Application Note

New Generation Media Converter and "Auto-MDIX"

Keywords

Ethernet, Media Conversion, 100Base-TX, 100Base-FX, crossover, cabling

Summary

The new "73-series" of Fiberdyne Media Converters have a new feature – Auto-MDIX. With this new function, users do not need crossover cables. The internal electronics decide when a crossover is required,and the electronics automatically route the signals appropriately.

Scenario

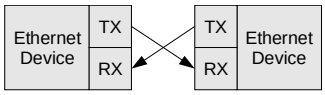
Customer requests a media converter with a manual or auto MDI switch.

Question

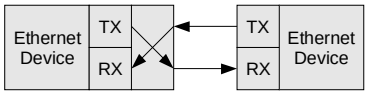
Do we have something like this?

Notes/Answer

No and yes. Our new media converter does not have the MDI/MDIX switch. Instead, our media converter performs this function internally -- and automatically.

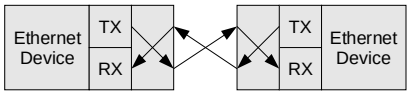


Two devices connected by a crossover cable.



Two devices connected by a straight-through cable, but one has an internal crossover.

To function properly, a link connects the transmitter, of one device (e.g. switch or computer), to the receiver, of another device. Therefore, at a minimum, a link requires one *crossover*. In early Ethernet products, users decided whether to use a straight-through cable or a crossover cable. The determining factor was whether or not the device had an *internal* crossover. Some devices (e.g. switches) have an internal crossover, while others (e.g. computer Network Interface Cards, or NICs) do not have an internal crossover. A link must have an odd number of crossovers. For example, two connected switches, each with an internal crossover, required a crossover cable.



Two devices connected by a crossover cable, because both have an internal crossover.

As Ethernet products advanced, a new configuration appeared. Some devices, usually switches, included a MDI/MDIX switch. By toggling this switch, the user could select the internal crossover or a straight-through connection. Then, the user could use one type of cable (e.g. straight-through cable), and toggle the switch, creating the correct crossover function.

With the release of Fiberdyne's new media converter – the 73-series, this MDI/MDIX switch is obsolete. The internal electronics automatically select the appropriate crossover configuration, depending on the cable and link configuration.

Note: this function only applies to the copper (e.g. RJ-45) connection. Fiber-optic links must still be cross-connected – transmitter to receiver. In the case of multiplexed links, the transmitted wavelength is connected to the receiver at the other end.