

## ElectroniCast Consultants



### **Planar Lightwave Circuit (PLC) Splitters Global Market Forecast & Analysis (2010-2015)**

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This is the ElectroniCast analysis and forecast of global market consumption of planar lightwave circuit (PLC) splitters used in optical communication applications. For the purposes of this study, ElectroniCast specifically addresses the PLC splitter, using waveguide circuits and aligned fiber optic pigtails, integrated inside a package. This report also quantifies the PLC splitter chip used in PLC splitter devices, as well as integrated with other PLC chips/functions to fabricate other devices or modules.

The 2010-2015 quantitative market forecast data presented in this study report are segmented into the following geographic regions, plus a Global summary:

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

The forecast for each product-level is presented by function:

- Consumption Value (\$, Million)
- Number of Units (Quantity in 1,000)
- Average Selling Prices (\$, each)

PLC Splitter Applications analysis covered in this report:

- Passive Optical Network (PON) / FTTX / Telecommunication Networks
- Cable TV (CATV)
- Fiber Optic Test/Measurement
- Private Enterprise/Data Centers/Local Area Networks (LANs)
- Harsh Environment (Military, Industrial, Other)

PLC splitters will continue to contribute an important role in Fiber to the Home (FTTH) networks by allowing a single passive optical network (PON) interface to be shared among many subscribers. PLC splitters are available in compact sizes; therefore, they can be used in aerial apparatus, pedestals or in-ground as well as rack mount or other module-based value-added product. Installation is simple using a variety of connector types or fusion splicing.

This report provides a detailed market and technology analysis of PLC splitters, which are largely driven by Fiber-to-the-Home (FTTH) and are trending towards commodity manufacturing processes. The ElectroniCast 2010-2015 market forecast is segmented by the following product categories and split configurations:

### **Hierarchy of Selected PLC Splitters, by Fabrication-Level**

- Chip
- Component Device (compact)
- Modules

### **Hierarchy of Selected PLC Splitters, by Splitter Configuration**

- 1xN
  - 1x2
  - 1x4
  - 1x8
  - 1x16
  - 1x32
  - 1x64
- 2xN
  - 2x4
  - 2x8
  - 2x16
  - 2x32
- Other (miscellaneous MxN)

The information is presented in easy-to-follow illustrations and text. The reasons for the forecasted trends are discussed. The report also outlines the market research methodology followed and the key assumptions made. Terms, acronyms, and abbreviations used are defined. A list of fiber PLC splitter manufacturers and related companies is provided, along with description of the types of PLC splitters and related technologies that they address. The technology trends of other pertinent fiber optic components and devices in the fiber optic marketplace are presented.

Next generation networks will combine voice, audio, data at high and low speeds, video, television (including interactive 3-dimensional high resolution television), and other specialized transmission into a single integrated infrastructure.

Included within the infrastructure will be business Enterprise resource planning (ERP) software, unified messaging, web-assisted call centers, and a variety of small-business infrastructures. Residential use will include video on demand, e-commerce, small office/home office telecommuting, advertising, medical monitoring, elder care monitoring, childcare monitoring, home and office security. Most existing communications will be built upon an Internet backbone during the period of this study. Reasons for this transition are rooted in demand. The customers are demanding greater speed, more functionality and reliability, and naturally, they expect "perfect" quality of service.

Planar waveguide circuits (PWCs) also referred to as planar lightwave circuits (PLCs), incorporate numerous active and passive functional uses for packaged modules. The long-term trend is for a larger share of discrete-circuit (single-function) based PWCs/PLCs being displaced by equivalent performance hybrid (multiple-function) planar devices.

The majority of optical functions, such as splitters, variable optical attenuators (VOAs) and array waveguides (AWGs) are currently developed and implemented forming discrete (single function/monolithic) component integration. The combination of the packaging and integrated optics aspects of PWC technology provides for an attractive and powerful technology for devices/modules, which will hold multiple (two or more) functions (integrated multifunction devices); thereby, reducing size, weight, and cost versus larger, bulkier discrete devices/modules.

As the demand for larger quantities of optical communication components evolve, technologies, which are friendly to automation assembly processes, will have a competitive manufacturing/cost advantage. Use of silicon wafers, for example, draws extensively on the mass-production techniques of the commercial integrated circuit (IC) production whelm, since the fabrication of PWCs incorporates many of the same pieces of equipment and processes.

Fiber-to-the-Home passive optical networks (FTTH/PONs) integrated PLCs, with multiple functions, have promise for a sizable market. The bplexer, an all-in-one transponder that includes the two wavelengths, 1310nm upstream and 1490nm downstream, is one end-use modules based on planar waveguide technology that is required for PON. And some networks will use a 1550nm wavelength for a cable TV overlay, creating the need for triplexers.

The planar waveguide technology approach in PONs can win market share against the traditional fiber optic discrete devices because the parts are smaller and less expensive. Planar waveguide technology aims to do for photonics what

integrated circuits (ICs) did for electronics: take the market away from the bulky groups of circuitry and replace-it with products that are easy to replicate in mass quantities. The fact that PLCs can be inexpensive is particularly important given that cost has been a roadblock to past PON deployments.

**Fiber Optic Industry Monthly Reports** The monthly report provides summaries from recent ElectroniCast market/technology analysis, as well as several industry news items of interest...

**Monthly Reports - Typical Outline:**

- ElectroniCast – Fiber Optic Oriented Market and Technology Overview (5-8 pages)
- ElectroniCast – Fiber Optic Oriented Market and Technology Overview (5-8 pages)
- Fiber Optic Industry News (10-15 pages)
  - Venture Capital or Financial News
  - New Products
  - Fiber Optic Deployment/Installations
  - Technology News

**About ElectroniCast** ElectroniCast Consultants specializes in forecasting trends in communication networks and in the products used in those networks. This includes technology forecasting, markets and applications forecasting, strategic planning and consulting.

ElectroniCast Consultants, as a technology-based independent forecasting firm, serves industrial companies, trade associations, government agencies, communication and data network companies and the financial community. Reduction of the risk of major investment decisions is the main benefit provided. ElectroniCast's goal is to understand the challenges and opportunities facing clients and to provide timely, accurate information for strategic planning.

**Project Director** Stephen Montgomery, MBA/Technology Management, President – International Business Expansion at ElectroniCast Consultants.

Mr. Montgomery has specialized in photonics and fiber optic components market & technology forecasting at ElectroniCast for over 20-years. In addition to serving as President for International Business Expansion at ElectroniCast Consultants, Mr. Montgomery is the Director of the Fiber Optics Components group. He has given numerous presentations and published a number of articles on optical communication markets, technology, applications and installations. He is a member of the Editorial Advisory Board of LIGHTWAVE magazine (PennWell Publishing) and writes a monthly article covering the optical communication industry for OPTCOM Magazine in Japan (Kogyo Tsushin Co., Ltd.).

## PLC Splitter Global Market Forecast Table of Contents

1.	PLC Splitter Market Forecast Executive Summary	1-1
1.1	Overview	1-1
1.2	Use of Fiber Optics in Harsh Environments	1-12
1.3	Fiber Optic Communication Networks – Overview	1-21
1.4	Fiber Optics Industry: Decade-to-Decade	1-63
1.5	Optical Communication Trends	1-71
1.5.1	Communication Network Technology Trends	1-71
1.5.2	Components	1-88
1.5.2.1	Overview	1-88
1.5.2.2	Transmitters and Receivers	1-89
1.5.2.3	Optical Amplifiers	1-90
1.5.2.4	Dispersion Compensators	1-91
1.5.2.5	Fiber Cable	1-92
1.5.3	Devices and Parts	1-93
1.5.3.1	Overview	1-93
1.5.3.2	Emitters and Detectors	1-95
1.5.3.3	VCSEL & Transceiver Technology Review	1-96
1.5.3.4	Optoelectronic Application-Specific Integrated Circuits (ASICs)	1-104
1.5.3.5	Modulators	1-104
1.5.3.6	Packages	1-108
1.5.3.7	Optoelectronic Integrated Circuits	1-108
2.	PLC Splitter Market Forecast, by Fabrication-Level and Port-Count Configuration	2-1
2.1	Overview	2-1
2.2	PLC Splitter - Chips	2-36
2.3	PLC Splitter – Component Device (compact devices)	2-41
2.4	PLC Splitter Modules	2-47
3.	PLC Splitter Market Forecast, by Fabrication-Level, Split Ratio and Application	3-1
3.1	Overview	3-1
3.2	Passive Optical Network (PON) - FTTX Networks	3-8
3.3	Cable TV (CATV)	3-21
3.4	Fiber Optic Test/Measurement & Specialty Applications	3-29
3.5	Private Enterprise/Local Area Networks (LANs)	3-37
3.6	Harsh Environment (Military, Industrial, Other)	3-55
4.	PLC Splitter Technology	4-1
4.1	Overview	4-1
4.2	PLC Splitter – Chips	4-16
4.3	PLC Splitter – Component Device (tube or compact box)	4-46
4.4	PLC Splitter Modules	4-52
5.	Selected PLC Splitter Competitors	5-1
5.1	Overview	5-1
5.2	PLC Splitter Suppliers and Product Description	5-5
6.	Research and Analysis Methodology	6-1
7.	Definitions: Acronyms, Abbreviations, and General Terms	7-1
8.	Market Forecast Data Base	8-1
	<b>Market Forecast Data Base – Excel Spreadsheets:</b>	Addendum
	Global	
	America	
	Europe, Middle East, Africa (EMEA)	
	Asia Pacific (APAC)	

## List of Figures

1.1.1	1xN Splitter Photolithography Mask	1-4
1.1.2	PLC Splitter Chips Global Consumption Market Forecast, by Region (\$Million)	1-5
1.1.3	1x8 Planar Lightwave Circuit (PLC) Splitter Compact Device	1-6
1.1.4	PLC Splitter Component-Level Compact Devices Global Forecast, by Region (\$Million)	1-7
1.1.5	Value-Added PLC Splitter Modules	1-8
1.1.6	1x32 PLC Splitter Module with Connectors	1-10
1.1.7	Rack-Mount Enclosure	1-10
1.1.8	PLC Splitter Modules Global Forecast, by Region (\$Million)	1-11
1.3.1	North America Multi-protocol Label Switching (MPLS)	1-36
1.3.2	North America Internet Access	1-37
1.3.3	FTTP PON Architecture	1-38
1.3.5	Next-Generation Wholesale Broadband Network	1-42
1.4.1	Evolution of Research Emphasis during Technology Life Cycle	1-70
1.5.3.3.1	Genealogy of VCSELs	1-97
1.5.3.3.2	Typical Intra-Office Interconnections	1-101
1.5.3.7.1	Trend of Transceiver Packaging Density, Gigabits/Cubic Inch	1-114
2.1.1	MxN Passive Optical Multiplexer	2-6
2.1.2	Waveguide Array Grating Filter	2-7
2.1.3	Waveguide Array Grating	2-9
2.1.4	Planar Waveguide Switch and Optical Cross-Connect	2-10
2.1.5	AWG DWDM Filter	2-12
2.1.6	PLC-Based Compact Integrated DQPSK Receiver	2-19
2.1.7	Integration vs. Discrete PLC Solutions	2-25
2.2.1	1x8 PLC Splitter Chip to be used on a Quartz Substrate	2-31
2.3.1	Mechanical Drawing: 1x2 and 1x64 PLC Compact Splitter Devices	2-42
2.3.2	Component-Level Compact PLC Splitter Devices	2-43
2.4.1	1x16 PLC Splitter Module	2-49
2.4.2	1x32 PLC Splitter Module with SC Connectors	2-50
2.4.3	Mechanical Drawing: 1x32 PLC Splitter Module	2-51
3.2.1	FTTH PON: Passive Optical Network	3-10
3.3.1	Radio Frequency over Glass: HFC	3-22
3.5.1	Typical Gigabit Product Deployment	3-42
3.5.2	TIA-942 Standard: Basic Data Center Topology	3-48
4.1.1	Silica Micro-channels on a Chip	4-3
4.2.1	Vertical Furnace used for LPCVD	4-23
4.2.2	Fire Resistance Test Furnace	4-25
4.2.3	Planar Waveguide Polishing: End & Edge Polisher	4-27
4.2.4	UV/Vis/NIR Spectrophotometer	4-31
4.2.5	Oscilloscope	4-33
4.2.6	Ion Exchange System	4-34
4.2.7	Prism Coupling Measurement System	4-36
4.2.8	Prism Coupling Measurement, by Material Type	4-37
4.2.9	Wafer Stepper	4-43
4.2.10	Components: Photolithography System	4-45
4.3.1	Single-mode PLC Splitter Compact Device	4-47
4.3.2	Single-mode PLC Splitter Compact Device	4-48
4.4.1	PLC Splitter Module	4-53
4.4.2	Planar Lightwave Circuit (PLC) splitter modules	4-54
5.2.1	1XN PLC Optical Splitter Chips	5-10
5.2.2	2 x16 PLC Splitter Module	5-15
5.2.3	Compact Drop Closure for FTTH Premise	5-16
5.2.4	PLC Splitters	5-23
5.2.5	PLC Splitter Compact Devices	5-30
5.2.6	1x8 and 1x16 PLC Splitter Compact Devices	5-33
5.2.7	1x128 PLC Splitter	5-39
5.2.8	PLC Splitters	5-43
5.2.9	PLC Splitter Chips	5-44
5.2.10	1x8 PLC Splitter Module with Fiber Cable/Connector Assembly	5-47
6.1.1	Market Research & Forecasting Methodology	6-4

## List of Tables

1.3.1	Minimum & Ideal Speeds Necessary for Popular Applications	1-28
1.5.1.1	IEEE 802.3ba 40G/100G - Physical Layer Specifications	1-80
2.1.1	Polymer Photonic Technology & Components Examples	2-17
2.2.1	PLC Splitter Chips Global Forecast, by Region (\$Million)	2-36
2.2.2	PLC Splitter Chips Global Forecast, by Region (Quantity/Units)	2-37
2.2.3	PLC Splitter Chips Global Forecast, by Split Configuration (\$Million)	2-39
2.2.4	PLC Splitter Chips Global Forecast, by Split Configuration (Quantity/Units)	2-40
2.2.5	PLC Splitter Chips Global Forecast, by Split Configuration (Price, \$ Each)	2-40
2.3.1	PLC Splitter Compact Device Global Forecast, by Region (\$Million)	2-41
2.3.2	PLC Splitter Compact Device Global Forecast, by Region (Quantity/Units)	2-42
2.3.3	PLC Splitter Compact Device Global Forecast, by Split Configuration (\$Million)	2-45
2.3.4	PLC Splitter Compact Device Global Forecast, by Split Configuration (Quantity/Units)	2-46
2.3.5	PLC Splitter Compact Device Global Forecast, by Split Configuration (Price, \$ Each)	2-46
2.4.1	PLC Splitter Module Global Forecast, by Region (\$Million)	2-48
2.4.2	PLC Splitter Module Global Forecast, by Region (Quantity/Units)	2-48
2.4.3	PLC Splitter Module Global Forecast, by Split Configuration (\$Million)	2-52
2.4.4	PLC Splitter Module Global Forecast, by Split Configuration (Quantity/Units)	2-53
2.4.5	PLC Splitter Module Global Forecast, by Split Configuration (Price, \$ Each)	2-53
3.1.1	PLC Splitter Chips Global Forecast, by Application (\$Million)	3-4
3.1.2	PLC Splitter Chips Global Forecast, by Application (Quantity/Units)	3-4
3.1.3	PLC Splitter Compact Device Global Forecast, by Application (\$Million)	3-5
3.1.4	PLC Splitter Compact Device Global Forecast, by Application (Quantity/Units)	3-6
3.1.5	PLC Splitter Module Global Forecast, by Application (\$Million)	3-7
3.1.6	PLC Splitter Module Global Forecast, by Application (Quantity/Units)	3-7
3.2.1	PLC Splitter Chips in FTTx/Telecom Global Forecast, by Split Configuration (\$Million)	3-15
3.2.2	PLC Splitter Chips in FTTx/Telecom Global Forecast, by Split Configuration (Quantity)	3-15
3.2.2	PLC Splitter Chips in FTTx/Telecom Global Forecast, by Split Configuration (Price, \$)	3-16
3.2.4	PLC Splitter Device in FTTx/Telecom Global Forecast, by Split Configuration (\$Million)	3-17
3.2.5	PLC Splitter Device in FTTx/Telecom Global Forecast, by Split Configuration (Quantity)	3-18
3.2.6	PLC Splitter Device in FTTx/Telecom Global Forecast, by Split Configuration (Price, \$)	3-18
3.2.7	PLC Splitter Module in FTTx/Telecom Global Forecast, by Split Configuration (\$Million)	3-19
3.2.8	PLC Splitter Module in FTTx/Telecom Global Forecast, by Split Configuration (Quantity)	3-20
3.2.9	PLC Splitter Module in FTTx/Telecom Global Forecast, by Split Configuration (Price, \$)	3-20
3.3.1	PLC Splitter Chips in CATV Global Forecast, by Split Configuration (\$Million)	3-23
3.3.2	PLC Splitter Chips in CATV Global Forecast, by Split Configuration (Quantity)	3-24
3.3.2	PLC Splitter Chips in CATV Global Forecast, by Split Configuration (Price, \$)	3-24
3.3.4	PLC Splitter Device in CATV Global Forecast, by Split Configuration (\$Million)	3-25
3.3.5	PLC Splitter Device in CATV Global Forecast, by Split Configuration (Quantity)	3-26
3.3.6	PLC Splitter Device in CATV Global Forecast, by Split Configuration (Price, \$)	3-26
3.3.7	PLC Splitter Module in CATV Global Forecast, by Split Configuration (\$Million)	3-27
3.3.8	PLC Splitter Module in CATV Global Forecast, by Split Configuration (Quantity)	3-28
3.3.9	PLC Splitter Module in CATV Global Forecast, by Split Configuration (Price, \$)	3-28
	NOTE: SEE EXCEL ELECTRONICAST WORKSHEETS FOR REGIONAL MARKET DATA	
3.4.1	PLC Splitter Chips in Test/Measurement Global Forecast, by Configuration (\$Million)	3-31
3.4.2	PLC Splitter Chips in Test/Measurement Global Forecast, by Configuration (Quantity)	3-32
3.4.2	PLC Splitter Chips in Test/Measurement Global Forecast, by Configuration (Price, \$)	3-32
3.4.4	PLC Splitter Device in Test/Measurement Global Forecast, by Configuration (\$Million)	3-33
3.4.5	PLC Splitter Device in Test/Measurement Global Forecast, by Configuration (Quantity)	3-34
3.4.6	PLC Splitter Device in Test/Measurement Global Forecast, by Configuration (Price, \$)	3-34
3.4.7	PLC Splitter Module in Test/Measurement Global Forecast, by Configuration (\$Million)	3-35
3.4.8	PLC Splitter Module in Test/Measurement Global Forecast, by Configuration (Quantity)	3-36
3.4.9	PLC Splitter Module in Test/Measurement Global Forecast, by Configuration (Price, \$)	3-36
3.5.4	PLC Splitter Chips in Private Enterprise Global Forecast, by Configuration (\$Million)	3-49
3.5.5	PLC Splitter Chips in Private Enterprise Global Forecast, by Configuration (Quantity)	3-50
3.5.6	PLC Splitter Chips in Private Enterprise Global Forecast, by Configuration (Price, \$)	3-50

## List of Tables – Continued

3.5.7	PLC Splitter Device in Private Enterprise Global Forecast, by Configuration (\$Million)	3-51
3.5.8	PLC Splitter Device in Private Enterprise Global Forecast, by Configuration (Quantity)	3-52
3.5.9	PLC Splitter Device in Private Enterprise Global Forecast, by Configuration (Price, \$)	3-52
3.5.10	PLC Splitter Module in Private Enterprise Global Forecast, by Configuration (\$Million)	3-53
3.5.11	PLC Splitter Module in Private Enterprise Global Forecast, by Configuration (Quantity)	3-54
3.5.12	PLC Splitter Module in Private Enterprise Global Forecast, by Configuration (Price, \$)	3-54
3.6.1	PLC Splitter Chips in Harsh Environment Global Forecast, by Configuration (\$Million)	3-56
3.6.2	PLC Splitter Chips in Harsh Environment Global Forecast, by Configuration (Quantity)	3-57
3.6.2	PLC Splitter Chips in Harsh Environment Global Forecast, by Configuration (Price, \$)	3-57
3.6.4	PLC Splitter Device in Harsh Environment Global Forecast, by Configuration (\$Million)	3-58
3.6.5	PLC Splitter Device in Harsh Environment Global Forecast, by Configuration (Quantity)	3-59
3.6.6	PLC Splitter Device in Harsh Environment Global Forecast, by Configuration (Price, \$)	3-59
3.6.7	PLC Splitter Module in Harsh Environment Global Forecast, by Configuration (\$Million)	3-60
3.6.8	PLC Splitter Module in Harsh Environment Global Forecast, by Configuration (Quantity)	3-61
3.6.9	PLC Splitter Module in Harsh Environment Global Forecast, by Configuration (Price, \$)	3-61
	NOTE: SEE EXCEL ELECTRONICAST WORKSHEETS FOR REGIONAL MARKET DATA	
5.2.1	PLC Splitter Manufacturing Product-Line / Features	5-35
8.1	PLC Splitter Applications ElectroniCast Database Hierarchy	8-2
8.2	PLC Splitter Split Ratio Configuration ElectroniCast Database Hierarchy	8-2