Fiber to the Home

LiSA fiber to the home

HUBER+SUHNER
Excellence in Connectivity Solutions

Connecting reliable, fast and easy

Your partner for system solutions
The HUBER+SUHNER Group is a leading global supplier
of components and systems for electrical and optical
connectivity. We offer technical expertise in radio frequency
technology, fiber optics and low frequency technology under
one roof, thus providing a unique basis for continual innova-
tions focused on the needs of our customers all over the world.

At the heart of our offering is a broad range of products that
can be relied upon to meet high quality standards, backed
up by flexible, dependable services with fast response times
worldwide. We concentrate on complex applications that
allow us to stand out by adding value with special product
features, customer-specific innovations, engineering and other
services.

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Fiber optic is touching our life

Fiber to the Home (FTTH) and Fiber in the Home (FITH) revolutionise the way people live, work and play. The vast bandwidth capability of fiber optics has opened new doors for operators, service providers and developers who are eager to capitalise on the service delivery and revenue opportunities only fiber can deliver. Users themselves are pulling through the demand for higher performance networks through the increase in video streaming, game playing, IP telephony and 3D-television (3D-HDTV). Whichever way you look at it, FTTH is the only architecture capable of delivering both the revenue and service packages demanded by operator and end-users alike.
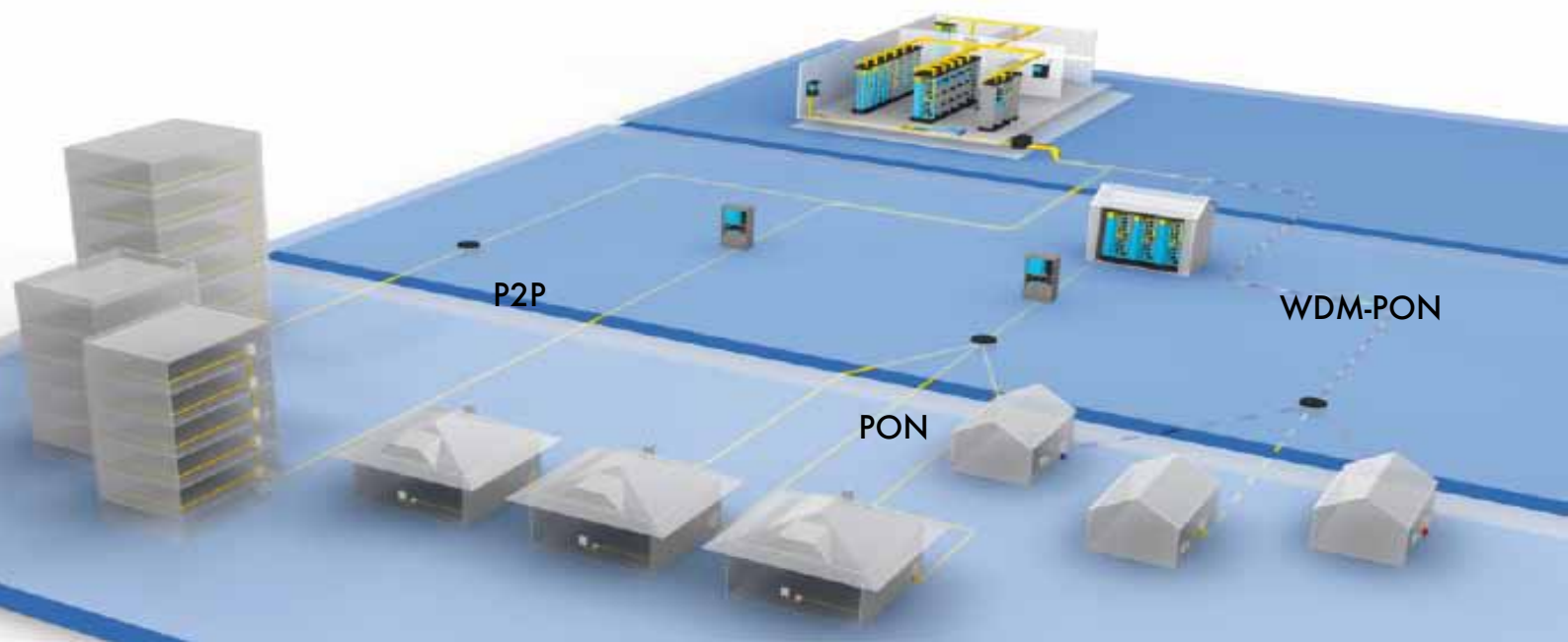
Point-to-Point (P2P)

The P2P topology utilises a single fiber directly from the central office to the-end user. This approach requires a large quantitiy of fibers and subsequently high density Optical Distribution Racks (ODR). The LiSA system offers 2000+ fibers per ODR making it ideally suited to P2P topologies. Combined with the Equipment Distribution Rack (EDR) and the fiber containment system, customers can benefit from a turn-key solution dedicated to managing fibers between passive and active racks.

Passive Optical Network (PON) - BPON, GPON, EPON

The classical PON topology uses TDM (Time Division Multiplexing) to share optical transmission signals. A single fiber can be fed from the central office and then split up to 64 times making it a cost-effective approach that doesn't rely on a fiber rich infrastructure. Focused on achieving highest bandwidth and maximum reach, HUBER+SUHNER offers high grade power splitters and Wave Division Multiplexers (WDMs) capable of being deployed in a number of different configurations and packages.

Wave Division Multiplexing PON (WDM-PON)

The WDM architecture is a PON that splits wavelengths over multiple subscribers. This approach still benefits from fewer fibers in the long-haul links but allows unlimited bandwidth potential at the customer premises.

P2P

WDM-PON

PON

Central office solutions

With a standard port count of 1080 fibers and 2160 using small form factor connectors HUBER+SUHNER's wide range of Optical Distribution Racks is industry leading for fiber density and easy handling. Ideal for central offices and POP stations, our unrivalled density offers single rack solutions where others require double or even treble the number of racks to achieve the same performance.

High density Optical Distribution Racks (ODR)

Designed in collaboration with installers and operators, the LiSA ODR incorporates many features not possible using conventional 19" cabinets and splicing panels. For example, the LiSA ODR is only 300 mm deep and its «c-shaped design» allows unrestricted access to all internal elements from the front side. This not only reduces installation and servicing time, but offers customers the opportunity to position ODRs back-to-back for double density within a 600 mm standard footprint. In addition, the c-shaped design also allows cables to be patched from the ODR directly to adjacent switch equipment without the need to enter the raised floor void or overhead containment system. This reduces CAPEX and OPEX especially in small POP stations where only a few racks are located.

LiSA ODRs are configured using modular and scalable subracks. This «building block» approach offers maximum flexibility with the option of matching fiber upgrades with customer take-up rates. LiSA termination modules support all connectivity types and offer a wide array of applications in a single generic footprint so that one product covers all existing and future customer requirements.

Bend radius control and dedicated fiber routing is fundamental to our design principle and helps to prevent unnecessary operational costs through poor traceability, long installs and periodic failures.

This combination of performance and handling makes the LiSA system the number one solution for P2P or PON networks.

«Seamless moves, adds and changes through exceptional high density fiber management»

Equipment Distribution Rack (EDR)

FTTH networks are «fiber-rich». HUBER+SUHNER has developed the EDR to reduce cable chaos that occurs when high numbers of fibers are connected between ODR and nearby switches or routers. Based around a c-shaped construction, the EDR offers maximum fiber handling and storage space with the additional benefit of «in-rack cable routing» should multiple racks be bayed side by side. This ability to store patch cables in the equipment rack not only improves the quality of installations but also reduces the amount of different cable lengths required to link two or more racks.

The close family connection between EDR and ODR means that for the first time, FTTH customers can benefit from a truly optimised solution in their central offices and POP stations. The reduction of compatibility problems and resulting cable congestion will lead to a higher performance network with substantial operational savings over time.

Fiber containment

Fiber containment provides a safe and effective routing system for fiber optic cables within FTTH central offices or POP stations, and ensures that Moves, Adds and Changes (MACs) are carried out in an organised and methodical way. Unlike conventional cable baskets, fiber containment encapsulates the fiber optic cables within a fire resistant material and ensures that a minimum bend radius of 30 mm is maintained at every junction point in the network. These features extend the recovery time in disaster situations but more importantly ensure that planning and installation costs are kept to an absolute minimum.

«Improved planning, installation and traceability of fibers in high density equipment racks»

Cables and cable systems

HUBER+SUHNER designs and manufactures a wide variety of indoor and outdoor cables with the highest quality materials and performance criteria. Each cable design is application driven. The quality products are safe and easy to install.

To complement the LiSA installation products, HUBER+SUHNER also has a wide portfolio of installer-friendly «plug-and-play» cable systems called MASTERLINE and SMARTLINE. These cables can be fully customised and offer high density pre-connectorised links between fiber optic panels or fiber optic panels and equipment racks. With such cable systems installation times can be reduced by 75 % with a substantial reduction also in the need for costly splicing and testing.

Within the FTTH market, those cable systems are often used to create simple links between splicing shelves and nearby patch panels. Such a design not only provides a safe demarcation point in the network but also creates a structured system whereby large quantities of fibers can be spliced and presented to a convenient patch panel at the beginning of the network roll-out.

HUBER+SUHNER also has developed many cable systems specifically for FTTH applications where flexibility and cost are important drivers. To address this cost issue, HUBER+SUHNER has developed cables that focus on reducing installation times and OPEX. The xpressPATCH system allows installers to splice ruggedised pigtails directly into the ODR and run these protected pigtails out to equipment ports. This system is very fast to install and reduces much of the cost present in systems where pigtails are spliced onto fibers and then patchcords routed to equipment racks.

«Plug-and-play – easy to connect»

Outside plant

LiSA street cabinets offer the same degree of flexibility and modularity available from our Central Office Optical Distribution Racks. Standard subracks and modules can be integrated in many different configurations so as to construct customer-specific solutions independent of chosen network topology. The overall construction of the cabinet considers environmental constraints such as wide temperature ranges without compromising performance. A number of different connection methods can be incorporated into the cabinet such as splitter solutions for PON, wave guides for WDM-PON or high density P2P distribution and Customer Premises Terminations.

Splitters for PON networks
HUBER+SUHNER offers a wide range of power splitters for P2MP networks from 2 to 64 output fibers. Aimed at the classic PON environment, our splitters can be supplied as components only or as LiSA modules.

WDM devices
WDM devices are generally placed in the outside plant environment and can be used to combine analogue TV and data transmissions over a single fiber to the end-user. New technologies enable economically multiplexing and de-multiplexing of light as many as 32 times over a single fiber – known as the «WDM PON» topology. The flexibility of the LiSA system means that «PON» solutions can be combined with P2P solutions in the same optical distribution frame if required, making it the perfect choice for hybrid FTTH networks.

POP solutions
Providers want to be close to the end-user while offering competitive services. The common approach especially for municipalities is to design and construct purpose-made cabins for housing their passive and active equipment close to the end-user. Such cabins or POPs (Point Of Presence) can be pre-equipped with all of the necessary hardware, air conditioning and security features and then delivered to site as a turn-key solution. Because of their small size, HUBER+SUHNER's highest density LiSA ODRs are the perfect product for POPs because they can be easily adjusted to suit the limited space whilst providing the highest amount of possible customer connections.

«High performance splitters and WDM systems for maximum reach and optimum performance»

Customer Premises

LiSA OptiBox stands for compact, multi-functional wall boxes designed to simplify the installation and servicing of fiber optics inside or outside a customers premise. The ergonomic design of the OptiBox means that it is quick and easy to install whilst remaining sympathetic to the domestic environment in which it is placed. Available in different IP classifications, the OptiBox can be upgraded so that optical performance is maintained even in the harshest environments.

Understanding that our customers require a scalable product with maximum flexibility, HUBER+SUHNER has developed the OptiBox to suit all network topologies and scenarios. In PON networks it can be used to house splitters or WDM devices and in P2P networks, a wide range of termination methods can be facilitated such as fusion splicing, blown-fiber and pre-termination. As with all LiSA products, the OptiBox includes features which reduce installation times yet maintain the highest level of bend-radius limitation and fiber protection.

«Cost-effective subscriber terminations from a flexible, multi-functional wall box»

Fiber in the Home (FITH)

User applications like HD and 3D TV, video-on-demand, online gaming, cloud computing, home offices, e-health, intelligent buildings as well as the need for fast internet (upload and download) require more and more bandwith performance.

Fiber optic is the only network solution that copes with all these challenges – today and more important in the future. Fiber in the Home (FITH) secures the cabling with fiber optic within a building. Thus FITH is a part of FTTH, the network architecture that connects data centers with subscribers using fiber optic conductors. Actually, buildings all over the world are connected to the fiber optic network – FITH is simply the logical continuation to the end-user.

FITH – Solutions for the most recent needs
FITH creates new challenges: service providers, installers, architects, house owners, dwellers and consumers converge – every target group with different needs. That's the reason why it makes sense to contemplate FITH separately.

Due to this setting HUBER+SUHNER has developed products and system solutions that are specifically tailored to those needs. New revolutionary connectors and fiber optic cables enable a secure, fast and easy installtion in buildings without having to consider the bend radius or the diameter of the pipe systems. Thus, the connection with fiber optic from the building entry point to the customer premises equipment becomes a simple and reliable matter.

«FITH requires solutions that suit the end-user's needs»

Services

Our many years of experience and highly diversified know-how ensure that our customers' requirements are implemented effectively and reliably. We provide comprehensive services starting from the design stage to the completed system solution, and the experience we have gained in major European rollouts enables us to consult our customers on the right product choice, method of installation and even topology.

HUBER+SUHNER will tailor-made products to suit individual requirements and our large in-house development team ensures that time to market is not compromised by complex engineering constraints. This corporate philosophy has helped us to fine-tune our products so that they are optimised specifically for the FTTH market. Product prototypes can be designed and supplied within very short timescale allowing our customers to field trial solutions prior to complete network integration.

Training is very important for the success of a FTTH network especially in cases where the network owner is more familiar with selling utilities such as electricity and gas rather than services over fiber. HUBER+SUHNER understands this issue and consequently we offer all levels of training to both planners and installers within the FTTH market. Either on-site or within customers own premises, we will tailor our training to suit the individual needs and skill sets of our clients. Certified installer programmes can also be facilitated for those companies wishing to represent the HUBER+SUHNER quality brand.
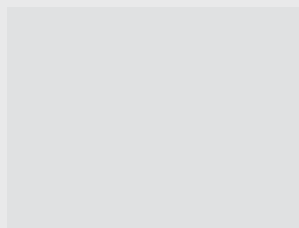
«Peace of mind from a trusted and experienced partner»

HUBER+SUHNER is certified according to ISO 9001 and ISO 14001.

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