ALM fiber monitoring solution

Adtran

Data Sheet

ALM – Water sensor

Reusable sensor for humidity detection in outdoor enclosures

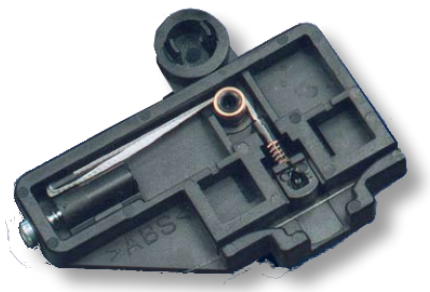
Benefits

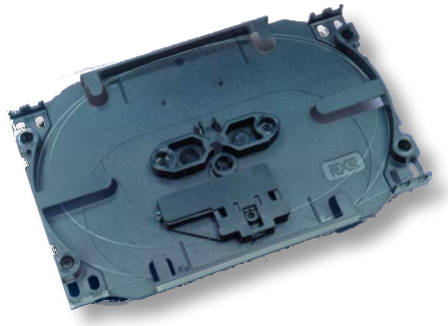
- **Powerless operation**
  Passive monitoring. No power supply or battery required
- **Robust solution**
  Limited use of moving parts calls for little to no maintenance
- **Simplified integration**
  Seamlessly integrated with the ALM monitoring solution
- **Fast detection time**
  Fiber degradation can be spotted before any impact to data transmission is observed
- **Multiple use**
  The sensor isn't damaged by water and so doesn't need to be replaced
- **Accurate geographic data**
  Integrated with various geographic information systems (GIS) to easily localize flooding events

Overview

Fiber is the basis of modern communication infrastructure, from FTTH and mobile access networks to ultra long-haul high-availability networks. While fiber allows for massive throughput of data, it is vulnerable at the same time. For a reliable communication network, protecting the infrastructure is vital to minimize downtime. Our water sensor is a powerful device to help operators detect water intrusion in outdoor enclosures before the network is brought down by excessive humidity or flooding.

Splices, fiber connectors and optical components are the most fragile parts of fiber-optic infrastructure. Typically, excessive humidity doesn't directly impact these components, but long-term exposure to water will lead to decreased durability, increasing the insertion loss or producing a fiber cut in the worst-case scenario. What makes water damage extremely challenging is that the end user will not notice anything until it's too late. In order to prevent water damage, outdoor enclosures have been designed to be IP65 water-proof or better. This means that even if the enclosure is fully submerged in water, no water will get inside. Unfortunately, enclosures often get damaged or in some cases field engineers don't close the enclosures correctly. As such, water damage is a serious problem for carriers today. Our water sensors enable a cost-efficient and easy-to-operate solution. They can be used in a regular splice box and connected to our ALM on the head-end. As multiple sensors can be cascaded, network operators can continuously monitor their assets and react to water damage before it's too late.





ALM - WATER SENSOR

High-level technical specifications

Parameter	Specification
Dimensions (HxWxD)	46.5mm x 36.0mm x 6.5mm
Response time	≤ 5 minutes
Drying time from full flooding	8 hours
Attenuation increase at 100% RH	Typically ~1dB*
Min. bending radius of the fiber	20mm
Recommended fiber type	ITU-T G.652
Splice box compatibility	Corning C46197-A7-A70/A66 and similar
Ordering information	FAS/ALM/WTS 1043709867-01

(*) Depends on the fiber type

Applications in your network

Cost-efficient solution to monitor network infrastructure and detect flooding events

- The ALM, located in the central office, continuously monitors the status of water sensors with a single OTDR trace
- If water penetrates a splice box, additional attenuation is introduced. Upon detection the ALM will generate an alarm, identifying which of the water sensors was triggered
- Events can be precisely and easily located via GIS
- Water sensors are passive. No power supply or battery is required at the site