



Optical CrossLinks, Inc.

Optical CrossLinks, Inc. (OXL) is recognized as a worldwide leader for the development and creation of complex polymeric optical waveguide arrays within film sheets. This technology facilitates board level component connectivity as well as construction of compact devices such as splitters, star couplers, and jumper links. Recent work has demonstrated the capability to make novel waveguide sensors for position determination and access to carbon nanotubes used for optical remote sensing. Dielectric filters have been embedded within the waveguide and film structures for multimode WDM's utilizing OXL's precision machining capabilities.

OXL's proprietary connectivity technology facilitates high density and stacked 3D interconnections for both polymer waveguides and custom fiber optic ribbons. Fiber ribbons, made using their versatile facility, utilize OXL designed dies for customer specified ribbon construction and custom connectorization. OXL has provided efficient polymer waveguide add/drops and splitter solutions for aerospace optical networks and their custom cables for optical remote control and sensing.

OXL is located in Kennett Square, PA with 13,000 sq. ft of lab, office, and production facilities. The OXL team and waveguide technology originated within DuPont prior to the founding of OXL in 1998. Since leaving DuPont, this team has continued to advanced both the waveguide technology and extend OXL's IP portfolio.

Using their unique understanding of polymer waveguides, OXL specializes in the design, fabrication, packaging, and marketing of optical waveguide circuits and interconnection products. OXL provides customer solutions utilizing both proprietary polymer materials and fiber based ribbon distribution technologies.

OXL's optical components provide higher levels of performance for an array of products that are more economical, reliable, flexible, and lighter, within a smaller footprint than alternative solutions. The Company's versatile optical products are well positioned to assist in the transformation of the information transportation infrastructure. They are enabling the current inflexible, constrained physical network to evolve to one that is agile and programmable at the optical layer.

OXL's GuideLink™ planar polymeric waveguides products and technology are based on acrylate polymer films. Encapsulating these film structures are environmentally and operationally robust packaging materials. These packaging layers

facilitate extremely versatile design, construction, and integration of complex optical circuits.

OXL's film based waveguide products can incorporate gratings, switches, and modulators structures. These films are configurable into splitters, star couplers or other novel devices. All devices are fully connectorized in single or multilayer-stacked configurations. OXL's products are targeted for applications in the data communications, telecommunications, biochip testing, and military/aerospace markets. These products provide optical layers for printed wiring boards, mass storage, parallel data processing, remote or local sensing and/or high density interconnection systems.

OXL's DistributionLink™ fiber management technology platform accommodates any type of fiber and elegantly interfaces with GuideLink™ products through custom proprietary or commercial connectors. These connectors all meet industry standards and footprint size with adaptability to blind mate latchable protective housings.

OXL's current preferred approach for the creation of wavelength selective or manipulative devices like WDM's is through precision insertion of filters in specially designed and configured waveguides. This approach capitalizes on the unique attributes inherent with OXL's waveguide creation process and excimer laser based micro-machining. OXL's excimer machining capability enables complex structures with high precision to be readily and rapidly configured in the polymer films. As a future option, OXL's novel self-development technology for waveguide creation also enables optical exposure creation of Bragg gratings in and / or around waveguides. This offers the potential for uniquely configurable and manufacturable routes for producing complex multi-wavelength devices. In this case both waveguides and Bragg gratings could be optically created in the same film matrix during the imaging process.

There is a substantial body of publications, and presentations at both conferences and industry sites summarized on OXL's WEB site (<http://www.opticalcrosslinks.com>). This body of information covers the technology and prototype product construction and applications. There are also a few specific publications on Bragg grating generation. Much of the published work was performed while the OXL team was developing the basic technology while at DuPont. OXL current work has focused on optimizing designs, connectorization, modeling, materials optimization and packaging for practical product applications meeting customer requirements.