

BENTLEY® FIBER™

Design and Management of Fiber Outside Plant Networks

Bentley® Fiber™ is a comprehensive solution for designing, documenting, and maintaining outside plant fiber networks. It accommodates all the requisite fiber architectures, including FTTx, in a geospatial solution that provides for detailed engineering calculations performed interactively during the design process. Bentley Fiber includes capabilities for land base development, strand mapping, and duct management to complete the geospatial engineering solution.

Complete Network Documentation and Design

Bentley Fiber uses a graphical routing process based on existing land base and strand map information, such as poles and pedestals, to build an intelligent geospatial model of the fiber and related outside plant. Bentley Fiber enables users to place equipment, layout, edit, and design the fiber along with color-coded cross-sections based on buffer tube or ribbon fiber. Engineering standards are configurable and users can easily assign optical system names and bandwidth, as well as identify fibers with owner information and status. The fiber model can be traced and analyzed at the sheath and fiber level. Optical System names are automatically rippled throughout the network when fibers are connected or disconnected. Loss budget calculations, including those typical in FTTx scenarios, are an integral part of the design process. Capabilities for documenting underground conduit and network are provided including the ability to produce elevations, wall diagrams, and cross-section views. Bentley Fiber can also generate bills of materials, reel ordering, and detailed splicing documentation for use in downstream work processes.

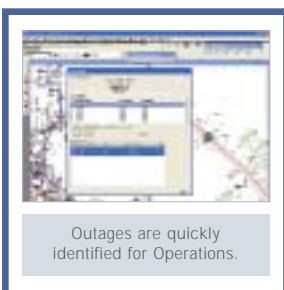
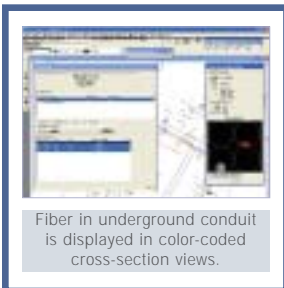
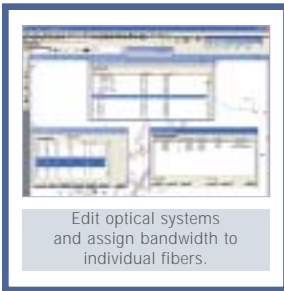
Reap the Benefits of an End-to-End Network Model

The connected model allows for detailed engineering calculations such as fiber loss budget analysis or optical coupler optimization, performed on one geographic area or across the entire network. Bentley Fiber is fully integrated with Bentley® Inside Plant™, a product for the design and documentation of inside plants found at head-ends, points-of-presence, central offices and other sites. End-to-end network connectivity from outside to inside plant is maintained allowing the network to be traced from the customer to the port(s) that feeds them. Connectivity between inside plant and outside plant allows termination points of any inside or outside device to be queried. Queries include finding all the outside plant cabinets being fed by a specific laser in a wire center or an OSP engineer might use the model to determine the specific rack, row, shelf, slot and port in the inside plant where a fiber terminates.

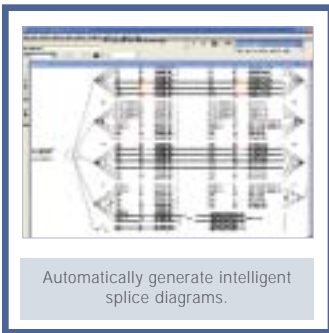
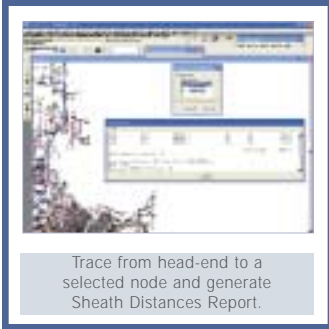
The network model facilitates working hand-in-hand with existing OSS systems. Operations personnel benefit from integration with network monitoring when fiber faults are visually located on the detailed fiber maps created by Bentley Fiber. They can also take advantage of the readily available, detailed, up-to-date network information found in the fiber database. The information may be used in field applications such as work force management or in any of the upstream processes, such as network provisioning.

Manage and Publish Critical Network Information

Bentley Fiber embraces products for a Bentley's Geospatial Managed Environment, which allows maps, engineering documents or drawings to be spatially related to the fiber network model. Using Bentley® Geo Web Publisher™, information created by Bentley Fiber may be queried and published through a Web browser to internal and external users, who require varying levels of access to the network information. For example, fiber cross-sections and bandwidth levels can be reviewed by personnel that require detailed system information or fiber routes and customer locations may be queried and viewed by individuals requiring more general information.



BENTLEY FIBER AT-A-GLANCE



BENTLEY FIBER SYSTEM REQUIREMENTS

- Processor: Intel Pentium-based or AMD Athlon-based PC or workstation
- Operating System: Microsoft Windows 2000 (SP2 or higher recommended), Windows XP, Windows NT 4 (SP6 recommended)
- Prerequisite Application: MicroStation and Oracle
- Memory: 256 MB
- Hard Disk: 200 MB minimum free disk space
- Input Device: Mouse or digitizing tablet
- Output Device: Most industry-standard devices are supported. Works with output devices supported by Windows
- Video: Supported graphics card. Dual-screen graphics supported with vendor-supplied drivers for Windows NT 4. Multi-monitor configurations supported with Windows 2000 and Windows XP

Fiber Design and Documentation

- Automatic routing function traces strand for quick operator input
- Connectivity Maintenance during Creation and Edit
- Equipment Model Validation
- Easy assignment of optical system name and description to a grouping of fibers
- Optical Systems Manager allows for circuit allocation and bandwidth management on an individual fiber basis
- Full network connectivity between outside plant and inside plant documented with Bentley Inside Plant

Configurable Equipment Standards

- Easy-to-use equipment GUI
- Define detailed database and graphical properties
 - Spans
 - Fibers (both buffer tube and ribbon)
 - Sheath information
 - Nodes
 - Splice enclosures
 - Splice types (mechanical, fusion, others)
 - Headends/buildings
 - Patch panels/Fiber Distribution Panels (FDPs)
 - Slack loops

Integrated Strand Mapping

- Configurable specifications
- Land base and structure creation
- Addresses automatically associated to structures
- Utilize address information from billing systems
- Support for multiple output map products

Duct Management

- Route and manage conduit and bundles
- Assign ownership
- Elevation views
- Cross-sections
- Wall diagram reports

ABOUT BENTLEY

Bentley Systems, Incorporated provides software for the lifecycle of the world's infrastructure. The company's comprehensive portfolio for the building, plant, civil, and geospatial vertical markets spans architecture, engineering, construction (AEC) and operations. With 2003 revenues reaching \$260 million, Bentley is the leading provider of AEC software to the Engineering News-Record Design 500 and major owner-operators.

For more information, visit www.bentley.com or call 1-800-BENTLEY.

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Analysis

- End-to-end tracing at sheath and fiber level
- Perform engineering calculations by area or entire network
- Fiber loss budget analysis
- Optical coupler optimization
- Rippling/throwing of optical systems or circuits

Operations Functions

- Locate outage
- Locate device
- Locate customer
- Locate slack
- Integration with network monitoring, work force management, and other OSS Systems

Reports and Splicing Diagrams

- Splice diagrams and associated reports
- Equipment report
- Device information report
- Device bill of materials
- Sheath bill of materials
- Reel bill of materials

Supported Architectures

- FTTP
- FTTH
- FTTx
- HFC
- FITL
- LAN/WAN
- Metropolitan
- Long-haul
- SONET/ATM