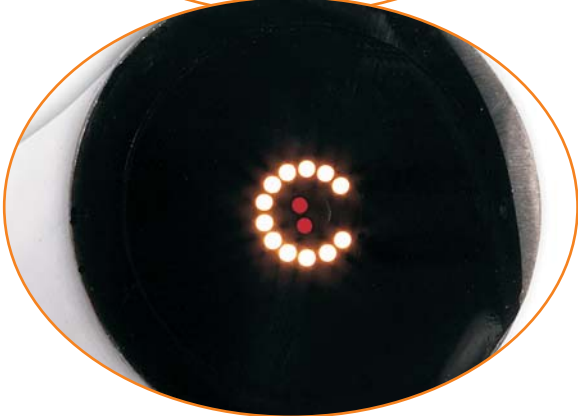
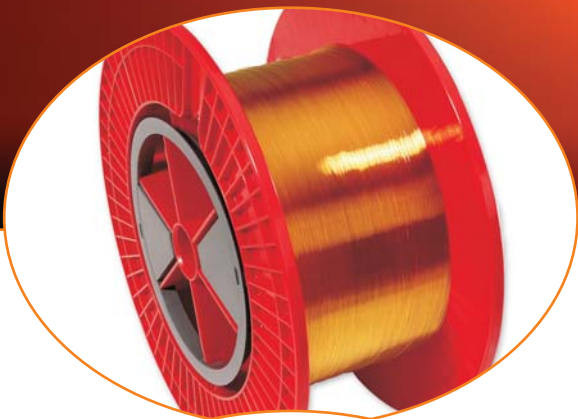


Fibers & Probes



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Overview: Fibers & Probes

The Most Flexible Line in the Industry

Ocean Optics is the most versatile supplier of optical fibers and accessories for spectroscopy in the industry. We offer everything from one-off patch cords and custom assemblies, to OEM builds for all sorts of applications. Our fiber accessories, fixtures and fiber assembly kits allow you to easily connect or manipulate fibers, and integrate them into tricky experiment set-ups. Optical fiber technology has been paramount to our success and makes possible our “take the instrument to the sample” maxim. Fiber is the nucleus of our analytical instrumentation and accessory design philosophy. And it’s optical fiber technology that helped us create the world’s most flexible line of sensing instruments.

Anatomy of an Assembly

At the fiber’s core is pure silica; it’s the diameter of the core that you need to consider when purchasing an optical fiber assembly. (The core diameter is often in the product’s item code. For example, the P600-UV-VIS has a 600 μm diameter silica core.) Surrounding the core is a doped-fluorine silica cladding. A buffer material is then applied. A buffer coats the core and cladding, strengthens the fiber and reduces stray light even further. In most assemblies polyimide is used as the buffer; other assemblies use aluminum or acrylate. Then a jacketing is applied over the core, cladding and buffer to protect the fiber and provide strain relief. For off-the-shelf Premium-grade “Q” Optical Fiber Assemblies, the standard jacketing is stainless steel silicone monocoil. For off-the-shelf the Laboratory-grade Optical Fiber Assemblies, the standard jacketing is zip tube blue PVDF. (There are several other jacketing options when creating a custom assembly.) Precision SMA 905 Connectors terminate the assembly and are precisely aligned to the spectrometer’s slit to ensure concentricity of the fiber. Finally, captive end caps protect the fiber tips against scratches and contaminants.

Assembly Identifiers

Our optical fiber and probe assemblies are clearly and cleanly labeled in three ways so that you always know the following about your assembly: its name, its core diameter, and its most efficient wavelength region.

The **BOOT COLLAR** color corresponds to the assembly’s fiber type (and its most efficient wavelength range).

A **WHITE PRODUCT LABEL** on an assembly includes the product name and item code.

The **BAND COLOR** signals the diameter of the assembly’s core.



BAND COLORS

A color band tells you the diameter fiber with which you are working.

8 μm	Purple
50 μm	Blue
100 μm	Green
200 μm	Yellow
300 μm	Gray
400 μm	Red
500 μm	Orange
600 μm	Brown
1000 μm	Clear

BOOT COLLARS

The assembly’s boot color lets you know the fiber type and the most efficient wavelength range in which your fiber will work.

Boot Color	Fiber Type	Most Efficient Wavelength Range	Premium-grade Optical Fiber Assembly for each Fiber Type
Gray	UV-VIS XSR Solarization-resistant	180-900 nm	
Gray	UV/SR-VIS High OH content	200-1100 nm	
Blue	UV-VIS High OH content	300-1100 nm	
Red	VIS-NIR Low OH content	400-2500 nm	



Custom Fiber & Probe Quoting Website

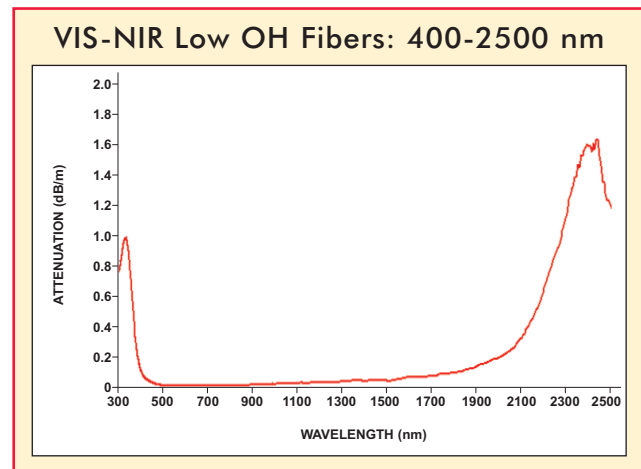
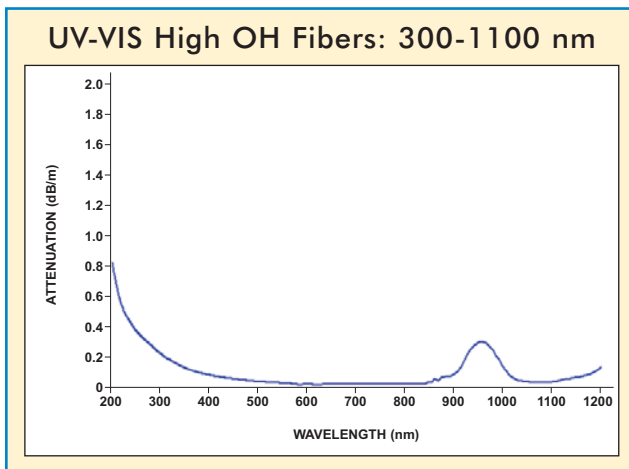
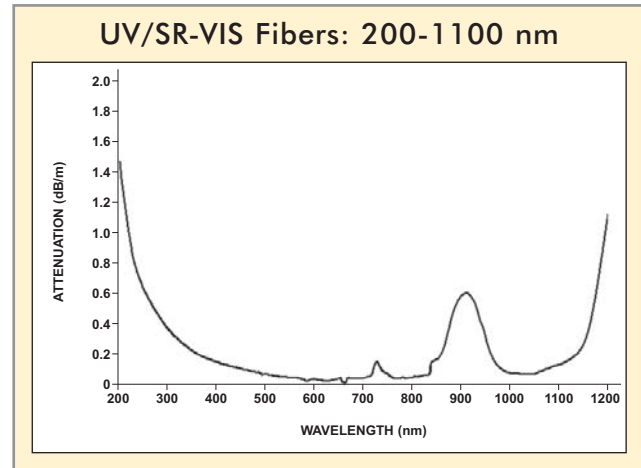
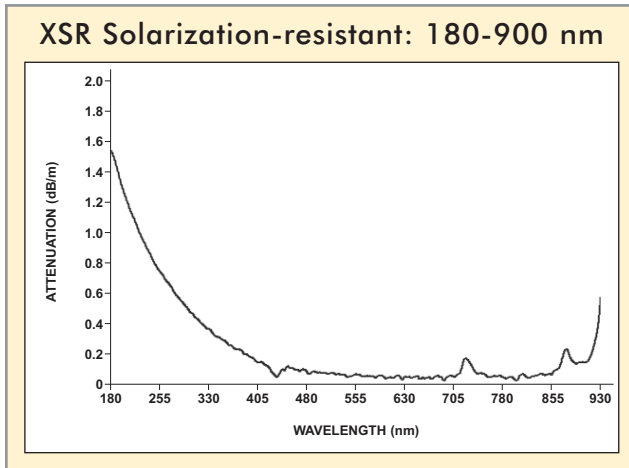
Continuous innovation is a critical ingredient for our growth. Our parent company, Halma p.l.c., believes that innovation is not just the responsibility of our development departments but is integral to all commercial activities within the business. Halma's successful Innovation Initiative allows all employees to deliver innovative ideas to help their companies achieve growth objectives. In 2006, Halma awarded Ocean Optics employees for our Custom Fiber Assembly Quoting and CAD Design website, designed to rapidly create quotations and CAD drawings of custom optical fiber assemblies.

The website allows our application sales scientists and customer service and support personnel to custom-create an optical fiber or probe assembly that automatically generates quotes and drawings for customers to view, modify and approve. Customers have hundreds of options available to them when creating a custom assembly. Our team of engineers uses our award-winning site to help guide you through choosing the best options for your unique application.

Patch Cable	
Length (meters)	1 <input type="text"/> ~ 39.37 inches
Con1	Laboratory grade SMA <input type="text"/> View Datasheet
Fiber Type	50µm UV/VIS <input type="text"/> View Datasheet
Jacket	Silicone Monocoil (Premium) <input type="text"/> View Datasheet
Options Selection	<input type="radio"/> Vacuum Feed Through <input checked="" type="radio"/> None
Extra Options	None <input type="text"/> Standard Reference Leg Premium Reference Leg
Con2	Laboratory grade SMA <input type="text"/> View Datasheet
Quantity	1 <input type="text"/>
OEM Discount	0 % OEM Discount Reason: <input type="text"/>
Calculate Price	\$ 0.00
Generate Part	Generate Quote

Custom Option: Fiber Type

One important consideration in building a custom assembly is which fiber type you should specify for your application. Typically, the wavelength range needed for your application should match the wavelength range of the fiber type. Here are the attenuation spectra for each fiber type we offer.





Custom Fiber & Probe Assemblies

Custom Option: Optical Fiber Diameter Sizes

After selecting the best Fiber Type, you should consider the diameter size of the pure silica core needed inside of your assembly. We offer several diameter sizes, and can recommend the appropriate assembly based on these criteria:

1. How much light do you need for your application? Reflection and fluorescence applications generally need more light, and larger diameter fibers are often better choices than smaller diameter fibers. For a laser application, however, we may suggest a smaller diameter fiber.
2. What is the entrance aperture size of your spectrometer? Make sure that your fiber diameter size and the entrance aperture to your spectrometer are compatible and are configured properly for your application needs.
3. If you have too much light in your setup, are there ways you can attenuate the light? We believe that it's better to have too much light than not enough.

Optical Fiber Diameter Sizes Available for Custom Assemblies

- 8 μm
- 50 μm
- 115 μm
- 200 μm
- 230 μm
- 300 μm
- 320 μm
- 400 μm
- 455 μm
- 500 μm
- 550 μm
- 600 μm
- 800 μm
- 1000 μm

Custom Option: Jacketing Options

The fiber assembly jacketing is designed to protect the fiber and provide strain relief. But we have jacketing options that can do so much more. We offer over 15 different jacketing options; our most popular selections are listed below. With options from PEEK polymer jacketing (No. 3) designed for environments with temperatures up to 260 °C to stainless-steel BX cable with neoprene synthetic rubber (No. 8) designed for excellent mechanical tolerance, we are sure to have the right jacketing for your application environment. Each jacketing has a set of specifications so that you and one of our Applications Scientists can choose the best option for your setup.



Item	Description	Temp. Limits	Chemical Resistance	Steam Sterilizable	Mechanical Tolerance	Length Limits
1	PVC Monocoil	70 °C	Poor	No	Good	6 m
2	Zip Tube Blue PVDF	100 °C	Poor	No	Good	50 m
3	PEEK	260 °C	Excellent	Yes	Good	10 m
4	Zip Tube Blue PVDF	100 °C	Poor	No	Good	50 m
5	PVC over Brass BX Tube	100 °C	Good	No	Good	20 m
6	Silicone Monocoil	250 °C	Good	Yes	Good	20 m
7	Stainless-steel BX	250 °C	Good	Yes	Poor	4 m
8	Stainless-steel fully interlocked BX	250 °C	Good	Yes	Excellent	40 m
9	Brake cable	120 °C	Good	No	Good	20 m
10	Stainless-steel BX with heat shrink	120 °C	Good	No	Excellent	10 m
11	Large-diameter stainless-steel BX	250 °C	Good	Yes	Poor	4 m

* Custom printing available for OEMs.



Custom Fiber & Probe Assemblies



Custom Option: Connectors & Connector Adapters

Our fiber assemblies are available with several connector options. For an upgrade fee that includes the cost of the custom connector and labor, we will replace the standard SMA 905 Connector (included in the assembly price) with any custom connector from the list below (priced separately). When ordering custom connectors, please specify the diameter size of the optical fiber to which it will be attached. You also can order connectors separately.



Item	Description	Connector Price
CONN-ST	Stainless-steel ST Connector	\$20
CONN-FC	Stainless-steel FC Connector	\$18
CONN-QSMA	Premium-grade SMA 905 Connector (standard in Premium-grade assemblies)	\$16
CONN-SMA	Laboratory-grade SMA 905 Connector (standard in Laboratory-grade assemblies)	\$13
CONN-PSMA	Process-grade SMA 905 Connector used with an assembly with Tefzel jacketing	\$23
CONN-QSMA-O	Premium-grade SMA 905 Connector with O-ring	\$26
CONN-SMA-O	Laboratory-grade SMA 905 Connector with O-ring	\$23
CONN-PSMA-O	Process-grade SMA 905 Connector with O-ring	\$33
CONN-LSMA	Laser SMA 905 Connector for use during laser or other high-intensity applications	\$30

Custom Option: Connector Adapters

Connector adapters allow you to mate an item with an SMA 905 Connector to an item with either an ST or FC Connector.

Item	Description	Price
SMA-ST-ADP	SMA-to-ST Adapter for interfacing an item with an SMA 905 Connector to an item that has an ST Connector	\$50
SMA-FC-ADP	SMA-to-FC Adapter for interfacing an item with an SMA 905 Connector to an item that has an FC Connector	\$50



Custom Option: Ferrules for Probe Assemblies



Description
1 1/4" diameter stainless-steel ferrule often used in solution transmission measurements
2 1/4" diameter PEEK ferrule used in harsh environments for solution transmission measurements
3 1/4" diameter stainless-steel ferrule used in reflection measurements
4 1/4" diameter Torlon ferrule with cap
5 1/4" diameter PEEK ferrule used in harsh environments
6 1/8" diameter stainless-steel ferrule
1/16" diameter stainless-steel ferrule
1/4" diameter stainless-steel ferrule with the tip angled to 30°
Fiber-to-lens ferrule that comes with a collimating lens

Custom Option: Epoxy

Item	Description	Operating Temp. Continuous	Operating Temp. Intermittent	Chemical Compatibility
EPO-TEK 353ND	Standard epoxy in all fiber assemblies	220 °C	350 °C	Good
EPO-TEK 354ND	Slightly lower curing stress on the fiber than 353ND	200 °C	300 °C	Good
EPO-TEK OM125	Lowest curing stress on the fiber of the three epoxies	150 °C	250 °C	Fair
EPOXY-TEST	Free sample slide of all epoxies for compatibility testing	NA	NA	NA





Premium-grade Assemblies

Premium-grade Patch Cord Assemblies

Our Premium-grade Optical Fiber Assemblies are durable, high-quality assemblies that consistently deliver uniform results with minimal signal variance. These assemblies are available in a wide variety of off-the-shelf configurations. With every order, you receive a Quality Control Report that includes both the serial number and transmission curve of the assembly. Our 2-meter Premium-grade Patch Cord Assemblies are terminated with precision SMA 905 Connectors. They connect easily to spectrometers, light sources and sampling accessories and are available in standard lengths or can be ordered in custom lengths.



Premium-grade Assemblies have a silicone-coated steel monocoil jacketing with a Nomex braid for superior strain relief and protection.

Item Code	Wavelength Range	Core Diameter	Buffer/Coating	Assembly Length	Jacketing	LTBR*	STBR**	Price
QP8-2-SMA	400-2500 nm	8 μm ± 0.5 μm	acrylate	2 meters	silicone monocoil	4 cm	2 cm	\$159
QP50-2-UV/BX	300-1100 nm	50 μm ± 5 μm	polyimide	2 meters	stainless-steel BX	4 cm	2 cm	\$149
QP50-2-UV-VIS	300-1100 nm	50 μm ± 5 μm	polyimide	2 meters	silicone monocoil	4 cm	2 cm	\$150
QP50-2-VIS-NIR	400-2500 nm	50 μm ± 5 μm	polyimide	2 meters	silicone monocoil	4 cm	2 cm	\$150
QP100-2-UV/BX	300-1100 nm	100 μm ± 3 μm	polyimide	2 meters	stainless-steel BX	4 cm	2 cm	\$149
QP100-2-UV-VIS	300-1100 nm	100 μm ± 3 μm	polyimide	2 meters	silicone monocoil	4 cm	2 cm	\$150
QP100-2-VIS/BX	400-2500 nm	100 μm ± 3 μm	polyimide	2 meters	stainless-steel BX	4 cm	2 cm	\$149
QP100-2-VIS-NIR	400-2500 nm	100 μm ± 3 μm	polyimide	2 meters	silicone monocoil	4 cm	2 cm	\$150
QP200-2-SR/BX	200-1100 nm	200 μm ± 4 μm	polyimide	2 meters	stainless-steel BX	8 cm	2 cm	\$179
QP200-2-UV/BX	300-1100 nm	200 μm ± 4 μm	polyimide	2 meters	stainless-steel BX	8 cm	4 cm	\$149
QP200-2-UV-VIS	300-1100 nm	200 μm ± 4 μm	polyimide	2 meters	silicone monocoil	8 cm	4 cm	\$150
QP200-2-VIS/BX	400-2500 nm	200 μm ± 4 μm	polyimide	2 meters	stainless-steel BX	8 cm	4 cm	\$149
QP200-2-VIS-NIR	400-2500 nm	200 μm ± 4 μm	polyimide	2 meters	silicone monocoil	8 cm	4 cm	\$150
QP230-0.25-XSR	180-900 nm	230 μm ± 10 μm	aluminum	25 centimeters	stainless-steel BX	4 cm	2 cm	\$149
QP230-1-XSR	180-900 nm	230 μm ± 10 μm	aluminum	1 meter	stainless-steel BX	4 cm	2 cm	\$179
QP230-2-XSR	180-900 nm	230 μm ± 10 μm	aluminum	2 meters	stainless-steel BX	4 cm	2 cm	\$199
QP300-1-SR	200-1100 nm	300 μm ± 6 μm	polyimide	1 meter	silicone monocoil	12 cm	6 cm	\$150
QP400-025-SR	200-1100 nm	400 μm ± 8 μm	polyimide	25 centimeters	silicone monocoil	16 cm	8 cm	\$119
QP400-025-SR/BX	200-1100 nm	400 μm ± 8 μm	polyimide	25 centimeters	stainless-steel BX	16 cm	8 cm	\$119
QP400-1-UV-VIS	300-1100 nm	400 μm ± 8 μm	polyimide	1 meter	silicone monocoil	16 cm	8 cm	\$150
QP400-2-SR	200-1100 nm	400 μm ± 8 μm	polyimide	2 meters	silicone monocoil	16 cm	8 cm	\$179
QP400-2-SR/BX	200-1100 nm	400 μm ± 8 μm	polyimide	2 meters	stainless-steel BX	16 cm	8 cm	\$179
QP400-2-UV/BX	300-1100 nm	400 μm ± 8 μm	polyimide	2 meters	stainless-steel BX	16 cm	8 cm	\$169
QP400-2-UV-VIS	300-1100 nm	400 μm ± 8 μm	polyimide	2 meters	silicone monocoil	16 cm	8 cm	\$169
QP400-2-VIS/BX	400-2500 nm	400 μm ± 8 μm	polyimide	2 meters	stainless-steel BX	16 cm	8 cm	\$169
QP400-2-VIS-NIR	400-2500 nm	400 μm ± 8 μm	polyimide	2 meters	silicone monocoil	16 cm	8 cm	\$169
QP450-0.25-XSR	180-900 nm	455 μm ± 10 μm	aluminum	25 centimeters	stainless-steel BX	8 cm	4 cm	\$159
QP450-1-XSR	180-900 nm	455 μm ± 10 μm	aluminum	1 meter	stainless-steel BX	8 cm	4 cm	\$199
QP450-2-XSR	180-900 nm	455 μm ± 10 μm	aluminum	2 meters	stainless-steel BX	8 cm	4 cm	\$239
QP600-025-SR	200-1100 nm	600 μm ± 10 μm	polyimide	25 centimeters	silicone monocoil	24 cm	12 cm	\$129
QP600-025-SR/BX	200-1100 nm	600 μm ± 10 μm	polyimide	25 centimeters	stainless-steel BX	24 cm	12 cm	\$119
QP600-025-UV	300-1100 nm	600 μm ± 10 μm	polyimide	25 centimeters	silicone monocoil	24 cm	12 cm	\$119
QP600-025-VIS-N	400-2500 nm	600 μm ± 10 μm	polyimide	25 centimeters	silicone monocoil	24 cm	12 cm	\$119
QP600-1-SR	200-1100 nm	600 μm ± 10 μm	polyimide	1 meter	silicone monocoil	24 cm	12 cm	\$179
QP600-1-SR/BX	200-1100 nm	600 μm ± 10 μm	polyimide	1 meter	stainless-steel BX	24 cm	12 cm	\$179
QP600-1-UV-VIS	300-1100 nm	600 μm ± 10 μm	polyimide	1 meter	silicone monocoil	24 cm	12 cm	\$179
QP600-2-SR	200-1100 nm	600 μm ± 10 μm	polyimide	2 meters	silicone monocoil	24 cm	12 cm	\$219
QP600-2-SR/BX	200-1100 nm	600 μm ± 10 μm	polyimide	2 meters	stainless-steel BX	24 cm	12 cm	\$219
QP600-2-UV/BX	300-1100 nm	600 μm ± 10 μm	polyimide	2 meters	stainless-steel BX	24 cm	12 cm	\$209
QP600-2-UV-VIS	300-1100 nm	600 μm ± 10 μm	polyimide	2 meters	silicone monocoil	24 cm	12 cm	\$209
QP600-2-VIS/BX	400-2500 nm	600 μm ± 10 μm	polyimide	2 meters	stainless-steel BX	24 cm	12 cm	\$209
QP600-2-VIS-NIR	400-2500 nm	600 μm ± 10 μm	polyimide	2 meters	silicone monocoil	24 cm	12 cm	\$209
QP1000-2-UV/BX	300-1100 nm	1000 μm ± 20 μm	acrylate	2 meters	stainless-steel BX	30 cm	15 cm	\$359
QP1000-2-UV-VIS	300-1100 nm	1000 μm ± 20 μm	acrylate	2 meters	silicone monocoil	30 cm	15 cm	\$359
QP1000-2-VIS/BX	400-2500 nm	1000 μm ± 20 μm	acrylate	2 meters	stainless-steel BX	30 cm	15 cm	\$359
QP1000-2-VIS-NI	400-2500 nm	1000 μm ± 20 μm	acrylate	2 meters	silicone monocoil	30 cm	15 cm	\$359

* LTBR stands for Long Term Bend Radius, the bend radius allowed long term (such as for storage) before damaging the fiber.

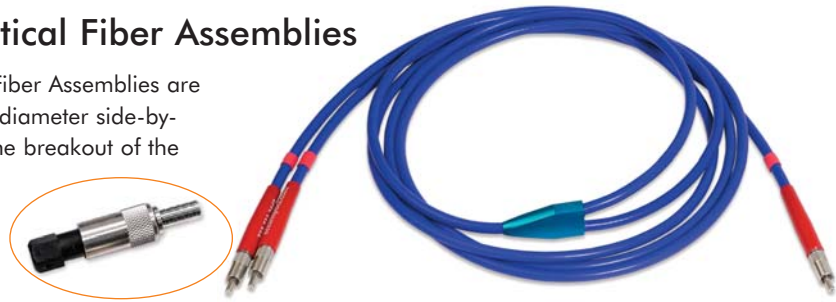
** STBR stands for Short Term Bend Radius, the momentary bend radius allowed before damaging the fiber.



Premium-grade Assemblies

Premium-grade Bifurcated Optical Fiber Assemblies

Our 2-meter Premium-grade Bifurcated Optical Fiber Assemblies are Y-shaped assemblies with two fibers of the same diameter side-by-side in the common end of the assembly. From the breakout of the assembly, the two fibers diverge into two legs, which can be UV-VIS, VIS-NIR or one of each -- a "mixed" assembly. Premium-grade assemblies feature premium SMA 905 Connectors (at right).



Item Code	Wavelength Range	Core Diameter	Buffer / Coating	Assembly Length	Jacketing	LTBR*	STBR**	Price
QBIF50-UV-VIS	300-1100 nm	50 $\mu\text{m} \pm 5 \mu\text{m}$	polyimide	2 meters	silicone monocoil	4 cm	2 cm	\$299
QBIF200-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	silicone monocoil	8 cm	4 cm	\$299
QBIF200-VIS/BX	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	stainless-steel BX	8 cm	4 cm	\$299
QBIF200-VIS-NIR	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	silicone monocoil	8 cm	4 cm	\$299
QBIF400-UV-VIS	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	silicone monocoil	16 cm	8 cm	\$329
QBIF400-VIS-NIR	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	silicone monocoil	16 cm	8 cm	\$329
QBIF600-UV-VIS	300-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	2 meters	silicone monocoil	24 cm	12 cm	\$369
QBIF600-VIS/BX	400-2500 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	2 meters	stainless-steel BX	24 cm	12 cm	\$369
QBIF600-VIS-NIR	400-2500 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	2 meters	silicone monocoil	24 cm	12 cm	\$369
QBIF200-MIXED	300-1100 nm & 400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	silicone monocoil	8 cm	4 cm	\$299
QBIF400-MIXED	300-1100 nm & 400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	silicone monocoil	16 cm	8 cm	\$329

Unjacketed Bulk Optical Fiber

We offer spooled, unjacketed optical fiber primarily for those interested in making their own assemblies. We offer various core diameters from 50 μm to 600 μm . To improve the fiber's strength and flexibility, we triple-coat it with a polyimide buffer before spooling. We offer all types of unjacketed optical fiber: High OH (high hydroxyl content for UV-VIS), Low OH (very low hydroxyl content for VIS-NIR) and Solarization-resistant (for UV-VIS). Each fiber type is optimized for use in a particular wavelength range.



Item Code	Wavelength Range	Core Diameter	Buffer / Coating	Fiber Type	Length	LTBR*	STBR**	Price / Meter
FIBER-50-UV	300-1100 nm	50 $\mu\text{m} \pm 5 \mu\text{m}$	polyimide	UV-VIS	specify meter length	4 cm	2 cm	\$15.78
FIBER-50-VIS	400-2500 nm	50 $\mu\text{m} \pm 5 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	4 cm	2 cm	\$15.78
FIBER-100-UV	300-1100 nm	100 $\mu\text{m} \pm 3 \mu\text{m}$	polyimide	UV-VIS	specify meter length	4 cm	2 cm	\$15.78
FIBER-100-VIS	400-2500 nm	100 $\mu\text{m} \pm 3 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	4 cm	2 cm	\$15.78
FIBER-200-SR	200-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	UV/SR-VIS	specify meter length	4 cm	2 cm	\$15.00
FIBER-200-UV	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	UV-VIS	specify meter length	8 cm	4 cm	\$12.63
FIBER-200-VIS	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	8 cm	4 cm	\$12.63
FIBER-300-SR	200-1100 nm	300 $\mu\text{m} \pm 6 \mu\text{m}$	polyimide	UV/SR-VIS	specify meter length	12 cm	6 cm	\$19.38
FIBER-300-UV	300-1100 nm	300 $\mu\text{m} \pm 6 \mu\text{m}$	polyimide	UV-VIS	specify meter length	12 cm	6 cm	\$18.75
FIBER-300-VIS	400-2500 nm	300 $\mu\text{m} \pm 6 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	12 cm	6 cm	\$18.75
FIBER-400-SR	200-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	UV/SR-VIS	specify meter length	16 cm	8 cm	\$28.75
FIBER-400-UV	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	UV-VIS	specify meter length	16 cm	8 cm	\$23.38
FIBER-400-VIS	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	16 cm	8 cm	\$23.38
FIBER-500-SR	200-1100 nm	500 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	UV/SR-VIS	specify meter length	20 cm	10 cm	\$40.00
FIBER-500-UV	300-1100 nm	500 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	UV-VIS	specify meter length	20 cm	10 cm	\$31.25
FIBER-500-VIS	400-2500 nm	500 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	20 cm	10 cm	\$31.25
FIBER-600-SR	200-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	UV/SR-VIS	specify meter length	24 cm	12 cm	\$20.34
FIBER-600-UV	300-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	UV-VIS	specify meter length	24 cm	12 cm	\$36.88
FIBER-600-VIS	400-2500 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	VIS-NIR	specify meter length	24 cm	12 cm	\$36.88
FIBER-1000-UV	300-1100 nm	1000 $\mu\text{m} \pm 20 \mu\text{m}$	acrylate	UV-VIS	specify meter length	30 cm	15 cm	\$96.25
FIBER-1000-VIS	400-2500 nm	1000 $\mu\text{m} \pm 20 \mu\text{m}$	acrylate	VIS-NIR	specify meter length	30 cm	15 cm	\$96.25

* LTBR stands for Long Term Bend Radius, the bend radius allowed long term (such as for storage) before damaging the fiber.

** STBR stands for Short Term Bend Radius, the momentary bend radius allowed before damaging the fiber.

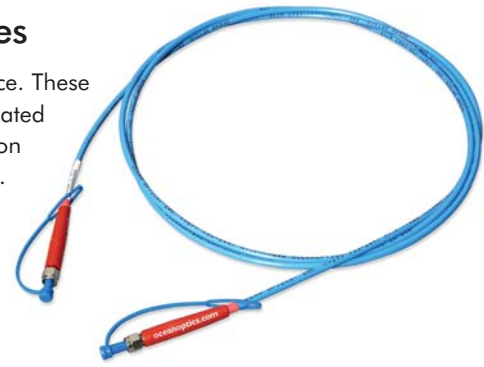




Laboratory-grade Assemblies

Laboratory-grade Patch Cord Optical Fiber Assemblies

Our Laboratory-grade Optical Fiber Assemblies offer high quality at an affordable price. These off-the-shelf assemblies come in various lengths and wavelength ranges, and in bifurcated and splitter designs. Our standard Laboratory-grade Assemblies act as both illumination and read fibers and connect easily to our spectrometers, light sources and accessories. Solarization-resistant Assemblies (these have -SR in the item code) are for applications below 300 nm. UV radiation below 300 nm degrades transmission in standard silica fibers, resulting in solarization (increased light absorption in the UV fiber that can invalidate data). For applications below 200 nm, we recommend our Premium-grade Xtreme Solarization-resistant Fiber and Probe Assemblies (see page 146).



Item Code	Wavelength Range	Core Diameter	Buffer/Coating	Assembly Length	LTBR*	STBR**	Price
P8-2-SMA	400-2500 nm	8 μm ± 0.5 μm	acrylate	2 meters	4 cm	2 cm	\$99
P50-2-UV-VIS	300-1100 nm	50 μm ± 5 μm	polyimide	2 meters	4 cm	2 cm	\$99
P50-2-VIS-NIR	400-2500 nm	50 μm ± 5 μm	polyimide	2 meters	4 cm	2 cm	\$99
P100-2-UV-VIS	300-1100 nm	100 μm ± 3 μm	polyimide	2 meters	4 cm	2 cm	\$99
P100-2-VIS-NIR	400-2500 nm	100 μm ± 3 μm	polyimide	2 meters	4 cm	2 cm	\$99
P100-5-UV-VIS	300-1100 nm	100 μm ± 3 μm	polyimide	5 meters	4 cm	2 cm	\$149
P100-5-VIS-NIR	400-2500 nm	100 μm ± 3 μm	polyimide	5 meters	4 cm	2 cm	\$149
P100-10-UV-VIS	300-1100 nm	100 μm ± 3 μm	polyimide	10 meters	4 cm	2 cm	\$199
P100-10-VIS-NIR	400-2500 nm	100 μm ± 3 μm	polyimide	10 meters	4 cm	2 cm	\$199
P200-2-UV-VIS	300-1100 nm	200 μm ± 4 μm	polyimide	2 meters	8 cm	4 cm	\$99
P200-2-VIS-NIR	400-2500 nm	200 μm ± 4 μm	polyimide	2 meters	8 cm	4 cm	\$99
P200-5-UV-VIS	300-1100 nm	200 μm ± 4 μm	polyimide	5 meters	8 cm	4 cm	\$149
P200-5-VIS-NIR	400-2500 nm	200 μm ± 4 μm	polyimide	5 meters	8 cm	4 cm	\$149
P200-10-UV-VIS	300-1100 nm	200 μm ± 4 μm	polyimide	10 meters	8 cm	4 cm	\$199
P200-10-VIS-NIR	400-2500 nm	200 μm ± 4 μm	polyimide	10 meters	8 cm	4 cm	\$199
P300-1-SR	200-1100 nm	300 μm ± 6 μm	polyimide	1 meter	12 cm	6 cm	\$99
P400-025-SR	200-1100 nm	400 μm ± 8 μm	polyimide	25 centimeters	16 cm	8 cm	\$99
P400-1-SR	200-1100 nm	400 μm ± 8 μm	polyimide	1 meter	16 cm	8 cm	\$119
P400-1-UV-VIS	300-1100 nm	400 μm ± 8 μm	polyimide	1 meter	16 cm	8 cm	\$109
P400-2-SR	200-1100 nm	400 μm ± 8 μm	polyimide	2 meters	16 cm	8 cm	\$129
P400-2-UV-VIS	300-1100 nm	400 μm ± 8 μm	polyimide	2 meters	16 cm	8 cm	\$119
P400-2-VIS-NIR	400-2500 nm	400 μm ± 8 μm	polyimide	2 meters	16 cm	8 cm	\$119
P400-5-UV-VIS	300-1100 nm	400 μm ± 8 μm	polyimide	5 meters	16 cm	8 cm	\$179
P400-5-VIS-NIR	400-2500 nm	400 μm ± 8 μm	polyimide	5 meters	16 cm	8 cm	\$179
P400-10-UV-VIS	300-1100 nm	400 μm ± 8 μm	polyimide	10 meters	16 cm	8 cm	\$279
P400-10-VIS-NIR	400-2500 nm	400 μm ± 8 μm	polyimide	10 meters	16 cm	8 cm	\$279
P600-025-SR	200-1100 nm	600 μm ± 10 μm	polyimide	25 centimeters	24 cm	12 cm	\$109
P600-025-VIS-NIR	400-2500 nm	600 μm ± 10 μm	polyimide	25 centimeters	24 cm	12 cm	\$99
P600-1-SR	200-1100 nm	600 μm ± 10 μm	polyimide	1 meter	24 cm	12 cm	\$119
P600-2-SR	200-1100 nm	600 μm ± 10 μm	polyimide	2 meters	24 cm	12 cm	\$169
P600-2-UV-VIS	300-1100 nm	600 μm ± 10 μm	polyimide	2 meters	24 cm	12 cm	\$159
P600-2-VIS-NIR	400-2500 nm	600 μm ± 10 μm	polyimide	2 meters	24 cm	12 cm	\$159
P600-5-UV-VIS	300-1100 nm	600 μm ± 10 μm	polyimide	5 meters	24 cm	12 cm	\$249
P600-5-VIS-NIR	400-2500 nm	600 μm ± 10 μm	polyimide	5 meters	24 cm	12 cm	\$249
P600-10-UV-VIS	300-1100 nm	600 μm ± 10 μm	polyimide	10 meters	24 cm	12 cm	\$349
P600-10-VIS-NIR	400-2500 nm	600 μm ± 10 μm	polyimide	10 meters	24 cm	12 cm	\$349
P1000-2-UV-VIS	300-1100 nm	1000 μm ± 20 μm	acrylate	2 meters	30 cm	15 cm	\$299
P1000-2-VIS-NIR	400-2500 nm	1000 μm ± 20 μm	acrylate	2 meters	30 cm	15 cm	\$299

* LTBR stands for Long Term Bend Radius, the bend radius allowed long term (such as for storage) before damaging the fiber.

** STBR stands for Short Term Bend Radius, the momentary bend radius allowed before damaging the fiber.

Specifications	
Type:	Laboratory-grade Patch Cord Optical Fiber Assemblies
Fiber profile:	Step-index multimode (all diameter assemblies except for (8 μm) and Step-index single mode (8 μm diameter assemblies)
Fiber core:	Pure silica core
Fiber cladding:	Fluorine-doped silica cladding
Connector(s):	Laboratory-grade SMA 905 Connectors
Assembly jacketing:	zip tube blue PVDF
Temperature range:	-20 °C to 80 °C
Numerical aperture:	Multimode: 0.22 ± 0.02 (yields acceptance angle of 24.8° in air); Single mode: 0.14 ± 0.02 (yields acceptance angle of 14.94° in air)

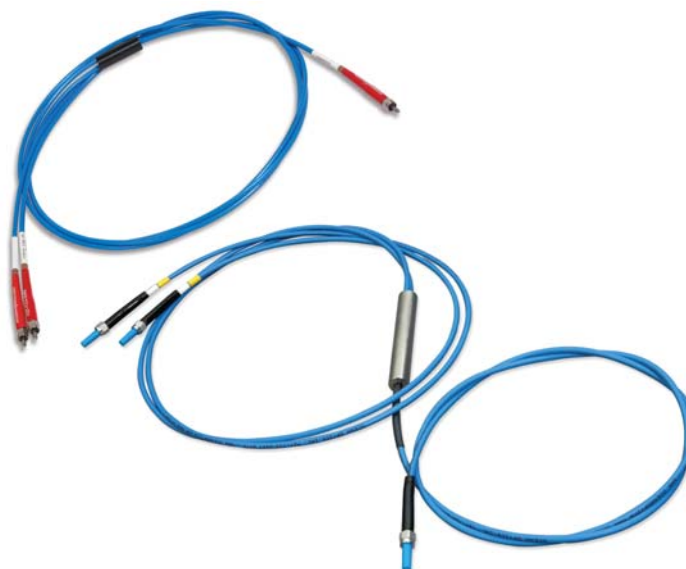


Laboratory-grade Assemblies



Laboratory-grade Bifurcated and Splitter Optical Fiber Assemblies

These 2-meter Bifurcated Optical Fiber Assemblies (right, top) are Y-shaped assemblies that have two fibers of the same diameter side-by-side in the common end, or the tail of the assembly. From the nexus or breakout of the assembly, the two fibers diverge into two separate legs. You may specify that both fibers in the assembly are UV-VIS, VIS-NIR or one of each -- a "mixed" bifurcated assembly.



A splitter (right, bottom) is a 2-meter, Y-shaped assembly with a stainless steel breakout located midway from the ends of the assembly. Each splitter is made up of three separate optical fibers, all of the same diameter, and epoxied at the nexus of the Y-shaped assembly. A splitter can route light from two different sources to illuminate one sample or from one source to illuminate two samples. Splitters have lower transmission efficiency than other fiber assemblies due to their design.

Item Code	Wavelength Range	Core Diameter	Buffer/Coating	Assembly Length	LTBR*	STBR**	Price
Bifurcated Optical Fiber Assemblies							
BIF50-UV-VIS	300-1100 nm	50 $\mu\text{m} \pm 5 \mu\text{m}$	polyimide	2 meters	4 cm	2 cm	\$249
BIF50-VIS-NIR	400-2500 nm	50 $\mu\text{m} \pm 5 \mu\text{m}$	polyimide	2 meters	4 cm	2 cm	\$249
BIF200-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	8 cm	4 cm	\$249
BIF200-VIS-NIR	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	8 cm	4 cm	\$249
BIF400-UV-VIS	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	16 cm	8 cm	\$279
BIF400-VIS-NIR	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	16 cm	8 cm	\$279
BIF400-MIXED	300-1100 nm & 400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	16 cm	8 cm	\$279
BIF600-UV-VIS	300-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	2 meters	24 cm	12 cm	\$329
BIF600-VIS-NIR	400-2500 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	polyimide	2 meters	24 cm	12 cm	\$329
Splitter Optical Fiber Assemblies							
SPLIT200-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	8 cm	4 cm	\$499
SPLIT200-VIS-NIR	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	8 cm	4 cm	\$499
SPLIT400-UV-VIS	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	16 cm	8 cm	\$499
SPLIT400-VIS-NIR	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	polyimide	2 meters	16 cm	8 cm	\$499
Keyed SMA Optical Fiber Assemblies, Round to Keyed Linear							
PL100-2-UV-VIS	300-1100 nm	100 $\mu\text{m} \pm 3 \mu\text{m}$	polyimide	2 meters	4 cm	2 cm	\$299
PL100-2-VIS-NIR	400-2500 nm	100 $\mu\text{m} \pm 3 \mu\text{m}$	polyimide	2 meters	4 cm	2 cm	\$299
PL100-2-MIXED	300-1100 nm & 400-2500 nm	100 $\mu\text{m} \pm 3 \mu\text{m}$	polyimide	2 meters	4 cm	2 cm	\$299
PL200-2-MIXED	300-1100 nm & 400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	polyimide	2 meters	8 cm	4 cm	\$299

* LTBR stands for Long Term Bend Radius, the bend radius allowed long term (such as for storage) before damaging the fiber.

** STBR stands for Short Term Bend Radius, the momentary bend radius allowed before damaging the fiber.

Specifications

Type:	Laboratory Grade Bifurcated, Splitter and Keyed Optical Fiber Assemblies
Fiber profile:	Step-index multimode
Fiber core:	Pure silica core
Fiber cladding:	Fluorine-doped silica cladding
Connector(s):	Laboratory-grade SMA 905 Connectors
Assembly jacketing:	zip tube blue PVDF
Breakout:	Midway of assembly at 1 meter
Operating temp. range:	-20 °C to 80 °C
Numerical aperture:	0.22 \pm 0.02 (yields acceptance angle of 24.8° in air)





Xtreme Solarization-resistant Assemblies

High Transparency and Durability

Xtreme Solarization-resistant Optical Fiber and Probe Assemblies for spectroscopy are manufactured using a proprietary process that provides enhanced UV transmission -- signal will transmit to 180 nm -- and remarkable resistance to UV degradation, making it ideal for deep-UV applications (<300 nm). Ocean Optics is the only spectroscopy manufacturer to offer XSR Fiber.

Solarization in Typical Fibers

UV radiation below 300 nm degrades transmission in standard silica fibers, resulting in solarization (increased light absorption in the UV fiber that can invalidate data). For applications below 300 nm, we recommend Premium-grade XSR Xtreme Solarization-resistant Fiber and Probe Assemblies, which are available for immediate delivery in standard lengths. Shorter lengths for solarization-resistant assemblies maximize UV throughput. Custom lengths are available; however, we recommend speaking with our Applications Scientists before ordering.

High Production Values

Our XSR products are part of our high-quality Premium-grade line of optical fibers and probes. XSR Fiber and Probe Assemblies are robust and durable; each assembly has an aluminum coating, a stainless-steel BX jacketing, and our high-quality SMA 905 Connectors with captive end cap that protects fiber tips against scratches and contaminants. And like all of our optical fibers, the XSR assemblies are precisely polished to work with our miniature fiber optic spectrometers and accessories.



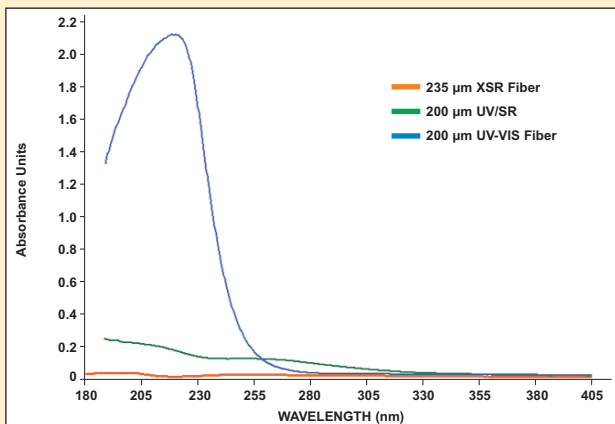
QR450-7-XSR Premium-grade XSR Xtreme Solarization-resistant Reflection Probe Assembly



QP230-2-XSR Premium-grade XSR Xtreme Solarization-resistant Patch Cord Optical Fiber Assembly

QP450-2-XSR Premium-grade XSR Xtreme Solarization-resistant Patch Cord Optical Fiber Assembly

Absorbance Spectra of Various Fiber Types after 72 Hours of UV Exposure



Specifications

Type:	Premium Grade Xtreme XSR Solarization-resistant Optical Fiber Assemblies and Reflection/Backscattering Probes
Wavelength range:	180-900 nm
Fiber profile:	Step-index multimode
Fiber core:	Pure silica core
Fiber cladding:	Fluorine-doped silica cladding
Fiber buffer/coating:	Aluminum
Operating temp. range:	-50 °C to 250 °C
Numerical aperture:	0.22 ± 0.02 (yields acceptance angle of 24.8° in air)
Connector(s):	Premium-grade SMA 905 Connectors
Assembly jacketing	Stainless-steel BX

Item Code	Product Type	Assembly Length	Core Diameter	LTBR*	STBR**	Price
QP230-0.25-XSR	Optical Fiber Assembly	25 centimeters	230 µm	4 cm	2 cm	\$149
QP230-1-XSR	Optical Fiber Assembly	1 meter	230 µm	4 cm	2 cm	\$179
QP230-2-XSR	Optical Fiber Assembly	2 meters	230 µm	4 cm	2 cm	\$199
QP450-0.25-XSR	Optical Fiber Assembly	25 centimeters	450 µm	8 cm	4 cm	\$159
QP450-1-XSR	Optical Fiber Assembly	1 meter	450 µm	8 cm	4 cm	\$199
QP450-2-XSR	Optical Fiber Assembly	2 meters	450 µm	8 cm	4 cm	\$239
QR230-7-XSR/BX	Reflection/backscattering Probe	2 meters	230 µm	4 cm	2 cm	\$599
QR450-7-XSR	Reflection/backscattering Probe	2 meters	450 µm	8 cm	4 cm	\$999

* LTBR stands for Long Term Bend Radius, the bend radius allowed long term (such as for storage) before damaging the fiber.

** STBR stands for Short Term Bend Radius, the momentary bend radius allowed before damaging the fiber.



Flame Loop Fiber Optic Probe



Heat-resistant Fiber Optic Probe

The FL-400 Flame Loop Fiber Optic Probe couples to our spectrometers to measure in situ emission spectra of samples such as dissolved metals and high-temperature plasmas. The FL-400 consists of a high-temperature 400 μm gold-jacketed UV-VIS optical fiber in an 8-inch-long nickel sleeve. The assembly operates in temperatures up to 700 °C. The probe connects to the 21-02 Splice Bushing and a P400-2-UV-VIS Optical Fiber, which couples to a spectrometer to measure emission spectra. (Components are sold separately.)

Use as a Flame Loop Probe or Use as a Heat-resistant Fiber Probe

The FL-400 is especially beneficial as an emission spectroscopy teaching tool to observe atomic emission lines of dissolved metals. You simply dip the loop in your sample material and pass the loop over an open flame to take emission measurements. To use the FL-400 as a heat-resistant emission probe, remove the flame loop and insert the FL-400 into a high-temperature environment to monitor emission.

FL-400: \$499
 P400-2-UV-VIS: \$119
 21-02: \$13

Probe Assembly Specifications

Fiber diameter:	400 μm core diameter
Fiber core/cladding:	Fused silica core and doped, fused silica cladding
Fiber jacketing:	Gold
Fiber type:	1 single-strand, multimode fiber
Wavelengths covered:	300-1100 nm
Probe sleeve (ferrule):	Nickel
Probe dimensions:	17.78 cm length, 20-gauge probes with 0.902 mm OD
Temperature range:	-269 °C to 700 °C
Numerical aperture:	0.22
Connector:	SMA 905



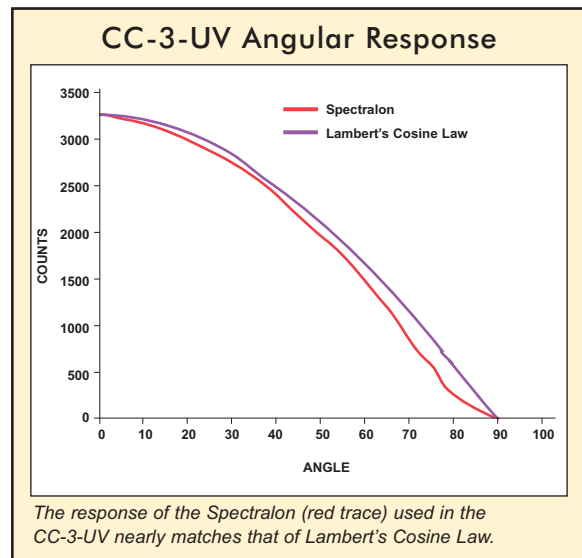
Cosine-corrected Irradiance Probe



See pages 142 and 144 for selecting a fiber to couple to a cosine corrector to create an irradiance probe.

CC-3 and CC-3-UV Cosine Correctors collect radiation from a 180° solid angle. When screwed onto the end of an optical fiber, the cosine corrector and optical fiber become an irradiance probe, measuring the intensity of light normal to the probe surface defined by the diffusing material. The probe then couples to one of our spectrometers to make a complete spectroradiometer for relative and absolute spectral intensity measurements, such as measuring UV-A and UV-B in natural solar environments, evaluating emissive color sources and analyzing light sources such as LEDs and lasers. The CC-3 has an opaline glass diffuser for VIS-NIR; the CC-3-UV utilizes Spectralon for UV-NIR. Each disc sits flush at the end of 6.35-mm outer diameter barrel, which is threaded on one side for SMA 905 Connectors.

CC-3: \$99
 CC-3-UV: \$129



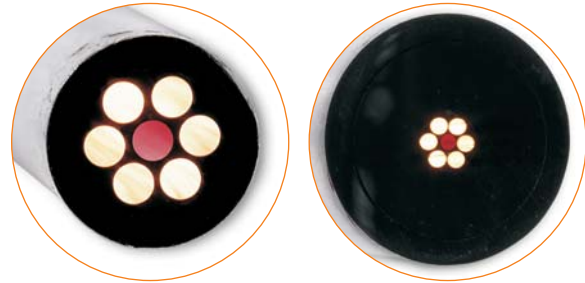
Specifications

	CC-3	CC-3-UV
Diffusing material:	Opaline glass	Spectralon
Wavelength range:	350-1000 nm	200-1100 nm
Disc thickness:	7.9 mm	7.9 mm
Dimensions:	6.35 mm OD	6.35 mm OD
Field of view:	180°	180°
Connector:	SMA 905	SMA 905



Reflection/Backscattering Probes

Our R-series Fiber Optic Reflection Probes are used for measuring specular or diffuse reflectance from a surface, fluorescence from solid surfaces, or backscattering and fluorescence in solutions and powders. These probes come in all four fiber types (XSR, UV/SR, UV-VIS and VIS-NIR), or a combination of fiber types. (See page 139 for more on each fiber type.)



Our standard reflection probes use a 6-around-1 close-packing design to ensure parallel orientation of the fibers.

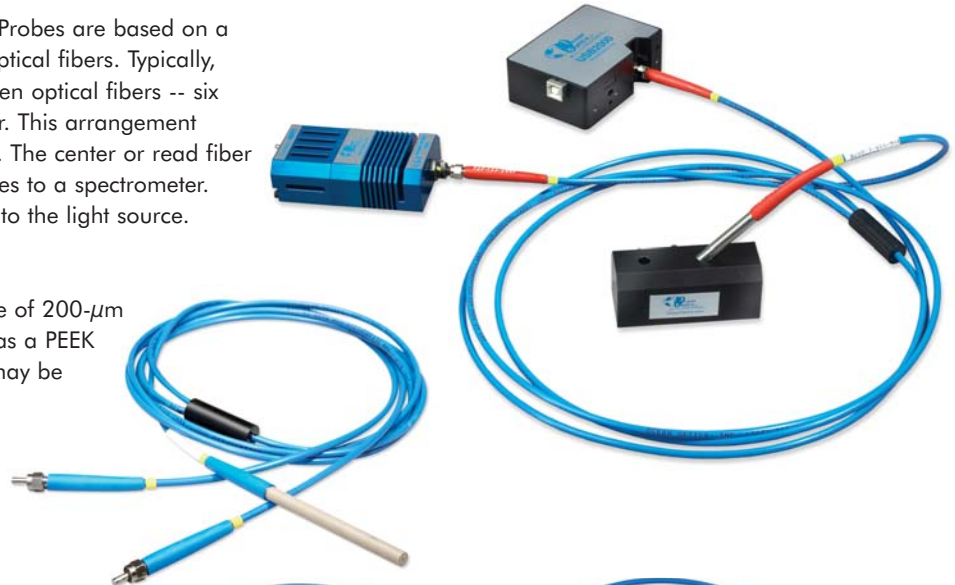
Standard Reflection/Backscattering Probes

Stainless Steel Ferrule

Our Standard Reflection/Backscattering Probes are based on a natural close-packing arrangement of optical fibers. Typically, the arrangement is a tight bundle of seven optical fibers -- six illumination fibers around one read fiber. This arrangement ensures parallel orientation of the fibers. The center or read fiber splits from the other six fibers and couples to a spectrometer. The outer six illumination fibers connect to the light source.

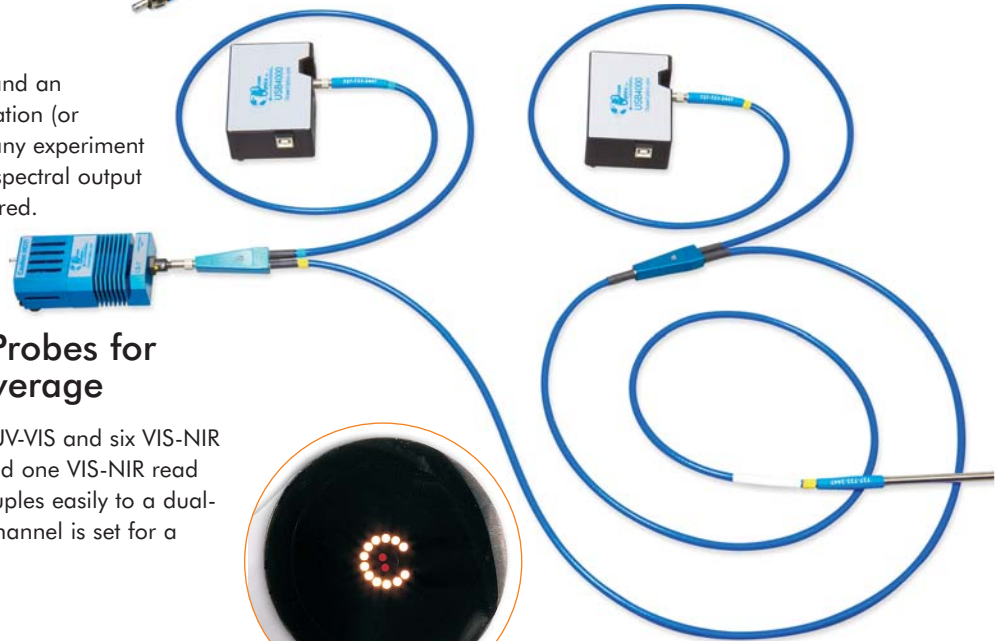
PEEK Probe Ferrule

The RP200-7-UV-VIS consists of a bundle of 200- μ m fibers in a six-around-one design, but has a PEEK ferrule for applications where samples may be corrosive to the standard stainless-steel ferrule.



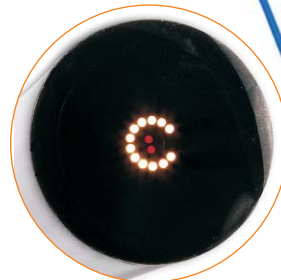
Reflection/Backscattering Probes with Reference Leg

The R200-REF consists of an R200-7 and an additional fiber to monitor the illumination (or reference) source, which is useful for any experiment in which variation or instability in the spectral output of the light source needs to be monitored.



Reflection/Backscattering Probes for Expanded Wavelength Coverage

The R200-MIXED has 14 fibers -- six UV-VIS and six VIS-NIR illumination fibers, plus one UV-VIS and one VIS-NIR read fiber (see bundle photo at right). It couples easily to a dual-channel spectrometer in which each channel is set for a different wavelength range.



Angled Probes for Solutions & Powders

Our angled probes also have a six-around-one design, but employ a 30° window to remove specular reflection effects when the probe is immersed in dense solutions and powders. We offer the angled probe with two different diameter fibers, 200 μ m and 400 μ m. These backscattering probes are especially useful for fluorescence measurements.



Reflection/Backscattering Probes



Item Code	Wavelength Range	Core Diameter	Fiber Bundle	Fiber Jacketing	Probe Ferrule	LTBR*	STBR**	Price
Standard Reflection/Backscattering Probes								
QR200-7-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$399
QR200-7-VIS-NIR	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$399
QR230-7-XSR/BX	180-900 nm	230 μm	6 illumination fibers around 1 read, with aluminum coating	stainless-steel BX	6.35 mm OD			\$599
QR400-7-SR	200-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	16 cm	8 cm	\$699
QR400-7-SR/BX	200-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	stainless-steel BX	6.35 mm OD	16 cm	8 cm	\$549
QR400-7-UV/BX	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	stainless-steel BX	6.35 mm OD	16 cm	8 cm	\$549
QR400-7-UV-VIS	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	16 cm	8 cm	\$650
QR400-7-VIS/BX	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	stainless-steel BX	6.35 mm OD	16 cm	8 cm	\$549
QR400-7-VIS-NIR	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	16 cm	8 cm	\$649
QR450-7-XSR	180-900 nm	450 μm	6 illumination fibers around 1 read, with aluminum coating	stainless-steel BX	6.35 mm OD			\$999
QR600-7-SR-125F	200-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	3.18 mm OD	24 cm	12 cm	\$899
QR600-7-UV-125F	300-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	3.18 mm OD	24 cm	12 cm	\$849
QR600-7-VIS-125	400-2500 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	3.18 mm OD	24 cm	12 cm	\$849
R200-7-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$399
R200-7-VIS-NIR	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$399
R400-7-SR	200-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	16 cm	8 cm	\$549
R400-7-UV-VIS	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	16 cm	8 cm	\$499
R400-7-VIS-NIR	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	16 cm	8 cm	\$499
R600-7-SR-125F	200-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	3.18 mm OD	24 cm	12 cm	\$699
R600-7-UV-125F	300-1100 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	3.18 mm OD	24 cm	12 cm	\$699
R600-7-VIS-125F	400-2500 nm	600 $\mu\text{m} \pm 10 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	3.18 mm OD	24 cm	12 cm	\$699
RP200-7-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	PEEK ferrule, 6.35 mm OD	8 cm	4 cm	\$499
Reflection/Backscattering Probes with Reference Leg								
QR200-REF-UV-VI	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read plus 1 fiber to monitor illumination	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$549
QR200-REF-VIS-N	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read plus 1 fiber to monitor illumination	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$549
R200-REF-UV-VIS	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read plus 1 fiber to monitor illumination	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$549
R200-REF-VIS-NI	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read plus 1 fiber to monitor illumination	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$549
Reflection/Backscattering Probes for Expanded Wavelength Coverage								
QR200-12-MIXED	300-1100 nm & 400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 UV-VIS & 6 VIS-NIR illumination fibers around 1 UV-VIS & 1 VIS-NIR fibers	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$749
R200-12-MIXED	300-1100 nm & 400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 UV-VIS & 6 VIS-NIR illumination fibers around 1 UV-VIS & 1 VIS-NIR fibers	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$749
Angled Probes for Solutions & Powders								
QR200-ANGLE-U	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$599
QR200-ANGLE-V	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	8 cm	4 cm	\$599
QR400-ANGLE-U	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	16 cm	8 cm	\$749
QR400-ANGLE-V	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	silicone monocoil	6.35 mm OD	16 cm	8 cm	\$749
R200-ANGLE-UV	300-1100 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$499
R200-ANGLE-VIS	400-2500 nm	200 $\mu\text{m} \pm 4 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	8 cm	4 cm	\$499
R400-ANGLE-UV	300-1100 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	16 cm	8 cm	\$599
R400-ANGLE-VIS	400-2500 nm	400 $\mu\text{m} \pm 8 \mu\text{m}$	6 illumination fibers around 1 read	zip tube blue PVDF	6.35 mm OD	16 cm	8 cm	\$599

* LTBR stands for Long Term Bend Radius, the bend radius allowed long term (such as for storage) before damaging the fiber.

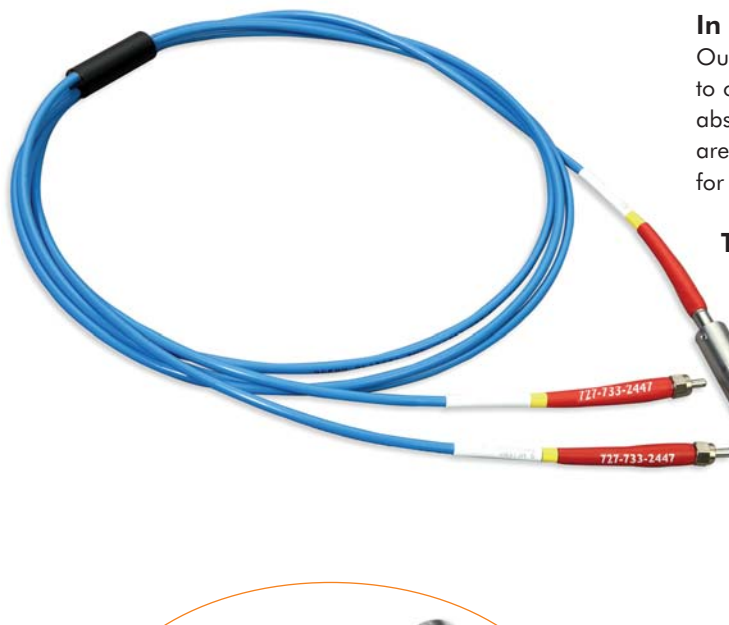
** STBR stands for Short Term Bend Radius, the momentary bend radius allowed before damaging the fiber.

Specifications			
Fiber profile:	Step-index multimode	Probe ferrule material:	Stainless steel except where noted
Fiber core:	Pure silica core	Probe connector(s):	Premium-grade SMA 905 Connectors for QR-series probes, Laboratory-grade SMA 905 Connectors for R-series probes
Fiber cladding:	Fluorine-doped silica cladding	Breakout:	Midway of assembly at 1 meter
Fiber buffer/coating:	Polyimide coating except where noted	Total probe length:	2 meters for fiber assembly, 76.2 mm long for probe ferrule = 2.076 meters; custom lengths available
Operating temp. range:	-20 °C to 80 °C		
Numerical aperture:	0.22 \pm 0.02 (yields an acceptance angle of 24.8° in air)		





Transmission Dip Probes



In Situ Monitoring

Our T300-RT and T200-RT Transmission Dip Probes couple to our spectrometers and light sources to measure absorbance and transmission in solutions. These probes are especially useful for embedding into process streams for in situ, real-time sample monitoring.

Theory of Operation

In transmission dip probes, light is transmitted from the illumination fiber through a plano-convex lens and through the sample compartment to a flat, second-surface mirror. The light reflects from this mirror and is focused by the lens onto the read fiber. The advantage of the transmission probe is its compact optical design, which fits into a 6.35-mm (1/4") outer diameter stainless steel body, or ferrule. The trade-offs with these probes are that they measure both transmitted light and backscattered light from the sample and have internal reflections that limit the dynamic range of the measurement. Still, at less than \$1,000, transmission probes are a cost-effective option for many on-line and lab applications.



The stainless steel RT-series tips screw onto the end of the T300-RT or T200-RT.

T300-RT Design

The T300-RT-UV-VIS Transmission Dip Probe consists of two 300- μ m solarization-resistant optical fibers -- one illumination optical fiber and one read optical fiber -- in a 3.175-mm (1/8") outer diameter stainless steel assembly that slides into a 127-mm long, 6.35-mm (1/4") outer diameter stainless steel ferrule. Each leg of the assembly has an SMA 905 termination so that one leg can be attached to a light source and the other to a spectrometer.

T200-RT Design

The T200-RT-VIS-NIR Transmission Dip Probe has the same optical design as the T300-RT-UV-VIS, but is made with two 200- μ m VIS-NIR optical fibers in its assembly.

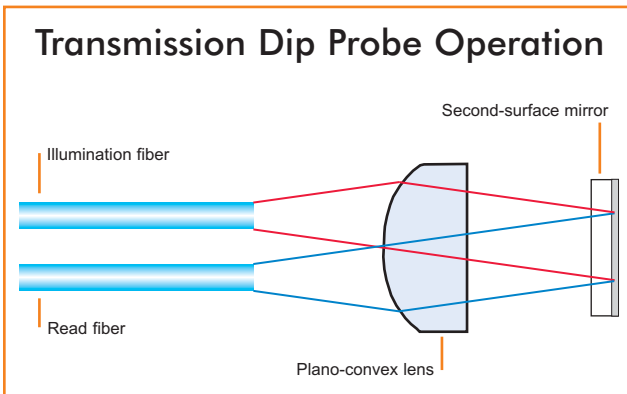
Process Applications

Both probes fit into a standard 1/4" Swagelok fitting for installation into a pipe or reactor. Probe optics are mounted with an epoxy that offers superior chemical resistance to most solvents and can tolerate high temperatures.

Screw-on Tips: Choose Your Pathlength

Available separately are the screw-on, interchangeable probe tips necessary to use either probe. The RT-series tips come in pathlengths of 2 mm, 4 mm, 5 mm or 10 mm so that sampling setups can be configured for optically dense or dilute solutions.

T300-RT-UV-VIS:	\$750
T200-RT-VIS-NIR:	\$750
RT-2MM:	\$240
RT-4MM:	\$240
RT-5MM:	\$240
RT-10MM:	\$240



Specifications

Fiber type:	T300: 300 μ m UV/SR fiber type (200-1100 nm) T200: 200 μ m VIS-NIR fiber type (400-2500 nm)
Pressure limit:	100 psi
Temperature limit:	100 °C without sleeve
Outer diameter:	6.35 mm
Probe length:	127 mm
Fiber length:	2 meters
Breakout:	1.5 meters from the end of the probe
Optics:	Fused silica
Probe wetted materials:	Stainless steel, fused silica, EPO-TEK 353ND
Pathlength:	2, 4, 5 or 10 mm
Fiber jacketing:	PVC Monocoil
Connector:	SMA 905
Probe sleeve:	Stainless steel



Transmission Dip Probes



Dip Probe for Hostile Environments

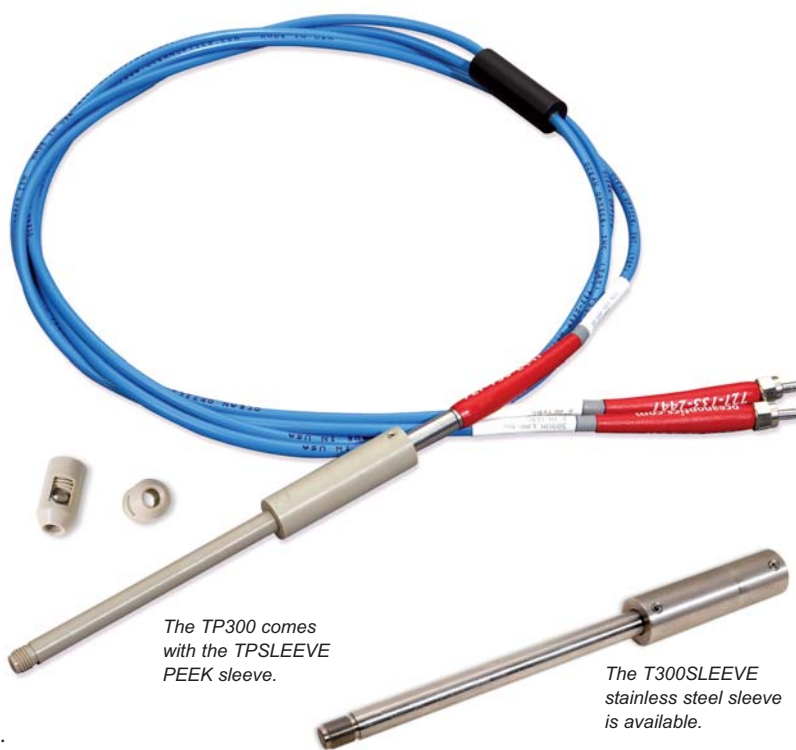
The TP300-UV-VIS Transmission Dip Probe couples to our spectrometers and light sources to measure the absorbance and transmission of solutions in harsh environments.

Probe Assembly

The TP300-UV-VIS consists of two 300- μm optical fibers -- one illumination optical fiber and one read optical fiber -- in a 3.175-mm (1/8") outer diameter stainless steel assembly sealed into a PEEK polymer sleeve. You have the option of choosing solarization-resistant fibers or VIS-NIR fibers for your assembly.

PEEK Polymer Sleeve

The sleeve is designed for environments with temperatures up to 200 °C. The PEEK material is also radiation-resistant and has low flammability and excellent chemical resistance. The PEEK sleeve (TPSLEEVE) comes with the TP300-UV-VIS. An additional stainless steel sleeve (T300SLEEVE) is available.



The TP300 comes with the TPSLEEVE PEEK sleeve.

The T300SLEEVE stainless steel sleeve is available.

Theory of Operation

The TP300 works the same way as the T300-RT and T200-RT probes. Light travels from the light source into the illumination leg of the probe and through a lens near the end of the probe. The light then transmits through the sample compartment to a second-surface mirror. The light reflects and travels back through the sample compartment a second time and is then focused by the lens onto the read fiber and through the read leg of the probe to the spectrometer.

Adjustable-pathlength Tips

There are two adjustable-pathlength tips (2-mm to 10-mm pathlengths or 10-mm to 20-mm pathlengths) available for the TP300-UV-VIS. Additionally, an RT-PH tip for mounting pH films in the optical path can be used for pH-sensing applications.

- TP300-UV-VIS: \$750
- TP300-VIS-NIR: \$750
- T300SLEEVE: \$250
- TPSLEEVE: \$250
- RTP-2-10 Tip: \$240
- RTP-10-20 Tip: \$240
- RT-PH Tip: \$240



The RTP-series Tips (above) are for transmission and absorbance measurements. The RT-PH Tip (left) turns the TP300 Probe into a pH Sensor (see page 76).

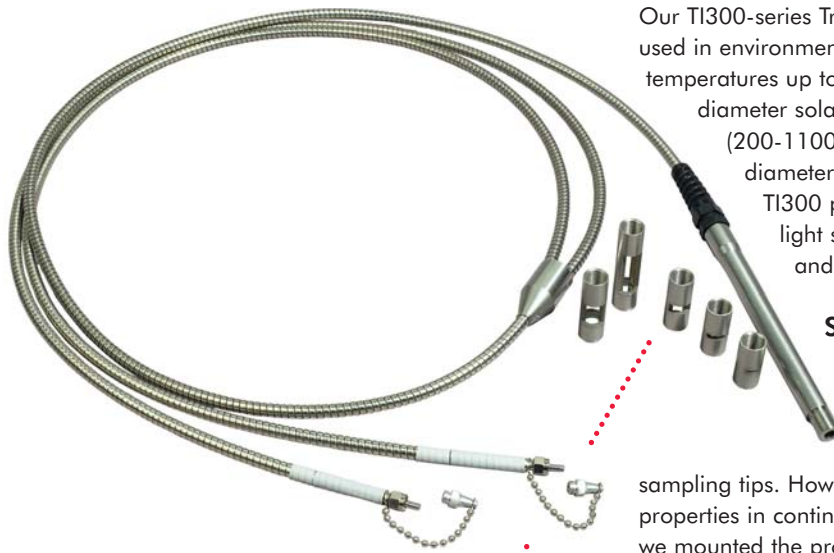


Specifications			
Fiber type:	TP300-UV-VIS -- 300 μm UV/SR fiber type (200-1100 nm) TP300-VIS-NIR -- VIS-NIR fiber type (400-2500 nm)	Pathlength:	Adjustable from 2-10 mm or from 10-20 mm RT-PH - fixed 16-mm pathlength
Outer diameter:	3.175 mm	Outer materials:	PVDF for jacketing, PEEK polymer for sleeve
Length:	107.9 mm for probe, 2 meters for fiber	Temperature limit:	200 °C with PEEK sleeve
Optics:	Fused silica	Pressure limit:	100 psi





Industrial Process Probes



Industrial Environments up to 250 psi, 300 °C

Our TI300-series Transmission Industrial Dip Probes can be used in environments with pressure limits up to 250 psi and at temperatures up to 300 °C. The TI300-UV-VIS uses 300 μm diameter solarization-resistant optical fiber (200-1100 nm), while the TI300-VIS-NIR uses 300 μm diameter VIS-NIR optical fiber (400-2200 nm). The TI300 probes couple to our spectrometers and light sources to measure solutions absorbance and transmission in industrial applications.

Sampling Tips Use O-rings, Replacing Epoxy

With our other transmission probe offerings, we use high-grade epoxy to adhere the sampling optics to the sampling tips. However, most epoxies lose their adhesive properties in continuous heat over 220 °C. With the TI300s, we mounted the probe optics into the sampling tips using Parker perfluoroelastomer (Parofluor ULTRA) O-ring seals. The material in these special O-rings offers broad chemical resistance, excellent thermal stability and temperature resistance up to 300 °C. The other materials in the screw-on, interchangeable sampling tips are grade 303 stainless steel, a back-coated quartz mirror and a quartz lens. The tips come in pathlengths of 2, 5, 10, 25 and 50 mm so that sampling setups can be configured for optically dense or dilute solutions.

Probe Ferrule & Jacketing

The TI300s use a fully interlocked stainless-steel jacketing over Teflon tubing and have an outer diameter of 0.68 cm. The immersible part of the probe, the ferrule, is also made from 303 stainless steel and measures 12.7 cm in length, with an outer diameter of 1.27 cm.

How it Works

In a TI300 probe, there are two 300- μm optical fibers -- one illumination optical fiber and one read optical fiber -- in a 12.7-mm diameter stainless-steel ferrule. Light transmits via the illumination fiber through a plano-convex lens and the sample compartment to a flat, second-surface mirror (see diagram on page 150). The light reflects from this mirror, travels back through the sample compartment and is focused by the lens onto the read fiber and through the read leg of the probe to the spectrometer. The trade-offs with these probes are that they measure both transmitted light and backscattered light from the sample and have internal reflections that limit the dynamic range of the measurement. But at less than \$1,600 (for the TI300 probe and one sampling tip), a TI300 probe, with its high pressure and temperature limits, is a great option for many industrial applications.

Specifications

Fiber type:	TI300-UV-VIS -- 300 μm diameter UV/SR fiber type (200-1100 nm) TI300-VIS-NIR -- 300 μm diameter VIS-NIR fiber type (400-2500 nm)
Wavelength range:	TI300-UV-VIS -- 200-1100 nm TI300-VIS-NIR -- 400-2500 nm
Pressure limit:	250 psi
Temperature limit:	300 °C
Sampling tip body:	303 stainless steel
Sampling tip optics:	Quartz back-coated mirror and quartz lens
Sampling tip O-ring:	Parker perfluoroelastomer (Parofluor ULTRA) O-ring seal
Probe ferrule:	12.7 mm outer diameter 303 stainless steel
Probe jacketing:	Fully interlocked stainless-steel jacketing over Teflon tubing; total 6.8 mm outer diameter
Length:	Fiber -- 2 meters Ferrule -- 12.7 cm without tip Tips -- 2.6 cm to 4.99 cm, depending on tip
Breakout distance:	1 meter from the end of the probe
Immersible length:	12.7 cm
Optical pathlengths:	2, 5, 10, 25 and 50 mm pathlengths available
Connectors:	SMA 905

TI300-UV-VIS:	\$1,299
TI300-VIS-NIR:	\$1,299
RT-TI-2MM:	\$299
RT-TI-5MM:	\$299
RT-TI-25MM:	\$299
RT-TI-50MM:	\$299



Vacuum Feedthroughs

Feedthroughs with Industry-standard Flanges

These Vacuum Feedthroughs are welded into industry standard flanges, and designed for monitoring high-vacuum applications from inside a vacuum system with external equipment, such as our spectrometers. The optical fiber inside of the VFT is hermetically sealed into a stainless steel shell. These VFTs come in two standard flange types: Conflat Flanges and ISO KF Flanges. The flanges use surgical-grade stainless steel with glass-ceramic seals. The flange-to-seal's metal-to-glass design allows the entire assembly to perform up to either 250 °C and 10⁻¹⁰ Torr for the Conflat Flanges or 150 °C and 10⁻⁸ Torr for the ISO KF Flanges.



VFT-1000-UV-133



VFT-1000-UV-275



VFT-1000-UV-16



VFT-1000-UV-40

Item	Fiber Type	Range	Flange Type	Price
VFT-200-UV-133	200-µm diameter UV-VIS	300-1100 nm	1.33" OD Conflat	\$279
VFT-200-VIS-133	200-µm diameter VIS-NIR	400-2500 nm	1.33" OD Conflat	\$279
VFT-400-UV-133	400-µm diameter UV-VIS	300-1100 nm	1.33" OD Conflat	\$440
VFT-400-VIS-133	400-µm diameter VIS-NIR	400-2500 nm	1.33" OD Conflat	\$440
VFT-600-UV-133	600-µm diameter UV-VIS	300-1100 nm	1.33" OD Conflat	\$450
VFT-600-VIS-133	600-µm diameter VIS-NIR	400-2500 nm	1.33" OD Conflat	\$450
VFT-1000-UV-133	1000-µm diameter UV-VIS	300-1100 nm	1.33" OD Conflat	\$485
VFT-1000-VIS-133	1000-µm diameter VIS-NIR	400-2500 nm	1.33" OD Conflat	\$485
VFT-200-UV-275	200-µm diameter UV-VIS	300-1100 nm	2.73" OD Conflat	\$450
VFT-200-VIS-275	200-µm diameter VIS-NIR	400-2500 nm	2.73" OD Conflat	\$450
VFT-400-UV-275	400-µm diameter UV-VIS	300-1100 nm	2.73" OD Conflat	\$455
VFT-400-VIS-275	400-µm diameter VIS-NIR	400-2500 nm	2.73" OD Conflat	\$455
VFT-600-UV-275	600-µm diameter UV-VIS	300-1100 nm	2.73" OD Conflat	\$465
VFT-600-VIS-275	600-µm diameter VIS-NIR	400-2500 nm	2.73" OD Conflat	\$465
VFT-1000-UV-275	1000-µm diameter UV-VIS	300-1100 nm	2.73" OD Conflat	\$499
VFT-1000-VIS-275	1000-µm diameter VIS-NIR	400-2500 nm	2.73" OD Conflat	\$499
VFT-200-UV-16	200-µm diameter UV-VIS	300-1100 nm	1.18" OD KF16 ISO	\$430
VFT-200-VIS-16	200-µm diameter VIS-NIR	400-2500 nm	1.18" OD KF16 ISO	\$430
VFT-400-UV-16	400-µm diameter UV-VIS	300-1100 nm	1.18" OD KF16 ISO	\$435
VFT-400-VIS-16	400-µm diameter VIS-NIR	400-2500 nm	1.18" OD KF16 ISO	\$435
VFT-600-UV-16	600-µm diameter UV-VIS	300-1100 nm	1.18" OD KF16 ISO	\$445
VFT-600-VIS-16	600-µm diameter VIS-NIR	400-2500 nm	1.18" OD KF16 ISO	\$445
VFT-1000-UV-16	1000-µm diameter UV-VIS	300-1100 nm	1.18" OD KF16 ISO	\$480
VFT-1000-VIS-16	1000-µm diameter VIS-NIR	400-2500 nm	1.18" OD KF16 ISO	\$480
VFT-200-UV-40	200-µm diameter UV-VIS	300-1100 nm	2.16" OD KF40 ISO	\$445
VFT-200-VIS-40	200-µm diameter VIS-NIR	400-2500 nm	2.16" OD KF40 ISO	\$445
VFT-400-UV-40	400-µm diameter UV-VIS	300-1100 nm	2.16" OD KF40 ISO	\$450
VFT-400-VIS-40	400-µm diameter VIS-NIR	400-2500 nm	2.16" OD KF40 ISO	\$450
VFT-600-UV-40	600-µm diameter UV-VIS	300-1100 nm	2.16" OD KF40 ISO	\$460
VFT-600-VIS-40	600-µm diameter VIS-NIR	400-2500 nm	2.16" OD KF40 ISO	\$460
VFT-1000-UV-40	1000-µm diameter UV-VIS	300-1100 nm	2.16" OD KF40 ISO	\$495
VFT-1000-VIS-40	1000-µm diameter VIS-NIR	400-2500 nm	2.16" OD KF40 ISO	\$495



VFT-series Feedthroughs

Our general-purpose VFT-series Vacuum Feedthroughs are designed to penetrate NEMA enclosures. The VFT screws into a 3/8-24 external threaded hole in the vacuum chamber, or bolts into a smooth hole with the provided nut and washer.



Item	Fiber Type	Range	Price
VFT-200-SR	200-µm diameter SR fiber	200-1100 nm	\$299
VFT-200-VIS	200-µm diameter VIS-NIR fiber	400-2500 nm	\$299
VFT-400-SR	400-µm diameter SR fiber	200-1100 nm	\$299
VFT-400-VIS	400-µm diameter VIS-NIR fiber	400-2500 nm	\$299
VFT-600-SR	600-µm diameter SR fiber	200-1100 nm	\$299
VFT-600-VIS	600-µm diameter VIS-NIR fiber	400-2500 nm	\$299
VFT-1000-UV	1000-µm diameter UV-VIS fiber	300-1100 nm	\$299
VFT-1000-VIS	1000-µm diameter VIS-NIR fiber	400-2500 nm	\$299

Specifications

	VFTs with Conflat Flanges	VFTs with KF ISO Flanges	VFT-Series
Temperature limit:	250 °C	150 °C	140 °C
Vacuum range:	1 x 10 ⁻¹⁰ Torr	1 x 10 ⁻⁸ Torr	1 x 10 ⁻⁹ Torr
Numerical aperture:	0.22, and acceptance angle of 24.8°	0.22, and acceptance angle of 24.8°	0.22, and acceptance angle of 24.8°





Bare Fiber Adapter Kit



The SMA-PUCK, sold separately from the BFA-KIT.

The BFA-KIT Bare Fiber Adapter Kit is for the fiber tinkerer who wants to polish bare (unjacketed) optical fiber. The kit comes with fiber polishing holders for various sizes of optical fibers.

The Bare Fiber Adapter Kit includes the following:

- 6 fiber polishing holders for various sizes of optical fiber: (1 each for 100 μm , 200 μm , 300 μm , 400 μm , 600 μm and 1000 μm optical fibers)
- a BFA-KIT-CHUCK connect-and-release adapter (which can be purchased separately as well) to fasten the SMAs onto bare optical fiber
- several pieces of wire for cleaning out the polishing holders and connect-and-release adapter

An SMA-PUCK polishing puck is not included with the BFA-KIT, but is available separately.

The puck is used to polish the surface of an optical fiber.

Need a special SMA 905 Connector? We can drill out an SMA 905 Connector from 149 μm to 2705 μm . Custom-drilled connectors are available for \$50 each.

BFA-KIT:	\$249
BFA-KIT-CHUCK:	\$169
SMA-PUCK:	\$129

How to Use the BFA-KIT



Select the fiber polishing holder that corresponds to the diameter of your bare optical fiber.

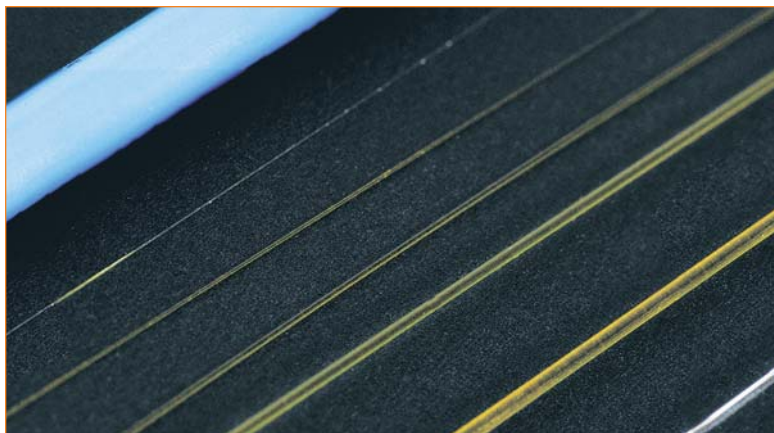


Attach the fiber polishing holder to the front of the BFA-KIT-CHUCK connect-and-release adapter.

Thread your bare optical fiber through the back of the chuck and into the holder and fasten. The holder allows you to easily work with the fiber for various purposes, such as polishing.



Fiber Tinkerer's Kit



The FT-KIT Fiber Tinkerer Kit (left) includes an assortment of randomly selected, unterminated UV-VIS and VIS-NIR optical fibers. Each fiber included in the kit will be at least one meter in length. The Fiber Termination Kit (TERM-KIT) on the following page includes all the tools needed to terminate and polish fiber.

FT-KIT:	\$99
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Fiber Termination Kit

Inspect & Repair Fibers

The TERM-KIT Termination Kit provides you with all the tools you need to properly polish and terminate an optical fiber. The TERM-KIT is great for inspecting, repairing and polishing optical fiber assemblies. If you would like unterminated fibers for use with the TERM-KIT, the FT-KIT Fiber Tinkerer Kit includes an assortment of optical fibers in lengths of at least one meter (see page 154 for details).

Included in Each TERM-KIT

- 4 SMA 905 Connectors for 50 μm or 100 μm fibers
- 4 SMA 905 Connectors for 200 μm optical fibers
- 4 SMA 905 Connectors for 400 μm optical fibers
- 4 SMA 905 Connectors for 600 μm optical fibers
- 4 SMA 905 Connectors for 1000 μm optical fibers
- polishing puck
- glass polishing plate (15 cm x 15 cm)
- dozens of polishing papers
- 5-cavity crimp tool (for 2.6, 3.4, 3.8, 4.5 and 6.4 mm cavities)
- scoring tool
- inspection scope
- 2-hour cure epoxy
- optical wipes

TERM-KIT: \$599



Terminators

Our SMA 905 Connector Kits are an excellent complement to the standard Termination Kit (above). We offer six different kits, each with 10 SMA 905 Connectors of the same size, drilled for precise alignment with our optical fiber. The difference between each kit is the diameter size of the SMA 905 Connector. We offer 150 μm , 270 μm , 380 μm , 490 μm , 710 μm and 1300 μm diameter connectors.



TERMKIT-SMA-710



TERMKIT-SMA-270



TERMKIT-QSMA-710



TERMKIT-QSMA-270

Item	Fiber Type	For Use with Fiber Diameters of	Price
TERMKITSMA-150	10 SMA Connectors for 100-micron and 50-micron fibers	50 μm and 100 μm	\$75
TERMKITSMA-270	10 SMA Connectors for 200-micron fibers	200 μm	\$75
TERMKITSMA-380	10 SMA Connectors for 300-micron fibers	300 μm	\$75
TERMKITSMA-490	10 SMA Connectors for 400-micron fibers	400 μm	\$75
TERMKITSMA-710	10 SMA Connectors for 600-micron fibers	600 μm	\$75
TERMKITSMA-130	10 SMA Connectors for 1000-micron fibers	1000 μm	\$75
TERMKITQSMA-150	10 Premium SMA Connectors for 100-micron and 50-micron fibers	50 μm and 100 μm	\$170
TERMKITQSMA-270	10 Premium SMA Connectors for 200-micron fibers	200 μm	\$170
TERMKITQSMA-380	10 Premium SMA Connectors for 300-micron fibers	300 μm	\$170
TERMKITQSMA-490	10 Premium SMA Connectors for 400-micron fibers	400 μm	\$170
TERMKITQSMA-710	10 Premium SMA Connectors for 600-micron fibers	600 μm	\$170
TERMKITQSMA-130	10 Premium SMA Connectors for 1000-micron fibers	1000 μm	\$170





Optical Fiber Kits

Fiber Optic Kit -- UV-VIS

We've taken our most popular laboratory-grade optical fiber assemblies and accessories and combined them into cost-saving Optical Fiber Kits -- perfect for testing, teaching or just plain tinkering. The FOP-UV Optical Fiber Kit consists of five patch cord optical fiber assemblies, the Fiber Optic Variable Attenuator, a CC-3-UV Cosine Corrector, a fiber wrench and more. By buying a kit instead of each product separately, you save over \$400. The table below lists the items in the kit.

FOP-UV KIT: \$999

FOP-UV Items	Description	Price
P50-2-UV-VIS	(1) 50 µm diameter optical fiber; UV-VIS	\$99
P200-2-UV-VIS	(1) 200 µm diameter optical fiber; UV-VIS	\$99
P400-025-SR	(2) 400 µm diameter optical fibers; UV, SR	\$198
P600-2-UV-VIS	(1) 600 µm diameter optical fiber; UV-VIS	\$159
21-02	(2) Splice bushings	\$26
21-01	(2) Bulkhead bushings	\$18
FVA-UV	(1) Fiber Optic Variable Attenuator	\$499
FOT-SMAWRENCH	(1) Fiber Wrench	\$10
CC-3-UV	(1) Cosine Corrector	\$129
FCBARREL	(2) 6.35-mm OD barrel for FC connectors	\$58
FIBER-WRAP	(3) 2-foot-long pieces of fiber wrap	\$10
74-UV	(1) Collimating Lens	\$159

Total, if purchased separately: \$1,464

Fiber Optic Kit -- VIS-NIR

The FOP-VIS Optical Fiber Kit consists of five patch cord optical fiber assemblies, the Fiber Optic Variable Attenuator, CC-3 Cosine Corrector, fiber wrap, a fiber wrench and more. By buying a kit instead of each product separately, you save nearly \$500. The table below lists the items included in the kit.

FOP-VIS KIT: \$999

FOP-VIS Items	Description	Price
P50-2-VIS-NIR	(1) 50 µm diameter optical fiber; VIS-NIR	\$99
P200-2-VIS-NIR	(1) 200 µm diameter optical fiber; VIS-NIR	\$99
P400-2-VIS-NIR	(2) 400 µm diameter optical fibers; VIS-NIR	\$238
P600-2-VIS-NIR	(1) 600 µm diameter optical fiber; VIS-NIR	\$159
21-02	(2) Splice bushings	\$26
21-01	(2) Bulkhead bushings	\$18
FVA-UV	(1) Fiber Optic Variable Attenuator	\$499
FOT-SMAWRENCH	(1) Fiber Wrench	\$10
CC-3	(1) Cosine Corrector	\$99
FCBARREL	(2) 6.35-mm OD barrel for FC connectors	\$58
FIBER-WRAP	(3) 2-foot-long pieces of fiber wrap	\$10
74-UV	(1) Collimating Lens	\$159

Total, if purchased separately: \$1,474

The FVA-UV Fiber Optic Variable Attenuator helps control the amount of light transmitted between two fibers.



The 74-UV Collimating Lens can be screwed onto the end of a fiber to collimate light.



The FC-BARREL accepts FC-terminated fibers for use with our lenses, lamps and other fixtures.



The FIBER-WRAP is used to bundle and protect optical fibers.



The CC-3-UV Cosine Corrector attaches to optical fiber to create an irradiance probe.



The 21-01 SMA Bulkhead Bushing allows you to position an optical fiber on a through-panel such as a chamber wall.



The 21-02 Splice Bushing is an in-line adapter that mates two SMA 905 Connectors, such as those on optical fibers.



The FOT-SMAWRENCH slips over SMA 905 Connectors to secure fibers to spectrometers, collimating lenses and accessories.



The P400-2-UV-VIS Laboratory-grade Optical Fiber in the FOP-VIS Kit.



C-Mounts

Our C-MOUNT-MIC Adapter Assembly with adjustable focusing barrel has an SMA 905 Connector in its center for attaching to optical fibers. The internal C-mount threads of this assembly allow you to adapt fiber optic spectrometers to other optical devices such as microscopes and telescopes.

The MFA-C-MOUNT also connects to optical devices such as microscopes and telescopes, but its center connector is designed to accept probes with 6.35-mm (1/4") outer diameter ferrules.

- C-MOUNT-MIC: \$125
- MFA-C-MOUNT: \$458



The MFA-C-Mount.

The C-MOUNT-MIC Adapter Assembly.

Phototubus Microscope Adapter

The MFA-PT Phototubus Microscope Adapter adapts to a Phototubus outlet on microscopes and accepts SMA 905-terminated optical fibers.

- MFA-PT: \$424

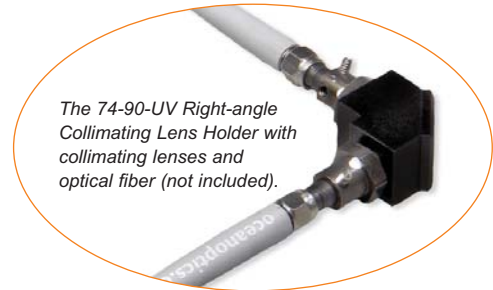


The MFA-PT Phototubus Microscope Adapter.

Right-angle Collimating Lens Holder

The 74-90-UV is an assembly for mounting lenses at right angles, and is especially useful for applications involving awkward optical fiber routing. It has a mirror located under its cap bonded with high-temperature epoxy, and reflects light from the collimating lens to 90°. Two ports accommodate 74-series Collimating Lenses (not included).

- 74-90-UV: \$139



The 74-90-UV Right-angle Collimating Lens Holder with collimating lenses and optical fiber (not included).

Reflection Probe Holders

The RPH-1 (far right) and RPH-2 (near right) are anodized aluminum platforms with holes drilled at 45° and 90° angles to the surface. The RPH-1 holds 6.35-mm (1/4") diameter probes but with the RPH-ADP -- an adapter that fits on the RPH-1 -- you can secure 3.17 mm (1/8") diameter probes as well. The RPH-2 is for use only with probes with SMA 905 Connectors. The Curved Surface Probe Holders accommodate 6.35-mm (1/4") outer diameter probes for measuring reflection of curved surfaces. The CSH (right) has a hole drilled at a 90° angle to the surface. The CSH-45 has a hole drilled at a 45° angle to the surface.

- RPH-1: \$75
- RPH-ADP: \$69
- RPH-2: \$102
- CSH: \$107
- CSH-45: \$122



RPH-2

RPH-1

CSH

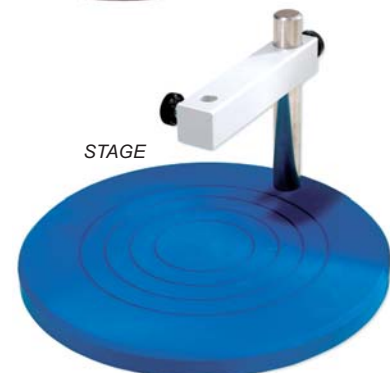
CSH

Optical Stages

The Single-Point Reflection Stage (at right) is a probe holder for reflection measurements of optical layers and other substrates up to 150 mm in diameter. The probe holder accommodates fiber optic probes and other sampling devices up to 6.35 mm in diameter.

The Stage-RTL-T is also a sampling system for analysis of substrate materials. The STAGE-RTL-T can be configured for reflection and transmission measurements. For details on both stages, see page 109.

- STAGE: \$631
- STAGE-RTL-T: \$2,303



STAGE



Fiber & Probe Accessories

Bulkhead Bushing

The 21-01 SMA Bulkhead Bushing assembly is a device mount for optical fibers. The bulkhead bushing allows you to position an optical fiber on a through-panel such as a chamber wall. For example, to monitor a chamber, you could configure a sampling optic that consists of an SMA 905-terminated optical fiber screwed into the bulkhead bushing and mounted to a chamber window.

21-01: \$9



Splice Bushings

The 21-02 SMA Splice Bushings are in-line adapters that connect SMA 905-terminated optical fibers (or any two objects with SMA 905 terminations). A splice bushing consists of a 0.75" screw with female ends. The standard 21-02 is made of nickel-plated brass while the 21-02-SS is made of stainless steel. They are useful for coupling patch cords to fiber optic probes and other devices, or for any multiple-fiber application where coupling our standard optical fibers and accessories is preferable to creating costly and complex fiber optic assemblies.

21-02: \$13

21-02-SS: \$49



Bulkhead & Splice Bushing Combo

The 21-02-BH SMA Bulkhead Splice Bushing is an in-line adapter that connects SMA 905-terminated optical fibers through a chamber wall or panel. The 21-02-BH features an O-ring for sealing against the inside of the panel wall and a nut and lockwasher for mounting to the outside of the panel wall.

21-02-BH: \$23



FC Barrel

Our collimating lenses come standard with SMA 905 Connectors and interface to our SMA-terminated fibers. If you have FC-terminated fiber, you could remove the inner 6.35-mm OD SMA barrel and replace it with this FC Barrel to connect to our products.

FCBARREL: \$29



Finger Fiber Wrench

The FOT-SMAWRENCH is a wrench that slips over the hex nut of the SMA 905 Connector used in Laboratory-grade Optical Fibers and helps to easily attach the fiber to connectors on spectrometers, light sources, collimating lenses and many other accessories.

FOT-SMAWRENCH: \$10



Modemixer/Modestripper

The Modemixer/Modestripper is an in-line, 3-mm Suprasil rod that connects two SMA 905-terminated optical fibers to mix core modes and eliminate clad modes throughout 180-2100 nm.

ADP-SMA-SMA: \$268



Fiber Wrap

Fiber Safety Wrap is a protective spiral wrap used to bundle and protect optical fibers. The durable wrap comes in 2-foot sections of red, yellow and green.

FIBER-WRAP: \$10

