

Bi-Directional, Micromechanical Linear Actuator for Optical Switching

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WARF: PO1100US

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an improved micromechanical linear actuator that reduces optical losses.

OVERVIEW

Linear actuators are commonly incorporated into optical fiber switches that send an incoming signal within an optical fiber to one of two output fibers (i.e., a 1x2 switch). Typically, the actuator accomplishes switching by physically moving the input fiber into alignment with the output fiber. The performance of these “moving fiber” switches depending almost entirely on the precision of this alignment, with the switching of single-mode (as opposed to multimode) optical fibers presenting particular challenges due to their tiny, roughly nine micron diameters.

THE INVENTION

UW-Madison researchers have developed a micromechanical linear actuator that provides ultra precise, rectilinear displacements at the high forces needed for optical fiber switching. Using this actuator the researchers achieved lower optical losses (i.e., better performance) during switching than any single-mode optical fiber switch currently on the market. Another key feature is the switch’s magnetic latching mechanism, which holds the actuator at either end of its travel after switching is complete without requiring standby power.

APPLICATIONS

- Network elements for optical communications systems
- Subscriber loop networks
- Fiber-to-the-home applications
- Optical cross-connects for redundant or protective switching
- Factory testing of optical elements and equipment



THE WARF ADVANTAGE

Since its founding in 1925 as the patenting and licensing organization for the University of Wisconsin-Madison, WARF has been working with business and industry to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.



KEY BENEFITS

- High force, long throw, high precision and low power
- Latching mechanism significantly reduces power requirements by eliminating need for standby power when switch is idle.
- Exhibits lower optical power losses and higher performance than any single-mode optical fiber switch currently on the market
- Requires no complicated drive schemes
- Actuators can also be easily adapted for use in valves or electrical relays.

ADDITIONAL INFORMATION

Tech Fields

Information Technology - Telecommunications

CONTACT INFORMATION

For current licensing status, please contact Emily Bauer at emily@warf.org or 608-960-9842.

