FIBERROAD®

LAYER 2 MANAGED ETHERNET SWITCH

Product Data Sheet

Introducing the FR-5M4648 series 48-Port Managed Gigabit Ethernet Switch – the scalable backbone for demanding enterprise and IoT networks. This high-density switch delivers robust performance with 48 auto-negotiating 10/100/1000 Mbps ports, ensuring seamless, high-speed connectivity. Optionally support IEEE 802.3af/at PoE/PoE+ standards (with up to 800W total budget), enabling flexible power delivery to devices like IP cameras, wireless APs, and VoIP phones without extra cabling. Equipped with comprehensive Layer 2/3 management features including VLANs, QoS, ACLs, and IGMP snooping, it provides precise control, enhanced security, and optimized traffic prioritization. Ideal for high-density deployments in smart buildings, campuses, and data centers, the FR-5M4648 combines power, intelligence, and future-ready scalability in a single platform.

Main Features

- 48x10/100/1000BASE-T RJ45 with 6x10G SFP+ Slots
- Optionally Up to 48 ports of IEEE802.3af/802.3at devices powered
- IEEE 802.1Q tagged VLAN, Provider Bridging(VLAN Q-in-Q) support IEEE 802.1ad
- Supports Spanning Tree Protocol, STP/RSTP/MSTP
- Storm control support broadcast/Unknow unicast/Unknow multicast
- Supports priority retagging and complicated flow classification based on VLAN, MAC, source address, destination address, IP or priority to better streamline carrier's services.
- Security Authentication Mechanism: IEEE 802.1x, Radius and Tacacs+ Enhanced Service Security Mechanism
- Supports management modes such as the console port, Telnet, SSH, etc. Supports the WEB management mode, which is easy and efficient so that it makes installation and debugging convenient.

Hardware Specifications		
Product	FR-5M4648	FR-5M4648P
Copper Ports	48x10/100/1000BASE-T RJ45 Auto-MDI/MDI-X (Port 1-48)	
Fiber Ports	6x1/10G SFP+ Slots(Port 49-54)	
Console	1x RJ45-to-RS232 Serial Port(115200)	
RAM	512Mbyte	
FLASH	16MByte	
Reset Button	＜5 sec: System Reboot; ＞10 sec: Factory Default	
Surge Protection	±6kV DC, ±4kV RJ45	±6kV DC, ±6kV RJ45
Enclosure	IP30 Metal	
Installation	19inch Rack Mount or Desktop	
Dimension	440mm*250mm*45mm	
Switching		
Switch Architecture	Store-and-Forward	
Switch Fabric	216Gbps/non-blocking	
Forwarding Rate	160.7Mpps(64-byte packet size)	
Packet Buffer Size	16 Mbits	
Maximum Packet Length	12K bytes	
MAC Address Table	32K entries, automatic source address learning and aging	
Flow Control	IEEE 802.3x pause frame for full duplex, Back pressure for half duplex	
Power Supply & Power over Ethernet		
Power Input	1	
Input Voltage	AC 100-240V, 50/60Hz 0.15A	
Power Consumption	40 Watts Max (without PoE Load), 850 Watts Max (with PoE Load)	
PoE Ports	\	Port 1 to 48 IEEE802.3 af/at
PoE Power Supply Type	\	End-span
Power Supply Pin	\	1/2(+), 3/6(-)
Max Power Per Port	\	30W
PoE Power Budget	\	800W (Default)
Environmental		
Operating Temperature	0 ℃ to 50 ℃	
Storage Temperature	-20℃ to 70℃	
Operating Humidity	5%~90% (non-condensing)	
MTBF	113,368 hours (Non-PoE Models) 108,182 hours (PoE Models) @MIL-HDBK-217F GB	
Heat Dissipation	205 BTU/h (non-PoE mode) 3139 BTU/h (with Max PoE load)	
Cooling	2xCooling Fans	
Noise Level	74 dBA (PoE Models)	

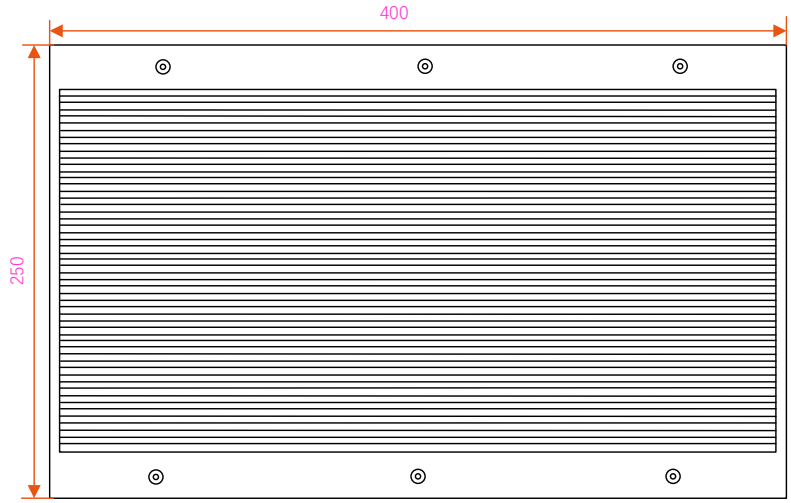
Software Features		
Management Interface	CLI(Console/Telnet(RFC854)), WebGUI(HTTPS), Tenet	
Management	DHCP Server/Client, DHCP Option82,Port Mirror, RMON(1,2,3,9groups), SNMPv1/v2c/v3/SNMP Trap/Inform, Syslog, CPU Monitoring, Cable Diagnostics	
File Management	Firmware Upgrade/Backup, Dual Images, Configuration Download/Backup, Multiple Configuration, TFTP(RFC783), HTTP	
Layer 2 Features	**Link Aggregation** *static link aggregation *802.3ad LACP *Up to 64 aggregation groups, containing 8 ports per group **Spanning Tree Protocol** *802.1D STP *802.1w RSTP *802.1s MSTP *32 MSTP Instance *STP Security: Loop back detection, TC Protect, BPDU Filter/Protect, Root Protect	**Loopback Detection** **Flow Control** *802.3x Flow Control **Port Mirroring** *One-to-One *Many-to-One *Flow-Based *Tx/Rx/Both **LLDP, LLDP-MED**
L2 Multicast	**1024 IGMP groups** **IGMP Snooping** *IGMP v1/v2/v3 Snooping *IGMP Fast Leave *MVR *IGMP Snooping Querier *Limited IP Multicast *Static Multicast Forwarding	**MLD Snooping** *MLD v1/v2 Snooping *MLD Snooping Querier *Fast Leave *Limited IP Multicast *Static Multicast Forwarding
VLAN	**VLAN Group** *4K VLAN Groups **802.1Q tag VLAN** **MAC VLAN** **Protocol VLAN**	**VLAN VPN (QinQ)** **GVRP** **Private VLAN**
QoS	**Class of Service** *Port Priority *802.1p CoS/DSCP priority *8 Priority Queues *Queue Schedule Mode **Bandwidth Control** *Port/Flow based Rating Limiting *Storm Control	**-Diffserv** ***Diffserv Class** ***Diffserv Policy** ***Diffserv Service** **-Auto-VoIP** **-Voice VLAN**

Software Features		
ACL	**Supports up to 3328 entries** **MAC ACL** *Source MAC *Destination MAC *VLAN ID *User Priority *EtherType **Standard IP ACL** *Source IP *Destination IP -Time based ACL	**Extended IP ACL** *Source IP *Destination IP *Fragment *IP Protocol *TCP Flag *TCP/UDP Port *DSCP/IP TOS
Security	**AAA, Radius and Tacacs+** **DHCP Snooping** **IP-MAC-Port Binding: Up to 32768 entries** **ARP Inspection: Up to 32768 entries** **IP Source Guard: Up to 1020 entries** **Static/Dynamic Port Security** **Up to 64 MAC addresses per port** **Broadcast/Multicast/Unicast Storm Contr** *kbps/ratio/pps control mode **IP/Port/MAC based access control** **DoS Defend**	**802.1X** *Port based authentication *MAC(Host) based authentication *Guest VLAN *Support Radius authentication and accountability **Port Isolation** **MAC Filtering** **Secure web management through HTTPS with SSLv3/TLS1.0** **SSHv1/SSHv2**
MIBs	**MIB II (RFC1213)** **Interface MIB (RFC2233)** **Ethernet Interface MIB (RFC1643)** **Bridge MIB (RFC1493)** **P/Q-Bridge MIB (RFC2674)** **RMON MIB (RFC2819)**	**RMON2 MIB (RFC2021)** **Radius Accounting Client MIB (RFC2620)** **Radius Authentication Client MIB (RFC2618)** **Remote Ping, Traceroute MIB (RFC2925)**

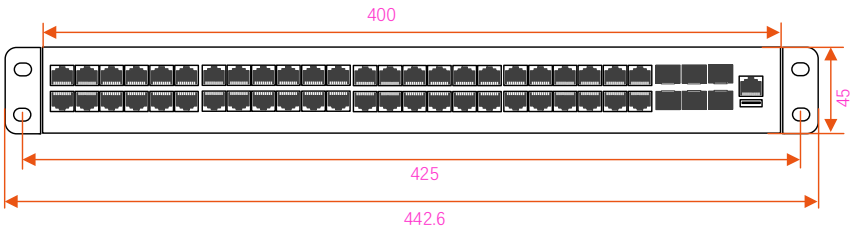
LED	State	Description
PWR (P1&P2)	ON	Power is being supplied
	OFF	Power is not being Supplied.
Sys	Blinking	The system is running well
	OFF	The system is running unwell
Link/ACT (1-54)	ON	Port connection is active
	Blinking	Data transmitted
	OFF	Port connection is not active.
RJ45 Port Speed	ON	1000M is running
	OFF	No 1000M is running

Dimensions

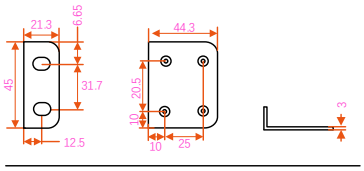
Unit: mm



Top View



Front View



Rack Mount Kit

Regulatory & Warranty	
ISO	Manufactured in ISO-9001facility
Safety	IEC62368-1:2020+A11:2020
EMI	FCC Part 15B Class A, IEC 61000-3-2
EMS	IEC61000-4-2 ESD: Contact:±8kV, Air:±15kV IEC61000-4-5 Surge: Power: ±6kV; RJ45:±4kV/±6kV(PoE)
Environmental	RoHS 2011/65/EU Annex II(EU)
Warranty	1 Year, Details See: https://fiberroad.com/warranty

Accessories(Sold Separately)

SFP Optical Transceiver	
FRSX-1L311C	1.25Gb/s 1310nm 10km SFP
FRSX-1L341C	1.25Gb/s 1310nm 40km SFP
FRSX-1L5X1C	1.25Gb/s 1550nm 80/100km SFP
FRSX-1L3523/5323C	1.25Gb/s 1310nm/1550nm 20km BiDi SFP

Precautions

To avoid damage to the equipment and personal injury caused by improper use, please observe the following precautions:

- Keep the power off during installation, wear an anti-static wrist, and ensure that the anti-static wrist is in good contact with the skin to avoid potential safety hazards.
- The switch can work normally under the correct power supply. Please confirm that the power supply voltage matches the voltage indicated by the switch.
- Before powering on the switch, please make sure that the power circuit is not overloaded, so as not to affect the normal operation of the switch and even cause unnecessary damage.
- To avoid the risk of electric shock, do not open the case while the switch is working, even if it is not charged, do not open it yourself.
- Before cleaning the switch, pull out the power plug of the switch. Do not wipe with a wet cloth. Do not use liquid to clean it.
- The equipment installed in the rack is generally from bottom to top to avoid overload installation.
- Avoid placing other heavy objects on the surface of the switch to avoid accidents.

Order Information

Model Number	10/100/1000Base-T(X) RJ45	1/10G SFP+ Slot	PoE Standard	Input Voltage	Operating Temp.
FR-5M4648	48	6	/	AC110-240V	0 to +50℃
FR-5M4648P	48	6	Port 1 to 48 IEEE 802.3 af/at	AC110-240V	0 to +50℃

For more information

For more information about Fiberroad Smart Industrial Ethernet series products,
Visit https://www.fiberroad.com or contact your local account representative.