# Rosenberger

## FTT-ACP: Ready for the future in building cabling

Planners of cabling for offices and buildings have to keep their eyes on technological progress. Bandwidths are constantly increasing in order to permit faster data transmission, creating the need for network components with better performance.

All of this is being driven by the digitalization of business processes. Here maximum flexibility and efficiency are essential, along with the ability to adapt easily to future requirements. FTT-ACP makes this possible.

## Definition PerCONNECT® EcoFlex'IT**TM** and FTT-ACP

PerCONNECT® EcoFlex'IT™ is an innovative network architecture based on Ethernet technology with considerable cost-cutting potential and a high degree of flexibility.

PerCONNECT® EcoFlex'IT™ is an extension of PerCONNECT®, Rosenberger OSI's product line for passive LANs. It features active components and an innovative overall concept that focuses on cost-effectiveness and flexibility, whether it's a matter of installing new networks or expanding existing ones.

As the name indicates, EcoFlex'IT™ puts a special emphasis on economy and flexibility.

The central element of this system is the ACP (active consolidation point), which is connected to the backbone with preassembled fiber optic cabling. Its key component is a passively cooled industry switch. The ACP distributes data in the close tertiary area (approx. 20 meters) via preassembled copper trunks or copper patch cables to office workstations or the general IT connection point.

FTT-ACP (fiber to the active consolidation point) is based on an innovative form of structured Ethernet cabling in the backbone with a ring configuration and thus a redundant design. FTT-ACP shifts the emphasis to advanced fiber optic technology and reduces copper cabling to the necessary minimum. This cuts costs and conserves resources. The advantages of both technologies are combined for an optimum result. Active copper technology, which is inexpensive, easy to handle and efficient, is used for connection of terminal devices, and fiber optic technology, with its high performance, low space requirements and flexibility, is used in the backbone.

PerCONNECT® EcoFlex'IT**TM** is a complete system consisting of active and passive components that can be adapted to any building situation, making it ideal for business locations designed from scratch. It is also extremely flexible for installation of networks in existing buildings that offer little scope for modifications or that can only be modified at great expense.
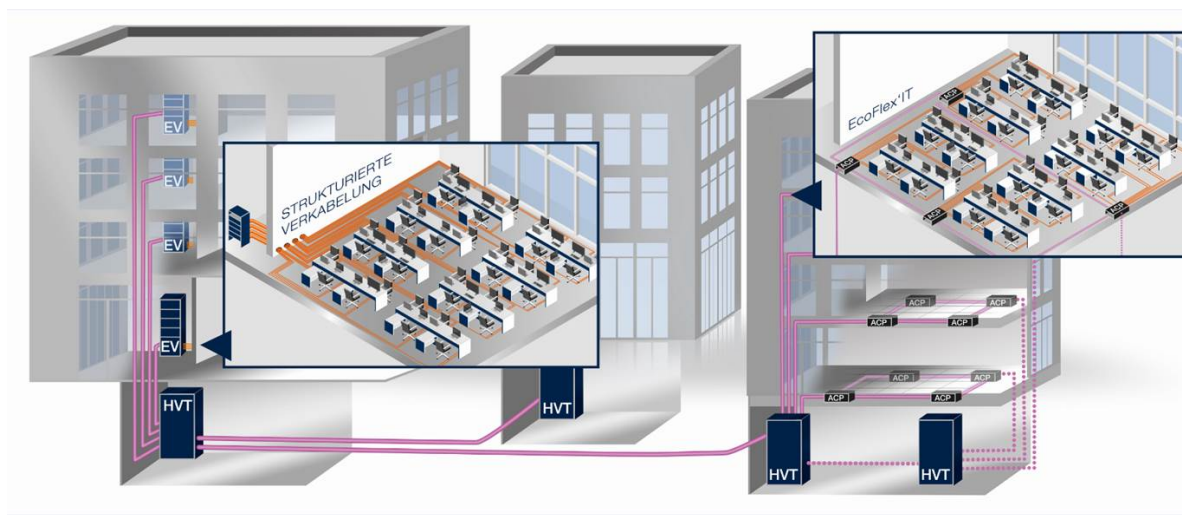


Comparison: structured cabling and cabling with PerCONNECT® EcoFlex'IT™

# What advantages does the PerCONNECT® EcoFlex'IT**TM** concept offer?

## 1. Economy

FTT-ACP (fiber to the active consolidation point) is based on an innovative form of structured cabling that focuses on

- ▪ Optimizing the total costs of data cabling
- ▪ Reducing fire loads
- ▪ Cutting back on the use of resources

Switches in the ACP separate the backbone, which uses fiber optic technology, from the connections to terminal devices, which use copper technology. The ACP panel is installed near the workstations (e.g. in a wall, raised floor or ceiling) so that the tertiary copper lines are no longer than about 20 m. This reduces the fire load by a good 2/3, cuts the cost of tertiary copper cabling and conserves raw material resources that consume energy through manufacture, transport, storage and disposal (gray energy).

By reducing the volume of tertiary cabling, FTT-ACP cabling has other positive effects as well. Savings are achieved for infrastructure components like cable conductors, cable gutters, cable channels, etc., because they do not have to be as generously dimensioned as with conventional cabling. The same applies to the number and size of fire barriers.

All cables, both fiber optic and copper, are preassembled. PerCONNECT® EcoFlex'IT™ thus means genuine plug & play installation: lay the ready-made cables, connect them, and you're done.

Depending on the project, the installation time can be reduced by up to 50 %. In today's world that can mean a lot.

The ACP can be installed in a wall, raised floor or ceiling, permitting further savings. A special room for IT on the same floor is no longer required. Space in the building can be used more efficiently.
In the ACP the tertiary copper cables are usually connected directly to the switch, with no additional distribution panel or patch cables. This permits further savings.

Industrial switches with passive cooling (no fan) are a basic requirement for ACP panels. They are robust, require less maintenance and consume less energy (approx. 50 %) than conventional switches. Network operating expenditures are consequently lower. Moreover, with FTT-ACP cabling extension can be limited to what is necessary at the given time; later extension and retrofitting are easy because the tertiary copper cabling is short. In contrast, with conventional structured cabling one must know exactly how the building will be used and where endpoints for data will be needed. Later installation is very expensive (new cable routing infrastructure, opening and closing of fire barriers, etc.). As a rule, later installation costs two to three times as much as initial installation.



PerCONNECT® EcoFlex'IT™ floor housing

# 2. Flexibility

## 2.1 Flexibility in general

As already mentioned, PerCONNECT® EcoFlex'IT™ can be adapted as a system to any building situation. It is ideal for installing networks in new buildings and in existing ones that offer little room for modifications. PerCONNECT® EcoFlex'IT™ structures can be integrated anywhere, with little expense for planning, revision of planning and installation.

If it has not yet been determined how a building or part of a building will be used, or if its use will change over the course of time, the following scenarios are conceivable:

- ▪ The building can be equipped with basic PerCONNECT® EcoFlex'IT™ fiber optic cabling, leaving open the option for flexible retrofitting of the ACP (very short tertiary cables).

- ▪ If parts of a building are modified at a later time (through addition or relocation of walls), ACPs that are already installed can easily be repositioned or even assigned to separate networks. With conventional structured cabling, in contrast, these changes can be very expensive. The problem is especially difficult when a building is used by several parties, each of which wants to operate its own network or is required to do so. There are no such obstacles for PerCONNECT® EcoFlex'IT™ owing to its highly flexible FTT-ACP structure.

ACP panels come in various kinds, allowing them to be integrated into elegant architectural settings without detracting from the overall appearance.




Pictures: InGeTel

The flexibility of PerCONNECT® EcoFlex'IT™ makes it a highly attractive alternative to conventional structured cabling, whether for very large data networks or small standalone systems.

## 2.2 Flexibility and safeguarding of investments

In addition, the structure of PerCONNECT® EcoFlex'IT™ makes it a very good means of safeguarding an investment. The ACP and tertiary cabling can be deinstalled with very little effort because they use only short preassembled copper trunk cables and copper patch cables.

Modifying an installation is just as easy as initial installation. By comparison, with conventional structured cabling and copper cables up to 90 m in length, it is almost impossible to deinstall a network and then reuse the tertiary copper cabling.

### 2.3 Flexibility when extending a network

The flexibility of PerCONNECT® EcoFlex'IT™ also comes in useful when a network is extended during ongoing operation.
Thanks to the ACP concept, installation can be carried out separately in the new area without disturbing other parts of the network.

The other parts are only briefly affected when the backbone is connected. In contrast, with conventional structured cabling, existing workstations are almost always adversely affected during the extension phase.

### 2.4 Flexibility when upgrading cabling

Although passive networks can be used for a long time, almost every business eventually faces the fact that its cabling has to be upgraded because of changed requirements.

PerCONNECT® EcoFlex'IT™ is installed almost independently of the existing cable infrastructure and fire barriers, with the result that it can be upgraded without problems.

### 2.5 Flexibility and coexistence of different network architectures

Moreover, PerCONNECT® EcoFlex'IT™ can be integrated at any time into an existing structured network. The old network doesn't have to be reconfigured, and the two structures can easily coexist as a whole. PerCONNECT® EcoFlex'IT™ makes use of active and passive standard components that are also available for structured networks and used in them.

PerCONNECT® EcoFlex'IT™ can in principle have any topology (ring, star, bus). Different topologies can also be mixed.

The following structures with the same or different switch products in the access and core area, with or without redundant connection to the core switch, are possible.
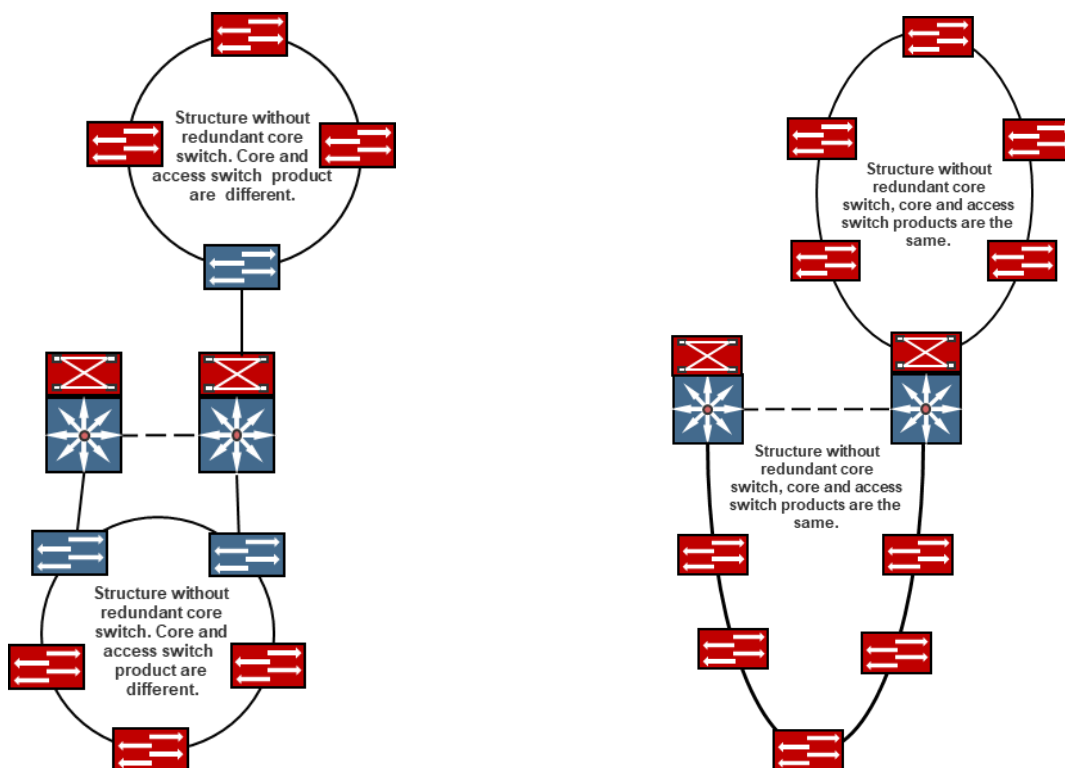
## 2.6 Flexibility thanks to redundancy

Thanks to the redundant design, the network ring can be cut during operation for extensions or modifications without causing downtimes. PerCONNECT® Eco-Flex'IT™ structures usually include several ACP switches. Each ring has a fiber optic connection and a redundant fiber optic connection to the building distribution frame.

A ring thus provides a shared medium for all connected office workstations and all other IP applications.

The shared medium has more than sufficient performance for the participants in the ring because it easily handles 100 Mbit/s, the rate currently required by office workstations. If power workstations with a higher data throughput are needed, their area can easily be separated from the ring and added to the overall system as a special high-performance ring.

## 2.7 Flexibility for future applications

Data rates in LAN backbones can be expected to rise as well. In a PerCONNECT® EcoFlex'IT™ network one can make provision for this now by planning for single-mode fibers or at least using multimode OM4 fibers.

Additionally, one should make sure that the ACP has an active port for the backbone with at least 8 fibers (4 channels), making it ready for coming parallel applications. With these basic rules, LAN backbones are prepared for the future.

## To sum up:

For those who want a cost-effective, flexible network design that is ready for the future, there is a solution today: PerCONNECT® EcoFlex'IT™ .

**About Rosenberger OSI:**

Since 1991, Rosenberger Optical Solutions & Infrastructure (Rosenberger OSI) has been an expert in innovative fiber optic cabling infrastructure and service solutions for Datacom, Telecom and Industrial.

The products and services can be found wherever largest amounts of data have to be transferred quickly and securely. In addition to the development and production of a broad portfolio of fiber optic and copper cabling systems, Rosenberger OSI also offers a variety of services such as planning, installation and maintenance of cabling infrastructure. Rosenberger OSI employs about 600 people in Europe and has been a part of the globally operating Rosenberger Group since 1998, a worldwide leading provider of high-frequency-, high-voltage-, and fiber-optic-connection solutions headquartered in Germany.

For further information, please visit: www.rosenberger.com/osi

## Rosenberger

**Rosenberger-OSI GmbH & Co. OHG**

Optical Solutions & Infrastructure | Endorferstr. 6 | 86167 Augsburg | GERMANY | Phone: +49 821 24924-0 | info-osi@rosenberger.com | www.rosenberger.com/osi

Created: 25.07.2018
Valid since: 25.07.2018