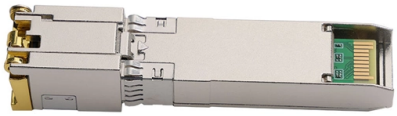
Working principle of dual-axis fiber optic collimator



Overview

The basic working principle is that the fiber's end face is placed at or near the focal point of a lens. Light exiting the fiber spreads out; if positioned correctly relative to the lens, the lens converts that diverging cone into a beam with minimal divergence (a collimated . Fiber optic collimators (also called fiber-optic collimators) are crucial optical components that convert the diverging output from an optical fiber into a collimated (parallel) beam, or conversely focus light from free space into a fiber. They can also be used in reverse to focus light into a fiber. In principle, a simple collimation lens (see Figure 1) is sufficient for that purpose. However, the fiber end has to be firmly fixed at a distance from the lens which is approximately equal. Thorlabs offers a variety of fiber collimation and coupling solutions.

Article Content

Jul 04, 2025

What is a Fiber Collimator? Working Principle & Applications

You use a fiber collimator to turn spreading light from a fiber into a straight, parallel beam. This helps you send light farther and connect devices with less signal loss.

Aug 14, 2025

Understanding Collimation and Collimating Lenses: Principles and ...

In a telescope, a collimator aligns the optical axis. It converts diverging light from the eyepiece or sensor into a parallel beam or provides parallel test light to adjust mirror alignment, ensuring optimal image …

Nov 27, 2025

Fiber Collimators – lens, collimated beam, focal length, beam size ...

A fiber collimator is an optical device used to transform the diverging light from an optical fiber into a free-space collimated beam. It consists of a lens that holds the fiber end at its focal point, often within …

Jul 26, 2025

Thorlabs · Collimation / Coupling

The U-Benches are based on the stable FiberBench platform with a FiberPort on either end. They allow for easy access to the optical beam and are ideal for fiber-to-fiber applications that incorporate …

Sep 19, 2025

TUTORIAL: Fiber Optic Collimators

In this tutorial we will explore the many faces of “simple” fiberoptic collimators. Almost all known lens types have been used to construct fiber optic collimators.

Aug 08, 2025

Fiber Optic Collimators

These collimators can be glued into a 2D array with high precision and all light channels are thus parallel. The type of fiber, the operating wavelength, the working distance and other parameters …

Nov 28, 2025

Fiber Optic Collimators: Types, Applications, and How to Choose

The basic working principle is that the fiber''s end face is placed at or near the focal point of a lens. Light exiting the fiber spreads out; if positioned correctly relative to the lens, the lens converts ...

Jan 19, 2026

Fiber Coupling and Collimation

How measured fiber parameters help to choose the best coupling and collimation optics. When can you produce a spot by simply refocusing the fiber collimator and when is a micro focus optics necessary?

Jun 12, 2026

Working Principle and Application of Optical Fiber Collimator

The basic principle of an optical fiber collimator is to place the fiber end face at the focal point of a collimating lens to collimate the beam, and then finely adjust the position of the fiber end face near ...

Jul 27, 2025

Fiber Optic Collimators | MEETOPTICS Academy

Fiber-optic collimators are used to launch the light from an optical fiber into a free space collimated beam with specified beam diameter or spot size. They can also be used in reverse to focus light into ...

Feb 22, 2026

How to Use an Optical Collimator for Precise Alignment?

By following these guidelines, users can achieve precise alignment and enhance the accuracy of their optical systems, making the optical collimator an invaluable asset in any optical ...

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: https://www.professionistidelverde.it
Email: info@professionistidelverde.it
Phone: +49 176 4829 3715
Address: Friedrichstraße 123, 10117 Berlin, Germany

This document is for informational purposes only. Specifications subject to change without notice.