ALM fiber monitoring solution

Data sheet

ALM Series

Improve network availability and reduce opex costs with 24x7 proactive fiber monitoring

Benefits

- **Universal solution**
  Monitoring of point-to-point and point-to-multipoint (PON) networks for active and dark fiber applications
- **Improved service quality**
  Real-time information on fiber integrity for fast failure detection and short repair cycles
- **Non-intrusive monitoring**
  Inherent compatibility with any user data protocol as well as multi-wavelength transmission systems
- **PON network monitoring**
  Detailed access network fiber information from the OLT to the splitter and individual ONTs supporting all PON generations and without demarcation reflectors
- **Streamlined operations**
  In-service fiber monitoring for immediate separation between failures of active devices and problems with the fiber plant
- **High port density monitoring**
  16 to 800 monitoring ports options
- **Extended temperature range**
  For installation in remote cabinets
- **Wide range of management interfaces**
  Including embedded WEB GUI, third-party GIS support and notification methods to quickly and easily localize fiber issues

Overview

In recent decades, optical fiber has emerged as the primary choice for operators to deliver their services. But with the rapid expansion of fiber networks, many have found that ensuring fast and accurate fiber fault location is now a major challenge. Our ALM addresses these requirements by providing comprehensive fiber health information in a matter of seconds.

Our ALM is an in-service fiber monitoring solution that provides operators with real-time insight into the quality of their fiber infrastructure. In the event of abnormal attenuation, fiber break or a tapping attempt, the user is immediately notified about the issue and its exact geographic location via Adtran Mosaic Fiber Director, an embedded GUI interface or third-party GIS. What's more, with its compact footprint, low power consumption and self-calibration capabilities, our ALM doesn't require regular maintenance.

Our ALM is available in three variants: 16ALM, which monitors up to 16 fibers; 64ALM, which monitors up to 64 fibers; and ALM-T, which monitors up to 48 fibers. With port extenders, the number of fibers monitored from a single location can increase up to 800. Additionally, the ALM-T is optimized for an operational temperature range of -40°C to +65°C, making it ideal for expanding fiber access networks using PON. This capability is crucial for deployments in remote areas that require extended temperature resilience.

ALM fiber monitoring can be applied with any technology and vendor. Moreover, with our deep PON assurance (DPA) technology, the ALM supports the industry's first PON monitoring solution, which tracks all the way to the individual ONT without the need for passive reflectors.

ALM can monitor links up to 160km and 320km bi-directionally for access and core network applications. The system operates at 1650nm, which preserves all common optical channels for network utilization.

With its innovative design, our ALM provides a versatile solution for every fiber monitoring application.

ALM SERIES

Portfolio overview

ALM monitoring units

16ALM

- Monitors up to 16 ports
- AC and DC power options
- Half-RU compact design
- Passive air cooling without fans

64ALM

- Monitors up to 64 ports
- AC and DC power options
- 1-RU compact design
- Passive air cooling without fans

ALM-T

- Extended temperature range (-40 to 65°C; -40 to 149°F)
- Monitors up to 48 ports
- 1-RU compact design
- Modular power supplies (AC, DC), filters and fans
- Redundant DCN connectivity (including option for SFP connectivity)

Extension units for high density solutions

96-port extension unit

- 96-port extension
- LC-APC based
- 1-RU compact design
- Powered by ALM unit

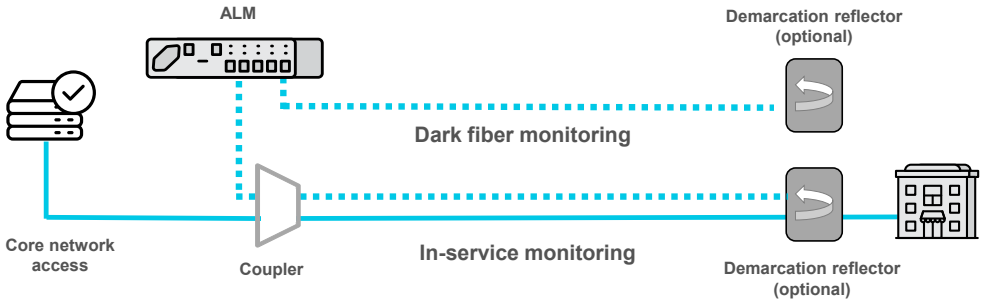
384-port extension unit

- 384-port extension
- MPO based
- Half-RU compact design
- Powered by ALM unit

ALM SERIES

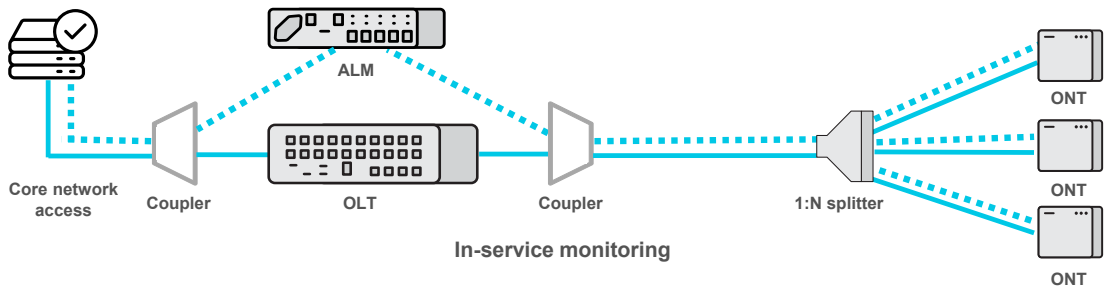
Applications in your network

Point-to-point network monitoring



- Proactive fiber monitoring with long-term performance measurement of passive plant elements
- Support for various point-to-point topologies, including ring architectures
- Dark and lit fiber monitoring capabilities, independent of traffic services
- Passive demarcation improves monitoring time and accuracy
- Remote access to passive environmental sensors for monitoring of unpowered sites

PON access network monitoring



- Proactive fiber monitoring with long-term performance measurement of passive plant elements
- Monitor any PON network from the OLT to the ONT without the need to install passive demarcation reflectors
- Fiber monitoring solution compatible with any PON standard and data rate
- Support for fiber buildout certification services in passive plant construction phase
- Full visibility of the passive network elements and fiber

ALM SERIES

Product specifications

General information

Parameter		Units	16ALM	64ALM	ALM-T	96-port extension	384-port extension
Dimensions	Height	RU	1				
	Width	HP	42	84	84	84	42
	Depth without brackets	mm	212	212	212	207	207
	Depth with brackets	mm	221 (ETSI)	221 (ETSI)	235 (ETSI)	207 (ETSI)	207 (ETSI)
	Depth with fan filter	mm	N/A		273	N/A	
Power		W	10	13	20W Typical @40ºC and during warm-up: 50W @65ºC: 25W	N/A (USB powered by ALM Unit)	
Power supply options		VDC/VAC	DC (-72VDC to -36VDC); AC (90VAC to 264VAC)			N/A (USB powered by ALM Unit)	
MTBF at 30ºC ambient temperature		years	>20				
Operating temperature		ºC	-5 to 55		-40 to 65	-5 to 65	
Storage		ºC	-40 to 85				

OTDR specifications

Parameter		Units	16ALM	64ALM	ALM-T
Number of ports		ports	16	64	48
Laser safety			Class 1		
RF tone frequencies		Hz	270, 330, 1k, 2k		
Dynamic range(*) (**) OTDR core		dB	41	41	42
Wavelength		nm	1650		
Pulse width		ns	5 to 20,000		
Number of data points		points	up to 256,000		
Distance range	Unidirectional	km	Up to 160		
	Bidirectional	km	Up to 320		
Sampling resolution		m	0.1 to 1.6		
Event dead zone		m	0.8		
Attenuation dead zone		m	4		
Distance accurancy		m	± (0.8 + sampling resolution + 9.5 x 10^{-6} x distance)		
Optical switch lifetime		cycles	1 x 10^{9}		
Extension unit insertion loss		dB	1.5 (Typical)		

(*) Specifications at 25ºC. (**) Depending on pulse width and resolution

ALM SERIES

Equipment management

Management method	Supported protocols
Embedded GUI	HTTPS
Northbound interfaces	SNMP v1, v2c, v3, NETCONF, REST API
Command line	SSH
Remote authentication	RADIUS, TACACS+
Geographic data	Embedded KML/KMZ support Adtran Mosaic Fiber Director Third-party GIS systems

Certification and RoHS compliance

Description	Compliance
ETSI EN 300019-1-3	Compliant
Protection class IP20	Compliant
CE, FCC, NRTL, VCCI	Compliant

Ordering information

Product code	Product name	Product description
1043709880-03	48ALM/T/#1650D	ALM-T monitor Unit, 48 ports with LC/APC connector. Extended temperature range OTDR in 1RU form factor. 19 inch, 23 inch and ETSI mounting kits included. Fans, PSUs and fan filters not included
1043709881-03	48ALM/T/FAN	Fan module including shelf display and fan controller for ALM-T. One fan module per ALM-T required
1043709882-03	48ALM/T/PSU-AC	Power Supply Unit (230W) AC for ALM-T. Power cords must be ordered separately
1043709883-03	48ALM/T/PSU-DC	Power Supply Unit (230W) DC for ALM-T. Power cords must be ordered separately
1043709841-03	16ALM/#1650D/AC	ALM 16 ports with LC/APC connectors, AC powered
1043709842-03	16ALM/#1650D/-48VDC	ALM 16 ports with LC/APC connectors, -48V DC powered
1043709846-02	64ALM/#1650D/AC	ALM 64 ports with LC/APC connectors, AC powered
1043709847-02	64ALM/#1650D/-48VDC	ALM 64 ports with LC/APC connector, -48V DC powered
1043709849-01	ALM/EXT/96LA/2LA	ALM extension unit with 96 LC/APC connectors, no power supply required
1043709848-01	ALM/EXT/16MPO24/8LA	ALM extension unit with 384 ports via 16 MPO connectors, no power supply required

Updated December 18, 2024