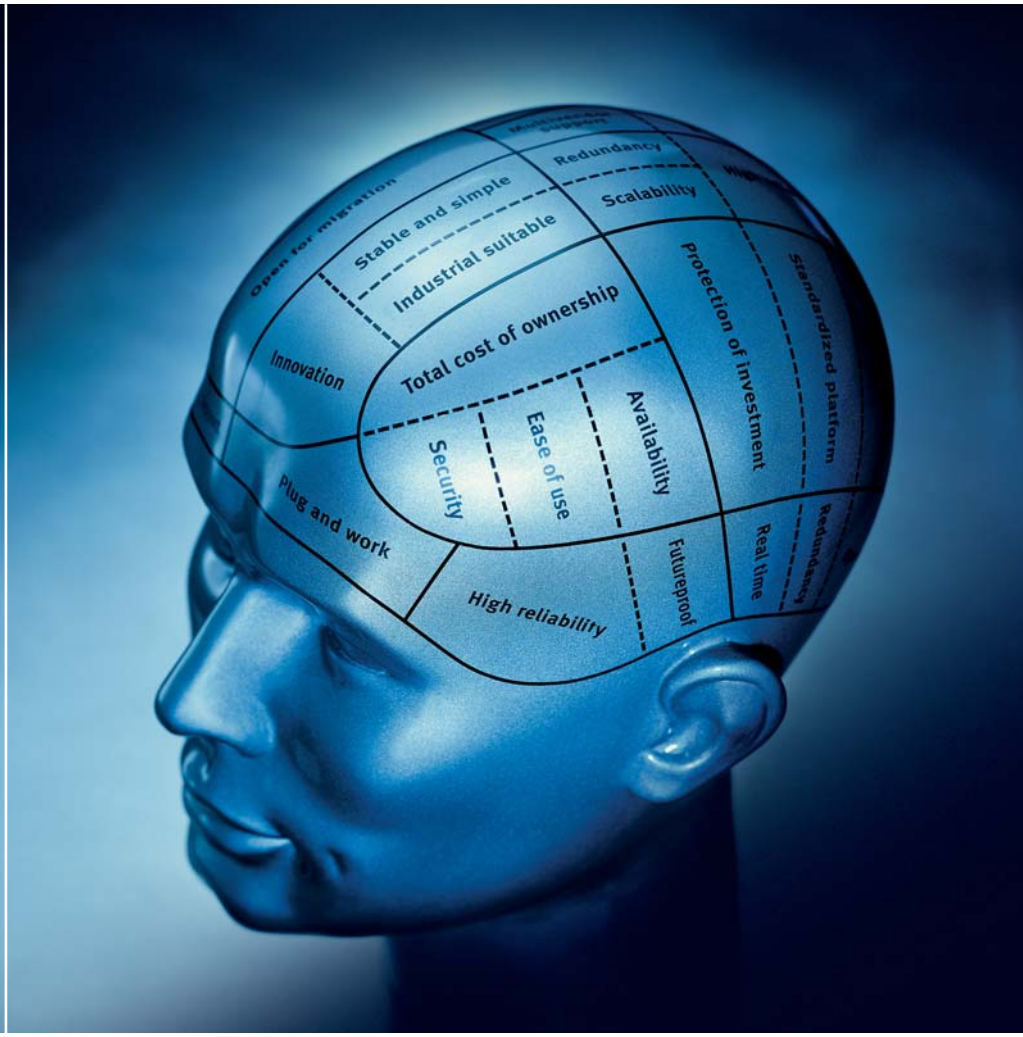
HIRSCHMANN

A BELDEN BRAND

Industrial Networking



Industrial and Mission-critical Networking Components from Hirschmann™ – the leader in manufacturing high-reliability networking products.

BELDEN
SENDING ALL THE RIGHT SIGNALS

Belden Automation: More Convenience and More Solutions for Networks in Harsh Environments and Large-Scale Infrastructures.

Belden, a world leader in providing signal transmission solutions, completed the acquisition of Hirschmann™ Automation and Control in 2007. As a result, Hirschmann™ industrial switches and active devices now combine with Belden cabling, connectivity and cable management products to provide an unparalleled set of solutions for Industrial Ethernet networks. Only Belden provides solutions for Open System Interconnection (OSI) Layers 1, 2 and 3 to ensure our customers' networks are optimized for completely reliable performance.

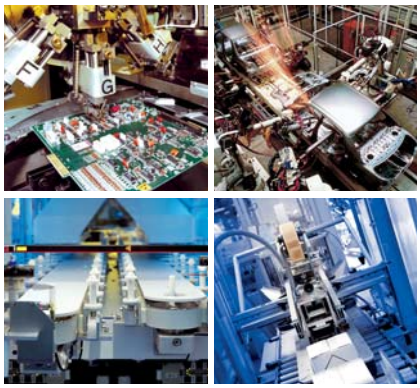
Applications for Belden Industrial Ethernet Products

Belden and Hirschmann™ Industrial Ethernet Solutions help keep many different rugged and mission-critical operations up and running. Here are just a few examples.

Processing Industries

Safety is critical in all processing operations. Therefore, all Hirschmann™ networking products have been designed with full redundancy. Data is transmitted between the controllers and the remote I/O stations via fail-safe redundant optical fibers. In addition, the danger of explosion, inherent in many process-related applications, requires networking products to operate safely in potentially hazardous environments. The Hirschmann™ and Belden product families meet and exceed these requirements.

- Mining
- Chemical Processing
- Food and Beverage Processing
- Oil, Gas and Petro-chemical Processing
- Oil Drilling and Exploration
- Pharmaceutical Processing
- Pulp and Paper Processing
- Cement and Concrete Manufacturing
- Coking



Discrete Manufacturing

Uptime and dependability of operations are hallmarks of Belden and Hirschmann™ products, preventing transmission problems in the factory network which can lead to catastrophic failures and untold costs. These products are designed to meet stringent system requirements, providing resilient and reliable data throughput. The service and support provided by our Competence Center makes it possible to meet and exceed the high demands of our discrete manufacturing customers.

- Construction and Off-road Equipment
- Electronic Components
- Automotive
- Rubber Products
- Semiconductors
- Industrial Equipment
- Plastics
- Medical Devices and Equipment
- Fabricated Metals
- Packaging
- Consumer Products
- Machine Tools

Infrastructure

Control, centralized monitoring and management continue to perform seamlessly in very demanding applications for our infrastructure customers. Whether networking a long underground rail tunnel, a large wastewater complex, an airport in the desert or power generation facilities in the arctic, Belden and Hirschmann™ products will deliver continuity in network availability and bring efficiency to operations.

- Bridges
- Airports
- Rail Yards
- Waste Treatment and Management
- Pipelines
- Roadway and Railway Tunnels
- Shipyards and Shipping Vessels
- Electric, Hydro-electric, Gas and Nuclear Power Generation
- Water Supply
- Wind Power

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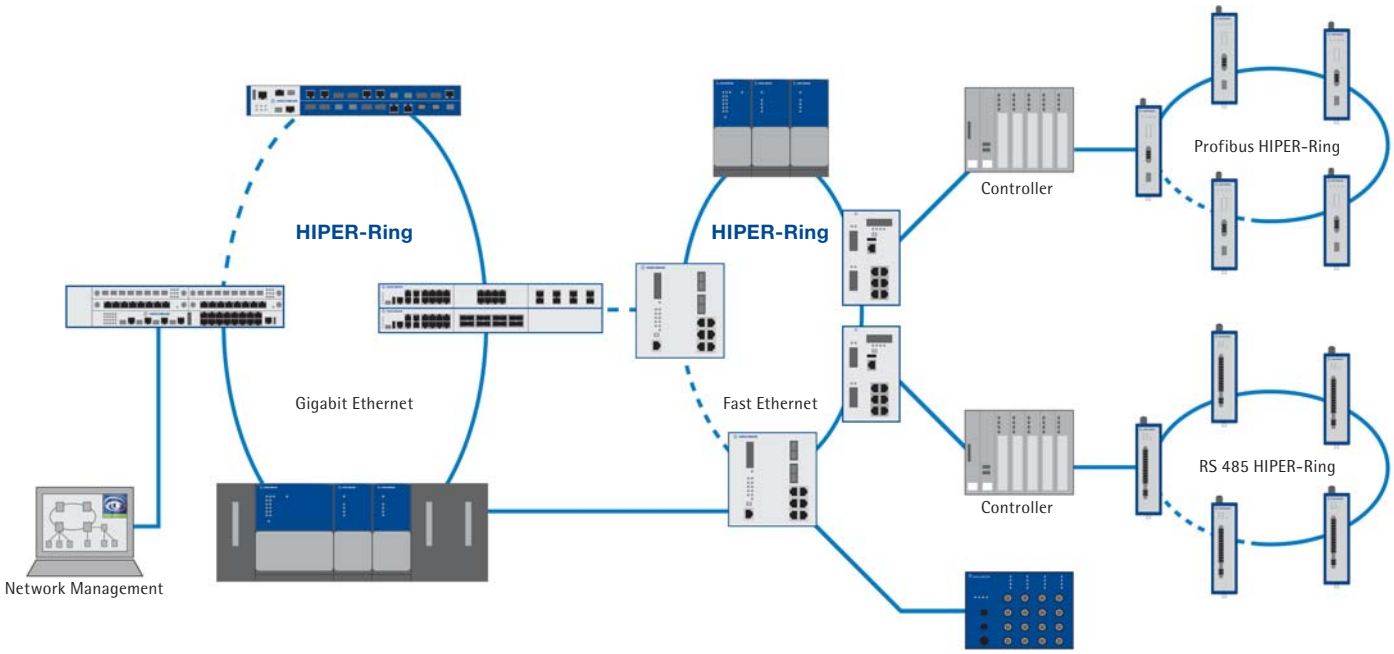
After all, you don’t have a second to lose.

HIPER-Ring. For redundancy in the network.

When it comes to redundancy and high availability, Hirschmann™ is one step ahead of the rest. If a transmission path fails, the HIPER-Ring redundancy feature will bypass it within a fraction of a second. You don't need to wait longer these days! This is good for your data transmission security and even better for your company.



HIRSCHMANN
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Connection to the system. If you want more, you should get more: maximum security, flexibility and rel


SPIDER 3TX TAP


SPIDER 5TX


SPIDER II 8TX


SPIDER II Giga 5T


OCTOPUS 5TX EEC


OCTOPUS 8M


OCTOPUS 16M-8PoE

Entry Level Switches

For highly accessible Industrial Ethernet and Fast Ethernet networks.

Requirements and Solutions

For the economical installation of a company-wide Ethernet solution. It allows you to integrate widely dispersed components or serial terminal equipment into your Ethernet networks or to set up smaller, economical Ethernet networks without management functions.

Product features

- Transceiver for connecting widely dispersed devices over glass fiber (multimode and singlemode)
- 3, 5, 8 and 10 port Fast Ethernet switches without management functions, with optimum price per port ratio
- All switches with extended temperature range (– 40 °C up to + 70 °C)
- Unmanaged Gigabit Ethernet Switches with 5 x 10/100/1000 Mbps or 5 x 10/100/1000 Mbps and 2 SFP slots for 1000 Mbps transceiver with extended temperature range (– 40 °C up to + 70 °C)
- All SPIDER switches are light weight, compact footprint, easy handling for Plug and Play with Autocrossing, Autonegotiation and Autopolarity
- DIN rail and wall mounting

Applications

Suitable for use in industrial networks, even under extreme climatic conditions, such as refinery and pipeline applications or wind park installations.

IP67 Industrial Switches

Industrial Ethernet networks for extreme conditions.

Requirements and Solutions

Dirt, temperature fluctuations and other critical environmental conditions at the field level? OCTOPUS has the ability for usage under extreme conditions: IP67. The open system with standardized M12 technology is ideal for field use wherever space is at a premium

Product features

- Direct screw connection with the device is possible
- Completely encapsulated construction
- Version with or without management available
- Standardised 4-pin M12D-Technology
- Redundancy via HIPER-Ring and Rapid Spanning Tree is possible
- Mixed applications with MICE and MACH are possible
- 5, 8, 16 and 24 port switches with enhanced temperature range (– 40 °C up to + 70 °C)
- Versions with 8 PoE available
- Special Versions with EN 50155 available for train applications

Applications

For use in demanding industrial environments such as car manufacturing units, transport automation or vehicles.

liability.


RS20


RS30


RS40


MS20


MS30

Compact Industrial Switches

Compact configurable switches for future-proof industrial Fast Ethernet and Gigabit Ethernet networks

Requirements and Solutions

Modern industrial data networks require individual solutions. With OpenRail Hirschmann™ offers Rail and MICE series switches manufactured to the customer´s individual specifications and suitable for almost any application. The hardware and firmware options can be quickly and simply selected using the on-line configurator. More than 1000 different variations are possible.

Product features

- Individually manufactured rail switches
- Fast Ethernet to Full-Gigabit (RS40xx)
- 4, 8, 9, 10, 16, 17, 18, 24, 25 and 26 port switches
- Freely selectable uplink ports (TP, MM, SM, LH)
- Industry-specific installation of devices, without fan (operating temperature from 0°C up to +60°C or –40°C up to +70°C)
- Maximum reliability via lacquering of the circuit board (conformal coating)
- Highest network and installation availability using the HIPER-Ring redundancy concept, RSTP and redundant coupling
- Freely selectable software, temperature range and conformity
- Large range of security features
- Future-proof hardware platform
- Management functions support Web and SNMP-based tools
- Plug and Work for end devices; DHCP option 82

Applications

For use in demanding industrial environments car manufacturing cells, transport automation or the food industry.

Modular Industrial Switches

Modular configurable switches for future-proof industrial Fast Ethernet and Gigabit Ethernet networks

Requirements and Solutions

Modular Rail Switches enable flexible network design, using minimum cabinet space, and can be adapted to suit all network topologies. With media modules, one can have customized solutions for all industrial data networks and have the capability to expand due to their modular structure. Also the switches of the MICE series can be configurated and manufactured individually.

Product features

- MICE modular construction system
- Gigabit capable
- Fast installation on DIN rail
- Industry-specific installation of devices, without fan (operating temperature from 0°C up to +60°C or –40°C up to +70°C)
- Maximum reliability via lacquering of the circuit board (conformal coating)
- Highest network and installation availability using the HIPER-Ring redundancy concept, RSTP and redundant coupling
- Freely selectable software, temperature range and conformity
- Large range of security features
- Future-proof hardware platform
- Management functions support Web and SNMP-based tools
- Plug and Work for terminal devices; DHCP option 82
- Media modules with diverse technologies (PoE, POF, Realtime)

Applications

Modular Rail Switches offer the highest network availability even under adverse environmental conditions, such as electromagnetic interference fields, high temperature loads and mechanical stress and are especially suited for applications in which installation shutdowns should not occur even if a connection breaks.

MS4128-5

Gigabit Ethernet
media module

RSR30

MACH1000

PowerMICE

For future-proof industrial Gigabit Ethernet networks.

Requirements and Solutions

Industrial networks are growing faster and faster, which requires very efficient switches, also on the rail. The switches of the MICE series offer full layer 3 functions and 4 Gigabit ports. Integrated security mechanisms provide precise control of the data traffic. With the MICE media modules, one can have customized solutions for all industrial data networks and have the capability to expand due to their modular construction.

Product features

- MICE modular construction system
- Powerful Layer 3 routing switch
- 4 Gigabit ports
- 3 different switch versions:
  MS4128-L2P (Layer 2 Professional). MS4128-L3E (Layer 3 Enhanced),
  MS4128-L3P (Layer 3 Professional).
- Industry-specific installation of devices, without fan (0°C up to +60°C)
- Support of several redundancy mechanisms like HIPER-Ring, RSTP, redundant coupling and link aggregation
- Freely selectable software, temperature range and conformity
- Large range of security features like ACL, 802.1x, port security
- Future-proof hardware platform
- Management functions support Web and SNMP-based tools
- Plug and Work for end devices; DHCP option 82

Applications

Even under adverse environmental conditions such as electromagnetic interference fields, high temperature loads and mechanical stress, the PowerMICE switches offer all software features that are normally only available in office switches. For application in tunnels and high-ways as well as in process automation.

Ruggedized Switches

Rugged Switches for Fast and Gigabit Ethernet.

Requirements and Solutions

The new Hirschmann™ family is the solution of choice whenever rugged design, long-term reliability and very good EMI immunity are required to withstand extreme operating conditions such as temperature, shock and vibration. The range of applications includes substations, marine systems, transportation automation and extremely harsh industrial environments.

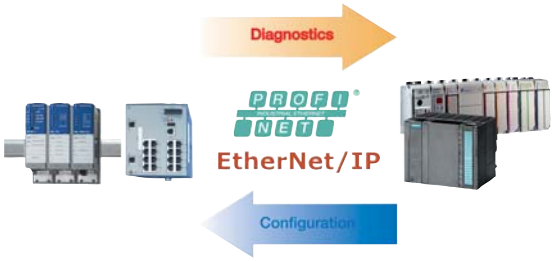
Product features

- Designed for harsh industrial environments
- Extended temperature range: –40°C up to +85°C
- Extreme EMI immunity
- Optional conformal coating
- NEMA TS2, IEEE1613, IEC 61850-3 and EN 50155 (MACH1000 without PoE) compliant
- MACH1000 optional with Power over Ethernet (PoE)
- Fast, hassle-free DIN rail or wall mounting (RSR)
- Industrial switch for 19 cabinet (MACH1000)
- Up to 4 Gigabit Ethernet Ports
- Models ranging from the simple 8 port TX to the 10 port fiber optic version
- Shock and vibration resistant
- Optional wide input range power supply, no external power supply necessary
- 19 version can be configured individually with up to 26 ports

Applications

The new rugged switches deliver the perfomance you need even under rough conditions, i.e. shock, vibration and temperatures fluctuating between –40°C up to +85°C. Hirschmann™ Rail Switches are built to take the punishment in power generation and distribution, marine, rail, road and other transportation automation applications including fiber optic rail networks, train station passenger information systems, conveyors and airport runway lights.

MACH4000 family



Modular Gigabit Ethernet Switches

For industrial Gigabit and Fast Ethernet Backbones.

Requirements and Solutions

The MACH backbone switch is a genuine all rounder and is capable of handling any application with a variety of media modules and the extend-able IP routing functionality. Devices of the MACH series are used in particular where large networks are set up under industrial environmental conditions and where special performance characteristics, such as availability and failure safety, are relevant.

Product features

- Design of large Gigabit Ethernet ring structures in which individual switches may be as much as 70 km away from each other
- Guaranteed fastest switching time in the case of a connection (HIPER Ring) or router (HiVRRP) failure, RSTP, redundant coupling
- Company-wide redundancy design of the machine control system up to the backbone
- Separation of networks by VLANs and IP routing
- Extended temperature range from 0°C up to +60°C
- RIP and OSPF routing protocols, IGMP v1/v2/v3, PIM-DM and DVMRP multicast routing
- Large range of security features like ACL, 802.1x, port security
- Management functions support Web and SNMP-based tools
- Plug and Work for terminal devices; DHCP option 82

Applications

The high performance MACH is the nerve center in the control system of a production setup. In addition, it also handles voice or video transmission, wherever the highest network accessibility is required. Typical areas of application are process and factory automation.

Industrial Profiles

Perfect integration in PROFINET and EtherNet/IP.

Requirements and Solutions

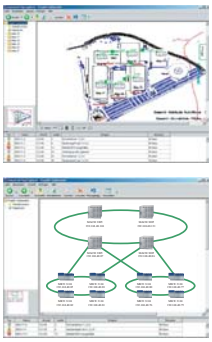
Hirschmann™ offers a unique range as far as integration into the two major standard protocols PROFINET and EtherNet/IP is concerned, and is the first manufacturer to offer application possibilities on a broad base. The Industrial Profiles are uploaded as firmware into a wide selection of Rail Switches, MICE or MACH and enable configuration and monitoring by the manufacturers' own configuration tools in accordance with the Plug and Play principle.

Product features

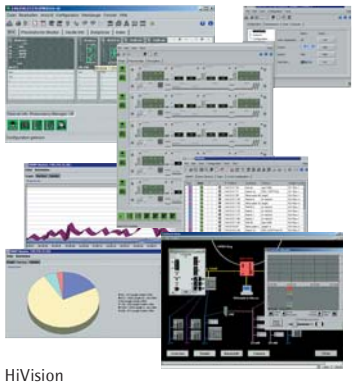
- Profile selection options for all managed Hirschmann™ switches: Rail, MICE, PowerMICE and MACH4000
- Choice of protocols: PROFINET, EtherNet/IP
- System-wide engineering
- Seamless integration with diagnostic concepts
- Maximum flexibility for all markets and networks

Applications

Hirschmann™ makes the leading Industrial Application Profiles for Industrial Ethernet available, and also enables integration of Hirschmann™ quality products in the software tools of the automation manufacturers. Regardless of whether it is for Rail Switches, MICE or MACH products and whether we are dealing with applications in small or large networks, in mining or mechanical engineering, in process or transport automation.



Industrial HiVision Operator Edition



HiVision

MACH100 family

Network Management

Configuration, diagnosis and monitoring for industry.

Requirements and Solutions

The Operator Edition permits at-a-glance monitoring of network status by mapping the network with its complete hierarchical structure and topology. HiVision enables secure and easy configuration as well as the monitoring of industrial network components – in real time.

Product features

- Industrial HiVision Operator Edition permits monitoring of all IP devices, visualization of the topology and mapping of the network hierarchy. Events can be forwarded by E-mail, SMS or message window.
- HiVision offers graphically interactive configurations providing user-friendly access to all features of the network components.
- Device status and events can be communicated to all conventional SCADA systems over OPC.
- The SCADA interface is a high-performance gateway between SNMP and OPC that integrates network management seamlessly into all SCADA systems. All SNMP data becomes available over OPC.
- High-performance management from the low-cost entry-level version for Windows up to HP OpenView Integration under HPUX.

Applications

The Operator Edition features scaleable license management, offering a cost-effective entry-level option for fast visualization and reliable monitoring of industrial networks. HiVision provides user-friendly system expansion for network monitoring. HiOPC integrates all network components into SCADA systems, especially in process and factory automation.

Industrial Workgroup Switches

Faster and more comfortable edge connection via copper or fiber optic.

Requirements and Solutions

The devices of the MACH100 family offer a high level of security and flexibility for Ethernet network design or upgrade in production-related areas. The MACH100 is primarily designed for the control room. Using the modular variants, end devices can be networked together with exactly the right number of copper and fiber ports. The workgroup can be connected to the network backbone with Gigabit Ethernet.

Product features

- Fanless low-maintenance design
- Redundant power supply versions available
- High network availability due to an extensive range of redundancy functions (RSTP, MRP, HIPER-Ring, Ring and network coupling, Link Aggregation)
- High flexibility: modular workgroup with 8 Fast Ethernet ports 10/100 BASE-T (RJ45), 2 Gigabit Ethernet Combo Ports and slots for additional 8 port media modules (100 Mbps multimode SC or singlemode SC, 100 Mbps SFP slots and 10/100 Mbps Twisted Pair RJ45) – Hot swappable
- Fixed port version with 8 and 24 x 10/100 Mbps RJ45 ports and 2 Gigabit Ethernet Combo ports
- Diagnostics: LEDs, fault relay output, log files, SNMP and web based management
- Easy installation and fast switch replacement using autoconfiguration adapter and HiDiscovery

Applications

The fast and reliable connection of end users via workgroup switches is perfectly suited to all production-related applications in industrial environments. Typical applications include control rooms in process and factory automation.

BAT54-F

BAT54-Rail

EAGLE20 MM/MM

EAGLE20 TX/TX

EAGLE20 TX/MM

BAT Wireless LAN AP/AC

Wireless technology for industrial applications.

Requirements and Solutions

Lower installation costs and higher mobility and flexibility are the key reasons why industry is switching more and more from wired systems to radio remote control technology. Hirschmann™ offers a reliable complete package featuring tried and tested technology, installed and tested on site.

Product features

- Dual-Band access points with maximum network security as well as operational and transmission reliability
- Wireless interfaces supporting 2.4 GHz and 5 GHz frequencies (802.11a/h/b/g)
- High performance devices with IP routing, firewall, fast roaming, IEEE 802.11i encryption etc., offering more than other conventional access points
- Extremely high stability: extended temperature range and protection classes IP40 and IP65/67 (waterproof)
- Wall, DIN rail and mast mounting
- Operation even in hazardous environments (ATEX zone 2)

Applications

Wireless data transmission also enables the use of broadband networks on mobile units such as HMIs (Human Machine Interfaces), AGVs (Automated Guided Vehicles), trains, production facilities, etc. Due to extremely stable hardware and high-performance software there are no limits regarding the field of application.

Security

A high speed VPN, firewall and routing solution all in one package.

Requirements and Solutions

The company-wide network becomes reality: Ethernet is deployed in all departments, from the office through to production. This advantage also brings with it some risks, however, in the form of viruses and worms. As a result, it is becoming ever more important to control access to the production network and to construct secure tunnels based on VPN technology.

Product features

- Stateful Inspection Firewall and Firewall with VPN functionality
- VPN: IPSec, DES, 3DES, AES, Pre-Shared Key, NAT-T etc.
- Modes: Router, Single Client Transparent, Multi Client Transparent (MCT), PPPoE
- Secured and unsecured ports each with:
  - 10/100Base-TX Twisted Pair ports
  - Fiber ports, multimode, singlemode
- V.24 port: Configuration, modem connection
- USB port for autoconfiguration adapter
- Redundant 24 V power supply
- Extensive diagnostic options: LEDs, signaling contact, log files
- Management: Serial, HTTPS, SSH, SNMP v1/v2/v3, Industrial HiVision, HiDiscovery and LLDP
- Additional functionality: DHCP Server/Client/Relay, DynDNS, 1:1 NAT, VLAN support, port routing MAC filter, DoS limiter, Firewall access V.24 (PPP)

Applications

Communication must be shielded against internal and external influences wherever process and production data flows into cross-departmental data acquisition systems or where systems cross-reference each other within the automation network. Production plant or remote maintenance access to production plant can be easily and securely segmented with the EAGLE system.

OZDV 2471 G

ProfiPlug 21

OZD 485 G12 BAS

OZD 485 G12 PRO

OZD Profi 12M PRO

OZD Profi 12M

OZD Genius

OZD Modbus Plus

OZD FIP

OZD Profi ATEX 1

Fiber optic Technology for Fieldbuses

The extra operating reliability advantage for leading fieldbuses.

Requirements and Solutions

In an EMC-polluted environment, fiber optic technology is the first choice for higher operational reliability in industrial installations. Fiber optic repeaters extend the ranges of the fieldbus networks and facilitate easy network planning and commissioning.

Product features

- Fiber optic repeaters for field bus systems such as PROFIBUS, Modbus, WorldFIP, Genius Bus et al.
- Digital fiber optic converters for V.24/RS 232 and RS 485 interfaces
- High operational security and plant accessibility thanks to 0ms switch over time in case of fiber break, redundant power supply, remote monitoring and predictive maintenance possibilities
- DIN rail devices with metal or plastic housing suitable for industrial use or compact plug-in modules
- Suitable for multimode silica, HCS® and plastic fibers as well as single-mode fiber for long distances

Applications

Fiber optic repeaters for various fieldbuses are mainly used in process automation and transport technology, particularly in extended installations in which the risk of production downtimes has to be minimized.

Fiber optic Fieldbuses for hazardous locations

High speed data communication, approved for Ex-Zone 1 and 2.

Requirements and Solutions

Prevention of explosions in hazardous locations requires the ultimate precautions. Fiber optic cables fit those demands perfectly, as light simply causes no sparks and thus no ignition. The necessary media converters are approved by the relevant authorities. Thus data rates, redundancy mechanisms and predictive maintenance, well known in standard auto-mation, can now be used in hazardous locations as well.

Product features

- Fiber optic repeaters for PROFIBUS, Geniusbus, Modbus
- Approvals according to ATEX directive 94/9 Zone 2 and 22 for OZD Profi G12 ATEX1 additionally Zone 1 and 21
- Approvals according to UL 1604 Class1 Div 2
- 0 ms ring redundancy
- Predictive maintenance via SCADA possible

Applications

Fiber optic fieldbus repeaters with approvals for hazardous locations are used in chemical, petrochemical and pharmaceutical industries. Likewise, they can be used in installations with inflammable dusts, e.g. in parts of the food industry, fiber optics expand the range of rapid real-time fieldbus without any barriers to protection zone 1.

Time is against us.

Internet: www.hirschmann.com

State-of-the-art car production at AUDI AG.

The Hirschmann™ Line of Industrial and Mission-critical Networking Components

The Hirschmann™ line of networking devices manages virtually every communication connection requirement among the various layers of the network: information, control and device. There are products that support both copper and optical fiber media, with data speeds as high as 10 Gigabits per second.

The Hirschmann™ brand represents experience and expertise in automation technology, developed over the years since pioneering the development of Ethernet as a common standard for industry networks. Today, Hirschmann™ is the leader in manufacturing high-reliability networking hardware for industrial and mission-critical applications worldwide. Hirschmann™ products will ensure hassle-free and secure data communication under the toughest conditions. The high transmission speeds and large bandwidths ensure the fastest possible processing of large amounts of data. Customers worldwide also use Hirschmann™ products for some key benefits they provide.

In addition, to the world's largest offering of Industrial Ethernet networking devices, Hirschmann™ also provides training, consulting and other support services through the Competence Center.

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GLOBAL LOCATIONS

For worldwide Industrial Sales and Technical Support, visit: www.belden.com/industrial

EUROPE

Headquarters – Germany
Hirschmann Automation and Control GmbH
Phone: +49 7127 14-0
Fax: +49 7127 14-1542
INET-sales@hirschmann.de
web: www.hirschmann.com

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