



# MEDIA CONVERTERS



# Media Converters

The purpose of a media converter is to convert an electrical signal into an optical signal, and vice versa. Normally, a media converter consists of both transmitters and receivers, electrical, as well as optical.

**Figure 1**

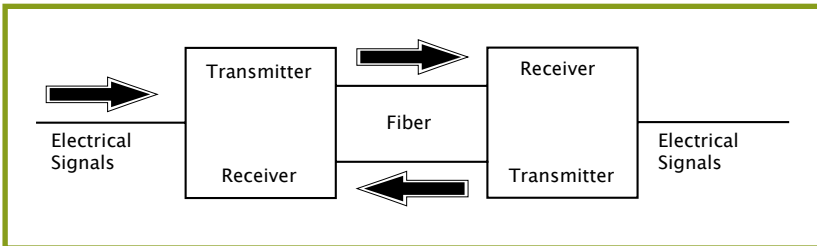


Figure 1 shows a standard installation with copper cables carrying electrical signals to and from media converters. In this case the installation includes two converters, each converter containing a transmitter, as well as a receiver. Between the converters two pieces of fiber carry the converted, optical signals – one fiber from left to right, the other fiber from right to left. Typically, the converters are identical.

**Figure 2**



This is an example of a traditional media converter. It is important to make sure, that the electrical interfaces as well as the optical interfaces are properly dimensioned.



As regards the electrical part, it is essential to use matching standards. If we are discussing a transmission speed of 10 Mbit, the supporting media type may be e.g. 10BASE-TX. If we are discussing a transmission speed of 100 Mbit, the supporting media type may be 100BASE-T, and if the speed is 1Gbit, we may use 1000BASE-T. Corresponding fiber types are 10BASE-FL, 100BASE-SX and 1000BASE-SX.

Several types of media converters are available. What we have seen until now, is the conventional converter, generally used to convert a signal. These converters are also available in rack based versions.

**Figure 3**



*Rack Based  
Version*

This is an example of a rack based module containing several converters. The advantage of the rack module is, that the converters are easily installed, and they do not take up so much space. Furthermore, the converters are power supplied from the same source. Rack modules are used in places, where many signals are needed to be converted.

**Figure 4**



*GBIC Model*

These are examples of a gigabit modules, which is meant to be put into an available socket in a switch. Some switches are born with room for gigabit modules, either copper or fiber modules. The special thing about these modules is, that some of them are manufacturer dependent. In other words, most switches only work together with modules made by the same manufacturer. Lately, modules, which fit into all kinds of switches, have been introduced (from Smart Optics). Yet, these modules must be coded for the right switch, but the price is cheaper.

SFP modules are the successors to GBIC modules. The only difference between SFP and GBIC modules is the size, as the SFP modules are smaller. Except from the size, there is no difference.

**Figure 5**



*SFP Modul*

**Figure 6**



*Media Converter from Microsens.  
This converter can be placed in a wall channel.*

*This is probably the smartest product on the market for fiber to the office. they have lots of different models including ones which have, poe power over ethernet.*