



OZ Optics

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DELIVERY SYSTEM FOR FLOW VISUALIZATION - FIBER OPTIC

Features:

- Uniform output intensity over entire length
- Rugged and compact design
- Low insertion loss
- Visible wavelength range: 400–700 nm
- Wide fan angles available: 10–75 degrees

Applications:

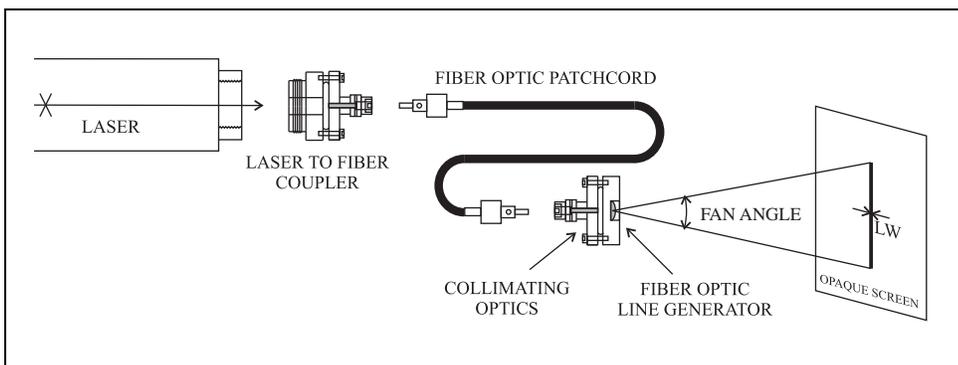
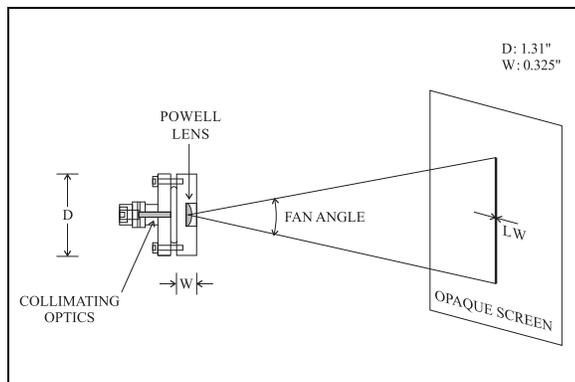
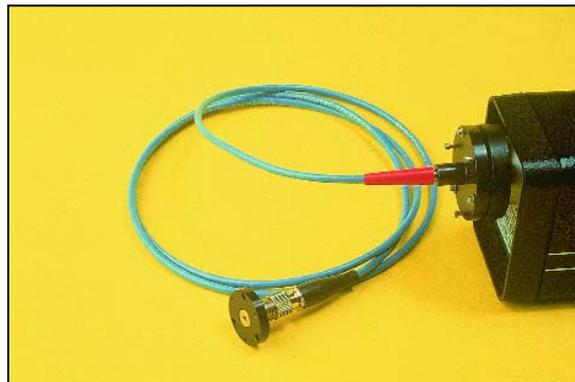
- Flow cytometry
- Particle measurement
- Imaging systems

Flow visualization systems are useful tools for process automation and quality control in liquid and gas production and transport. A visible wavelength laser beam is coupled into an optical fiber, recollimated at the fiber output, and then sent through a lens, generating a line. The line of laser light is then shone through the flowing liquid under inspection. As the light passes through the moving fluid, it refracts and scatters. Any particulate matter present, or changes to the flow pattern within the fluid, causes fluctuations in the output beam pattern which are visually observed.

OZ Optics offers complete delivery systems for flow visualization, consisting of a laser to fiber coupler, fiber optic patchcord, fiber optic collimator, and fiber optic line generator. The line generator uses a Powell lens. **This lens offers the unique ability to take a collimated beam, and transform it into a line with a uniform output intensity along its entire length. This is a major improvement over standard line generators, that use simple cylindrical lens.** With cylindrical lenses, the output intensity is highest at the centre of the beam, then gradually fades away to either side. With the Powell lens you get a sharply defined line from end to end.

Fiber optic delivery systems are available for a wide range of wavelengths. Other wavelengths are available on request. The maximum power transmission possible depends upon the fiber size chosen - 4/125 fiber can handle 1 to 3 Watts, 10/125 fiber can handle 3 to 5 Watts, 25/125 fiber can handle 5 to 10 Watts, and 50/125 fiber can handle 10 to 20 Watts. For best repeatability and stability, FC connectors are recommended for the fiber couplers and collimators. Pigtail style couplers and collimators are also recommended.

By choosing different focal lengths for the collimating and Powell lenses, different line widths and fan angles are possible. Standard line widths for singlemode fibers are 0.8mm and 1.2mm. Standard fan angles are 10, 30 and 45 degrees. Contact OZ Optics for further information on available line widths and fan angles.



ORDERING INFORMATION

Laser to fiber coupler with a connector receptacle

HPUC-2X-W-F-f-LH

X = are the connector receptacle types for connector style couplers and collimators. For fiber optic patchcords they refer to the male connectors on the fiber ends (3 for NTT-FC, 5 for SMA 905 connectors, etc. See table 1 below.)

W = is the operating wavelength in nm.

F = is the type of fiber being used (S for singlemode, M for multimode, P for polarization maintaining fibers, QS for fused silica core singlemode, QM for fused silica multimode, QP for fused silica polarization maintaining fibers. 10/125 fiber is considered to be singlemode fiber. It is constructed with a fused silica core.)

LH = is the laser head adapter number for the laser to fiber couplers (See table 2 below.)

f = is the lens focal length, in mm, and type of lens being used. The following achromatic lenses are available: 3.5AC, 6AC, and 10AC.

Please see our *Standard Tables* data sheet http://www.ozoptics.com/ALLNEW_PDF/DTS0079.pdf

Singlemode or multimode fiber optic patchcord

FMJ-XY-W-a/b-JD-L

X.Y = are the connector receptacle types for connector style couplers and collimators. For fiber optic patchcords they refer to the male connectors on the fiber ends (3 for NTT-FC, 5 for SMA 905 connectors, etc. See table 1 below.)

W = is the operating wavelength in nm.

L = is the fiber length in meters.

JD = is the fiber jacket type (1 for uncabled fiber, 3 for 3mm OD loose tube kevlar, 3A for 3mm OD armored cable, and 5A for 5mm armored cable.)

a.b = are the fiber core and cladding sizes, respectively, in microns. Available sizes include 4/125, 10/125, 25/125, 50/125, and 100/140.

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Fiber optic line generator

FOLM-2X-W-F-f-FA

X = are the connector receptacle types for connector style couplers and collimators. For fiber optic patchcords they refer to the male connectors on the fiber ends (3 for NTT-FC, 5 for SMA 905 connectors, etc. See table 1 below.)

W = is the operating wavelength in nm.

FA = is the fan angle of the laser line from the line marker. Fan angles of 10°, 30°, or 45° are available.

f = is the lens focal length, in mm, and type of lens being used. The following achromatic lenses are available: 3.5AC, 6AC, and 10AC.

F = is the type of fiber being used (S for singlemode, M for multimode, P for polarization maintaining fibers, QS for fused silica core singlemode, QM for fused silica multimode, QP for fused silica polarization maintaining fibers. 10/125 fiber is considered to be singlemode fiber. It is constructed with a fused silica core.)

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Alignment kit for singlemode laser to fiber couplers with receptacles

START-0X-DVD-WR

X = are the connector receptacle types for connector style couplers and collimators. For fiber optic patchcords they refer to the male connectors on the fiber ends (3 for NTT-FC, 5 for SMA 905 connectors, etc. See table 1 below.)

WR = is wavelength range, IRVIS for 400–1600nm, UVVIS for 180–700nm.

DVD = refers to the video format.

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When ordering the delivery system please specify the source laser beam characteristics (beam diameter, divergence angle, laser power, wavelength, and laser head adapter). OZ Optics provides a questionnaire to help you choose the best system for your application. Please complete it and fax it back before ordering.