MICROSENS
fiber optic solutions
www.microsens.com
6 news
No. 6, March 2005

**Dear Reader,
Dear Business Partner,**

despite an overall difficult economic situation during the year 2004 MICROSENS is proud to report one of the best results within the company history and continues its positive view into the future. Also in 2005 there will be an important new technology drive. Gigabit technology moves into the office area, IP telephony pushes the conventional telephony to the side and IP-based applications capture the industrial market.

It has always been one of our strengths to recognize such developments and turn them into customer oriented products at an early stage. Out of this consideration our Fiber To The Office solution in combination with a standard compliant implementation of the Power-over-LAN functionality for IP-telephony has developed into an extremely successful standard solution. With the transport and utility segments new markets for fault tolerant Ethernet rings have been identified.

Together with our customers many interesting projects have been realized since the last issue of our newsletter. With this issue we invite you to learn more about some of these projects! Enjoy reading!

Sincerely yours
Thomas Kwaterski
Marketing & Sales Director

Contents

CeBIT 2005 Hannover

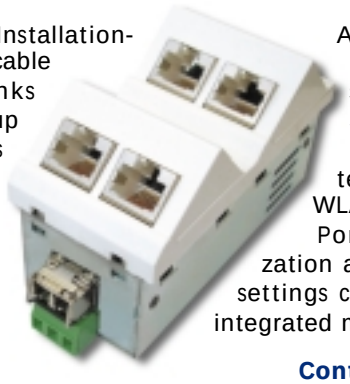
On March 10th the worldwide leading exhibition for Information and Telecommunication Technology, the CeBIT will be opened in Hannover.

With this newsletter we want to inform you about our 2005 main topics. As in the past all MICROSENS visitors have the opportunity to experience our technology in Action.

CeBIT
HANNOVER · GERMANY
10–16 MARCH 2005

**Visit us!
Hall 12, Booth D74**

Gigabit Ethernet Installation-Switch with Management + PoLAN



The Gigabit Ethernet Installation-Switch for installation in cable trunks or subfloor tanks allows the connection of up to two Gigabit end devices (10/100/1000Base-T) per Gigabit optical fiber connection (1000Base-SX/LX). Further end devices can be connected via two Fast Ethernet ports (10/100Base-TX).

An integrated Power-over-LAN-Controller assures the standard compliant (IEEE® Std. 802.3af®) power supply of end devices like IP telephones, IP cameras or WLAN access points.

Ports, VLANs, data prioritization as well as Power-over-LAN settings can be configured via the integrated management agent.

Continue reading on page 4.

Gigabit Ethernet Industrial Switch

With Gigabit Ethernet MICROSENS is opening up new bandwidth dimensions for the industrial communication segment. Application processes like controlling, switching or synchronization can now be transmitted from the control station to the floor machinery in real time.

The MICROSENS patented network protection mechanism enables the user to implement a fault tolerant Gigabit Ethernet ring. The intelligent ring topology assures the continuous operation of all users via Gigabit Ethernet, even in case of a link- or component failure (Fast Redundancy).

Continue reading on page 14.

Optical 4 Channel Crossbar up to 2.7 Gbps

The MICROSENS modular platform is extended by a new 4 channel Crossbar Module offering full 3R signal regeneration (Reamplification, Reshaping, Retiming) in combination with a programmable crossbar matrix.

Typical application scenarios are enterprise networks, connections between remote locations and complex fail-safe fiber optic networks of carriers.

Continue reading on page 10.

New dynamic Web Presence of MICROSENS

The MICROSENS web presence has been restructured. The previously static web structure has been changed to be a dynamic, database supported web presence.

The overall presence can be maintained in a better way and latest information will be provided faster than before.

Apart from the well known information about products and solutions - available in various languages - users now have the option to search for contents.

In addition to this the complete redesign assures a new, well structured appearance of the MICROSENS web site.

Newslink - the direct Link to even more Information

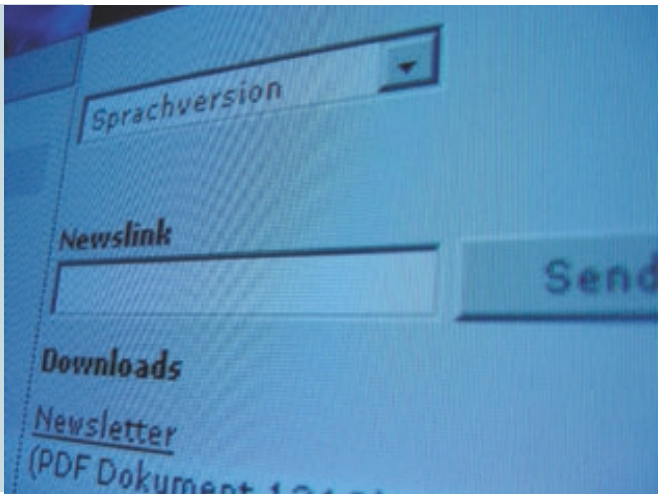
In line with the introduction of the dynamic web structure, static web addresses, previously used by customers as a direct link to a product or an information page, will disappear.

Therefore we have introduced the "Newslink", enabling us to provide more content beyond the MICROSENS *newsletter* and *newsticker*.

At the end of each report in our publications you will find a 6-digit code. Enter this code into the MICROSENS web site and you will be directly guided to the desired information or documentation.

It's that easy:

1. Note the *newsletter or newsticker* code
2. Launch the MICROSENS web site *www.microsens.com* and select your language
3. Enter the code into the Newslink-Box in the upper righthand corner
4. Press the "Send" button and you will be automatically transferred to the desired content



45x45 Switch with DIN rail mounting for FTTH

So far the standard design of the 45x45 Installation Switch was used mainly in cable trunks or sub floor tanks.

With the actual mechanical modification it is possible to mount this device on standardised DIN rails.

Therefore the Fast Ethernet switch with fiber uplink is suitable for the direct mounting into the electrical distribution box. The combination of electrical equipment and data technology is of special interest in Fiber To The Home (FTTH) installations.

Newslink Webpage: 120058

PCMCIA 100Base-FX Fast Ethernet Adapter 32 Bit

The new 32 Bit PCMCIA-network interface card enables the direct integration of devices with PCMCIA 2.x compatible socket into fiber optic based 100Base-FX Fast Ethernet networks.

The 32 Bit high performance 100 Mbps card is integrated as a Realport and exhibits an ultra compact design. Due to the dongle-less fixed fiber optic connection no cable adaptors are required.

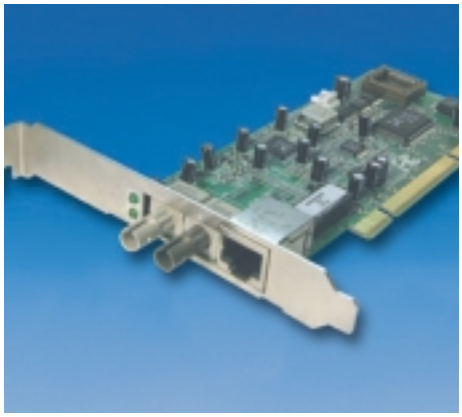
Installation and operation are easy to handle. Drivers for all relevant operating systems (also Linux) are included. The connection to the network is carried out via duplex optical fibers with either SC- or ST-connectors. In addition to this multimode and single mode optical fibers with optimized performance charac-teristics for system spans up to 60 km are available.

Newslink Webpage: 120024

Features

- 32 Bit bus
- Compact design, dongle-less
- IEEE 802.3u, PCMCIA Rel. 2.x, JEIDA 4.x compliant
- Multimode versions with SC- or ST-connector
- Single Mode versions 20/40/60 km, SC-connector
- LED indicator for Link/Activity, full duplex and collision

10Base-FL NIC with 10/100Base-TX Port



Available fiber optic network interface cards usually only support higher data rate from 100 Mbps upwards. Often terminal equipment must be equipped with a 10 Mbps fiber optic connection, because of compatibility or availability reasons.

The MICROSENS Ethernet PCI adapter card allows for a combined fiber optic (10Base-FL) and copper connection (10/100Base-TX). The card is equipped with a high performance controller, supports full duplex operation and is bus-master (32 Bit) compliant.

The Plug-and-Play card is automatically configured during the boot process. Drivers for all known operating systems are available.

The optical fiber is connected via ST- or SC-connectors, multimode as well as single mode variants for a system reach of up to 20 km are available.

Newslink Webpage: 120018

Features

- Powerful and highly integrated Fast Ethernet Controller
- 10Base-FL + 10/100Base-TX port
- PCI Plug-n-Play, full duplex
- Extensive driver support for all known operating systems
- Wake-On-LAN Power Management
- Multimode and Single Mode versions with SC- or ST-connector

Gigabit Ethernet Media Converter

MICROSENS' new Gigabit Ethernet converter offers a cost effective and fast media conversion from copper (1000Base-T) to fiber optic (1000Base-SX/LX). The direct link enables the extension of twisted pair connections beyond the 100 meter limit.

The Auto Negotiation protocol support allows for the automatic configuration of half- and full duplex connections. In addition to this, the operating mode can be set manually by means of a DIP switch (full- /half duplex).

The converter is available as a desktop unit with external AC adaptor. Two versions for multimode (1000Base-SX) and single mode (1000Base-LX) are available.

Alternatively the Gigabit converter is available as a module for the Access Platform, allowing additional features like management, redundant power supply and up to 100 km reach.

Newslink Webpage: 120082

Features

- Compact desktop unit
- Media conversion 1000Base-T/1000Base-SX/LX
- Autonegotiation half- or full duplex-mode, alternatively manual configuration
- Multimode up to 550 m (50/125µm), Single Mode version up to 100 km, optionally via simplex fiber (WDM)
- SC-connector

Gigabit Ethernet Interface for the intelligent Fiber To The Office Switch

MICROSENS announces Gigabit Ethernet support for the well established Fiber To The Office (FTTO) family of switches. The market leader in the FTTO segment underlines it´s forward-looking position and integrates as the first vendor high speed technology into the Installation-Switches for cable channels and subfloor distribution.

The FTTO concept is based on an intelligent combination of Fiber optic infrastructure and copper cabling. The fiber link coming from the central switch is converted and actively switched to copper ports. This avoids to equip data terminal devices with costly fiber adapter cards.

Now with Gigabit Ethernet Power

The latest Installation-Switch from MICROSENS enables the connection of up to two Gigabit-end devices (10/100/1000Base-T) to a single optical Gigabit port (1000Base-SX). Additional devices can be connected by means of two further Fast Ethernet ports (10/100Base-TX). With the help of these switches users can migrate to Gigabit Ethernet without a huge investment. The main benefits are less bandwidth-bottlenecks and faster access to the enterprise backbone.

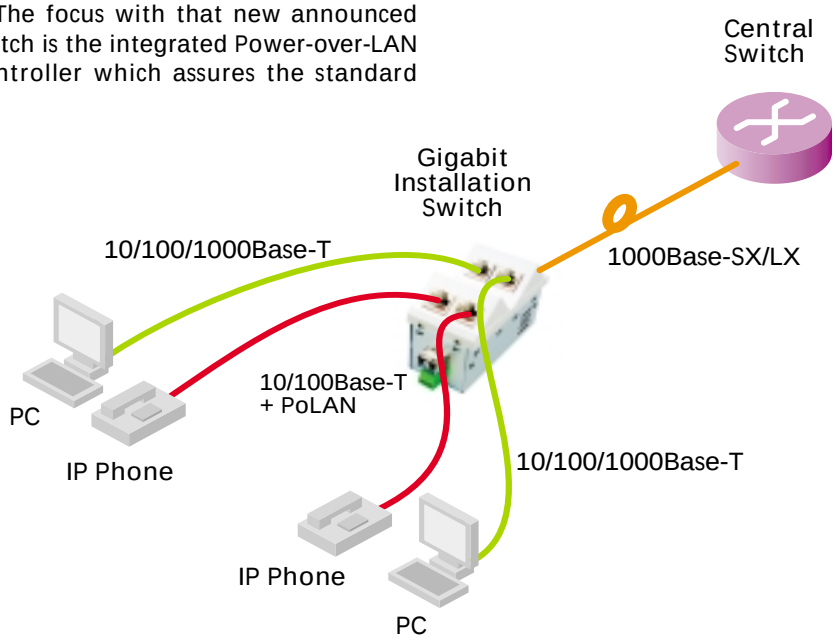
Power-over-LAN

The focus with that new announced switch is the integrated Power-over-LAN Controller which assures the standard compliant (IEEE® Std. 802.3af®) power supply of end devices like IP telephones, IP cameras or WLAN-access points. This makes the connectivity of such data terminal equipment much easier and helps to save costs.

Network Management System

The built-in management agent allows the extensive configuration of port settings, VLANs, data prioritization (Class of Service 802.1p) or Power-over-LAN settings.

Gigabit Installation-Switch version with SFP-uplink port



Fiber to the Office

The communication runs on top of TCP/IP per SNMP or Telnet. Additionally the Device Manager software package is offered. It allows to manage and administrate large FTTO networks in a comfortable way. For security purpose an optional MAC authentication software helps to keep away unauthorized users from access to central resources.

Fast Snap-In-Mounting

The Gigabit Installation-Switch in 45x45 design needs a minimum of space and allows snap-in installation without the need of additional tools, making set-up extremely easy. The switch also provides compatibility with standard installation systems (cable trunks and wall mount boxes) all over the world.

Newslink Webpage: 120053

Features

- Smallest, on the market available switch for the installation into cable-trunks and subfloor boxes
- 2x 10/100/1000Base-T ports, 2x 10/100Base-TX ports + PoLAN, 1x 100/1000Base-SX/LX uplink
- Tool-free installation
- Integrated Management-agent, SNMP/Telnet/web based
- Manual/automatic configuration of all ports
- Implementation of the full VLAN functionality
- Data prioritization (QoS) for VoIP applications

IP-Telephony based on Fiber To The Office

VoIP PoLAN QoS

The convergent integration of data and voice into one fiber optic network eliminates the need for a separate telephony network and reduces the cable infrastructure, consequently minimising the capital and operating expenditure. The introduction of the IEEE 802.3af standard, which defines the end devices power supply via the data cable has removed the final hurdle in connecting telephones to the data network.

Cost Reduction

The latest generation of MICROSENS Installation-Switches is integrating the end device power supply on the basis of the IEEE 802.3af standard for all copper data ports. The additionally available fiber optic port can be deployed for extending the successful Fiber To The Office technology to IP telephony systems. In this way the advantages of a future proof high capacity fiber optic network are combined with the requirements of fail-safe supply of the telephone system.

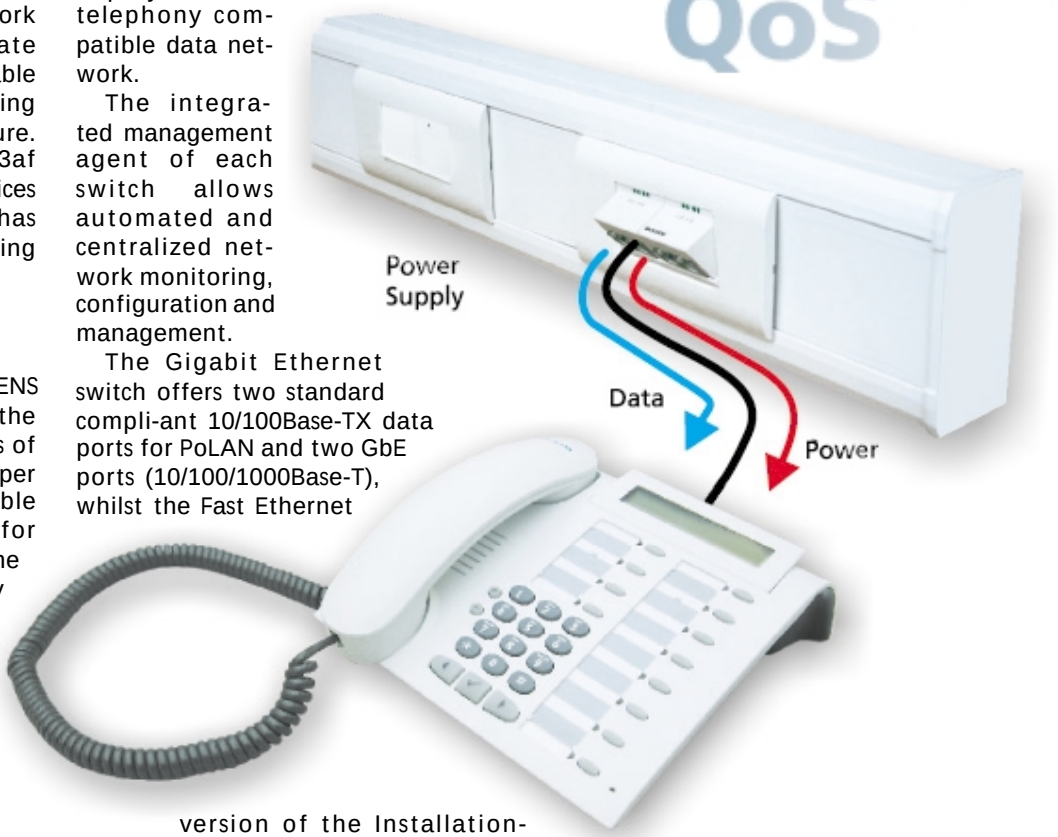
Performance Enhancement

The use of Power-over-LAN and optimum Quality of Service (QoS) enables the direct connection of the telephone to the switch - without external power supply. In this way the complete infrastructure for both voice and data is integrated into one high performance network. The convergence of both networks assures the optimum usage of the entire technology platform.

The integrated data prioritization (QoS) of the switch enhances the transmission characteristic of sensitive voice data and therefore allows for the deployment of a telephony compatible data network.

The integrated management agent of each switch allows automated and centralized network monitoring, configuration and management.

The Gigabit Ethernet switch offers two standard compli-ant 10/100Base-TX data ports for PoLAN and two GbE ports (10/100/1000Base-T), whilst the Fast Ethernet version of the Installation-Switch provides four PoLAN-enabled ports (10/100Base-TX).



For the PoLAN integration MICROSENS is currently offering two design concepts:

Base Unit with PoLAN Extension Option

The base unit is prepared for Power-over-LAN and can be extended to its full functionality by means of an intelligent expansion module, thus allowing a future decision for the PoLAN integration into an existing data network.

Fully integrated Unit

The switch provides full Power-over-LAN-capability on all ports, the controller is already integrated. The switch is powered by 48 VDC using either a compact external power supply or a separate in-house 48 VDC-network.

Power via the Network

The new IEEE® Std. 802.3af® standard allows the simultaneous data communication and power supply of end devices via the network port. The power is transmitted via the twisted pair cable in parallel to the data.

Applications

The need for additional power supply connections is eliminated by supplying the end device power via the data cable. This is a special benefit when operating IP telephones, IP cameras or WLAN access points.

Security and Compatibility

In order to assure safety and to protect non-PoLAN capable end devices the power supply via the twisted pair is only switched on in case the device is identified as PoLAN compliant.

The power consumption is monitored whenever the terminal unit is in operation and is switched off automatically in case the power consumption exceeds a set limit, e.g. because of a short circuit.

Universal Management for MICROSENS Switches

Device Manager Software 3.31

The Device Manager software allows the comfortable configuration and network monitoring of MICROSENS components, including Installation-Switches, manageable desktop units or Industrial Switches. Components of different product lines can be combined within one network.

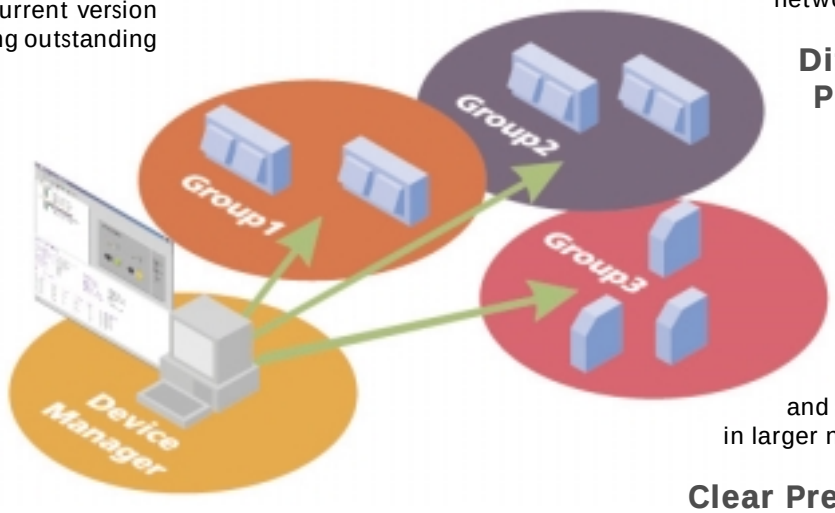
The Device Manager has been continuously developed with many new features simplifying the day-to-day administrator work. The current version 3.31 is offering the following outstanding new features:

Integrated Firmware-Updates

Only a single mouse click is required for updating the firmware of all devices in the network. Optionally it is possible to address only selected devices or device groups. A sophisticated protection scheme provides the erroneous installation of an unsuitable firmware.

Automatic Device Identification and Device List

Following a successful Auto-Discovery of all networked units a device inventory list is created, loaded into the Device Manager and displayed. The user is provided with a Plug-and-Play function for his daily network job, enabling him to retrieve the actual network status by pushing of a single button.



Extended Information

The device in-ventory list created during the Auto-Discovery process now includes extended information for each device, e.g. the MAC address, article and serial number, thus simplifying the inventory process significantly.

Integrated Windows Installer

A new installer eases the Device Manager installation on various Windows platforms. Supported platforms are 98, NT4.0, 2000 and XP.

Allocation of Access Rights

The Device Manager supports two password protected user leves: User (read only) and Administrator (read and write).

A user being logged in as "User" can only read out the device status, but is not allowed to change these.

A user logged in as "Administrator" has full access rights to the network.

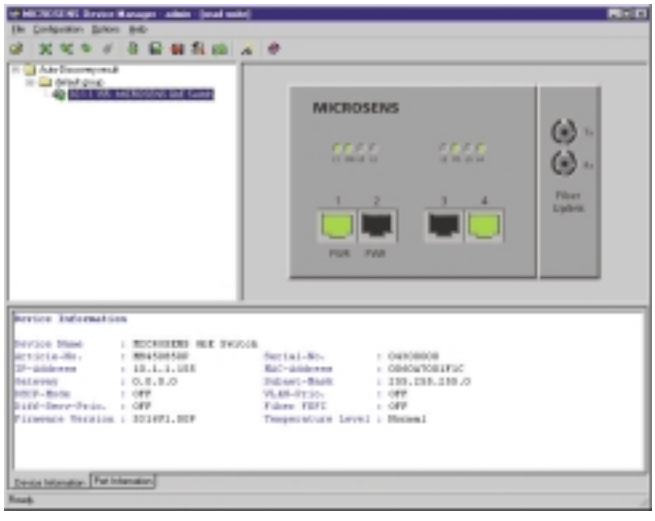
Differentiated Polling

The polling of the actual device status can be carried out in a differentiated way: for single devices, for device groups or for the whole network. The selective polling of individual devices reduces the overall network traffic and accelerates response times in larger networks.

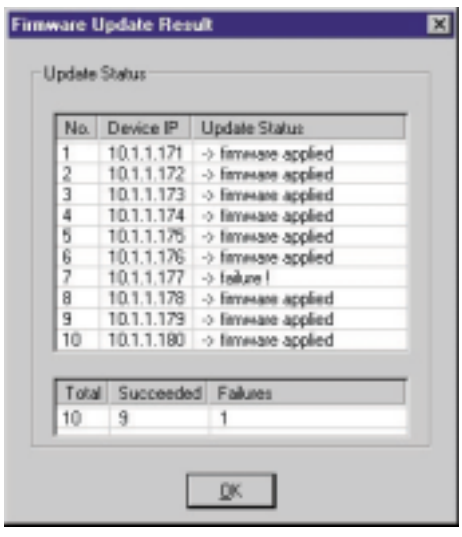
Clear Presentation of Device Information

Based on functional requirements the presentation of detailed device information has been divided into several pages, thus assuring the information clarity with a growing number of devices features.

Newslink Webpage: 120049



The network-status and the status of the current selected device can be gathered



The Software automatically updates all selected devices and shows a detailed device-status

Olympus Branch in Prague relies on FTTO-Solution of MICROSENS

Olympus established in 1919 in Japan, is today a corporation actively present worldwide with main divisions in Europe, Japan and USA. In Europe Olympus employs 3000 people in 26 countries. With focus on innovative solutions and opto-digital systems Olympus is a technology leader in consumer electronic and industrial products.

Czech division of Olympus C&S was established in 1991. Its headquarters was located in the very center of Prague. Attractive localization in old part of the city had its disadvantages: law protected antique buildings, small rooms, problems with IT infrastructure and communication.

Excellent occasion for movement to a new area was the decision to establish new Olympus European Service Center in Prague.

Requirements for the new IT-Infrastructure

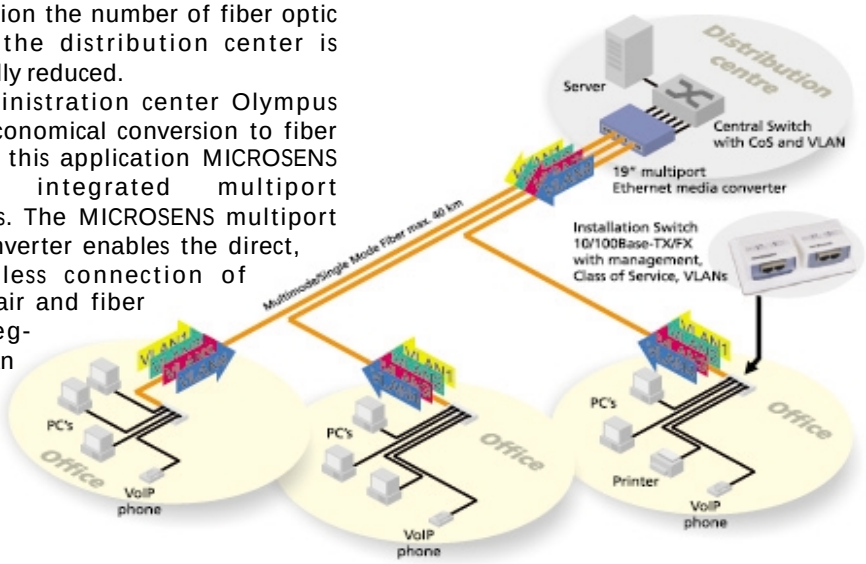
In the last couple of decades OLYMPUS always introduced to the market innovative products and technologies. Thus, choice of the infrastructure technology for the new Olympus building could be only the secure coverage of all the needs of broadly dynamic company - strong rules of security and safety, flexibility for fast development of the service center, long term safety of the investment and economical effectiveness.

Olympus required electromagnetical compatibility, galvanic isolation of electrical devices, immunity to fraud listening of the data, high bandwidth for more than Gigabit speeds - all important advantages of a fiber optic solution. Distance from server room to individual PCs was also considered factor - with fiber optic cable it can exceed hundreds of meters and even kilometers so one centralized network can be built with only one central administration point. There is no more need of floor distribution well known from UTP circuits limited to 90 meters.

MICROSENS Solution

By installing MICROSENS FTTO-Switches it is no longer necessary to use optical ports in network adapters, laptops, printers and IP telephones. In comparison to a pure optical Fiber To The Desk solution the number of fiber optic ports in the distribution center is dramatically reduced.

In administration center Olympus needed economical conversion to fiber optic. For this application MICROSENS supplied integrated multiport converters. The MICROSENS multiport media converter enables the direct, repeater-less connection of twisted pair and fiber optical segments in an Ethernet network.



Voice-over-IP

The main part of the project was the implementation of VoIP. It was also essential to deploy a network that is easy to install and administrate and works effectively for a large number of users (approx. 1000).

MICROSENS, the leader in Fiber To The Office solutions implemented in installation switches QoS (Quality of Service) which is necessary for VoIP applications. This feature was one of the most important for the customer, as in the new building there is located a call center where 130 specialists answer the questions of the customers from all Europe in 9 languages.The advantage of using VoIP lies not only in integration of voice and data in one stream, but also in higher quality of services which is the result of implementation of VoIP:

Multimedia applications and communication solutions through IP; convergence of voice, data, fax and video; easy integration with customer database; better customer contacts management.

Further information about OLYMPUS on: http://www.olympus.com

Centrally sided Fast Ethernet Multiport Converter from MICROSENS

The new Olympus branch in Prague

New 3 U Chassis with swappable Fan Modules

The MICROSENS Modular Access Platform is an open system featuring a wide variety of access modules designed for LAN and WAN environments as well as the conversion of telecommunication and industrial interfaces.

The newly redesigned standard 3U rack takes up to 14 modules, its most important new feature are swappable fan modules, mounted at the back of the rack.

Newslink Webpage: 320020

Modular 3 U chassis with 14 module slots

Features

- Maximum flexibility
- 14 module slots on 3 U
- Full compatibility with all modules of the Access series
- All modules „hot-swappable“
- Central power supply with redundancy option
- Exchangeable fan modules

New Management Agent for the MICROSENS Access Platform

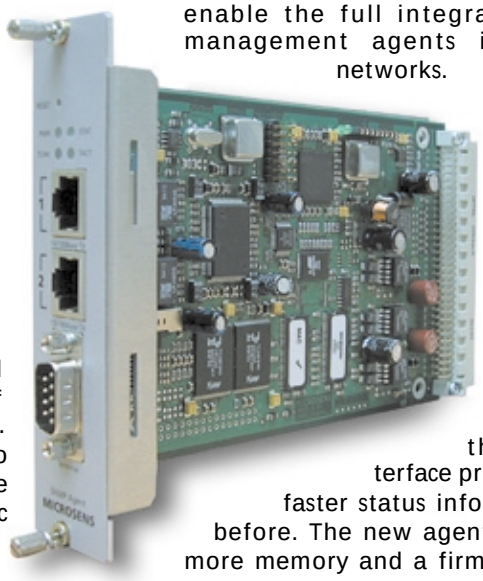
Network management is an essential element, especially for centralized networks. It enables the administrator to identify link failures and their exact localization at an early stage. With its new and improved management module MICROSENS is providing an even more user friendly manage-ment of its access systems.

Simple deployment

The direct implementation of a Fast Ethernet switch is the most important feature, allowing the linking of several agents without the need of central switch ports. Optionally direct links to fiber optic networks can be set up using a fiber optic interface module. Multimode as well as single mode variants for systems spans up to 120 km are available.

Direct xWDM Integration

The inter premises coupling of the Access- and xWDM system management is made possible by the implementation of fiber optic ports. CWDM wavelengths enable the full integration of the management agents into CWDM networks.



The module is equipped with the latest IC chip generation assuring a significantly improved performance. The integrated web server and the SNMP interface provide an even faster status information than before. The new agent comes with more memory and a firmware backup option.

The new management module, designated with the extension “-B” (e. g. MS416020-B), is available for xWDM systems (Metro Networks), the modular converter system (Enterprise Access) and for multiport converter systems. All current and new access modules are supported (downward compatibility).

Newslink Webpage: 320021

Features

- Integrated Fast Ethernet Switch with 2x 10/100Base-TX ports for an easy network connection
- Optional fiber optic uplink module for the direct connection to a fiber optic network
- Firmware backup (optional)
- Improved performance for reading available information

Centralized Connection of Redundant Ethernet Fiber Optic Ring

Ethernet has made its way into the industrial environment with its previously dominating supplier specific transmission protocols. Apart from the networking requirements in pure industrial or manufacturing environ-ments the demand for Ethernet connectivity in related market segments like transport/ traffic and utilities is increasing. Applications in these markets require large data volumes to be transmitted over long distances, e. g. for monitoring and control purposes, whilst at the same time demanding a specially high operational safety.

Industrial Ethernet

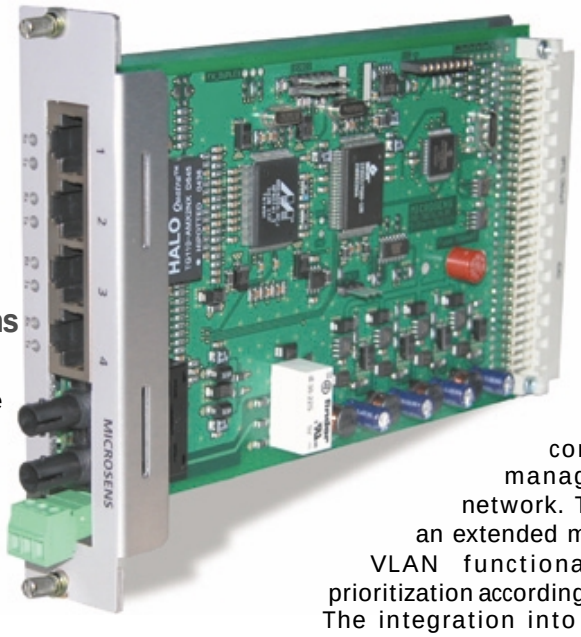
The MICROSENS Industrial product line comprises robust Ethernet switches and fiber optic converters for system spans up to 120 km. The redundant ring functionality of the Industrial- Switches enables the implementation of fault tolerant fiber optic rings, thus assuring a very high resilience level.

Connecting the Industrial to the Corporate Network

A new MICROSENS chassis system module for connecting redundant data networks to a central network infrastructure is available.

The Ethernet switch module has four 10/100Base-TX ports and one 100Base-FX fiber optic port. External alarm units are driven by an alarm contact. The module has the same functionality like an Industrial Switch but alternatively may also be deployed as a standard Ethernet switch in the MICROSENS modular chassis.

The increasing level of networking in industrial environments is not supposed to become an isolated solution. For assuring an effective way of communication within the enterprise the link into the central corporate network is important.



Applications

The switch module can be integrated into a redundant industrial ring and serves as an uplink to the core switches of the enterprise LAN. Another application is the connection of office area end devices to the 10/100Base-TX ports of the switch module to the uplink via optical fiber.

Fail safe Ring Structures and Redundancy Concepts

The connection to the redundant fiber optic ring is realized via two switch modules, coupled by a 10/ 100Base-TX link.

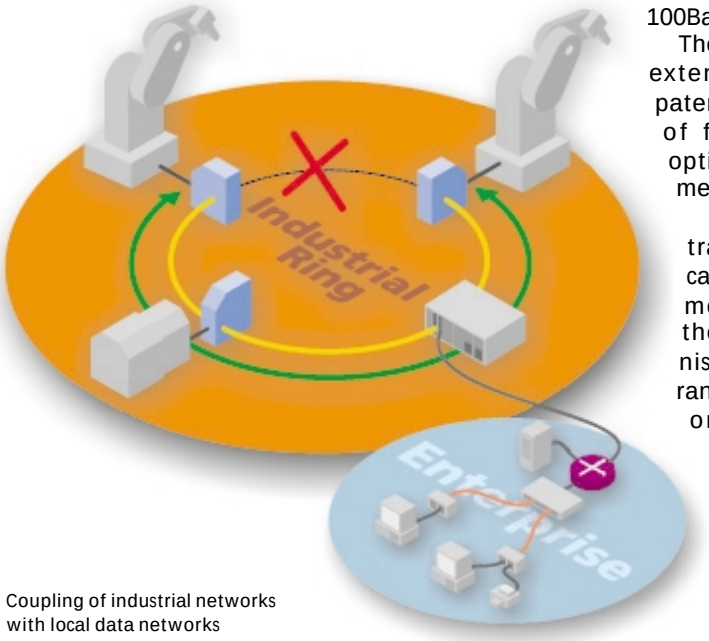
The latest switch module extends the MICROSENS patented implementation of fault tolerant fiber optic rings to the copper medium.

The redundant central ring connection is carried out by the two modules and expands the protection mechanism of the fault tolerant ring. When a node or segment fails the protection scheme enables the reconfiguration of communication between all remaining users within less than 100 ms.

By installing the switch modules in separate chassis in different locations with separated uplink routes the industrial rings can be integrated into an redundant architecture of the core network.

Management Concept

The integrated SNMP management agent enables the automated and centralized monitoring, configuration and management of the network. The switch offers an extended management with VLAN functionality and data prioritization according to IEEE 802.1p/Q. The integration into an higher level management system is possible as well. Apart from the SNMP standard further management options like Telnet or the MICROSENS Device Manager are supported either.



Coupling of industrial networks with local data networks

Newslink Webpage: 220018

Features

- 5 Port Fast Ethernet switch, 4x 10/100Base-TX, 1x 100Base-FX
- Redundant ring functionality also available via copper
- Compatible with Industrial Switches (ring redundancy)
- Reconfiguration in < 100 ms
- Central power supply with redundancy option
- Full compatibility with all access modules

Features and Applications

- Point-to-Point connectivity with high port-density (24 ports at 3 U chassis and 36 ports at 4 U chassis)
- Double-Transponder module for CWDM-/DWDM multiplexing
- Channel protection on one module
- Hardware protection with two separate redundant modules
- Dynamic configuration via free programmable crossbar
- Broadcast applications
- Compatibility to Access Platform
- Hot-swappable

Optical 4 Channel Crossbar with Retiming up to 2.7 Gbps

The new manageable module is part of the MICROSENS access platform and offers full 3R signalregeneration bundled with a free programmable crossbar matrix. The new module enhances its 3R function with the benefits of a flexible switchable crossbar logic, which allows free allocation of four channels - besides the protection of the optical link. In addition to the 1:1 links also 1:n connections for broadcast applications are possible. The Twin Retimer module will be the standard module for coupling fiber optic links for long distances.

Applications

Typical applications are links between different locations within the enterprise network and fail-safe fiber optic infrastructures of carrier networks. The module does support redundant optical switching and offers a high level of security between two or more locations at enterprises and in carrier networks.

Data rates can be configured within a range from 50 Mbps up to 2.7 Gbps. Standard applicatons are STM-4 and STM-16, or 1x/2x Gigabit Fibre Channel and Gigabit Ethernet. The Retimer can be used in Bypass mode (2R) for fully transparent operation. Different applications can be connected to different ports. The actual status of the modul can be displayed via the extensive LED display or the integrated interface to the SNMP management. The management interface of the crossbar module communicates directly with the management module in the Access Platform.

Modes of Operation

Twin Converter

With its compact design high port densities can be realized (36 ports at the 4 U chassis). A pair of ports acts as a converter with complete 3R signal regeneration.

Redundant Configuration

Two separate Crossbar modules are used in a „hardware-redundant“ configuration. The active module has “Master” function. The redundant “Slave” module normally works in Stand-by mode and gets active in case that the master module fails. The Master/Slave configuration is defined by the position in the 19“ chassis.

Channel Protection

In case of a failure the input channel is switched from the active output channel to the redundant channel.

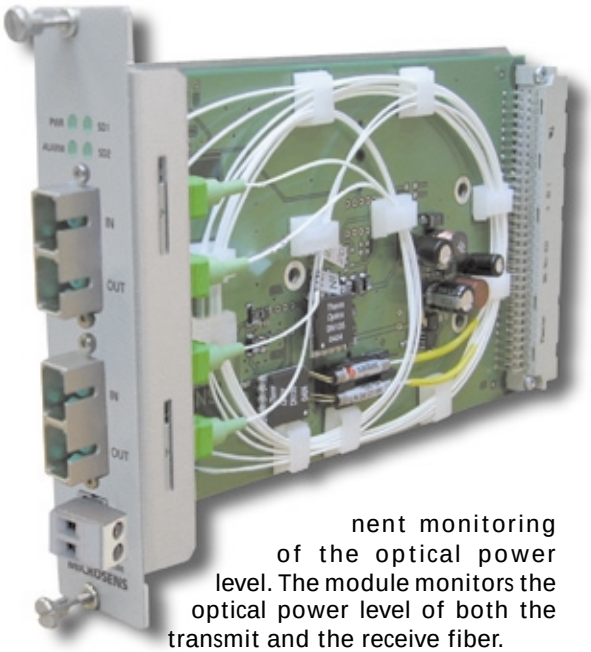
Crossbar

The four SFP-ports are freely interconnectable via the internal crossbar. The full 3R regeneration is supported.

Newslink Webpage: 320063

Monitoring the Optical Parameters of Fiber Optic Links

MICROSENS expands its Metro networks product range by a further functional module for the permanent monitoring of fiber optic links.



Highest Availability

The availability of optical fibers and data services is the basis of a smooth and efficient network operation.

Usually sensitive applications therefore demand redundant and specifically protected transmission paths.

The special protection can now be assured by the continuous monitoring of the optical power level on the optical fibers. This is of special importance when considering the ongoing degradation of the laser transmit power over life time.

Power Level Monitoring

For preventing link failures MICROSENS offers bidirectional monitoring, which enables the permanent monitoring of the optical power level. The module monitors the optical power level of both the transmit and the receive fiber.

The monitoring takes less than 1 % of the optical power of the signal, the detected values are monitored by the management.

In this way laser power degradation or link issues are detected thus protecting the user from unexpected link failures. Appropriate thresholds can be set via the network management, causing an alarm message to be generated in case of exceeding the limits.

Link with xWDM Systems

In case of several xWDM System wavelengths being transmitted on a single fiber the management will display the accumulated optical power level.

Further enhancements for use in complex xWDM Systems are under preparation. These will allow the display of the dedicated optical power level of each individual wavelength or transmission channel.

Protocol Transparency

The module is a purely passive network element and as such does not influence the characteristics of the optical transmission link, only the attenuation is increased by approximately 1 dB.

Newslink Webpage: 320034

Approval of MICROSENS xWDM Systems

EMC², a leading supplier of products, services and overall solutions for data storage and information management is ahead of this fast growing storage market for more than six years. 20.000 employees in more than 50 countries are driving the company for more than 20 years.

SAN on the Basis of CWDM

EMC² has tested the MICROSENS xWDM systems for compliance with SAN (Storage Area Networks) products. The test objective was the generic availability confirmation of MICROSENS equipment for all Symmetrix, DMX- and switch connections. For this purpose extensive tests have been performed at the Frankfurt EMC² laboratory.

For assuring a most realistic test environment a number of real time data backups have been performed, using the Fibre Channel feature of a Symmetrix 8000 test installation. The main focus was the transmission of several Fibre Channel links via a 70 km long fiber optic span equipped with MICROSENS CWDM systems.

In all applications the CWDM systems performed in a fully transparent way and complied to all Fibre Channel and Ethernet standards. The official test report confirms the MICROSENS devices to be fully compliant. On top of this EMC² was delighted by the extraordinary compact design and the perfect integration into the EMC² environment.

EMC² commended the professionalism and knowledge background of MICROSENS and its employees. The report was summarized with a recommendation for the “Supported with RPQ” status.

Further information about EMC² on: http://www.emc2.de

New Gigabit Ethernet TDM Multiplexer - Combined Transmission of Voice and Data

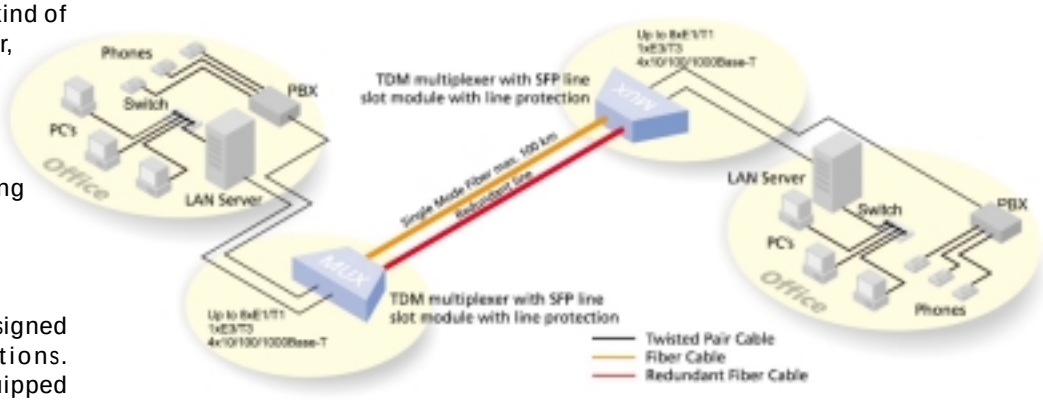
The MICROSENS Gigabit TDM is working according to the time multiplex method. Therefore it offers a safe and cost effective possibility to transmit voice and data simultaneously via the same fiber optic cable.

Although constantly increasing use of IP telephony there are still a lot of legacy PBX's with G.703 interfaces in use. If these have to be interconnected together with Gigabit Ethernet LANs, the MICROSENS Gigabit TDM is the ideal solution.

This unique device solves these kind of interconnection problems in carrier, enterprise and campus applications.

In the "carrier mode" the 4x10/100/1000Base-T switch ports are separated from each other using "stacked VLANs".

The three product versions (top down):
4x E1 + 4x 10/100/1000T, 1x E3 + 4x 10/100/1000T, 8x E1 + 4x 10/100/1000T



Application of the TDM Multiplexer: roomy, redundant connection of LAN servers and PBX facilities

Safety

The Gigabit TDM has been designed for security relevant applications. Therefore the devices can be equipped with 2 power supplies in the 230 V AC or the 48 V DC version.

For a redundant fiber optic link the units are designed with two SFP slots.

Modular Fiber Ports

The Fiber Optic connection is realized via modular SFP Ports. According to the requirement it can be equipped with the corresponding transceivers. There is a wide range of SFP transceivers for up to 100 km available today.

With special CWDM resp. DWDM transceivers the TDM can be integrated directly into existing xWDM systems. For the important link redundancy there is a second SFP slot available.

Management

The integrated inband management supports the SNMP standard. The connection to an Ethernet network can be realized via one of the local RJ45 ports.

In this way the connected multiplexers can be "inband" configured and monitored. Alternatively there is the possibility of a local Telnet service for all functions of the multiplexer.

An update of the management firmware can be realized via TFTP upload.

Newslink Webpage: 320041

Applications

- Simoultaneous connection of LAN and PBX on a campus
- Optimized usage of Dark Fiber in carrier networks
- Aggregation unit for XWDM-Systems for optimized use of lambdas
- Aggregation unit for Air-Laser Link Systems (Free Space Optic, FSO) in voice and data applications
- Redundant Voice-Data-Transmission via a CWDM Backbone Ring using the OADM topology

Features

- 4 integrated 10/100/1000Base-T-switch ports with VLAN and QoS support
- 4x resp. 8xE1/T1 ports or 1xE3/T3 port on the user side
- Redundant power supply
- 2 modular SFP-slots for the fiber link connection with backup option
- Integrated SNMP-Agent with Telnet support
- Doubble-stacking functionality for higher security in the carrier mode
- Universal 1 U chassis for 19" rack mounting and standalone version

Volvo Cars Gent (Belgium) trust MICROSENS in the Production Process

The Volvo Car Corporation is part of the Ford Motor Company "Premier Automotive Group" since 1999. Other brands belonging to this group are Jaguar, Aston Martin and Land Rover - all of which are known for servicing customers with very high demands for reliability and quality.

Out of logistic considerations Volvo, originating from Sweden, is operating a factory in Belgium since 1965.

Nowadays Volvo Cars Gent is considered to be a major pillar of the industrial part of the corporation, also because of the high profitability and quality assurance of this branch.

For assuring this status enormous investments have been made into the location. During the year 2004 the number of employees rose from 3,600 to 4,300, the car production almost doubled from 150,000 to 270,000 cars per years.

Highly flexible Assembly – based on modern Technology

This increase was only possible by using premium components in combination with most careful assembly. During the year 2003 about 340 Million Euro have been invested into the factory restructuring for the installation of latest robots and machinery.

320 state-of-the-art active robots are deployed for the production of up to 3,400 weld points. The complete cabling of these "Hollow-wrist-Robots" is laid out in the assembly arm thus avoiding mechanical damage and consequently raising its availability.

Virtual Robot programming

The assembly robots are programmed prior to their deployment in the relevant assembly lines with the final information being programmed at a latter time. In this way several car models and their variants can be assembled in one and the same assembly line.

The project team (f.l.t.r.): Mr. Vandenheede (Volvo ICT & Facility Management), Mr. Lataire (Datacom), Mr. Goolaerts (6X International), Mr. Van Stayen (MD 6X International), Mr. Danzel d'Aumont (Director MICROSENS WE) in front of a Volvo S40 manufactured in Gent

Deployment of Fiber Optics

All robots are linked with each other and the control computer. Each parameter can be monitored at any time thus assuring a precise control of the production process.

To minimize the effect of strong electromagnetic interference and for guaranteeing the highest level of security fiber optic cables have laid down.

Because of the high reliability demands MICROSENS active network components were deployed. Several hundred media converter, hubs and switches have been installed along the assembly lines.

6X International, a long term MICROSENS Solution Partner, has offered the complete solution for this project. Tailored shelves have been designed and manufactured for the various MICROSENS products.

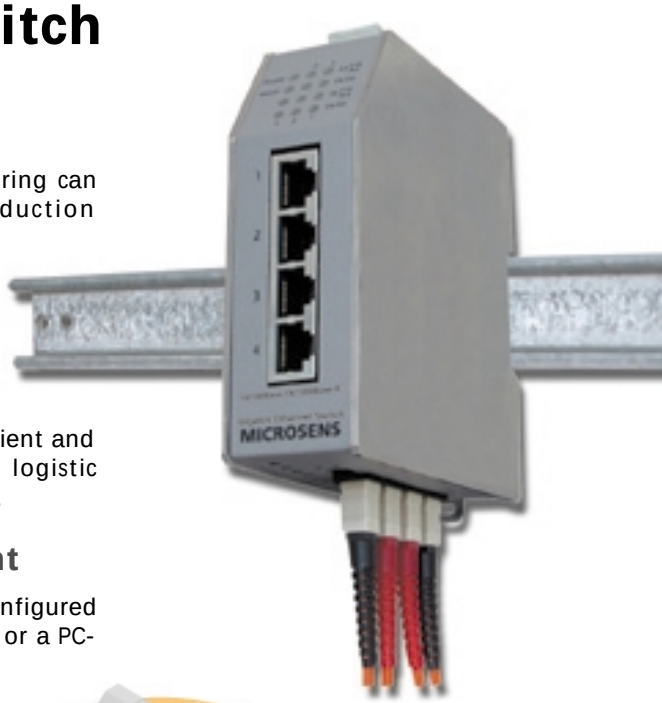
In 1999 Volvo Cars Gent has been awarded the "European Quality Award". This is the highest ranking award for quality assurance, only achievable in cooperation with reliable partners.

MICROSENS switches along the welding line

Bird´s eye view of Volvo manufacturing in Gent

Further information about Volvo Cars Gent on: http://www.volvocarsgent.be

Gigabit Ethernet Industrial Switch with redundant Fiber Ring



Industrial Ethernet is the winner for assembly lines, machinery control and factory applications. In addition to these classic industrial environments traffic control, monitoring and signalling, utility applications are becoming more and more popular Ethernet application areas.

Gigabit Dimensions

With Gigabit Ethernet MICROSENS opens up new dimensions of bandwidth in the area of industrial networking. Processes like switching, control or synchronization can be transferred between the control point and point of application in the assembly floor in real time.

Thanks to its high performance Gigabit Ethernet is offering a fast data transmission. This provides more reserve for time critical applications and/or increasing data traffic and thus has an immediate positive effect on system stability and availability.

Fault tolerant Fiber Optic Ring

The new Gigabit Switch is equipped with two 1000Base-SX/LX Gigabit Ethernet fiber optic interfaces and therefore allows the implementation of a fault tolerant optical ring. In case of failure the MICROSENS patented technology assures the reconfiguration of the connection within less than 100 ms.

The intelligent Gigabit Ethernet ring topology assures the continuous operation of all users, even in case of a link- or component failure (Fast Redundancy).

Network users like machinery control, consoles or other terminal equipment are linked to the 10/100Base-TX switch by means of standard RJ-45 connections.

Improved Quality by Data Prioritization

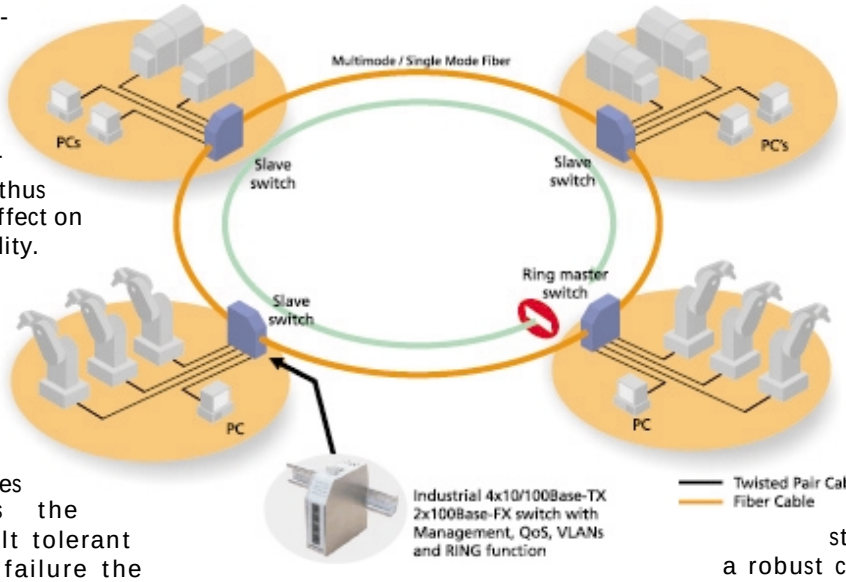
The Implementation of data prioritization (CoS) and VLANs according to IEEE Std. 802.1Q/p are forming a relevant part of the Industrial Switch. In this way a unified network connection for both manufacturing and office environments can be assured, data is available and secure within all areas of the enterprise.

Sales, shipping and engineering can access time sensitive production automation and process data whilst operations might use standard application systems like MRP for the bill of materials, logistics and many more.

Company internal processes can be designed in a more efficient and optimized way, planning and logistic efforts are reduced significantly.

Network Management

The Gigabit Switch can be configured and monitored by either SNMP or a PC-based management tool (MICROSENS Device Manager, please refer to page 6). In addition to this the complete status can be visualized by the integrated http-server.



In view of the demanding operating conditions the Industrial Switch is designed in a robust case with an integrated clamp for a direct mounting onto 35 mm DIN Rails. The switch is designed for the safety class IP 20 and an extended temperature range.

Newslink Webpage: 220084

Advantages

- High performance even in case of high network loads
- Short latency times, fast forwarding of data packets
- Data prioritization
- Full VLAN-Implementation
- Standard management interface (SNMP) for configuration and monitoring purposes
- Differentiated fiber optic modules for up to 80 km reach

Highest Security based on Ring Recovery Protocol

- Patented procedure for the implementation of fault tolerant Ethernet rings
- Highest system availability
- Reconfiguration time < 100 ms
- Ring recovery without adverse effect on the network performance
- Reliable master / slave concept
- High performance software tool for fault signalization

MICROSENS-Switches monitor Thalys Highspeed Train Signalling Systems

With its more than 700,000 passengers per day, 537 train stations and more than 106 high speed trains the Belgian Railway Company SNCB represents one of the largest national investors in Belgium.

Objective

Early 1990 the SNCB decided to modernize the signalling system. The old system was based on relays and copper cabling, the new system was supposed to be an electronic one based on optical fibers.

Initially the new system should only take care of the signalling and the switch control, but with time further applications were added, e. g. facility monitoring and access control. Quickly the network became overloaded by the ongoing integration of new services, on top of this some of the services did not comply with safety aspects. Therefore SNCB decided to install a parallel network thus complementing the current information network.

Requirements

Starting in 1998 an extended supervision system has been installed along the railway tracks. It gathers all application not directly related to traffic safety, like e. g. door control, control of the security system, especially the switch control and beacons, monitoring of voltage differences of the electricity system and heating control. In its first generation the system was realized in Profibus Standard.

During the year 2002 the project was to be extended. For assuring maximum safety SNCB decided to maintain the ring topology, and the data protocol was decided to be the IP / Ethernet.

Whilst current technologies like Rapid Spanning Tree allow the implementation of fault tolerant topologies, the inherent latency time of several seconds was too high for safety relevant applications. In fact the reconfiguration time turns out to be a decisive criterion in view of new network requirements and the integration of new services.

Thalys, the Highspeed Train on the route Paris-Brussels-Cologne

Realization

In view of the project size the technical overall planning was given to suppliers like Alcatel and Siemens. They were supported by Techno Trade, a market leader in the system monitoring market.

All control posts, positioned every 1.5 km along the railway tracks, were to be connected by an optical fiber ring. Based on previous positive experiences the decision was made in favour of MICROSENS. The Industrial Switch is offering two optical fiber ports (100Base-FX) and four 10/100Base-TX ports for the connection of Ethernet terminals like control systems, consoles or further network users. Within the ring configuration one Industrial Switch - configured to be the master switch - is monitoring the network. Should a component or a link fail all other users on this ring will, due to the intelligent MICROSENS patented redundancy process, continue normal operation (fast ring redundancy).

Future Prospects

Today up-to-date information of every train passing along the SNCB tracks is gathered and evaluated, e. g. the recording and evalution of the temperature of each individual axis. In addition geographic areas susceptible to flooding are monitored as well.

However the planners are ambitious and therefore the monitoring of moving stairs and lighting is already under preparation. Building a future proof network today, capable of integrating new requirement, is the challenge SNCB is facing today.

Initially only realized for the span Brussel to Cologne the system turned out to be that successful that it got implemented into the complete network of the Belgian Railways.

Further informations about SNCB: http://www.b-rail.be

The locations along the railway tracks are fully loaded with technology, amongst this also the MICROSENS fiber optic switches

The project team (f.l.t.r.): Mr. Danzel d'Aumont (Director MICROSENS WE), Mr. Declerck (Project Engineer SNCB), Mr. Amant (Project Engineer SNCB), Mr. Wuyts (LGV), Mr. Tolstoy (Technical Director Techno Trade)

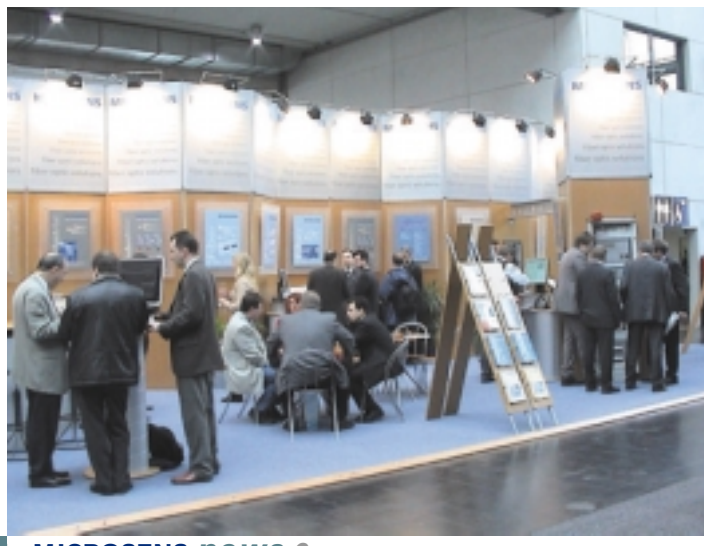
Events in Spring 2005

Symposium WLAN, UMTS, Fibre - Competition or Coexistence? February 17th, 2005 Munich

WLAN, UMTS, Highspeed - slogans and topics being listened to and read on a daily basis. The desire for bandwidth is still enormous and the boom of wireless communication appears to be unchallenged. Wireless? Is this going to be the future or are WLAN and UMTS just temporary phenomena? Where are the limits? Are fiber optic networks the way to success? What is the best to operate a profitable FTTH network? These are the topics of a symposium in Munich on February 17th, 2005. MICROSENS is contributing to this discussion and our technical director Mr. Bauer will present a paper on the integration of copper and fiber optic networks in FTTx structures.

"SMART Solutions Day" February 24th, 2005 Amersfoort

Our Dutch partner Kannegieter invites to the SMART Solutions Day. MICROSENS will present "smart" Fiber To The Office (FTTO) and industrial solutions. Market segments which represent a new main activity at Kannegieter. A further SMART day topic are WLAN solutions, being presented by a number of other well-known manufacturers. A special topic is the weekend lottery - you can win a weekend with the Smart Roadster. A large number of visitors ranging from large system houses, installers and planning companies to end customers are expected.



MICROSENS booth at the CeBIT 2004

Intertelecom 1st - 3rd March 2005 Lodz/Poland

MICROSENS will be exhibiting at INTERTELECOM in LODZ, Poland - for the fifth time already. INTERTELECOM is the largest and most important telecommunication event in Poland. MICROSENS will be presenting innovative solutions for Enterprise Networks (LAN) and Access Networks up to Metro Networks.

WDM Workshop March 1st, 2005 Budapest

On March 1st, 2005, MICROSENS will present its xWDM solutions at the fourth Hungarian WDM workshop "Optical networks for broadband services" in Budapest. The solutions will be shown in co-operation with MICROSENS' partner SevaCom Ltd. The forum is organized by HTE, the Scientific Association for Infocommunications Hungary.

More information at: www.hte.hu

CeBIT 2005 10st - 16th March 2005 Hannover

CeBIT, the worldwide largest exhibition for the information and telecommunication market, is mirrowing this worldwide marketplace. At the same time it is the most important annual IT event. Traditionally MICROSENS will be exhibiting and presenting the latest products and solutions at CeBIT. You can find us in Hall 12, booth D74.

Late-breaking information about exhibition and other events can be found via this Newslink on our web site: 920013.

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