

FIBERROAD

Web Smart Industrial Ethernet Switch

Product Data Sheet



Web Smart Industrial Ethernet Switch

The Web Smart Industrial Ethernet Switch is an IEEE 802.3ah compliant copper to Fiber Gigabit Ethernet solution designed to make conversion between 4 Port 10/100/1000Base-T and 100/1000Base-X with SFP modules. With SNMP and Web-based management in the standalone type or play as remote unit communicate with FR6016 Platform to realize centralized management. The administrator can monitor, configure and control the activity of each unit and remotely connected OAM compliant converter. Converter settings include bandwidth control, duplex, and speed configuration, VLAN tagging, limited Q-in-Q support and SFP DDMI. When used as stand-alone converters, the FR-6104I can be managed by a friendly Web Smart user interface via any web browser.

Main Features

- 1x10/100/1000Base-T to 100/1000Base-X SFP/1x9 Converter
- Auto-Cross over for MDI/MDIX in TP port
- Auto-Negotiation or manual mode in TP port
- Industrial Grade Standard, -40 to +75°C operating temperature, IP40 Rating
- Supports flow control Enable or Disable
- Supports Jumbo Frame 9.6K Packet
- Ingress/Egress bandwidth control
- Supports in-band IEEE802.3ah management
- Firmware upgrade via Web (Centralized Management Only)
- Dying gasp(Remote power failure detection on standalone)
- Supports Link Fault Pass-Through(LFPT)Function
- Support Auto Laser Shutdown(ALS) Function(Centralized Management Only)
- Support SNMP, Web Management



The industrial converter is equipped with rugged IP40 metal enclosure to ensure industrial operation in harsh environments where extreme low or high temperatures can be experienced. It is specially designed for outdoor and industrial applications such as city surveillance systems, smart manufacturing, etc. It is ideal for miniaturization and rapid deployment, provides users a cost-effective and highly reliable option.

Product Specifications

Ethernet Interface		
Ports	4x10/100/1000Base-T RJ45 ports, 1x1000Base-X SFP/1x9	
Port Mode(Tx)	Auto Negotiation Speed 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	
Maximum Packet Length	Up to 9.6K	
Exchange Property	Delay time : < 7μs Switching Capacity : 12Gbps	
Forward Rate	8.928Mbps	
Transmission Mode	Store and Forward (full/half duplex mode)	
Transmission Distance		
SFP Port	Depends on optical module(0-160km)	
RJ45 Port Transmission Distance	100m (using standard CAT5/CAT5e cable)	
Software Features		
Multicast Support	Support IGMP Snooping V1	
VLAN	Support IEEE 802.1Q 4K VLAN, Port Isolation, Trunk Group Setting	
QOS	Support DSCP, Port Priority, Queue Weight	
Diagnostic Maintenance	Support port mirroring, Port Statistics, Cable Diagnostic	
Management Function	WEB · SNMPv1	
Security	Broadcast/Multicast Storm Protection, MAC filtering, MAC Constraint	
PoE Management(PoE+ Model)	PoE Mode, State and Power Monitoring	
Advance Functions	Bandwidth Control(Ingress and Egress Rate), Jumbo Frame, Firmware Online Upgrade, Configuration Backup	
PoE & Power Supply		
Model	FR-6104IP	FR-6104IBT
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(-) ,4/5(+), 7/8(-)
Max Power Per Port	30W	90W
Total PWR /Input Voltage	120W(DC48-56V) (Model dependent)	200W(DC52-56V) (Model dependent)
Power Consumption	3 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(IEEE802.3bt model)	
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	

Product Specifications

Physical Characteristics

Housing	Aluminum case
IP Rating	IP40
Dimensions	120mm x 90mm x 35mm (L x W x H)
Installation	DIN Rail/Wall Mount
Weight	350g

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	500,000 hours
Heat Dissipation	34 BTU/h (non-PoE mode)
Cooling	Passive Cooling, Fanless Design
Noise Level	0 dBA

LED	State	Description
PWR (P1&P2)	ON	Power is being supplied
	OFF	Power is not being Supplied.
RUN	Blinking	The system is running well
Link/ACT (1-5)	ON	Port connection is active
	Blinking	Data transmitted
	OFF	Port connection is not active.
ALM	ON	Has alarm information
	OFF	No alarm information

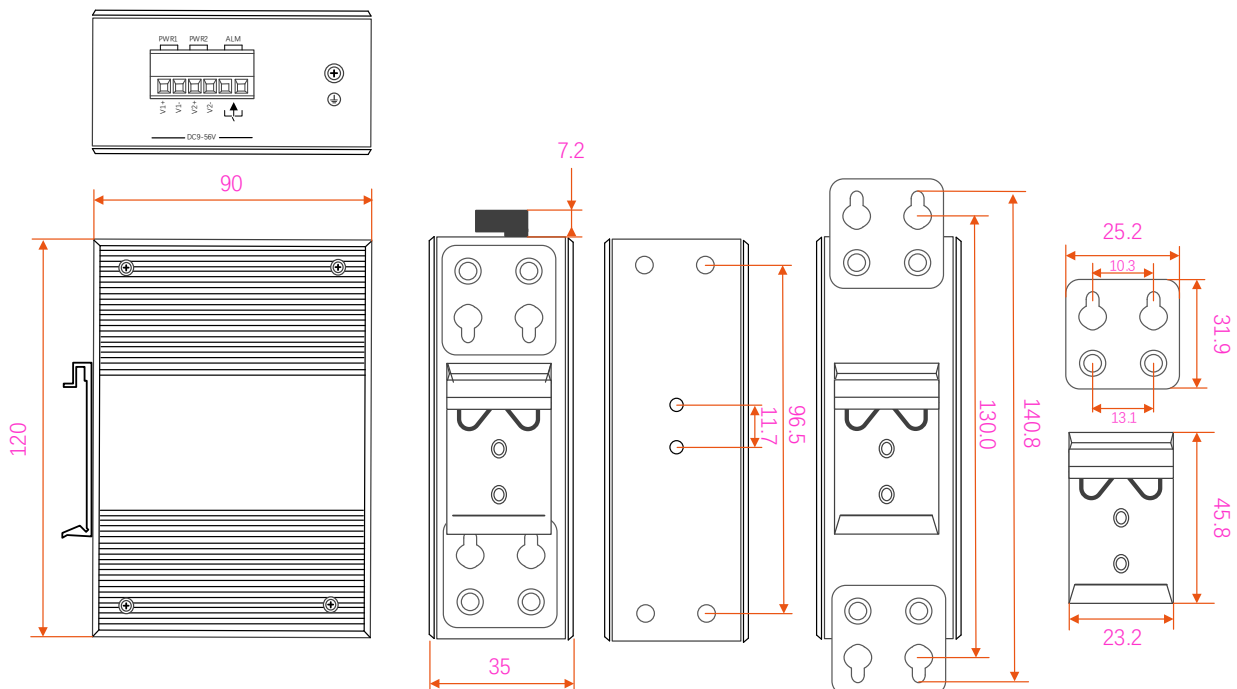
DIP Switch	State	Description
#1	ON	LFPT Enable
	OFF	LFPT Disable
#2	ON	Set as standalone Unit
	OFF	Set as Remote Unit
#3/#4	OFF/OFF	10/100/1000Mb Full Duplex Auto Negotiation
	OFF/ON	1000Mb Full Duplex
	ON/OFF	100Mb Full Duplex
	ON/ON	10Mb Full Duplex

Package Contents	
Device	1x Industrial Ethernet Switch
Installation Kit	1 x Caps, plastic, for SFP Slots 2x Wall-Mount Kits 1x DIN Rail Buckle
Documentation	1 x Quick installation guide 1 x Warranty card 1x Product notice

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

Dimensions Unit: mm



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

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	10/100Base-TX RJ45	10/100/1000Base-T, RJ45	1000Base-X Port	Optical Port Connector Option	PoE Standard	Input Voltage	Operating Temp.
FR-61011	1	—	1	LC/SC/ST/FC	—	DC9-56V	-40 to +75°C
FR-61011P	1	—	1	LC/SC/ST/FC	IEEE802.3af/at	DC9-56V	-40 to +75°C
FR-61011BT	1	—	1	LC/SC/ST/FC	IEEE802.3af/at/bt	DC9-56V	-40 to +75°C
FR-61031	—	1	1	LC/SC/ST/FC	—	DC9-56V	-40 to +75°C
FR-61031P	—	1	1	LC/SC/ST/FC	IEEE802.3af/at	DC9-56V	-40 to +75°C
FR-61031BT	—	1	1	LC/SC/ST/FC	IEEE802.3af/at/bt	DC9-56V	-40 to +75°C
FR-61041	—	4	1	LC/SC/ST/FC	—	DC9-56V	-40 to +75°C
FR-61041P	—	4	1	LC/SC/ST/FC	IEEE802.3af/at	DC9-56V	-40 to +75°C
FR-61041BT	—	4	1	LC/SC/ST/FC	IEEE802.3af/at/bt	DC9-56V	-40 to +75°C

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For more information

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