

# Announcement

## Fiber Optic Circulators Global Market Forecast 2017-2027

Report Released: June 15, 2018



## **Fiber Optic Circulators Global Market Forecast 2017-2027**

Report Date: June 15, 2018

Text Pages: 178 pages – PDF  
Excel File: Market Forecast Database (2017-2027)

Fee: USD 2900      Files sent by E-mail

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Fiber Optic Circulators are non-reciprocal devices, which means that changes in the properties of light passing through the device are not reversed when the light passes through in the opposite direction. The optical device is commonly used in a wide variety of systems, here are just a few examples: dispersion compensation, optical sensors, optical amplifiers, WDM systems, optical add/drops multiplexing (OADMs) and test/measurement instruments such as optical time-domain reflectometers (OTDRs), remote fiber (optic) test systems (RFTS) and other test equipment.

Fiber optic circulator functionality is an excellent candidate for integrating with a transmitter and receiver into a single package. Circulators provide an ideal solution for coupling devices into a fiber optic network without the inherent 3dB loss of an optical coupler. Circulators directional functionality enable simultaneously adding and dropping signals from a fiber as well as coupling other optical signal processing devices.

The deployment of optical fiber in the metro/access, the continuing demand for upgrading networks to accommodate rapidly increasing bandwidth requirements, plus the need for additional monitoring and testing of the optical fiber networks will drive the steady consumption of fiber optic circulators.

Fiber optic circulators are used with erbium-doped fiber amplifiers (EDFA), fiber optic sensor applications, dense WDM (DWDM), optical add/drop multiplexing (OADM), optical time domain reflectometers (OTDR fiber optic test equipment), SANs (Storage Area Networks), bi-directional transmission systems, dispersion compensators, and other devices.

**Market Forecast (2017-2027)** This report by ElectroniCast Consultants provides a detailed fiber optic circulator market analysis/review and forecast for each year, 2017-2027. The forecast is presented in terms of Quantity (number of units), Average Selling Prices (ASPs) per unit and Consumption Values. The forecast data for the following regions, plus a Global summary:

- America (South, Central and North America)
- EMEA (Europe, Middle East and Africa)
- APAC (Asia Pacific)

The forecasts are presented in the following application segments:

- Telecommunications
- Private Data Networks
- Cable TV
- Military/ Aerospace
- Specialty Applications (Intra-enclosure, laboratory/instrumentation, industrial, sensors, lasers, biomedical, test/measurements, oil/gas, other)

The fiber optic circulator market is presented by the following port-count configurations:

- 3 - Ports
- 4 - Ports
- More than 4 - Ports (> 4 - Ports)

**Market Research Methodology Information Base** This study is based on analysis of information obtained continually over the past two decades, but updated through the beginning of June 2018. During this period, ElectroniCast analysts performed interviews with authoritative and representative individuals in the fiber optics, telecommunications, datacom, cable TV and other communication industries, from the standpoint of both suppliers and users of fiber optic transmission links. The interviews were conducted principally with:

- Engineers, marketing personnel and management at manufacturers of fiber optic collimators, specialty fiber, connectors, isolators, couplers, DWDM filter modules, dispersion compensators, photonic switches, attenuators, modulators, transmitters/receivers, OADMs and other related optical communication components.
- Engineers, marketing, purchasing personnel and market planners at major users of passive and active optical components, such as telecommunication transmission, switching, distribution and apparatus equipment, regional and inter-exchange (IXC) telephone companies, alternative local carriers, data communications equipment companies, cable TV system suppliers, military/aerospace OEMs, utilities and a number of other end users of fiber optic communication components and technology.

The interviews covered issues of technology, pricing, contract size, reliability, and documentation, installation/maintenance crafts, standards, supplier competition and other topics. 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
- Additional information based on previous ElectroniCast market studies, including the Fiber Optic Forecast Service Data Base, the Fiber Optic Cable Forecast, the Optical Amplifier and Component Global Forecast, the Intraenclosure Optical Interconnect Forecast, the Fiber Optic Installation Apparatus Forecast, the Fiber Optic Coupler Forecast, the Fiber Optic Attenuator, Isolator, Filter, Collimators, DWDM, Switch, Optical Add/Drop Multiplexers, Transmitters/Receivers, SONET/SDH, and other related component Market Forecasts
- Personal knowledge of the research team

In analyzing and forecasting the complexities of the Global market for fiber optic communication components, 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 and 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 (2017), 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 digital broadband communication equipment usage and economic payback.

Cross-Correlation Increases Accuracy The quantities of fiber optic transmitters/receivers, modulators, isolators, circulators, couplers, DWDM filters, attenuators, optical amplifiers and other optical communication components used in a particular application are interrelated. In addition to fiber optic circulators, ElectroniCast conducts annual analysis and forecast updates in several other components and devices (active and passive), providing accurate current quantity estimates, which are part of the ElectroniCast database. These quantities are cross-correlated as a "sanity check".

ElectroniCast, each year since 1985, 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.

### 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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ElectroniCast, in addition to multiple-client programs, conducts proprietary custom studies for single clients in all areas of management planning and interest. Other independent consultants, therefore, are considered directly competitive. ElectroniCast proprietary information may not be provided to such consultants without written permission from ElectroniCast Consultants.

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  - Clearfield, Inc.
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  - Fiberer Global Tech Ltd.
  - Fiberlake Technology Co. Ltd (Shenzhen)
  - Fiberon Technologies, Inc.
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  - FOCI
  - General Photonics
  - Gezhi Photonics Co., Ltd
  - Golight Technology Co., Ltd (Shenzhen)
  - Gould Fiber Optics
  - Haphit
  - Ingellen Technology Company
  - Intepon Co. Ltd
  - Kamaxoptic communication Co., Ltd. (KOC Group)
  - KINSOM Technology Limited
  - Lightel Technologies Inc.
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  - Lumentum Operations LLC
  - Neptec Optical Solutions
  - Newport Corporation
  - OF-Link Communications Co., Ltd
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  - OptiWorks, Inc.
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  - Opto-Link Corporation Limited
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  - OZ Optics Limited
  - Photop Technologies, Inc.
  - Qbic Laser System Inc.
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