

FIBERROAD

LAYER 3 MANAGED INDUSTRIAL ETHERNET SWITCH

Product Data Sheet

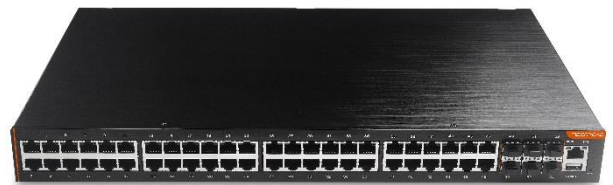


Layer 3 Managed Industrial Ethernet Switch

The FR-9T4648 48 port Industrial Ethernet Switch is a top-of-the-line product that truly embodies the rugged and reliable nature of industrial equipment. Designed with a focus on durability, this switch features a shell that follows the design standards of industrial products and adopts a 19-inch rack design for easy installation. It can withstand a wide range of working temperatures, making it perfect for deployment in harsh environments. With dual power supply redundancy (DC37-75V/AC100-240V), this switch ensures uninterrupted operation even in case of power failures. Its high/low temperature and lightning protection capabilities guarantee excellent industrial-grade quality. In terms of functionality, the FR-9T4648 offers powerful management functions including system management, comprehensive Layer 2 and Layer 3 routing management, QOS queue management, network security management, monitoring, and maintenance management. Additionally, its industrial-grade 3rd ESD protection makes it suitable for various deployment scenarios such as intelligent transportation systems, outdoor surveillance setups, industrial networks, smart city projects among others. This Industrial Ethernet Switch is truly an essential tool for ensuring smooth operations in demanding environments.

Main Features

- Support ARP/RIP/OSPF/OSPFV3/BGP/Router Discovery/VRRP/ Route-Map/BFD three-layer routing
- Support both IPv4/IPv6 applications
- Support Radius/TACACS+ server and 802.1x/Enable level/HTTP/HTTps/Dot1x authentication
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- Support STP/RSTP/MSTP production tree protocol and loop protection protocol, support CST and MST configuration, eliminate the second layer loop, and realize link backup.
- Fanless, IP40 Rating, -40 ° C ~ 75°C operation temperature design to ensure that the equipment adapts to a variety of harsh environments
- Redundant dual DC/AC power supplies are optional, anti-reverse connection, overcurrent protection



Product Specifications

Ethernet Interface	
Model	FR-9T4648
Ports	6×1G/10G SFP + sLOT 48×10/100/1000Base-T RJ45 1xRJ45 Console Port 1xUSB 2.0 Storage Port
Port Mode(Tx)	Auto-Negotiation Full/Half Duplex Mode Auto MDI/MDI-X Connection
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseSX/LX/LHX/ZX IEEE 802.3ae for 10 Gigabit Ethernet IEEE 802.3x for flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1X for authentication IEEE 802.3ad for Port Trunk with LACP
Packet Buffer Size	16 Mbits
Maximum Packet Length	Up to 12K
MAC Address Table	32K
Transmission Mode	Store and Forward (full/half duplex mode)
Exchange Property	Backplane bandwidth: 216G
Packet Forwarding Rate	160.7 Mpps

Physical Characteristics	
Housing	Aluminum case
IP Rating	IP40
Dimensions	440mmx250mmx45mm
Installation	Rack Mount
Weight	3800g
Environmental	
Operating Temperature	-40°C~75°C (-40 to 167 °F)
Operating Humidity	5%~90% (non-condensing)
Storage Temperature	-40°C~85°C (-40 to 185 °F)
MTBF	>250,000@Telcordia(Bellcore)GB
Heat Dissipation	220.69 BTU/h
Cooling	Passive Cooling, Fanless Design
Noise Level	0 dBA

Product Specifications

Power Supply

Power Consumption	50 Watts Max(220V/50Hz)
Power Inputs	2
Input Voltage	37-75DC/110-240VAC, Redundant dual inputs
Connector	DC: Pin 1/2 for Power 1, Pin 3/4 for Power 2 AC: 3 Pin AC Socket
Protection	Overload Current Protection, Reverse Polarity Protection

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 3 Features	L3 Routing *128 IPv4 Interface entries *256 IPv4 Static Routing entries *8K IPv4 Dynamic Routing entries RIP v1, v2 OSPF v1, v2, V3 IGMP v1, v2, v3	Multicast Routing *Static Multicast Route ARP Proxy DHCP Server/Relay VRRP BFD
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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
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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
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Product Specifications

Software Features

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
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 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)

Product Specifications

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

Certification Standard

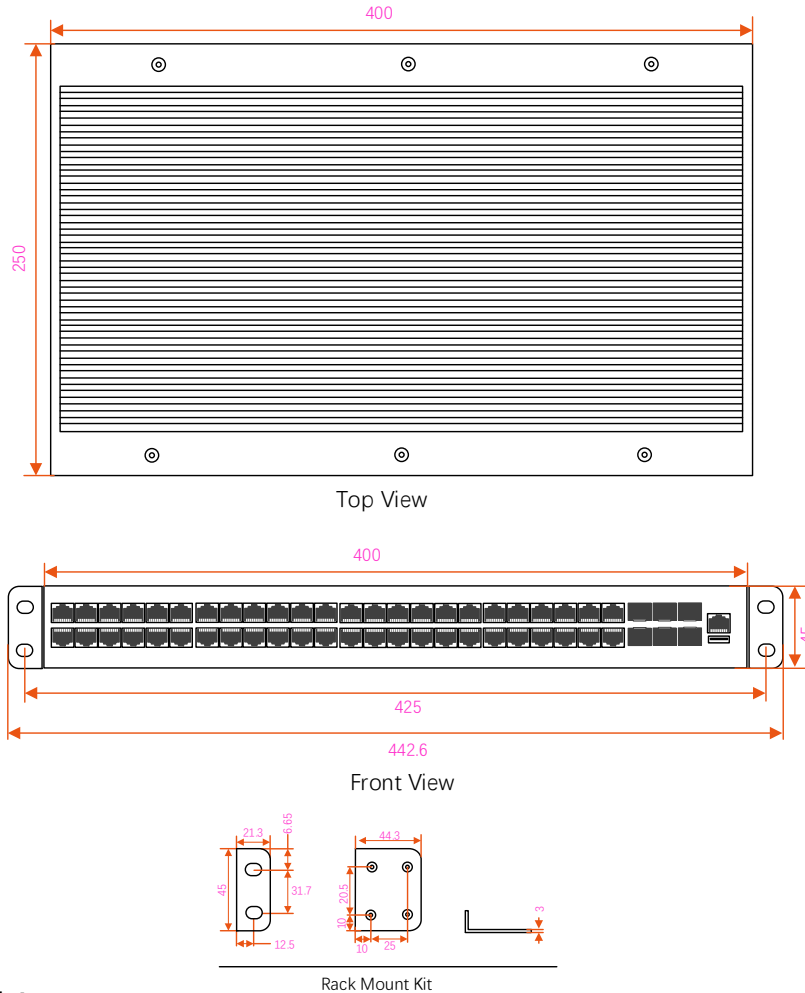
EMC/EMI/EMS	FCC Part15 Class A CE-EMC/LVD RoHS EN61000-4-2 (ESD):LEVEL 4 IEC 6100-4-2 (EFT):LEVEL 4 IEC 6100-4-2 (Surge): LEVEL 4 IEC 6100-4-2 (CS): LEVEL 3 IEC 61000-4-2(PFMP) : LEVEL 5 EN61000-4-3 (RS):LEVEL 4
Shock	IEC60068-2-27
Vibration	IEC60068-2-6
Freefall	IEC60068-2-31
Safety	EN 60950-1, UL 60950-1, CSA C22.2 No.60950-1, UL 508

Package Contents

Device	1x Industrial Ethernet Switch
Cable	1xDB9 female to RJ45 10-pin
Installation Kit	2x Rack-Mount Kits
Documentation	1 x Quick Start guide 1 x Warranty card 1x Product notice

Product Specifications

Dimensions Unit: mm



Accessories(Sold Separately)

Power Supply	
FR-I-40-24	DIN-rail 24 VDC power supply with 40W/1.7A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature
FR-I-60-24	DIN-rail 24 VDC power supply with 60W/2.5A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature
SFP Optical Transceiver	
FRSX-1L311C-I	1.25Gb/s 1310nm 10km SFP, wide operation temperature range of -40°C-85°C (-40°F - 185°F)
FRSX-1L341C-I	1.25Gb/s 1310nm 40km SFP, wide operation temperature range of -40°C-85°C (-40°F - 185°F)
FRSX-1L5X1C-I	1.25Gb/s 1550nm 80/100km SFP, wide operation temperature range of -40°C-85°C (-40°F - 185°F)
FRSX-1L3523/5323C-I	1.25Gb/s 1310nm/1550nm 20km BiDi SFP, wide operation temperature range of -40°C-85°C (-40°F - 185°F)
FRSX-AL1N2C-I	10 Gb/s 850nm 300m SFP+, wide operation temperature range of -40°C-85°C (-40°F - 185°F)
FRSX-AL311C-I	10 Gb/s 1310nm 10km SFP+, wide operation temperature range of -40°C-85°C (-40°F - 185°F)
Armored Fiber Patch Cable / LAN Cable	
FRPC-A-LC	Armored LSZH LC UPC to LC UPC Duplex OS2 single mode 7.0mm for Outdoor Application , 1-50m
FRLC-A-CAT6	Armored Cat6 Snagless shielded(SFTP) Ethernet Network Patch Cable, 26AWG, 1000Base-T, 0.5m – 3m

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+ Port	Optical Port Connector	Input Voltage	Operating Temp.
FR-9T4648-AA	48	6	LC	AC110-240V	-40 to +70°C
FR-9T4648-DD	48	6	LC	DC37-57V	-40 to +70°C

The information in this document is subject to change without notice. Fiberroad has made all effects to ensure the accuracy of the information, but all information in this document does not constitute any kind of warranty. Visit our website for the most up-to-date product information

For more information

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