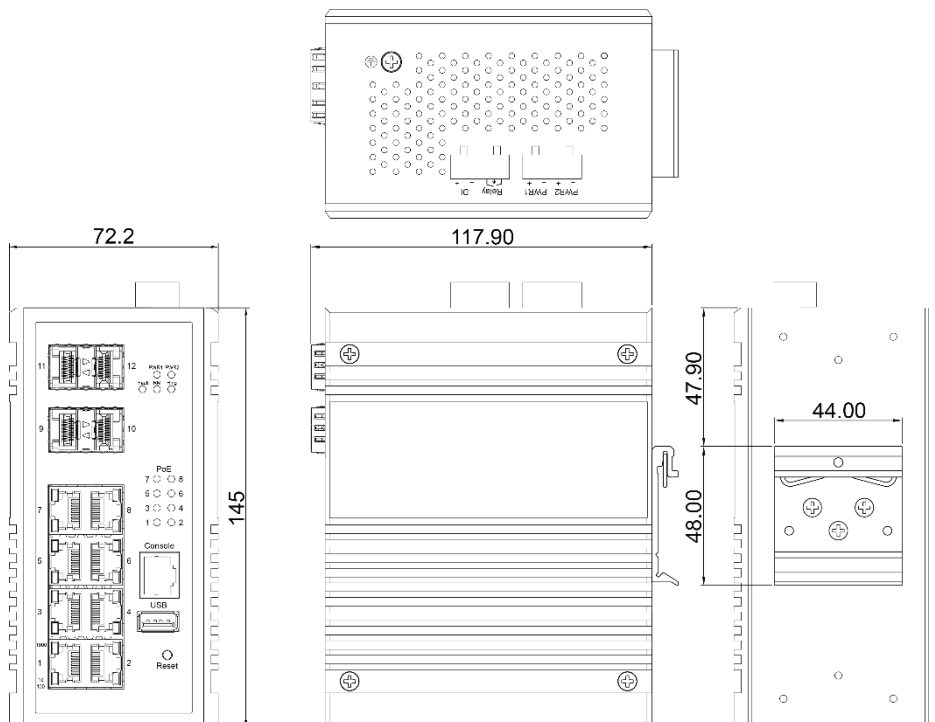
FRONT PANEL INSTRUCTION

The following picture is the front panel for "RPT-2012GP-4F(-T)".



DIMENSIONS

WxHxD: 72x145x118 mm



TOP VIEW



This is the top view of the RPT-2012GP-4F(-T) containing the ground, power inputs, and fault alarm relay.

LED INSTRUCTION

System LEDs

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

Interface Status LEDs

LED	Color	Status	Description
SFP Slot P9 to P12 (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.

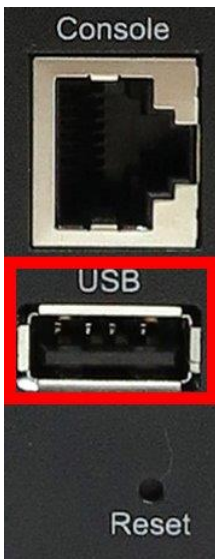
PoE+ P1 to P8	Amber	On	An IEEE 802.3at/af powered device is connected.
		Flashing	PoE overload or power budget exceeded.
		Off	No IEEE 802.3at/af powered device is connected.

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.

USB PORT

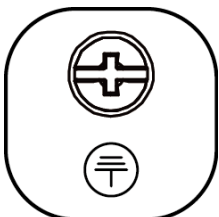


A USB port is available on the switch that is located between the Console port and Reset button. This USB port provides the following features:

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

EARTH GROUNDING

The earth grounding and cautious wire routing are helpful to suppress the effects of noise from electromagnetic interference (EMI). The switch has to be installed on a well-grounded surface, for instance, a metal panel.



The location of earth ground screw is usually near the location of power inputs, for example:

- Top side for most of din-rail models
- Rear side for most of rack-mount models
- Front side for most of M12 models

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

Hardware Installation

Insert SFP Module

1. Insert the SFP module. A triangle is available on the switch and SFP module.



2. Push the SFP module down.

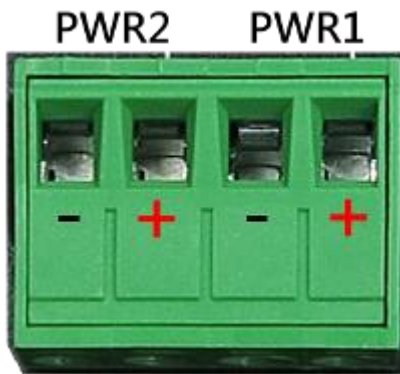


Remove SFP Module

1. Press and remove the SFP cable.
2. Open the SFP module and remove it.

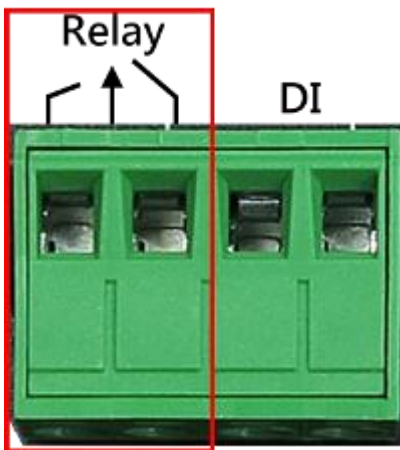


WIRING POWER INPUTS



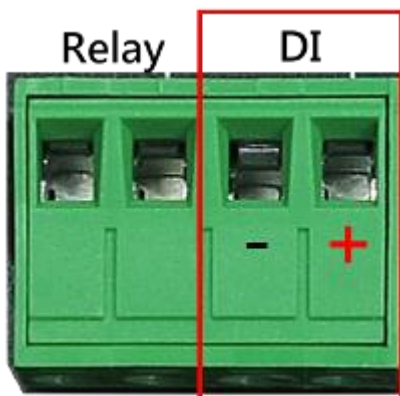
1. Insert the positive and negative wires into the PWR1 (+,-) and PWR2 (+,-) on the 4-contact terminal block connector.
2. Tighten the screws to prevent the wires from loosening.

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 prevent the wires from loosening.
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

- Screw the DIN-Rail bracket to the switch.
- Insert the top of the DIN-Rail bracket to the DIN-Rail track.



- Pull down the DIN-Rail bracket to the DIN-Rail track and check if it is mounted tightly on the DIN-Rail track.



Wall Mounting

- Remove the DIN-Rail bracket.
- Screw the wall mount kits to the switch.



INSTALLATION STEPS

1. **Unpack**
The switch is well packed and shipped to our customers. Unpack it from the box.
2. **Check Content Items**
Please make sure all the items listed in the "**Package Check List**" are in the box.
3. **Mounting**
The DIN-Rail is screwed on the switch by default. If the DIN-Rail is not screwed to the switch, refer to the "**DIN-Rail Mounting**" section to install it manually.
The Wall mount brackets are optional items. If you need the wall mount brackets, contact us for assistance. To install the switch on the wall, refer to the "**Wall Mounting**" section.
4. **Power On**
To power on the switch, users must prepare a power supply and wire the power input. Refer to the "**Wiring Power Inputs**" section.
The power LEDs are described in the "**LED Instruction**" section.
5. **Connect**
To connect to the switch, users need a **RJ45 cable**. 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. **Check LEDs**
We recommend the users to check the status of LEDs in the "**LED Instruction**" section. If all the LEDs are in the normal state, the installation is completed.

Specification

Technology	
Standards	IEEE 802.3 10BaseT IEEE 802.3u 100BaseTX IEEE 802.3ab 1000BaseT IEEE 802.3z 1000BaseX IEEE 802.3x Flow Control IEEE 802.3af Power over Ethernet IEEE 802.3at PoE+ IEEE 802.3ad/802.1AX LACP IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid STP IEEE 802.1s Multiple STP ITU-T G.8032 / Y.1344 ERPS IEEE 802.1Q VLAN Tagging IEEE 802.1ad Stacked VLANs IEEE 802.1p Class of Service IEEE 802.1X Network Authentication IEEE 802.1AB LLDP IEEE 1588 PTP
Processing Type	Store and Forward
Transfer Rate	14,880pps for Ethernet port 148,800pps for fast Ethernet port 1,488,000pps for gigabit Ethernet port
Transmission Distance	Up to 100M (Fast Ethernet)
Transmission Speed	Up to 1000Mbps
Switch Properties	
Switch Fabric	24Gbps
Priority Queues	8 Queues
Jumbo Frame	9216bytes
MAC Table Size	16K
Packet Buffer	12Mbits
VLAN Table Size	4094
IGMP Group	512

ACL Group	512
VLAN IP Entries	64
Routing Entries (IPv4/IPv6)	512/256 host, 64/64 LPM
Interface	
RJ45 Port	8x 10/100/1000T(x) with PoE+, auto negotiation speed duplex mode, auto MDI/MDI-X
Fiber Port	4x 1000F(x) SFP Slot
PoE Pin Out	V+, V+, V-, V-, for pin 1, 2, 3, 6, Endspan, MDI Mode A
LED Indicators	Per unit: PWR1, PWR2, Fault, Ring Master, Ring State Ports: Link/Active with highest speed(Green), low speed(Amber) PoE: Output Power
Alarm Contact	1x relay output with current carrying capacity of 1A @ 24 VDC
Digital Inputs	1x isolated input from the electronics. +13 to +30V for state "1" -30 to +3V for state "0" Max. input current: 8mA
Button	Multiple functions reset button
Serial Console	1x RS232 in RJ45 connector with console cable, 115.2Kbps, 8N1
Storage	1x USB 2.0 storage for firmware update, configuration backup, restore, boot up and syslog
Power Requirements	
Operation Voltage	48-57VDC, redundant dual inputs, >50VDC for PoE+ output recommended
Connection	1x removable 4-contact terminal block
Power Consumption	0.35A@48VDC without PDs' consumption
PoE Power Budget	Max. 240 W for total PD consumption, Max. 30 W per PoE port
Protection	Overload Current Protected, Reverse Polarity Protected
Mechanical Construction	

Enclosure	Aluminum
Protection Class	IP30
Dimensions	72x145x118 mm (WxHxD)
Weight	0.90 kg
Mounting	DIN-Rail Mounting, Optional Wall Mounting Kits
Environmental Limits	
Operating Temperature	Standard: -10°C ~ 60°C (14°F ~ 140°F) Extended: -40°C ~ 75°C (-40°F ~ 167°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Humidity Relative Humidity	5 to 95%, (Non-Condensing)
Regulatory Approvals	
EMI	CE EN 55032 Class A
EMS	IEC61000-4-2 (ESD) IEC61000-4-3 (RS) IEC61000-4-4 (EFT) IEC61000-4-5 (Surge) IEC61000-4-6 (CS) IEC61000-4-8 (Magnetic Field)
Free Fall	IEC60068-2-32
Shock	IEC60068-2-27
Vibration	IEC60068-2-6
Green	RoHS Compliant
Certifications	UL 60950-1/62368 (Pending) EN 50121-4
MTBF	>100,000 hours
Warranty	5 Years