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THORLABS

SMPF0213 - September 14, 2017

Item # SMPF0213 was discontinued on September 14, 2017. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

SINGLE MODE PIGTAILED FERRULES WITHOUT CONNECTORS

- **AR Coating for 663, 830, 1064, 1310, or 1550 nm**
- **Ø1.8 mm Ferrule is Easy to Handle**
- **8° or 0° Face Angle**

8° Face Angle

0° Face Angle

Bare Fiber

OVERVIEW

Features

- AR Coating for 633, 830, 1064, 1310, or 1550 nm
- Designed for Easy Pairing with GRIN Lenses
- 8° or 0° Face Angle
- Ideal for Telecom Applications

Common Specifications	
Ferrule Diameter	1.800 mm ± 5 µm
Ferrule Length	5.5 mm ± 0.5 mm
Ferrule Material	Borosilicate Glass
Wedge Tolerance	±1.00°
Reflectivity	<0.25% in AR Coating Range
Fiber Length	1.5 m

Thorlabs' Single Mode Pigtailed Ferrules without Connectors are designed to be paired with our GRIN lenses. In contrast to our pigtailed aspheric lenses and jacketed GRIN collimators, this product family allows the combination of GRIN lens and pigtailed ferrule to be individually chosen, satisfying a wide range of experimental requirements. See the image to the right for an example of an assembled device, or use the *Selection Guide* and diagrams below to choose compatible lens and pigtailed ferrule combinations for your specific application.

Click for Details

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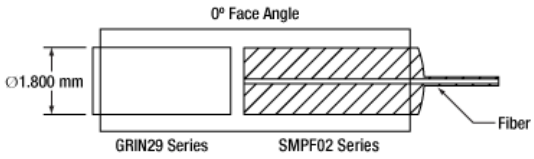
Our line of pigtailed glass ferrules is designed to simplify coupling of visible, near infrared, or infrared light between a fiber and a free-space optical system. They are commonly used in optical isolators, switches, and circulators. The Ø1.8 mm ferrule is significantly easier to align to a GRIN lens than an unterminated fiber end. Embedded in the ferrule is a 1.5 meter long, single mode fiber. The other end of the fiber is unterminated. See the *Specs* tab for the available fiber types and a representative schematic.

These ferrules feature an AR coating centered at 633, 830, 1064, 1310, or 1550 nm. The coating lowers the reflectivity in the specified wavelength range to below 0.25%, reducing back reflections and insertion losses in the design wavelength range. In addition, all five coatings are available with either 8° or 0° face

angles. The 8° versions maximize the return loss by back reflecting the incident light at a non-normal angle and are recommended for building collimators. In contrast, the 0° versions are easier to align but are only recommended for general fiber-to-fiber coupling. Our line of GRIN lenses provides an 8° or 0° face angle that is designed to match the pigtailed ferrules.

If you do not see a pigtailed patch cable that meets your application requirements, please contact Tech Support and we will design a specialty cable to meet your needs.



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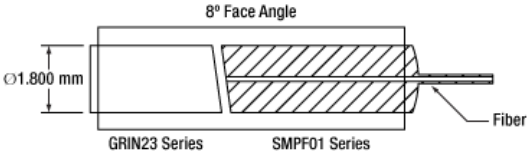

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All GRIN Lens / Pigtailed Ferrule combinations require a 51-2800-1800 mating sleeve, shown below. To build the device, insert the lens and ferrule into opposing sides of the sleeve, gently bring them into contact to ensure that the faces are parallel, then bring the lens and ferrule apart until the desired focusing is achieved.

Selection Guide					
Wavelength	**Face Angle**	**GRIN Lens**	**Pigtailed Ferrule**		
633 ± 15 nm	8°	GRIN2306A	No Connector	FC/PC	FC/APC
	0°	GRIN2906	No Connector	FC/PC	FC/APC
830 ± 15 nm	8°	GRIN2308A	No Connector	FC/PC	FC/APC
	0°	GRIN2908	No Connector	FC/PC	FC/APC
1064 ± 15 nm	8°	GRIN2310A	No Connector	FC/PC	FC/APC
	0°	GRIN2910	No Connector	FC/PC	FC/APC
1310 ± 15 nm	8°	GRIN2313A	No Connector	FC/PC	FC/APC
	0°	GRIN2913	No Connector	FC/PC	FC/APC
1550 ± 15 nm	8°	GRIN2315A	No Connector	FC/PC	FC/APC
	0°	GRIN2915	No Connector	FC/PC	FC/APC

Pigtailed Ferrules without Connectors

Item #	Face Angle	AR Coating Range*	NA	Operating Wavelength	Cutoff Wavelength	Fiber Type	Reference Diagram
SMPF0106		633 ± 15 nm	0.12	600 - 800 nm	500 - 600 nm	SM600	

SMPF0108	8°	830 ± 15 nm	0.12	800 - 1000 nm	660 - 800 nm	SM800-5.6-125	
SMPF0110		1064 ± 15 nm	0.14	980 - 1060 nm	920 ± 50 nm	HI1060-J9	
SMPF0113		1310 ± 15 nm	0.14	1260 - 1620 nm	<1260 nm	SMF-28e+	
SMPF0115		1550 ± 15 nm	0.14	1260 - 1620 nm	<1260 nm	SMF-28e+	
SMPF0206	0°	633 ± 15 nm	0.12	600 - 800 nm	500 - 600 nm	SM600	
SMPF0208		830 ± 15 nm	0.12	800 - 1000 nm	660 - 800 nm	SM800-5.6-125	
SMPF0210		1064 ± 15 nm	0.14	980 - 1060 nm	920 ± 50 nm	HI1060-J9	
SMPF0213		1310 ± 15 nm	0.14	1260 - 1620 nm	<1260 nm	SMF-28e+	
SMPF0215		1550 ± 15 nm	0.14	1260 - 1620 nm	<1260 nm	SMF-28e+	

*The reflectivity at the interfaces in the specified range is <0.25%.

Part Number	Description	Price	Availability
SMPF0106	**Pigtailed Ferrule, Ø1.8 mm, 8°, AR Coated: 633 nm**	**$27.50**	**Today**
SMPF0108	**Pigtailed Ferrule, Ø1.8 mm, 8°, AR Coated: 830 nm**	**$27.50**	**Today**
SMPF0110	**Pigtailed Ferrule, Ø1.8 mm, 8°, AR Coated: 1064 nm**	**$27.50**	**Today**
SMPF0113	**Pigtailed Ferrule, Ø1.8 mm, 8°, AR Coated: 1310 nm**	**$18.40**	**3-5 Days**
SMPF0115	**Pigtailed Ferrule, Ø1.8 mm, 8°, AR Coated: 1550 nm**	**$18.40**	**Today**
SMPF0206	**Pigtailed Ferrule, Ø1.8 mm, 0°, AR Coated: 633 nm**	**$27.50**	**Today**
SMPF0208	**Pigtailed Ferrule, Ø1.8 mm, 0°, AR Coated: 830 nm**	**$27.50**	**Today**
SMPF0210	**Pigtailed Ferrule, Ø1.8 mm, 0°, AR Coated: 1064 nm**	**$27.50**	**Today**
SMPF0213	**Pigtailed Ferrule, Ø1.8 mm, 0°, AR Coated: 1310 nm**	**$18.40**	**3-5 Days**
SMPF0215	**Pigtailed Ferrule, Ø1.8 mm, 0°, AR Coated: 1550 nm**	**$18.40**	**Today**

GRIN Lens / Ferrule Sleeves

- Borosilicate Glass
- 10.0 mm Length
- 1.818 mm Internal Diameter

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The 51-2800-1800 sleeve is designed to easily mate any one of our GRIN lenses to an SMPF pigtailed ferrule. The borosilicate glass is transparent to UV light, allowing curing of NOA68 or NOA61 optical adhesive inside the sleeve. See here for our complete selection of optical adhesives.

Part Number	Description	Price	Availability
51-2800-1800	**GRIN/Ferrule Sleeve, 1.818 mm Internal Diameter, 10 mm Length, Borosilicate Glass**	**$6.05**	**Today**