

Data Sheet

FiberZone's AFM Product Line

AFM Features

- High-Density Non-blocking Switching
- In-service Scalability
- Superb Optical Performance
- Reliable Passive Connectivity
- Protocol and Bit-rate Agnostic
- Carrier-Class Certification
- Flexible Connectivity Options
- Powerful Management Software with Graphical User Interface
- Synchronized Database and Auto-Discovery
- Value-Added Modules (VAMs)



Automated Fiber Management

The FiberZone Automated Fiber Management (AFM) family of automated connectivity solutions enables facility operators to deliver new services, design and operate networks efficiently and flexibly, improve customer service and network performance, and quickly recover from equipment port and fiber faults. The FiberZone AFM product line is the first of its kind to deliver the attributes and reliability of a manual connectivity product while offering the benefits of remote control and automation.

Based on FiberZone's Latched Optical Coupling (LOC™) technology, the AFM delivers superb optical performance and complete traffic protection in a carrier-class platform. The AFM can be deployed globally in fiber-rich environments and is completely transparent to transport protocol, wavelength and signal speed, and supports a low insertion loss.

AFM transforms the manual fiber infrastructure into a fully automated and managed layer, enabling network operators to remotely provision optical connections while automatically maintaining accurate inventory records. Operators can perform remote testing, monitoring and troubleshooting of any fiber with AFM Value-Add Modules (VAMs) that integrate with test and monitoring equipment for Remote Fiber Test System (RFTS), Optical Time Domain Reflectometer (OTDR), Bit Error Rate (BER) test access, and Automated Fiber Recovery (AFR).

Main AFM Components

The AFM is made up of a chassis with a passive cross-connect element and five active Field Replaceable Units (FRUs). Any of the five active FRU component modules may be replaced in the field without loss of connectivity to any existing connections. The FRUs consist of a Local Control Unit (LCU) Module, a Power Supply Module, a Fan Module, and two (upper & lower) Robotic Control Unit (RCU) Modules. The lower portion of the AFM houses the passive cross-connect element and the two RCU Modules, and is a sealed enclosure protected from external dust. The upper portion of the AFM houses the LCU, Power Supply and Fan Modules.

Robotic Control Unit Modules

The Upper and Lower RCU modules are responsible for moving connectors on the passive cross-connect element to make and break connections. The actual connections are passive and physically latched in place using FiberZone's Latched Optical Coupling (LOC™) technology. The RCU Modules may be replaced in the field if required and are independent of the passive cross-connect element, such that connections are fully maintained while servicing the RCUs. The Upper and Lower RCUs are interchangeable.

Local Control Unit Module

The LCU is a slide-in module consisting of the main CPU, and controls all switching elements, reflects real-time status of cross-connections and network configurations, provides control over the VAMs and transmits data and alarms to a central network management system. In addition, the LCU includes a standard interface to the FiberZone's EMS via an SNMP MIB.

Power Supply Module

The power supply is a slide-in module with dual A/B power feeds.

Fan Module

The fan module contains 4 fans cooling the LCU and Power Supply Modules. A slide-in replaceable fan filter is included.

Software Management

Local Terminal Management

Supports a CLI interface used by technicians primarily during installation and servicing of the AFM system. Access via Telnet is also supported for remote servicing.

Element Management System

Enables secure remote management of the AFM system through a Web based GUI Client. Provides total network element (NE) view, automated fiber connectivity, and provisioning of overall topology. Integrated database maintains accurate connectivity records at all times. Supports general administrative functions such as management of users, unit configuration, alarms, logs and connectivity reports.

Network Management System

Provides full network view supporting end-to-end connectivity operation, alarm management and maintenance. Software VAMs allow for OSS or third-party EMS integration, Remote Fiber Test System (RFTS) Test Access, enable clustering of multiple AFM units, logical dual asymmetric systems, logical duplex fiber port grouping (Tx/Rx) and Automated Fiber Recovery (AFR).

AFM Interfaces

Panel Ports	Description
LAN	SNMP interface into FiberZone's or Third Party EMS/NMS systems. Also supports a CLI via Telnet
Terminal	RS-232 based CLI for local installation and servicing
Alarms	Two dry contact outputs (both N.O. & N.C. states)
Power Sources	-48 and -60 VDC dual A/B power feeds, for main Central Office & backup power sources
Cross Connect Fibers	180 East x 180 West optical cross-connect ports (provided as two 5-meter pigtails)

Ordering Options:

Speak with a FiberZone representative about the following options:

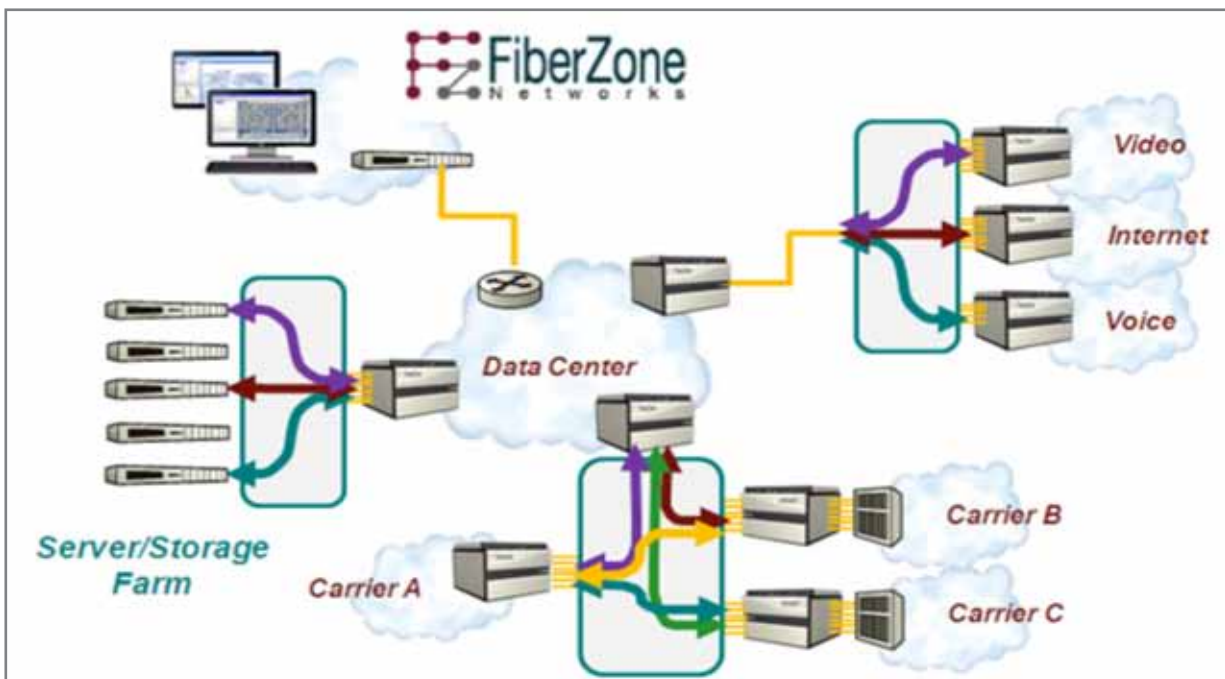
AFM Fiber Type:	Single-Mode Fiber (9/125); Multi-Mode Fiber (50/125 & 62.5/125)
Fiber Termination:	Stub (standard), Spliced and Connectorized solutions via termination panels
Fiber Length:	5m/17ft (standard), longer lengths available
AC Power:	AC to DC converter (power supply) unit (with redundancy option)
Rack-mount Unit:	½ height 23" rack on wheels
Mounting Bracket:	Several mounting bracket options to fit various equipment racks

AFM Target Applications

- Data Center and Enterprise Office – Remote management and security
- Co-location / Carrier-hotel management
- Meet-Me Room and Internet Datacenter – Premium connectivity services
- Automated Fiber Recovery (AFR)
- Central Office and/or Remote Site Management
- Lab Automation
- MDU Distribution
- ROADM-complement – WDM client management and wavelength reconfiguration
- FTTx - Remote provisioning, testing, troubleshooting, and grooming
- Remote Fiber Test System

Rapid Return on Investment

- Rapid provisioning of services to customers in seconds, on a port-by-port basis or in batch
- Fast remote troubleshooting to minimize SLA penalties
- Dynamic equipment sharing among disparate users
- Improved network uptime through automated fiber recovery and 1:N redundancy
- Periodic monitoring and testing of fiber quality for early warning of signal degradation
- Grooming of optical ports to optimize service allocation
- Synchronized inventory management to provide authoritative data base of record
- Reconfiguration of fiber ports for efficient use of expensive optical resources





SPECIFICATIONS

Optical Characteristics

	AFM-96S	AFM-192S	AFM-360
Minimum number of optical west x east ports	48x48 fibers	96x96 fibers	180x180 fibers
Maximum number of optical west x east ports	96x96 fibers	180x180 fibers	180x180 fibers
Expansion Increments	24x24 fibers	24x24 fibers	
Wavelength Operating Range	1260 nm to 1630 nm		
Insertion Loss (east to west)	0.25 dB typ		
Insertion Loss (same port repeatability)	0.2 dB		
Cross-talk	-80 dB		
Return Loss	Better than -45 dB (typ)		
PDL	0.15 dB		
PMD	0.1 psec		
Maximum Input Power	>27 dBm		
Switching time	30 sec		

Power Requirements

Input Voltage	-48, -60 VDC (Range: -40 VDC to -72 VDC)
Power Consumption	55 W while not switching 80 W (120 peak) while switching

Environmental Conditions

TemperatureRange (operating)	-5°C to 50°C
TemperatureRange (storage)	-40 °C to 70 °C
Relative Humidity (non-condensing)	5% to 95%

Physical Characteristics

Dimensions	445 mm (H) x 544 mm (W) x 582 mm (D) 17.5" / 10 RU x 21.4" x 22.9"
Weight	75 Kg / 165 lb

Regulatory Compliance

Environmental	ETS 300 019 Class 3.1, GR-63-Core (NEBS Level 3))
EMI/EMC	EN 61000-6-2:2001, EN 61000-6-4:2001, GR-1089-Core, FCC CFR part 15 subpart B Class A, ETSI EN 300 386 v1.3.3 (2005-04), ETSI EN 300 132-2 v2.2.1 (2007-01), AS/NZS CISPR 22:04, VCCI Technical Requirements V-3/2005.04, Industry Canada ICES-003 (CAN/CSA-CEI/IEC CISPR 22:02)
Safety	EN/IEC 60950 (CE), GR-1089-Core, UL/IEC 60950 (cTUVus) Hazardous Substances

Israel:

2 Granit St., Kiryat-Aryeh
P.O. Box 3026 Petach-Tikva, Israel 49130
Tel: +972-74-7332200 Fax: +972-74-7332211

Worldwide Headquarters:

7272 Wisconsin Avenue Suite 300, Bethesda, Maryland 20814, USA
Tel: 1-877-236-0313
Email: info@fiberzone-networks.com

[www.fiberzone-networks.com]