



## Overview

### Organization

Major U.S. service provider

### Situation

The provider sought a faster, more cost-effective connectivity solution for deploying FTTH to multi-dwelling units.

### 3M Solution

3M™ Crimplok™+ Connector

### Benefits

- No splice, no gel, no adhesive
- Labor savings due to quick, easy installation
- Provides reliable, high-performing connection

### Results

Providers replacing fusion splices with the 3M Crimplok+ Connectors can reduce cost by 75 percent or more on equipment and 20 to 50 percent on labor while achieving signal performance similar in quality to fusion splicing.

## 3M™ Crimplok™+ Connector Lassos Big Savings in Texas

### The Challenge

A large U.S. service provider sought to cut fiber connectivity costs in fiber-to-the-home (FTTH) deployment to greenfield multi-dwelling units (MDUs). Like many service providers, the company had been using fusion splicing to ensure highly reliable connections. The provider used fusion splice-on connectors inside the living unit at the optical network terminal (ONT).

However, fusion splicing can be expensive compared to other splicing methods for FTTH drop-cable applications. Fusion splicing machines sell for thousands of dollars and each technician in the field must be equipped with one. Fusion splicing machines require electrical power, such as a battery, which can deplete of charge in the field, adding time and cost to the process. Moreover, fusion splicing requires specially trained technicians, impacting labor costs.

Fusion splicing can also add to installation time, further impacting labor costs. The service provider's technicians install one fusion splice-on connector in each apartment, a time-consuming process because, in each living unit, the fusion splicer must be set up for use and then re-packed after installation.

The provider was aware that mechanical splicing offered a potentially less expensive alternative, but past concerns over the performance of the index matching gel in the splice prevented the company from adopting the method.

### The Solution

The 3M Communication Markets Division offered a solution: the 3M™ Crimplok™+ Connector, the first known commercially available FTTX field-mounted fiber connector that meets indoor and outdoor performance requirements without a splice, gel or adhesive.

3M Crimplok+ Connectors combine the speed of mechanical splice connectors with the performance of fusion splice-on connectors. The SC/APC-compatible connector can be installed in indoor or outdoor locations while maintaining optical reflections of less than -60dB.



## The Network of Networks

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Installation using 3M™ Crimplok™+ Connectors is quick and easy, typically taking five minutes or less because an elaborate set up is not required, saving time. Moreover, the connectors are installed with simple, low-cost tools that do not require a power source, further lowering costs.

To install, the fiber is cleaved, inserted through the Crimplok+ Connector, locked into place with a metal element, and finished with a simple tool. The technician uses the 3M™ Fiber Protrusion Setting Tool to lock the fiber inside the connector and the 3M™ Crimplok™+ Nano Finisher to polish the fiber tip in just one turn of a handle – as opposed to the eight to 10 figure eights required by conventional fiber polishing tools. Over or under polishing is virtually impossible because the polishing distance is set by the finisher.

## The Results

The U.S. service provider conducted a field trial of the 3M Crimplok+ SC/APC Connector in a 240-unit, new-construction apartment complex in Texas. In each apartment, the connector was terminated on the drop cable's 900 µm fiber in a wall outlet box in a closet. Technicians were trained in one morning and began installations that afternoon.

**Speed of installation:** Technicians installed each connector in less than five minutes on average. Total installation took about 15 minutes per unit – including set up of the kit, uncoiling the cable in the closet, preparing the cable jacket, terminating the connector, coiling the cable back in the outlet box, packing up the kit and moving to the next apartment.

**Performance:** Beyond speed of installation, 3M Crimplok+ Connectors proved themselves in terms of performance. Of 240 connectors installed, 111 were measured. The connectors showed an average insertion loss of 0.25dB and optical reflections of less than -60dB, which is similar to the performance of fusion splice-on SC/APC connectors.

**Cost savings:** Service providers are seeing a reduction in operating and capital expenditure costs when they replace fusion splices with 3M Crimplok+ Connectors. The equipment savings can be 75 percent or more, while labor savings runs 20 to 50 percent, depending upon the deployment environment.

To learn more about the 3M Crimplok+ Connector, visit [3M.com/Telecom](http://3M.com/Telecom).

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