X-lumin
Excellence • Innovation • Expertise

X-LUMIN LASER SAFETY SOLUTION

THE X-LUMIN LASER SAFETY SOLUTION

The X-lumin Laser Safety Solution (X-LSS) is a highly flexible laser safety option created to enhance X-lumin's Lasercom Optical Ground Station (OGS) and short-range versions of X-lumin's Optical Wireless Communications (OWC) System for moving platforms. X-LSS can be customized to work with other LiDAR/LADAR, laser communication, laser imaging, and other high-energy laser systems that have dynamic pointing. The X-LSS is designed to constantly monitor the laser system and deconflict with events in the surrounding environment. Upon identification of a conflict, the system intelligently pauses laser transmission until the potential conflict has cleared, and then resumes normal operations. X-LSS is intended to be deployed as a real-time solution for laser safety to optimize lazing opportunities.

The X-LSS can deconflict laser operations with static constraints such as azimuth and elevation as well as designated 3D (latitude-longitude-altitude) and time-based "keep-out" areas. The system uses sensors to provide situational data that ensures against the unintentional lazing of moving objects such as aircraft, satellites, drones, vehicles, equipment, humans and wildlife. Based on open standards, the X-LSS can be deployed on dedicated hardware, embedded with command and control functions. It allows for external inputs from radar and telemetry, including ADS-D. The X-LSS is the result of over 20 years of designing, developing, and building real-time laser safety systems for government agencies and is now available for the commercial market.

X-LSS enables safe laser operation in urban environments

FLEXIBILITY & VERSATILITY

Amongst its most versatile features, the X-LSS, can deconflict for multiple lasers through a single-user interface and operates with full 3D computation. The flexibility of the X-LSS makes it an ideal candidate for a variety of Precision Optical Pointing and Tracking systems. Complete with platform motion correction, the X-LSS can operate on moving platforms such boats, airplanes, or unmanned aircraft systems (UAS) and can process inertial guidance data.

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MULTIPLE REAL-TIME SAFETY MODES

The system allows users to specify safe lazing parameters

denoted "allowed" and "forbidden" 2D (azimuth and elevation) zones. The X-LSS is designed to automatically deconflict with air space events that include aircraft, birds, drones, and satellites. The X-LSS is designed to meet site-specific code compliance and safety regulations. The X-LSS combines the data sets and applies programmed laser safety rules to determine if the environment is safe for laser operation. Real-time hazard analysis and predictive analytics capabilities are on the horizon.

X-LSS Inadvertent Laser Emission Protection based on:

- 2D & 3D safety region data
- Time, position, orientation, laser state
- User input from GUI or command interface
- Laser Clearinghouse Data (LCD)

FUTURE CAPABILITIES

Currently under development for the X-LSS is the integration of situational data for real-time tagged data logging. Data will include: airspace, terrain, stationary objects, pre-defined 2D and 3D 'safe' zone parameters, local laser system data specific location, orientation, directional pointing, and laser system health. This data will be demonstrated to the user through a real-time, 3D situational awareness display.

ABOUT X-LUMIN

X-lumin is on a quest to build an effective and efficient bridge between existing optical communications technology and the need for a high-speed data highway to meet exploding IoT demands. Our innovative and cutting-edge solutions incorporate state-of-the-art optical and photonic components which comes from over 25 years of experience in the design, development and integration of optical technologies and solutions, laser systems, tracking and surveillance, atmospheric propagation, and video and image processing. While the early foundations of our products and solutions focused on universities and government agencies, our solutions today allow us to bring these leading-edge solutions to the commercial marketplace which create new standards and solutions that have broader impact.

For more info, contact us at:
www.x-lumin.com

6141 N. Courtenay Pkwy, Suite E, Merritt Island, FL 32953
+1.321.209.3620 | info@x-lumin.com