



# OZ Optics

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## OPTOGLIDE PRECISION LASER DELIVERY SYSTEM

### PRELIMINARY

#### Features

- **High Coupling Efficiency:** > 70% coupling into singlemode or polarization maintaining fiber.
- **Precision Alignment:** Provides five-axis control of the optics for maximum efficiency.
- **High Power handling:** > 5 Watts combined power handling with certain configurations.
- **Multi-Wavelength Capability:** Uses achromatic lenses to ensure high coupling efficiency over a broad wavelength range.
- **Versatile:** Compatible with existing mounting schemes. Available with custom optics for specific lasers, and with output connectors or collimators.

#### Applications

- Multi-wavelength laser systems
- Precision optical instrumentation
- Scientific research laboratories
- Biomedical and life-science instrumentation
- Industrial laser systems
- OEM photonics integration

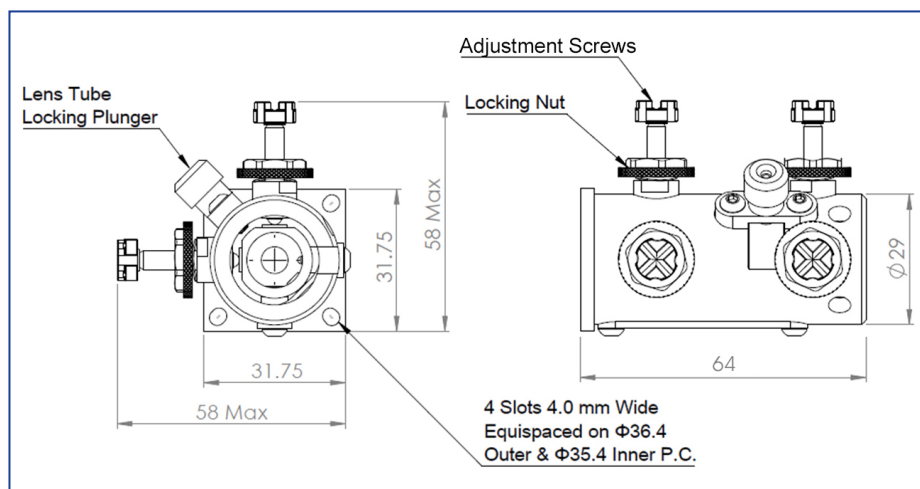


Optoglide Precision Laser Delivery System

#### Product Description

The Optoglide Precision Laser Delivery System from OZ Optics is a robust fiber-coupling solution designed for applications requiring exceptional optical stability, precise alignment, and long-term repeatability. Its precision-engineered design enables accurate beam positioning and fine alignment, ensuring reliable optical coupling in demanding photonics environments.

At the heart of the system is a polarization-maintaining (PM) single-mode optical fiber integrated with a compact precision alignment assembly that mounts directly to the laser source. A high-performance lens assembly efficiently couples laser light into the fiber, providing high optical coupling efficiency with either collimated or connectorized output options.



Optoglide Alignment Fixture Dimensions

Optoglide incorporates a proprietary low-wedge optical design that minimizes beam pointing variations caused by thermal and mechanical instabilities of the laser source. This design maintains consistent alignment and repeatable coupling performance, making it particularly well suited for systems utilizing multiple collinear laser wavelengths.

Engineered to support high-power, multi-wavelength laser systems with combined optical powers of up to 500 mW, Optoglide delivers stable and repeatable optical performance for research, industrial, and OEM applications. Custom configurations are available to accommodate specific laser sources, wavelength combinations, and integration requirements.

## Standard Specification: Optoglide Precision Laser Delivery System

| Coupler Specifications                     |                                                                                                                                   |                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Operating Wavelength (nm)                  | Single wavelength: 350 to 2000<br>Multi-wavelength: 400-640 standard <sup>1</sup>                                                 |                                     |
| Input Power Handling                       | Standard:                                                                                                                         | 25 mW @ 405 nm, 100 mW @ > 500 nm   |
|                                            | High Power:                                                                                                                       | 200 mW @ 405 nm, 2 Watts @ > 500 nm |
| Fiber Type                                 | Panda style Polarization Maintaining Fiber Standard<br>Singlemode, Multimode or Photonic Crystal fiber (PCF) available as options |                                     |
| Polarization Extinction Ratio <sup>2</sup> | > 20 dB                                                                                                                           |                                     |
| Coupling Efficiency <sup>3</sup>           | > 60% minimum > 65% typical                                                                                                       |                                     |
| Fiber Jacket Diameter                      | 5 mm Stainless steel armor standard. Other sizes available                                                                        |                                     |
| Fiber Length                               | 1 meter standard. Custom lengths available on request                                                                             |                                     |
| Output Options                             | Connector or output collimated beam<br>Standard Connectors: FC/SPC, FC/APC, FC/P8, SC/APC, E2000/APC                              |                                     |

| Output Collimator Specifications <sup>4</sup> |          |
|-----------------------------------------------|----------|
| Beam diameter (mm)                            | 0.8±0.1  |
| M-Squared value                               | <1.1     |
| Beam angle offset (mrad)                      | <1       |
| Beam Center Offset (mm)                       | <0.15    |
| Collimator dimensions (mm)                    | Ø12 x 50 |

- Custom wavelength ranges available on request.
- When used with a source with a PER >= 27 dB
- Laser dependent. Values are for standard unit, used with a laser beam 0.6-0.8 mm in size, M2 < 1.1, beam waist located with 50mm of the coupler.
- For standard unit for 405-640 nm. Custom optics are OZ Optics speciality. Contact a sales representative for details.

## Ordering Information

### Description

### Part number

Optoglide Alignment Fixture: **OPTOGLIDE-01**

### Fiber Coupler Assembly

(Connector Output Version): **LPC-08-W-a/b-F-BD-f-BL-X-LD-L-(HPC)**

**W** = Wavelength in nm:

Example: Specify 633 for 633 nm  
Specify 400 / 640 for multiwavelength version

**a/b** = Fiber core and cladding diameters, in microns  
Example: 3/125 for 400/640 wavelengths

See tables 1 to 5 of the Standard Tables datasheet for standard fiber sizes.

[https://www.ozoptics.com/ALLNEW\\_PDF/DTS0079.pdf](https://www.ozoptics.com/ALLNEW_PDF/DTS0079.pdf)

**F** = Fiber types:

M = Multimode

S = Singlemode

P = Polarization Maintaining

**BD** = Input Beam Diameter, in mm (0.8 mm Standard)

**f** = Lens focal length and type:

use 6.3AG for f=6.3 mm air gap achromat for high power multiwavelength version

See Tables 9 to 12 of the Standard Tables data sheet for a list of available lenses and the collimator housings they fit.

[https://www.ozoptics.com/ALLNEW\\_PDF/DTS0079.pdf](https://www.ozoptics.com/ALLNEW_PDF/DTS0079.pdf)

**BL** = Backreflection level:

35 dB for multimode assemblies

40 or 60 dB for singlemode or PM assemblies

**HPC** = Optional: High Power versions (5AS standard)

**L** = Fiber length, in meters

**LD** = Jacket Diameter

1 = 900 micron OD hytrel jacket

3 = 3 mm OD PVC loose tube with Kevlar

3A = 3 mm OD armored

3AS = 3 mm OD stainless steel armored

5A = 5 mm OD armored

5AS = 5 mm OD stainless steel armored

See table 7 of the Standard Tables for drawings

[https://www.ozoptics.com/ALLNEW\\_PDF/DTS0079.pdf](https://www.ozoptics.com/ALLNEW_PDF/DTS0079.pdf)

**X** = Connector code

X = No connector

3S = Super NTT-FC/PC

3A = Angled NTT-FC/PC

3A8 = FC/P8

3AC = Endcapped Angle Polished FC

SC = SC

SCA = Angled SC

LC = LC/PC

LCA = Angled LC

EA = E2000/APC

See table 6 of the OZ Standard Tables data sheet for other connectors.

[https://www.ozoptics.com/ALLNEW\\_PDF/DTS0079.pdf](https://www.ozoptics.com/ALLNEW_PDF/DTS0079.pdf)

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## Fiber Coupler Assembly

(Collimator Output Version): **LPC-08-W-a/b-F-BD<sub>1</sub>-f<sub>1</sub>-BL-LD-L+LPC-0A-BD<sub>2</sub>-f<sub>2</sub>-(HPC)**

**W** = Wavelength in nm:

Example: Specify 633 for 633 nm

Specify 400 / 640 for multiwavelength version

**a/b** = Fiber core and cladding diameters, in microns

Example: 3/125 nm

See tables 1 to 5 of the Standard Tables datasheet for standard fiber sizes.

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**F** = Fiber types:

M = Multimode

S = Singlemode

P = Polarization Maintaining

**BD**<sub>1</sub> = Input Beam Diameter, in mm (0.8 mm Standard)

**f**<sub>1</sub> = Input Lens focal length and type:

use 6.3AG for f=6.3 mm air gap achromat for high power multiwavelength version

See Tables 9 to 12 of the Standard Tables data sheet for a list of available lenses and the collimator housings they fit.

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**L** = Fiber length, in meters

**HPC** = Optional: High Power versions

**f**<sub>2</sub> = Output Lens focal length and type:

use 6.3AG for f=6.3 mm air gap achromat for high power multiwavelength version

See Tables 9 to 12 of the Standard Tables data sheet for a list of available lenses and the collimator housings they fit.

[https://www.ozoptics.com/ALLNEW\\_PDF/DTS0079.pdf](https://www.ozoptics.com/ALLNEW_PDF/DTS0079.pdf)

**BD**<sub>2</sub> = Output Beam Diameter, in mm (0.8 mm Standard)

**A** = Output Collimator Size:

1 for 4.0 mm OD, no flange

2 for 33 mm OD removable flange1

3 for 20 mm OD removable flange1

4 for 8.0 mm OD, no flange

5 for 2.5 mm OD, standard length

6 for 2.5 mm OD, short length2

7 for 1.6 mm OD, no flange

8 for 12 mm OD x 50 mm long

T for 11 mm OD with M11x0.5 thread

9 for 1.8 mm OD, no flange

## Ordering Examples For Standard Parts:

Example:

Collimator part number:

LPC-08-400/640-3/125-P-0.8-6.3AG-60-3AC-5AS-3-HPC

Description:

Pigtail style collimator for 400-640 nm, with an f = 6.3 mm air-gap achromatic lens in a 12 mm OD x 50 mm long housing with nominal 60 dB return loss, with 3 meters long 5 mm OD stainless steel jacketed, 3/125 um broadband polarisation maintaining fiber, terminated with an endcapped, angle polished FC connector, fiber slow axis locked to the key. The predicted 1/e<sup>2</sup> beam diameter is about 0.8 mm, with a full divergence angle of about 1 mrad. HPC- Internal fiber tip high power terminated and AR Coated.

Aligner Fixture part number:

OPTOGLIDE-01

Description:

Opto-mechanical mount for 12mm OD x 50 mm long collimators with 4-axes of adjustment to achieve 10 nm positioning accuracy and <1 μrad/°C stability.

## Customer Requirements – Optoglide Precision Laser Delivery System

### Frequently Asked Questions (FAQs)

**Q: What is the Optoglide Precision Laser Delivery System?**

**A:** The Optoglide is a high-performance fiber-coupling system designed to efficiently couple laser light into a polarization-maintaining (PM) single-mode optical fiber. It provides exceptional optical stability, precise alignment, and repeatable performance for demanding photonics applications..

**Q: What types of laser sources are compatible with Optoglide?**

**A:** Optoglide is designed for high-power visible and near-infrared laser systems operating from 300 nm to 2000 nm. The system supports multiple PM fiber types to optimize performance across different wavelength ranges.

**Q: What is the maximum optical input power?**

**A:** The system supports combined optical input powers of up to 2 watts, with a maximum of 200 mW for wavelengths between 405 nm and 460 nm.

**Q: What coupling efficiency can be expected?**

**A:** Optoglide provides typical transmission efficiencies of 70% or greater, depending on wavelength, beam quality, laser alignment, and operating conditions.

**Q: What is beam pointing stability?**

**A:** Beam pointing stability describes how little the output beam direction changes with temperature. Optoglide maintains beam pointing stability of  $\leq 1 \mu\text{rad}/^\circ\text{C}$ , helping ensure consistent optical alignment during long-term operation.

**Q: Does the system preserve laser polarization?**

**A:** Yes. Optoglide uses polarization-maintaining (PM) single-mode optical fiber to preserve the input polarization state and provides a polarization extinction ratio of 20 dB or greater under proper alignment.

**Q: What beam quality can be expected at the output?**

**A:** The system preserves excellent beam quality with an  $M^2$  value of  $\leq 1.1$  producing a near-Gaussian output beam suitable for precision optical applications.

**Q: What output options are available?**

**A:** Optoglide is available with either collimated output or standard fiber connector terminations, including connector code 3C (endcapped FC/PC), 3AC (endcapped FC/APC), 3AC8 (endcapped FC/AFC with slant orientation aligned to the key (similar to FCP8)).

**Q: What fiber lengths are available?**

**A:** Standard fiber lengths of 1 m, 2 m, and 3 m are available. Custom fiber lengths can also be supplied to meet specific application requirements.

**Q: What applications is Optoglide best suited for?**

**A:** Optoglide is ideal for:

- |                                    |                                               |
|------------------------------------|-----------------------------------------------|
| • Multi-wavelength laser systems   | • Precision optical instrumentation           |
| • Scientific research laboratories | • Biomedical and life-science instrumentation |
| • Industrial laser systems         | • OEM photonics integration                   |

**Q: Can Optoglide be customized?**

**A:** Yes. OZ Optics offers OEM customization, including wavelength optimization, fiber type selection, connector options, fiber length, mechanical interfaces, and custom mounting configurations as specified below :

- |                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| • Operating wavelength                       | • Fiber type                                |
| • Fiber length                               | • Connector style                           |
| • Input and output collimator configurations | • Mechanical interface and mounting options |
| • Custom beam diameter and working distance  |                                             |

**Q: What operating environment is recommended?**

**A:** Optoglide is designed for operation at temperatures from 10°C to 50°C under non-condensing atmospheric conditions. It can be safely shipped and stored within the specified environmental limits.

**Q: Why choose Optoglide over other fiber-coupling assemblies?**

**A:** Optoglide provides precision mechanical alignment in X-Y as well as tie/tilt to deliver excellent beam pointing stability, repeatable optical coupling, high beam quality, and reliable performance for demanding multi-wavelength laser applications.