

Solutions for OCT Systems

OZ Optics Limited

September 2024



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- OZ Optics Türkiye
- OZ Optics China



Company Background



- **Founded in 1985**
- **Corporate Headquarter Located in Ottawa, Canada**
- **Manufacturing Facility in
Ottawa / Canada, Izmir / Türkiye and Jiaxing / China**
- **Ten Product Groups:**
 - Laser-to-Fiber Delivery Systems
 - High Power Fiber Optic Components
 - Polarization Maintaining Products
 - Attenuators
 - Opto-Electronic Packaging
 - Fiber Optic Test Equipment
 - Fiber Optic Sensor Systems
 - Fiber Optics Components for Gyroscope
 - OCT
 - BioPhotonics
 - Quantum
- **Sales Offices in
Canada, USA, Europe, Türkiye and China**

➤ Ottawa, Canada



➤ Izmir, Türkiye



➤ Jiaxing, China



Corporate Statements and Quality Policy



Our Vision

- ✓ Capture and expand market share
- ✓ Be the preferred supplier of choice
- ✓ Maximize shareholder value

Our Mission

To become the leading provider of innovative optical products to telecom and non-telecom sectors

Our Core Values

- ✓ Leadership
- ✓ Teamwork
- ✓ Boldness
- ✓ Commitments
- ✓ Innovation
- ✓ Rewards

Our Quality Policy

Provide our Customers with a competitive advantage, leveraging performance, price and delivery, through a continuous process of Quality advancement in all areas of our Company.

Communicate effectively to our Customers, Suppliers and Shareholders our commitment to Quality, continuous improvement and to abide by any applicable requirements.

Promote opportunities of professional development for all members of our company through education, training and personal challenge.



Company Profile

Over 467 employees worldwide

OZ Canada



243+
Employees

OZ China



87+
Employees

OZ Türkiye



137+
Employees



Company Profile



**Advanced Proprietary
Processing Technology**



**Canada
Certificate: FM 63463**



**China
Certificate: FM 577647**



**Turkey
Certificate: FM 601414**

ISO9001:2015 Certified



Broad Patent Portfolio



Company Profile

OZ Optics is Lead by an Experienced Team:

- **Ömür Sezerman, Chairman, President & CEO**
 - Founder and CEO since inception (40 years)
- **Zahide Sezerman, VP of Human Resources**
 - With OZ Optics since inception (40 years)
- **Garland Best, VP of Components Division**
 - 33 years at OZ Optics
- **Gordon Youle, VP of Test Equipment Division**
 - 26 years at OZ Optics
- **Saeed Pilevar, Senior VP of Business Development**
 - 3 months at OZ Optics
- **Onur Koca, General Manager of OZ Türkiye**
 - 3 year at OZ Optics
- **Bing Li, General Manager of OZ Optics China**
 - 21 years at OZ Optics



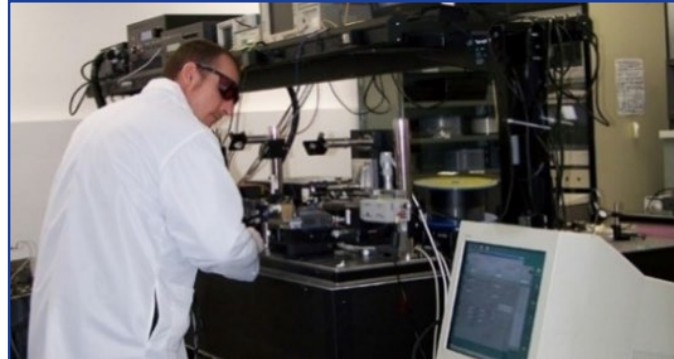
Company Profile

**Experienced and Well-Trained Staff in Following Fields:
Optical, Mechanical, Electronics & Software**

CNC Machine Shop



Femto-Second Laser Lab



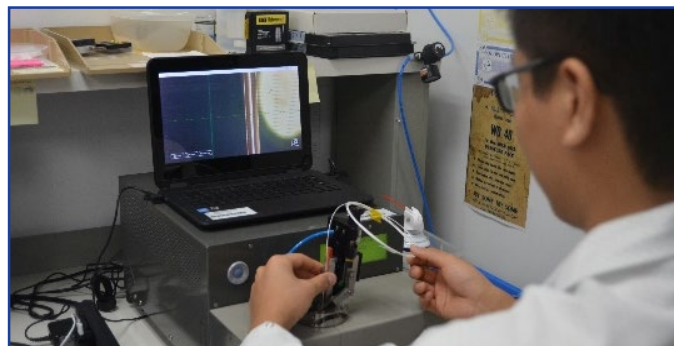
AR Coating



Clean Room



Laser Conditioning / Cleaving





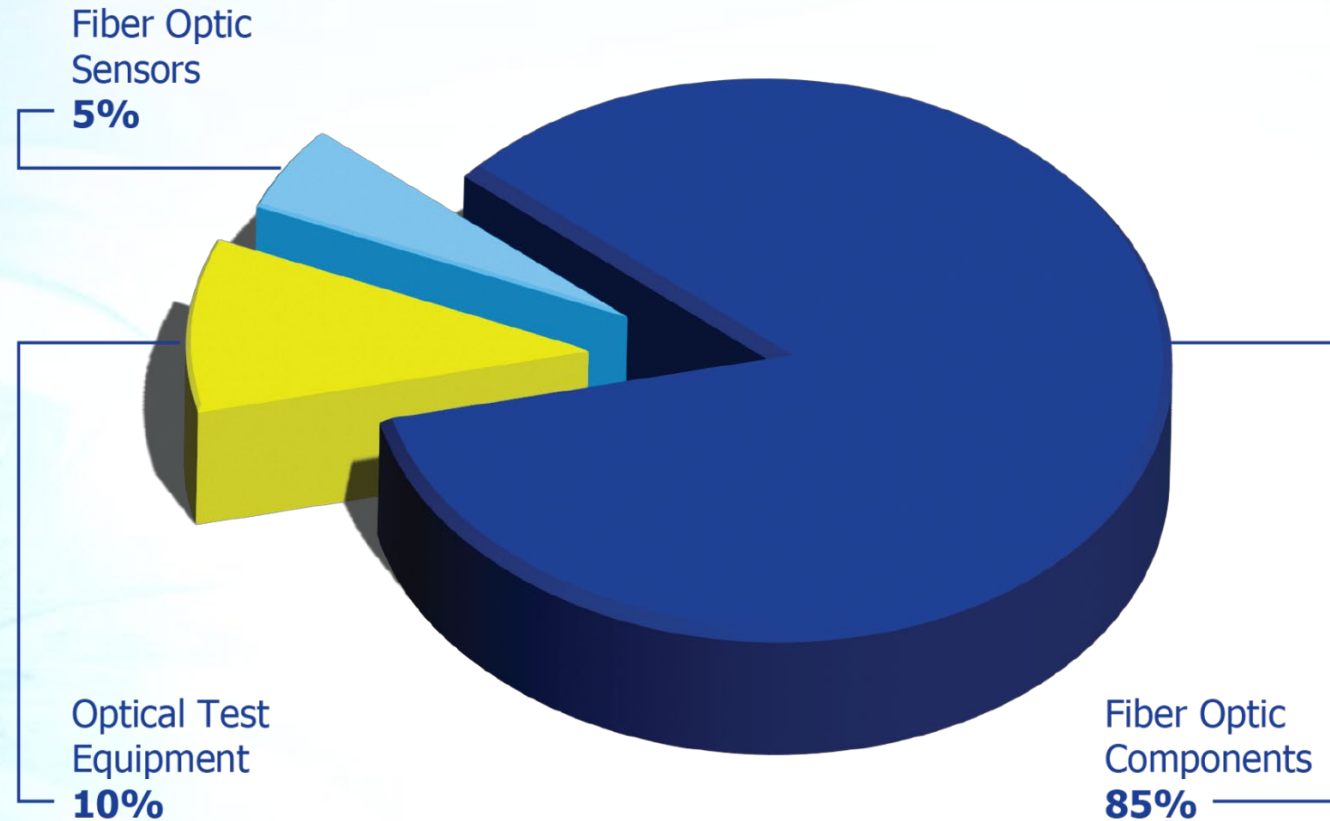
Core Competencies

- **Pioneer in Polarization Maintaining (PM) Components & Custom Test Equipment, Including Polarization Test Equipment and FTTH Equipment**
- **Leader in Wavelength Flattened, High Power & Low PDL Components**
- **Leader in High Power Fiber Optic Delivery Systems**
- **Widest Range in Attenuator Product Offering**
- **Fiber Optic Distributed Strain and Temperature Sensors**
- **Complete product line for OCT, Gyroscope & BioPhotonics applications & 2 Micron**
- **Now available: Spectrometers and Quantum Light Sources**



Leading Technology

➤ **Three Product Groups** ➤ **Over 1,000 Products** ➤ **Leading Edge R&D**





Leading Technology

Featured Products



World's Largest Online Fiber Optic Catalog

Most Products are in Stock



Quantum Light Sources

Fiber Optic Products for
Biophotonics Applications



Fiber Optic Products
for Gyroscopes

Polarization Maintaining
Components



Delivery Systems

High Power
Components

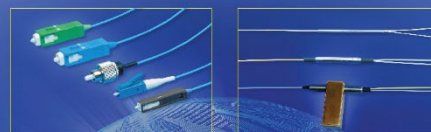


Test Equipment

High and Low Power
Patchcords

Polarization Maintaining Fiber Optic Components

Patent Numbers: USA 7058275, 7095931, 7295731, China 1672073



Polarization Maintaining
Connectors and Patchcords

Polarization Maintaining and
Polarizing Splitters / Combiners /
Fused Couplers / Switches



All Fiber Manual and Electrically Driven
Polarization Controllers / Serambers



Polarization Dependent
Loss Emulators

Fiber Pigtailed Polarizers



PM Fiber
Directional Taps and
PLC Splitters

Isolators

PM Fiber Pigtailed
Circulators

Laser and Laser Diode to Fiber Delivery Systems



Laser to Fiber Couplers

Pigtail, Receptacle Style
Collimators and Focusers



Bulkhead Receptacles

Bare Fiber Adaptors with
Magnetic Clips



Wavelength Division Multiplexers (WDMs) and RBB Combiners



OCT Modules and
2 micron Components

Evanescent Based
Variable Split Ratio
Fiber Splitter/Coupler

OEM Laser Diode to
Fiber Couplers



High Power Fiber Optic Components

Patent Numbers: Canada 2494133, USA 7058275,
7095931, 7295731, China 1672073



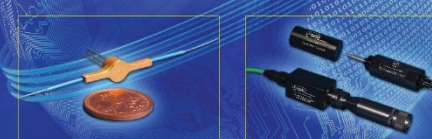
High Power, High Temperature
Connectors and Patchcords

OZPEN™ CO-2 Fiber Optics Cleaning
Unit for High Power Components



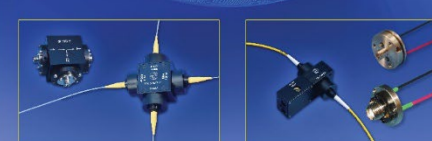
High Power Laser to Fiber
Couplers, Collimators and Focusers

High Power Mode Field Adapters



High Power Optical Taps and
Power Monitors

High Power Isolators



High Power Splitters and
Wavelength Division Multiplexers
(WDMs)

Shutters, Receptacles and
Sleeve Thru Adapters with Sensors



Leading Technology

Featured Products



Fiber Optic Attenuators

Polarization Maintaining, Single Mode and Multi-Mode Fibers



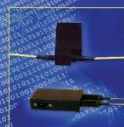
Benchtop Digital



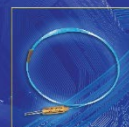
Variable Attenuators



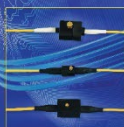
Digital Variable Attenuators



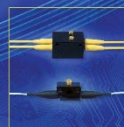
Electrically Controlled Variable Attenuators



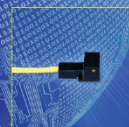
MEMS Variable Attenuators



PM, SM and MM Fibers Pigtailed Inline Variable Attenuators



Single and Multi Channel Miniature Variable Attenuators



Reflective Style Variable Attenuators



Air Gap Variable Attenuators



Plug Type Fixed Attenuators



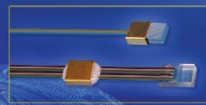
Attenuating Fiber Patchcords

Fiber Optic Components for Optoelectronic Packaging

Hermetically Sealable Patchcords with Glass or Metal Solder



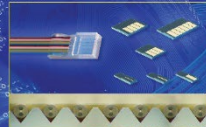
Single Channel



Multi Channel



Metalized Fibers



PM, SM and MM Fiber Pigtailed V-Groove Arrays



Polarization Measurement System for V-Grooves



Tapered, Lensed Fiber, Polished and Laser Shaped



Precision Collimator and Focuser Array

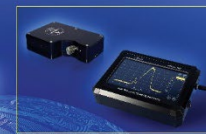


Fused Fiber Collimator

Fiber Optic Test Equipment



Quantum Entangled Photons Sources



High-Resolution Optical Spectrometers



Optical Fiber Length Meters



Back Reflection Meters



High-Speed Polarization Controller-Scrambler



Handheld and Benchtop Extinction Ratio Measurement Systems



Multichannel, Benchtop and Handheld Digital Variable Attenuators



High Power Visual Fault Locators



Powermeters with Smart Detector Heads

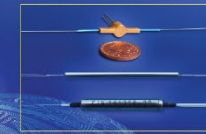


Laser Diode Stable Sources

Fiber Optic Components for 2 Micron Wavelengths



Fiber Optic Patchcords



Fused Couplers, Taps, Beam Splitters and Combiners



Fiber Pigtailed Laser Diode Sources



Pigtailed, Receptacle Style Collimators and Focusers



High Speed Electro-Optic Polarization Controllers and Scramblers



Manual and Electrically Controlled Variable Attenuators



Polarizers



Isolators



Leading Technology

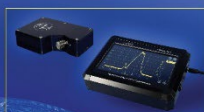
Featured Products



New Fiber Optic Products



Polarization Entangled
Photon Sources



High-Resolution
Optical Spectrometers



High Speed Electro-Optic Polarization
Controllers and Scramblers



Polarization Entanglement
Tomography Analyzers



Fiber Optic Coils
for Gyroscopes



Universal Optical DNA Rapid
Detection Systems for Pathogens



Motor Driven Polarization
Dependent Loss Emulators



Detector Heads and
Optical Power Monitors



Fiber Optic Products for Gyroscopes



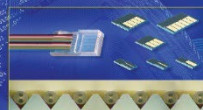
Fiber Optic Coils
for Gyroscopes



ASE Sources



Wavelength Division
Multiplexers



PM, SM and MM Fiber Pigtailed
V-Groove Arrays



Fused Couplers, Taps,
Beam Splitters and Combiners



Fiber Optic Polarizers



Fiber Optic
Patchcords



SM and PM Fiber
Pigtailed Circulators



Isolators

Quantum Entangled Photons Sources



Hyper-Entangled Photon Source
Broadband Telecom



Polarization-Entangled Photon Source
Broadband Telecom



Bright Polarization-Entangled Photon
Source Broadband Telecom



Bright Polarization-Entangled Photon
Source Narrowband Telecom



Correlated Photon Pair Sources



Polarization-Entangled Photon Source
Narrowband at 610 nm



Polarization Entanglement
Tomography Analyzer

Fiber Optic Products for OCT Applications



OCT Modules



Manual and Electrically Controlled
Broadband Variable Attenuators



Manual and Electrically Controlled
Fiber Optic Delay Lines



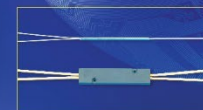
Manual and Electrically Controlled
Polarization Controllers / Scramblers



Fiber Pigtailed
Broadband SLED Sources



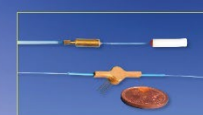
Fiber Collimators / Focusers



Broadband Fused Couplers



SM and PM Fiber
Pigtailed Circulators





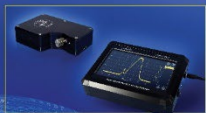
Leading Technology

Featured Products

Fiber Optic Products for Biophotonics Applications



Universal Optical DNA Rapid Detection Systems for Pathogens



High-Resolution Optical Spectrometers



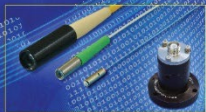
Fiber to Photodiode Couplers with Removable Filters



High and Low Power Patchcords



High Power Laser to Fiber Couplers



Pigtails, Receptacle Style Collimators and Focusers



Fiber Optic U-Bracket Assemblies



Wavelength Division Multiplexers and Beam Splitters



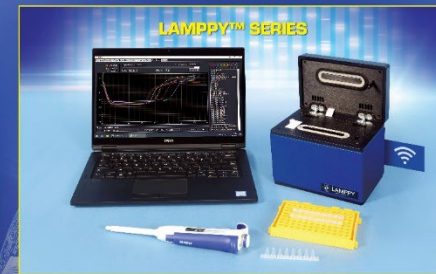
Turnkey, Ultra Stable Laser Modules



Pocket Optical Power Meter and Detectors

Universal Optical DNA Rapid Detection System

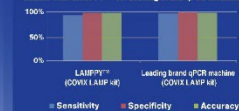
For Pathogens Including:
COVID-19, SARS, EBOLA, CHOLERA, SALMONELLA, ETC.



Features:

- Use to detect viral, fungal, and bacterial DNA/RNA
- Rapid DNA/RNA detection (as little as 20 minutes)
- Highly sensitive and specific detection of low viral levels
- Intuitive software displays real time data during testing
- Melt analysis available with the included software
- Lid heater prevents evaporation and condensation
- Compact modular design allows for easy cleaning and maintenance
- Pair with an external battery for a portable and field-deployable system
- Test up to 8 samples simultaneously (higher throughput systems with up to 96 samples available upon request)
- Wireless communication with dual-band Wi-Fi and Bluetooth connectivity
- A fraction of the cost of qPCR based systems
- OZ Optics also offers private labelling for volume OEM applications

Clinical trial: LAMPYY™ vs. Leading brand qPCR machine

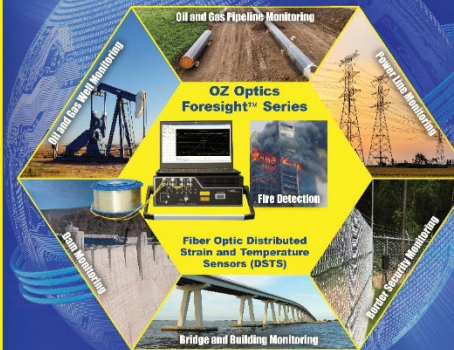


In a lab study done at Acibadem University using saliva samples taken from patients at the Acibadem Hospitals, LAMPYY was compared to a well-known conventional qPCR machine in performance and speed. The comparison study was carried out with a sample size of 262 using the COVIX LAMP-based kit on both instruments and then verified with the KrosQuant SARS-CoV-2 (2019 nCoV) Real Time PCR Diagnostic Kit on a leading brand conventional qPCR machine.

Fiber Optic Distributed Strain and Temperature Sensors

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunications fibers to minimize costs



Fiber Optic Sensors for Pipeline Monitoring

USA Patent Numbers: 7499151, 7599047, and 9568307

- Pipeline leakage detection
- Sensitive detection of corrosion / erosion, cracks and buckling
- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunication fiber to minimize costs



Corrosion and Erosion Monitoring



Fire Detection



Leading Technology

Featured Products

Fiber Optic Sensors for Fire Detection

USA Patent Numbers: 7499151, 7599047, and 9568307

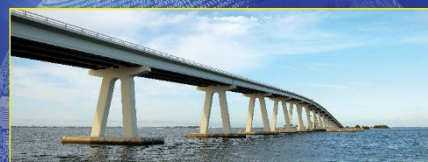
- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunications fiber to minimize costs



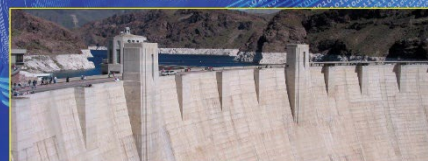
Fiber Optic Sensors for Bridges, Dams and Buildings

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunications fibers to minimize costs



Bridge Monitoring



Dam Monitoring



Building Fire Detection

Fiber Optic Sensors for Power Line and Smart Power Generator Monitoring

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunication fiber to minimize costs



Underground Power Line Monitoring



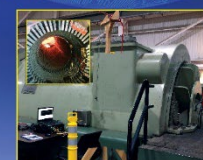
Power Line Monitoring



Optical Ground Wire (OPGW)



Construction of OPGW



Gas Generator Monitoring

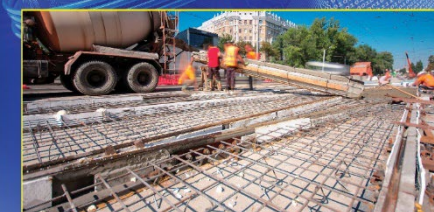
Fiber Optic Sensors for Security Monitoring

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunication fiber to minimize costs



Border Security Monitoring



Highway Health Monitoring



Industry Standards

All Products Manufactured are in Strict Accordance with International Industry Standards:

- **ISO 9001:2015 Certified (Canada, China and Türkiye)**
- **REACH Compliance**
- **RoHS Compliance**
- **CE Compliance**
- **Telecordia Compliance**
- **Controlled Goods Directorate Registered**
- **Critical Supplier for F35 and F18 Project**
- **TSCA (Toxic Substance Control Act) Compliance**
- **CHEMSHERPA Compliance**
- **IEC 61010 Compliance**



Marketing Strategy

Application Market

Using our strong direct sales and distributors, we address the following markets:

- **Energy – Oil and Gas**
- **Military and Homeland Security**
- **Educational**
- **Industrial**
- **Telecom / Datacom**
- **Medical & Pharmaceutical**





Marketing Strategy

Application Market

By leveraging the technology and expertise gained since its inception, OZ Optics has attracted a broad range of customers in the telecom / datacom, medical, military, security, industrial, construction, aerospace, power utilities, petrochemical and educational sectors.





Marketing Strategy

Global Sales Network

OZ Optics has resellers and distributors in over 30 Countries and Regions with over 10,000 customers worldwide:



Austria



Germany



Luxembourg



Sweden



Belgium



Greece



Netherlands



Switzerland



Brazil



Hong Kong



Norway



Taiwan



Canada



India



Poland



Thailand



China



Ireland



Portugal



Türkiye



Denmark



Italy



Singapore



United Kingdom



France



Japan



South Korea

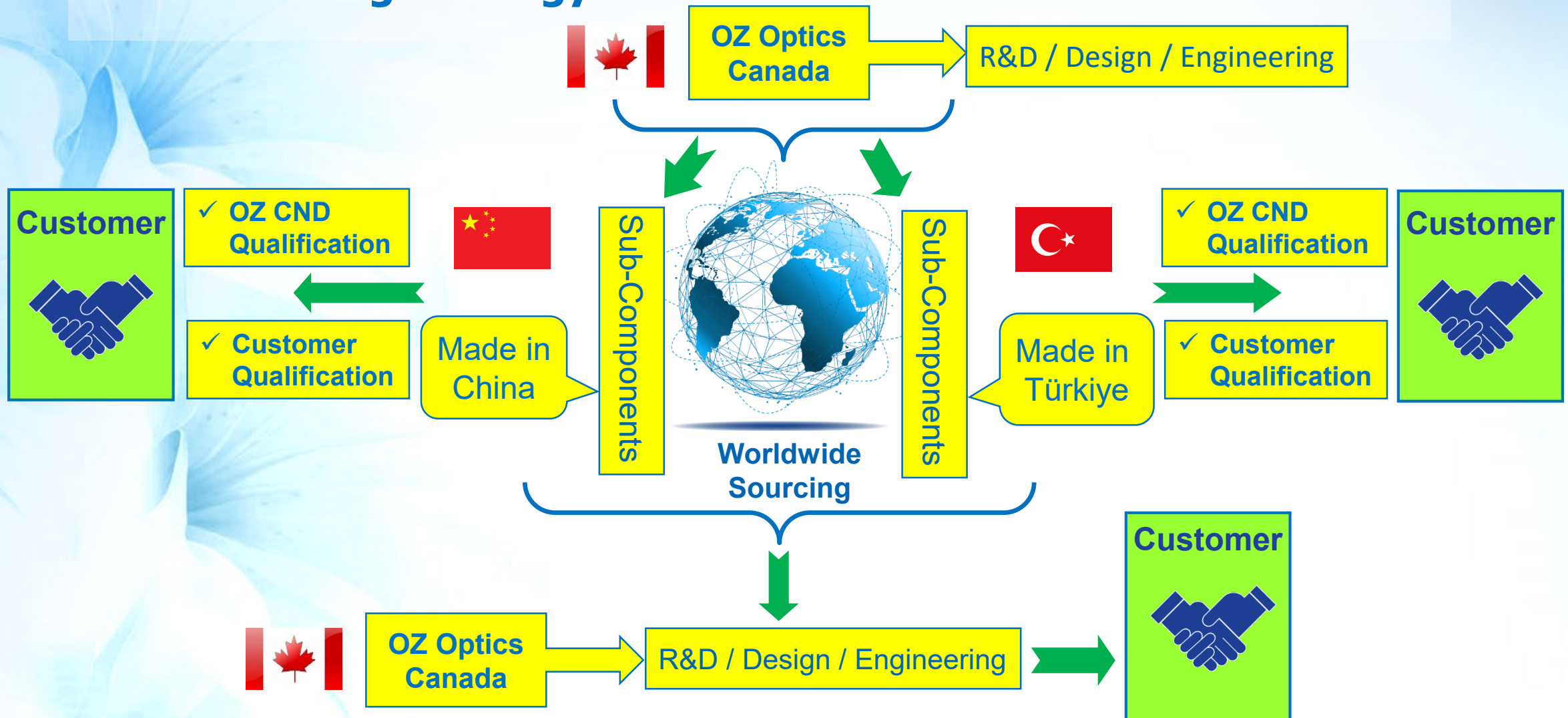


United States



Operation Strategy

Manufacturing Strategy





Marketing & Operation Strategy

Competitive Advantage

- Superior Technology
Innovative Engineering
- Competitive Pricing
- Global Presence
- Extensive Experience
In Fiber Optics Manufacturing
- Exceptional Quality and Service





Branch Network



OZ OPTICS CANADA (Headquarters)



OZ OPTICS TÜRKİYE (Türkiye Factory)



OZ OPTICS CHINA (Jiaxing Factory)



Branch Network

Facility - Ottawa Headquarters

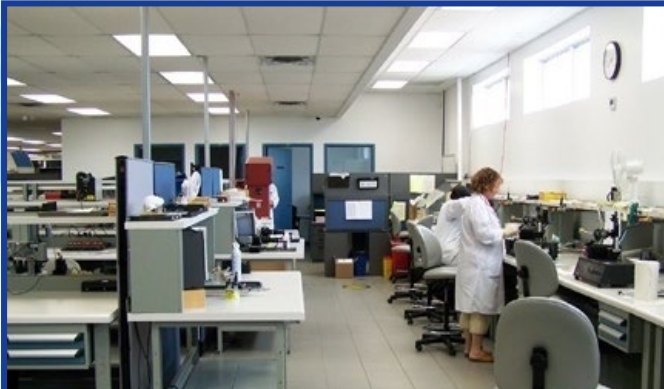
- 60,000 sq ft. - Manufacturing and R&D Facilities
- 15,000 sq ft. - Admin, Sales and Marketing
- 15,000 sq ft. - Training and Fitness Facilities





Branch Network

Facility - Ottawa Headquarters



Production Area



Training Centre Building



Meeting Room



Swimming Pool



Branch Network

Facility - Türkiye Factory (Izmir, Türkiye)

- Operational Since 2000
- 33,000 sq ft. Manufacturing Facility
- Located in Free Trade Zone
- Low Tax Rates
- Sub Component Parts Manufacturing
- High Quality Labor
- AR Coating Machine & Clean Room onsite





Branch Network

Facility - China Factory (Jiaxing, China)

- Operational Since June 2010
- Wholly Foreign Owned Enterprise
- Cost Effective Manufacturing
- High Quality Labor
- Supply Chain Integration





Branch Network

Facility - China Factory (Jiaxing, China)

- Located in Economic Development Zone
- 4000+ sq meters - Total Area
 - 500 sq meters – Administration, Sales and Marketing
 - 3500 sq meters – Manufacturing Area
 - ✓ 500 sq meter – Class 10,000 Clean Room
 - ✓ 300 sq meter – ESD Working Area





OZ Optics China

Zhejiang OZ Optics Technologies Co., Ltd



- Operational since June 2010
- Wholly Foreign Owned Enterprise
- NPI & Production Line Setup
- On-site Training by OZ CND
- Began Mass Production in September 2010
- Completed Main Facility Expansion in 2019





Optical Coherence Tomography Components



- **OZ Optics provides high quality, competitively priced fiber optic products based for OCT applications.**
- **Broadband, passive, products allow for miniaturization and stable operation.**



Fused Splitters For Visible and Near IR Applications

DTS0033: Fused Couplers – Fiber Optic

DTS0092: Polarization Maintaining Fused Fiber Couplers/Splitters

- Operating wavelengths available from 488 nm to 2000 nm
- Multimode, single mode and PM fiber versions
- Wavelength flattened versions
- Low loss (typically less than 0.3 dB)
- Wavelength dependence typically ± 0.25 dB over operating range
- Low PDR, typically < 0.1 dB
- Miniature and ruggedized package options



DTS0033 – Fused Couplers – Fiber Optic



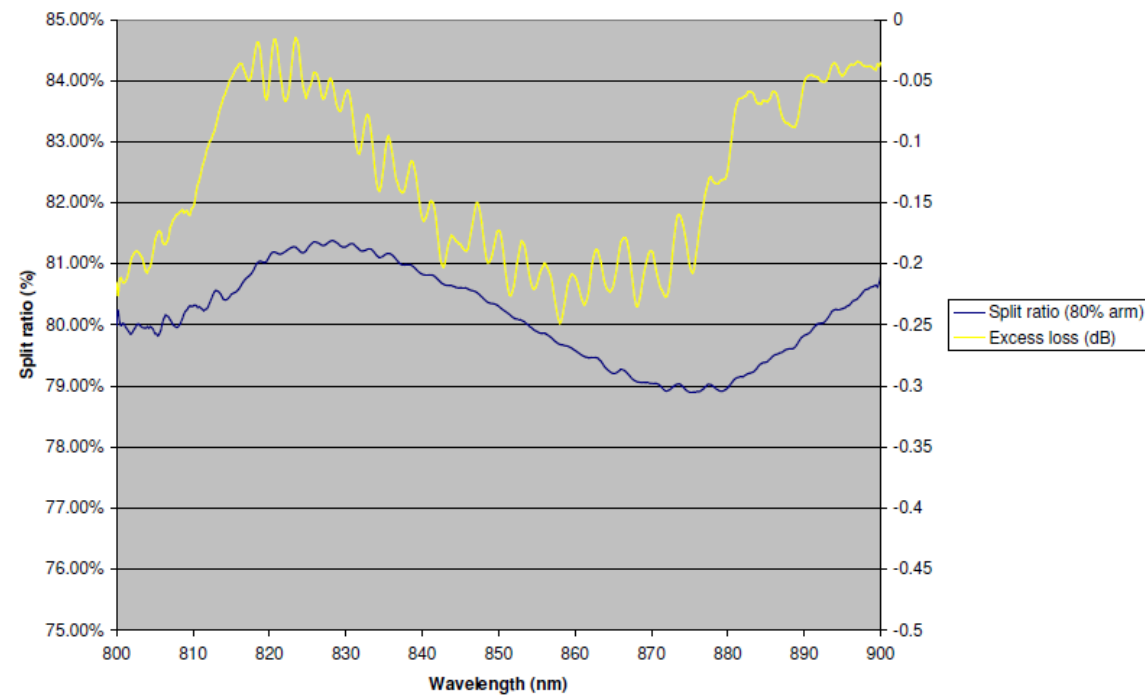
DTS0092 – Polarization Maintaining Fused Fiber Couplers/Splitter



840 nm Broadband Splitters



Split ratio and insertion loss variation of 2X2 80/20 splitter

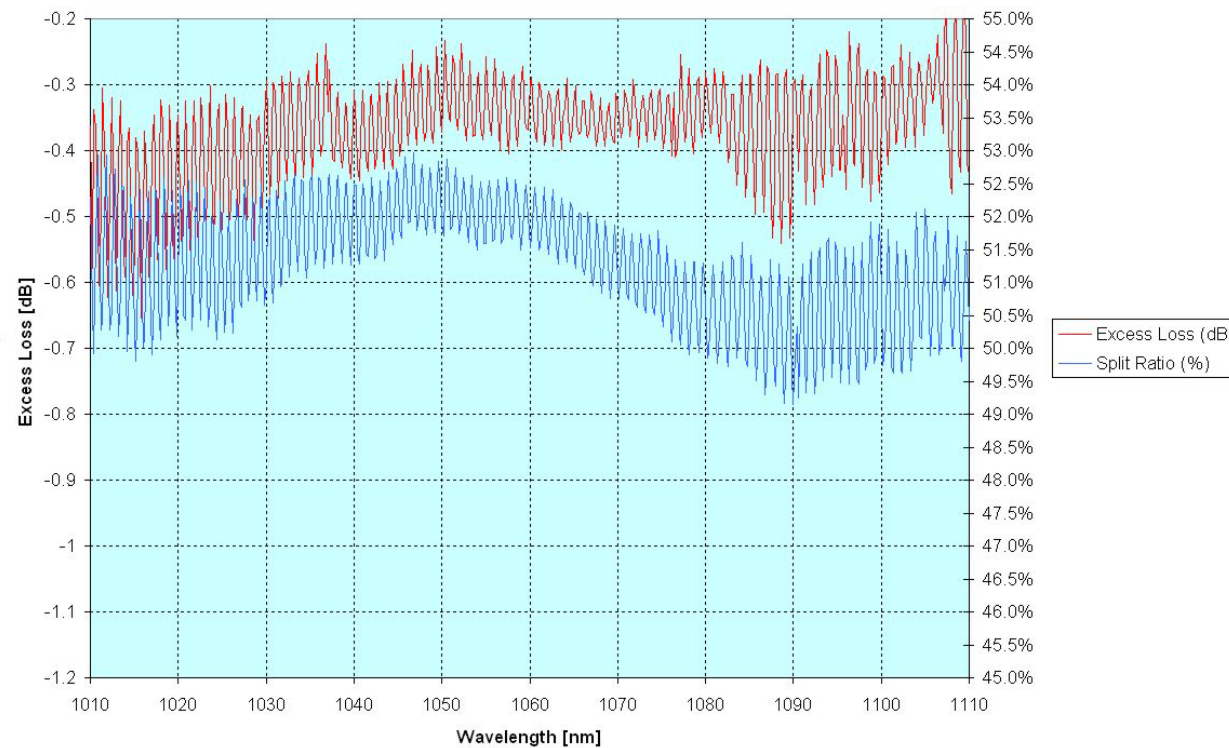




1060 nm Broadband Splitters



Insertion Loss and Split Ratio versus Wavelength for Fused splitter Sample #1

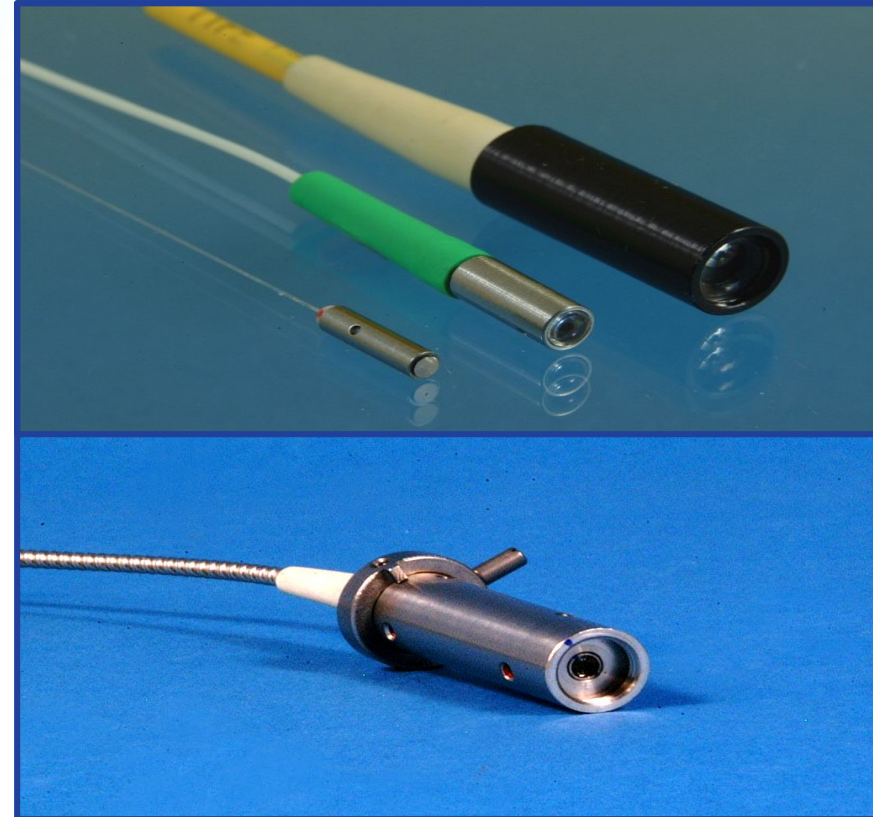




Fiber Optic Collimators and Focusers

DTS0060: Collimators and Focusers - Pigtail Style

- Variety of Collimator Sizes
- Aspheric or achromatic lenses for superior beam quality
- Infrared achromats for superior wavelength independence
- AR coated optics for maximum transmission, low return losses
- Variety of beam sizes
- Centration better than 1 mrad with respect to mechanical axis



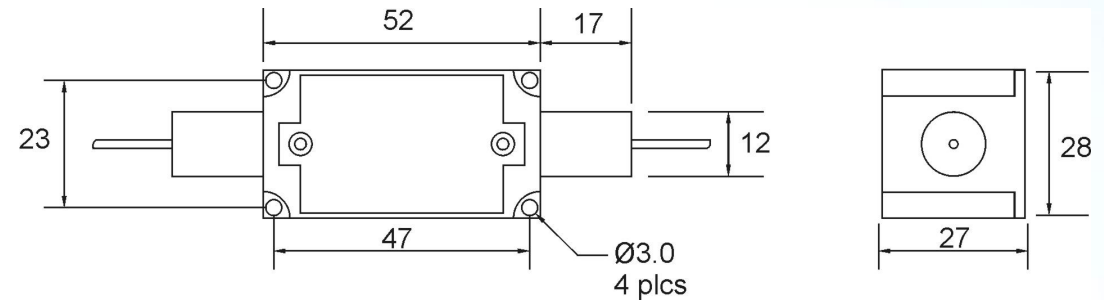
DTS0060 – Collimators and Focusers - Pigtail Style



Optical Isolators

DTS0016: Fiber Optic Isolators

- **Broadband wavelength operation, more than ± 40 nm**
- **High isolation over wavelength and temperature**
- **Low insertion loss over wavelength and temperature**
- **Compact Size**



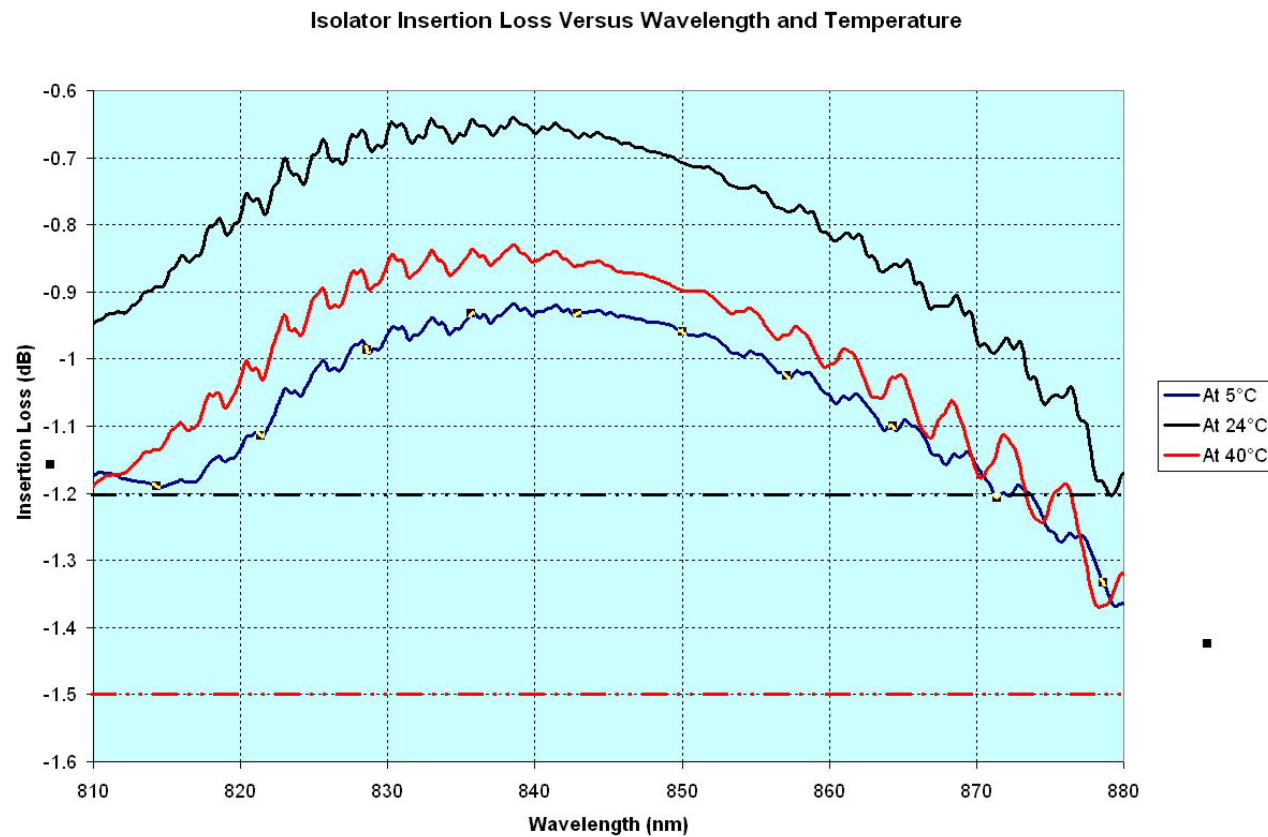
Dimensions in mm



DTS0016 – Fiber Optic Isolators



840 nm Isolator Insertion Loss

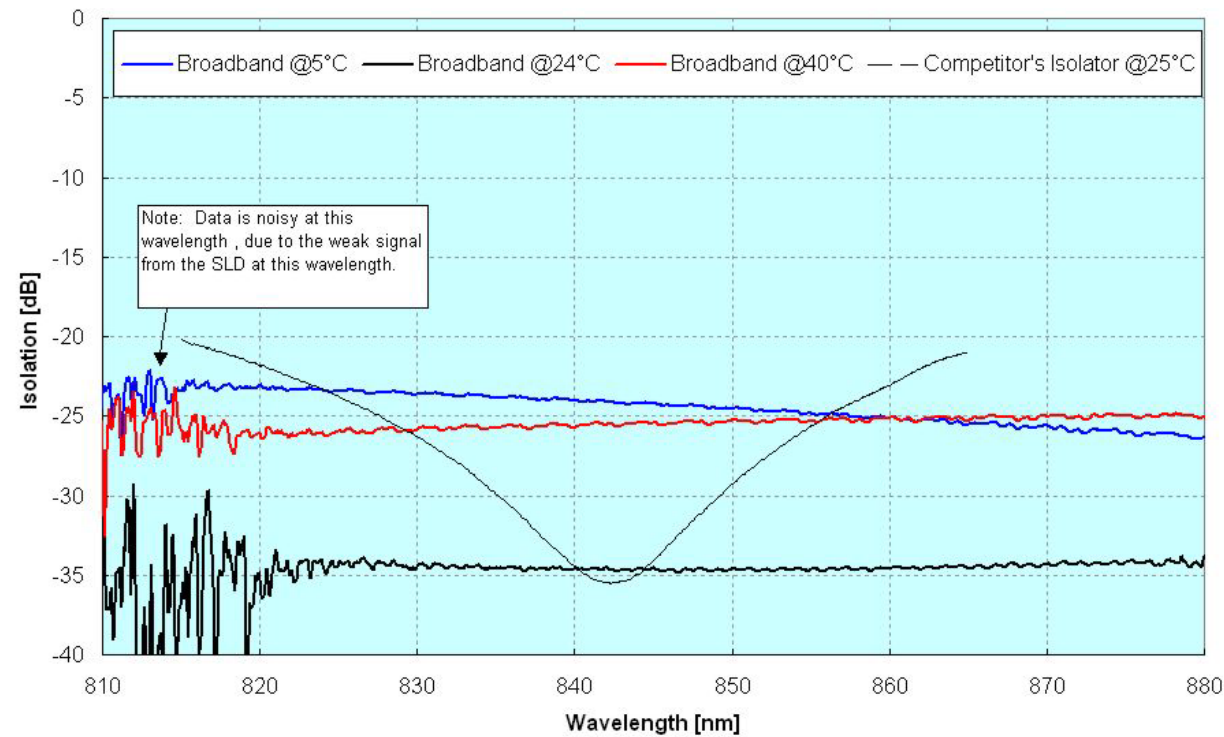




840 nm Isolator Isolation



Temperature and wavelength dependence of Broadband Isolator
(Typical isolation of a competitor's conventional isolator is also shown as a reference)

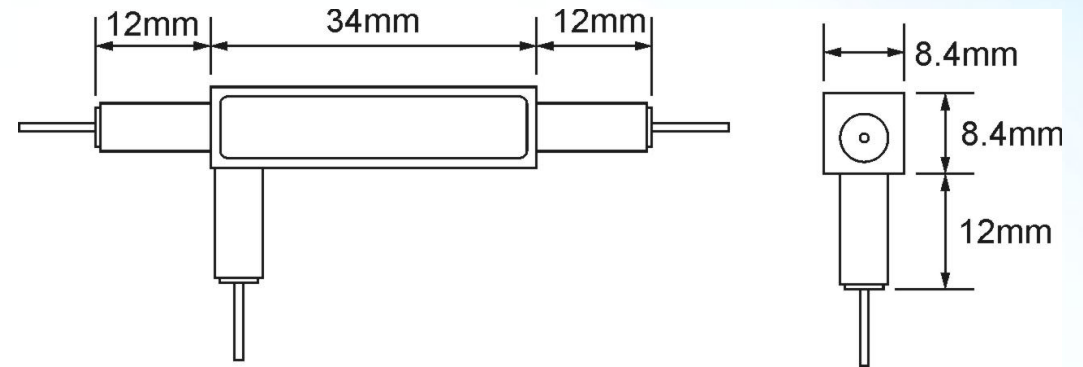




Optical Circulator For 1064 nm

DTS0070: Fiber Optic Circulators

- Exceptionally small size
- Better than 20 dB Isolation over 100 nm range
- <3 dB Insertion Loss at 1060 nm
- Better than -50 dB crosstalk

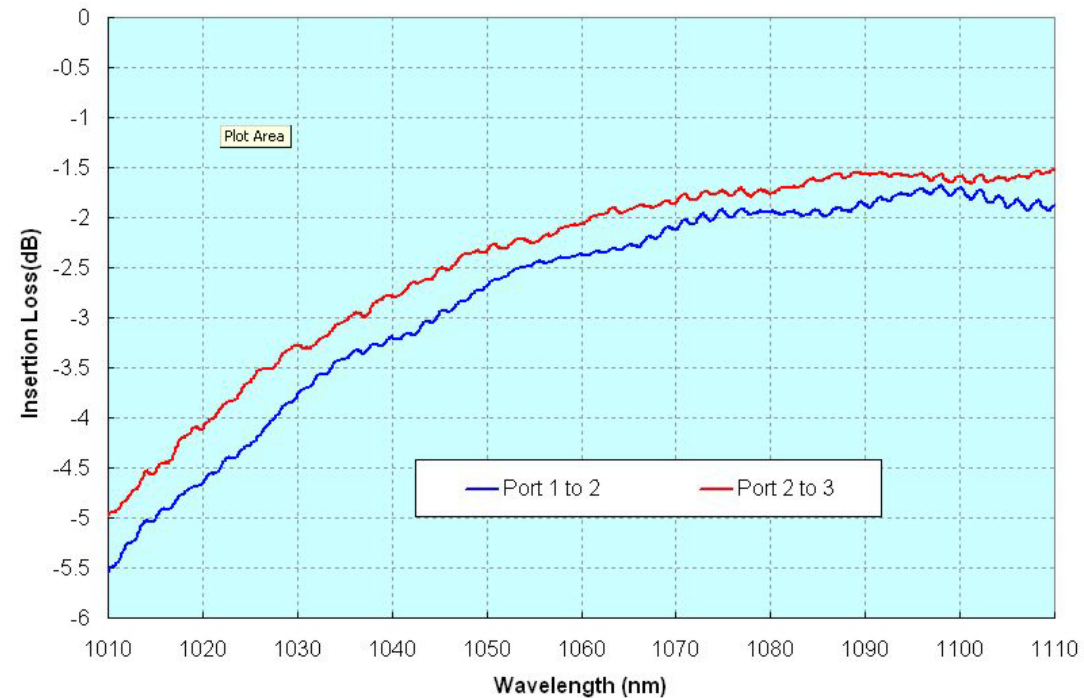


DTS0070 – Fiber Optic Circulators

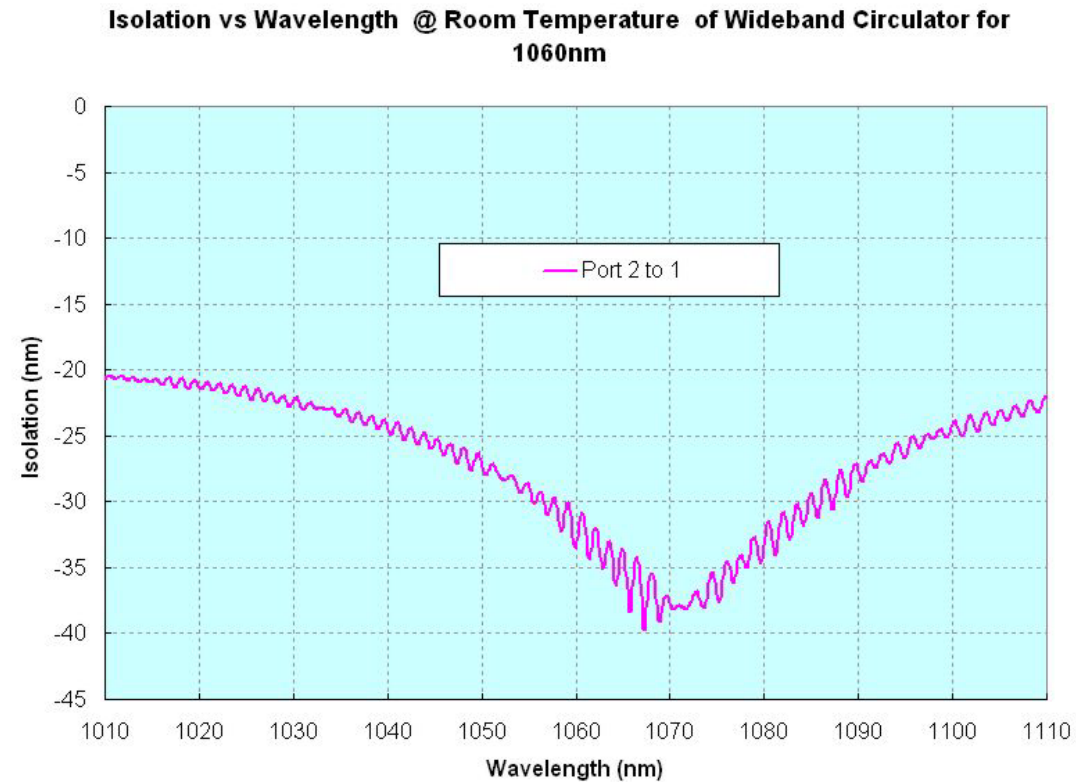
Optical Circulator for 1064 nm Losses



Insertion Loss vs Wavelength @ Room Temperature of Wide Band Circulator for 1060nm.



Optical Circulator for 1064 nm Isolation

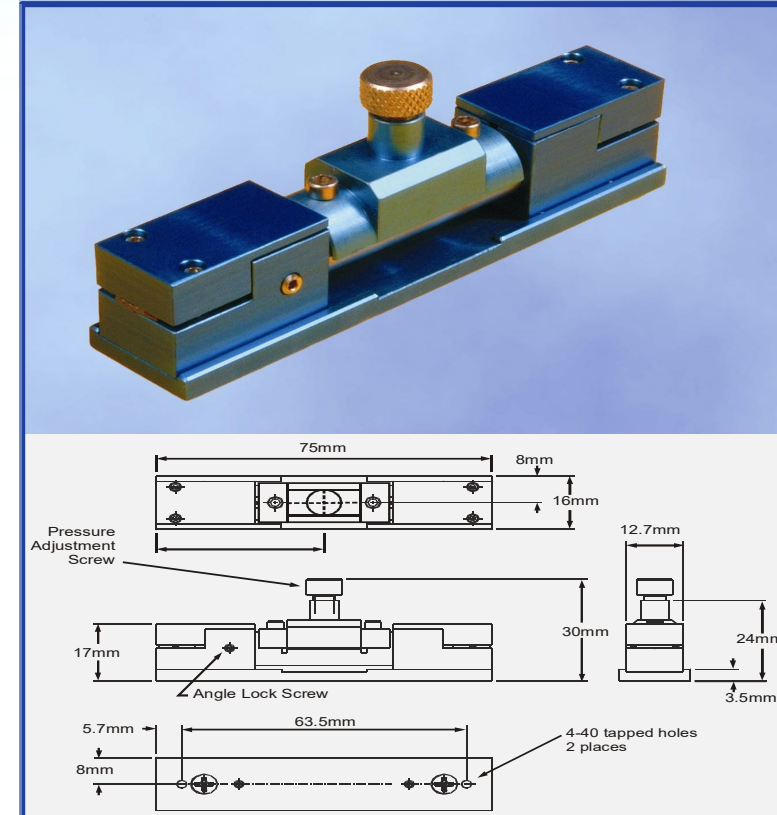




Polarization Controllers

DTS0001: All Fiber Polarization Controller

- No intrinsic loss
- No back reflection
- Miniature housing
- Easy to use
- Wavelength insensitive
- Low cost



DTS0001 – All Fiber Polarization Controller

Optical Delay lines

DTS0055: Optical Delay Lines

- Electrically controlled via RS232
- Over 300 ps delay range, < 1 dB typical IL
- 0.003 ps (0.8 micron) Resolution

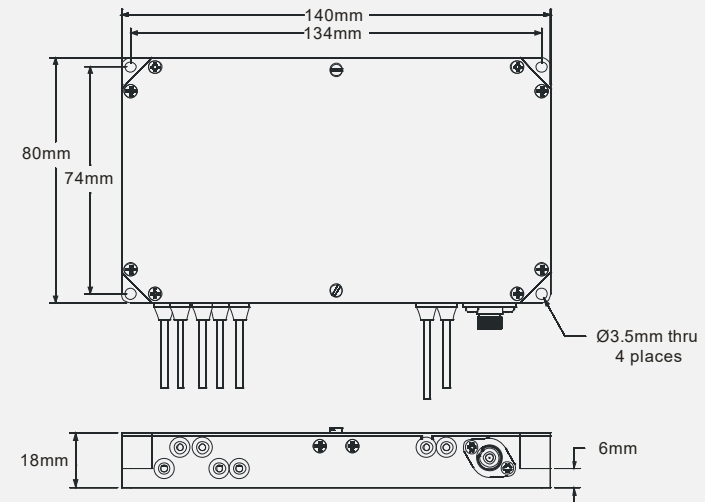
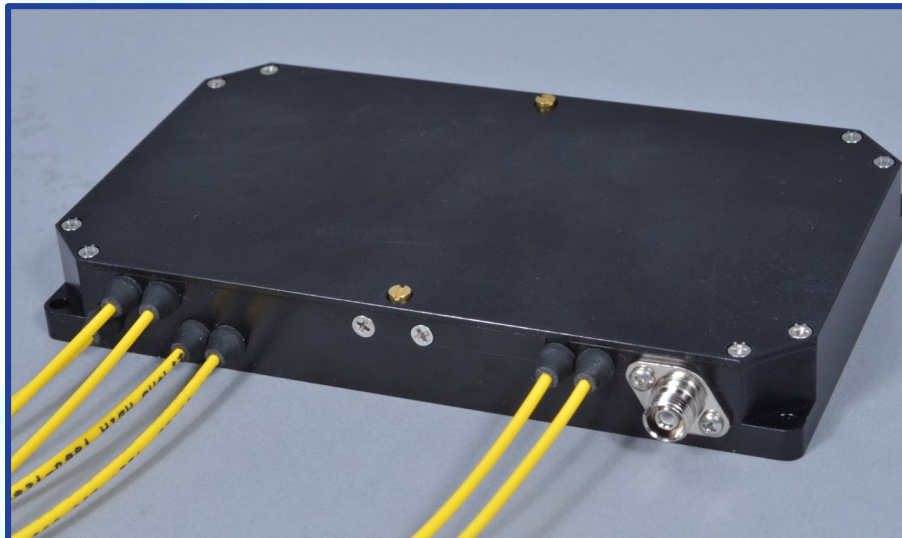


DTS0055 – Optical Delay Lines



OCT Interferometer Modules

- Combines splitters, attenuators, circulators into a single module
- Mach Zehnder and Michelson versions
- Custom built to customer specifications
- Single mode, and PM fiber versions
- 850 nm, 1060 nm, 1300 nm, and 1550 nm Versions





Broadband SLD Stable Sources

DTS0073: Polarized Fiber Optic Source

DTS0081: Fiber Pigtailed Ultra Stable Laser Module OZ-1000, OZ-2000 & OZ-3000 Series

- 830 nm, 1060 nm, 1300 nm and 1550 nm versions
- 50-100 nm linewidths
- Over 10 mW output power versions
- Single mode and PM fiber versions



DTS0073 – Polarized Fiber Optic Source



DTS0081 – Fiber Pigtailed Ultra Stable Laser Module OZ-1000, OZ-2000 & OZ-3000 Series

Thank You for Choosing OZ Optics

Please Contact Our Sales Department:

Tel: 613-831-0981 ext. 3370

Toll Free: 1-800-361-5415

Email: sales@ozoptics.com

