

# Fiber Optic Coupler Patents



## Overview

A timeline of key events for this patent application, including priority claims, publications, legal status, reassignments, and litigation. Google has not performed a legal analysis and makes no...

## Key Takeaways

Fiber optic coupler patents cover methods of fabrication, splitting ratios, connector designs, and protective housings for optical fibers. Key Patents and Technologies<sup>1</sup>.

### Fusion-

**Stretching Fabrication (US5069518A)** This patent describes a method for fabricating fiber optic couplers by fusing two optical fibers along their longitudinal sections and stretching them independently under controlled tension and temperature. This process allows the propagation constants of the fibers to vary, enabling precise control of the splitting ratio over a wide wavelength range, which addresses limitations of conventional couplers that have substantial wavelength dependence (US5069518A). 2.

**1xN Fiber Optic Couplers (EP0895105)** This patent focuses on couplers that distribute light from a single input fiber to multiple output fibers. The invention addresses equal spacing of output fibers to achieve uniform coupling ratios. It uses a preform of concentric glass tubes to position output fibers accurately, which is critical for commercial production of 1xN couplers where N can vary (EP0895105).

3. Protective and Hardened Fiber Optic Connectors (US12111502) This patent covers fiber optic connectors and adapters designed for high-speed data transmission. It includes ferrules, adapters, and dual fastening arrangements to align and secure optical fibers, ensuring minimal signal loss.

Protective housings and strength layers (e.g., aramid yarn, steel) safeguard fibers from mechanical and chemical damage, enhancing durability in field applications (US12111502). 4. Patented Technologies and Commercial Applications Several companies, including Fujikura, US Conec, and REICHLE & DE-MASSARI AG, hold patents for fiber optic couplers and related connector systems.

These patents cover multi-fiber connectors (MTP®, MXC®), alignment systems, and cleaning technologies that improve optical performance and reliability in network installations (US Conec patents).

## Summary

Fiber optic coupler patents primarily focus on: Fabrication methods: Fusion-stretching, preform assembly for 1xN couplers Performance optimization: Controlling splitting ratios and wavelength dependence Connector and adapter design: Ferrule alignment, dual fastening, and protective housings Commercial implementations: Multi-fiber connectors and optical network components These patents collectively advance the precision, reliability, and scalability of fiber optic couplers for telecommunications, data centers, and high-speed optical networks.

## Article Content

US7321706B2

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Fiber optic coupler patented technology retrieval search results ...

Various applications to a display device, fiber optic coupler and attenuator, controlled liquid volume dispensers, spotting arrays, well plate apparatus, and others are presented, along with control methods.

2394 results about "Optical fiber coupler" patented technology

A wavelength selective optical fiber coupler having various applications in the field of optical communications is disclosed. The coupler is composed of dissimilar waveguides in close proximity.

Optical fiber coupler

High requirements with regard to the precision of the positioning of the fiber end relative to the focusing lens are set for fiber couplers for coupling a free light beam into an optical fiber and for

U.S. Patent for Fiber to chip optical coupler Patent (Patent ...

The present disclosure relates generally to coupling an optical fiber to a substrate, and more particularly to coupling the optical fiber to an optoelectronic integrated circuit (IC).

WO/2024/177814 CONNECTORIZATION AND COUPLING OF

Accurate alignment of the connectorized optical-fiber collimator in fiber-to-fiber and fiber-free-space couplings is achieved through mechanical registration of the planar reference surface and

Corning GlassBridge Optical Connector Platform | Fiber-to-PIC

Corning GlassBridge™ is a fiber-to-PIC connector platform that brings optical fiber directly to a photonic integrated circuit (PIC) using a precision glass interface. It is designed to support high-density,

Fujikura

Fiber Optic Cables Optical Fibers Specialty Fibers Fusion Splicers Multi-fiber optical cabling solutions Patch Cord Field Installable Connector Cleaners Termination Enclosure / Optical Closures Fiber

Variable Fiber Optical Couplers: \$250M by 2025, 12% CAGR Analysis

The Variable Fiber Optical Couplers market is projected to reach \$250 million by 2025, expanding at a 12% CAGR. Analyze market drivers, key segments, and strategic insights.

Corning and GlobalFoundries Collaborate To Deliver Detachable Fibre ...

Glass-waveguide based detachable fibre connector solutions enabling co-packaged optics will be demonstrated at ECOC 2025 and GF's Technology Summit.

Fiber Optic Hardware | Fiber Panels, Housings, Racks, and ...

Fiber Optic Hardware Corning has a wide variety of hardware solutions to choose from to fit your cabling needs. Choose from racks, panels, modules, splice trays, ethernet fiber switches and other

Detachable Optical Chiplet Connector for Co-Packaged Photonics

A key barrier to mainstream adoption of co-package photonics is a high-yielding and scalable assembly process. The current industry state-of-the-art for edge coupling is to attach fibers directly onto V

## Fiber Array Units | FAUs for Next-Generation (Next-Gen

Learn more about Corning fiber array units (FAUs) delivering ultra-precise fiber alignment with low insertion loss and high optical return loss.

## Co-Packaged Optics: Technical Barriers and the Road to Mass

Silicon photonics chip test yield: 10%–70% Fiber-to-silicon chip coupling loss:  $> \pm 2.5$  dB Multicore (22–40) fiber module Packaging process complexity Active vs. passive alignment Epoxy or solder

## Method of manufacturing a fused-fiber optical coupler

From PCT application WO 84/04822, a fused-fiber optical coupler is known which consists of two single-mode fibers welded together in parallel along a length in the centimeter range and drawn to

U.S. Patent for Method and system for an optical coupler for silicon ...

Methods and systems for an optical coupler for photonics devices are disclosed and may include a photonics transceiver comprising a silicon photonics die and a fiber connector for receiving

## Custom Fiber Array, PBS, Optical Switch And Other Custom Optical ...

Discovering a range of custom optical assemblies, including 2-dimensional fiber array, linear fiber array, PM fiber devices, high-temperature optical components, and optical switch for coherent optical

## Fiber to chip optical coupler

An optical coupler for coupling an optical fiber to a photonic integrated circuit (PIC) is presented. The optical coupler comprises a first curved mirror included in a first substrate layer of the PIC and at a

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

