Application Note

Converters vs. Repeaters

Keywords

Application, Ethernet, Fiber optics, Media Converter, Repeater

Summary

Our converters, repeaters and switches use the same transceiver components for each of transmission media (i.e. multimode fiber vs. single-mode fiber). The only other difference is connector type. Therefore, one does not need a repeater for long distance, if a converter will be used. The link distances, for each product, are equivalent.

Scenario

Customer wants to connect two buildings, using exisitng fiber-optic cable. The route has two legs. One leg has 2 km of **multimode** fiber, and the other leg has 6 km of **single-mode** fiber.

Question

Should the customer use both, a Repeater *and* a Media Converter, in this scenario?

Notes/Answer

No, only the media converter is required.

Both products serve a “repeater” function. In other words, both units receive a signal, process it, and re-send the signal over the next link. For the Repeater, both links are identical (i.e. same data rate and same media type). The media converter, on the other hand, takes this “repeating” function one step further. The media converter serves two different links. One link may be copper, while the other is fiber. Or, one link may be multimode fiber, while the other is single-mode fiber.

The outputs of our 100Base products are fully capable to the following limits. The multimode link is good to 2 km (1.2 mile); the standard, single-mode link is good to 14 km (8.7 miles). The link distances are limited by fiber attenuation, transmitter power and receiver sensitivity. For multimode, an additional limiting factor is mode dispersion.

Note: we also provide a product with a 40 km range: the *FTX-B63-SM40K, Ethernet 100BASE-TX to 100BASE-FX, SC Stand-alone 40 Kilometer Long Distance Converter*. This product uses a special fiber-optic transceiver, which has greater receiver sensitivity and higher laser output power. The transceiver is also more expensive.

