FIBER OPTIC SOLUTIONS FOR DATACOM & STORAGE

Booklet

AS9100C, ISO9001, ITAR CERTIFIED

timbercon
A Radiall Company

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.

CONTACT

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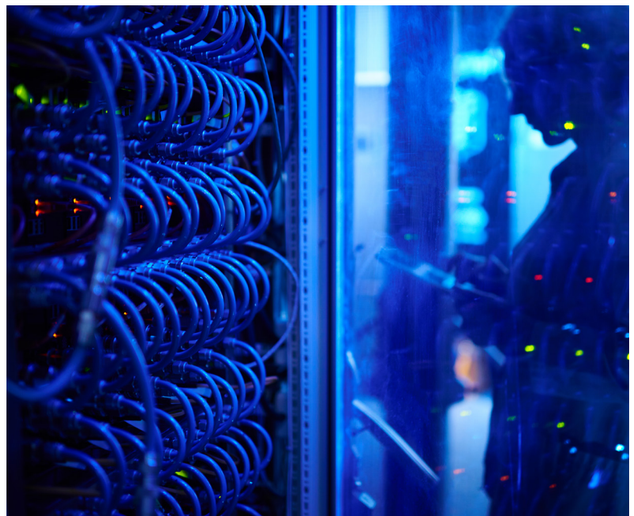
NETWORK & DATA SERVER CONNECTIONS

We provide state-of-the-art solutions that connect complex networks and data servers around the world at the speed of light.

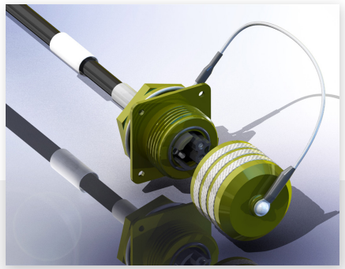
- *Up to 1,000 times the efficiency of conventional copper cables*
- *A near-instantaneous link of information*
- *Fibre Channel Protocol (FCP) with zero EMI*
- *Speeds of up to 800 G*
- *High bandwidth over extended distances*
- *Single mode and multimode configurations*
- *Custom designs*
- *Build-to-print*
- *Standard commercial-off-the-shelf (COTS) cables*
- *Communication links for NAS, SAN or CAS systems*
- *Standard optical and electrical loopbacks*
- *Supplementary testing tools available*



Timbercon provides a wide array of fiber optic design, manufacturing and testing capabilities. We partner with our customers to enable solutions for harsh environment, mission critical challenges.

CAPABILITIES

Our range of capabilities provides the seamless transition of products from development to full-scale production, reducing time-to-market and total cost. We focus on high quality custom solutions.

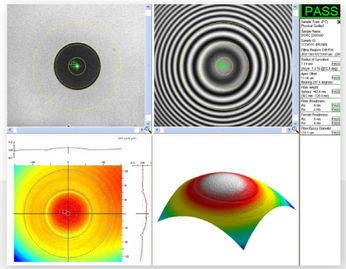


PRODUCT DESIGN

- *Solutions that optimize cost of ownership while balancing price, performance and schedule*
- *Engineering services to define a custom product and development plan*
- *3D modeling utilizing SolidWorks, 3D printing, precision fiber processing and testing*
- *Mechanical, electronic and optical design services*
- *Rapid prototyping capabilities*

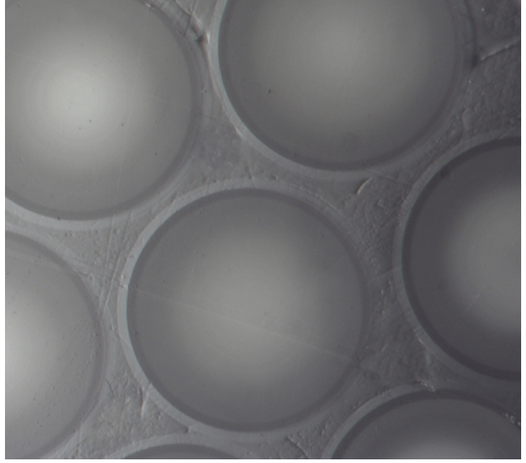
CONTRACT MANUFACTURING

- *Advanced fiber optic engineering*
- *Final product, sub-level and integrated electrical and optical manufacturing*
- *New product introduction and test protocol development*
- *Ability to build product to customer specifications*
- *Custom packaging and labeling*
- *Repair and replacement services*



TEST & ANALYSIS

- *Leading edge optical metrology and interferometry*
- *Specialized performance and environmental tests, including tensile, load, temperature and humidity*
- *Testing options ranging from simple insertion loss testing to root cause failure analysis*
- *Expedited diagnostic and recertification services*



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

D38999

TFOCA

M28876

Expanded Beam

MIL-ST/M83522

Semi-rugged Connectors

Armadillo LC

IP67/68 LC

Circular MPO

4CH Push/Pull

Hybrid Push/Pull

Standard Commercial Connectors

ST

LC

SC

FC

MTP®/MPO

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

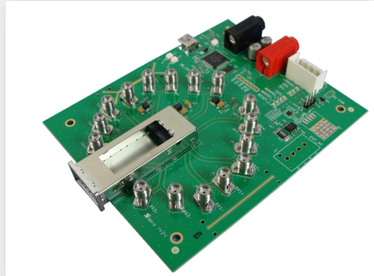
- *2- to 4-channel expanded beam inserts*
- *Expanded beam technology greatly reduces the impact of debris interference on the connection*
- *Contactless design increases the product life cycle*
- *Easy cleaning and high resistance to shock or vibration*
- *Very low insertion loss (< 2dB)*
- *Compatible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

FIBER OPTIC TESTING EQUIPMENT & ELECTRICAL LOOPBACKS

Timbercon's range of fiber optic loopbacks and testing equipment allows simulated signals to be tested inside a fiber optic network without needing the actual cabled distance. Any type of fiber is available to use for testing, from singlemode to OM1 through OM4. Definable attenuation levels up to 24 dB are available to simulate distance and signal loss.

EZ2 and EZ3 Electrical Loopback Handles

- *Available in 1x2 and 1x3 array configurations*
- *Compatible with industry standard QSFP port cages*
- *Available in back-to-back and belly-to-belly designs*
- *Power class and speed easily identified by handle color*
- *Reduce up to 65% of technician test time*
- *Prevents pinch grip and other injuries caused by repetitive motion activities*



40 Gbps and 100 Gbps Host Test Boards

Timbercon's host test boards provide an efficient and simple method of module programming, testing and characterizing of the QSFP/ QSFP+ and QSFP28 loopbacks and transceivers.

- *Features transmit, receive, computer interface, reference clock and power supply ports*
- *Controlled with a mini USB port*
- *Includes operating software, Windows-based GUI and a user operations manual*

Network Simulators

Data transport equipment manufacturers and system designers often need to simulate an optical network in the lab to test the performance of their equipment in "deployed" conditions. Timbercon's network simulators provide this function in a compact, rack-mounted enclosure incorporating any fiber optic device that can test a single transmission or multiple signals on a physical level.

- *Utilizes up to 200 km of spooled fiber to test dispersion, delay and attenuation through actual distances*
- *Multiple splicing methods for testing signals through various distances of fiber*
- *Multiple fiber and connector options available*

Armadillo Optical Loopbacks

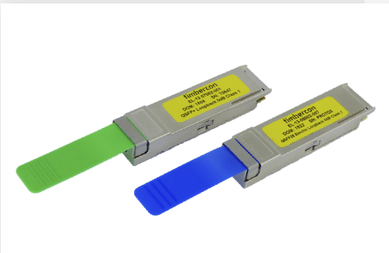
- *Test signal performance and attenuation levels*
- *LC and SC form factors available*
- *Plastic sonically welded shell for high durability*
- *Custom colors available*

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 Gpbs 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*

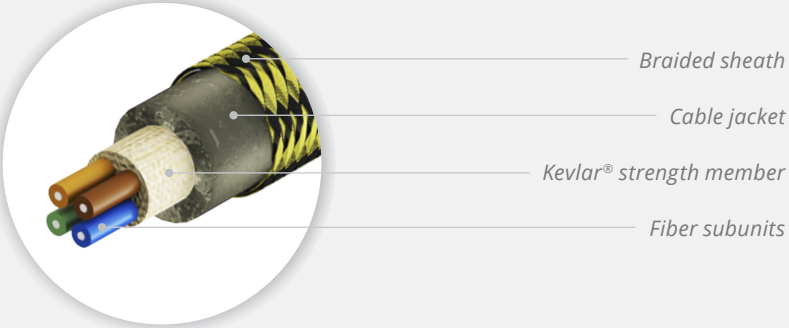
CUSTOM OVERMOLDING

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.



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