Optical CrossLinks, Inc.

Preliminary Product Brief

Optical Fiber Distribution Products--

Custom Ribbon Arrays, Shuffles, Wiring Harnesses -- stand alone or rack mounted; custom or standard connectorization; robust ribbons or cable jacketed

Product Summary

Optical CrossLinks' (OXL) manufactures custom configured optical fiber ribbon arrays, optical wiring harnesses, and perfect and custom shuffles. All fiber ribbon and shuffle products are fully connectorized with diverse configurations with standard MT or custom connector ferrule configurations and footprints. OXL can ribbonize any optical fiber diameter and use either glass or plastic fibers with either single or multimode cores. Depending on system designs and requirements shuffles in most cases are available in any length without splices

Packaging and connectorization designs are configurable to meet current and anticipated application requirements for self-supporting fully robustized optical fiber distribution links. Standard commercial ferrules are used where possible but OXL's unique custom ferrule alignment modifications permit versatile connectorization options with either standard MT or custom sized footprints and high density connectivity.

Differential fiber lengths can be as small as 1mm for all fibers in links and shuffles for minimum signal skew. Compact packages for shuffle mix regions are typically pencil sized but can be configured with flat or square packaging for mounting versatility. Rack mounted enclosures are an option for shuffles and functional links. Cable jacketing over ribbons for robust configurations are available and applied either by OXL for short custom lengths or contracted out to cable vendors who only handle long length cabling over 1000 feet.

Ribbonizing dies for applying encapsulating ribbon resins are designed by OXL using proprietary algorithms specific for each unique ribbon fiber diameter and number. Current capability can provide up to 64 fibers per single ribbon potentially expandable to 256 based on market need.

Product Applcations

Applications include optical data link interconnections and distribution, such as for industrial, home, school, or central office systems; high-speed computers or routers; or for aerospace flight control and monitoring systems.

OXL's family of distribution link configurations is most amenable to a broad range of customer specific designs and packaging options for meeting diverse application requirements. Representative custom design options are summarized below.

Key Customer Benefits

- Continuous fiber with no splices for most applications with low loss and balanced array power links, and nearly equal lengths within 5 mm for standard applications, or for special orders within 1 mm for 40 GHz systems, for shuffles, optical harnesses etc.
- Custom or standard MT connectorization arrangements and connector ferrule housing footprints
- Broad range of custom options for fiber diameters, fiber numbers, distribution arrangements available for all linkages, shuffles, etc.
- Robust ribbon or cable jacketing / packaging compatible with industry standards or customizable to your needs
- Shuffles can be placed in rack mountable enclosures with rear or front panel connector access.

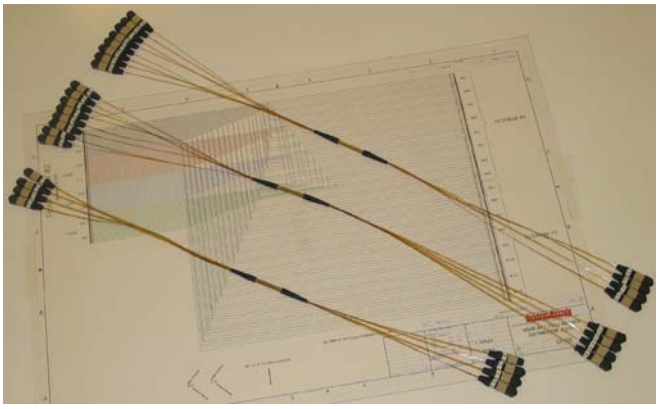

Figure 1: Complex distribution shuffles Depicted here is a shuffle with 96 fiber inputs in 8 ferrules to 96 outputs in 16 ferrules, the other in a 4 to 4 configuration all fully ribbonized and robust, with differential length within 6 mm as was required

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Optical CrossLinks develops and produces custom optical interconnection *point-to-point links, distribution links or waveguide devices using proprietary polymer waveguide technology, materials and custom fiber ribbonization. All are fully connectorized with standard or custom proprietary approaches as needed.*

Distribution System Performance Enhancing Options

For greater optical link versatility OXL's splitter and coupling components can be embedded into the distribution links. For example, OXL components that can be incorporated are: 1) compact polymeric small footprint 1 to up to 16 single input fiber link splitters, 2) 4x4 to 32 x32 star couplers, or 3) fiber ribbon array 2x2 mixers and doublers, as for example a 12 OF in one ribbon split to 24 OF in two 12 fiber ribbons in one MT footprint sized component. (See separate OXL Product Briefs on Splitters, Star Couplers and fiber ribbon doublers and 2x2 fiber ribbon array star coupler mixers)

Figure 2 (right) Rack mounted enclosure for large shuffle with rear entry for 24 MT style connector I/O ports

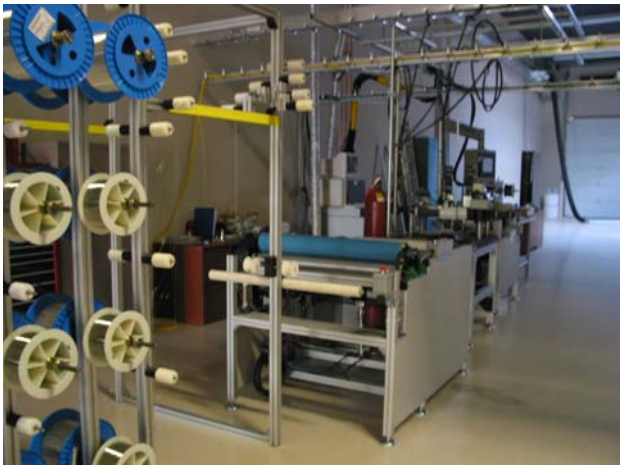

Figure 3 (above) Production Apparatus Facility for fiber ribbonization and shuffle creation, including fiber creels, tension control, ribbon forming die, ink jet printer for ribbon and fiber identification, and UV cure and workstations

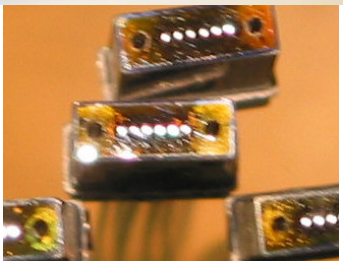

Figure 4 (right) Custom connectors OXL connector alignment technology provides versatile connectorization options. Shown here are six 250 micron glass fibers with 500 micron jackets precisely aligned in a standard MT footprint.

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Specification Highlights for Distribution Links, Ribbons, Shuffles, Wiring Harnesses----------

- Ribbons from 2 to 64 fibers with potential expansion capability to 256
- Single mode, or multimode standard and large core fibers with glass or plastic and with various polymeric cladding like acrylate or polyimides with OD up to 500 microns etc.
- Connectivity typically using standard MT style ferrules compatible with MPO housing with up to 12 per MT single row or 12 over 12 configurations for standard diameter 125 to 250 microns as needed
- Custom multimode standard footprint MT style ferrules using OXL proprietary designs designed for non-commercial large cores, and /or larger number or specialized arrangements
- Custom sized ferrules with OXL precision fiber alignment available with MT style pin ferrule alignment
- Single mode connectivity options using either OXL's proprietary precision alignment ferrule designs or commercial MT ferrules where available or applicable
- Ribbon encapsulation with industry standard or custom resins applied using OXL designed dies specific to each fiber configuration
- Cable jacketing over ribbons available using OXL configuration for lengths not acceptable by cable coating vendors who typically need orders of 1000 feet
- Performance not impacted by shock or inertial issue
- Shuffles as perfect or custom configurations up to 16 by 16 with custom arrangements and connectivity available

Ordering Information: The custom part number for ordering will be determined at the time of order. Call or email the contacts below for pricing and/or discussion on specific product configurations, modifications or custom developments.
Contact regarding orders or for more information: Optical CrossLinks, Inc., 206 Gale Lane, Kennett Square, PA, 19348: 610 444 9469 or :sales@opticalcrosslinks.com-----see http://www.opticalcrosslinks.com

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