



Large European Metro System Case Study

Empowering IP Surveillance Systems with Corning Fiber Optic and Copper Solutions

The Challenge

Passenger security, a key component of a premium user transit experience, is a top priority for public transportation authorities. To help keep millions of residents and tens of millions more national and international visitors each year safe, one major European metropolitan transit system planned to upgrade their surveillance and network infrastructure to replace existing cameras with high-resolution IP video surveillance. The finished network would link thousands of remotely movable, zoomable cameras across nearly 200 metro stations with live-monitoring personnel and image storage and retrieval systems. The cabling would serve both straight-line stations as well as large interconnects, creating a robust surveillance infrastructure at every station and across the network.

To meet their specs and accomplish their goals, in compliance with the EU's Construction Products Regulations (CPR), the transit company knew they would need to acquire high-quality copper and fiber cabling and components, with the highest level of fire protection, B2ca. Thanks to the advanced capabilities of our own European research facility, Corning was able to define the specifications, develop, test, and manufacture custom cables to meet the transit system's requirements.



The Solution

Over the course of many years, projects, and product innovations, Corning has built a strong relationship with the transit company. Based on this relationship and our ability to research and test products in our own VDE-certified facility, the local public transportation company challenged Corning to develop two custom cables. Both cables would need to be robust and [CPR B2ca-compliant/LSZH™](#) (low smoke zero halogen) to withstand the harsh metro environments and comply with strict safety regulations mandated by the European Union for transit system projects.

The first cable, a copper cable, would connect each camera within the surveillance system and other IP devices in the metro stations, such as Digital Media Systems (DMS) and ticket vending machines.

The second cable, feeding the fiber backbone, would be deployed two ways: outdoors between stations to increase the fiber count of the existing network to 192 single-mode (SM) fibers and inside the stations to increase the count to 12 or 48 SM fibers depending on the size of the individual station.

“Both cables needed to be robust enough to handle anything that people and the environment could expose them to, including vandalism”

Along with providing reliable, high-bandwidth capability, both cables needed to be robust enough to handle anything that people and the environment could expose them to, including vandalism. To deploy the network, the transit company relied primarily on Corning-certified installers, supported by our local Engineering Services experts.

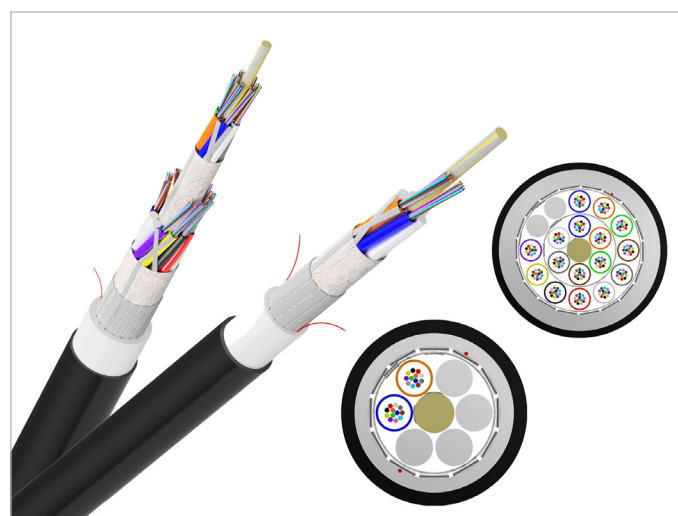


The Solution (continued)

Extended Reach and Cost Saving Indoors

Corning Everon® A-XR copper cable with indoor-outdoor double jacket and B2ca certification exceeds the standardized reach for copper by 25%, ensuring 10 gigabit Ethernet transmission up to 120 meters, when installed with high-performance Corning V500S copper jacks.

This complies with link class EA as defined in the EN50173 standard and powers devices with up to 4P PoE (75/90 W). This extended-reach shielded/twisted-pair cable provides the freedom to install network cameras, ticket kiosks, and wireless access points on the outer edges of the metro network while reducing cabling complexity and cost. A standard indoor version of our [A-XR cable](#) is also available. Learn more in our [Core Product Catalog](#).



Corning Technology Center Berlin

The cable was developed and tested for CPR compliance at our [own VDE-certified research center at Adlershof](#), Germany's most modern science and technology park. One of 18 research facilities in Corning's global network, Corning Technology Center Berlin (CTBC) was established in 2012 to allow us to easily collaborate with customers in Europe, the Middle East, and Africa. It's part of our over 170-year commitment to working with customers to understand their needs and quickly and cost-effectively develop breakthrough optical connectivity solutions to their toughest problems.



Extreme Durability Outdoors

Featuring our SMF-28® Ultra fiber, Corning FREEDM™ B2 multi-purpose cables (MPC) are designed for indoor-outdoor applications where LSZH™ flame retardance, water resistance, and ruggedness are critical. This small-diameter, steel-armored, double-jacketed cable is available from 12 to 192 fibers and can be installed in a variety of environments. Also ideal for LAN, our high-quality, bend-insensitive SMF-28 Ultra fiber conforms to G.652.D and G.657.A1 specifications. [Learn more about our MPCs](#).

Stretched across nearly 1,038 acres, the Adlershof Science and Technology Park features the Humboldt University of Berlin as well as 11 renowned science institutes and over 900 companies with nearly 15,000 employees that operate in disciplines ranging from photonics, optical, and renewable energy to material and microsystems technology.



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The Impact

The innovative, custom-designed copper and fiber cables we developed for this deployment have now become the standard for all metro projects in the region. The IP video surveillance project has become a reference case for other large metro systems in Europe.

By using copper cabling with an up to 120-meter transmission range rather than the standard 90 meters, the transit company was able to run the cabling throughout each station from one central IT room, allowing greater design flexibility, reducing the amount of cable and associated product required, and achieving significant cost savings at installation and as the system evolves.

Most importantly, according to published media accounts, this project provides a better customer experience and greater peace of mind for travelers. It's also providing law enforcement with the detailed visual oversight they need to pursue more effective policing and public safety.

To learn more about this project and our custom cabling development capabilities, contact marketemea@corning.com.

CORNING

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