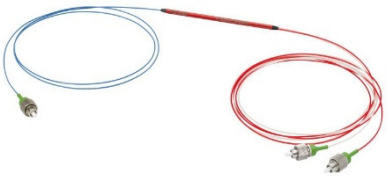
Fused Fiber Polarization Combiner/Splitter, 635 nm

PFC635A



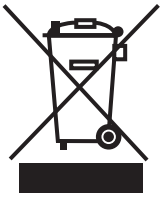
Description

Thorlabs' PFC635A Fused Fiber Polarization Combiner/Splitter is designed to either combine or split linearly-polarized light. When used as a combiner, the linearly polarized inputs are combined into a single output with two orthogonal linear polarizations. When used as a splitter, an input with two orthogonal linear polarizations is split into two outputs each with a single linear polarization.

These polarization beam combiners are frequently utilized to combine the light from two pump lasers into a single fiber to increase the power input to an erbium-doped fiber amplifier or Raman amplifier.

Specifications

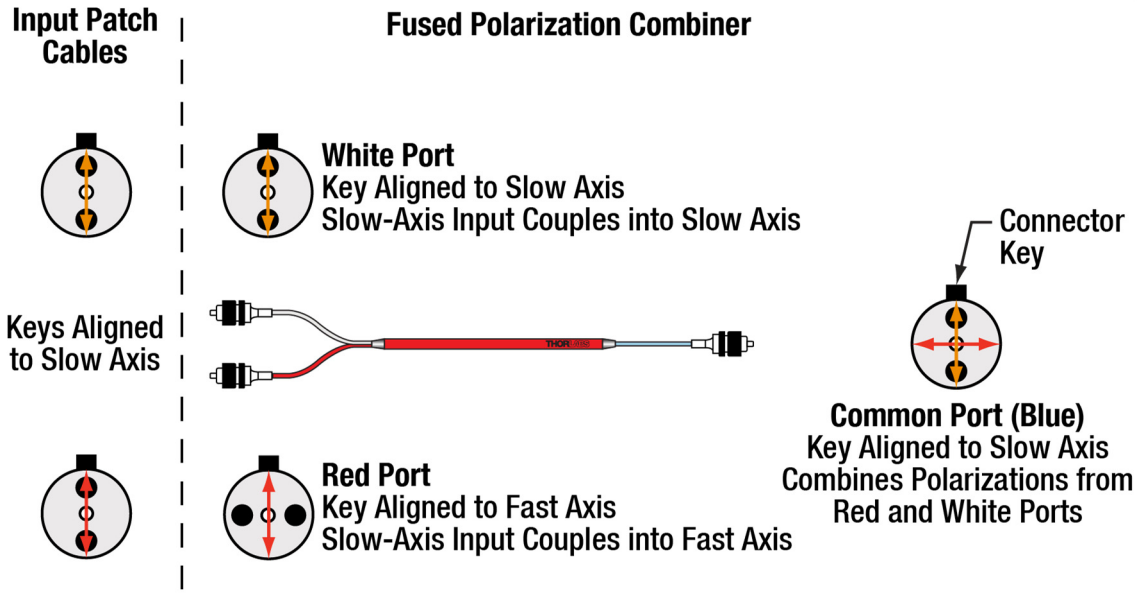
PFC635A	
Center Wavelength	635 nm
Bandwidth	±15 nm
Extinction Ratio[a]	≥20.0 dB
Insertion Loss[b]	Slow Axis: ≤0.5 dB (Typ.) Fast Axis: ≤1.0 dB (Typ.)
Optical Return Loss (ORL) / Directivity[b]	≥60 dB
Max Power Level[c]	300 mW (with Connectors or Bare Fiber) 500 mW (Spliced)
Fiber Type	PANDA
Fiber[d,e]	Equivalent to PM 63-U25D
Port Configuration	1x2
Connector Key Alignment	White Port: Slow Axis Aligned Red Port: Fast Axis Aligned Blue Common Port: Slow Axis Aligned
Fiber Lead Length and Tolerance	0.8 m +0.075 m/-0.0 m
Connectors	2.0 mm Narrow Key FC/APC
Package Size	Ø0.12" x 2.95" (Ø3.2 mm x 75.0 mm)
Jacket	Ø900 µm Hytrel® Loose Tube
Pigtail Tensile Load	10 N
Operating Temperature Range	-40 to 85 °C
Storage Temperature Range	-40 to 85 °C



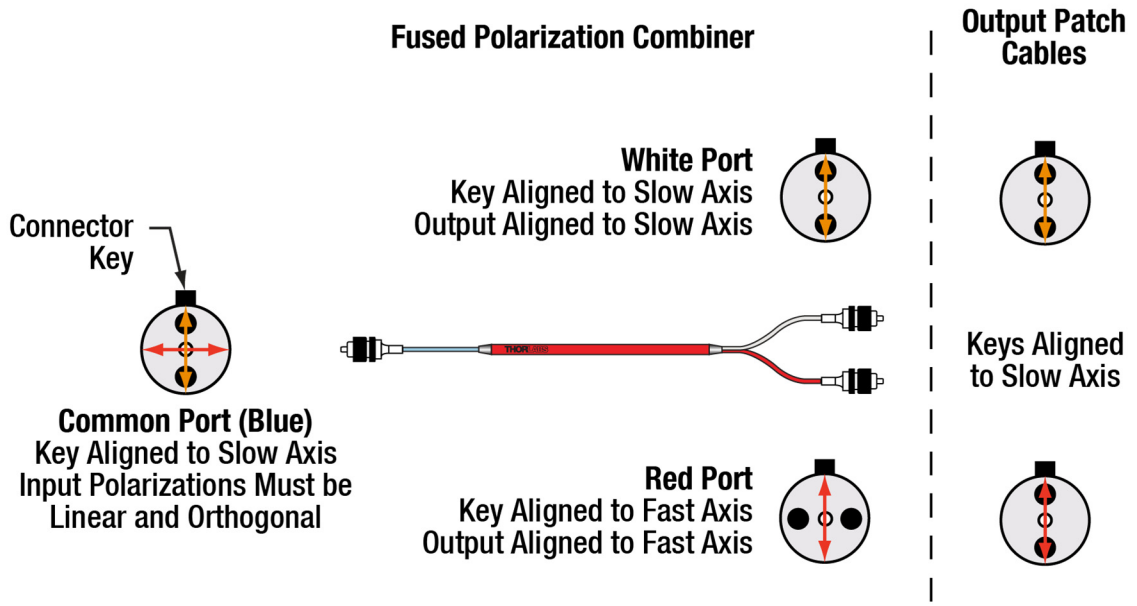
a. Specified at room temperature with connectors and measured at the center wavelength with input through red or white port.
b. Specified at room temperature without connectors and measured at the center wavelength with input through red or white port.
c. Specifies the total maximum power allowed through the component. Device performance and reliability under high-power conditions must be determined within the user's setup. See Usage Tips for safety and handling information.
d. Combiners/splitters with other fiber may be available upon request. Please contact techsupport@thorlabs.com with inquiries.
e. This device can be used with patch cables that incorporate PM630-HP fiber.

Diagrams

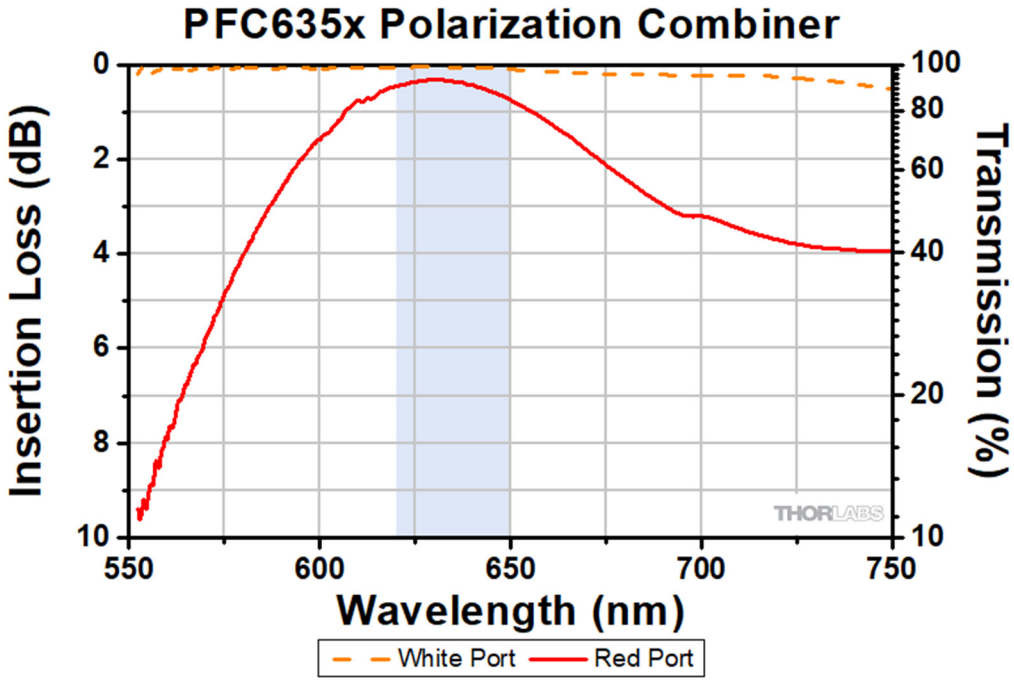
Proper alignment for combining applications:



Proper alignment for splitting applications:



Performance Data



This plot shows the spectral performance of a typical 635 nm fused fiber polarization combiner. The blue-shaded region denotes the full operating wavelength range. All data was measured without connectors.

Usage Tips

1) Before connecting a component to a system, make sure the light source is turned off. Inspect both the input and output fiber ends; debris or contamination on the end face can lead to fiber damage when operated at high powers.

2) After connecting the component, the system should be tested and aligned using a light source at low power. The system power can be ramped up slowly to the desired output power while periodically verifying all components are properly aligned and that coupling efficiency is not changing with respect to optical launch power.

3) Optical connectors can be removed and the device can be spliced into a setup for operation at higher optical powers. Fiber ends should always be cleaned and cleaved prior to splicing.