

FIBER OPTIC SYSTEM SOLUTIONS

Booklet



AS9100C, ISO9001, ITAR CERTIFIED

FOREWORD

Timbercon has been a leader in engineered fiber optic solutions for over two decades.

- One-stop custom fiber optic solutions, from development to delivery
- High-quality custom fiber optic cable assemblies and equipment
- Quality and delivery performance far exceeding industry standards
- The market leader in domestically-sourced custom fiber optic solutions

When high reliability and performance is your priority, choose Timbercon manufactured fiber optic products and services.

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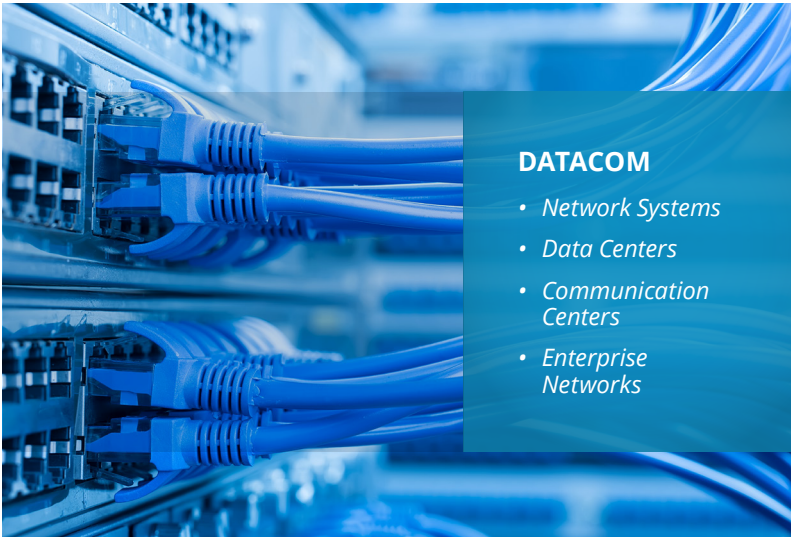
MISSION CRITICAL

- Land
- Air
- Sea
- Space



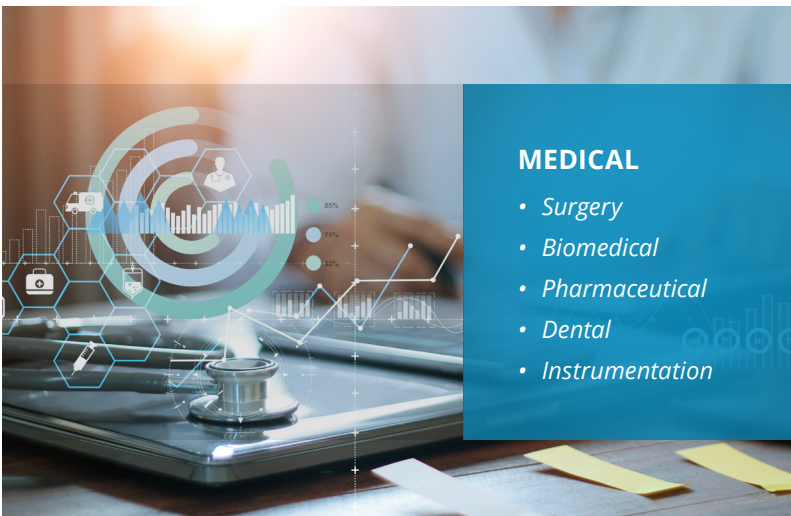
INDUSTRIAL

- Equipment Manufacturers
- Research and Development
- Energy
- Semiconductors
- Oil and Gas
- High Power



DATACOM

- Network Systems
- Data Centers
- Communication Centers
- Enterprise Networks



MEDICAL

- Surgery
- Biomedical
- Pharmaceutical
- Dental
- Instrumentation

Timbercon provides a wide array of product design, manufacturing and testing capabilities. The engineering team invests heavily in technology to supply leading edge products and services in fiber optics.

SYSTEM INTEGRATION

Creating new products and solutions involves integrating new technologies that equipment manufacturers need technical support to develop. Timbercon is your optics expert for your subsystem or connectivity requirement. We offer design and development, prototyping, validation and production services.



Solutions Inside Your System

- Fiber routing/fiber management
- Precision alignment and coupling
- Terminations and splicing
- Custom polishing services
- V-groove assembly
- Optical and electrical potting
- Design and manufacture of optical assemblies and subassemblies



Packaged With Your Device

- Fiber optics manufactured to custom length and performance requirements
- Reference quality assemblies
- Private labeling
- Custom packaging
- Fully tested with optional written reports
- Stocking plans



Connecting To Your Equipment

- Commercial off the shelf (COTS), semi-rugged and harsh environment connector options
- Cable options for a wide array of environments
- Optical-electrical hybrid capabilities
- Clean room ready
- Overmold solutions

PRODUCTS

A FIBER FOR EVERY APPLICATION

As the utility of fiber grows, Timbercon is focused on new applications that advance fiber optic technology. Timbercon's experience and capital equipment is optimized for, but not limited to, the fiber types below.

- Singlemode (SM) and multimode (MM) fiber
 - Fiber Bragg Gratings (FBG)
- Bare fiber
 - Coated fiber
 - Multi-channel and hybrid cables
 - Indoor/outdoor armored cables
 - Polarization maintaining (PM) fiber
 - Doped fiber
 - Large core silica and plastic optical fiber (POF)
 - Custom supplied specialty fiber

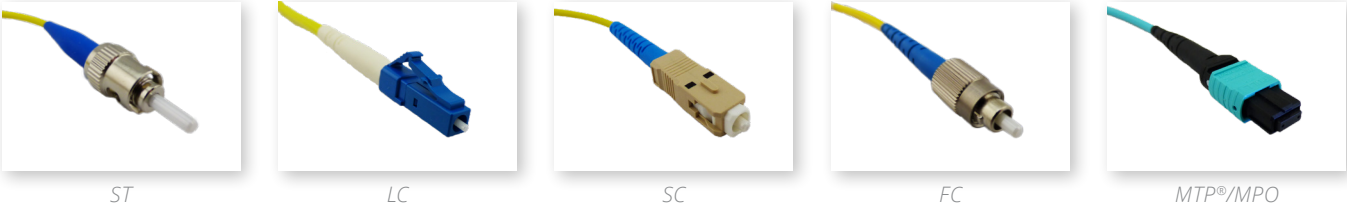
Ruggedized Connectors



Semi-rugged Connectors



Standard Commercial Connectors



SPECIALTY CONNECTORS

Timbercon is an expert in using the latest specialty connectors to enable demanding design requirements. Multi-channel connectors allow increased density in data connections and transference. These connectors are compatible with bare ribbon fiber, round loose tube jacketing, stainless steel and many other jacketing options.



MPO 12- and 16-channel Connectors

- High density channel counts enable large data connections and transference
- Stacked ribbon fiber enables lane counts up to 48 channels
- Multiple rows of 12- and 16-channel ribbon fiber
- Alignment using high precision guide pins
- Bulkhead adapters available

PRIZM® Light Turn

- Multi-fiber floating ferrule
- TIR lens in protective housing
- Unique perpendicular mating capability
- Bidirectional passive assembly
- Wide range of operational temperature: -40 °C to 80 °C

EB-LuxCis Expanded Beam Connector

- 2- to 4-channel expanded beam inserts
- Expanded beam technology greatly reduces the impact of debris interference on the connection
- Contactless design increases the product life cycle
- Easy cleaning and high resistance to shock or vibration
- Very low insertion loss (< 2dB)
- Compatible with singlemode or multimode fiber



MTP® MXC®, PRIZM® and LightTurn® are registered trademarks of US Conec Ltd. Images courtesy of US Conec Ltd.



Armadillo Optical Loopbacks

- Test signal performance and attenuation levels
- LC and SC form factors available
- Plastic sonically welded shell for high durability
- Custom colors available



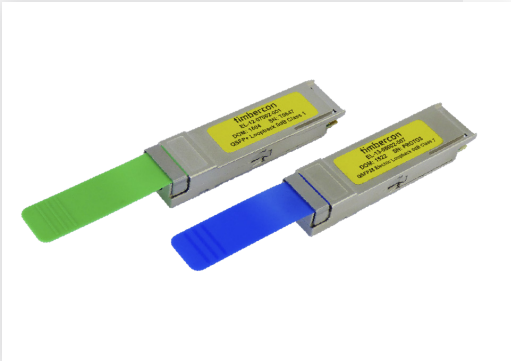
MTP® Optical Loopbacks

- Up to 32 channels of data for 100 Gbps applications
- Available with MTP®12 and MTP®16 ferrules (UPC, APC)
- Industry standard pinouts and custom channel configurations available
- Up to 16 channels of data for 400 Gbps applications
- 0 to 20 dB attenuation



SFP/SFP+ and SFP28 Electrical Loopbacks

- Used for port testing, board testing, Highly Accelerated Stress Screen (HASS) and Highly Accelerated Life Tests (HALT)
- Supports Fiber Channel, Gigabit Ethernet and Infiniband protocols
- Capable of 2.5-28 Gbps data transfer rates
- Available with custom EEPROMs
- All Timbercon loopbacks are MSA compliant



QSFP+ and QSFP28 Electrical Loopbacks

- Economical QSFP/QSFP+ port testing for up to 100 Gbps
- Customizable power consumption and EEPROMs
- Board level system testing and built-in diagnostic functions
- Power-on validation
- Host-pluggable MSA footprint
- Compliant with SONET, SDH, GBE, FC
- Available in multiple power classes 1-7



RUGGEDIZED SOLUTIONS

Hermaphroditic Connectors

- Compatible with SMPTE standard 328M-2001
- Genderless connectors for mating multiple cables in ganged assembly configurations for deployable systems
- Wall-mount and jam-nut receptacles available
- Corrosion, shock and thermal resistant to 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
- 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 1.5 km of cable
 - Suitable for virtually any connector type

MIL-SPEC FIBER OPTIC CABLES



MIL-DTL-38999

- Up to 37 channel configurations
- Low insertion loss
- Singlemode and multimode termini
- Fiber and copper hybrid versions available
- Tight tolerances
- Ceramic connector ferrules
- Ruggedized packaging
- Precise optical alignment



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 exact tolerances to reduce radial misalignment and insertion loss



MIL COTS ST

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



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
- LuxCis® termini
- M29504-4/5
- M29504-14/15
- MIL 1.25
- HD SZ 22



TIMBERCON 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 cleaning, preparing and maintaining fiber optic connectivity products.

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

Cleaning Kit Contents



Cleaning Swabs



Endface Cleaning System



Cleaning Solvent



Hydrosorb Wipes



Flexlight



CUSTOM OVERMOLDING

A variety of customer requirements have driven the need to offer molded components. Timbercon can design and produce the required tooling and mold these solutions in-house. An assortment of material types are available and render different degrees of flexibility, texture and density.



- Rugged fan-out transitions
- Flanged connectors
- Backshells
- Optical and electrical potting
- Overmolding for up to 24-fiber channels
- Multiple transition styles provide flexible mounting options
- 100% optically tested to ensure reliability and performance
- Custom molded shapes designed to fit your equipment
- Custom branded transitions for product and company names
- Molded strain relief

BRAIDED JACKETING

Our custom 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.



- Braided sheath
- Cable jacket
- Kevlar® strength member
- Fiber subunits

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

