ALM Series

Fiber assurance solution for lean operations

Fiber is a high-value asset. It transports huge amounts of data, generating significant revenue. Fiber failure demands immediate action but a lack of information about the nature of a problem often makes this impossible. In-service fiber monitoring solves this issue and our unique ALM does it with unrivalled efficiency.

Operations teams have one key objective: run a complex communication infrastructure as efficiently as possible. In the event of network failure, a root cause analysis should not require on-site field forces with expensive measurement equipment. Giving customers higher bandwidth services should be possible without changing demarcation device. Gathering real-time information about the integrity of the fiber network should not require costly new kit. Proactive fiber link monitoring solves those challenges. Our ALM is an in-service advanced link monitoring solution for highly precise, real-time monitoring of fiber links. It streamlines operational processes, shortens repair cycles and enables service-agnostic network demarcation.

Your benefits

- **Improved service quality**
  Real-time information on fiber integrity for fast failure detection and short repair cycles
- **Higher availability**
  Detecting degradations and initiating counter-measures before services are affected and SLAs are violated
- **Non-intrusive monitoring**
  Inherent compatibility of demarcation reflectors with any user data protocol as well as multi-wavelength transmission systems
- **Simplified demarcation**
  Passive demarcation reflectors for operation without power supply even under harsh environmental conditions
- **Streamlined operations**
  In-service fiber monitoring for immediate separation between failures of active devices and problems with the fiber plant
- **Intuitive management interface**
  Integrated with market-leading geographic information systems (GIS) to quickly and easily localize fiber issues

High-level specifications

Fiber link monitoring

- Two ALM variants for supervision of 16 (16ALM) or 64 fibers (64ALM) per ALM device
- Non-intrusive monitoring independent from user traffic
- Active component at central office only

Demarcation reflector

- Passive device at remote site
- No power and no additional space required
- Integrated with patch cable or discrete devices
- Applicable in harsh environments

Management capabilities

- Full SNMP management for all operational processes
- Built into market-leading GIS
- FSP Network Manager for full set of FCAPS functions

Measurement principles

- Real-time information about fiber loss profile
- Localization of loss points with alarm thresholds
- Ultra-fast fiber integrity verification with 3 to 6 secs. per port

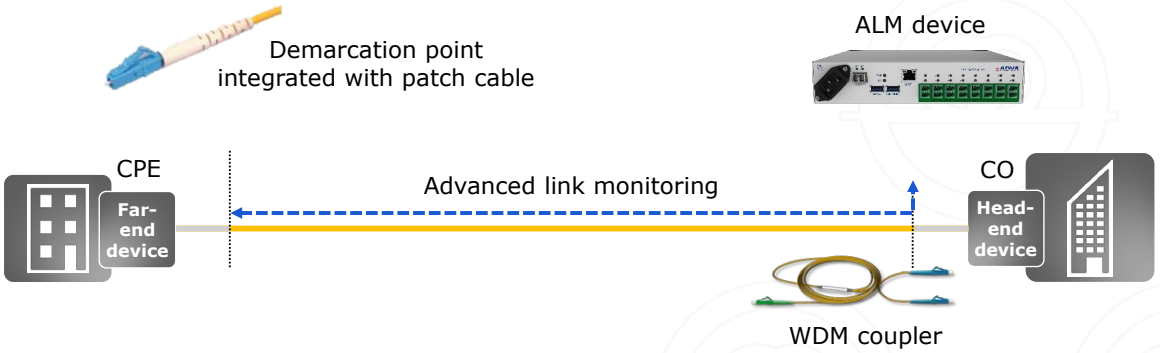
Optical performance

- Up to 160km nominal reach for access, metro and core applications
- Measurement signal at 1650nm, outside user traffic wavelengths

Operational requirements

- Power consumption <15W
- Fanless operation
- Wide operating temperature range (-5°C to 55°C)
- Ultra-compact ETSI solution: up to 64 ports per 1RU chassis

Applications in your network



Simple set-up *Easy integration* *Continuous monitoring*

Simplifying operations and creating more value from fiber networks

- Enhancing dark fiber services with real-time assurance information and shorter repair cycles
- Passive demarcation minimizing operational cost at customer premises with powerless operation
- Proactive fiber monitoring instead of post-failure problem analysis with field services engagement
- Non-intrusive fiber monitoring for assured service delivery enabling service modifications and upgrades without on-site visits
- Remote access to passive fiber sensors for monitoring of unpowered sites

For more information please visit us at www.adva.com

Product specifications are subject to change without notice or obligation.

ALM16 / ALM64 general information

Parameter		Specification	Units
Dimensions	Height	1	RU
	Width	42 or 84	HP
	Depth	215	mm
Power (typical / maximum)		10 / 13	W
Power supply options		AC or DC (-72 to -36V)	
MTBF at 30°C ambient temperature		>20	years

Environmental specification

Parameter	Specification	Units
ALM temperature operating range(*)	-5 to 55	°C
Storage temperature range	-40 to 85	°C
Relative humidity (non-condensing)	85	%

(*) Passive components (eg. demarcation reflector) available for I-TEMP operation -40 to 85 °C

OTDR specification

Parameter		Specification	Units
Number of ports		16 or 64	ports
Dynamic range	OTDR core	41	dB
	module	39(**)	dB
Wavelength		1650	nm
Pulse width		5 to 20,000	ns
Number of data points		up to 256,000	points
Distance range		up to 160	km
Sampling resolution		0.1 to 1.6	meter
Event dead zone		0.8	meter
Attenuation dead zone		4	meters
Distance accuracy		± (0.8 + sampling resolution + 9.5 x 10^{-6} x distance)	meter
Optical switch lifetime		1 x 10^9	cycles

(**) Depending on pulse width and resolution

Equipment management

Management method	Supported protocols
Embedded GUI	HTTP, HTTPS
SNMP	v1, v3
Remote authentication	RADIUS
Integrated with various GIS solutions	

Certification and RoHS compliance

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

Ordering information

Product code	Product name	Product description
1043709841-02	16ALM/#1650D/AC	Advanced Link Monitor (ALM), 16 ports with LC/APC connectors, AC powered
1043709842-02	16ALM/#1650D/-48VDC	Advanced Link Monitor (ALM), 16 ports with LC/APC connectors, -48V DC powered
1043709846-01	64ALM/#1650D/AC	Advanced Link Monitor (ALM), 64 ports with LC/APC connectors, AC powered
1043709847-01	64ALM/#1650D/-48VDC	Advanced Link Monitor (ALM), 64 ports with LC/APC connector, -48V DC powered