

FIBERROAD

LAYER 2+ MANAGED **MAX** INDUSTRIAL ETHERNET SWITCH

Product Data Sheet



L2+ Managed Industrial Ethernet Switch

L2+ Managed Industrial Ethernet Switch is a multi-port, high-standard Industrial Managed 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 DIN rail / Wall mount aluminum housing and have 24 Ethernet ports in total (depending on model). Plus an additional 4 Gigabit SFP providing for data uplink and backbone connectivity.

Main Features

- All-aluminum Case, Compact and Fanless Design
- -40 to 75°C temperature maintains performance in extreme conditions
- DIN Rail and wall-mountable – quick to install and remove for maintenance
- Full gigabit L2+ management, easy to manage the industrial network by CLI/WebGUI/NMS.
- Build up a redundant network with STP/RSTP/ERPSv2.
- RADIUS, SNMPv3, IEEE 802.1x, HTTPs, SSHv2 and sticky MAC address to enhance network security
- EtherNet/IP and Modbus TCP protocols supported for device management and monitoring
- Electric 8KV surge protection Complete status indicator, working state at a glance
- Power input polarity protection design, no worry about wrong operation
- QoS, Priority mode based on 802.1P, Port & DSCP, queue scheduling algorithm including Equ, SP, WRR&SP+WRR



The Industrial Ethernet Switch adopts mature technology and open network standards, enabling it to operate with low temperature and high temperature, anti-electromagnetic interference, antisalt fog, antivibration and anti-shake. Industrial switches are designed for harsh environments such as industrial networking and intelligent transportation systems (ITS) with standard IP40 protection. Additionally, they can be used in military and utility markets where environmental conditions exceed commercial product specifications.

Product Specifications

Ethernet Interface		
Model	FR-7M3424	FR-7M348F
Ports	24×10/100/1000M Base-TX RJ45 4X100/1000M Base-X SFP	16×10/100/1000M Base-TX RJ45 12x100/1000M Base-X SFP
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 802.3x for flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid 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	4Mbits	
Maximum Packet Length	Up to 10K	
MAC Address Table	8K	
Transmission Mode	Store and Forward (full/half duplex mode)	
Exchange Property	Delay time: < 7µs Backplane bandwidth: 56Gbps	
IGMP Group	4096	
Max. No. of VLAN	256	
VLAN ID Range	VID 1 to 4094	

Physical Characteristics

Housing	Aluminum case
IP Rating	IP40
Dimensions	155mmx128mmx88mm
Installation	DIN Rail/Wall Mount
Weight	1.35kg

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	907,476 hours @ Telcordia SR-332 Standard
Heat Dissipation	65 BTU/h (non-PoE mode)
Cooling	Passive Cooling, Fanless Design
Noise Level	0 dBA

Product Specifications

Power Supply

Power Consumption	10 Watts Max
Power Inputs	2
Input Voltage	9-56VDC, Redundant dual inputs
Connector	1 removable 6-contact terminal blocks Pin 1/2 for Power 1, Pin 3/4 for Power 2, Pin 5/6 for fault alarm
Protection	Overload Current Protection, Reverse Polarity Protection

Ethernet Software Features

Redundancy Protocols	Support STP/RSTP/ERPSv2, Link Aggregation
Multicast Support	Support IGMP Snooping V1/V2/V3, support GMRP, GVMP, 802.1Q
VLAN	Support IEEE 802.1Q 4K VLAN, support QinQ, Double VLAN,
Time Management	SNTP
QoS	Flow-based redirection Flow-based rate limiting Flow-based packet filtering 8*Output queues of each port 802.1p/DSCP priority mapping Diff-Serv QoS, Priority Mark/Remark Queue Scheduling Algorithm (SP, WRR, SP+WRR)
ACL	Port-based Issuing ACL ACL based on port and VLAN L2 to L4 packet filtering, matching first 80 bytes message. Provide ACL based on MAC, Destination MAC address, IP Source, Destination IP, IP Protocol Type, TCP/UDP Port, TCP/UDP Port Range, and VLAN, etc
POE Management (Depending on model)	Total power limit of PoE power supply PoE output power allocation PoE output priority configuration PoE working status Scheduling of PoE operation
Diagnostic Maintenance	Support port mirroring, Syslog, Ping
Management Function	Support CLI, WEB, SNMPv1/v2/v3, Telnet server for management, EEE, LLDP, DHCP Server/Client (IPv4/IPv6), Cloud/MQTT
Alarm Management	Support 1 way relay alarm output, RMON, TRAP
Security	Broadcast Storm Protection, HTTPS/SSLv3, AAA & RADIUS, SSH2.0 Support DHCP Snooping, Option 82, 802.1X security access, Support user hierarchical management, ACL access control list, Support DDOS, port-based MAC filtering / binding, MAC black holes, IP source protection, Port isolation, ARP message speed limit
Advance Layer 2+ Features	IPv4/IPv6 Management Static Route

DIP Switch	State	Description
#1	ON	RSTP Disabled
	OFF	RSTP Enable(Default)
#2	ON	Port VLAN Enable
	OFF	Port VLAN Disable(Default)
#3	ON	SFP Port is 100M
	OFF	SFP Port 100/1000M(Default)
#4		Function Reserve

NOTE: Before using the DIP Switch, please log in to the Web management interface to enable the DPI Switch function.

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 (1-12)	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

Regulatory & Warranty

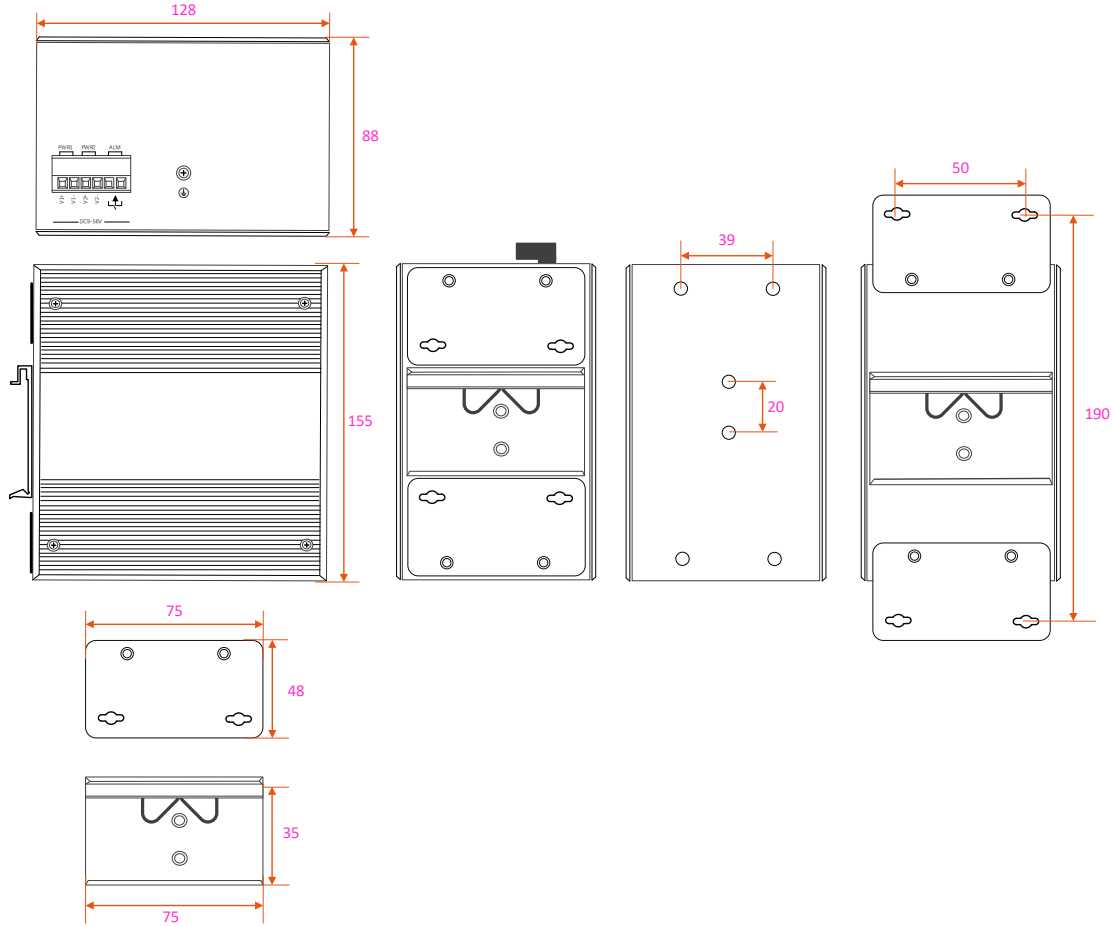
Safety	IEC/EN 62368-1
EMI	EN55032 Class A, CISPR 32 FCC Part 15B Class A
EMS	EN61000-4-2 (ESD) EN61000-4-3 (RS) EN61000-4-4 (EFT) EN61000-4-5 (Surge) EN61000-4-6 (CS) EN61000-4-8 (PFMF)
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental	RoHS
Warranty	5 Years, Details See: www.fiberroad.com

Package Contents

Device	1x Industrial Ethernet Switch
Cable	1xDB9 female to RJ45
Installation Kit	1x DIN-Rail Clip 2x Wall-Mount Kits
Documentation	1 x Quick installation 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)

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	100/1000Base-X Port	Optical Port Connector Option	Input Voltage	Operating Temp.
FR-7M3424	24	4	LC	DC9-56V	-40 to +75°C
FR-7M348F	16	12	LC	DC9-56V	-40 to +75°C

The information in this document is subject to change without notice. Fiberroad has made all efforts 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

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