



# OZ OPTICS LTD.

219 WESTBROOK RD, CARP, ON, CANADA, K0A 1L0 TEL: (613) 831-0981 FAX: (613) 836-5089 E-MAIL: sales@ozoptics.com WEB SITE: www.ozoptics.com

## LASER TO FIBER COUPLERS WITH ATTENUATOR OR SHUTTER

### FEATURES:

- High Power Handling
- High Resolution
- Polarization Insensitive Attenuator/Shutter
- Wide Attenuation Range
- Manual and Electrically Controlled Versions
- Different Connector Receptacles

### APPLICATIONS:

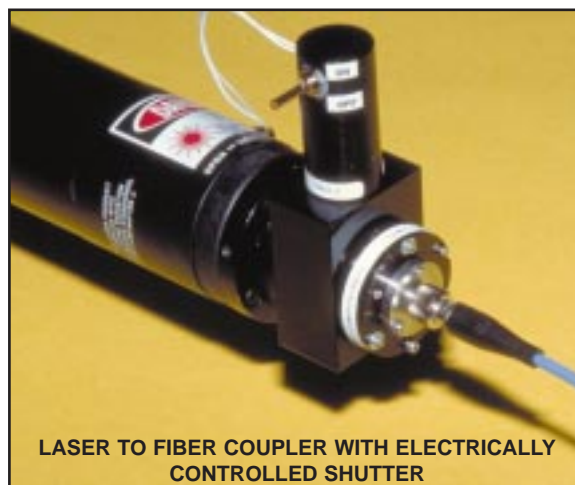
- Power Setting
- Safety Interlocks
- Colour Balancing
- Spectroscopy
- Medical, Pharmaceutical, and Chemical Sensors
- Interferometric Sensors
- OEM Laser Systems
- Laser Shows/Entertainment

### SPECIFICATIONS:

- Coupling Efficiency: Typically >55% for singlemode and polarization maintaining fibers, >80% for multimode fibers
- Backreflection:
  - 14dB for receptacle style couplers using flat finish connectors
  - 60dB for receptacle style couplers using angle finish connectors
  - 25dB for LPSC-01 style pigtailed source couplers
  - 40dB or -60dB for LPSC-03 style pigtailed source couplers
- Polarization Extinction Ratio: >20dB  
25dB, 30 dB version are also available
- Available Wavelengths: 180 - 2000nm
- Power Handling: Up to 3 Watts for singlemode applications  
Over 100 Watts for multimode applications
- Attenuation Range: 0 to 60dB
- Resolution: 0.05dB
- Interface: Manual/Current Drive/RS-232/SPI/I<sup>2</sup>C



LASER TO FIBER COUPLER WITH ELECTRICALLY CONTROLLED ATTENUATOR



LASER TO FIBER COUPLER WITH ELECTRICALLY CONTROLLED SHUTTER

### PRODUCT DESCRIPTION:

OZ Optics offers source to fiber couplers with built in attenuators or shutters. These couplers provide a precise method to control the intensity of light through a fiber. They are available in both receptacle style and pigtail style.

Source couplers are available with both manual and electrically controlled attenuators. In the manual version, the beam from the laser is partially blocked by a precision blocking screw. Adjusting the screw controls how much light reaches the fiber. In the electrically controlled version, a stepper motor controls the amount of attenuation. It includes a homing sensor to calibrate the attenuator against.

The stepper motor is available with several options for control. The basic model provides direct access to the motor as well as logic level output for the HOME sensor. The -DR option adds a high

speed driver circuit that accepts four logic level signals to control the motor. Finally, the -MC option features an embedded microcontroller. These units are addressable and accept RS232, SPI, and I<sup>2</sup>C protocols.

The shutter accepts a +12V supply to block or transmit the beam. This shutter is normally closed until voltage is applied. This makes it ideal for safety interlocks. A manual switch is also on the shutter. The shutter response speed is under 20 milliseconds. Shutters with foot pedal control are also available.

OZ Optics can also provide shutters with a safety interlock function on the fiber connection. If the fiber is disconnected from the coupler, the shutter will close automatically. Contact OZ Optics for more information.

## ORDERING INFORMATION:

### RECEPTACLE STYLE SOURCE COUPLERS:

#### HPUC-2X-W-F-f-LH-B (-G-V-I)

##### Receptacle Code:

3 for FC, Super FC/PC, Ultra FC/PC  
3A for Angled FC/PC  
3AF for Flat angled FC  
8 for AT&T-ST, Super ST, Ultra ST  
5 for SMA905, SMA906  
See Tables 6 of the Standard Tables for other connectors

Wavelength: Specify in nanometers  
(Example: 1550 for 1550nm)

Fiber Type: M for Multimode  
S for Singlemode  
P for Polarization Maintaining

Lens Focal Length and Type:  
See Lens Selection Guide 3 for Non-Contact  
Style Couplers in the Laser to Fiber Coupler  
Application Notes

##### Laser Head Adaptor

1 for 1"-32TPI Male Threaded Adaptor  
2 for Disk Adapter with 4 holes on 1"  
Square  
11 for Post Mount Adapter  
See Table 8 of the Standard Tables for Other  
Adapters

##### Interface (Motorized Attenuator only):

PC for Base Model  
DR for High Speed Driver  
MC/SPI for Intelligent SPI Interface  
MC/IIC for Intelligent I<sup>2</sup>C Interface  
MC/RS232 for Intelligent RS232 Interface

Stepper Motor Voltage  
(Motorized Attenuator only): 6 or 12 Volts

##### Gear Ratio (Motorized Attenuator Only):

485:1 Standard  
76:1 for Fast Speed  
Other ratios include 141:2,  
262:1, and 900:1

##### Attenuation Technique:

BL for Manual Blocking Screw  
SH for Electronically Controlled Shutter  
DD for Electronically Controlled Attenuator

### PIGTAIL STYLE SOURCE COUPLERS:

#### LPSC-0A-W-a/b-F-f-LB-LH-X-JD-L-B(-G-V-I)

Coupler Type: 1 for Contact Style  
3 for Non-Contact Style

Wavelength: Specify in nanometers  
(Example: 633 for 633nm)

Fiber Core/Cladding Sizes, in microns  
9/125 for 1300/1550nm SM fiber

See Tables 1 to 5 of the Standard Tables for  
other standard fiber sizes

Fiber Type: M for Multimode  
S for Singlemode  
P for Polarization Maintaining

##### Lens Focal Length and Type

See Lens Selection Guide 1 for Pigtail Style  
Source Couplers in the Laser to Fiber  
Coupler Application Notes

##### Backreflection:

25dB (Contact Style)  
40, 50, or 60dB (Non-contact style)  
60dB versions standard only for 1300 and  
1550nm wavelengths. Contact OZ before  
specifying other wavelengths

Connector Code: 3S=Super NTT-FC/PC  
3U=Ultra NTT-FC/PC  
3A=Angled NTT-FC/PC  
8=AT&T-ST  
SC=SC  
SCA=Angled SC  
See Table 6 of the Standard Tables for other  
Connectors

##### Interface (Motorized Attenuator only):

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DR for High Speed Driver  
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MC/IIC for Intelligent I<sup>2</sup>C Interface  
MC/RS232 for Intelligent RS232 Interface

Stepper Motor Voltage  
(Motorized Attenuator Only): 6 or 12 Volts

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485:1 Standard  
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##### Fiber Length in meters

##### Fiber Jacket Type:

1=900 micron OD hytel jacket  
3=3mm OD Kevlar reinforced PVC  
cable

See Table 7 of the Standard Tables for other  
jacket sizes

### Note:

To determine the best laser to fiber source coupler for your application please complete a Laser to Fiber Delivery System Questionnaire. OZ Optics will then recommend a coupler based on your response.

Unit prices range from \$350USD to \$1000USD for standard applications with delivery being between 4 and 8 weeks after receiving your order. Quantity discounting and blanket orders can be arranged. Contact OZ for more information.