

The Leader in Underground Pathway Protection

Network System Overview

The LightLOC Network System is a state-of-the-art OTDR-based fiber optic intrusion detection system featuring custom LightLOC software for alarm assessment and communication. It is capable of monitoring any combination of LightLOC sensing devices under a single system including manholes, grates, gates, detection cable and denial cable. Alarming sensors may be pinpointed and distinguished, and numerous fiber optic lines may be monitored simultaneously. The system is, therefore, intended for large campus-wide installations.

The heart of the Network System is its custom software. The software consists of two main programs, the monitoring service and interface program. The service runs in the background on a server and performs data analysis, alarm detection, and system management. As it runs in the background, the interface program provides viewing and control of the service. Multiple interface connections are supported simultaneously.

In order for the Network System to monitor a unique system, the software requires training. Training includes learning the secure state of each system fiber as well as the sensors present in the system and their locations. After training, a system can differentiate an event from inherent characteristics of the fiber and then determine the incursion type, locate the area in which it occurred, and match it to a particular sensor based on the configuration. Network System outputs include relays, e-mail alerts, and custom outputs in addition to the Interface GUI.

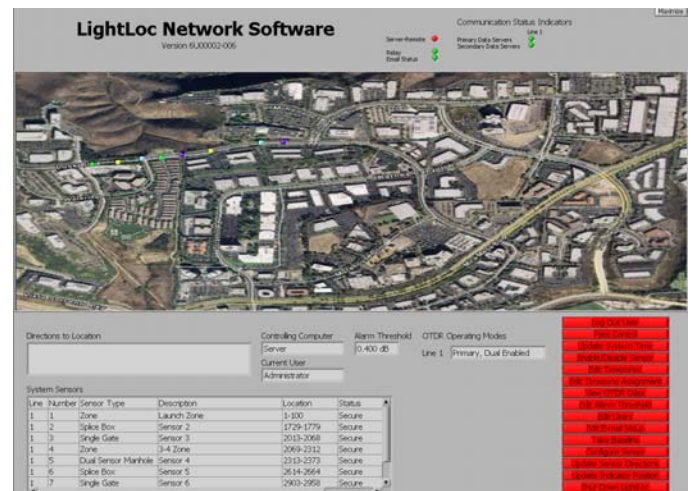
The system example on the following page illustrates the capability of a Network System to monitor a unique combination of sensors on multiple lines.

Standard Features

- OTDR Based Fiber Intrusion Detection System
 - Ethernet OTDRs Allow Communication over a Network
 - Long-Range Monitoring to 25km Standard
 - Operates at 1550nm for Single Mode-Fiber
 - Alarm Location Accuracy Typically Within 5m
 - Two OTDRs Per Monitored Fiber Optic Line for Redundancy and Added Bandwidth as Needed
 - OTDRs Managed Automatically by the System
 - Quick Alarm Detection in <15 Seconds
- Advanced Custom Software
 - Monitoring Program Runs in the Background and Performs Data Analysis, Alarm Detection, and System Management
 - Interface Program Displays System Status and Allows Control of the Service
 - Multiple Interface Connections Supported
 - Supports up to Eight Monitored Lines and up to 25 Sensors Per Line
 - Secure State of the System Learned to Prevent False Alarms from Inherent Fiber Events
 - Sensor Location Map Displays Status Indicators for Each Sensor
 - Sensor Table Lists All System Sensors, their Configuration Information, and Current State
 - User Setup for Three Levels of Software Access
 - Ability to Disable Sensors As Needed or at Repetitive Intervals
 - Logging of All Events
 - Optional Relay Outputs and E-mail and Pager Alerts

LightLOC Network System:

Your Advanced Fiber-Optic Monitoring Solution



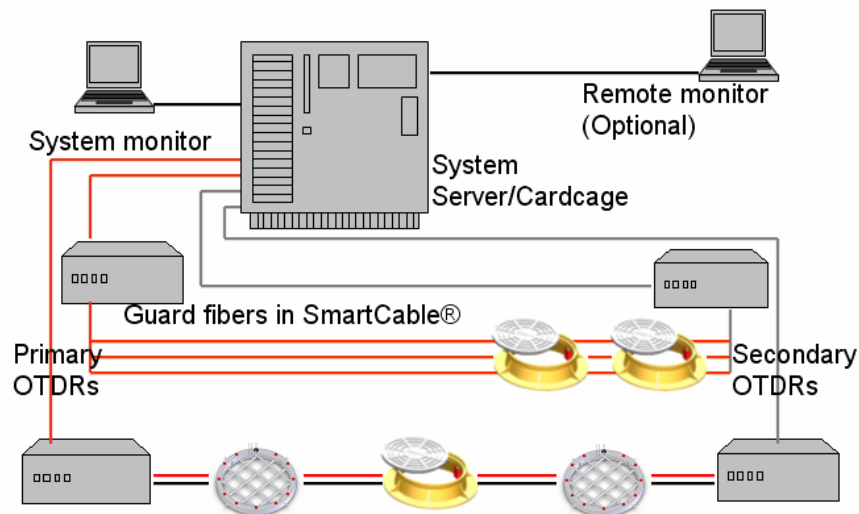
For additional information on the LightLOC® system, please contact Doug Piper at 864.963-5131 or dpiper@lightloc.com

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Typical System Example



Technical Details

Server Size	2U
Operating System	Windows Server
OTDR Chassis Size (Houses up to 4 OTDRs)	3U
Input Voltage	120VAC, 60Hz other available
Dynamic Range	10 dB Typically Usable
Fiber Type	Single mode
Monitored Wavelength	1550nm
OTDR Scan Time	5 sec
Breach Alarm Threshold	0.4dB
Break Alarm Threshold	4 dB
Time to Detect Alarm	<15 Seconds
Location Accuracy	5m typically
Operating Environment	Electronic Equipment: Indoors Sensors: Indoors/Outdoors
Server MTBF	7 Years
OTDR MTBF	98 Years

Ordering Information

Network Systems are custom designed for customer applications. Please contact us for a quote.

LightLOC Overview

LightLOC is a patented, fiber-optic based security system providing the optimum in perimeter and access security. The system provides monitoring of remote access points and perimeters using a family of sensors and cables developed and made by LightLOC. Monitored items can include manholes, gates, doors, culverts, perimeter vehicle detection and vehicle denial cable systems, and custom applications. Monitoring is possible at distances of up to 25km without the need for electrical power at the monitored locations. The robustness of the system eliminates false alarms commonly seen with other fiber-based security systems, and LightLOC systems are inherently tamper resistant since altering or destroying optical components triggers alarms automatically.

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