

Powered fiber cable system

Wi-Fi access point application note

CommScope's powered fiber cable system provides a complete "rack to device" solution for powering and communicating with a variety of remote network devices. There are considerable advantages of an integrated power management and media conversion system.

The powered fiber cable System meets NEC Class II and SELV regulations which allow contractors to efficiently utilize their trained labor to provide cost and time benefits to service providers, yet still enable carrier-grade electrical protection. Since it is typically connected to a single source for delivering power to multiple network devices (up to 32 devices simultaneously from a single power source), negotiations with landlords or local utilities are minimized or eliminated. The centralized location is also used for both normal and backup power, so remote back-up power for each network device is not required.

Deploying one hybrid power/fiber cable negates any additional electrical engineering—where the fiber goes, the power source follows. Planning time is greatly reduced by eliminating the need for DC electrical calculations to determine voltage/power drop over varying distances. Each of these benefits reduces the total cost of installation of network devices including Wi-Fi access points.

Installed much like a "long extension cord", CommScope's powered fiber cable System can deliver Power-over-Ethernet (PoE) at up to 30 times the distance of CAT cable systems. Power is provided for up to 3 km for PoE and 1.6 km for PoE+ (using the CommScope-recommended power supply).

Features

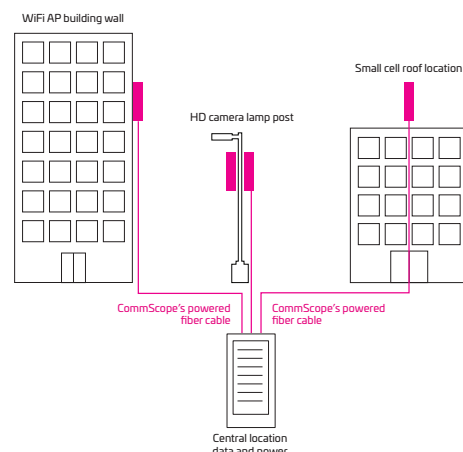
- Hybrid optical fiber and copper cabling with outdoor and indoor/outdoor versions
- Incorporates DC/DC conversion technology to eliminate DC line powering calculations

- Three layers of electrical protection to help against surges due to lightning strikes, accidental grounding caused by cable damage, and electromagnetic interference.
- Media converter for delivering PoE and PoE+ capability
- NEC Class II and SELV compliant

Wi-Fi access application

The greatest benefits of using the powered fiber cable System in Wi-Fi access point applications are realized in terms of speed and range. The latest IEEE 802.11ac standard for wireless access points provides an increase in speed up to a gigabit and beyond for these devices.

However, as the speed increases, the effective range decreases. Thus, new 802.11ac wireless routers have significantly less range than the 802.11n wireless routers for the same amount of input power. This is a result of moving from a 2.4 GHz band to a 5 GHz band – the higher-frequency signal has less penetration capability.



So as the industry trends toward the new 802.11ac standard, these devices must be more precisely placed and power must be available at those exact locations. For example, if a campus-type environment needs five Wi-Fi access points, they must determine power availability for each point.

But with the powered fiber cable System, power is supplied through the cable from a central location, thus eliminating any constraints caused by power or specific location. This is an important feature because it enables placement of each device exactly where it is needed instead of determining the location by power availability. This may, in turn, reduce the actual number of access points required for coverage in a particular deployment.

This distance/speed trade-off is also exacerbated by the need for additional power to achieve the same range as the 802.11n access points. Additional power or a larger antenna will be required. So the real challenge is to either acquire additional power into the device or adjust the placement of the access points.

A more flexible engineering solution

A powered fiber cable system with integrated power management and media conversion is the solution to the power, distance and data rate limitations of Power-over-Ethernet (PoE,

PoE+). Engineers are seeking solutions that are less complex, less expensive to implement, faster, more dependable, and require less expertise to deploy.

A standardized powered fiber cable system addresses and improves in all of these areas. Whether used for Wi-Fi access, HD surveillance cameras, small cell deployment or ONTs, this hybrid cable solution will enable faster and simpler deployments while providing a less-expensive, more flexible deployment option.

Additional applications for the powered fiber cable system:

- HD surveillance cameras
- Small cell deployments
- ONTs / FTTx / POLAN
- Digital signage
- PoE or PoE+ extension

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We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

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