



## Siemon's ConvergeIT Cabling Solution Illuminates and Optimizes Signify's New Headquarters Building

Imagine an office environment where a control system automatically schedules adequate lighting and temperature according to a person's movements and existing natural light, or where every employee can use a smartphone to personalize their lighting and ambient temperature experience. Imagine being able to locate a free meeting room or workspace based on an indoor positioning system that also reduces the need for security patrol because it can track illegal intruders. Imagine building managers having the ability to monitor energy usage and occupancy in real time and analyze the data to achieve operational savings. These scenarios are not an illusion – with a power over Ethernet (PoE)-enabled intelligent lighting system connected via a robust, high-performance IT infrastructure, buildings can truly become intelligent and efficient.

In May of 2018, Philips Lighting officially changed its name to Signify. The new China headquarters for Signify located in Shanghai Caohejing Hi-Tech park adopted PoE-enabled intelligent connected lighting technology, which fully embraces the human centric lighting and green and healthy building concept. This approach creates an innovative office space of “light beyond illumination” that has become Signify’s model for lighting applications in the Internet of Things (IoT) era – none of which would be a possibility without a robust, high-performance cabling infrastructure.

The lighting fixtures used in a Philips PoE connected lighting system are not powered via traditional ac electricity, but instead are connected via balanced twisted-pair Ethernet cables that transmit both dc power and information over the building’s IT network. The high-efficiency LED technology utilized in these lighting fixtures enables PoE to fully meet the power requirements of each lighting fixture. At the same time, the ability to reside on the network renders each lighting fixture an IoT device with its own independent IP address, enabling the collection of various operation and sensor information. In addition, connecting twisted-pair Ethernet cables directly to the fixtures eased installation at the Signify headquarters building, significantly reducing labor costs for the nearly 10,000 square meter (107,639 square foot) facility that houses approximately 1,000 employees.

“The lighting fixtures throughout our headquarters building are the core of IoT. The connected fixtures outfitted with innovative sensor technology are integrated into the information network of the entire building, providing the information to not only help save energy and increase productivity, but also to allow employees to work more conveniently and flexibly,” said Wang Hao president of Signify China.

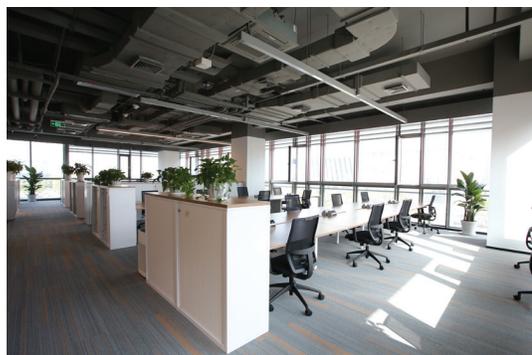
### A Heat Dissipating Cabling Solution

No PoE-enabled connected lighting system is complete without the right infrastructure to support it, which is why Signify chose Siemon’s ConvergeIT Cabling Solutions for Intelligent Buildings. ConvergeIT combines the proven quality of Siemon products with advanced copper and fiber cabling technology to converge critical data, voice, video, and low-voltage building systems onto a single, unified network infrastructure and provide superior support of PoE, ultimately delivering significant cost savings and sustainability throughout a building’s lifecycle.

The intelligent connected lighting system at Signify’s new headquarters is composed of nearly 400 PoE lights, covering several functional areas such as offices, conference rooms, training rooms and cafe areas. To accommodate the 45 Watts required at the fixture, most of these lights are powered using 60-Watt PoE technology delivered from dozens of decentralized eight-port PoE switches located in the ceiling space. How to affix and manage these ceiling PoE switches that consume anywhere from 280 to 550W was a key consideration of the project. Siemon’s certified installer (CI) proposed a zone methodology that grouped the PoE switches into five separate zones connected to overhead racks with cables that run from the switch ports directly to the light fixtures within the zone’s coverage area. This allowed for shorter, easy-to-deploy links from the switches to the fixtures.



*Signify deployed decentralized PoE switches segregated into five separate zones with cables that run from the switch ports directly to the light fixtures within each zone’s the coverage area.*



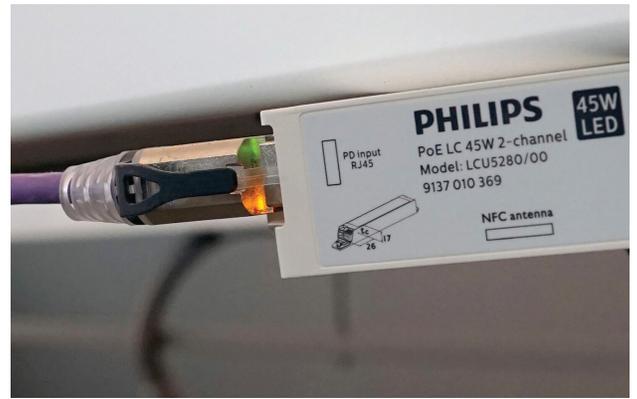
Temperature rise within cable bundles transmitting PoE can increase insertion loss and adversely impact transmission performance or exceed a cable’s operating temperature and cause premature aging of dielectric materials. Consequently, industry standards require channel insertion loss length de-rating at elevated temperatures and bundling restrictions on the amount of cables that can be bundled together. In consideration of temperature rise, Signify decided to use Siemon’s Category 6A shielded cables that offer greater thermal stability via better heat dissipation due to its shielded construction and a higher temperature rating of 75°C. Not only do these cables significantly reduce the impact of cable temperature rise and the degradation of transmission performance, they also result in fewer bundling restrictions and less insertion loss derating.

## A Cost-Effective Connection Method

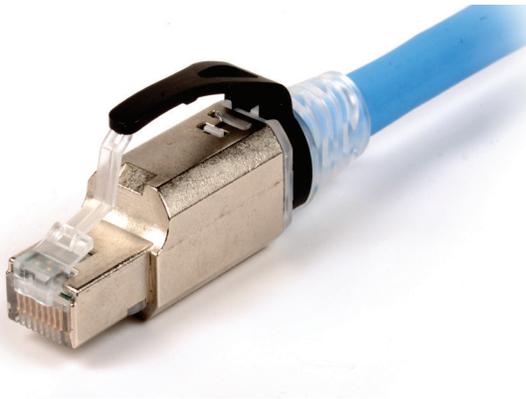
In a traditional network infrastructure, horizontal cables terminate to work area outlets and devices connect using double-ended patch cords. However, in intelligent buildings, various low-voltage IP-based devices such as PoE lights, surveillance cameras, wireless access points, digital displays, distributed antenna systems (DAS) and building automation controls can instead be connected using a modular plug-terminated link (MPTL) approach whereby horizontal cabling is terminated to a plug that connects directly to the device, eliminating the need for work area outlets and patch cords. This fast and efficient connection approach was officially recognized by the newly published EIA/TIA-568.2-D commercial cabling standard.

Following verification of standards compliance and a technical analysis by the technical teams within Signify and Siemon, Signify decided to connect the lighting fixtures using the MPTL approach. The ends of each cable were terminated using Siemon's Z-PLUG field-terminated plugs, enabling quick, reliable high-performance terminations in the field for custom-length connections directly from the switch port into the light fixtures.

Siemon's Z-PLUG exceeds all Category 6A performance requirements, and it can be terminated to shielded, unshielded, solid and stranded cables from 22 to 26 AWG with one part number for maximum flexibility. Z-PLUG can also be terminated without the boot for connecting to devices with limited depth, such as cameras and access points.



*Cables connecting into the PoE LED light fixtures were terminated with Siemon's Z-PLUG for direct custom-length connections.*



*For more information on cabling support for 60W PoE lighting applications, please refer to Siemon's white paper entitled, "Zone Cabling and Coverage Area Planning Guide: 60W PoE Lighting Applications."*

## About Signify

Signify (Euronext: LIGHT) is the world leader in lighting for professionals and consumers and lighting for the Internet of Things. Our Philips products, interact connected lighting systems and data-enabled services, deliver business value and transform life in homes, buildings and public spaces. With 2017 sales of EUR 7.0 billion, we currently employ approximately 30,000 employees and have a presence in over 70 countries. We unlock the extraordinary potential of light for brighter lives and a better world.

## About Siemon

Established in 1903, Siemon is an industry leader specializing in the design and manufacture of high quality, high performance IT infrastructure solutions and services for Data Centers, LANs and Intelligent Buildings. Headquartered in Connecticut, USA, with global sales, technical and logistics expertise spanning 100 countries, Siemon offers the most comprehensive suites of copper and optical fiber cabling systems, cabinets, racks, cable management, data center power and cooling systems and Intelligent Infrastructure Management solutions. With more than 400 patents specific to structured cabling, Siemon Labs invests heavily in R&D and the development of Industry Standards, underlining the company's long-standing commitment to its customers and the industry.



*Because we continuously improve our products, Siemon reserves the right to change specifications and availability without prior notice.*

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