Fiber Optic Components
SHORT FORM CATALOG

Polarization Maintaining, High Power Fiber Optic Components, Laser & Laser Diode to Fiber Delivery Components,
Fiber Optic Attenuators, Fiber Optic Components for Optoelectronic Packaging
Patent Numbers: USA 7058275, 7067993, 7095931, 7295731, 7431513, 7499151, 7599047, 8090233, 8107782, 9568307, 9696141,
10329196, EPO 1527363, 2110651, CANADA 2494133, 2495223, 2496661, 2574702, 2590968, 2629446, and CHINA ZL03818458.3

Polarization Maintaining Patchcords
Hermetically Sealable Patchcords
Polarization Maintaining Splitters/Combiners
High Power Laser to Fiber Delivery Systems
Attenuators
High Power/Temperature Patchcords & Connectors

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ISO 9001:2015 Certified Manufacturing Facility
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Global Leader in Fiber Optic Products SINCE 1985
### Polarization Maintaining Fiber Optic Components

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarization Maintaining Patchcords</td>
<td>Up To 30 dB Polarization Extinction Ratios&lt;br&gt;FC/APC, FC/PC, SC, LC, MU, ST, E2000</td>
</tr>
<tr>
<td>Polarization Maintaining Fused Couplers</td>
<td>Low Cost, Miniature Size&lt;br&gt;50/50 To 99/1 Splitting Ratios&lt;br&gt;Ideal For Taps For Power Monitoring</td>
</tr>
<tr>
<td>Polarization Maintaining Splitters</td>
<td>Splits Polarized Light Into 2 PM or SM Fibers&lt;br&gt;0.6 dB IL, -40, -50, -60 dB Backreflection, 1x2 And 2x2 Versions Available</td>
</tr>
<tr>
<td>Polarization Dependent Loss Emulators</td>
<td>0.05 dB To 1 dB Polarization Dependent Loss&lt;br&gt;Fixed or Manually Variable PDL&lt;br&gt;Broad Wavelength Range, Compact, And Low Cost</td>
</tr>
<tr>
<td>Planar Light Circuit Splitter (PLCS)</td>
<td>Polarization And Singlemode Fiber Versions&lt;br&gt;Broad Bandwidth&lt;br&gt;1x2, 1x4, 1x8, 1x16, 1x32 Available</td>
</tr>
<tr>
<td>Polarizing Splitters / Combiners</td>
<td>Splits Light Into Two Polarizations&lt;br&gt;0.6 dB IL, -40, -50, -60 dB Backreflection&lt;br&gt;1x2 And 2x2 Versions Available</td>
</tr>
<tr>
<td>Optical Measurement Systems</td>
<td>Includes Source, Meter And Master PM Patchcord&lt;br&gt;Measures Up To 40 dB ER And Polarization Angle Simultaneously&lt;br&gt;FC, SC, LC, E2000 Or Custom Connectors &amp; Ferrules</td>
</tr>
<tr>
<td>OEM High Speed Polarization Controllers</td>
<td>Continuous Control Of Polarization&lt;br&gt;Negligible Insertion Of Losses And Return Losses&lt;br&gt;Up To 2 kHz Response Speed</td>
</tr>
<tr>
<td>Variable Optical Delay Lines</td>
<td>400–2000 nm Wavelength Range&lt;br&gt;Up To 600 ps Delay, 0.003 ps Resolution&lt;br&gt;&lt;1.2 dB Losses Over The Delay Range</td>
</tr>
<tr>
<td>All Fiber Polarization Controllers (Manual)</td>
<td>Compact Size, Easy-To-Use&lt;br&gt;No Intrinsic Insertion Losses Or Return Losses&lt;br&gt;Works With Any Singlemode Fiber</td>
</tr>
<tr>
<td>Fiber Pigtailed Polarizers</td>
<td>Up To 30 dB Extinction Ratios&lt;br&gt;0.6 dB Insertion Loss, Low Cost, Compact&lt;br&gt;-40, -50, -60 dB Backreflection Levels</td>
</tr>
<tr>
<td>Polarization Rotators / Analyzers</td>
<td>Greater Than 30 dB Extinction Ratios&lt;br&gt;-40, -50, -60 dB Backreflection Levels&lt;br&gt;Fiber-Fiber And Fiber-Photodiode Versions</td>
</tr>
</tbody>
</table>

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OZ Optics ensures high performance and reliability in fiber optic components, offering a wide range of solutions for various applications. Contact us for more information or to discuss your specific requirements.
Laser & Laser Diode to Fiber Delivery Components

Laser to Fiber Couplers
- > 60% Coupling Efficiency For SMF & PMF
- Low / High Power Versions Up To 100 W
- 180 nm To 2000 nm Wavelengths

Laser to Fiber Couplers with Adjustable Focus
- Up To 95% Coupling Efficiency For SMF & PMF
- SMF, MMF & PMF Versions
- 0.1 Micron Resolution In Focus Adjustment

Adjustable Fiber Collimators/Focusers
- Use for Adjustable Focusers And Couplers
- Super & Angled FC/PC, And SMA905 Connectors
- SMF, MMF & PMF Versions

Delivery Systems for Flow Visualization
- Uniform Intensity Along The Line
- < 1 mm Linewidths, 10º To 60º Fan Angles
- Cross Targets Also Available

Red/Green/Blue WDM Combiners
- Combine Red, Green And Blue Sources With Low Loss
- Singlemode, Multimode And PM Fiber Versions
- High Power Handling, 2 To 8 Wavelength Versions

Fused Fiber Collimators
- Low Insertion Loss
- Low Backreflection
- Over 1 kW Power Handling

Precision Fiber Collimator/Focuser Arrays
- High Density, Small Footprint
- Low Insertion And Backreflection Loss
- High Polarization

OEM Laser Diode to Fiber Couplers
- 375 nm To 1625 nm Wavelengths
- Up To 80% Coupling Efficiency Into SMF & PMF
- PC Board Mountable, Reusable Optics

Turnkey OEM Laser Diode Sources
- Wavelength Range: 375 nm To 2000 nm
- Externally Modulatable
- Red, Green, Blue Combiner Versions Available

Fiber to Photodiode Couplers
- >70% Coupling Efficiency, SMF, MMF & PMF
- -40 db, -60 db Backreflection
- Low Cost, Rugged And Compact Size

U-Bracket with Removable Optics
- As Good As 0.6 dB Insertion Loss
- Use With A/O Modulators, Bulk Optics

Alignment Kits & Tools
- Polarization Tool Aligns Polarization In Seconds
- Alignment Kit Simplifies Laser To Fiber Coupling
- Video/USB Demonstrates The Coupling Process

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Fiber Optic Attenuators

Inline Variable Attenuators
- 0.6 dB To 60 dB Attenuation Range SMF, PMF & MMF
- Up To 2 W Power
- Flat Wavelength Response
- < 0.01 dB PDL, Meets Telcordia Specifications

Reflective Style Variable Attenuators
- 0.6 dB - 60 dB Attenuation Range
- SMF, PMF & MMF Versions
- High Power Up To 2 Watts
- Up To 60 dB Attenuation Range
- 350–2050 nm Wide Wavelength Range

Electrically Controlled Attenuators
- 0.6 dB To 60 dB Attenuation Range SMF, PMF & MMF
- Maintains Attenuation With Power Off, Up To 2 W Power
- Low Cost, High Speed, Rugged And Compact Size

Reflective Style Motor Driven Attenuators
- 0.8 dB - 60 dB Attenuation Range
- SMF & MMF Versions
- High Speed, Rugged And Compact Size
- Up To 2 Watts Power Handling, Low PDL

Digital Variable Attenuators
- 0.01 dB Resolution, Fast Response Time
- 0.6 dB To 60 dB Attenuation Range
- Computer / USB Port / Battery Option

Loopback Style Fixed Attenuators
- Mode Independent Attenuation
- Rugged, Compact Housing
- SMF & MMF Versions

Attenuating Fiber Patchcords
- Mode Independent Attenuation
- Very Low Cost, Small Size

Plug Type Fixed Attenuators
- < -50 dB Backreflection, SMF & MMF
- -1 dB To -25 dB Attenuation, 1300 & 1550 nm Only
- Low Cost, Rugged And Compact Size

Fiber Optic Terminators
- Designed To Kill Backreflection in Unused Ends
- 50 dB Return Loss, 1300/1550 SM Fiber Only
- Ultra, FC/PC And SC Connectors

Miniature Single/Multi-Channel Variable Attenuators
- Less Than 5 mm Thick Per Channel
- Ideal For High Density Fiber Networks
- High Power Handling, Low Loss, PDL And WDL

Reflective Style Motor Driven Attenuators
- High Power Up To 2 Watts
- Up To 60 dB Attenuator Range
- 350–2050 nm Wide Wavelength Range

MEMS Variable Attenuators
- Compact And Inexpensive
- Single Channel Up To 40 Channel Versions
- Low Loss, Large Attenuation Range

Removable Neutral Density Attenuators
- Mode Independent Attenuation
- Pigtail And Receptacle Styles
- SM, PM Fiber Versions

Very Low Cost, Small Size

Compact And Inexpensive

Single Channel Up To 40 Channel Versions

Ultra, FC/PC And SC Connectors

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Fiber Optic Connectors, Patchcords and Components for Optoelectronic Packaging

Hermetically Sealable Patchcords with Metal Solder (Single/Multi Channel)
Meets Telcordia Specifications, Up To 16 Channels
SMF, MMF & PMF Versions
Customer Specific OEM Designs

Hermetically Sealable Patchcords with Glass Solder (Single/Multi Channel)
No Metallization Required, Up To 16 Channels
Meets Telcordia Specifications SMF, MMF & PMF
Customer Specific OEM Designs

Fiber Pigtailed V-Groove Arrays
Up To 96 Fibers In A Single Array
127, 250, 400 And 500 Micron Spacings
SM, MM, And PM Fibers

Tapered/Lensed Fibers
As Small As 2.0 Micron Spot Sizes
Circular And Oval Spot Profiles
Custom OEM Designs, Metallized Versions

Metalized Fibers
SMF, MMF & PMF Versions
Ideal For Hermetic Component Packaging
Cleaved Fiber Endfaces, Masked Regions

V-Groove Substrates
Up To 96 Fiber Substrates
Better Than 0.5 Micron Accuracy
Use With Either UV Or Thermal Epoxies

Glass Solder Preforms
Solders Glass Directly To Metal
Ideal For Hermetic Sealing, Device Packaging
Circular And Oval Preform Shapes

Hermetic Patchcords with Built-In Optical Taps
Allows In-Line Monitoring Inside Devices
Wide Wavelength Range, Automatable
SM, PM Fiber Versions

Fiber Optic Ferrules
Glass, Zirconia, And Kovar Metal Ferrules
Cylindrical And Rectangular Shapes
Custom Shapes And Hole Sizes

PM Fiber Pigtailed V-Groove Assemblies
Up To 48 Fibers In Single Array
127, 250, 400, 500 Micron Spacings
SM, MM, And PM Fiber Versions

Dual Fiber Pigtails
PM Stress Rods Aligned To ±0.5 Degrees
Miniature Size Ideal For Packaging

Soldering Station Inductive Systems
Used For Hermetic Sealing
Easy-To-Use
Custom Jigs Are Available

Precision Fiber Collimator/Focuser Arrays
High Density, Small Footprint
Low Insertion And Backreflection Loss
High Extinction Ratio

Bulkhead Receptacles
Available For FC, LC, ST, SMA, SC, FC/APC, Angled AT&T-ST And Angled SC
Designed For Free Space Use, Compact Size

Bare Fiber Adaptors With Magnetic Clip
Very Easy To Hold Bare Fibers
FC, ST, LC, SC, SMA, E2000, MU Available
80 Micron – 1000 Micron Hole Sizes

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High Power Fiber Optic Components

61 High Power Patchcords and Connectors
Able To Transmit Over 100 W of Optical Power
Operating Wavelengths From 180 nm To 2000 nm
PMF, SMF, And MMF High Power AR Coatings

62 High Power Collimators/Focusers
Up To 100 Watts CW Power Handling
Available For 180 nm To 2000 nm Wavelengths
Receptacle And Pigtailed Versions

63 High Power Fiber Pigtailed Isolators
Low Insertion Loss, Up To 100 Watts
1064 nm Fiber-to-Fiber And Fiber-to-Air Versions
Polarization Independent, High Isolation

64 High Power Directional Taps/Power Monitors
Up To 10 Watts Power Handling
SM, PM And Specialty Fiber Versions
Available For 320 nm To 2000 nm

65 High Power Fiber Optic Shutters
with Safety Interlocks
Up To 100 Watts Power Handling
Fiber-Fiber And Source-Fiber Versions
Available For 180 nm To 2000 nm Wavelengths

66 High Power Mode Field Adapters
High Power Handling
Adapts And Conserves Modal Content
Custom Designs Available

67 High Power Bulkhead Receptacles/Sleeve
Thru Adaptors with Safety Interlocks
High Power Handling
Contact, Temperature, Proximity Sensors
Fiber To Air And Fiber To Fiber Versions

68 High Power Wavelength Division Multiplexers
0.8 dB Insertion Losses, 65 dB Isolation
Up To 2 W Power Handling
-40 dB, -50 dB, -60 dB Backreflection

69 High Power Free Space Splitters
Fiber to Fiber Version
Up To 100 Watts Power Handling
Available Wavelengths From 400 nm To 2000 nm
MM, SM, PM Fiber Versions

70 High Power Bulkhead Receptacles/Sleeve
Source to Fiber Type
Up To 100 Watts Power Handling
Available Wavelengths From 400 nm To 2000 nm
MM, SM, PM Fiber Versions

71 High Power Optical Coatings
High Power AR, Beamsplitter, Dichroic Coatings on
Fibers, Micro Optics, Lenses, Plates, Prisms etc.
Low Temperature High Abrasion Resistant Coatings

72 OZPEN CO, Cleaning Unit for
High Power Components
Designed To Clean Small Surfaces
Superior To Other Cleaning Methods
Quick Dry And Solvent-Free Cleaning Process

73 Fused Fiber Collimators
Low Insertion Loss
Low Backreflection
Over 1 KW Power Handling

74 Bulkhead Receptacles
Available for FC, LC, ST, SMA, SC, FC/APC,
Angled AT&T-ST And Angled SC
Designed For Free Space Use, Compact Size

75 High Power Antireflection (AR) and Highly
Reflective (HR) Coated Fiber Ends
HR, R>98%, AR < 0.3%
350 nm To 2000 nm Wavelength Coatings
SMF, MMF & PMF Versions

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Miscellaneous Fiber Optic Components

OCT Module/Components
Complete Module Or Separate Components
Such As Broadband Isolators, Sources, Attenuators, Collimators, Fused Splitters, Delay Lines

Fiber Optic Educational Kits
Teaches Basics Of Fiber Optics
Easy-To-Use, Affordable
Wide Range Of Labs Available

Fiber Optic Termination Kits
For FC, LC, ST, SMA Or SC Connectors
Contains All The Necessary Polishing Films, Tools, Epoxies And Accessories

Fiber Optic Educational Kits
Teaches Basics Of Fiber Optics
Easy-To-Use, Affordable
Wide Range Of Labs Available

Fiber Optic Termination Kits
For FC, LC, ST, SMA Or SC Connectors
Contains All The Necessary Polishing Films, Tools, Epoxies And Accessories

Fiber Optic Shutters
Up To 100 W Optical Power SMF, PMF & MMF
Fast Response Time
Ideal For Safety Interlocks

Pin Gauges for Fiber OD Measurements
Easy-To-Use, Low Cost
124–128 Micron Gauges Available
Individual Or 5-In-One Gauges

Vacuum Feedthroughs
Singlemode And Multimode Versions
Easy To Install And Use, Compact And Rugged
Gas Leak Rate 10 scc/sec

Compact RGB Engine/Combiner
Combine Up To 5 Visible Wavelengths In One Fiber
Compact Size
High Power Handling

Bare Fiber Adaptors with Magnetic Clip
Very Easy To Hold Bare Fiber
FC, ST, LC, SC, SMA, E2000, MU Available
80 Micron – 1000 Micron Hole Sizes

Universal Connectors/Hybrid Patchcords
Less Than 0.5 dB Insertion Loss
Ultra, Super, Angled FC/PC, LC, SC, ST & SMA
Low Cost, Rugged And Compact Size

Sleeve Thru Adaptors
Available For FC, ST, SMA, SC And LC, MM
Less Than 0.2 dB Insertion Losses
Patch Panel Mountable, Duplex Styles

Air Gap Variable Attenuators
Very Compact Size
Patch Panel Mountable
FC/PC And ST Connector Styles

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**Miscellaneous Fiber Optic Components**

1. **Laser Diode Power Combiners**
   - Up To 45% Coupling From Each Diode
   - -40, -50, -60 dB Backreflection
   - SMF, PMF & MMF
   - Can Combine Equal / Different Wavelengths

2. **Fiber Optic Fixed Filters**
   - 400 nm To 1600 nm Wavelengths, SMF & PMF
   - -40 dB, -50 dB, -60 dB Backreflection
   - Filters Can Be Fixed Or Removable

3. **Polarization Extinction Ratio Meters**
   - Measures Up To 50 dB
   - 450–2400 nm Wide Wavelength Range
   - 0.5° Angle Accuracy

4. **Motor Driven Variable Bandwidth Tunable Filters**
   - 45 nm Tuneable Range
   - Flat Top Filter Shape
   - Polarization Insensitive

5. **Electrically Controlled Fabry-Perot Tunable Filters**
   - Tuning Rate Up To 25 kHz
   - Narrow Bandwidth
   - Low Insertion Loss

6. **Polarization Measurement System for V-Grooves**
   - Measures Polarization Angle To ± 0.5 Degrees
   - Measures Extinction Ratios Up To 40 dB
   - Measures Relative Power (650 Hz Sample Rate)

7. **Electrically Controlled Fabry-Perot Tunable Filters**
   - Continuous Control Of Polarization
   - Negligible Insertion And Return Losses
   - Up To 2 kHz Response Speed

8. **Low Power Isolators**
   - Compact Size
   - 440–2000 nm Wavelengths Available
   - Low Insertion Loss

9. **Connector Cleaning Units**
   - Easy-To-Use
   - Low Cost
   - 2.5 mm, 1.25 mm, Custom Design Connectors

10. **Connector Video Microscopes**
    - Easy-To-Use
    - Up To 400x Magnification
    - LC, FC, SC, E2000 Or Other Custom Connectors

11. **Fiber Reflectors**
    - Low Loss, Compact Design
    - 400–2000 nm Wavelengths Available
    - Partial Reflectors Are Available

12. **600 ps Reflector Style Delay Lines with Servo Motor**
    - 400–200 nm Wavelength Range
    - Up To 600 ps Variable Delay Line
    - Low Insertion Loss

13. **Fiber Reflectors**
    - Low Loss, Compact Design
    - 400–2000 nm Wavelengths Available
    - Partial Reflectors Are Available

14. **PM Fiber Optic Switches**
    - Repeatability < ±0.05 dB
    - 1x2 Miniature Reliable Switching Mechanism
    - Low Loss < 0.6 dB, High ER > 20 dB

15. **Benchtop High Speed Polarization Controller Scramblers**
    - Continuous Control Of Polarization
    - Negligible Insertion And Return Losses
    - Up To 2 kHz Response Speed

16. **Benchtop Polarization Extinction Ratio Meters**
    - Measures Up To 50 dB
    - 450–2400 nm Wide Wavelength Range
    - 0.5° Angle Accuracy

17. **Polarization Measurement System for V-Grooves**
    - Measures Polarization Angle To ± 0.5 Degrees
    - Measures Extinction Ratios Up To 40 dB
    - Measures Relative Power (650 Hz Sample Rate)

18. **Connector Cleaning Units**
    - Easy-To-Use
    - Low Cost
    - 2.5 mm, 1.25 mm, Custom Design Connectors

19. **Motor Driven Variable Bandwidth Tunable Filters**
    - 45 nm Tuneable Range
    - Flat Top Filter Shape
    - Polarization Insensitive

20. **Fiber Reflectors**
    - Low Loss, Compact Design
    - 400–2000 nm Wavelengths Available
    - Partial Reflectors Are Available

21. **Electrically Controlled Fabry-Perot Tunable Filters**
    - Tuning Rate Up To 25 kHz
    - Narrow Bandwidth
    - Low Insertion Loss

22. **Polarization Measurement System for V-Grooves**
    - Measures Polarization Angle To ± 0.5 Degrees
    - Measures Extinction Ratios Up To 40 dB
    - Measures Relative Power (650 Hz Sample Rate)

23. **Connector Cleaning Units**
    - Easy-To-Use
    - Low Cost
    - 2.5 mm, 1.25 mm, Custom Design Connectors

24. **Motor Driven Variable Bandwidth Tunable Filters**
    - 45 nm Tuneable Range
    - Flat Top Filter Shape
    - Polarization Insensitive