



# Unmanaged Fiber Media Converter

Product Data Sheet



# FR-2000 Series Fiber Media Converter

The FR-2000 Series Mini Fiber to Ethernet Media Converter provides flexible options for 100Mbps, Gigabit and 10 Gigabit Ethernet communication across fiber via the SFP or SFP+ port with intelligent configuration features such as link fault pass-through, auto laser shutdown, port speed setting, etc.

## Main Features

- Ideal for confined spaces, and provides highly cost-effective solutions
- Auto-Negotiation – automatically determines the best connection speed
- Wall mountable using the integrated mounting holes
- Rack mountable using the optional 19 inch 1U rack
- Fast or Gigabit ethernet, SFP or 1X9 transceiver supports single-mode and multimode, single or dual fibre options up to 120km
- 1/2.5G/10Gb LAN to 10G SFP+ port supports Single-mode and multimode, single or dual fibre options
- Supports up to 10K Bytes Jumbo Frame
- External 220V to a 5-12V power adapter
- Build-in DIP switch supported including link fault pass-through, auto laser shutdown, port speed setting, etc.



## Advantages of Mini Media Converter

### LAN Extension

Extend the reach of the LAN beyond the 100-meter limitation of the CATx copper cable by converting the links to fiber. Fiber links allow connections over distances of up to 80km.

### Maintain investments of existing equipment

Migrate a local network to fiber and at the same time protect your investment from existing copper hardware while maintaining the existing infrastructure.

### Protect interference data

Electromagnetic interference (EMI) can cause corruption in data sent over copper Ethernet links. However, the data transmitted through the fiber optic cable is completely immune to this type of noise, guaranteeing optimal data transmission.

### Speed conversion

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### Speed conversion

Convert link speeds from 10Mbps to 10Gigabit.

### Reliable data transmission

Considering the fact that a media converter is essentially two transceivers that transmit data from one to another, they provide more secure access and a lower probability of connection loss.

# Product Specifications

Physical Port					
Model	FR-2201	FR-2203	FR-2206	FR-2222	FR-2212
Copper Port	1x 10/100Base-TX	1x 10/100/1000 Base-TX	2x 10/100/1000 Base-TX	1x10/100/1000M /2.5G/5G/10G	—
Optical Slot	1x 100Base-X (SFP or 1x9 Transceiver SC,ST,FC connector )	1x 1000Base-X (SFP or 1x9 Transceiver SC,ST,FC connector )	1x 1000Base-X SFP	1x 1.25G/2.5G/5G /10G SFP/SFP+	100M/1.25G/2.5G/ 8.5G/10G 2xSFP/SFP+
Standard	IEEE802.3i IEEE802.3u IEEE 802.3x	IEEE802.3i IEEE802.3u IEEE802.3ab IEEE802.3z IEEE 802.3x		IEEE802.3i IEEE802.3u IEEE802.3ab IEEE802.3z IEEE802.3bz IEEE802.3an IEEE802.3ae	IEEE802.3an IEEE802.3ae
Jumbo Frame	12K		9K	16K	
LEDs	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

## Power Supply

Power Input	1
Operating Voltage	5-12VDC
Power Consumption	3W Max(100Mb & 1Gb Models) 5W Max(10Gb Models)

## Mechanical

Housing	Metal
Dimensions	90mm×60mm×20mm(W x D x H)
IP Rating	IP30
Weight	0.12kg/0.26lb(Bare Hardware)
Installation	Desktop, Wall Mount, Rack(*require optional rack chassis)

## DIP Switch (FR-2201 AND FR-2203)

DIP Switch	Name	Status	Description
#1	LFP	OFF	LFP Disable
		ON	LFP Enable
#2	ALS	OFF	ALS Disable
		ON	ALS Enable
#3	FX Reset	OFF	FX Reset Disable
		ON	FX Reset Enable
#4	FX Speed Set	OFF	Disable
		ON	FX 100M(FR-2203)

## DIP Switch (FR-2206)

DIP Switch	Name	Status	Description
#1	Reserved	-	-
		-	-
#2	Jumbo Frame	OFF	Normal(1500 Bytes)
		ON	Up to 9KB
#3	Port Isolation	OFF	Disable
		ON	Enable
#4	FX Speed Set	OFF	FX 1000M
		ON	FX 100M

## DIP Switch (FR-2222)

DIP Switch	Name	Status	Description
#1	LFP	OFF	Disable
		ON	Enable
#2	ALS Function	OFF	Disable
		ON	Enable
#3	Media Conversion Mode	ON	1: TP=10G,FX=10G
		OFF	2: TP=10/100/1000M, FX=1G
#4		ON	TP=10/100/1000M/10G,
		OFF	FX=10G

## DIP Switch (FR-2212)

DIP Switch	Name	Status	Description
#1	Combination Setting	#1 OFF / #2 OFF	125M-11.3G
		#1 ON / #2 OFF	10.35G-11.7G
#2		#1 OFF / #2 ON	8.5G
		—	—
#3	Combination Setting	#3 OFF / #4 OFF	Normal
		#3 ON / #4 OFF	ALS Enable
#4		#3 OFF / #4 ON	LFP Enable
		#3 ON / #4 ON	Loop Enable

### 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.

## Environmental

Temperature	Operating: 0 to 50°C (32 to 122°F) Storage: -20 to +70°C (-4 to +158°F)
Humidity	5 to 95% noncondensing
Altitude	<3000m(<10000 ft.)
MTBF	100,819 Hours
MTBF Standard	Telcordia SR-332 GB 25°C
Heat Dissipation	10 BTU/h (100M/1G Models No SFP) 17 BTU/h (10Gb Models No SFP+)
Cooling	Passive Cooling
Noise Level	0 dBA

## Packaging

Shipping Weight	0.35kg / 0.77lb
Dimensions	133x82x80mm (W x D x H) 5.16 x 3.23 x 3.15 in

## Package Contents

Device	Mini Fiber Media Converter
Power Supply	5-12VDC Power Supply(with region specific plug)
Documentation	User Manual

## Accessories(Sold Separately)

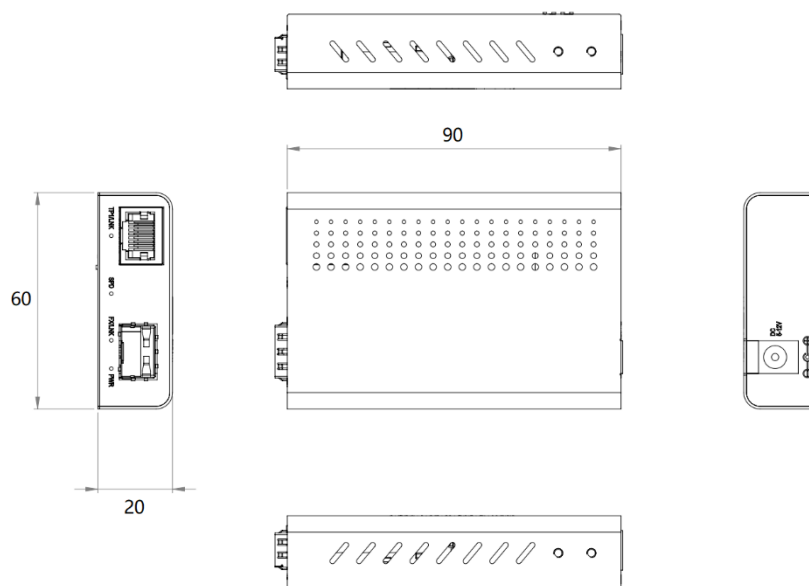
### SFP Optical Transceiver

FRSX-1L311C	1.25Gb/s 1310nm 10km SFP
FRSX-1L341C	1.25Gb/s 1310nm 40km SFP
FRSX-1L5X1C	1.25Gb/s 1550nm 80/100km SFP
FRSX-1L3523/5323C	1.25Gb/s 1310nm/1550nm 20km BiDi SFP
FRSX-AL1N2C	10Gb/s 850nm 300m SFP+
FRSX-AL311C	10Gb/s 1310nm 10km SFP+
FRSX-AL341C	10Gb/s 1310nm 40km SFP+
FRSX-AL581C	10Gb/s 1550nm 80km SFP+

### 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
FRLC-A-CAT6A	Armored Cat6a Snagless shielded(SFTP) Ethernet Network Patch Cable, 26AWG, 10GBase-T, 10.7m(35ft)

## Dimensions Unit: mm



## Introduction

Chassis-based Media Converters include independent media converters as well as chassis capable of holding up to 12 fiber media converter. The housing for each media converter can be easily removed, as well as the media converter PC board can easily be slid into the chassis.

With the chassis installed, multiple media converters are installed in an equipment rack together with the network devices for which they are used to convert media. As a result, space is saved and the cabling looks neat. This device is powered by AC power source, by default. The chassis also includes an optional redundant power supply for maximum power availability.



## Specification

### Parameters

Product Type	1RU 12 Slots Fiber Media Converter Rack Chassis
Number of Slots	12
Input Power	AC 100V~240V, 1.5~3.0A, 50/60Hz, Redundant Power Supply
Output Power	DC 12V Per Slot, 5A
Power Consumption	36W Max
Dimensions (HxWxD)	44.5x485x270mm
Weight	3.2kg
Operating Temperature	0 °C to 50 °C
Storage Temperature	-20°C to 70°C
Humidity	90% Max, Non-condensing
Cooling	Brushless DC Fan
Compliance	FCC, CE, RoHS
Warranty	3 Years

## 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/Media Converter can work normally under the correct power supply. Please confirm that the power supply voltage matches the voltage indicated by the Switch/Media Converter.
- ❖ Before powering on the Switch/Media Converter, please make sure that the power circuit is not overloaded, so as not to affect the normal operation of the Switch/Media Converter and even cause unnecessary damage.
- ❖ To avoid the risk of electric shock, do not open the case while the Switch/Media Converter is working, even if it is not charged, do not open it yourself.
- ❖ Before cleaning the Switch/Media Converter, pull out the power plug of the Switch/Media Converter. 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/Media Converter to avoid accidents.

## Order Information

Model	LAN Port	Fiber Optical Port	Fiber Port Connector Option	Input Power
FR-2201	1x 10/100Base-TX	1x 100Base-X	LC(SFP) or SC,ST,FC (1x9)	DC 5-12V
FR-2203	1x 10/100/1000Base-TX	1x 1000Base-X	LC(SFP) or SC,ST,FC (1x9)	DC 5-12V
FR-2206	2x 10/100/1000Base-TX	1x 1000Base-X	LC(SFP)	DC 5-12V
FR-2222	1x10/100/1000M/ 2.5G/5G/10G	1x 1.25G/2.5G/5G /10G SFP/SFP+	LC(SFP+)	DC 5-12V
FR-2212	—	100M/1.25G/2.5G/ 8.5G/10G	LC(SFP+)	DC 5-12V
FR-2000-AA	12 Slots Media Converter Chassis with Dual Power Supply			AC100V- 240V