



timbercon

Photonic design at the speed of light



**MISSION CRITICAL  
FIBER OPTIC SOLUTIONS**



# LAND AIR SEA SPACE



## Military Fiber Optics

Timbercon manufactures fiber optic products that are used in a variety of military applications requiring rigorous testing and certification for harsh environments. We utilize high quality fiber optic components to ensure reliability and unsurpassed performance in the field. Timbercon has the expertise and experience to develop, manufacture, install, and maintain the ideal fiber optic product for your military application.



## Defense & Government

Timbercon's fiber optic products are designed for precision optical alignment, ruggedized packaging, technical superiority and limitless customization. We offer quick project turnaround and competitive pricing for all of our defense and government customers.



## Harsh Environment

Timbercon's harsh environment fiber optic assemblies are manufactured specifically for use in adverse conditions and severe environment applications. Our products are tested and certified to exceptionally strict tolerances and demanding specifications to ensure optimal performance, durability, and longevity in the field.



## Aerospace & Avionics

Timbercon manufactures fiber optic assemblies for a variety of aerospace and avionics projects providing maximum performance and durability for demanding environments. The majority of applications are highly specialized, with highly specified project and scope requirements. We can design, develop, manufacture, install, and maintain our products to your exact requirements.

# MILITARY FIBER OPTIC CABLES



## MIL-DTL-38999

- Up to 37 channel configurations
  - Low insertion loss
  - Single mode and multimode termini
  - Fiber and copper hybrid versions available
  - Tight tolerances
  - Ceramic connector ferrules
  - Ruggedized packaging
  - Precision optical alignment
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## MIL-PRF-28876

- Up to 31 channel configurations
  - Universal standard connector for Navy applications
  - Meets MIL-S-901 Grade A medium shock requirement
  - Manufactured to exacting tolerances to reduce radial misalignment and insertion loss
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## MIL COTS ST

- Durable all-metal body
  - Harsh environment, fungus resistant, and shock resistant
  - Meets shock requirements of MIL-C-83522
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## MIL Termini

- Pre-radius zirconia ferrule tip
- Captivated split zirconia sleeves
- Multiple configurations and sizes available
- Integrated environmental seal on each terminus
- Qualified to MIL-PRF-9504B

# RUGGEDIZED SOLUTIONS

## Hermaphroditic Fiber Optic Connectors



- Compatible with SMPTE Compliant to Standard 328M-2001
- Genderless connectors for mating multiple cables in ganged assembly configurations for deployable systems
- Wall-mount and jam-nut receptacles available for traditional gender mating
- Corrosion, shock, and thermal resistant to several MIL standards
- Available in aluminum and stainless steel connector bodies
- Water pressure sealing up to 25 psi for 48 hours

## MIL-DTL-83526 TFOCA-II



- Incorporated, removable front key plate
- Optional key ring positions
- Available in plated aluminum or stainless steel
- Improved cable strain relief
- Meets MIL-STD-1344 vibration specifications (Method 2500.1) and EIA/TIA-455-14 (Condition A) shock requirements

## MIL-DTL-83526/20 & 21 Expanded Beam



- Rugged, sealed MIL-PRF-83526/20 & 21 compliant connectors for demanding environments
- Expanded beam technology improves loss performance from debris and dust
- Hermaphroditic design helps daisy-chaining for ease of deployment
- Lack of connector physical contact allows for thousands of mating cycles without wear
- One piece insert design makes cleaning easy

## Deployable Reels



Timbercon's deployable reels offer a number of advantages for applications requiring long fiber runs, temporary connections, or easy storage and transportation of long, bulky cable assemblies.

- Durable polymer, carbon steel, stainless steel, and aluminum reels meant for harsh environments
- Can house up to 1.5km of cable
- Suitable for virtually any connector type

# OTHER FIBER OPTIC PRODUCTS

## Breakout Transition Cables

Our breakout cables are designed to fan out a bundled cable into discrete fiber channels. Transition styles consist of either the standard transition construction or a ruggedized overmold transition. Our overmold breakout cables incorporate a strong composite transition that supports products from 2 to 24 channel counts and offers superior performance characteristics.

- Standard breakout cables for up to 72 channels
- Overmolding for up to 24 fiber channels
- Multiple transition styles provide flexible mounting options
- 100% optically tested to ensure reliability and performance
- Ability to customize to your requirements

## Braided Jacketing

Our braided jacketing allows you to bundle multiple channels together for improved cable management. This specially braided jacketing aids in abrasion resistance, cable identification, and environmental protection.

- Increased abrasion resistance and environmental protection
- Available in stainless steel, copper, monofilament, polypropylene, Kevlar<sup>®</sup>, Nomex<sup>®</sup>, and nylon
- Multiple color combinations available

## FIBER OPTIC CLEANING KITS

Maintaining a clean connection or mating point is critical to the performance and proper function of any fiber optic link. Timbercon cleaning kits provide comprehensive solutions for the cleaning, preparation, and maintenance of fiber optic connectivity products.

- Top quality supplies for effective cleaning
- Multiple products and methods for proper cleaning of virtually any optical connection
- Available replacement supplies for easy kit replenishment
- Several kit sizes and sets available to service a range of application requirements

# FIBER OPTIC CAPABILITIES



## Box Design and Building

Our engineers are specialized in providing you with a completely customized set of fiber optics and electronics contained in a customized module. We can work from an existing design you provide or build one from the ground up to fit all of your specialized fiber optic needs. Our engineering capabilities include:

- Optical engineering
- Mechanical engineering
- Electrical engineering
- PCB Design
- Manufacturing
- Testing

## Fiber Bragg Grating Sensors

Fiber Bragg Gratings (FBGs) are single mode optical fibers which reflect a specific spectrum of incident light. Monitoring the transmitted or reflected spectrum of an FBG can allow for sensing physical properties such as temperature, strain, or vibration.

Higher durability options and customization make FBG sensors an excellent harsh environment alternative to traditional electrical and mechanical sensors.

- Measure changes in temperature, pressure, strain, vibrations, etc.
- Monitor ultra-high speed events
- Higher accuracy, longer stability, and smaller in size
- Immune to electromagnetic interference (EMI)
- Available in single-mode or PM fiber
- Customized assemblies for specific applications
- Can include multi-channel detector modules, including ASE light sources and interrogation monitors
- FBG fiber types include high or low reflectivity, apodized and non-apodized, high temperature fiber coatings, PM gratings, long-length gratings
- Buffer options include acrylate, Polyamide, and Ormocer®
- Available with FBG arrays in a single fiber for multiple sensors



# ENGINEERING DESIGN, PROTOTYPING, AND TESTING

## Product Design

Timbercon's product design services are focused on creating the best possible design for your application, while ensuring each and every finished product requirement is satisfied. Through the entire prototyping and product design cycle, the Timbercon design team will work with you on defining performance requirements, physical attributes, budget goals, and deliverables guiding us toward your goals. Our product development engineers are specifically focused on working with you to establish your project needs. The result is a custom product development plan designed to produce the results you require.

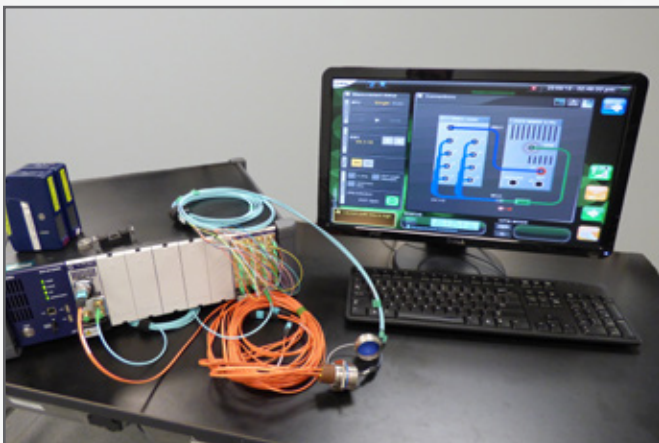
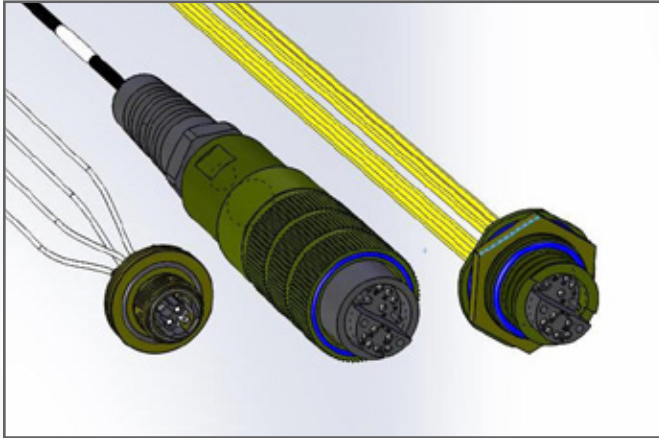
Timbercon's product development services incorporate some of the latest in 3D modeling technology coupled with precision fiber processing. Physical component fabrication is controlled and contained at our Tualatin, Oregon facility.

## Contract Manufacturing

Services include mechanical design, electronic design, software design, prototyping services, new product introduction, testing development, final system box build, fulfillment, and sustaining services. This range of capability provides for the seamless transition of products from one service offering to another, reducing time-to-market and total cost.

## Test & Analysis

Timbercon invests heavily in technology to support our test and analysis services. This investment allows us to ensure that each service offered is backed by the latest and most accurate equipment available on the market. Our engineers will design any pulling, compression, and thermal tests your fiber optical cables require in order to provide you with a durable and long lasting fiber optic system. We provide a number of test and/or analysis options from simple insertion loss testing to root cause failure analysis, and everything in between. We offer expedited repair, replacement, and recertification services, reducing the time it takes to return your product to the field.



# ABOUT TIMBERCON



Timbercon has been a leader in the military and aerospace communications industries for over 18 years.

We take great pride in building premium USA manufactured fiber optics. Our fiber optic products are fully assembled at the Timbercon manufacturing facility in Tualatin, Oregon, USA. The on-site sourcing, research and development, and production teams enable Timbercon to maintain stringent controls across the build process from sourcing to finished product. Our manufacturing processes and products are RoHS compliant and AS9100C certified.

With roots firmly grounded in the Pacific Northwest, Timbercon is dedicated to incorporating advanced technology, domestic expertise, and superior service to every client world-wide.

When quality workmanship is your priority, choose Timbercon USA Manufactured Fiber Optic Products.



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AS9100C  
ISO9001:2008  
ITAR

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