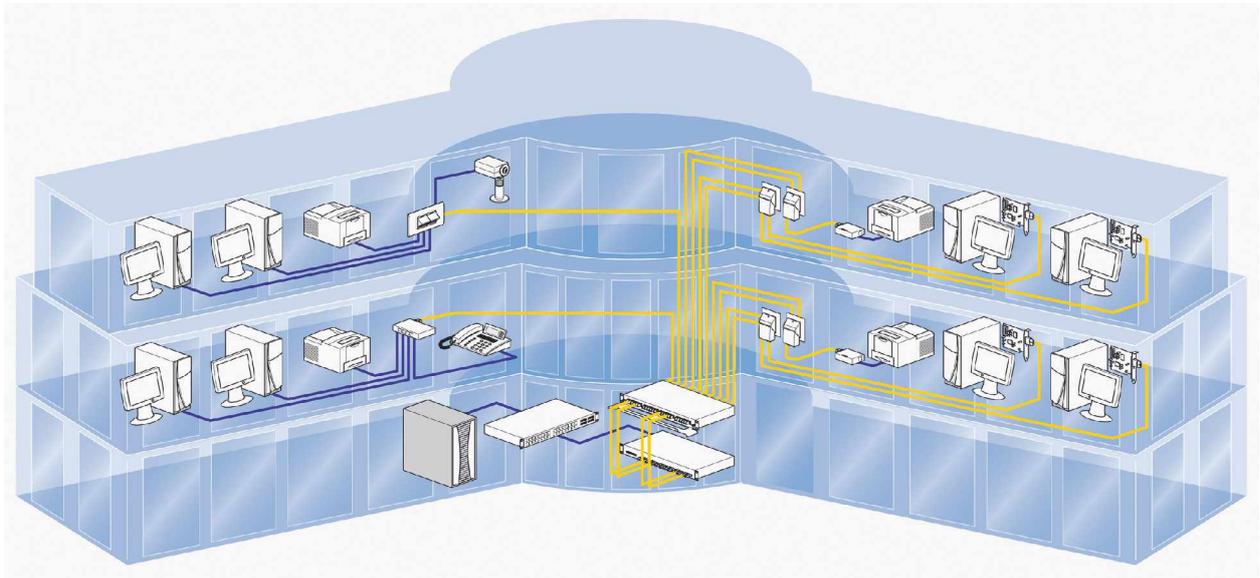


## The Real Gigabit Ethernet Solution from DIAMOND



Today's premises wiring structures are typically designed according to the traditional "Generic Cabling System". With this design the horizontal cabling links to the end user outlets consist of copper twisted pair cables. This structure requires significant space requirements to accommodate the rather bulky copper trunks. It also limits the maximum length of the individual links due to the inherited limitations of the copper twisted pair cables. Future upgrades to accommodate higher bandwidth requirements may also be very limited with copper installations.

Premises wiring installations, based on fiber optic cabling, provide a future proof network structure. First and foremost, fiber optic networks provide significant bandwidth capabilities, including future upgrades. On the other hand copper is becoming limited in supply and may experience price increases in the foreseeable future.

### **Collapsed Backbone**

The "collapsed backbone" structure is used for fiber optic (FO) premises cabling. This structure is based on a single point of distribution, from which each workstation is connected with a direct FO link. Since there is only one point of distribution, patch panels at each floor level are not necessary and therefore security and access management is greatly simplified. This cabling structure has been recognized as part of the ISO/IEC 11801 and EN 50173 Cabling Standards.

Since the network distribution for the collapsed backbone originates from a central location within the premises, it requires that a large number of connections must be managed at that location. Therefore, the 19" patch panels installed at that location must provide high density, excellent fiber management, and easy accessibility.

### **Convergence of Services**

There is an increasing demand to provide various services via a single connection. This applies in particular to data, telephone and video services (Triple-Play). Today, network components in a LAN environment are designed utilizing Ethernet Technology and TCP/IP protocol (all over IP / IP over all). As a result, it is not just data that can be transmitted but also voice and video via "Voice over IP" and "Video over IP". This Triple-Play considerably reduces the required cabling structure and cost of investment.



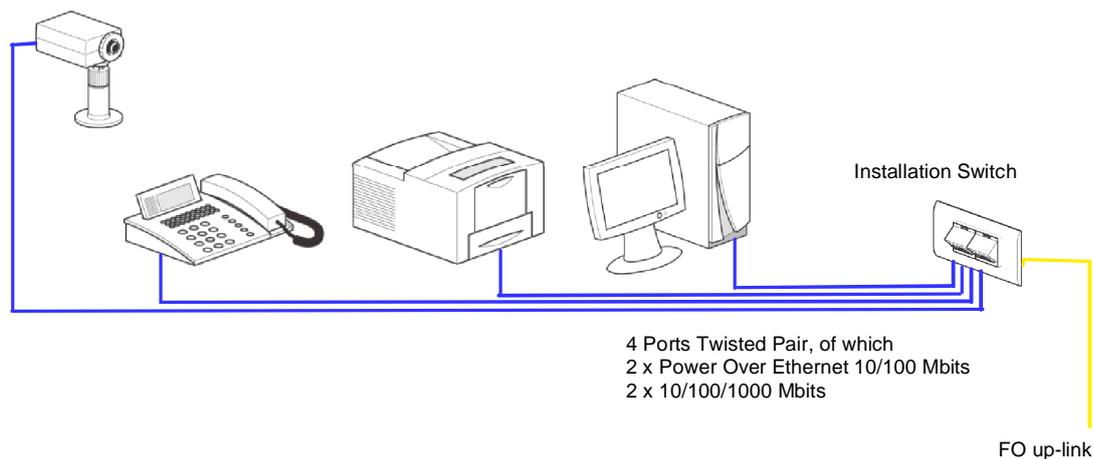
DIAMOND 19" 1U flexPatch for 48 Fibers

With the passing of the IEEE Standard 802.3af for "Power Over Ethernet", it is now possible to power peripheral devices such as IP phones, network cameras and WLAN-Access-Points via twisted pair cable. This technology makes a separate power line to those devices obsolete. According to the standard, the maximum power load is 15.4 Watt, which can result in a considerable temperature increase of the copper cables. The effects of the temperature increase in regard to the integrity of the data transmitted (crosstalk etc.) has to be taken into account, particularly when large numbers of cables are involved. Extending the fiber optic cabling into the office area (FTTO) offers a safer more reliable alternative.



## FTTO – Fiber to the Office

Special installation switches provide the optical/electrical conversion of the transmitted signals at the workplace. This allows the peripheral devices to be connected with the traditional standard twisted pair cables.



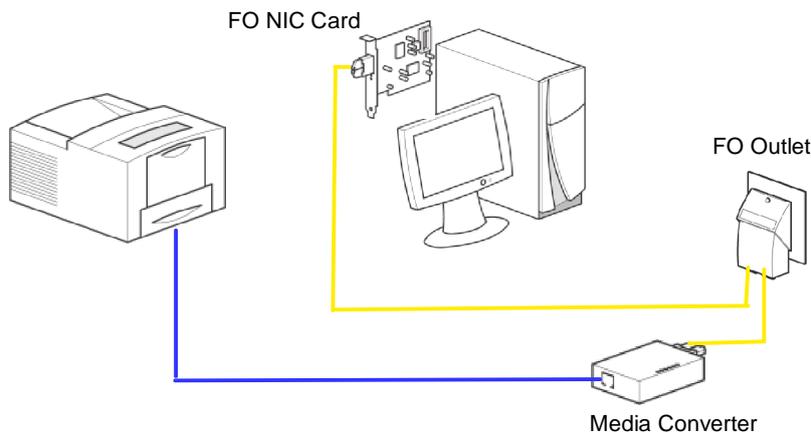
The installation switches, for cable duct or sub floor tank installations, enable the connection of up to two Gigabit peripheral devices (10/100/1000Base-T) to a Gigabit fiber optic connection (1000Base-SX). Two additional fast Ethernet ports (10/100Base-TX) are available to connect additional devices.

An integrated Power Over Ethernet controller provides the standard power supply (IEEE. 802.3af) of peripheral devices such as IP phones, IP cameras or WLAN-Access-Points.

The built in Management Agent enables extensive device configurations, such as connection settings, VLANs, data prioritizations, as well as Power Over Ethernet settings.



## FTTD – Fiber to the Desk



With this cabling structure, every workstation has its individual FO outlet, which contains at least two fiber optic channels. FTTD installations require peripheral devices to have built in FO NIC cards (Network Interface Cards). For those devices such as printers, IP phones, etc., that do not have a built in FO NIC card, a media converter can be used to convert the optical signal. This allows the peripheral devices to be connected via conventional twisted pair cables.

### Component Selection

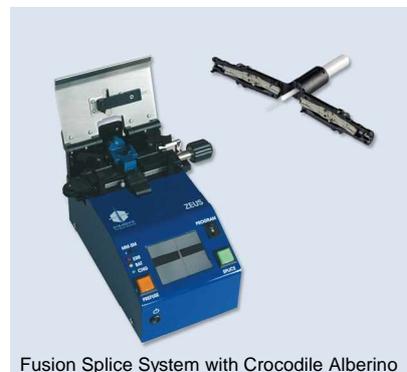
Many Gigabit Network premises wiring installations are utilizing lasers, specifically VCSEL (Vertical Cavity Surface Emitting Laser), in conjunction with multimode fiber. Care must be taken when selecting the active and passive installation components to ensure that they meet today's high bandwidth and quality requirements.

The DIAMOND *flexos* premises network system is based on the E-2000™ connector that was specifically developed to provide outstanding optical performance and reliability to support highest transmission rates. Field termination of the FO connectors, to the already pre-installed fiber optic cables, should be easily accomplished while meeting the high expectations.

The compact “ZEUS” Fusion Splice System offers a simple field termination solution providing highest quality terminations, including requirements for Gigabit or 10-Gigabit transmission networks. The “ZEUS” Fusion Splice System technology is based on a factory-terminated connector with an extending fiber stub to which the FO cable is spliced to. This component, known as the “Alberino Fusion Crocodile”, with its factory terminated endface provides quality and optical parameters that meet the demanding requirements of today's and future high-speed networks.



DIAMOND FO Outlet Type EDIZIOdue



Fusion Splice System with Crocodile Alberino