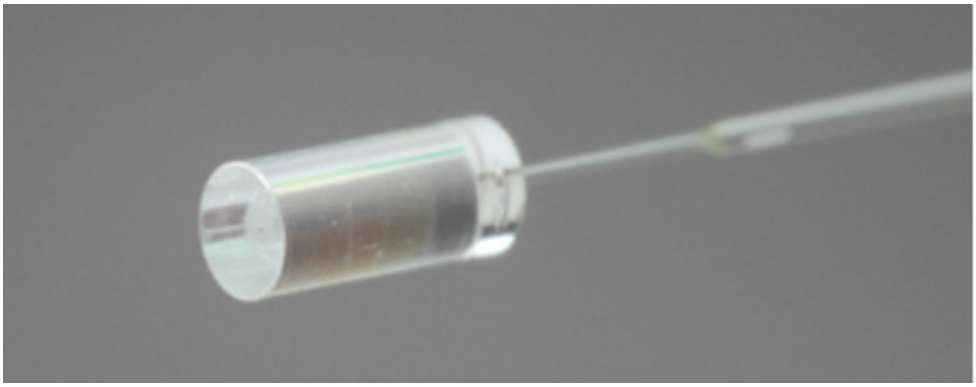


LightPath® TECHNOLOGIES
GLOBAL LEADER
IN OPTICAL TECHNOLOGY

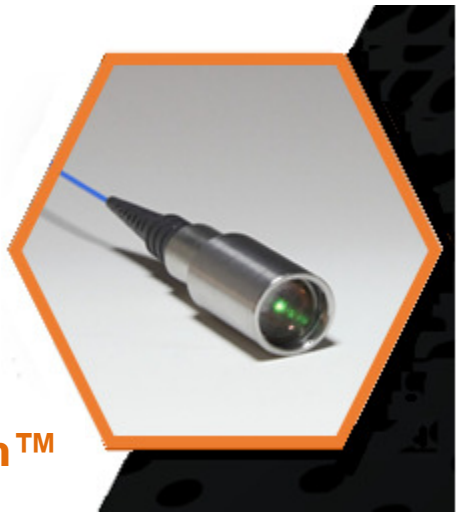
Fused Fiber Collimators

LightPath Fusion™ Collimators and fiber optic assemblies utilize proprietary fiber fusion technology that allows collimators to be used at higher powers for pairing, targeting, or pigtailing applications. The lens is laser fused directly to the optical fiber, eliminating any interface causing unwanted signal distortion, photo-degradation and space shifting issues with temperature and service life. Recognized by commercial and scientific industry leaders for offering unmatched stability against other technologies in various environmental conditions, as well as perfectly suited for extremely small packages.

APPILICATIONS

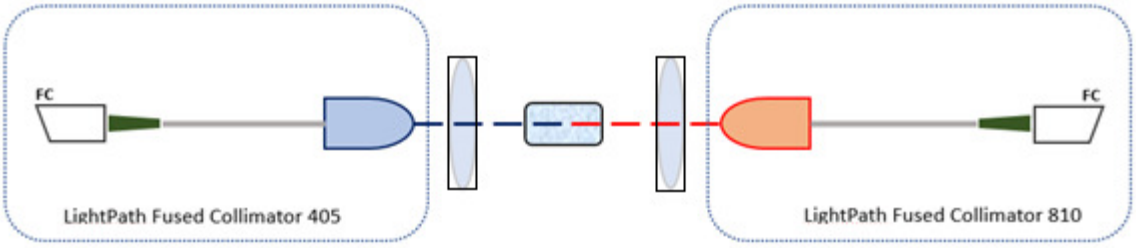
- Satellite Telecom
- Cyber Security
- Optical Biopsy
- Confocal Microscopy

- Laser Fusion™ of fiber optics with cladding up to 550µm in diameter
- Micro-optic lenses from 0.7mm diameter and up
- Huge selection of diverse and specialized optical fibers
- Standard to Customized AR coatings
- The assemblies can be customized with a variety of cable and connector types
- From C-lens to a full portfolio of Precision Molded Aspheric and Specialty glasses
  (Polished Silica Aspheric, Rad-Hard glasses recommended for High Power laser systems and Harsh environments are available upon request)



Specialists in Laser Fusion™

‘Blue to Red Photons’ – **Quantum Key Distribution (QKD)**



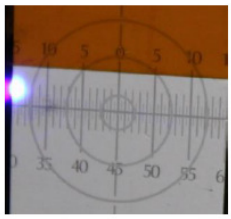
Typical QKD optical system layout

Most QKD schemes require that the sender and receiver of a secret message exchange photons directly to trust the source of their keys and to avoid any hacking attempts. The gap between the fiber, length, position of components and wavelength selection are some extremely critical factors because photons are identified by the gap between their arrival times at the detector.

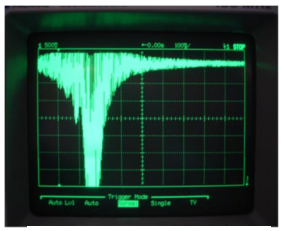
Industry Challenges

Most commercial low-cost collimator technologies rely on integrated packages that consist of multi-components with several interfaces or airgaps, angled surfaces, and numerous attached structures that will degrade the beam quality and pointing, especially at the 405nm operating wavelength. In addition to these factors, we must not forget the increase in relative noise of the overall system.

Beam Quality degradation 405nm



Off target pointing



High signal noise dB

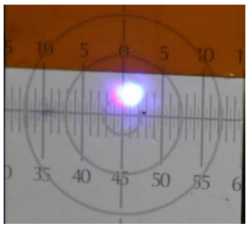
LightPath Fusion Advantage

With LightPath Laser Fusion and sophisticated assembly processes, the fiber optic assembly puts an end to any glass-to-air interface and simplify component layout. This eliminates surface effects and damages caused by 405nm laser irradiation that is generally experienced by unprotected fibers operating just few milliwatts of continuous power transmission. In addition, the design stabilizes movement toward the target and delivers high laser quality, essential for smooth signal transmission. Therefore, the time and speed of the photons are very well preserved, and it is possible to check the security of the transmitted key.

Features and Benefits

“We just got your 405 and 810nm Fiber Fused Collimators today. I started my evaluation set-up. My first impression is WOW! I only tried one so far, but it looks very good” Thanks, QB

Excellent Beam Quality 405nm



Suitable target pointing

Smooth signal quality

Technical Data	
Wavelengths	400 to 1550
Fiber Types *	Single Mode | Multimode |Polarization Maintain | LMA
Fiber	Acrylate coating | Polyimide coating
Cable Diameters *	250um; 900um; 3mm
Cable Types	Buffer Coating | Hytrel | PTFE | PVC+ Kevlar | Armour
Connector	FC/APC; FC/PC; SC/PC; Pigtail
Beam Diameters	0.2 to 12.5mm (Single Mode)
Polarization Ratio	>100:1 (Pigtails)
Connector Key Alignment	Slow and Fast Axis
Coupling Efficiency	>70%
Pointing Accuracy	<1.0° Standard |<0.5° Premium (Based on Design)
Power Handling	>10W Small Beams & Large Beams| 100W Premium Designs
Return Loss	≤60dB (Typical)
Anti-Reflective Coatings *	400 to 1550; Reflective ≤ 0.5% (See standard options)
Storage Temperature	-40 to +85°C

* Custom available upon request

Large Beam Collimator Assembly
with a Precision Molded Aspheric 488nm