

Fiber Optics for the Lighting World Leader

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The Philips Innovative Applications site in Turnhout enjoys an excellent reputation worldwide for its innovative products. At this location, the various buildings, where divisions such as manufacturing, logistics, and administration are located, rely on a fiber optics network. In order to enhance the network's capacity and to streamline its management, Philips Innovative Applications installed a new network based on R&M's single mode optical fiber.

Philips Innovative Applications Turnhout is the world leader in lighting technology. With some 2500 people, the company is the center of competence for the development and production of high-intensity discharge lamps and metal components for lamps. For its innovative solutions, Philips Innovative Applications Turnhout co-operates with leading research centers at home and abroad, from the concept to the manufacturing stages. There is, for example, a division for the development of theater lighting and special ultraviolet lamps for projectors and video walls, as well as a division specializing in the development of new products, processes and equipment.

However, Philips Innovative Applications Turnhout is best-known for its high-intensity discharge lamps, used all over the world. More than half of all football stadia are illuminated by Philips Innovative Applications, and nearly all Belgian roads are edged with high-intensity discharge lamps from Turnhout. The site is also a leading player in shop lighting. Established in Turnhout in 1955, it has become one of the region's major employers, with a keen eye for the relationship with its employees and its social impact on the surroundings. The city of Turnhout, for one, has used Philips Innovative Applications' expertise to enhance its city lighting, turning it into a living showroom for the company.

Going for single mode optical fiber

At its Turnhout site, Philips Innovative Applications was using a multimode optical fiber network. However, in some respects, the company's network management had



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Philips Lighting Turnhout, lamp production. Competence center for the development and production of high-intensity gas-discharge and special lamps.

become very cumbersome, while at the same time there was a clear need for a larger bandwidth as Philips Innovative Applications Turnhout wanted to be able to offer 100 Mbit for every workstation. As it proved to be impossible to achieve this with the existing multimode network, the company decided to replace its entire network by single mode fiber optics which does enable the required higher bandwidth. Philips Innovative Applications Turnhout selected Netconnect which subsequently installed R&M's cable products.

"We looked at various alternative suppliers," says Patrick Feyen, Network Manager for Philips Innovative Applications Turnhout. "Eventually, Netconnect had the best case, and the company also managed to deliver the project within the predefined time frame and within budget."

In the old setup, not all switches were directly connected to the backbone. "Actually, you had to have a pretty good idea of the connection routing if you wanted to intervene correctly if a problem occurred," Patrick Feyen explains. "In that respect, we were really looking for a way to simplify things. All sorts of devices are connected to the network: PCs, printers and servers, as well as terminal servers, PLCs, badge readers, shop floor PCs, you name it. Both the manufacturing plants and the administrative services rely heavily on the network." All in all, literally thousands of workstations are hooked up to the network, the majority of them being PC users (1500) and laptop users (1000). On top of that, the network also provides several hundred

connections for mainly manufacturing related devices.

Twenty kilometers of optical fiber

As explained, Philips Innovative Lighting Turnhout opted for single mode optical fiber for its new network because this technology offers a greater bandwidth over a longer distance. The company also seized the opportunity to initiate a thorough standardization effort by installing the same devices, connectors and other elements wherever possible. The result: a network with a performance of 1 Gbit bandwidth which can be enhanced to 10 Gbit without any changes to the cabling. It is based on two Passport 8600 Nortel core switches, supplemented by ERS 5510 server switches and ES 425 access switches, again supplied by Nortel. There is a redundant connection between the servers and the core switches. The Philips Innovative Applications Turnhout site is quite large, with cabling lengths up to 500 or 600 meters. In total, in just eight months Netconnect installed more than twenty kilometers of R&M's single mode optical fiber. The company was able to use Philips Innovative Applications' already existing cable ducts. In order to keep a perfect overview – and to speed up the repair of possible cable cuts later on – Netconnect used color-coded cables.

"The lack of bandwidth we had to cope with, is now a thing of the past," says Patrick Feyen. "We have also considerably simplified the network's management. In the old setup, trouble shooting was often a labor- and time-intensive job,



Plant by night, Philips Lighting Turnhout, Belgium. Worldwide leader in lighting technology.

for reasons such as a lack of direct connections. Today, when something goes wrong, we can trace and solve the problem more efficiently and much faster." Philips Innovative Applications Turnhout had all the active elements replaced in all the network cabinets, and all the patchings were correctly documented. "When a user now calls to tell us that a particular outlet is having a problem, we can instantly see what switch he/she is using, and whether that switch or the network or something else is the cause." To facilitate problem solving in case of cable cut, Philips Innovative Applications has provided for a sixteen-meter cable loop in each of the star points (central hubs) connecting the cables. If a cable cut does happen, that loop has enough extra cable to repair the cut.

Complex project

All in all, Netconnect installed a network with 2 star points and 33 nodes, located in the various buildings on the Philips Innovative Applications site. One of the prerequisites was the reuse of Philips Innovative Applications' existing cable ducts. Sometimes they run under the surface, at other locations an aerial platform had to be used. In addition, Philips Innovative Applications used the project to link up a new server room to the network, engaging Netconnect to connect the racks in that space as well. "Ultimately, it was a fairly complex project," Patrick Feyen explains. "It took quite a lot of planning and preparation because of course during implementation we could not have the users on site suffering any disruption."

As a result of R&M's first-rate optical fiber and the diligent implementation of the network and its connections, the site in Turnhout now truly has a future-proof network. "We expect that with the current network we will be able to cope with the increasing demand for capacity in the years to come, without having to replace any cabling, and with a possible upgrade to 10 Gbit." Of the twenty-four fibers in the single mode optical fiber cable, Netconnect has so far connected twelve. "The price for a twenty-four fiber cable was barely higher than for a twelve fiber type, and it gives us lots of spare capacity for future use."

For each of the 846 new optical fiber connection points at Philips Lighting, R&M has issued a "Summary Certificate" with 20-year warranty for the installed components and lifetime warranty for the applications.

Quote: Patrick Feyen, Network Manager for Philips Innovative Applications Turnhout: "With R&M's single mode optical fiber, we built a network which will provide us with enough capacity for the coming years. At the same time, the new network's management will be a lot simpler."

Get more

- Excellent product quality to guarantee a high-class performance network
- Investment protection due to future-proof solution (10Gbit ready)
- High modularity simplifies extensions on installed system
- Clear identification of all connections for easy maintenance
- R&M product and system warranty
- Competence and support delivered by the R&M certified installer in design, planning and logistics
- Data installations completed on time and according to planned budget

Facts & Figures

- > 20 km fiber optic installation cable SM 09/125 µm with 1600 SM pigtailed with SC connector PC polished
- 145 x 6 port SC duplex fiber liners
- 14 x 19" global patch panel 3U
- 27 x 19" patch panel 1U