



FGS-2924R:

16-Port SFP + 8-Port Combo GbE L2 Plus Managed Switch

Key Features

- 24-Port Gigabit SFP High Port Count Fiber Switch
- 9KB Jumbo Frame Support
- IEEE 802.1x Access Control Improve Network Security
- Port Mirroring Helps Supervisor Monitoring Network
- Q-in-Q VLAN for performance & security and 4094 Vlan entries(preview, upgrade via FW)
- IEEE 802.1D Compatible, 802.1w Rapid Spanning Tree and 802.1s Multiple Spanning Tree
- Unknown Unicast/Broadcast/Multicast Storm Control
- Multicast Vlan Management for IPTV
- IP-Mac-Port binding for LAN security
- QCL Based on Application traffic for QoS and rate limitation management
- ACL Based on Ethernet Type / ARP / IPv4 for packets permit or deny, rate limitation and port copy
- DHCP Option 82 relay agent

Overview

FGS-2924R, a 24-port Gigabit L2 Plus Managed Switch, is a standard switch that meets all IEEE 802.3/u/x/z Gigabit, Fast Ethernet specifications. The switch includes 16-Port 1000Mbps SFP and 8-Port Combo Gigabit TP/SFP Fiber dual media management Ethernet switch. The switch can be managed through RS-232 serial port, or through Ethernet port using CLI or Web-based management unit, associated with SNMP agent. With the SNMP agent, the network administrator can logon the switch to monitor, configure and control each port's activity in a friendly way. The overall network management is enhanced and the network efficiency is also improved to accommodate high bandwidth applications. In addition, the switch features comprehensive and useful functions such as QoS (Quality of Service),

Benefits

• QoS with four priority queues

The QoS(Quality Of Service) Control List(QCL) feature provides four internal queues to support four different classifications of traffic. High priority packet streams experience less delay inside the switch, which supports lower latency for certain delay-sensitive traffic. The **FGS-2924R** can classify the packet as one of the four priorities according to vip port, 802.1p priority tag, DiffServ and/or IP TOS, IPv4 and UDP/TCP application traffics. The QoS operate at full wire speed. The actual scheduling at each egress port can be based upon a strict priority, weighted round robin or a mix of both.

• Port Mirroring

It is based on ACL function to classify the ingress traffic to do port copy. This mechanism helps track network errors or abnormal packet transmission without interrupting the flow of data. Allowing ingress traffic to be monitored by a single port that is defined as mirror capture port. The mirror capture port can be any 10/100 port, 10/100/1000 port. Mirroring multiple ports is possible but can create congestion at the mirror capture port.

• Q-in-Q VLAN for performance & security (preview, upgrade via FW)

The VLAN feature in the switch offers the benefits of both security and performance. VLAN is used to isolate traffic between different users and thus provides better security. Limiting the broadcast traffic to within the same VLAN broadcast domain also enhances performance. Q-in-Q, the use of double VLAN tags is an efficient method for enabling Subscriber Aggregation. This is very useful in the MAN.

• Isolated Group, provides protection for certain ports

The isolated group feature allows certain ports to be designated as protected. All other ports are non-isolated. Traffic between isolated group members is blocked. Traffic can only be sent from isolated group to non-isolated group.

• Mac-based 802.3ad LACP with automatic link fail-over

Dynamic fail-over means packets will not get assigned to any trunk member port that has failed. If one of the ports were to fail, traffic will automatically get distributed to the remaining active ports.

• 802.1x Access Control improves network security

802.1x features enable user authentication for each network access attempt. Port security features allow you to limit the number of MAC addresses per port in order to control the number of stations for each port. Static MAC addresses can be defined for each port to ensure only registered machines are allowed to access. By enabling both of these features, you can establish an access mechanism based on user and machine identities, as well as control the number of access stations.

• 802.1d Compatible & 802.1w Rapid Spanning Tree

For mission critical environments with multiple switches supporting

Spanning Tree, VLAN, Port Trunking, Bandwidth Control, Port Security, SNMP/RMON, IGMP Snooping capability via the intelligent software. It is suitable for both metro-LAN and office applications.

STP, you can configure the switches with a redundant backup bridge path, so transmission and reception of packets can be guaranteed in event of any fail-over switch on the network.

- **8 dual media ports for flexible fiber connection**

8-Port dual media ports are provided for flexible fiber connection. You can select to install optional transceiver modules in these slots for short, medium or long distance fiber backbone attachment. Use of the SFP will disable their corresponding built-in 10/100/1000Base-T connections.

- **Broadcast/Multicast/unknown-unicast Storm Control**

To limit too many broadcast/multicast/unknown-unicast flooding in the network, broadcast/multicast storm control is used to restrict excess traffic. Threshold values are available to control the rate limit for each port. Packets are discarded if the count exceeds the configured upper threshold.

- **IP-MAC-Port Binding**

The IP network layer uses a four-byte address. The Ethernet link layer uses a six-byte MAC address. Binding these two address types together allows the transmission of data between the layers. The primary purpose of IP-MAC binding is to restrict the access to a switch to a number of authorized users. Only the authorized client can access the Switch's port by checking the pair of IP-MAC Addresses and port number with the pre-configured database. If an unauthorized user tries to access an IP-MAC binding enabled port, the system will block the access by dropping its packet.

- **Access Control List (ACL)**

The ACLs are divided into EtherTypes. IPv4, ARP protocol, MAC and VLAN parameters etc. Here we will just go over the standard and extended access lists for TCP/IP. As you create ACEs for ingress classification, you can assign a policy for each port, the policy number is 1-8, however, each policy can be applied to any port. This makes it very easy to determine what type of ACL policy you will be working with.

Technical Specifications

- **Standard compliance**

- IEEE 802.3 10Base-T Ethernet (twisted-pair copper)
- IEEE 802.3u 100Base-TX Ethernet (twisted-pair copper)
- IEEE 802.3ab 1000Base-TX Ethernet (twisted-pair copper)
- IEEE 802.3z 1000Base-X Ethernet
- IEEE 802.3x flow control capability
- ANSI/IEEE 802.3 auto-negotiation
- IEEE 802.1q VLAN

- **RoHS Compliance**

- **Subscriber Interface**

- 16-Port SFP + 8-Port Combo port (SFP/RJ-45)
- Port 1,2,3,4,5,6,7,8 are Gigabit TP/SFP Fiber auto sense
- Auto-Negotiation and Auto-MDIX
- Backpressure flow control for half duplex.
- 802.3x flow control for full duplex.
- Connector: 16 SFP and 8 combo port, RJ-45/SFP

- **Performance**

- **Switching capacity**

- Non-blocking switch fabric supports up to 24GbE ports
- 8 K MAC addresses
- The maximum throughput is 48Gbps

- **VLAN**

- Supports SVL/IVL configuration to meet your VLAN requirement
- Port-base VLAN
- IEEE802.1q tag-base VLAN, 4094 max, up to 1024 active VLANs including static plus dynamic entry
- IEEE802.1q tag-base VLAN

- Flooding unknown vlan frame setting, can flood packet with some vlan tag associated to a invalid/inactive vlan
- In tag-base VLAN, supports egress/ingress packet filter
- Q-in-Q is an efficient method for enabling Subscriber Aggregation
- Provide Management Vlan for managed policy

QoS

- Supports QCL for Layer 4 TCP/UDP Port and ToS Classification
- Supports 802.1p QoS with four level priority queue
- Supports priority in a Q-in-Q tag

Bandwidth Control

- Supports bandwidth rating per port ingress and egress rate limit 500Kbps~1000Mbps with 1Kbps

• Protocol
LACP

- Port trunking with 12 trunking group
- Up to 16 ports for each group.

GVRP/GARP

- 802.1q with GVRP/GARP

Multicasting

- Supports IGMP snooping including active and passive mode

STP/RSTP/MSTP

- 802.1d/1w/1s

• Network Security

- 802.1x access control for port based and mac based authentication
- Management Access Policy Control
- Access control List
- IP-mac-port binding
- DHCP relay agent

• Snmpv1,v2c Network Management

• RFC 1213 MIB (MIB-II)	• RFC 1757 RMON MIB
---Interface MIB	---Statistics Group 1
---Address Translation MIB	---History Group 2
---IP MIB	---Alarm Group 3
---ICMP MIB	---Event Group 9
---TCP MIB	• RFC 1493 Bridge MIB
---UDP MIB	• RFC 1643 Ethernet MIB
---SNMP MIB	• Enterprise MIB

• LED Description

	LED
Global	POWER
SFP Port 1-24	LINK/ACT
UTP Port 1-8	Link/ACT
UTP Port 1-8	10/100/1000Mbps

• Network Interface

	Connector	Port
1000Mbps SFP Fiber Module Dual Media Auto Detection	TP(RJ-45) / SFP	1 to 8
1000Mbps SFP Fiber Module	SFP	9 to 24

• Hardware Spec.

Voltage	100~240 V
Frequency	50~60Hz
Consumption	40W
Ambient Temperature	0 to 40 °C
Humidity	5% to 90%
Dimensions	44(H) x 442(W) x 209(D) mm
Weight	2.9 Kg
Safety	Comply with FCC Part 15 Class A & CE Mark Approval

Packing Information

Carton Dimensions (mm)	pcs/Carton	N.W (KG)	G.W (KG)
530x512x345	5	18.5 Kg	19.5 Kg

Ordering Information

FGS-2924R	16-Port SFP + 8-Port ComboGbE L2 PlusManaged Switch
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Optional SFP Module

SFP.LC	1000Base-SX GE SFPFiber Module, LC Multi-Mode 850nm
SFP.LC.M2	1000Base-SX GE SFPFiber Module, LC Multi-Mode 1310nm 2km

Note:

FGS-2924R only supports the SFP transceiver from the following vendors.

1. Ruby Tech Corporation
2. Agilent Technologies
3. AVAGO Technologies
4. Finisar Corporation

Ruby Tech Corp.

3F, No.1, Lane 50, Nan Kang Road, Sec.3, Taipei, Taiwan
TEL:886-2-2785-3961 FAX:886-2-2786-3012

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