

## Wideband Fiber Optic Coupler 850 nm, 75:25 Ratio



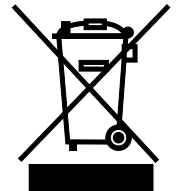
TW850R3A1

### Description

Thorlabs' TW850R3A1 single mode wideband fiber coupler is designed to operate from 750 to 950 nm with <0.3 dB of excess loss.

### Specifications

TW850R3A1	
Coupling Ratio <sup>a</sup>	75:25
Coupling Ratio Tolerance	±3.75%
Center Wavelength	850 nm
Minimum Bandwidth <sup>b</sup>	±100 nm
Insertion Loss <sup>a</sup>	≤1.9 dB / ≤7.1 dB
Excess Loss <sup>a</sup>	<0.3 dB (Typ.)
Uniformity <sup>a</sup>	≤1.25 dB
Polarization-Dependent Loss (PDL) <sup>a</sup>	≤0.2 dB
Optical Return Loss (ORL) / Directivity <sup>a</sup>	≥60 dB
Max Power Level <sup>c</sup>	500 mW (With Connectors or Bare Fiber) 2 W (Spliced)
Fiber Type <sup>d</sup>	780HP
Fiber Cut-Off Wavelength <sup>b</sup>	730 ± 30 nm
Port Configuration	1x2
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 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



- All values are specified at room temperature over the bandwidth without connectors and measured through the white input port as indicated below.
- Below the fiber cut-off wavelength, single mode operation is not guaranteed (see the graph on the following page).
- Specifies the total maximum power allowed through the component. Coupler performance and reliability under high-power conditions must be determined within the user's setup. See Usage Tips for safety and handling information.
- Other fiber types may be available upon request. Please contact [techsupport@thorlabs.com](mailto:techsupport@thorlabs.com) with inquiries.

#### White Port (Signal Output)



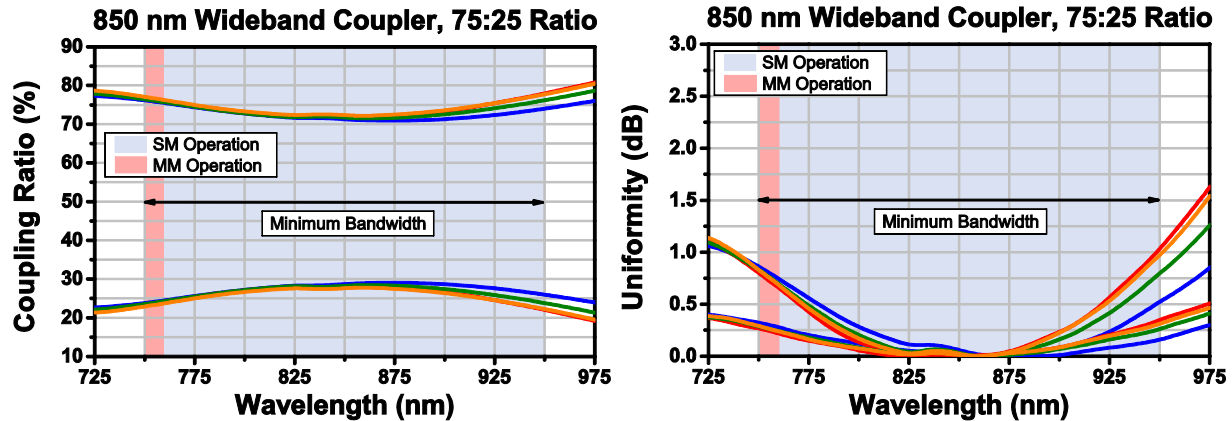
White Port (Input)

Red Port (Tap Output)

January 24, 2022

TTN048797-S01, Rev D

## Typical Performance Plots



These persistence plots show the coupling ratio and uniformity performance of four TW850R3A1 couplers (tap and signal outputs from the same coupler are indicated by matching colors on each graph). The red- and blue-shaded regions denote the coupler's full operating wavelength range. Please note that the red region indicates wavelengths for which single mode operation is not guaranteed, as the cut-off wavelength for the 780HP fiber utilized in this coupler is  $730 \pm 30$  nm. 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.