FIBERROAD

LAYER 3 MANAGED
INDUSTRIAL PoE Switch

Product Data Sheet

L3 Managed Industrial PoE Switch is a multi-port, high-standard Industrial Managed PoE Ethernet Switch independently developed by Fiberroad for industrial ethernet network. This product adopts industry-leading technical standards and can provide stable and reliable Ethernet transmission with high-quality design and reliability. They are designed in a rack mount aluminum housing and have 24 Ethernet ports in total (depending on model). Plus an additional 4*10Gigabit Ethernet Ports, supports Layer 3 routing functionality to facilitate the deployment of applications across networks. As a result, it can supply power to PD terminal equipment like wireless AP, webcam, VoIP, and IIoT Devices intercom through network cable and meet the infrastructure requirements of a high-density PoE/PoE+/PoE++ supply.

Main Features

- IEEE 802.3af/at/bt PoE++ Standard, without damaging not-PoE devices.
- Advanced PoE management functions : PoE output setting, Smart PoE, PoE scheduling and PoE Budget Management.
- Priority system for PoE Port, it will supply power to the high priority level port first when the power budget is insufficient.
- Layer 3 Model support OSPFv2, RIPv2, Static Route
- TACACS+, SNMPv3, IEEE 802.1X, HTTPS and SSH to enhance network security
- Link Aggregation, STP/RSTP/MSTP/ERPS for network redundancy
- ROMON for proactive and efficient network monitoring
- Fanless, IP40 Rating, -40 ° C ~ 75℃ 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

Operation Temp	Surge	IP40 RATED
LOW / HIGH	8kV	
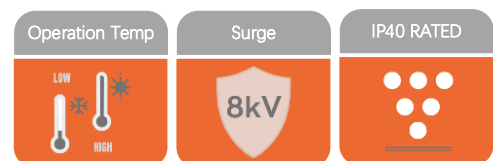
Industrial Ethernet switches adopt mature technologies and open standards. They are equipped with a redundant power supply, high-temperature resistant, anti-electromagnetic interference, low-temperature resistance, anti-vibration, and anti-shake features. They can also operate at -40 to 75°C and have 19" rack mounts that meet IP 40 protection standards. Industrial Ethernet switches are perfect for harsh environments such as military, utility market applications, and industrial networking.

Ethernet Interface

Model	FR-9T44F8P/FR-9T448FP	FR-9T44F8BT/FR-9T448FBT
Ports	4×10Gigabit SFP plus + 16×1000M Base-X SFP + 8×10/100/1000M Base-TX or 8x1000M Base-X SFP Combo	4×10Gigabit SFP plus 16×10/100/1000M Base-TX RJ45 8×10/100/1000M Base-TX or 8x1000M Base-X SFP Combo
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	12Mbits	
Maximum Packet Length	Up to 10K	
MAC Address Table	16K	
Transmission Mode	Store and Forward (full/half duplex mode)	
Exchange Property	Delay time: < 7μs Backplane bandwidth: 128Gbps	
IGMP Group	4096	
Max. No. of VLAN	256	
VLAN ID Range	VID 1 to 4094	

Physical Characteristics

Housing	Aluminum case	
IP Rating	IP40	
Dimensions	400mmx300mmx45mm	
Installation	Rack Mount	
Weight	2800g	

Environmental

Operating Temperature	-40℃~75℃ (-40 to 167 ℉)	
Operating Humidity	5%~90% (non-condensing)	
Storage Temperature	-40℃~85℃ (-40 to 185 ℉)	
MTBF	＞250,000@Telcordia(Bellcore)GB	
Heat Dissipation	75 BTU/h(Non-PoE Load) 1672 BTU/h(with MAX PoE Load)	
Cooling	Passive Cooling, Fanless Design	
Noise Level	0 dBA	

Software Features

Management Interface	CLI(Console/Telnet(RFC854)), WebUI(HTTPS), SNMPv3
Management	ARP, Flow Control, DDM, DHCP Server/Client, IPv4/IPv6, LLDP, LLDP-MED, UDLD, Port Mirror, RMON, SNMPv1/v2c/v3, Syslog, Telnet,
File Management	Firmware Upgrade/Backup, Dual Images, Configuration Download/Backup, Multiple Configuration, TFTP(RFC783), HTTP, UART
Management Access	Management VLAN, Management ACL(256)
Filter	802.1Q, GMRP, GVRP, IGMP Snooping v1/v2/v3, IGMP Querier V2/V3 QinQ VLAN
Redundant Network	Link Aggregation, STP/RSTP/MSTP/ERPSv2, Auto Edge Port, BPDU Filtering, Self Loop Detection
VLAN	Support IEEE 802.1Q 4K VLAN, QINQ, Double VLAN, Voice LAN, Surveillance VLAN(Auto/Manual), Multicast VLAN Registration(MVR)
Time Management	Local, SNTP, NTP
Unicast Routing	OSPFv2, RIPv1/v2, Static Route
QOS	Support Queue Scheduling(WRR, WFQ, Strict Priority , Hybrid(WRR+SP or WFQ+SP); Priority Queue(8 queues/port); Class of Service(Port-based, 802.1p, IP TOS Precedence, IP DSCP), Trusted QoS, Rate Limitation
ACL Type	L2/L3/L4, MAC-based, IPv4-based, IPv6-based
Diagnostic Maintenance	Support port mirroring, Syslog, Ping
POE Management	PoE working status Scheduling of PoE operation
Security	Broadcast Storm Control, HTTPS/SSLv2v3,TLSv1 RADIUS, TACACS+,AAA SSHv1/v2,Support DHCP Snooping, Option 43/82, 802.1X security access, Support user hierarchical management, ACL access control list, Support DOS, port-based MAC filtering/binding, MAC whitelist
MIB	Ethernet-like MIB, MIB-II, MIB-I, Bridge MIB, Bridge MIB extensions, RMON MIB(1,2,3 & 9 groups, RFC2737 Entity, RFC2863 Interface Group, SNMP-Community-MIB

PoE & Power Supply

Model	FR-9T448FP	FR-9T44F8P	FR-9T448FBT	FR-9T44F8BT
PoE Ports	Port 1-24	Port 17-24	Port 1-24	Port 17-24
Power Supply Pin	Default: 1/2(+), 3/6(-)		Default: 1/2(+), 3/6(-) ,4/5(+), 7/8(-)	
Max Power Per Port	IEEE802.3 af/at 30W		IEEE802.3 af/at/bt 90W	
Total PWR / Input Voltage	480W(DC48-56V) (Model dependent)	240W(DC48-56V) (Model dependent)	720W(DC48-56V) (Model dependent)	360W(DC48-56V) (Model dependent)
Power Consumption	24 Watts Max(without PoE load)			
Power Inputs	2			
Input Voltage	9-56VDC,Redundant dual inputs			
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC			
Connector	**DC**: 1 removable 6-contact terminal blocks Pin 1/2 for Power 1, Pin 3/4 for Power 2, Pin 5/6 for fault alarm **AC**: 3 Pin AC Socket			
Protection	Overload Current Protection, Reverse Polarity Protection			

Product Specifications

LED	State	Description
PWR (P1&P2)	ON	Power is being supplied
	OFF	Power is not being Supplied.
RUN	Blinking	The system is running well
	OFF	The system is running unwell
FAIL(Only For PoE)	ON	PoE Status is abnormal
	OFF	PoE Status is normal
MAX(Only For PoE)	ON	Total PoE Power out of maximum power budget
	OFF	Total PoE Power under maximum power budget
R.O.	ON	Ring Owner
	OFF	Not Ring Owner
RING	ON	Ring is enabled
	OFF	Ring is disabled
Link/ACT (1-28)	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
ALM	ON	Has alarm information
	OFF	No alarm information

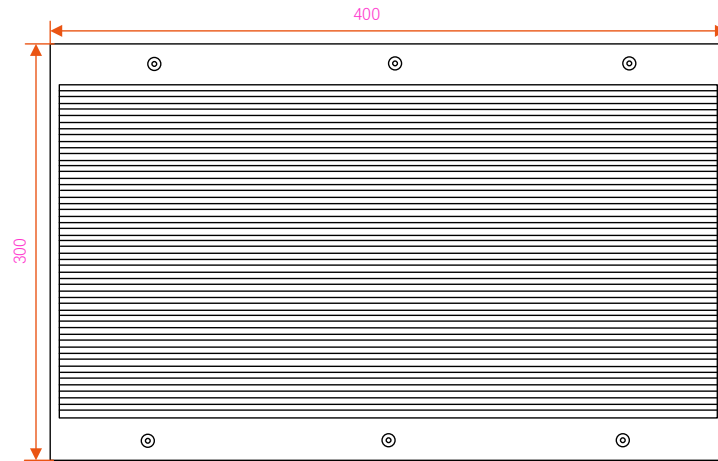**Certification Standard**

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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

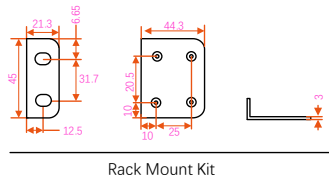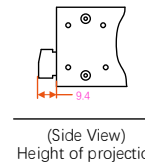**Dimensions**   Unit: mm

Top View
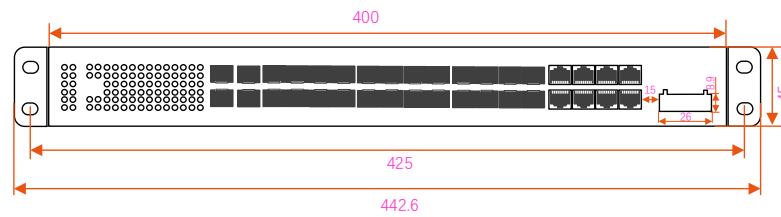
Front View

Rack Mount Kit

(Side View)
Height of projections

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℃-85℃（-40℉ - 185℉）
FRSX-1L341C-I	1.25Gb/s 1310nm 40km SFP, wide operation temperature range of -40℃-85℃（-40℉ - 185℉）
FRSX-1L5X1C-I	1.25Gb/s 1550nm 80/100km SFP, wide operation temperature range of -40℃-85℃（-40℉ - 185℉）
FRSX-1L3523/5323C-I	1.25Gb/s 1310nm/1550nm 20km BiDi SFP, wide operation temperature range of -40℃-85℃（-40℉ - 185℉）
FRSX-AL1N2C-I	10 Gb/s 850nm 300m SFP+, wide operation temperature range of -40℃-85℃（-40℉ - 185℉）
FRSX-AL311C-I	10 Gb/s 1310nm 10km SFP+, wide operation temperature range of -40℃-85℃（-40℉ - 185℉）

Armored Fiber Patch Cable / LAN Cable

FRPC-A-LC	Armored LSZH LC UPC to LC UPC Duplex OS2 single mode 7.0mm for Ourdoor 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	100/1000Base-X SFP	Gigabit Combo Port RJ45/SFP	10G SFP+ Port	Optical Port Connector Option	PoE Ports & Standard	Input Voltage	Operating Temp.
FR-9T448F	16	—	8	4	LC	—	DC9-56V	-40 to +75℃
FR-9T448FP	16	—	8	4	LC	Port 1-24 IEEE802.3 af/at	DC9-56V	-40 to +75℃
FR-9T448FBT	16	—	8	4	LC	Port 1-24 IEEE802.3 af/at/bt	DC9-56V	-40 to +75℃
FR-9T44F8	—	16	8	4	LC	—	DC9-56V	-40 to +75℃
FR-9T44F8P	—	16	8	4	LC	Port 17-24 IEEE802.3 af/at	DC9-56V	-40 to +75℃
FR-9T44F8BT	—	16	8	4	LC	Port 17-24 IEEE802.3 af/at/bt	DC9-56V	-40 to +75℃
FR-9T448FA	16	—	8	4	LC	—	AC110-240V	-40 to +75℃
FR-9T44F8A	—	16	8	4	LC	—	AC110-240V	-40 to +75℃

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For more information

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