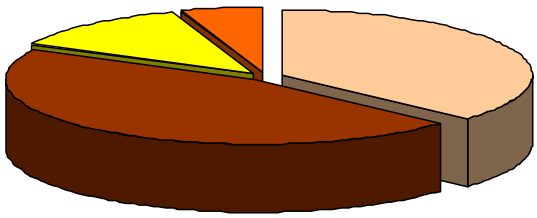
Announcement

Field-Terminated
Fusion Splice-On Connector
North American Market Forecast & Analysis

2014-2020



ElectroniCast Consultants

Field-Terminated Fusion Splice-On Connector North American Market Forecast & Analysis 2014-2020

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Field terminated fiber optic fusion ***Splice On Connectors*** (SOC) are installed for rapid repairs or for limited space situations where pre-terminated fiber cabling may be difficult, such as when the cable assembly needs to pass through small openings such as conduit. The connector offers a repeatable alternative termination solution for single-mode or multimode optical fiber.

This report presents the findings of the ElectroniCast market research study of the use of fiber optic fusion splice on connectors (SOC) in non-OEM field installations (inside or outside plant), attaching to an end of an optical fiber.

This report provides the SOC consumption value, quantity and average selling prices in the North American region, which consists of Canada, Mexico and the United States. History data are presented for 2014, plus the year-by-year forecast from 2015 through 2020 for each significant type of field-terminated splice-on connector.

The forecast for each connector type, in turn, is segmented into each selected communication application. Competitive market share estimates for the leading manufacturers of field-terminated fusion splice-on connectors are provided.

As the number of Fiber-To-The-Home (FTTH) subscribers increase, there is an increased awareness of the importance on construction for connecting the “drop” as well as the indoor connection. Traditionally the connection has been done with the mechanical splice at the outdoor cabinet or inside room of subscriber's house. It requires operators to take much care and time to handle 0.25mm diameter fiber. And in case of trouble, the mechanical splice connection is difficult and troublesome for investigation and repair.

Yield (quality) of the completed field-installed connector, which can add to additional "Truck-Rolls," labor expertise (higher paid technicians) and labor time (field installable vs. "plugging") is a concern. Therefore, for the purpose of less skill-needing construction and easier trouble investigation, there is an increased interest in the field installable fiber optic connector (mechanical splice type and fusion splice types). This market forecast covers the field-installable ***fusion splice***- type fiber optic connectors in North America.

It is important to note, however, that these outdoor links indeed can incorporate pre-determined, designed link-lengths, especially with "Greenfield" and "Drop" applications. This is especially true with advanced fiber optic networks (experienced installations). The price of the field-installable connector versus the pre-terminated (cable assembly) is not necessarily the market driver. The following are some general opinions and assumptions of ElectroniCast:

- Indoors, controlled environments such as Central Offices/Head-Ends, LAN/Inside the Building (horizontal and riser), with the exception of multiple or undetermined cable lengths, have tended to use pre-terminated cable assemblies/patch cords and not use field installable fiber optic connectors. However, as technician skills improve as well as the products becoming more "fool-proof" there will be a continued increase in field installable fiber optic connectors.

- Military/Aerospace, Specialty, and modules/components relatively use less field installable types; however, as more applications increase their "green-field" (brand-new) use of optical fiber, opportunities for fusion splice-based field-termination connectors are present. Other/miscellaneous applications include, but not limited to the following: Industrial Environments, Electric Utility, Broadcast, Security, Transportation, and Oil/Gas/Energy

- Outdoor environments such as undetermined-length Telecommunication links (FTTx), some CATV links and LAN-to-LAN (or LAN) Building-to-Building, Campus links relatively incorporate more field-installable fiber optic connectors.

Connectors and Applications Covered in this Study The field terminated fusion splice-on fiber optic connector market forecast is built up from specific segments. The two major categories are connectors used with single-mode optical fiber and connectors used with multimode optical fiber, and are further segmented as shown in Table 1. The end applications for the selected fiber optic connectors are itemized in Table 2.

Table 1
Field Terminated Fusion Splice-on Connectors Market Forecast
Product Category List

Single-Mode Fiber Optic Connector

ST Simplex
FC Simplex
SC Simplex
LC Simplex
MPO Multiple Fiber Connector
OTHER

Multimode Fiber Optic Connectors

ST Simplex
FC Simplex
SC Simplex
LC Simplex
MPO Multiple Fiber Connector
OTHER

Table 2
Field Terminated Fusion Splice-on Connectors Market Forecast
Application Category List

Telecommunications
Cable Television
Premises Networks and Other Non-Specified

The market data is detailed by the following Functions:

- Consumption (use) Value (US$, Million)
- Quantity/Volume (Connectors by Thousand/Units)
- Average Selling Price (ASP – US$, Each)

Information Base for the Market Forecast

Primary Research This study is based on analysis of information obtained through the middle of July 2015. During this period, ElectroniCast analysts performed interviews with authoritative and representative individuals in the fiber optics industry plus telecommunications, cable TV, datacom, military and aerospace and other communication industries, instrumentation/ laboratory – R&D and factory/manufacturing, from the standpoint of both suppliers and users of fusion and mechanical field terminated fiber optic connectors. The interviews were conducted principally with:

- Technicians and network planners that are actively involved in using mechanical splices, fusion splicers, and fiber optic connectors/field-terminated mechanical-type and fusion splice-on connectors.

- Engineers, marketing personnel and management at manufacturers of fiber optic connectors, fusion splicers, mechanical splices, ferrules and cables, cable assemblies, splice equipment/tools and installation apparatus, couplers/splitters, isolators, OADMs, DWDM, photonic switches, test/measurement equipment, Ethernet switches, modulators, collimators, attenuators, transceivers and receivers, as well as laser diodes and photodiodes, application-specific ICs, packages, substrate materials, AWGs/optical waveguide and other components used in the fabrication of optoelectronic transceivers

- Design group leaders, engineers, marketing personnel and market planners at major users and potential users of cable, cable assemblies, connectors, installation apparatus, passive devices and transceivers, such as telecommunication transmission, switching and distribution equipment producers, data communications equipment producers (switches, hubs, routers), computer and workstation producers, weapon system, aircraft and spacecraft electronic equipment producers, optical instrumentation system producers and others.

- Other industry experts, including those focused on standards activities, trade associations, and investments.

The interviews covered issues of technology, R&D support, pricing, contract size, reliability, documentation, installation/maintenance crafts, standards, patents and Intellectual Property, supplier competition and other topics.

Customers also were interviewed, to obtain their estimates of quantities received and average prices paid, as a crosscheck of vendor estimates. Customer estimates of historical and expected near term future growth of their application are obtained. Their views of use of new technology products were obtained.

The analyst then considered customer expectations of near term growth in their application, plus forecasted economic payback of investment, technology trends and changes in government regulations in each geographical region, to derive estimated growth rates of quantity and price of each product subset in each application. These forecasted growth rates are combined with the estimated baseline data to obtain the long-range forecasts at the lowest detailed level of each product and application.

Secondary Research A full review of published information was also performed to supplement information obtained through interviews. The following sources were reviewed:

- Professional technical journals and papers
- Trade press articles
- Technical conference proceedings
- Product literature
- Company profile and financial information
- Additional information based on previous ElectroniCast market studies
- Personal knowledge of the research team

In analyzing and forecasting the complexities of the North American market for optical interconnect products, it is essential that the market research team have a good and a deep understanding of the technology and of the industry. ElectroniCast members who participated in this report were qualified.

Bottom-up Methodology ElectroniCast forecasts are developed initially at the lowest detail level, then summed to successively higher levels. The background market research focuses on the amount of each type of product used in each application in the base year (last year), and the prices paid at the first transaction from the manufacturer. This forms the base year data.

ElectroniCast analysts then forecast the growth rates in component quantity use in each application, along with price trends, based on competitive, economic and technology forecast trends, and apply these to derive long term forecasts at the lowest application levels. The usage growth rate forecasts depend heavily on analysis of overall end user trends toward communication equipment usage and economic payback.

Cross-Correlation Increases Accuracy The quantities of network switches, optical fiber/cable, connectors, transceivers, transport terminals, optical add/drop MUX, VCSELs, couplers/splitters, isolators, photonic switches and other products used in a particular application are interrelated. Since ElectroniCast conducts annual analysis and forecast updates in each fiber optic related product field, accurate current quantity estimates in each application are part of this corporate database. These quantities are cross-correlated as a “sanity check.”

ElectroniCast has conducted extensive research and updated their forecasts of each fiber optic component category. As technology and applications have advanced, the number of component subsets covered by the forecasts has expanded impressively.

The calculation and analysis data spreadsheet technique is based upon input/output analysis, leveraging the quantitative consumption quantity, price and value of each item in each application at all levels to achieve reasonable quantitative conclusions; this interactive analysis concept, first applied on a major scale by Leonteff, of the US Department of Commerce, in the mid 1950s, was then adopted successfully by analyst/forecasting firms Quantum Science, Gnostic Concepts and (in 1981) by ElectroniCast.

About ElectroniCast

ElectroniCast, founded in 1981, specializes in forecasting technology and global market trends in fiber optics communication components and devices, as well providing market data on light emitting diodes used in lighting.

As an independent consultancy we offer multi-client and custom market research studies to the world's leading companies based on comprehensive, in- depth analysis of quantitative and qualitative factors. This includes technology forecasting, markets and applications forecasting, strategic planning, competitive analysis, customer-satisfaction surveys and marketing/sales consultation. ElectroniCast, founded as a technology-based independent consulting firm, meets the information needs of the investment community, industry planners and related suppliers.

Proprietary Statement

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Table of Contents

List of Figures

List of Figures - Continued

List of Tables