

**2 Ports Industrial Mini 10/100BaseT(X) to 100BaseFX Media Converter  
1 x 10/100BaseT(X) Ports, Single or Dual Optical Ports**

*Installation / Operation Instruction*

**Fiber Optic 10 / 100Mbps Ethernet Transmission System**

Part Number: AFS6100  
Industrial Mini 10/100Mbps Ethernet Media Converter



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## 1.0 Safety Instructions

The safety information contained in this section, and on other pages of this manual, must be observed whenever this unit is operated, serviced, or repaired. Failure to comply with any precaution, warning, or instruction noted in the manual is in violation of the standards of manufacture, warranty and intended use of the unit. ALBA assumes no liability for the customer's failure to comply with any of these safety requirements.

**LASER RADIATION CAUTION:  
DISCONNECTED OPTICAL CONNECTORS MAY EMIT OPTICAL ENERGY.  
DO NOT VIEW BEAM WITH OPTICAL INSTRUMENTS (MAGNIFIERS).**

### This product contains Class 1M lasers

- Class 1M laser product according to IEC60825-1:1993+A1+A2
- **CAUTION: Use of controls or adjustments or procedures other than those specified herein may result in hazardous radiation exposure.**
- Precautions should be taken to prevent exposure to optical radiation if the internal PCB removed from its enclosure or when the fiber is disconnected from the unit.
- Laser radiation may be present on a fiber connection to this unit even when the power has been removed from the unit.
- This unit is intended for installation in locations where only trained service personnel have access to the fiber connections.
- The optical connectors are listed in the Connection Diagrams and Function section of this manual.
- Optical outputs and wavelengths are listed in the Specifications section of this manual.

The optical devices used in this equipment are Hazard Level 1M. As required by IEC60825-1, the installer is responsible for insuring that the label depicted below is present in the restricted locations where this equipment is installed.



This assembly contains parts sensitive to damage by electrostatic discharge (ESD). Use ESD precaution procedures when touching, removing or inserting parts or assemblies.



Units are not waterproof; please install in an appropriate NEMA Enclosure.

When units are installed in extremely hot environments, the metal enclosures may become hot to the touch. Please install in restricted areas where properly trained personnel have access.

## 2.0 Fiber Installation Hints

### Fiber Information

Alba Fiber Transmission Systems are manufactured with optical connector covers to keep them from accumulating dirt. In addition to safety precautions, our manual also provides the following guidelines when working with optical fibers.

Please maintain optical fiber connectors as clean as possible to reduce loss of optical transmission output. Cleanliness is extremely important to proper operations.

1. Protect optical connectors by leaving the connector covers in place on unused fiber connections and on the fiber tips themselves.
  - a. Personnel who remove and replace fiber connectors or fiber pigtailed should be equipped with a fiber cleaning kit. These are available as off-the-shelf items from a supplier of fiber optic accessories.
  - b. Propyl Alcohol and lint-free tissue or cloth may be used to clean fiber connector tips.
  - c. Do not use rubbing alcohol mixed with water. This can cause additional spots.
  - d. Clean the fiber by pulling the connector tip across the tissue, then turn the connector 90 degrees and repeat it in a different spot on the tissue.
  - e. Don't pull the fiber across and then push it back. This will put the dirt that was cleaned off back on again.
  - f. Repeat the process on a dry, folded tissue.
2. When removing fiber cables from fiber system ports, it is good practice to clean them again.
3. Installer must pay attention to the bend radius of the fibers. A general rule is to have a 3-inch (8cm) bend radius. A bend radius less than 3 inches may cause attenuation also known as optical signal loss.
4. Installers of fiber equipment should be equipped with an Optical Light Source an Optical Power Meter to measure the optical inputs and outputs in a system. These instruments are available from Alba at great savings, especially to our customers. The use of these tools will save much time and effort in getting optical communications links up and running. Properly equipped and trained installers can quickly determine the source of any problems that occur.

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### 3.0 Product Description

The ALBA FIBER SYSTEMS Series AFS6100 are mini media converters, designed to transmit and receive 10/100Mbps data over one or two optic fibers. Units feature includes half or full duplex mode, auto-Negotiation from 10Mbps to 100Mbps Ethernet rate without adjustments. The optical interface operates at a 100Mbps rate. The AFS6100 Series are environmentally hardened to operate in extreme temperatures. Features contain low power consumption, LED indicators for monitoring equipment link and performance operating status and auto resettable voltage transient fuses. The series AFS6100 are outstanding products for transmission of 10/100Mbps Ethernet signals.

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#### 4.0 Product Features

- Mini Size for Industrial Media Converter
- 10/100Mbps Ethernet
- Electrical Port Supports Auto-Negotiation for 10Mbps or 100Mbps, Full or Half Duplex Mode
- Optical Port Supports 100Mbps Full Duplex Data
- Automatic MDI/MDI-X Crossover Cables
- Transparent to Data Encoding / Compatible with Major Data Protocols; IEEE 802.3 compliant.
- Performance and Link Status Indicator LEDs
- Voltage Transient Protection on Power / Signals
- Single or Dual fiber Versions, SC
- Auto Resettable Fuses on Power Lines
- Designed with Lowest Power Consumption
- 12VDC/24VAC Input Voltage (Standalone)
- Compliance with CE, FCC
- Comprehensive Lifetime Warranty
- Environmentally Hardened to Operate in Extreme Temperatures.

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## 5.0 Product Signal Format & Specifications

The tables below identify the specifications for the various signals that these fiber units transmit / receive.

<b>CONNECTORS</b>	
Optical	SC, One Single Fiber or Dual Fibers
Power	Terminal Block
Ethernet	RJ45

<b>OPTICAL PARAMETERS</b>	
Fiber	Single-mode / Multi-mode
Wavelengths (SM)	850/1310nm
Wavelengths (MM)	1310/1550nm

<b>DATA</b>	
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port / Full Duplex Optical Port

<b>ENVIRONMENTAL</b>	
MTBF	>100,000 hours
Operating Temp.	-40°F to 167°F; -40°C to 75°C
Storage Temp.	-58°F to 212°F; -50°C to 100°C
Relative Humidity	0% to 95% (non-condensing)

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## 6.0 Dimensions of AFS6100 and Panels Layout

Figure 1 below shows the dimensions of AFS6100.

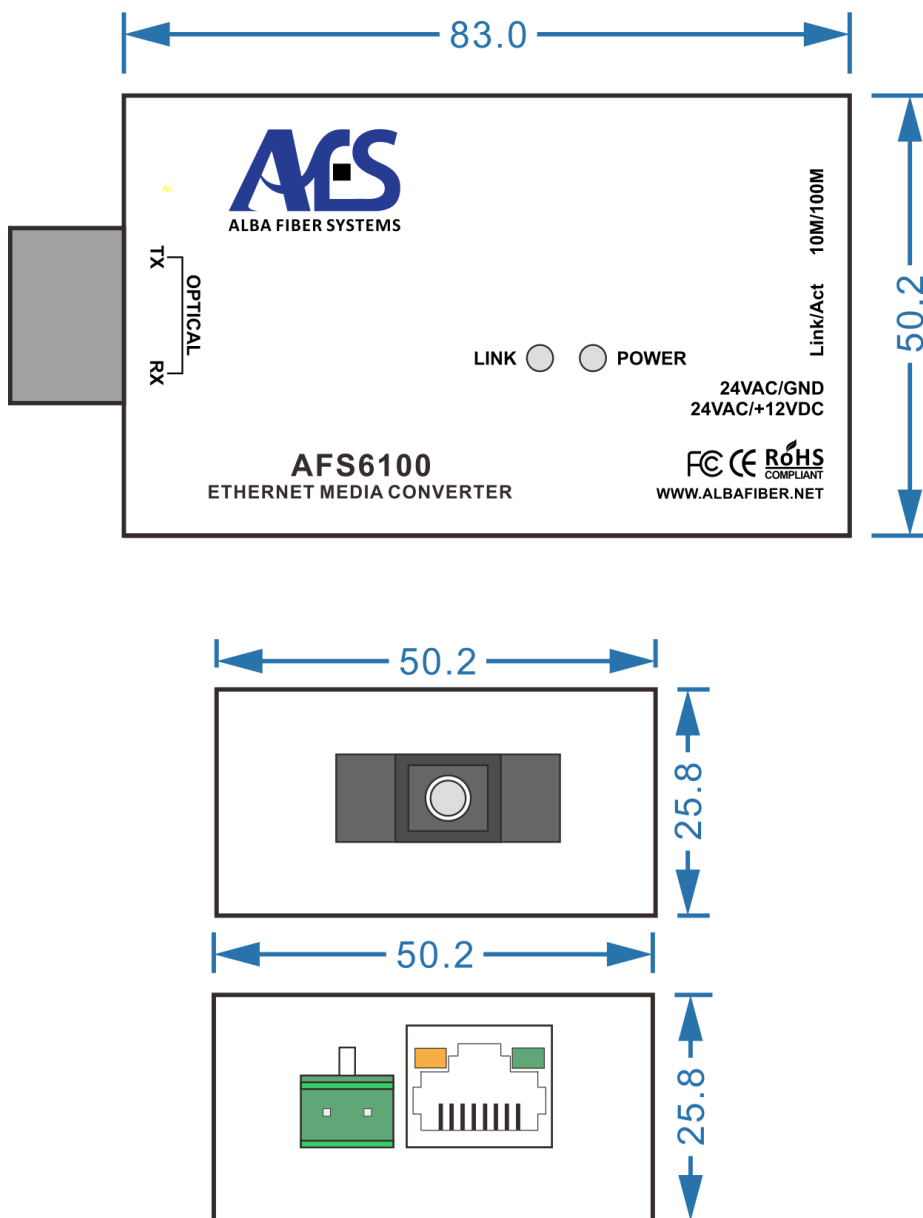


Fig. 1



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Figure 2 below shows the Panel Layout.

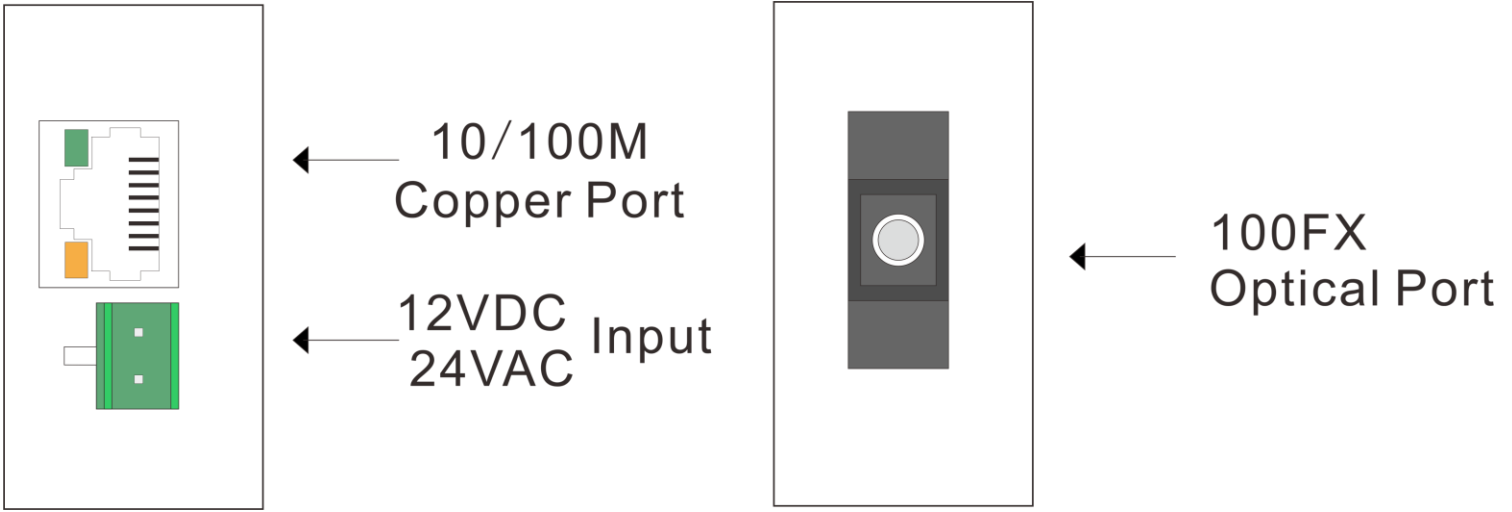


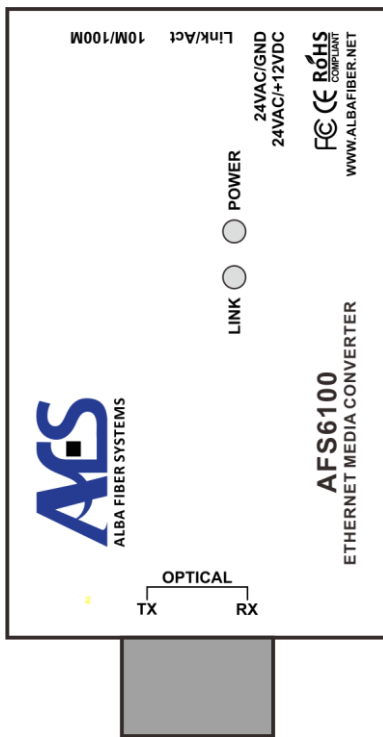
Fig. 2

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### 7.0 Front Panel LED Indicators

All the media converters have panel mounted indicators to provide visual operational status of each slot. Below are listed and described the functions of the various LED indicators.

#### AFS6100 LED STATUS INDICATORS



LED indicator lamp	Status	Explanation
Link	On	Connection status display for fiber link. "ON" indicates that Fiber link connection is correct
	Blink	Active status display of fiber link "Blink" indicates packet transmits through FX end
Link/Act	On	Connection status display for electric link. "ON" indicates that electric link connection is correct
	Blink	Active status display of fiber link "Blink" indicates packet transmits through TX end
PWR	On	Power on and works properly
10 M/100 M	On	Transfer rate of T(X) is 100Mbps
	Off	Rate of T(X) is 10Mbps

Fig. 3: LED Indicator

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## 8.0 Product Part Number Variations

The table below lists the various part numbers associated with different versions of the products.

### ORDER INFORMATION

MODEL	DESCRIPTION	# FIBER PORT	# COPPER PORT	OPTICAL BUDGET	MAXIMUM DISTANCE
<b>AFS6100-1S-2SC</b>	10/100BaseT(X) to 100BaseFX Media Converter	2	1	10dB	MM, 1.25 miles (2 Km)
<b>AFS6100-2S-2SC</b>	10/100BaseT(X) to 100BaseFX Media Converter	2	1	10dB	SM, 23 miles (37 Km)
<b>AFS6100-2S-1ASC</b>	10/100BaseT(X) to 100BaseFX Media Converter	1	1	10dB	SM, 23 miles (37 Km)
<b>AFS6100-2S-1BSC</b>	10/100BaseT(X) to 100BaseFX Media Converter	1	1	10dB	SM, 23 miles (37 Km)

**AFS6100 1=MM(2KM), 2=SM (20Km) 3=SM(40Km) 4=SM(60Km) 5=SM(80Km);**  
**S=Standalone, C=Card (rackmount) ; 2= 2 fibers, 1= 1 fiber; 1A1310/1550nm, 1B=1550/1310nm**

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### 9.0 Warranty

- 3 years warranty for product - please refer to Alba Fiber Systems warranty document.
- Repair
  - If product is found to be defective, user must contact a local distributors or re-seller. In order to return any items for repair or credit, buyer must receive a dated Return Materials Authorization form (RMA #), assigned by Alba Fiber Systems Customer Service department. Please contact [RMA@albafiber.net](mailto:RMA@albafiber.net). Returns must be shipped prepaid, fully insured, door to door service and clearly identified with RMA on package exterior or it will not be accepted. Alba reserves the right to apply repair charges to any products that have been dismantled or modified by anyone other than an Authorized Alba Security engineer.
    - Please attach a statement clearly describing the problem.
- Alba will repair defective product under warranty free of charge to our customers.
- Any unauthorized modification of hardware and software voids the warranty.
- Warranty does not cover mishandling and/or abuse of the product.

Products comply with the following Safety Label for International Fiber Communication Equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful Interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at this own expense.

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