FIBERROAD

PRODUCT SELECTION GUIDE

Fiber Media Converter Series
Ethernet Switch Series

About Us.

Fiberroad Technology is dedicated to providing reliable network communication products and solutions. With rich practical experience and technology, we are qualified to provide stable and perfect network communication solutions, which are focused on the integration of Optical Fibre Technology, Industrial ethernet and Carrier Access Technology.

We have a wide range of products that can be used in various industries, such as railway, electric power, oil & gas, water treatment, mining, intelligent buildings, etc. Our products are characterized by high reliability and easy operation. They can meet the requirements of various applications and provide a solid foundation for the development of your business.

Visit Our Website

www.fiberroad.com

Carrier Ethernet & Industrial Ethernet Solution

Fiberroad Technology is a world-leading provider of telecommunications carrier Ethernet and industrial Ethernet product solutions. With over 10 years' experience in the industry, Fiberroad has been providing high-quality products and services to meet the needs of market applications including carrier ethernet access, intelligent transportation system, IP security and electric & utility.

Fiberroad's products are designed to provide the highest levels of performance and reliability, and are used by many of the world's top industry carriers. The company has an extensive research and development team that is constantly innovating new products and solutions to meet the ever-changing needs of the telecom industry.

Fiberroad is a trusted partner for many industry operators around the world, and its products are deployed in some of the most demanding environments. The company's products have been proven to perform well in extreme conditions, such as high temperatures, humidity, dust and vibration.

Fiberroad's commitment to quality and customer service is second to none, and it has earned a reputation for being a reliable supplier of high-quality products. The company offers a comprehensive range of support services, including technical support, training and consultation.

Telecommunications

IP Security

Intelligent Transportation

Electric & Utility

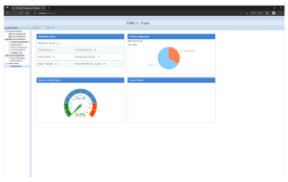
Smart Factory

Smart Medical

Product Lines

1 Product Layer & Network Management

Fiberroad Technology is a world leader in providing a wide range of product layer solutions, from AI unmanaged, smart Layer 2 management ,Layer 2+ management to Layer 3 management. With over 15 years of experience, our team of experts can help you find the perfect solution for your needs. We pride ourselves on our customer service and support, and we're always here to help you get the most out of your Fiberroad products.

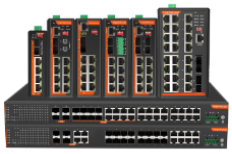


2 Fiber Media Converter Series

Fiberroad Technology is a world leading manufacturer of fiber media converters and other fiber optic products. We offer a wide range of commercial and industrial grade converters, managed and unmanaged series, as well as Power over Ethernet options. Our products are designed to provide the highest quality and reliability, at an affordable price.

3 Ethernet Switch Series

Fiberroad Technology is a leading provider of commercial and industrial grade Ethernet switches. We offer both managed and unmanaged switches, as well as Power over Ethernet technology. Our products are designed to provide high performance and reliability, making them ideal for use in mission critical applications. Fiberroad also offers a wide range of support services, making it easy to get the most out of their products.



4 Smart IoT Surveillance Box

Fiberroad Technology's Smart IoT Surveillance Controller Box is an exciting new product that allows you to control your surveillance cameras using your smartphone or other internet-connected device. This product is perfect for those who want to keep an eye on their property while away from home, or for business owners who want to monitor their premises remotely. The Smart IoT Surveillance Controller Box is easy to set up and use, and it provides a high level of security for your camera system.

5 Accessories

Fiberroad provides a variety of accessory products to support our solutions. These include standard items such as mounting kits and racks, as well as specialized devices such as surge protectors, SFP transceivers, and an innovative backup solution.

1 Product Layer & Network Management

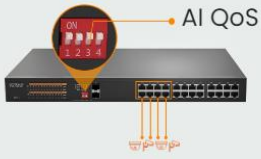
AI Unmanaged Functions

As the number of IoT and video surveillance applications continues to grow, the need for switches that can provide VLAN, QoS, and intelligent PoE functions is also increasing. Traditional non- management switches are not able to meet these demands, but Fiberroad Technology has introduced a new type of switch that does not require network management and can be configured using DIP switches. This makes it much easier for applications to take advantage of all the features and benefits that these switches have to offer.

Support Model: FR-5A Series, FR-7N(Partial Model)

Isolation for Ports 1-24

All PoE ports can only communicate with the uplinks when this mode is enabled.Using this also improves network security and data transmission.



Priority Guaranteed for Ports 1-8

Quality of sensitive applications like video and VoIP in critical business areas is guaranteed by offering higher priority options for ports 1-8 when AI QoS mode is enabled.

Not passing traffic for a certain amount of time

The switch will reset power on the specific port

1 Product Layer & Network Management

Managed Media Converter Management Platform

Web-Management Interface

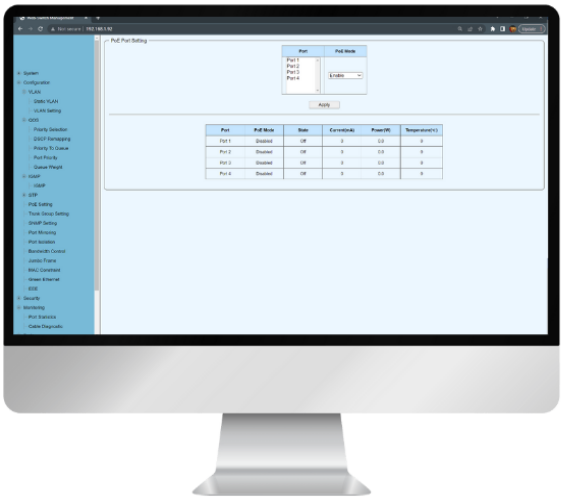
EMS Management Interface

Support 100M-10G Fiber to Copper Ethernet Media Converter
Support 100M-40G Optical Fiber Media Converter

- Supporting network device auto-sensing and adding
- Complete system information can be set up and displayed, including the name of the chassis, terrain information, related information of IP, constant operating time and the versions of the hardware and soft ware
- Real time display of voltage and temperature on the cards of the media converters, temperature of chassis and report fault in time
- Supporting SFP/XFP, CWDM SFP/XFP and DWDM SFP/XFP, and it can show the SFP/XFP information and digital diagnosis function
- Remote power off alarming, precisely distinguish remote failure
- Supporting LFP, quickly locates the failure
- Equipment restart, system or module restart by management software, set-up information on each module will be stored spontaneously when power off
- Reset to factory set up or dip switch status are optional
- Each port at local or remote devices can be set up or tracked, including the connecting status, connecting speed, half/full duplex, port locked and LFP etc.
- Supporting Loopback and PRBS, precisely locating the failure, convenient for link test
- Supporting management within bandwidth, managing remote equipments conveniently
- Powerful historical alarming and operating log information tracking and management function
- Supporting FTP online upgrading

1 Product Layer & Network Management

Smart Layer 2 Ethernet Switch Management



Web-Management Interface

Smart Layer 2 Ethernet Switch Management sometimes called smart switches or Web managed switches—have become a popular option for mid-sized networks that require management. They offer access to switch management features such as port monitoring, VLAN, and QoS a simple Web interface via an embedded Web browser. What these switches generally do not have is SNMP management capabilities or a CLI. Web-smart switches must usually be managed individually rather than in groups.

Although the management features found in a Web-smart switch are less extensive than those found in a fully managed switch, these switches are becoming smarter, now offering many of the features of a fully managed switch.

Support Model: FR-6S,FR-7S Series

Port Setting

Speed/Duplex
Flow Control
Bandwidth Control
Port Isolation

VLAN & QoS

VLAN Setting
Trunk Group Setting
QoS Priority Selection
QoS DSCP Remapping

STP & PoE

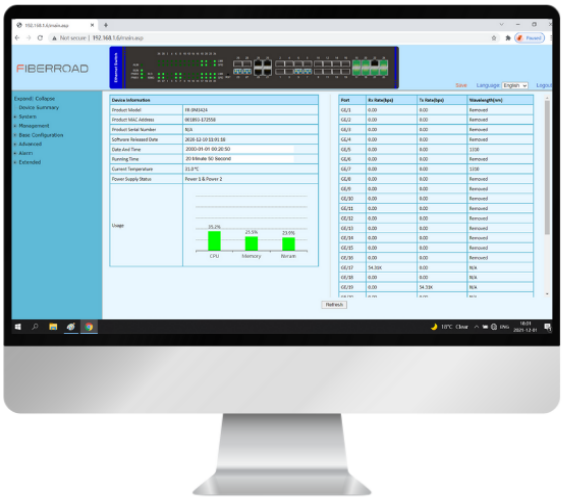
STP Setting
STP Information
PoE Mode Setting
PoE State

Others

User Management
IGMP Setting
Security MAC Address
Firmware Upgrade

1 Product Layer & Network Management

Layer 2+ Ethernet Switch Management



Web-Management Interface

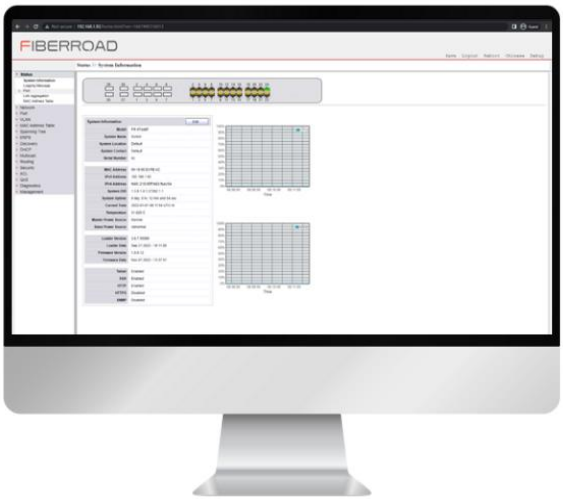
Layer 2+ Ethernet switch solutions from Fiberroad are some of the most advanced and comprehensive on the market today. With features like CLI, PoE control, IP static routing, access control lists, VLANs, IGMP snooping, QoS, RMON, SNMP trap, and syslog for monitoring, these switches offer unmatched flexibility and integration into just about any network. Whether you need a managed switch for a small office or enterprise-level network, Fiberroad has a solution that will fit your needs perfectly. And with their premier customer support and service, you can be sure that your investment is in good hands.

Support Commercial and Industrial Grade Layer 2+ Ethernet Switch

Software Features	
Redundancy Protocols	Support STP/RSTP/MSTP/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	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,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

1 Product Layer & Network Management

Layer 3 Ethernet Switch Management



Web-Management Interface

Fiberroad's L3 switch solutions offer the most advanced and thorough networking-managed switch features available. Included premier managed switch features can include CLI, PoE control, OSPF, RIP, access control lists, VLAN, IGMP snooping, QoS, RMON, SNMP trap, and syslog for monitoring and flexible network integration. Advance security features: TACACS+, AAA provide unparalleled protection for your network. With Fiberroad's L3 switches you'll have the peace of mind knowing that your Ethernet switch is running at peak efficiency and performance.

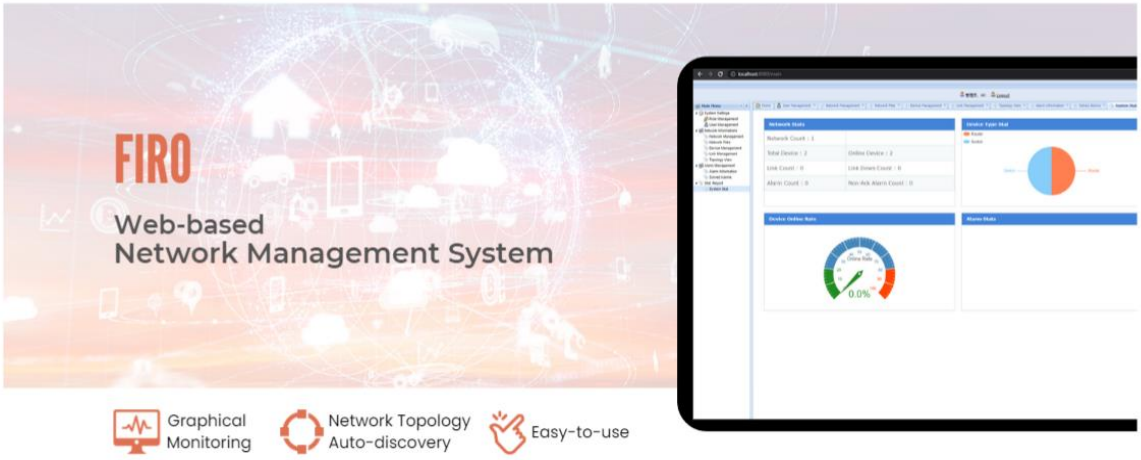
Support Commercial and Industrial Grade Layer 3 Ethernet Switch

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

1 Product Layer & Network Management

Web-Based Network Management System

Fiberroad's FIRO Web-based Network Management System (WBNMS) enables easy access through the Internet (Browser User Interface GUI) to your Network Management System. Regardless of its location, Fiberroad virtually makes any authorized laptop an operational and maintenance (O&M) workstation. The WBNMS provides a comprehensive view of your network and its resources, allowing you to manage your network effectively. The system also allows you to troubleshoot problems quickly and efficiently, thereby reducing downtime and ensuring optimal performance of your network.



- High compatibility and reliability, supporting the mainstream browsers.
- Support all Fiberroad IP-based hardware & extension of third-party devices.
- Automatically discovers and diagrams network topology.
- Dynamic Connectivity Indication – PoE, Ring.
- Real-time monitoring.
- Make network administration more effective and efficient.

1 Product Layer & Network Management

Cloud Network Management

Introducing the Firo Cloud Management Platform, your go-to for intelligent, secure and reliable cloud management. Our platform is based on the industry standard OASIS MQTT protocol, providing you with the most advanced technology to monitor your IoT and IIoT networks from any time and any location. With robust features like automated tracking and analysis of data, real-time alerts, secure authentication and authorization, this platform offers an unparalleled level of control over your network. As an engineer, take advantage of this cutting edge cloud management technology to ensure that your network is protected against threats and running as efficiently as possible.

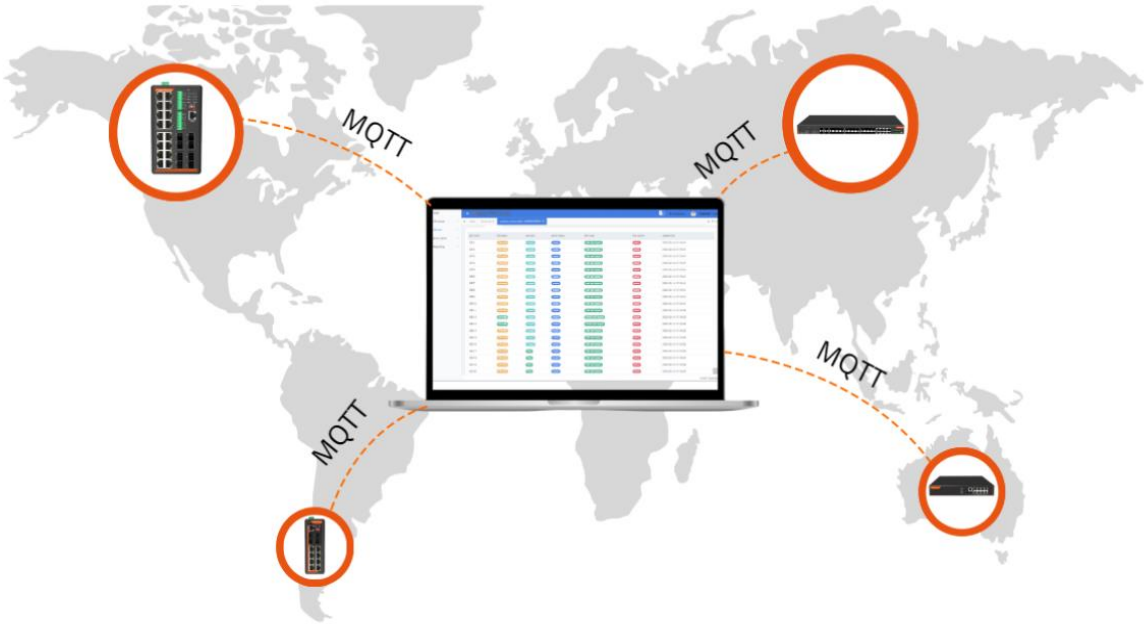
Control unlimited devices remotely with a web browser.

Ability to configure the network settings and behaviour of each device.

View and manage the PoE usage of all connected devices in one place.

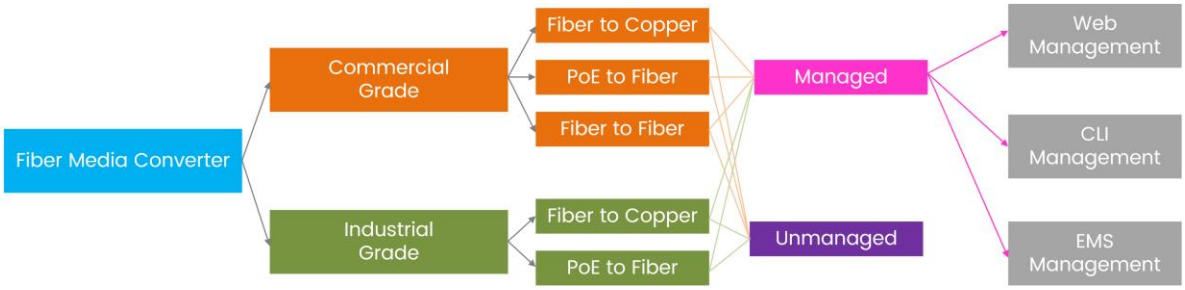
Monitor device status in real-time and receive notifications when it goes offline.

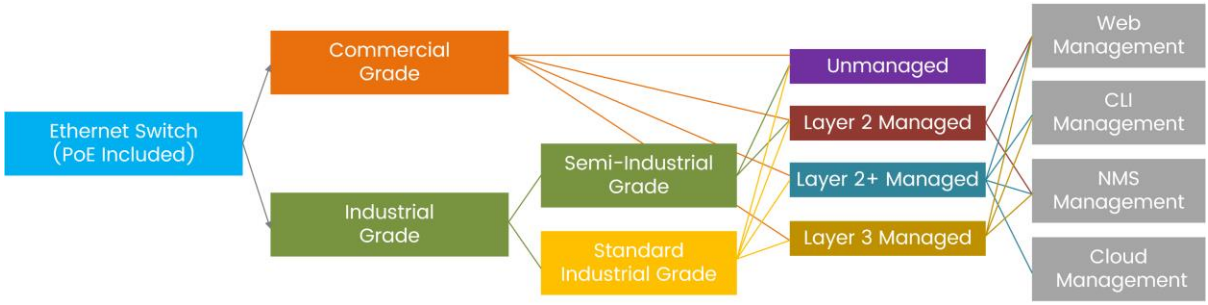
Program customized motion & alarm rules for each device.



1 Product Layer & Network Management

Product Mind Map





The internet of things (IoT) is rapidly revolutionizing the way we live and work, with connected devices becoming increasingly commonplace in homes and businesses alike. As the IoT continues to grow, so too does the need for reliable and high-speed networking solutions that can handle the vast amount of data being generated by these devices.

One key component of an effective IoT network is a fiber media converter, which helps to connect different types of media across a network. FMCs are used in a variety of applications, from telecommunications and data centers to industrial Ethernet and security systems.

Ethernet switches are also crucial for building an effective IoT network. These switches provide the necessary connectivity between devices, allowing them to communicate with each other and exchange data. There are many different types of Ethernet switches available on the market, so it's important to choose one that meets the specific needs of your IoT applications.

Both fiber media converters and Ethernet switches play a vital role in ensuring that an IoT network runs smoothly and efficiently. By investing in quality products from reputable manufacturers, you can be sure that your IoT network will be able to handle even the most demanding applications.

2 Fiber Media Converter Series

FR-2000 Series

12 Slots Unmanaged Fiber Media Converter Chassis			
Product Type	Rack Chassis	**Number of Slots**	12
Input Power	AC 100-240V, or DC-V48V 1.5-3.0A,50/60Hz	**Output Power**	DC 12V Per Slot, 5A
Power Consumption	120W Max	**Case Material**	Iron
Dimensions (HxWxD)	44.5x485x270mm	**Weight**	3.2kg Approx
MTBF	100,000 Hours	**Fan Numbers**	2
Cooling	Brushless DC Fan	**Operating Temperature**	0℃ to 50 ℃
Rack Space	1U	**Storage Temperature**	-20 ℃ to 70℃

FR-6000 Series

17 Slots Managed Fiber Media Converter Chassis			
Product Type	Rack Chassis	**Number of Slots**	17
Input Power	AC 100-240V, or DC-V48V 1.5-3.0A,50/60Hz	**Output Power**	DC 5V Per Slot
Power Consumption	160W 250W(10/40G)	**Case Material**	Iron
Dimensions (HxWxD)	90x425x310mm	**Weight**	7kg Approx
MTBF	100,000 Hours	**Fan Numbers**	3
Cooling	Brushless DC Fan	**Operating Temperature**	0℃ to 50 ℃
Rack Space	2U	**Storage Temperature**	-20 ℃ to 70℃

FR-6000 Series

9 Slots Managed Fiber Media Converter Chassis			
Product Type	Rack Chassis	**Number of Slots**	9
Input Power	AC 100-240V, or DC-V48V 1.5-3.0A,50/60Hz	**Output Power**	DC 5V Per Slot
Power Consumption	80W 130W(10/40G)	**Case Material**	Iron
Dimensions (HxWxD)	45x440x330mm	**Weight**	3.5kg Approx
MTBF	100,000 Hours	**Fan Numbers**	2
Cooling	Brushless DC Fan	**Operating Temperature**	0℃ to 50 ℃
Rack Space	1U	**Storage Temperature**	-20 ℃ to 70℃

Managed Fiber Media Converter Case			
Product Type	Standalone /Desktop	**Number of Slots**	1
Input Power	AC 100-240V, or DC-V48V	**Dimensions (HxWxD)**	32x160x130mm

2 Fiber Media Converter Series

Unmanaged Fiber Media Converter					
Model	**FR-2201**	**FR-2203**	**FR-2206**	**FR-2222**	**FR-2212**
					
Ports	1 x 100M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000MSFP Port 2x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1x100M/1G/2.5G/5G/ 10GBase-T RJ45 1x 10GBase-X SFP+	2 x SFP/ 2x SFP+ Slots
Standard and Protocols	IEEE 802.3i IEEE 802.3u	IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z IEEE 802.3x		IEEE 802.3u IEEE 802.3ab IEEE 802.3bz IEEE 802.3an IEEE 802.3ae IEEE 802.3x	IEEE802.3an, IEEE802.3ae
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm				
Cable Type(Copper)	Cat5/5e/6/6a/7				
Jumbo Frame	12K Bytes		9K Bytes	16K Bytes	
Operation Mode	10/100Mbps for Half/Full duplex 1000Mbps for Full Duplex			\	\
LED Indicators	TP/LNK, SPD, FX/LNK, PWR	TP/LNK, 1000M, FX/LNK, PWR	TP1/LNK, TP2/LNK, FX/LNK, PWR	TP/LNK, SPD, FX/LNK, PWR	SFP1, Loop, SFP2, PWR
DIP Switch	LFP/ALS/FX Reset/FX Speed Set		Jumbo Frame/Port Isolation/FX Speed Set	LFP/ ALS/Media Converter Model	Loopback/LFP /ALS
Input Power	DC 5-12V				
External Power	AC 100V—240V				
Power Consumption	Full-load<2W	Full-load<3W	Full-load<3W	Full-load<5W	Full-load<5W Without Modules≤2W
Hosing	Metal				
Dimensions	90x60x20 mm				
Weight	0.12kg/0.26lb(Bare Hardware)				
MTBF	> 50,000Hrs				
Operating Temperature	0°C to 50°C				
Storage Temperature	-10°C to 70°C				
Installation	Desktop, Wall Mount, Rack(*require optional rack)				

Notes:
1. LFP: Link fault pass through, When enabled, the UTP receiver is passed to the fibre transmitter to make the media converter appear transparent to the connected end devices. It uses link fault pass-through to indicate when far-end fault issues occur. If a fault occurs, the end device indicates a failure for troubleshooting.
2. ALS: Automatic laser shutdown is a procedure to automatically shut down the laser when there is no input light and stop emitting optical signals。
3. FX:Optical Fiber Port
4, FX Reset: When enabled, the PoE will restart if there is no data input to the UTP receiver.
5, Loop: When enabled, run a loop back test to check the interconnection between two media converter devices.

2 Fiber Media Converter Series

Unmanaged Industrial Fiber Media Converter			
Model	**FR-2703**	**FR-6N3101**	**FR-7N3101**
			
Ports	1 x 1000M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)		
Standard and Protocols	IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z IEEE 802.3x		
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm		
Cable Type(Copper)	Cat5/5e/6		
Jumbo Frame	12K Bytes		
Operation Mode	10/100Mbps for Half/Full duplex 1000Mbps for Full Duplex		
LED Indicators	FX/SPD, FX/LINK, PWR, LINK/ACT, SPD	PWR/LINK/ACT	PWR/LINK/ACT
DIP Switch	LFP/ALS/FX Reset/FX Speed	\	\
Input Power	DC 9-56V		
External Power	AC 100V—240V		
Power Consumption	Full-load<3W		
Hosing	Aluminum case		
IP Rating	IP 40		
Dimensions	118mmx39mmx26mm	120mm x 90mm x35mm	120mmx90mmx35mm
Weight		350g	350g
MTBF	2,573,692 Hours (Standard: Telcordia SR-332 GF 30℃)		
Operating Temperature	-40℃~75℃ (-40 to 167 ℉)	-20℃~70℃ (-5 to 158 ℉)	-40℃~75℃ (-40 to 167 ℉)
StorageTemperature	-40℃~85℃ (-40 to 185 ℉)		
Installation	Desktop or Wall Mounting	DIN Rail or Wall Mounting	

FAQs

1. What is the differences between FR-6N3101 and FR-7N3101?

Our FR-6N series represent Semi-industrial grade, whereas our FR-7N series represents high-standard industrial grade. The FR-7N Series has a wider temperature range than the FR-6N Series, with FR-7N Series working at -40 °C to +75°C. Additionally, FR-7N series has strong anti-electromagnetic interference capabilities.

1 Fiber Media Converter Series

Unmanaged PoE Media Converter						
Model	**FR-POE231**	**FR-POE232**	**FR-POE233**	**FR-POE331**	**FR-POE332**	**FR-7N3101P**
						
Ports	1 x 100M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP Port 2x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 100M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	
Ethernet Standard and Protocols	IEEE 802.3i IEEE 802.3u	IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z IEEE 802.3x		IEEE 802.3i IEEE 802.3u	IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z IEEE 802.3x	
PoE Standard	IEEE 802.3af:15.4W IEEE 802.3at:30W					
Power Pin Assignment	End-Span,1/2(+),3/6(-)					
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm					
Cable Type(Copper)	Cat5/5e/6					
Jumbo Frame	9K Bytes					
Operation Mode	10/100Mbps for Half/Full duplex 1000Mbps for Full Duplex					
LED Indicators	Power SFP/1x9 Link/Activity RJ45 Link/Activity RJ45 Speed RJ45 Duplex PoE		Power SFP/1x9 Link/Activity RJ45 Link/Activity RJ45 Speed RJ45 Duplex PoE1 PoE2	Power SFP Link/Activity RJ45 Link/Activity RJ45 Speed RJ45 Duplex PoE		Power SFP Link/Activity RJ45 Link/Activity RJ45 Speed RJ45 Duplex
DIP Switch	LFP/ALS/FX Reset/FX Speed Set		Jumbo Frame/VLAN/FX100M	LFP/ ALS/FX Reset/AI PoE		\
Input Power	DC 48-56V			AC 100V—240V		DC 9-56V
External Power	AC 100V—240V			\		\
Power Consumption	af mode: 20W at mode: 35W		af mode: 40W at mode: 70W	af mode: 20W at mode: 35W		
Hosing	Metal					Aluminum
Dimensions	94mm×71mm×26mm(W x D x H)			140mm×110mm×40mm(W x D x H)		120mm*90mm*35mm
Weight	0.2kg/0.44lb(Bare Hardware)			0.5kg/1.10lb(Bare Hardware)		0.35kg/0.77lb(Bare Hardware)
MTBF	100,819 Hours@Telcordia SR-332 GB 25℃					2,332,497 Hours @Standard: Telcordia SR-332 GF 30℃
Operating Temperature	0°C to 50°C					-40℃~75℃ (-40 to 167 ℉)
Storage Temperature	-20°C to 70°C					-40℃~85℃ (-40 to 185 ℉)
Installation	Desktop, Wall Mount					DIN Rail Wall Mount

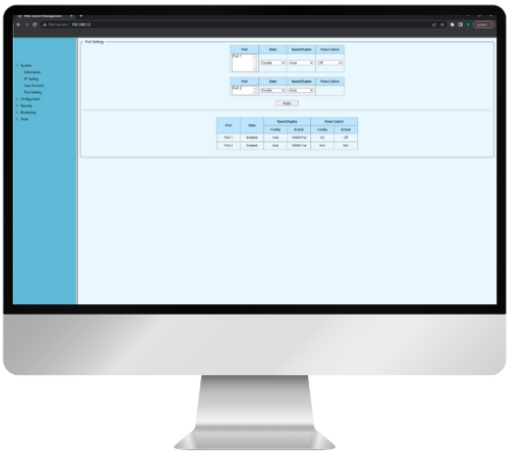
Commercial Grade

Industrial Grade

2 Fiber Media Converter Series

Managed Fiber Media Converter (Centralized Network Management)					
Model	**FR-6101**	**FR-6102**	**FR-6103**	**FR-6104**	**FR-6601**
					
Ports	1 x 100M SFP/1x9 Port 1 x10/100M RJ45 Port (Auto MDI/MDIX)	1 x 100M SFP/1x9 Port 2 x10/100M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP Port 1x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP/1x9 Port 2 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1x10G SFP+ 1x10GBASE-T RJ45
Ethernet Standard and Protocols	IEEE 802.3i IEEE 802.3u IEEE 802.3ah		IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z IEEE 802.3x IEEE 802.3ah		IEEE802.3an, IEEE802.3ae
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm				
Cable Type(Copper)	Cat5/5e/6/6a/7				
Jumbo Frame	2046 Bytes				10K Bytes
Operation Mode	10/100Mbps for Half/Full duplex 1000Mbps for Full Duplex				\
LED Indicators	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed RJ45 Duplex	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed RJ45 Duplex	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed	Power, FX-Link, FX Duplex, TX-SPD, TX-Duplex, TX-Link
Input Power	DC 5V				
External Power	AC 220V/DC -48V(With Standalone Case)				
Power Consumption	Full-load<3W				Full Load < 5W
Hosing	Metal(With Standalone Case)				
Dimensions	120mm*90mm*22mm				
Weight	150g				200g
MTBF	65,000Hours@Telcordia SR-332 GB 25℃				
Operating Temperature	0°C to 50°C				
Storage Temperature	-20°C to 70°C				
Installation	Card Type, It can be inserted into Chassis or Standalone Case				
Management Features					
	Rate Limitation/LFP/Remote Dying Gasp/Flow Control Support Transparent QinQ double tagged frame Support IEEE 802.1Q Tag VLAN Pass Through				LFP/ALS/Loopback /Dying Gasp

2 Fiber Media Converter Series



The Web Smart OAM/IP managed Fiber Media Converter Series provides both Gigabit Ethernet and 10 Gigabit Ethernet connection, which provide simple control and setting function on each Ethernet port through in-band network via a Web browser. The user-friendly web interface offers an easy way to configure, monitor and troubleshoot the media converter. The series is an ideal solution for applications that require high-speed data transmission and secure network management.

Web Smart Managed Fiber Media Converter				
Model	**FR-MC22M**	**FR-MC12M**	**FR-6101I**	**FR-MC52M-SFP+**
				
Ports	1 x 1000M SFP Port 1x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP Port 2x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1 x 1000M SFP/1x9 Port 1 x10/100/1000M RJ45 Port (Auto MDI/MDIX)	1x10G SFP+ 1x10GBASE-T RJ45
Ethernet Standard and Protocols	IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z IEEE 802.3x IEEE 802.3ah			IEEE802.3an, IEEE802.3ae
Jumbo Frame	10K Bytes			
Operation Mode	10/100Mbps for Half/Full duplex 1000Mbps for Full Duplex			\
LED Indicators	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed RJ45 Duplex	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed RJ45 Duplex	Power FX Link/Acticity RJ45 Link/Activity RJ45 Speed	Power, FX-Link, FX Duplex, TX-SPD, TX-Duplex, TX-Link
Input Power	AC 220V		DC 9-56V	AC 220V
Power Consumption	Full-load<3W			Full Load < 6W
Hosing	Metal		Aluminum	Metal
Dimensions	160mmx130mmx32mm		120mm*90mm*35mm	172mm*105mm*32mm
Weight	800g		350g	1000g
Operating Temperature	0°C to 50°C		-40℃~75℃	0°C to 50°C
Storage Temperature	-20°C to 70°C		-40℃~85℃	-20°C to 70°C
Installation	Desktop/Wall Mount		DIN Rail / Wall Mount	Desktop/Wall Mount
Management Features				
	Rate Limitation/LFP/Remote Dying Gasp/Ingress or Egress Bandwidth Control Support Transparent QinQ double tagged frame Support IEEE 802.1Q Tag VLAN Pass Through Support SNMPv1			DOM SFP Support

Commercial Grade Industrial Grade

2 Fiber Media Converter Series

Managed Optical Transponder							
Model	**FR-6502**	**FR-6302**	**FR-6201**	**FR-6202**	**FR-6603**	**FR-6604**	**FR-6606**
							
Name	2.5G TMUX	Fiber Protection Converter	2.5G Transponder	4.25G Transponder	10G Transponder (1R)	10G Transponder (3R)	40G Transponder
Data Rate	2x1G to 2.5G	1000M	125M to 2.5Gbps	125M to 4.25Gbps	1.25M to 10Gbps	8.5G 10Gbps	40Gbps
Ports	3 x SFP	1x10/100/1000M RJ45 Port (Auto MDI/MDIX) 2xSFP	2 x SFP	2 x SFP	2 x XFP	2 x SFP+	2 x QSFP
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm Distance: MM 550m,2km, SM20/40/80km WDM:20/40/80km						
Transport Mode	Transparency Mode						
LED Indicators	Power REMO LINK SFP1/2/3 Link/Activity	Power REMO LINK RJ45 Speed/Duplex SFP1/2/3 Link/Activity	Power SFP1/2 Link/Activity	Power SFP1/2 Link/Activity Loop	Power XFP1/2 Link/Activity Loop	Power SFP+1/2 Link/Activity Loop SFP1/2	Power QSFP1/2 Link/Activity Loop
Input Power	DC 5V						
External Power	AC 220V/DC -48V(With Standalone Case)						
Power Consumption	Full-load<3W				Full Load < 5W		Full Load < 8W
Hosing	Metal(With Standalone Case)						
Dimensions	120mm*90mm*22mm						
Weight	150g				200g		
MTBF	65,000Hours@Telcordia SR-332 GB 25℃						
Operating Temperature	0°C to 50°C						
Storage Temperature	-20°C to 70°C						
Installation	Card Type, It can be inserted into Chassis or Standalone Case						

Industrial Ethernet Switch vs Regular Ethernet Switch: Understanding the Key Differences

When it comes to Ethernet switches, there are two main types: industrial Ethernet switches and regular Ethernet switches. While both types of switches serve the same basic purpose—to connect devices on a network—there are some key differences between them that you should be aware of. Here's a look at the major differences between industrial and regular Ethernet switches:

Operating Environment
One of the biggest differences between industrial and regular Ethernet switches is the operating environment. Industrial Ethernet switches are designed to operate in harsh conditions, including extreme temperatures, vibrations, and dust. Regular Ethernet switches, on the other hand, are not typically designed to withstand these conditions and may malfunction or fail completely if exposed to them.

Electromagnetic environment
The electromagnetic environment of an industrial Ethernet switch is different from that of a regular Ethernet switch. An industrial Ethernet switch is designed to operate in environments with high levels of electromagnetic interference (EMI). This means that the switch must be able to withstand higher levels of EMI than a regular Ethernet switch. The switch must also be able to filter out EMI so that it does not interfere with the operation of the switch.

Operating Voltage
Industrial Ethernet switches have a wide operating voltage range, while regular switches require higher voltages.

Installation Method
Industrial Ethernet switches can be installed in DIN rails and racks. Regular switches are usually rack and desktop.

Cooling Method
Industrial Ethernet switches generally use a fanless case to dissipate heat, while ordinary switches use a fan to dissipate heat.

What is the differences between Semi Industrial Grade and High Standard Industrial Grade Switch?
Fiberroad FR-6N series represent Semi-industrial grade, whereas FR-7N/7M/7S/9T/9M series represents high-standard industrial grade. The High-Standard Industrial Switch has a wider temperature range than the Semi-Industrial Grade Series, with working at -40 °C to +75°C. The Semi-Industrial Switch contrastively support -20°C to +70°C. Additionally, High Standard Industrial Switch series has strong anti-electromagnetic interference capabilities.

3 Ethernet Switch Series

Unmanaged Semi-Industrial Switch						
Model	**FR-6N1005**	**FR-6N1104**	**FR-6N1008**	**FR-6N3005**	**FR-6N3104**	**FR-6N3008**
						
Ports	5x10/100BASE-T,RJ45	4x10/100BASE-T,RJ45 1x100BASE-X SFP/1X9	8x10/100BASE-T,RJ45	5x10/100/1000BASE-T,RJ45	4x10/100/1000BASE-T,RJ45 1x1000BASE-X SFP/1X9	8x10/100/1000BASE-T,RJ45
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection					
Switching Capacity	1.25Gbps		2Gbps	12Gbps		20Gbps
Ethernet Standard	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX			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		
MAC Address	4K		8K	4K		
Packet Buffer	512Kbits		1Mbits	1Mbits		2Mbits
Jumbo Frame	9K		10K	9K		10K
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm					
Cable Type(Copper)	Cat5/5e/6					
LED Indicators	PWR/LINK/ACT					
Input Power	DC 9-56V					
Connector	5 PIN Phoenix Contact					
Power Reverse	Support					
Power Consumption	Full Load < 2W	Full Load < 3W	Full Load < 3W	Full Load < 3W	Full Load < 4W	Full Load < 5W
Enclosure	IP 40 Aluminum case					
Fan Number	Fanless					
Dimensions	120 x 90 x35 mm		100 x 78 x 40 mm	120 x 90 x35 mm		100 x 78 x 40 mm
Weight	320g	350g	300g	320g	350g	300g
Operating Temperature	-20℃~70℃ (-5 to 158 ℉)					
Storage Temperature	-40℃~85℃ (-40 to 185 ℉)					
Installation	DIN Rail or Wall Mounting					

3 Ethernet Switch Series

Unmanaged Industrial (PoE) Ethernet Switch				
Model	**FR-7N1005/P/BT**	**FR-7N1104/P/BT**	**FR-7N1005/P/BT**	**FR-7N3104/P/BT**
				
Ports	5x10/100BASE-T,RJ45	4x10/100BASE-T,RJ45 1x100BASE-X SFP/1X9	5x10/100/1000BASE-T,RJ45	5x10/100/1000BASE-T,RJ45 1x1000BASE-X SFP/1X9
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection			
Switching Capacity	1.25Gbps		12Gbps	
Ethernet Standard	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX		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	
MAC Address	4K		8K	
Packet Buffer	512Kbits		1Mbits	
Jumbo Frame	9K		10K	
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm			
Cable Type(Copper)	Cat5/5e/6			
LED Indicators	PWR/LINK/ACT			
Input Power	DC 9-56V			
Connector	6 PIN Phoenix Contact			
Power Reverse	Support			
Power Consumption	Full Load < 3W(Without PoE)			
Enclosure	IP 40 Aluminum case			
Fan Number	Fanless			
Dimensions	120 x 90 x35 mm			
Weight	350g	400g	350g	400g
Operating Temperature	-40 to 75℃ (-40 to 167℉)			
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)			
Installation	DIN Rail or Wall Mounting			
PoE & Power Supply				
Model	FR-7N1005P/3005P/1104P/3104P		FR-7N1005BT/3005BT/1104BT/3104BT	
PoE Ports	Port 1 to 4 IEEE802.3af/at @PoE+		Port 1 to 4 IEEE802.3af/at/bt @PoE++	
Power Supply Pin	Default: 1/2(+), 3/6(-)		Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-)	
Max Power Per Port	30W		90W	
Total PWR /Input Voltage	120W(DC48-56V) (Model dependent)		360W(DC52-56V) (Model dependent)	
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC(IEEE802.3bt model)			

3 Ethernet Switch Series

Unmanaged Industrial (PoE) Ethernet Switch						
Model	**FR-7N3008/P/BT**	**FR-7N3208/P/BT**	**FR-7N3224/P/BT**	**FR-7N3808/P/BT**	**FR-7N3016/P/BT**	**FR-7N3216/P/BT**
						
Ports	8x10/100/1000BASE-T,RJ45	8x10/100/1000BASE-T,RJ45 2x1000BASE-X SFP/1X9	24x10/100/1000BASE-T,RJ45 2x1000BASE-X SFP/1X9	8x10/100/1000BASE-T,RJ45 8x1000BASE-X SFP	16x10/100/1000BASE-T,RJ45	16x10/100/1000BASE-T,RJ45 2x1000BASE-X SFP
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection					
Switching Capacity	20Gbps		52Gbps			
Ethernet Standard	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					
MAC Address	4K		8K			
Packet Buffer	2Mbits		4Mbits			
Jumbo Frame	9K		10K			
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm					
Cable Type(Copper)	Cat5/5e/6					
LED Indicators	PWR/LINK/ACT					
DIP Switch	\		AI VLAN/AI Extend/AI QoS/AI PoE	\	\	\
Input Power	DC 9-56V					
Connector	6 PIN Phoenix Contact			5 PIN Phoenix Contact		
Power Reverse	Support					
Power Consumption	Full Load < 10W(Without PoE)		Full Load < 24W (Without PoE)	Full Load < 18W （Without PoE）		
Enclosure	IP 40 Aluminum case					
Fan Number	Fanless					
Dimensions	138 x 108 x49 mm		155mmx128mmx88mm	160mmx132mmx70mm		
Weight	680g	680g	1350g	1200g		
Operating Temperature	-40 to 75℃ (-40 to 167℉)					
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)					
Installation	DIN Rail or Wall Mounting					

PoE & Power Supply		
Model	**FR-7N3008P/FR-7N3208P/FR-7N3224P/FR-7N3808P/FR-7N3016P/FR-7N3216P**	**FR-7N3008BT/FR-7N3208BT/FR-7N3224BT/FR-7N3808BT/FR-7N3016BT /FR-7N3216BT**
PoE Ports	Port 1 to 8 IEEE802.3af/at @PoE++ (FR-7N3008P/FR-7N3208P) Port 1 to 16 IEEE802.3af/at @PoE++ (FR-7N3016P/FR-7N3216P) Port 1 to 24 IEEE802.3af/at @PoE++ (FR-7N3224P)	Port 1 to 8 IEEE802.3af/at/bt @PoE++ (FR-7N3008P/FR-7N3208P) Port 1 to 24 IEEE802.3af/at/bt @PoE++ (FR-7N3224BT)
Power Supply Pin	Default: 1/2(+), 3/6(-)	Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-)
Max Power Per Port	30W	90W
Total PWR /Input Voltage	240W(FR-7N3008P/FR-7N3208P/FR-7N3808P) 360W(FR-7N3016P/FR-7N3216P) 480W(FR-7N3224P)	480W((FR-7N3008BT/FR-7N3208BT/FR-7N3808BT) 720W (FR-7N3016/FR-7N3216P/FR-7N3224BT)
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC(IEEE802.3bt model)	

3 Ethernet Switch Series

Web Smart Layer 2 Industrial (PoE) Ethernet Switch				
Model	**FR-6S3204**	**FR-6S3208**	**FR-7S3204/P/BT**	**FR-7S3208L**
				
Ports	4×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	8×10/100/1000BASE-TX RJ45, 2×1000BASE-X SFP	4×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	8×10/100/1000BASE-TX RJ45, 2×1000BASE-X SFP
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection			
Switching Capacity	20Gbps			
Ethernet Standard	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			
MAC Address	4K			
Packet Buffer	2Mbits			
Jumbo Frame	9K			
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm			
Cable Type(Copper)	Cat5/5e/6			
LED Indicators	PWR/LINK/ACT			
DIP Switch	\		RSTP/VLAN/FX Speed	
Input Power	DC 9-56V			
Connector	5 PIN Phoenix Contact		6 PIN Phoenix Contact	
Power Reverse	Support			
Power Consumption	Full Load < 3W(Without PoE)	Full Load < 10W(Without PoE)	Full Load < 3W(Without PoE)	Full Load < 10W(Without PoE)
Enclosure	IP 40 Aluminum case			
Fan Number	Fanless			
Dimensions	120mm x 90mm x 35mm	100 x 78 x 40 mm	120mm x 90mm x 35mm	138 x 108 x49 mm
Weight	350g	680g	350g	680g
Operating Temperature	-20℃~70℃ (-5 to 158 ℉)		-40 to 75℃ (-40 to 167℉)	
Storage Temperature	-40℃~85℃ (-40 to 185 ℉)		-40℃ to 85℃ (-40 to 185 ℉)	
Installation	DIN Rail or Wall Mounting			
Management Features				
Redundancy Protocol	Support STP/RSTP			
Multicast Support	Support IGMP Snooping V1			
VLAN	Support IEEE 802.1Q 4K VLAN, Port Isolation, Trunk Group Setting			
QOS	Support Port, 1Q, ACL, DSCP, CVLAN, SVLAN, DA, SA, Port Priority, Queue Weight			
Diagnostic Maintenance	Support port mirroring, Port Statistics, Cable Diagnostic			
Management Function	WEB、SNMPv1, EEE, Green Ethernet			
Security	Broadcast/Multicast Storm Protection, MAC filtering, MAC Constraint			
Advance Functions	Bandwidth Control(Ingress and Egress Rate), Jumbo Frame, Firmware Online Upgrade, Configuration Backup, PoE Management			
PoE & Power Supply				
Model	**FR-7S3204P**		**FR-7S3204BT**	
PoE Ports	Port 1 to 4 IEEE802.3af/at @PoE++		Port 1 to 4 IEEE802.3af/at/bt @PoE++	
Power Supply Pin	Default: 1/2(+), 3/6(-)		Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-)	
Max Power Per Port	30W		90W	
Total PWR /Input Voltage	120W(DC48-56V)		200W(DC52-56V)	
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC(IEEE802.3bt model)			

Semi-Industrial Grade Industrial Grade

3 Ethernet Switch Series

Managed Layer 2+ Industrial (PoE) Ethernet Switch						
Model	**FR-7M3208L**	**FR-7M3408/P/BT**	**FR-7M3808/P/BT**	**FR-7M3016/P/BT**	**FR-7M3416/P/BT**	**FR-7M3816/P/BT**
						
Ports	8×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	8×10/100/1000BASE-TX RJ45 4×1000BASE-X SFP	8×10/100/1000BASE-TX RJ45 8×1000BASE-X SFP	16×10/100/1000BASE-TX RJ45	16×10/100/1000BASE-TX RJ45 4×1000BASE-X SFP	16×10/100/1000BASE-TX RJ45 8×1000BASE-X SFP
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection					
Switching Capacity	20Gbps		52G			
Ethernet Standard	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					
MAC Address	4K		8K			
Packet Buffer	2Mbits					
Jumbo Frame	9K					
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm					
Cable Type(Copper)	Cat5/5e/6					
LED Indicators	PWR/RUN/LINK/ACT					
DIP Switch	RSTP/VLAN/FX Speed					
Input Power	DC 9-56V					
Connector	6 PIN Phoenix Contact		5 PIN Phoenix Contact			
Power Reverse	Support					
Power Consumption	Full Load < 10W(Without PoE)		Full Load < 20W (Without PoE)		Full Load < 25W (Without PoE)	
Enclosure	IP 40 Aluminum case					
Fan Number	Fanless					
Dimensions	138 x 108 x49 mm		160mmx132mmx70mm			
Weight	680g		1200g			
Operating Temperature	-40 to 75℃ (-40 to 167℉)					
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)					
Installation	DIN Rail or Wall Mounting					
Management Features						
Layer 2+ Web Management	Support, Please Refer to Page 10					
CLI Management	Support					
NMS	Support, Please Refer to Page 12					
Cloud Management	Support, Please Refer to Page 13					
PoE & Power Supply						
Model	**FR-7M3408P/FR-7M3808P/FR-7M3016P/FR-7M3416P/FR-7M3816P**		**FR-7M3408BT/FR-7M3808BT/FR-7M3016BT/FR-7M3416BT/FR-7M3816BT**			
PoE Ports	Port 1 to 8 IEEE802.3af/at @PoE+(FR-7M3408P/FR-7M3808P) Port 1 to 16 IEEE802.3af/at @PoE+(FR-7M3016P/FR-7M3416P/FR-7M3816P)		Port 1 to 8 IEEE802.3af/at/bt @PoE++(FR-7M3408BT/FR-7M3808BT) Port 1 to 16 IEEE802.3af/at/bt @PoE++(FR-7M3016BT/FR-7M3416BT/FR-7M3816BT)			
Power Supply Pin	Default: 1/2(+), 3/6(-)		Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-)			
Max Power Per Port	30W		90W			
Total PWR /Input Voltage	240W(FR-7M3408P/FR-7M3808P) 360W(FR-7M3016P/FR-7M3416P/FR-7M3816P)		480W(FR-7M3408P/FR-7M3808P) 720W (FR-7M3016P/FR-7M3416P/FR-7M3816P)			
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC(IEEE802.3bt model)					

3 Ethernet Switch Series

Managed Layer 2+ Industrial (PoE) Ethernet Switch			
Model	**FR-7M3208S/SP/SBT**	**FR-7M3208F/FP/FBT**	**FR-7S3204/P/BT**
			
Ports	8×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	8×10/100/1000BASE-TX RJ45	8×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP
Integrated Port	2x RS485/422/232(5-pin Serial Contact)	2x1000Base-X Optical Fiber Bypass(SC/FC/ST)	2x1000Base-X Optical Fiber Bypass(SC/FC/ST)
Integrated Port Specifications	RS-232: a:TXD、b:RXD、c:Na、d:Na、e:GND RS-422: a:T+、b:T-、c:R+、d:R-、e:GND RS-485: ： a: Na、b: Na、c:D+、d:D-、e:GND Baud Rate: 2400 – 115200bps	Bypass Insertion Loss: Typical: 1.0dB; Max: 1.5dB Bypass Switching Time: < 8ms	
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection		
Switching Capacity	20Gbps		
Ethernet Standard	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		
MAC Address	4K		
Packet Buffer	2Mbits		
Jumbo Frame	9K		
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm		
Cable Type(Copper)	Cat5/5e/6		
LED Indicators	PWR/LINK/ACT		
DIP Switch	RSTP/VLAN/FX Speed		
Input Power	DC 9-56V		
Connector	6 PIN Phoenix Contact		
Power Reverse	Support		
Power Consumption	Full Load < 12W(Without PoE)		
Enclosure	IP 40 Aluminum case		
Fan Number	Fanless		
Dimensions	138 x 108 x49 mm		
Weight	680g		
Operating Temperature	-40 to 75℃ (-40 to 167℉)		
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)		
Installation	DIN Rail or Wall Mounting		
Management Features			
Layer 2+ Web Management	Support, Please Refer to Page 10		
CLI Management	Support		
NMS	Support, Please Refer to Page 12		
Cloud Management	Support, Please Refer to Page 13		
PoE & Power Supply			
Model	**FR-7M3208SP/FR-7M3408FP/FR-7M3208FP**	**FR-7M3208SBT/FR-7M3408FBT/FR-7M3208FBT**	
PoE Ports	Port 1 to 4 IEEE802.3af/at @PoE++	Port 1 to 4 IEEE802.3af/at/bt @PoE++	
Power Supply Pin	Default: 1/2(+), 3/6(-)	Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-)	
Max Power Per Port	30W	90W	
Total PWR /Input Voltage	240W(DC48-56V)	480W(DC52-56V)	
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC(IEEE802.3bt model)		

3 Ethernet Switch Series

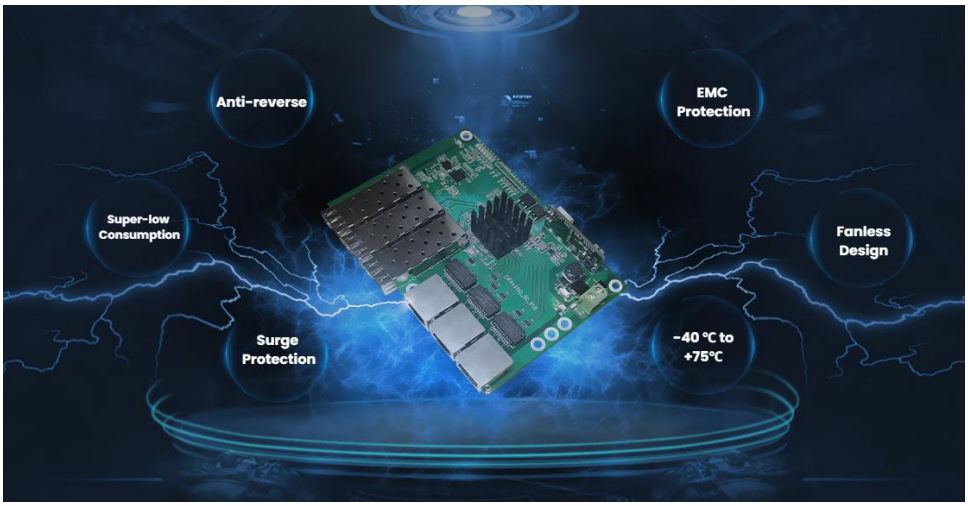
Managed Layer 2+ Industrial (PoE) Ethernet Switch					
Model	**FR-7M3424/P/BT**	**FR-7M348F/P/BT**	**FR-9M3424/P/BT**	**FR-7M348F/P/BT**	**FR-7M34F8/P/BT**
					
Ports	24×10/100/1000BASE-TX RJ45 4×100/1000BASE-X SFP	16×10/100/1000BASE-TX RJ45 12×100/1000BASE-X SFP	24×10/100/1000BASE-TX RJ45 4×Gigabit Combo Port (SFP and RJ45)	6×10/100/1000BASE-TX RJ45 8×100/1000BASE-X SFP 4×Gigabit Combo Port (SFP and RJ45)	8×10/100/1000BASE-TX RJ45 16×100/1000BASE-X SFP 4×Gigabit Combo Port (SFP and RJ45)
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection				
Switching Capacity	52Gbps				
Ethernet Standard	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				
MAC Address	8K				
Packet Buffer	4Mbits				
Jumbo Frame	10K				
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm				
Cable Type(Copper)	Cat5/5e/6				
LED Indicators	PWR/RUN/LINK/ACT/FAIL(PoE)/MAX(PoE)/R.O./RING/RJ45 Port Speed/ALM				
DIP Switch	RSTP/VLAN/FX Speed		\		
Input Power	DC 9-56V				
Connector	6 PIN Phoenix Contact		5 PIN Phoenix Contact		
Power Reverse	Support				
Power Consumption	Full Load < 25W(Without PoE)			Full Load < 30W(Without PoE)	
Enclosure	IP 40 Aluminum case				
Fan Number	Fanless				
Dimensions	155mmx128mmx88mm		400mmx300mmx45mm		
Weight	1.35kg		2.6kg		
Operating Temperature	-40 to 75℃ (-40 to 167℉)				
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)				
Installation	DIN Rail or Wall Mounting		Rack Mounting		
Management Features					
Layer 2+ Web Management	Support, Please Refer to Page 10				
CLI Management	Support				
NMS	Support, Please Refer to Page 12				
Cloud Management	Support, Please Refer to Page 13				

PoE & Power Supply						
Model	**FR-7M3424P/FR-9M3424P**	**FR-7M348FP/FR-9M348FP**	**FR-9M34F8P**	**FR-7M3424BT/FR-9M3424BT**	**FR-7M348FBT/FR-9M348FBT**	**FR-9M34F8BT**
PoE Ports	Port 1 to 24 IEEE802.3af/at @PoE+	Port 9 to 24 IEEE802.3af/at @PoE+	Port 17 to 24 IEEE802.3af/at @PoE+	Port 1 to 24 IEEE802.3af/at/bt @PoE++	Port 9 to 24 IEEE802.3af/at/bt @PoE++	Port 17 to 24 IEEE802.3af/at /bt @PoE++
Power Supply Pin	Default: 1/2(+), 3/6(-)			Default: 1/2(+), 3/6(-) ,4/5(+), 7/8(-)		
Max Power Per Port	30W			90W		
Total PWR /Input Voltage	480W(DC48-56V)			720W(DC48-56V)		
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC 90W PoE Mode: 52-56VDC(IEEE802.3bt model)					

3 Ethernet Switch Series

Managed Layer 3 Industrial (PoE) Ethernet Switch				
Model	**FR-7T4408/P**	**FR-9T4424/P**	**FR-9T44F8**	**FR-9T448F**
				
Ports	8×10/100/1000BASE-TX RJ45 2×1.25G/10G SFP/SFP+ 2×1.25G/2.5G/10G SFP/SFP+	24×1000MBASE-T RJ45 4x10Gb SFP+	24×1000MBASE-X SFP, with 8×10/100/1000BASE-TX RJ45 Combo 4x10Gb SFP+ Uplink	24×10/100/1000BASE-TX RJ45, with 8×100/1000BASE-X SFP Combo 4x10Gb SFP+ Uplink
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection			
Switching Capacity	128Gbps			
Ethernet Standard	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 802.3bz for 2.5G Ethernet IEEE 802.3ae for 10 Gigabit Ethernet IEEE 802.3x for flow control			
MAC Address	16K			
Packet Buffer	12Mbits			
Jumbo Frame	10K			
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm			
Cable Type(Copper)	Cat5/5e/6			
LED Indicators	PWR/RUN/LINK/ACT/RJ45 Port Speed /ALM	PWR/RUN/LINK/ACT/FAIL(PoE)/MAX(PoE)/R.O./RING/RJ45 Port Speed/ALM		
Input Power	DC 9-56V			
Connector	6 PIN Phoenix Contact	5 PIN Phoenix Contact		
Power Reverse	Support			
Power Consumption	Full Load < 24W(Without PoE)	Full Load < 30W(Without PoE)		
Enclosure	IP 40 Aluminum case			
Fan Number	Fanless			
Dimensions	138mmx108mmx49mm	400mmx300mmx45mm		
Weight	680g	2.8kg		
Operating Temperature	-40 to 75℃ (-40 to 167℉)			
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)			
Installation	DIN Rail or Wall Mounting	Rack Mounting		
Management Features				
Layer 3 Web Management	Support, Please Refer to Page 11			
CLI Management	Support			
NMS	Support, Please Refer to Page 12			
PoE & Power Supply				
Model	**FR-7T4408P**	**FR-7T4424P**		
PoE Ports	Port 1 to 8 IEEE802.3af/at @PoE+	Port 1 to 24 IEEE802.3af/at @PoE+		
Power Supply Pin	Default: 1/2(+), 3/6(-)	Default: 1/2(+), 3/6(-)		
Max Power Per Port	30W	30W		
Total PWR / Input Voltage	240W(DC48-56V)	480(DC48-56V)		
Operating Voltage	Non-PoE Mode: 9-56VDC 30W PoE Mode: 48-56VDC			

3 Ethernet Switch Series



Embedded Industrial Ethernet Switches from Fiberroad are widely used in mining automation, such as video surveillance systems, coal mine power monitoring systems, mine safety monitoring systems, and coal mine personnel positioning systems. In addition to adapting to low and high temperatures environments, it has strong anti-electromagnetic interference, anti-salt spray, anti-vibration and anti-shake features to meet the harsh working conditions of industrial sites.

Embedded Industrial Ethernet Switch			
Model	**FHISE505G-2GF-3GT**	**FHISE205-2S-SC20**	**FHISE306G-3GF-3GT**
			
Ports	3×10/100/1000BASE-TX RJ45 2×100/1000BASE-X SFP	3×10/100BASE-TX RJ45 2×100/1000BASE-X SFP	3×10/100/1000BASE-TX RJ45 3×100/1000BASE-X SFP
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection		
Switching Capacity	12Gbps	1Gbps	20Gbps
Ethernet Standard	IEEE802.3、IEEE802.3u、IEEE802.3z、IEEE802.3x、IEEE802.1p、IEEE802.1Q、IEEE802.1d/w	IEEE 802.3 IEEE 802.3u	IEEE 802.3 、IEEE 802.3u IEEE 802.3ab 、IEEE 802.3z
MAC Address	4K	4K	4K
Packet Buffer	2M	512K	2M
Jumbo Frame	9K	9K	9K
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm		
Cable Type(Copper)	Cat5/5e/6		
Input Power	DC5-32V		
Connector	2 core with lock 5.08mm pitch signal wiring socket		
Power Consumption	2.376W@12V		
Dimensions	106mm×66mm×17mm		120mm×90mm×17mm
Operating Temperature	-40 to 75℃ (-40 to 167℉)		
Storage Temperature	-40℃ to 85℃ (-40 to 185 ℉)		
Installation	Positioning hole installation		
Software Features			
Redundancy Protocols	SFP/RSTP	\	\
Multicast Support	IGMP v1/v2, IGMP Snooping GMRP, Static multicast	\	\
Switching Functions	VLAN、GVRP Port Speed Limitation、Storm Control Port Aggregation and Flow Control	\	\

Manageable Unmanageable

3 Ethernet Switch Series

Commercial Grade Unmanaged PoE Network Switch				
Model	**FR-5A3208P/BT**	**FR-5A3010P/BT**	**FR-5A3216P/BT**	**FR-5A3224P/BT**
				
Ports	8×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	10×10/100/1000BASE-TX RJ45	16×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	24×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection			
Switching Capacity	20G	52Gbps		
Ethernet Standard	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			
MAC Address	4K	8K		
Packet Buffer	2M	4M		
Jumbo Frame	9K	10K		
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm			
Cable Type(Copper)	Cat5/5e/6			
LED Indicators	PWR/LINK/SPD		PWR/PoE/LINK/SPD	
DIP Switch	AI PoE/AI Extend/AI QoS/AI VLAN			
Input Power	DC 48-56V		AC 100V-240V	
PoE Port	Port 1 to 8 IEEE802.3af/at @PoE+ (FR-5A3208P/FR-5A3010P) Port 1 to 8 IEEE802.3af/at/bt @PoE++ (FR-5A3208BT/FR-5A3010BT)		Port 1 to 16/24 IEEE802.3af/at @PoE+ (FR-5A3216P/FR-5A3224P) Port 1 to 16/24 IEEE802.3af/at/bt @PoE++ (FR-5A3216BT/FR-5A3224BT)	
Max Power Per Port	30W @PoE+ Model 90W @PoE++ Model			
Power Supply Pin	Default: 1/2(+), 3/6(-) @PoE+ Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-) @PoE++			
Enclosure	IP 30 Metal case			
Fan Number	Fanless			
Dimensions	220mmx108mmx28 mm		400mmx300mmx45mm	
Weight	500g		3800g	
Operating Temperature	0℃~50℃ (32to 122 ℉)			
Storage Temperature	-20℃~70℃ (-4 to 158 ℉)			
Installation	Desktop or Rack Mounting			

3 Ethernet Switch Series

Commercial Grade Managed PoE Network Switch				
Model	**FR-5M3208P/BT**	**FR-5M3224P/BT**	**FR-5M3424P/BT**	**FR-5T4424P**
				
Ports	8×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	24×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP	24×10/100/1000BASE-TX RJ45 4×Gigabit Combo Port (SFP and RJ45)	24×10/100/1000BASE-TX RJ45 4x10Gb SFP+ Uplink
Port Mode	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection			
Switching Capacity	20G	52Gbps		
Ethernet Standard	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			
MAC Address	4K	8K		16K
Packet Buffer	2M	4M		12M
Jumbo Frame	9K	10K		10K
Cable Type(Fiber)	Multimode 50/125μm, 62.5/125μm Single-mode 9/125μm			
Cable Type(Copper)	Cat5/5e/6			
LED Indicators	PWR/RUN/LINK/ACT/FAIL(PoE)/MAX(PoE)/R.O./RING/RJ45 Port Speed/ALM			
Input Power	AC 100V- 240V			
PoE Port	Port 1 to 8 IEEE802.3af/at @PoE+ (FR-5M3208P) Port 1 to 24 IEEE802.3af/at @PoE++ (FR-5M3224P/FR-5M3424P/FR-5T4424P)		Port 1 to 8 IEEE802.3af/at @PoE+ (FR-5M3208BT) Port 1 to 24 IEEE802.3af/at/bt @PoE++ (FR-5M3224BT/FR-5M3424BT)	
Max Power Per Port	30W @PoE+ Model 90W @PoE++ Model			
Power Supply Pin	Default: 1/2(+), 3/6(-) @PoE+ Default: 1/2(+), 3/6(-) or 4/5(+), 7/8(-) @PoE++			
Enclosure	IP 30 Metal case			
Fan Number	Fanless			
Dimensions	208mm*140mm*45mm	400mmx300mmx45mm		
Weight	1200g	4000g		
Operating Temperature	0℃~50℃ (32to 122 ℉)			
Storage Temperature	-20℃~70℃ (-4 to 158 ℉)			
Installation	Rack Mounting			
Management Features				
Layer 2+ Web Management	Support, Please Refer to Page 10			\
Layer 3 Web Management	\			Support, Please Refer to Page 11
CLI Management	Support			Support
NMS	Support, Please Refer to Page 12			Support, Please Refer to Page 12
Cloud Management	Support, Please Refer to Page 13			\

Layer 2+ Management Layer 3 Management

4 Smart IoT Surveillance Box

Fiberroad Technology's Smart IoT Surveillance Controller Box is an exciting new product that allows you to control your surveillance cameras using your smartphone or other internet-connected device. This product is perfect for those who want to keep an eye on their property while away from home, or for business owners who want to monitor their premises remotely. The Smart IoT Surveillance Controller Box is easy to set up and use, and it provides a high level of security for your camera system.

Wiring

There are few cable interfaces in the equipment box, and the wiring is standardized. Clean and tidy interior and reduce failure nodes.

High-integration

There are few cable interfaces in the equipment box, and the wiring is standardized. Clean and tidy interior and reduce failure nodes.

Modularization

The power module and the information collection fault diagnosis network transmission module are configured according to the industrial standard.

Automation

An automatic temperature control system provides a different working environment for the regular operation of equipment.

Connectionless

The connection between modules is through the motherboard circuit, which reduces the number of failures caused by the ageing.

Scalable

Modular design, establishing a front-end device access platform, for the later system upgrade to reduce investment.

Intelligent operations management platform equipped to manage intelligent video monitoring equipment boxes, cameras and related equipment, video monitoring system and the system used in a variety of equipment running status and alarm information and fault information system - pipe buried, operation monitoring, alarm management, data query, order processing, statistical analysis software platform, rights

Web Front-end

Web Back-end

APP

4 Smart IoT Surveillance Box

Model	E Series	F Series	K Series	H Series
				
Ethernet Switch Module	**4×10/100BASE-TX RJ45 1×100BASE-X FC**	**8×10/100/1000BASE-TX RJ45 2×1000BASE-X SFP**	**16×10/100/1000BASE-TX RJ45 8×1000BASE-X SFP**	**4×10/100BASE-TX RJ45 1×100BASE-X FC**
Smart Box Specification				
Power Supply	**Standard**	1x AC220V (Both 2-Prong and 3-Prong Sockets)		
	Standard	4 x AC220V Load Output		
	Optional	2 x AC24V Load Output		
	Standard	2 x DC12V Load Output		
	Optional	Supports a maximum of 10 load outputs		
Remote Control	**Standard**	Supports four remote control channels for AC 220V load output and independent control for each group		
	Optional	Supports two remote control AC 24V load outputs and independent control for each group		
	Standard	Supports two 12V DC load outputs and independent control for each group		
	Optional	Supports up to 10 load outputs and independent control for each group		
Electric Quantity Gauge	**Standard**	The power consumption can be measured by power supply output, and the power consumption can be measured by monthly, quarterly, annual, and total.		
Automatic temperature control	**Standard**	Supports the function of setting temperature thresholds and controlling fan startup and stop. Supports the function of detecting fan running status		
Intelligent controller	**Standard**	4x AC220V , 2xDC12V		
	Standard	Each group of load output has overcurrent, short circuit protection		
	Standard	Each load output has integrated lightning protection:1.2/50μs 6KV(2Ω)		
	Standard	Each group of load output poles adopts output terminals with center spacing not less than 9.5MM		
	Standard	Each group of load output has current and voltage detection function		
Power Supply Modular	**Standard**	DC 12V-60W		
	Optional	DC 12V-200W		
	Optional	DC48-56V 480W (For PoE Switch)		
Automatic reclosing	**Standard**	Rated voltage :AC 220V/50HZ, rated current :16A, operation time :≤0.05S		
	Standard	Support remote management function, with undervoltage, overvoltage, leakage and short circuit protection		
	Optional	Rated voltage :AC 220V/50HZ, rated current :63A, operation time :≤0.05S		
Air Switch	**Standard**	2P 63A		
Power Surge Arrester	**Standard**	Rated flow capacity In (8/20μs):20kA, maximum flow capacity Imax(8/20μs):40kA		
Network lightning protection	**Standard**	Built-in network port integration, ITU-TK21:10/700μs 6KV(40Ω)		
Expansion Port	**Standard**	2 x RS485/422/232		
	Standard	1x analog input/output interface		
	Standard	1 x switch input/output interface		
Others	Optional	Support Bluetooth authorization open door and one button to remove the alarm function		
	Optional	Supports the flood monitoring function		
	Optional	Supports the smoke monitoring function		
	Optional	Supports the lightning monitoring function		
	Optional	Support vibration monitoring function		
	Optional	Support the sound and light alarm function in the box		
	Optional	Support box waterproof three-color working status indicator		
	Optional	Support PoE		
	Optional	Support GPS Modular		
	Optional	Support NB Modular		

4 Smart IoT Surveillance Box

APP	Optional	Support mobile phone APP, which can report point position information, view status information, receive fault work order, fault report, fault location and navigation, and view statistical data.
Optical fiber fusion box	**Standard**	Supports built-in optical fiber fusion box
Material	**Standard**	Oxide sheet/galvanized sheet
	Optional	201 or 304 stainless steel plate
Material thickness (mm)	**Standard**	1.2mm
Box spray color	**Standard**	RAL 9016
	Optional	Optional other colors or stainless steel
Dimensions	**Standard**	(Including brim) : 580mm×440mm×261mm (height x width x depth)
	Optional	It can be designed according to actual requirements
Input power cable	/	BVR2.5~BVR4mm² (copper core) is recommended.
Installation Mode	**Standard**	Hanging rod/wall mounting, not including hoop fittings
IP Rating	**Standard**	IP55
	Optional	IP65
Operating Environment	/	Operating temperature -20~75℃, humidity 10% ~ 90%
Operating Voltage		AC100V-AC240V

5 Accessories

- High efficiency up to 94%
- Universal AC input / Full range(FR-75/120/240/480DR)； AC input 180 – 264 VAC only (FR-960DR）
- Protections: Short circuit / overload / over voltage / over temperature.
- Cooling by free air convection
- Installed on DIN rail
- 3 years warranty

AC/DC DIN Rail Type Series Adapter						
Model		FR-75DR	FR-120DR	FR-240DR	FR-480DR	FR-960DR
AC Input Voltage Range		88-264VAC; 124-370VDC			90-264VAC; 127-370VDC	180-260VAC;254-370VDC
AC inrush current(MAX.)		Cold Start,50A at 230VAC	Cold Start,70A at 230VAC	Cold Start,55A at 230VAC	Cold Start,80A at 230VAC	Cold Start,50A at 230VAC
DC adjustment Range		12V: 12-14V（Only for FR-75DR/120), 24V: 24-28V, 48V:48-55V				
Overload Protection		Normally works within 110%-150% rated output power for 3 seconds and then shut down output voltage with auto-recovery(re-power on to recover for FR-75DR)				Normally works within 105% - 130% rated output power for 3 seconds and then shutdown o/p voltage with auto-recovery after 30 seconds if the peak load condition is removed.
		＞150% rated power or short circuit, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 second.				Constant current limiting within 130%-150% rated output power for more than 3 seconds and then shut down o/p voltage, re-power on to recover.
Over voltage Protection	Range	14 -17V for 12V model(FR-75DR/120DR),29-33V for 24V model, 56-65V for 48V model				
	Type	Shut down o/p voltage, repower on to recover		Shut down o/p voltage with auto-recovery, or re-power on to recover		
Over Temperature Protection		Re-power on to recover	Recover automatically after temperature goes down.			
Withstand Voltage		I/P – O/P:3kVAC, I/P-FG:1.5kVAC, O/P-FG:0.5kVAC, O/P-DC OK:0.5kVAC(except for FR-I-75)				
Working Temperature		-30 to +70℃	-25 to +70℃(refer to output derating curve)			-30 to +70 ℃
Connection (screw DIN terminal)		I/P: 3 poles, O/P: 4 poles		I/P: 3 poles, O/P: 6 poles	I/P: 3 poles, O/P: 8 poles	I/P: 3 poles, O/P: 6 poles
Dimension (WxHxD) (mm)		32x125.2x102	40x125.2x113.5	63x125.2x113.5	85.5x125.2x128.5	110x125.2x150

- Universal AC in put / Full range
- No load power consumption ＜0.075 – 0.15W by model
- -30 to + 70℃ wide range working temperature
- Protections: Short circuit / overload / over voltage / over temperature.(except for FR-40DT)
- Fully enclosed plastic case
- LED indicator for power on
- 3 years warranty

AC/DC Desktop Type Series Adapter					
Model		FR-40DT	FR-60DT	FR-90DT	FR-120DT
AC Input Voltage Range		90 – 264VAC; 127 – 370VDC			85 – 264VAC; 120 – 370VDC
AC inrush current(MAX.)		Cold Start,65A at 230VAC		Cold Start,70A at 230VAC	
DC adjustment Range		5V-48V	5V-48V	12V-48V	12V-48V
Overload Protection	Range	105% -150% rated output voltage		110% - 150%	105% - 160%
	Type	Hiccup mode, auto-recovery			
Withstand Voltage		I/P – O/P:3kVAC, I/P-FG:2kVAC, O/P-FG:0.5kVAC			I/P – FG:3kVAC
Working Temperature		-30 to +70℃			

5 Accessories

Optical Transceiver

- Wide distance supported from 2km to 120km
- Digital diagnostic optional
- Metal enclosure for lower EMI, single +3.3V power
- supply
- Comply with SFP MSA, IEEE 802.3
- Support working temperature either 0 – 70 ℃ or -40℃ to +85℃

SFP Optical Transceiver					
Part No.	**Description**	**Wavelength**	**Distance**	**Rate**	**Working Temperature**
FRSX-DL1P2C/-I	SFP SX	850nm	2km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-DL311C/-I	SFP LX	1310nm	10km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-DL341C/-I	SFP EX	1310nm	40km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-DL541C/-I	SFP EX	1550nm	40km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-DL5X1C/-I	SFP EX/ZX	1550nm	80/120/160km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-DL35X3C/-I	BIDI SFP	1310nm	20/40km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-DL45X3C/-I	BIDI SFP	1490nm	80/120/160km	155Mb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L311C/-I	SFP LX	1310nm	10km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L341L/-I	SFP EX	1310nm	40km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L5X1C/-I	SFP EX/ZX	1550nm	40/80/100/100km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L5X1C/-I	SFP ZX	1550nm	120km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L3513/5313C/-I	BIDI SFP	1310nm/1550nm	10km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L3523/5323C/-I	BIDI SFP	1330nm/1550nm	20km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-1L45/54XX3C/-I	BIDI SFP	1490nm/1550nm	40/80/100/120km	1.25Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-2L1P2C/-I	SFP SX	850nm	550m	2.5Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-2L311C/-I	SFP LX	1310nm	10km	2.5Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-2L341C/-I	SFP EX	1310nm	40km	2.5Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-2L581C/-I	SFP EX	1550nm	80km	2.5Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-2L3XX3C/-I	BIDI SFP	1310nm/1550nm	20/40km	2.5Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-2L4583C/-I	BIDI SFP	1490nm/1550nm	20/40km	2.5Gb/s	0 – 70 ℃ or -40℃ to +85℃
SFP + Optical Transceiver					
FRSX-AL1N2C	SFP+ SR	850nm	300m	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL3Q1C	SFP+ IR	1310nm	2km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL311C	SFP+ LR	1310nm	10km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL341C	SFP+ ER	1310nm	40km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL541C	SFP+ ER	1550nm	40km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL581C	SFP+ ZR	1550nm	80km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL8613C	SFP+ BIDI	1330nm	10km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL8643C	SFP+ BIDI	1330nm	40km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL8663C	SFP+ BIDI	1330nm	60km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃
FRSX-AL5483C	SFP+ BIDI	1550nm	80km	10Gb/s	0 – 70 ℃ or -40℃ to +85℃

5 Accessories

19” Rack Mounting Kit
For FR-5M3208P

Wall Mounting Bracket
For FR-2000 Mini Fiber Media Converter

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