

# WHY INSTALL FIBER?

*How can fiber optic cable make a difference in home (FTTH) and premise (FTTP) installations? Fiber provides a high bandwidth, durable, and long-lasting solution.*

OS2  
10 km  
Infinite  
Potential

## High Bandwidth and Distance

As of March 2020, the average US household held over 10 connected devices. All those devices are vying for bandwidth, and the number of connections is only projected rise. For businesses, demand is even higher – data requirements double approximately every 2 years, and that projection was made before COVID-19 forced remote work! The best connectivity solution for those ever-growing data demands? Fiber optic cable.

Fiber optic cables use pulses of light to transmit data. This allows optical fibers to transmit at much higher frequencies than copper cables, translating to far higher bandwidth and greater distance.

Multimode fiber optic cables can transmit 10 Gb Ethernet up to 1300 feet (400 meters), or 100 Gb Ethernet as far as 500 feet (150 meters). Single mode fiber can send data even farther. In fact, it has potentially infinite bandwidth, limited only by the electronics used.

Comparatively, Category 6A can transmit 10 Gb Ethernet a maximum of 100 meters, with potential for electromagnetic or radio frequency interference (EMI or RFI). According to TIA/EIA standards, CAT 6A is only rated for data transmission for up to 10Gb. As data demands increase, category cable has to be re-engineered to meet the standard, which is why CAT 6a, CAT 7, CAT 7a, and CAT 8 have all been introduced within the last 20 years.

Fiber, on the other hand, is more consistent. Since fiber optic cables have such high bandwidth potential, updating to meet new requirements often only requires changing endpoints, not replacing cable.

## Durable and Compact

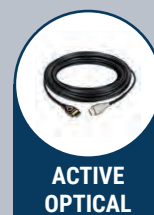
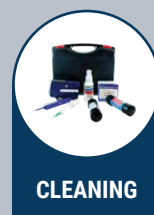
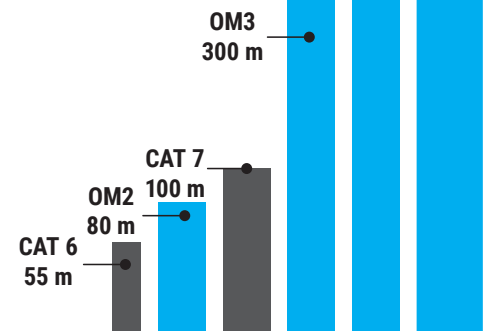
Although fiber optic cable is glass, it is very durable. Cleerline SSF™ fiber optic cable can tolerate up to 225 lbs of short-term load if pulled correctly, far above the tolerances of category cable. Fiber optic cables can also be extremely flexible, allowing bend radii far smaller than those of copper. When

handled correctly, fiber will hold up better than copper or coaxial cables.

That being said, some fibers are more durable than others. Cleerline SSF™ fiber is built using a polymer coating at the glass level. This increases the fiber's bend insensitivity, allowing the fiber to tolerate greater stress.

## 10G ETHERNET TRANSMISSION

Fiber vs. Copper



SSF™ polymer coating also makes handling Cleerline fibers easy. Anyone can learn Cleerline’s fiber termination procedures, not just fiber specialists.

Ease of handling is helpful when working with fiber because optical fibers are very small. A cable jacket only 3 millimeters in diameter can contain up to 24 optical fibers, allowing an enormous amount of transmission capacity. In homes and businesses where space is at a premium, the compact nature of fiber is a huge plus.

### Resistant to Lightning Strikes and Interference

Unlike copper, glass does not conduct electricity. Lightning strikes or power surges are far less likely to take out your fiber optic network, whereas these are a constant concern with copper.



*Lightning strikes, a concern with copper, are not an issue with optical fiber.*

Similarly, as fiber is non-conductive, it is resistant to electromagnetic and radio frequency interference. This means lower potential for signal interruption, keeping transmissions consistent and secure. Less noise also leads to lower latency, meaning better quality transmission – and no dropping downloads.

### Energy Efficient

Fiber optic networks can use less power than copper installations. Transmitting data over 300 meters of fiber optic cable may take only 1 watt of energy. It may take 3.5 watts to send data one third of that distance via copper cable. Along similar lines, in high volume or data-center type environments, fiber optic cables do not generate heat, and, as they take up less space than copper cables, can allow better airflow. This allows more efficient cooling.

### Long-Lasting

Fiber optic cables not only offer future bandwidth capabilities, the cables themselves tend to be resistant to time. Most fiber cable manufacturers cover 25 years of operation under warranty, outpacing CAT 6 by at least five years. Under standard operating conditions, cables may last longer than 25 years. Fiber cables installed in the 1980s have still be found to be perfectly functional.

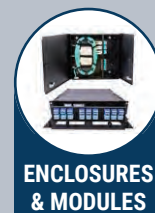
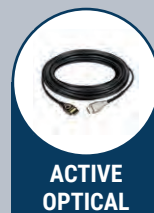
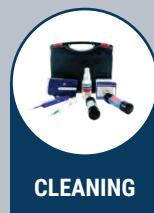
The bandwidth potential of fiber means that replacement due to technological obsolescence will likely not be necessary.



### Supports Current & Future Technologies

Fiber in homes and business will help support 5G technologies. 5G requires many small cells or nodes to function. At high frequencies, range is limited, so even more cells are required, especially since trees, walls, or other obstacles can also disrupt transmissions. With such high bandwidth signals, fiber is the best medium for supporting additional 5G cells. As a result, the usage of fiber worldwide is increasing exponentially.

Similarly, just as with current wireless coverage, there are certain to be locations where 5G may not be the best option. Without a doubt, fiber is the medium to consistently provide the highest quality, highest bandwidth signal transmission.





SSF™ Polymer Coating  
at the glass level

Cleerline SSF™ Fiber provides all the benefits of fiber plus increased strength and safety.

## About Us

Cleerline Technology Group provides complete solutions for every fiber optic application. Whether your installation is in a commercial environment or a residential dwelling, Cleerline has the fiber optic components you need. From our unique fiber optic cable to connectors, termination tools, enclosures, and more, Cleerline is Fiber Optics Redefined.

Cleerline SSF™ Stronger, Safer, Faster-to-terminate optical fiber uses an innovative Glass, Glass, Polymer design. The integral SSF™ polymer

coating dramatically improves the bend insensitivity and strength of the glass, allowing fiber termination in as little as one minute.

**Stronger** - SSF™ fiber has up to 10,000 times the bend capacity of other bend insensitive fibers on the market.

**Safer** - SSF™ polymer protects installers from glass shards and helps prevent glass contamination.

**Faster** - The SSF™ termination process requires far less training than traditional fiber, saving time and labor.

## Cost Effective

Not only have fiber optic cable and component costs decreased over the years, due to its long-lasting nature, fiber often has lower maintenance costs than copper. As discussed earlier, fiber optic cables do not need to be updated with every technological shift. Instead, endpoints and peripherals can be changed. Cost-effective fiber-compatible electronics are now widely available, making it simple to set up new systems.

With a fiber like Cleerline SSF™, which is designed for safe handling and easy termination, installation and maintenance does not require a specialist. After practice, it is possible to install SSF™ connectors quickly, further decreasing labor costs.

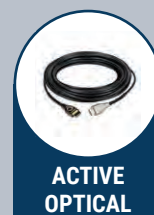
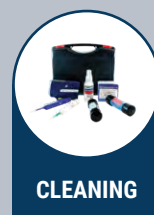
Users can get up to speed with convenient, on-demand online training videos. Integration professionals can also add to their resumes with online or in-person classes from the Cleerline Training Academy.

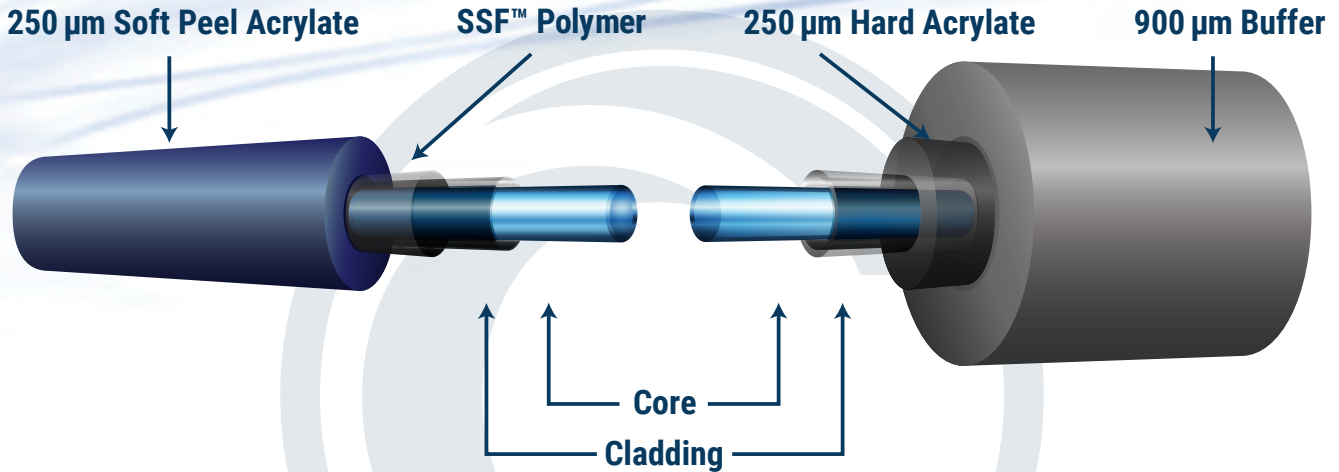
With technology like Cleerline SSF™ Stronger, Safer, Faster-to-terminate fiber, barriers to entry are reduced. All the benefits of fiber are easily accessible to everyone from system designers and integrators to end-users.

**Ready to get started? Visit Cleerline at [www.cleerlinefiber.com](http://www.cleerlinefiber.com) or contact us at 1-866-469-2487. We're ready to find your fiber optic solution. ■**

### CITATIONS

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### SSF™ Fiber

9/125 µm Single Mode or 50/125 µm Multimode

Glass Core	=	Standard
Glass Cladding	=	Less than 125 µm
Proprietary Polymer Coating	=	Cladding + Polymer = 125 µm
Acrylate	=	Soft Peel/No Tools
Buffer	=	Not Required

### Traditional Fiber

9/125 µm Single Mode or 50/125 µm Multimode

Glass Core	=	Standard
Glass Cladding	=	O.D. to 125 µm
Proprietary Polymer Coating	=	N/A
Acrylate	=	Hard Coating/Need Tools
Buffer	=	Typical 900 µm

### SOLUTIONS INCLUDE

Broadcast/Staging  
IT

Commercial A/V  
Medical

Data Center  
Residential A/V

Education  
Security

Hospitality  
Telecomm

### INDUSTRY PARTNERS & AFFILIATIONS



BULK FIBER



CONNECTORS



TERMINATION  
& TESTING



CLEANING



ACTIVE  
OPTICAL



ENCLOSURES  
& MODULES



MEDIA  
EXTENSION



PATCH CABLES