

The Leader in Underground Pathway Protection

SmartGrate Overview

SmartGrate is a product in the LightLOC family designed to secure and monitor culverts and grates in remote areas. It is comprised of a lattice of steel tubing in an outer frame laced with optical fiber. Fiber is present in all components of the grate providing complete coverage in the event of an attempted breach. Accessing the secure area protected by the grate requires compromising the grate and, thus, the detection fiber, resulting in an alarm. SmartGrates may be monitored from up to 25km away by the LightLOC Network or Express Monitoring Systems.

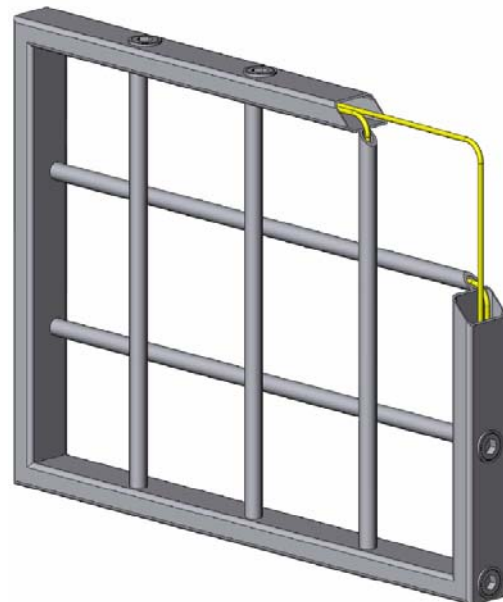
As with all of the LightLOC products, SmartGrate is designed to be a zero-false-alarm solution. The design of the grate and monitoring systems ensure no alarms result from water flow, vibration, debris, wildlife, or other frivolous movements. Also, since the fibers are housed inside the robust metallic components of the grate and sensing is achieved by attenuation and not vibration, alarms only occur if the grate is damaged or cut.

SmartGrates can be installed over existing grates, engineered into new construction, or used to replace existing grates in any size or shape. Aside from stocked standard sizes, SmartGrates are custom designed and manufactured according to site requirements. They are available in a removable form making maintenance and cleaning of the secured pipe simple where needed. There is also no electrical power required at the grate location, as monitoring is fiber based.

The system example on the following page represents a typical application for SmartGrate. Two SmartGrates are protecting underground pathways leading into a secure area.

Standard Features

- Flat, Rectangular Steel Grate with Optical Nerve Fibers for Continuous Surveillance
- Low False Alarm Rates
- Long-Range Monitoring to 25km Standard
- Power Not Required on Perimeter
- Custom Designed and Manufactured According to Site Requirements
- Stainless Steel or Mild Steel, Galvanized or Powder Coated
- 3/8" Schedule 80 or Thin Wall 18 GA Tubing
- 20 Year Life
- -40C to 70C Operating Temperature Range
- Optimized for Use With LightLOC Network and Express Monitoring Systems
- 1550nm Operation with Standard Single Mode Fiber
- Not Sensitive to Water Flow and Vibration
- Tamper Resistant Mounting Hardware
- Optional Removable Design for Pipe Cleaning
- Optional Tube Prying Sensitivity



SmartGrate:

Your Underground Pathway Protection 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

Monitoring Systems	LightLOC Network System LightLOC Express Processor LightLOC Multi-Port Express
Power Requirements	None in Field Monitoring System Powered As Specified
Grate Material Available	Mild Steel or Stainless Steel
Steel Grate Finish	Galvanized or Powder Coated
Standard Grate Tubing	3/8" Schedule 80 or Thin Wall 18 GA
Grate Life	20 Years
Fiber Type	Single-mode
Monitored Wavelength	1550nm
Operating Temperature	-40C to 70C
Standard Square Grate Sizes	12", 18", 24", 30", 36", 48"
Standard Grate Opening Size	13" x 7" (<96 square inches design spec.)

Ordering Information

The base part number to use when ordering a SmartGrate of dimensions height H and width W is SMG-H-W. When ordering the following information must also be specified: steel or stainless material, galvanized or powder coated finish if steel, grate opening size if not standard, grate tubing, and removable form or permanent. A mounting kit (MK-H-W) and a Network or Express Monitoring System is also required with a grate purchase. For custom sizes and unique applications, grates 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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