Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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HIRSCHMANN
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Industrial Networking Solutions for Mission Critical Applications

Be certain.
Belden.

Industry-specific solutions that can improve productivity and operational efficiency today, while laying the foundations for tomorrow's IIoT opportunities.

Edition 2017

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Prepare your infrastructure for the Industrial Internet of Things (IIoT)

The IIoT is widely considered to be one of the primary trends affecting industrial businesses today and in the future. Industries are pushing to modernize systems and equipment to meet new regulations, to keep up with increasing market speed, and to deal with the most sophisticated technologies. Businesses that have embraced the IIoT have seen significant improvements to security, efficiency, and profitability, and it is expected that this trend will continue as IIoT technologies are more widely adopted.

You can depend on us when you need industry-specific solutions that can improve productivity and operational efficiency today, while laying the foundations for tomorrow's IIoT opportunities.

Be certain.
Belden.

More Convenience and More Solutions for Networks in Harsh Environments and Large-scale Infrastructures

Belden Industrial Solutions

Belden has brought together a comprehensive line of industrial cabling, connectivity and networking devices, offering the most reliable communications solutions for your application. Whether you are networking your devices to the controllers, connecting the controllers to the control room, relaying data between the control room, the engineering department, and remote manufacturing sites – or all of the above – Belden has the products you need to seamlessly connect your communications.

From the petrochemical, automotive, pharmaceutical, power generation, pulp and paper, metals, food and beverage, or general manufacturing plant to the corporate headquarters – and everywhere in between – Belden has your signal transmission solution. Belden offers the most dependable network and communications system performance in tough and mission-critical environments.

Our Synergy Ensures Continuous Performance

With the Hirschmann and Tofino Security product line additions to the Belden offering, our line of Complete Industrial Solutions is uniquely positioned to provide the best network and communications infrastructure possible. Belden products and systems expertise mean that you can maintain ongoing operations without interruption and costly downtime – in any environment. Here are a few more good reasons why Belden is your best choice for industrial networking, communications and control:

- We have the expertise to integrate your industrial and commercial networks.
- Our products are engineered to perform in the harshest and most demanding environments.
- We offer the broadest selection of products, for a complete, end-to-end Ethernet solution.
- Our sales and engineering professionals can audit, recommend/design, configure and assemble the products and systems to your specific requirements.
- Our global manufacturing, distribution and support network makes our products and services available to you globally.

Offering Comprehensive Service & Support

Belden recognizes that comprehensive know-how is necessary to ensure an optimized, homogenous solution. We also know that consultation, support and training requires more than just a general understanding of the products, technologies and market trends. It requires a solid understanding of the application and the ability to provide the type of support that is needed – when and where it is needed. It requires the four key service and support areas that are critical to success:

- Network design consulting
- Training
- Technical support
- System performance

Network Design Consulting

Belden eliminates your design challenges because we understand the issues surrounding the design and operation of networks in industrial and mission-critical environments. Our engineers are available to work with you to deliver high-availability networks that meet your enterprise-wide IT needs. Whether it's designing systems for Greenfield facilities, or integrating into existing IT environments, our highly-trained staff lifts the design burden from your shoulders to ours.

We will consult with you to develop a strategy – or we will develop and implement your full design – either way our staff is available to you.

Training

Backed by years of meeting and exceeding the needs of a broad range of end-user applications, Belden is ideally suited to offer beginners and networking experts alike the opportunity to expand their understanding of mission-critical networks.

Belden has developed a series of training programs that are given by Belden-certified individuals – all experts in industrial networking and cabling.

Technical Support

At Belden, our personnel are poised to assist our customers – ensuring maximum uptime and reliability. And with offices in North America, Asia and Europe, Belden can respond globally.

System Performance

If Belden designs it, we guarantee performance – period. We are committed to ensuring world-class signal connectivity and to significantly improve your operational up-time. All Belden components are "designed" to deliver optimum performance: from cable, to connectors, to switches and routers. Based on this comprehensive product portfolio, we have the necessary industrial solutions DNA to deliver reliability.

For more information on our service and support offering, including our warranties, please go to the Belden web site at www.belden.com to locate a Belden sales representative near you.

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The Hirschmann Brand of Ethernet Switches, Wireless LAN, Security and Connectivity Products Sets the Standard for Quality, Reliability and Service

Hirschmann Switches maximize throughput, simplify installation, and reduce overall costs.

Hirschmann, a Belden brand provides the industry with leading Ethernet networking technology and sets the standards for quality, reliability and service.

Robust

Hirschmann's years as a networking leader and pioneer, the use of premium electronic components and effective (fan-less) thermal management translates to superior performance and the highest MTBF (mean time between failure) values possible – even at operational temperatures as high as +85 °C.

Easy to Configure

Our managed switches are easy to configure with an integrated password controlled web interface, via SNMP or CLI (command line interface), providing secure remote configuration through the network. Configuration data and device Operating System can be saved and stored on an external flash-based configuration storage device, simplifying and automating commissioning and device replacement.

Assured Enterprise Interoperability

All switches have IT-compatible managed-switch functionality with SNMP and RMON and are compatible with industry standard network management tools and other name brand switches.

Media Redundancy Options

Technologies like PRP and HSR provides zero packet loss redundancy and RSTP and MSTP offer office network interoperability. By using the standardized MRP, redundant network topologies are simplified – resulting in recovery from media failure within 500 ms down to 10 ms (FastMRP) and with Device Level Ring (DLR) even to 3 ms.

Sustainable Security Solutions

Comprehensive security features in switches, routers and firewalls according to latest standards like IEC62443 and best practices offers all around protection in mission critical networks. Regular updates of the device software enable customer's networks to be compliant to todays and future regulations.

Broad Product Line

The breadth of our product line is unmatched and includes serial to fiber optic converters, fieldbus repeaters for all major fieldbus protocols, managed and unmanaged Ethernet switches (3-51 ports) with an almost limitless mix of copper/fiber ports, Layer 3 switches, media converters, wireless Access Points/Clients/Bridges, firewalls with VPN tunneling and deep packet inspection and network management software (SNMP and OPC).

Network Software

Monitoring and visualizing your network is made easy with the use of our Industrial HiVision network management software. Requiring little or no IT knowledge, Industrial HiVision allows users to monitor alarms, bandwidth utilization, and availability of networked devices – not just switches. Industrial HiVision allows the user to configure a single switch or multiple switches at the same time, significantly simplifying commissioning.

Design Innovation

Continuous product innovations to meet expanding customer needs. This includes 2.5 Gigabit and 10 Gigabit ports, industrial profiles, software tools, various form factors, e.g. IP67 industrial watertight switches and access points, and the integration of a USB and memory card ports to facilitate quick recovery of a switch and the network.

Technologies

Technology Topics to Industrial Networking

Hirschmann is one of the most highly experienced manufacturers of industrial network solutions based on Industrial Ethernet. As an expert in system components, accessories and unified management software with a global presence, we make available our comprehensive expertise to our clients.

Parallel Redundancy Protocol (PRP)

The International Standard IEC 62439-3 describes the Parallel Redundancy Protocol (PRP). PRP uses 2 separate LANs for uninterrupted availability. On the path from the sender to the receiver, PRP sends 2 data packets in parallel via the 2 mutually independent LANs with arbitrary ring, mesh, star, and bus topologies. The receiver processes the first data packet received and discards the second data packet of the pair.

Precision Time Protocol (PTPv2)

PTP (Precision Time Protocol) is a procedure described in the IEEE 1588-2008 standard that provides hardware supported precise time synchronization across the devices in the network. The procedure offers a synchronization of the clocks to a degree of precision of just a few 100 ns.

High-availability Seamless Redundancy (HSR)

High-availability Seamless Redundancy (HSR) is like PRP described in the IEC 62439-3 Standard providing zero packet loss in case of a link failure. HSR functions primarily as a protocol for creating media redundancy based on a ring topology while PRP creates complete network redundancy.

Power over Ethernet (PoE)

PoE allows you to supply current to a powered device (PD) such as an IP camera via the twisted pair cable that is at the same time used for Ethernet communications. The PoE ports support Power over Ethernet according to IEEE 802.3af delivering a maximum 15.4 Watts per twisted pair port.

Media Redundancy Protocol

The MRP (Media Redundancy Protocol) is a protocol that allows you to set up high-availability, ring-shaped network structures with recovery times of 500 ms, 200 ms, 30 ms or 10 ms . An MRP ring with Hirschmann devices is made up of up to 100 devices that support the MRP protocol according to IEC 62439-2.

Power over Ethernet Plus (PoE+)

PoE+ is the further development of PoE according to the standard IEEE 802.3at supporting up to 30 Watt. While PoE requires two pairs of the twisted pair cables, PoE+ uses all 4 pairs to power end devices which require power above 15.4 Watts.

Device Level Ring

The Device Level Ring was introduced by the ODVA in 2009 providing high available networks in a ring topology. With a maximum of 50 nodes it is possible to achieve a worst case recovery time of 3 ms.

PoE Powered Device (PD)

A Power over Ethernet PD (powered device) is a device which receives the required power for their operation via PoE or PoE+.

Time-Sensitive Networking (TSN)

TSN takes IEEE 802 Ethernet to the next level to address the requirements from today's and future automation networks. TSN offers unprecedented low end-to-end latency, as well as frame delivery precision with very low jitter that goes beyond anything that was ever possible with standardized IEEE 802.1 technology. Standardization in IEEE 802.1 and IEEE 802.3 ensures interoperability between different vendors, a broad market scope, scalability with future Ethernet speed increases and investment security.

Technologies *(continued)*

Layer 3 – Wire-Speed Routing with standardized Routing Protocols

The Layer-3 routing functionality in Hirschmann switches focusing on maximum performance and lowest latency. Due to the hardware support of the routing functionality wire speed IP communication is provided between different IP networks offering the same delays like switched data packets. Standard Routing protocols, router redundancy mechanism as well as multicast routing protocols are part of the Layer 3 functions.

IPv6

Although the next generation of the Internet Protocol, version 6, is rarely deployed in industrial environments, the latest generation of Hirschmann devices is able to server future customer demands for IPv6 in the same way like it is required today with IPv4.

PROFINET

PROFINET is an industrial communication standard based on Ethernet technology. It is standardized in IEC 61158 and IEC 61784. Devices with this logo are certified by the PROFIBUS & PROFINET International (PI) according to the Conformance Class B (CC-B). Therefore several requirements need to be fulfilled like the implementation of a PROFINET IO Stack.

PROFINET CC-A

PROFINET is an industrial communication standard based on Ethernet technology. It is standardized in IEC 61158 and IEC 61784. The supported functions of PROFINET IO are divided into Conformance Classes (CC). Device of the Conformance Class A (CC-A) provides basic function for PROFINET IO with Real Time (RT) communication.

EtherNet/IP – Conformance tested

EtherNet/IP is an industrial communication protocol standardized by the Open DeviceNet Vendor Association (ODVA) on the basis of Ethernet. It is based on the widely used transport protocols TCP/IP and UDP/IP (standard). EtherNet/IP thus provides a wide basis, supported by leading manufacturers, for effective data communication in the industry sector.

Clear Space Wireless

Clear Space, OpenBAT offers stable wireless LAN connections, because this technology reliably eliminates interfering frequencies. This markedly reduces the noise level and therefore largely prevents packet losses. The integrated ESD protection withstands electrostatic discharges while increasing the lifespan of the hardware.

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Ethernet Products at a Glance

Unmanaged DIN Rail Mount Switches

SPIDER, SPIDER II, SPIDER III

Cost-effective, plug & play unmanaged switches

- SPIDER 2, 3, 5 or 8 ports
- SPIDER 2 or 5 ports with PoE PD
- SPIDER PoE Injector
- SPIDER II 8, 9, 10, 16 and 18 ports
- SPIDER II PoE 4 PoE and 4 standard ports
- SPIDER II GIGA 5 or 7 ports, all Gigabit
- SPIDER III Standard Line up to 8 ports
- SPIDER III Premium Line up to 9 ports

RS20, RS30

Feature-rich unmanaged switches with selectable port types, features and approvals

- RS20 4, 8, 9, 16, 17, 24 or 25 ports
- RS30 10, 18, or 26 ports, two of which are Gigabit

Managed DIN Rail Mount Switches

GECKO

Lite managed switch

- GECKO 4TX 4 ports
- GECKO 5TX 5 ports

RSB20

Fast Ethernet RSB switches with basic software version

- RSB20 8 or 9 ports

RS20, RS30, RS40, RS22, RS32

Fully configurable managed switches with selectable features and approvals

- RS20 4, 8, 9, 16, 17, 24 or 25 ports
- RS30 10, 18, or 26 ports, two of which are Gigabit
- RS40 9 ports, all Gigabit
- RS22 4, 8, 9, 16, 17, 24 or 25 ports, four of which are PoE
- RS32 10, 18, or 26 ports, four of which are PoE and two are Gigabit

MS20, MS30, MSP30, MSP32, MSP40, MSP42

Full Gigabit managed modular switches with selectable features and approvals as well as user hot-swappable media modules for almost limitless copper/fiber combinations.

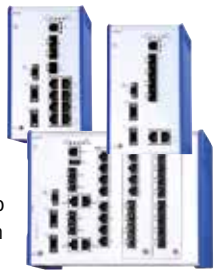
- MS20/30 up to 26 ports, two of which can be Gigabit
- MSP30/32 HiOS advanced Layer 2 and Layer 3 switch, up to 28 ports, four of which can be Gigabit
- MSP40/42 HiOS advanced Layer 2 and Layer 3 switch, up to 28 Gigabit ports, four of which on the first slot can be 2.5 Gigabit

RED25

Cost-effective Fast Ethernet redundancy entry-level switch supporting PRP, HSR or DLR. Offered in two, four-port versions:

- Four FE TX ports
- Two FE TX ports, plus two FE small form-factor pluggable (SFP) ports

RSP Series



Hardened managed switches with the new HiOS operating system

- RSP: uninterrupted redundancy thanks to PRP, HSR and DLR, on all ports IEEE 1588v2 time synchronization, comprehensive security functions, variants with 3 GE SFP and 8 FE ports, up to 7 FE SFP slots, Layer 2 and Layer 3 versions
- RSPS: optional PRP, HSR and DLR, on all ports IEEE 1588v2 time synchronization, variants with 6 FE ports, up to 4 FE SFP slots
- RSPL: comprehensive security functions, variants with 2 GE combo and 8 FE ports, up to 4 FE SFP slots
- RSPE: best-possible investment protection thanks to the maximum flexibility provided by the media modules, Layer 2 and Layer 3 versions

RSR20, RSR30

Ultra-hardened switches, operating temperature -40°C to +85°C, DC or AC power input

- RSR20: 8 or 9 ports
- RSR30: 9 or 10 ports, two or three of which are Gigabit

IP67 Waterproof Switches

OCTOPUS

- OCTOPUS 5TX unmanaged, 5 ports, M12 D-code
- OCTOPUS 8TX-EEC unmanaged configurable, 8 ports, M12 D-code
- OCTOPUS 8TX PoE-EEC unmanaged configurable, 8 ports, M12 D-code
- OCTOPUS 8M/16M/24M managed, 8, 16 and 24 ports, M12 D-code
- OCTOPUS 8M-6PoE and 8M-8PoE managed, 8 ports, M12 D-code, 6 and 8 of which are PoE
- OCTOPUS 16M-8PoE and 24M-8PoE managed, 16 and 24 ports, M12 D-code, 8 of which are PoE
- OCTOPUS OS2x/3x: IP65/67; from 8 up to 28 ports; M12 D-code; several options available: multi- or singlemode fiber ports, Power over Ethernet with up to 15 PoE/PoE+ ports, 2 or 4 GE ports M12 X-code, managed or unmanaged types, Layer 3 software support, power supply options from 24 to 110 V DC and 100 to 230 V AC, certified for trains, ships and for use in road vehicles.

19" Rack Mount Switches

MACH100

Hardened Enterprise-grade switches

- MACH102-8TP modular switch, up to 26 ports, 10 fixed ports, two of which are Gigabit (modules available for MM/SM fiber, RJ45, PoE/PoE+ and SFP)
- MACH102-8TP-F 10 fixed ports, two of which are Gigabit
- MACH102-24TP-F 26 fixed ports, two of which are Gigabit
- MACH104 – All Gigabit, 4 RJ45/SFP combo ports and 20 RJ45 ports (4 of which can be PoE)
- MACH104 – All Gigabit, 4 RJ45/SFP combo ports, 16 RJ45 PoE+ ports (optional with 2 XFP 10G uplink ports)

19" Rack Mount Switches

GREYHOUND

Fast/Gigabit Ethernet switch designed for use in harsh industrial environments.

- From entry level types with 16 Fast Ethernet up 28 ports Full Gigabit Layer 3 versions
- Field exchangeable media modules
- Versions with hot swap power supplies
- 2.5 Gigabit uplink and full wire speed Layer 3 options

MACH1000

Ultra-hardened switches, fully configurable, operating temperature -40°C to +85°C, optionally for all variants 4 PoE ports

- MAR1020, up to 24 ports
- MAR1030, up to 28 ports, up to four of which are Gigabit
- MAR1120, up to 20 ports on rear of switch
- MAR1130, up to 24 ports on rear of switch, up to four of which are Gigabit
- MAR1040, 16 Gigabit RJ45/SFP combo ports, in Layer 2 or Layer 3 version

MACH4000

High density and high speed backbone switch w/Layer 3/routing and speeds up to 10 Gigabit

- MACH4002-24G up to 24 Gigabit ports
- MACH4002-24G+3X, up to 24 Gigabit ports and three 10 Gigabit XFP ports
- MACH4002-48G up to 48 Gigabit ports
- MACH4002-48G+3X up to 48 Gigabit ports and three 10 Gigabit XFP ports

Embedded Ethernet

Switches

- EES Embedded Ethernet Switches EES20/EES25 and EESX20 and EESX30
- EES Development Kit

Security, Firewall and VPN Appliance

EAGLE/Tofino Xenon

Network segmentation, VPN and deep packet inspection.

- Tofino Xenon: Industrial firewall with Stateful Packet Inspection (SPI) and optional Deep Packet Inspection (DPI) for bridged communication.
- EAGLE20-0400 and EAGLE30-0402: Multi-port Stateful Packet Inspection (SPI) firewalls optional Deep Packet Inspection (DPI) in convection-cooled metal DIN Rail housings which support 6 LAN ports – two of which are Gigabit and two SHDSL ports
- EAGLE One: Industrial firewall providing Stateful Packet Inspection (SPI) for bridged or routed communication combined with a unique Firewall Learning Mode and comprehensive Network Address Translation (NAT) techniques.

Industrial Wireless LAN

BAT Access Points/Clients

- OpenBAT family - BAT-R and BAT-F - rugged configurable wireless LAN access points and/or clients
- BAT450-F rugged compact and lightweight configurable wireless LAN access points and/or clients
- BAT867-R configurable wireless LAN access point and/or client featuring IEEE 802.11ac
- BAT Controller WLC for centralized management of large WLAN networks
- BAT-C Wireless LAN access client
- Extensive antenna and accessory offering

Serial to Ethernet Media Converters

IOLAN DS/SDS

End devices with a serial interface can be easily and reliably connected to Ethernet networks.

Hardened Fiber Transceivers/Modems

FiberINTERFACES

Extending the reach of copper for serial and fieldbus protocols via fiber.

Industrial-strength Patch Panel

MIPP

- Single Modules: 6 x SC Duplex, 6x LC Duplex, 12x LC Duplex, 4 x RJ45 Keystone Jack unshielded or shielded
- Double Modules: 12 x SC Duplex and 12 x LC Duplex
- Accessories: Pigtails

Secure Remote Access Solution

Secure Remote Access Solution

A simple and secure way to provide remote network access and diagnostics through a three-component system:

- GateManager
- SiteManager
- LinkManager

Network Management Software

Industrial HiVision

Network visualization and configuration software with integrated OPC server.

- Automatic topology dectection
- MultiConfig™ for simultaneous configuration of multiple devices
- Security Status Visualization
- Network dashboard
- Annual Maintenance Plan

Industrial Ethernet Media Cord Sets

Ethernet Cord Sets

Hardened pre-terminated and factory tested cordsets

- RJ45-RJ45, RJ45-M12, M12-M12
- Unshielded and Shielded Versions
- PVC, TPE and TPE High-Flex Cat 5e UTP
- 17 lengths - from 0.3 to 50 meters
- M12 bulkhead termination also available

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Product, Feature and Approval Matrix

	DIN RAIL	PANEL	19" RACK	MAXIMUM DATA SPEED	MAXIMUM PORT DENSITY	UNMANAGED	MANAGED/LAYER 2	MANAGED/LAYER 3 (ROUTING)	12 V DC	24 V DC	36 V DC	48 V DC	110/250 V DC	60/120/250 V DC	24 V AC	110/230 V AC	REDUNDANT POWER INPUTS	PoE (POWER SOURCE)	PoE+ (POWER SOURCE)	PoE (POWERED DEVICE)	PoE+ (POWERED DEVICE)	-40 °C/-40 °F	-20 °C/-4 °F	0 °C/32 °F	50 °C/122 °F	60 °C/140 °F	70 °C/158 °F	85 °C/185 °F	cUL508/cUL61010-1/-2-201	cUL1604/ISA 12.12.01/ FM3611 (CLASS 1 DIV 2)	GL (Germanischer Lloyd)	IEC 61850-3 (SUBSTATION)	IEEE 1613 (SUBSTATION)	EN 50155, EN 45545 (RAIL, ONBOARD)	EN 50121-4 (RAIL, TRACK-SIDE)	ATEX 100a, ZONE 2 (HAZARDOUS LOCATION)	cUL60950	Page
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OpenBAT	●	○	○	450	2		●	●	●	●	●	●	●	●		●	●			●		●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	93
BAT450-F		●		450	2		●	●		●										●		●	●	●	●	●	●	●						●	●		●	96
BAT867-R	●		○	867	1		●	●		●														●	●	●									●			99
BAT-C		●		100	1		●			●												●	●	●	●	●	●	●	●									101
WLAN Controller			●	G	4		●	●								●								●	●													102
Serial to Ethernet Converters																																						
IOLAN DS/SDS	○	○	●	G	2		●		●	●			●			●		●				●	●	●	●	●	●	●							●	●	●	106
Fiber Interfaces																																						
Fieldbus	●				3	●				●							●						●	●	●	●				●	●					●	108

○ ○ **Hollow markers indicate that a non-standard/accessory mounting option is available.**
All DIN rail mount switches can be mounted in a 19" rack by using the Rack Mount Adapter (accessory). The SPIDER and SPIDER III series have mounting options on their housings to enable panel mounting. The RSR has an adapter plate and the MACHs can have their front rack mount flanges turned 90° (additional flanges for rear are available for added support).

● * only 110 V DC

Switch Software

HiOS – Hirschmann Operating System

HiOS is the latest operating system for the new generation of Industrial Ethernet devices, combining high performance with robust security. It provides the user with precise time synchronization, extensive redundancy mechanisms and diagnostic tools. With zero switch-over time, the PRP (Parallel Redundancy Protocol) and HSR (High-Availability Seamless Redundancy) redundancy methods ensure smooth production processes. Comprehensive security mechanisms protect networks against attacks and operating errors.

- Layer 2 Embedded (L2E): Suitable for EES
- Layer 2 Standard (L2S): Suitable for RED, RSP, RSPS, RSPL, RSPE, GREYHOUND and OCTOPUS II
- Layer 2 Advanced (L2A): Suitable for MSP, RSP, RSPE, GREYHOUND 1040 and OCTOPUS II
- Layer 3 Standard (L3S): Suitable for RSP, RSPE and OCTOPUS II
- Layer 3 Advanced (L3A): Suitable for MSP and GREYHOUND 1040

Classic Switch Software

The Classic Switch Software provides a range of functions normally found in backbone systems used in office networks. This includes comprehensive management, diagnostics and filter functions, various redundancy features, security mechanisms and real-time applications.

- Layer 2 Basic (L2B): Suitable for RSB20
- Layer 2 Enhanced (L2E): Suitable for RS20/RS30/RS40, MS20/MS30, OCTOPUS
- Layer 2 Professional (L2P): Suitable for RS20/RS30/RS40, MS20/MS30, OCTOPUS, PowerMICE, RSR20/RSR30, MACH100, MACH1000, MACH4000
- Layer 3 Enhanced (L3E): Suitable for PowerMICE, MACH4000
- Layer 3 Professional (L3P): Suitable for PowerMICE, MACH104, MACH1040, MACH4000

NOTE: For the latest software functionality overview please visit our website at:
www.hirschmann.com/en/Software

Software Functionality

Switching	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
Disable Learning (Hub Functionality)		●	●	●	●					
Fast Aging	●	●	●	●	●	●	●	●	●	●
Static Unicast/Multicast Address Entries	●	●	●	●	●	●	●	●	●	●
VLAN (802.1Q)		●	●	●	●	●	●	●	●	●
Independent VLAN Learning		●	●	●	●	●	●	●	●	●
Double VLAN Tagging (QinQ)			●	●	●					
GARP VLAN Registration Protocol (GVRP)			●	●	●		●	●	●	●
Multiple VLAN Registration Protocol (MVRP)						●	●	●	●	●
Protocol-based VLAN					●			●	●	●
Voice VLAN			●	●	●		●	●	●	●
MAC-based VLAN								●	●	●
IP Subnet-based VLAN								●	●	●
VLAN Unaware Mode						●	●	●	●	●
QoS/Port Prioritization (802.1D/p)	●	●	●	●	●	●	●	●	●	●
TOS/DSCP Prioritization	●	●	●	●	●	●	●	●	●	●
Interface Trust Mode						●	●	●	●	●
IP Ingress DiffServ Classification and Policing								●	●	●
IP Egress DiffServ Classification and Policing								●*		●
CoS Queue Management				●	●	●	●	●	●	●
Traffic Shaping				●	●					
Queue-Shaping/Max. Queue Bandwidth							●*	●	●	●
Jumbo Frames			●*		●*	●*	●*	●	●	●
GARP Multicast Registration Protocol (GMRP)			●	●	●		●*	●	●	●
IGMP Snooping/Querier (v1/v2/v3)	●	●	●	●	●					
IGMP Snooping/Querier per VLAN (v1/v2/v3)						●	●	●	●	●
Unknown Multicast Filtering						●	●	●	●	●
Multiple MAC Registration Protocol (MMRP)						●	●	●	●	●
Multiple Registration Protocol (MRP)						●	●	●	●	●
Egress Broadcast Limiter per Port		●	●	●	●					
Flow Control (802.3X)		●	●	●	●	●	●	●	●	●
Egress Interface Shaping						●	●	●	●	●
Ingress Storm Protection						●	●	●	●	●
Ethernet Train Backbone									●*	

Redundancy	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
HIPER-Ring (Manager)	●	●	●	●	●					
HIPER-Ring (Ring Switch)	●	●	●	●	●			●	●	●
Fast HIPER-Ring			●*	●*	●*					
Link Aggregation with LACP			●	●	●	●	●	●	●	●
HIPER-Ring over Link Aggregation			●*	●*	●*			●	●	●
Link Backup						●	●	●	●	●
Media Redundancy Protocol (MRP) (IEC62439-2)	●	●	●	●	●	●	●	●	●	●
Fast MRP (IEC62439-2)						●*	●*	●*	●*	
MRP over Link Aggregation								●	●	●
Advanced Ring Configuration for MRP			●	●	●					
High-availability Seamless Redundancy Protocol (HSR) (IEC62439-3)						●*	●*	●*	●*	
Parallel Redundancy Protocol (PRP) (IEC62439-3)						●*	●*	●*	●*	
Device Level Ring (DLR)							●*	●*	●*	
Redundant Network Coupling		●	●	●	●			●	●	●
Redundant Coupling Protocol								●	●	●
Sub Ring Manager			●	●	●			●	●	●
RSTP 802.1D-2004 (IEC62439-1)	●	●	●	●	●	●	●	●	●	●
MSTP (802.1Q)			●	●	●			●	●	●
RSTP Guards		●	●	●	●	●	●	●	●	●
RSTP over MRP		●	●	●	●					
RSTP over HSR						●*	●*	●*	●*	
RSTP Ring Only Mode								●	●	●
VRRP				●	●				●	●
HiVRRP (VRRP enhancements)				●	●				●	●
VRRP Tracking				●	●				●	●

* Hardware dependent

Configuration	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
Automatic Configuration Undo (roll-back)	●	●	●	●	●	●	●	●	●	●
Text-based Configuration File (XML)						●	●	●	●	●
Configuration Fingerprint		●	●	●	●	●	●	●	●	●
BOOTP/DHCP Client with Auto-Configuration	●	●	●	●	●	●	●	●	●	●
DHCP Server: per Port			●	●	●		●	●	●	●
DHCP Server: Pools per VLAN			●	●	●		●	●	●	●
DHCP Server: Option 43			●	●	●					
DHCP Relay per Interface				●	●					
AutoConfiguration Adapter ACA31 (SD Card)						●*	●*	●	●	●
AutoConfiguration Adapter ACA21/22 (USB)		●	●	●	●		●*	●*	●*	●
HiDiscovery	●	●	●	●	●	●	●	●	●	●
DHCP Relay with Option 82	●	●	●	●	●	●*	●*	●	●	●
Command Line Interface (CLI)	●	●	●	●	●	●	●	●	●	●
CLI Scripting			●	●	●	●	●	●	●	●
Full-featured MIB Support	●	●	●	●	●	●	●	●	●	●
Web-based Management	●	●	●	●	●	●	●	●	●	●
Context-sensitive Help	●	●	●	●	●	●	●	●	●	●

Management	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
LLDP (802.1AB)	●	●	●	●	●	●	●	●	●	●
LLDP-MED			●	●	●		●	●	●	●
SSHv1			●	●	●					
SSHv2			●	●	●	●	●	●	●	●
V.24	●	●	●	●	●	●	●	●	●	●
HTTP	●	●	●	●	●	●	●	●	●	●
HTTPS			●	●	●	●	●	●	●	●
SNMP v1/v2/v3	●	●	●	●	●	●	●	●	●	●
Traps	●	●	●	●	●	●	●	●	●	●
Telnet		●	●	●	●	●	●	●	●	●
TFTP	●	●	●	●	●	●	●	●	●	●
SFTP						●	●	●	●	●
SCP						●	●	●	●	●
DNS Client								●	●	●
Dual Software Image Support			●	●	●	●*	●*	●	●	●
Out Of Band Management								●*		●*

Routing	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
Full Wire-Speed Routing				●	●				●	●
Loopback Interface									●	●
ICMP Filter				●	●				●	●
Net-directed Broadcasts				●	●				●	●
Static Unicast Routing				●	●				●	●
Static Route Tracking					●				●	●
1:1 Network Address Translation									●	
RIP v1/v2				●	●				●	●
OSPFv2				●	●				●	●
ICMP Router Discovery (IRDP)				●	●				●	●
Equal Cost Multiple Path (ECMP)				●	●					●
Proxy ARP					●				●	●
IP/UDP Helper									●	●

Multicast Routing	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
IGMP v1, v2, v3					●				●	●
IGMP Proxy (Multicast Routing)									●	●
DVMRP					●					●*
PIM-DM (RFC3973)					●					●*
PIM-SM / SSM (RFC4601)					●					●*

* Hardware dependent

Software Functionality *(continued)*

Security	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
IP-based Port Security		●	●	●	●					
MAC-based Port Security		●	●	●	●	●	●	●	●	●
Port-based Access Control with 802.1X			●	●	●	●	●	●	●	●
RADIUS VLAN Assignment			●	●	●	●	●	●	●	●
Guest/Unauthenticated VLAN			●	●	●	●	●	●	●	●
RADIUS Policy Assignment								●	●	●
MAC Authentication Bypass			●	●	●			●	●	●
Multi-Client Authentication per Port			●	●	●			●	●	●
Integrated Authentication Server (IAS)			●	●	●	●	●	●	●	●
Remote Authentication via RADIUS		●	●	●	●	●	●	●	●	●
LDAP								●	●	●
Basic ACL							●*			
Ingress MAC-based ACL				●	●			●	●	●
Ingress IPv4-based ACL				●	●			●	●	●
Ingress VLAN-based ACL								●	●	●
Egress MAC-based ACL								●*		●
Egress IPv4-based ACL								●*		●
Egress VLAN-based ACL								●*		●
Time-based ACL								●	●	●
VLAN-based ACL							●*	●	●	●
ACL Flow-based Limiting								●	●	●
DHCP Snooping								●	●	●
IP Source Guard								●*		●
Dynamic ARP Inspection								●	●	●
Automatic Denial-of-Service Prevention						●	●	●	●	●
Device Security Indication						●	●	●	●	●
Audit Trail						●	●	●	●	●
CLI Logging						●	●	●	●	●
HTTPS Certificate Management	●	●	●	●	●	●	●	●	●	●
Access to Management restricted by VLAN		●	●	●	●	●	●	●	●	●
Restricted Management Access			●	●	●	●	●	●	●	●
Appropriate Use Banner			●	●	●	●	●	●	●	●
SNMP Logging	●	●	●	●	●	●	●	●	●	●
Syslog Over TLS								●	●	●
Multiple Privilege Levels						●	●	●	●	●
Local User Management	●	●	●	●	●	●	●	●	●	●
Configurable Password Policy						●	●	●	●	●
Configurable Number of Login Attempts						●	●	●	●	●
User Account Locking						●	●	●	●	●

Time Synchronization	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
SNTP Client	●	●	●	●	●	●	●	●	●	●
SNTP Server	●	●	●	●	●	●	●	●	●	●
Buffered Real Time Clock			●	●	●	●*	●	●	●	●
PTPv2 Transparent Clock Two-step*			●	●	●	●*	●*	●	●	●
PTPv2 Boundary Clock*		●	●	●	●	●*	●*	●	●	●

Industrial Profiles	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
PROFINET IO Protocol		●	●	●	●	●*	●*	●	●	●
EtherNet/IP Protocol		●	●	●	●	●*	●*	●	●	●
ModbusTCP						●	●	●	●	●
IEC61850 Protocol (MMS Server, Switch Model)			●	●	●	●	●	●	●	●

* Hardware dependent

Diagnostics	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
Management Address Conflict Detection			●	●	●	●	●	●	●	●
Address Relearn Detection		●	●	●	●					
LEDs	●	●	●	●	●	●	●	●	●	●
MAC Notification			●	●	●		●	●	●	●
Signal Contact	●	●	●	●	●	●*	●	●	●	●
Device Status Indication	●	●	●	●	●	●	●	●	●	●
TCPDump			●	●	●	●	●	●	●	●
Email Notification								●	●	●
Syslog		●	●	●	●	●	●	●	●	●
Persistent Logging on ACA						●*	●	●	●	●
Port Monitoring with Auto-Disable			●	●	●	●	●	●	●	●
Link Flap Detection			●	●	●	●	●	●	●	●
Overload Detection			●	●	●	●	●	●	●	●
Duplex Mismatch Detection		●	●	●	●	●	●	●	●	●
Link Speed and Duplex Monitoring			●	●	●	●	●	●	●	●
RMON (1, 2, 3, 9)	●	●	●	●	●	●	●	●	●	●
Port Mirroring 1:1	●	●	●	●	●	●	●	●	●	●
Port Mirroring 8:1		●	●	●	●	●	●	●	●	●
Port Mirroring N:1			●*		●*	●	●	●	●	●
VLAN Mirroring								●	●	●
RSPAN								●	●	●
SFLOW								●	●	●
Copper Cable Test			●	●	●	●*	●*	●	●	●
System Information	●	●	●	●	●	●	●	●	●	●
Self-Tests on Cold Start	●	●	●	●	●	●	●	●	●	●
SFP Management	●	●	●	●	●	●	●	●	●	●
Configuration Check Dialog			●	●	●	●	●	●	●	●
Switch Dump		●	●	●	●	●	●	●	●	●
Snapshot Configuration Feature						●	●	●	●	●

Miscellaneous	Classic Switch Software v9.0					HiOS Hirschmann Operating System v6.1				
	L2B	L2E	L2P	L3E	L3P	L2E	L2S	L2A	L3S	L3A
Digital IO Management	●*	●*	●*	●*	●*			●*		●*
PoE (802.3AF)			●*	●	●*		●*	●*	●*	●*
PoE+ (802.3AT)			●*		●*		●*	●*	●*	●*
PoE+ Manual Power Management			●*		●*		●*	●*	●*	●*
PoE Fast Startup			●*				●*	●*	●*	●*
Port Power Down						●	●	●	●	●
Manual Cable Crossing	●	●	●	●	●	●	●	●	●	●

* Hardware dependent

Software Tools

Industrial HiVision

In many industrial facilities Ethernet networks are growing and changing quickly, and it is increasingly difficult to manage and secure them. Unlike other network management solutions, Industrial HiVision is designed especially for automation networks and has been field tested at thousands of facilities around the world. Its ease-of-use and breadth of functionality greatly improves network availability and security while also making engineering teams more efficient.

Industrial HiVision integrates all SNMP-enabled devices such as switches, PLCs, I/O modules and HMI panels, from multiple vendors, into a single network management application. The network topology is recognized automatically with all network nodes and links accurately displayed on screen, including any unmanaged switches and hubs.

Using the MultiConfigTM feature, you can configure hundreds of devices, including SNMP-enabled devices from any vendor, simultaneously, even while they are in operation. This not only saves time, but also ensures consistent configuration of the network.

Industrial HiVision can be used wherever networks have to meet high availability and security requirements. This includes the discrete manufacturing, machine building, process control and critical infrastructure industries. The software also requires no special IT knowledge. Its wizard guides you easily and systematically through the network management setup process.

Product Features

- Setup wizard makes it easy to set up the network management and quickly adjust its configuration
- Network topology is automatically recognized and accurately visualized
- Customizable Network Dashboard provides up-to-the minute visibility of key network performance and security indicators
- Provides distributed network management with hierarchical master/slave stations
- Configuration Signature Check monitors changes to device configuration files
- Automatic device configuration back-ups can be scheduled
- Security lockdown feature for applying security functions with a couple of clicks
- LDAP or RADIUS user authentication
- SNMP/OPC server for integrating SCADA applications
- HiMobile App for iOS, Android, and Windows devices provides convenient monitoring of network health. Includes graphical topology map of the entire network
- Web browser client available
- User interface supports numerous languages
- Versions available for Windows and Linux

A free of charge version, with no time limit, is available from www.hivision.de. This version will support a maximum of 16 networked devices, but offers all the features of the paid version.

Industrial HiVision	
Part No.	**Order No.**
943 156-032	Industrial HiVision, 32 nodes
943 156-064	Industrial HiVision, 64 nodes
943 156-128	Industrial HiVision, 128 nodes
943 156-256	Industrial HiVision, 256 nodes
943 156-512	Industrial HiVision, 512 nodes
943 156-124	Industrial HiVision, 1024 nodes
943 156-248	Industrial HiVision, 2048 nodes
943 156-496	Industrial HiVision, 4096 nodes

HiView

HiView allows users to benefit from Hirschmann products' web interface, without any browser or Java library installed on their PCs. In addition, HiView is a portable application. It does not require any installation and does not alter any PC registry entries. It even works directly from removable media such as USB drives and SD cards, for ultimate portability. But HiView is not just a replacement for a web browser. The comfortable Selection screen shows which Hirschmann devices have been accessed recently, with the most popular listed at the top. A single click connects to the required device. For added security, it is simple and convenient to view the security certificates of both the products and the Java library. And HiView will automatically use the most secure communication method.

HiDiscovery

Hirschmann products are delivered without a default IP address. This ensures that there is no chance of an IP address conflict, which could have a negative impact on a network. The traditional method for configuring an IP address on a device is to use the serial port. But there will almost certainly be occasions when the correct serial cable is not available. This is where HiDiscovery comes into play. HiDiscovery will discover all Hirschmann devices on a LAN, even if they do not have an IP address. The "Signal" button will activate a device's LEDs, so you can see which device you are communicating with. You can then assign IP address information to the device, directly over the Ethernet connection. HiDiscovery even assists with fault finding, by highlighting devices with duplicate IP addresses.

HiFusion

Manufacturers have defined various MIB variables for their devices that are not covered by standard MIBs. HiFusion allows you to integrate manufacturer-specific MIB variables for third-party devices into the Industrial HiVision network management software. To achieve this you create Product-specific Modules (PSM).

When creating a PSM you name the device, define a list of variables and assign an image to the device. The execution of the remaining processes is largely automated. Afterwards you incorporate the completed PSM into Industrial HiVision. Your third-party device will then be assigned the correct icon, and the values of the MIB variables will be displayed. HiFusion operates as a stand-alone application. It does not require Industrial HiVision to create or test the new PSM. You do not require a license for the program. The device for which you are creating the PSM must support version 1 or version 3 of the Simple Network Management Protocol (SNMP).

HiMobile

The HiMobile app, together with Industrial HiVision network management software from Hirschmann, is the perfect client/server solution for mobile monitoring of network nodes using smartphones or tablets – for higher network availability. HiMobile allows direct and convenient access to status information on network devices from almost anywhere. The HiMobile app runs on mobile devices and supports Apple and Android operating systems as well as Windows Phone.

Software Tools *(continued)*

Secure Remote Access Solution

The Secure Remote Access Solution provides a protected cloud system that can be configured with minimal IT knowledge or assistance. Permanent internet protocol (IP) addresses are not required, and there is no need to reconfigure corporate firewalls. Thus, the system enables secure access for remote programming and diagnostics with no disruptions to existing systems.

The Secure Remote Access Solution allows customers to remotely access their sites in order to troubleshoot and fix problems. This reduces the need for travel and allows staff to work more efficiently by handling multiple systems simultaneously.

This product also helps companies embrace the Industrial Internet of Things movement by enabling a secure way for many devices to connect together and communicate.

At the core of the Secure Remote Access Solution is a cloud service to which customers can connect their remote network devices. Multiple versions of software and hardware are available to complete the system, including the ability to manage the network from personal computers (PCs) or mobile devices.

The Secure Remote Access Solution supports Ethernet communication through a three-component system, including the:

- **GateManager** – operates as a cloud service; hosted by Hirschmann or hosted by your company
- **SiteManager** – makes it possible to connect remote devices to the GateManager cloud; runs on a Windows PC or Hirschmann GECKO switch hardware
- **LinkManager** – provides secure, on-demand access to remote devices via the cloud

The network system is not only designed to be easy to install, but also provides firewall-friendly, state-of-the-art security features.

Belden and Hirschmann offer an initial Starter Package, limited to one per company, which includes:

- One SiteManager License (runs on GECKO switch hardware or Windows PC)
- One LinkManager floating software license
- LinkManager mobile software license
- GateManager Free Cloud Service with Basic Administration

This Starter Package includes everything you need to get started and test the solution. Once you are satisfied, you can upgrade your cloud service, number of licenses, and administrative level to reflect your corporate requirements.

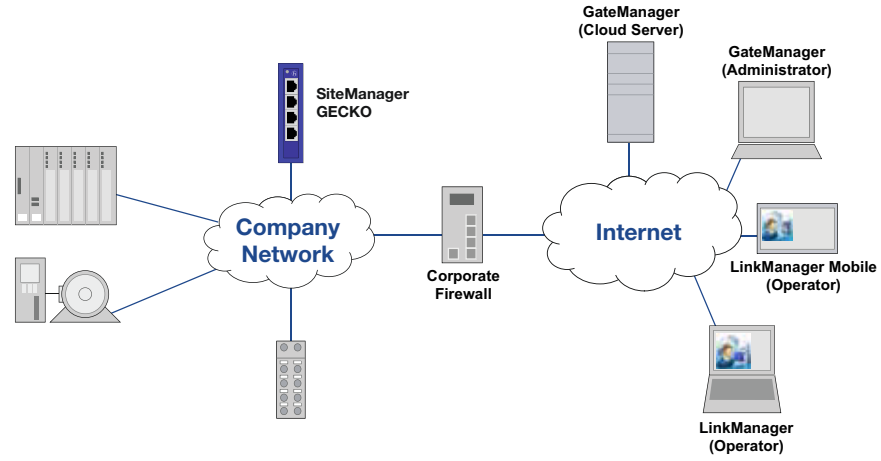
Technical Information

SiteManager supports Windows XP, 7 and 8. This makes it ideal for installing on Windows based HMI panels and IPCs. It installs as a Windows Service and runs in the background. It requires only 10 Mbyte RAM and 5 Mbyte HDD. Alternatively it can be run inside a Hirschmann GECKO switch from v02.0.00 onwards.

LinkManager installs a virtual adapter and thus requires running on Windows. But it works fine alongside VPN clients and is designed for both 32 and 64 bit windows, and even runs inside a virtual machine such as VMWare, ESXi or HyperV.

LinkManager Mobile supports iPhone, iPad and Android OS.

Hirschmann Secure Remote Access Solution



GateManager

Product Description	Max. Number of LinkManager Licenses	Max. Number of LinkManager Mobile Licenses	Max. Number of SiteManagers
GateManager Free	2	8	100
GateManager Bronze	4	50	300
GateManager Silver	6	100	500
GateManager Gold	8	250	Unlimited
GateManager Platinum	Unlimited	Unlimited	Unlimited

SiteManager – LinkManager – GateManager – Starter Package

Product Description	Order No.
SiteManager Basic License	942 144 - 101
SiteManager 5 Nodes License	942 144 - 102
SiteManager 10 Nodes License	942 144 - 103
LinkManager License	942 144 - 201
LinkManager Mobile License	942 144 - 202
GateManager Bronze Quarterly Fee	942 144 - 301
GateManager Silver Quarterly Fee	942 144 - 302
GateManager Gold Quarterly Fee	942 144 - 303
GateManager Platinum Quarterly Fee	942 144 - 304
GateManager Administrator Premium Upgrade	942 144 - 601
GateManager Self-hosted Server	942 144 - 501
Starter Package 5 Nodes License	942 144 - 403
Starter Package 10 Nodes License	942 144 - 404

SPIDER Series Unmanaged DIN Rail Mount Ethernet Switches

Entry-level Industrial Unmanaged Switches

The SPIDER family of switches provides users with an economical, yet highly reliable hardened Ethernet switch. Models are available with Fast Ethernet, Gigabit Ethernet and PoE ports.

All copper/RJ45 ports are auto-negotiating and auto-crossing – the SPIDERs will work with either patch or cross-over cables. The fiber ports are available in multimode (MM), singlemode (SM) with either SC or ST sockets or via SFP transceiver (see page 112). All SPIDER switches are extremely compact and have LED indicators that provide information on power status, link status, and data rate. Additional to that all "PRO" Variants fulfill the requirements of PROFINET Conformance Class A.

Technical Information

Product Description								
Type	**SPIDER 1TX/1FX-x**	**SPIDER xTX-x**	**SPIDER II 8TX/x**	**SPIDER II Giga 5TX/x**	**SPIDER II 16TX/x**	**SPIDER Giga 2TX PoE EEC**	**SPIDER II 8TX PoE**	**SPIDER xTX-x PD EEC**
Switching/Routing	Unmanaged							
Available Ports	2	3, 5, 8	8, 9, 10	5, 7	16, 18	2	8	2, 5
Construction								
Mounting	DIN Rail							
Protection Class	IP30							
Dimensions (WxHxD)	25 x 114 x 79 mm 25 x 126 x 79 mm for ST fiber models		35 x 154 x 121 mm 35 x 168 x 121 mm for ST fiber models			30 x 140 x 95 mm	35 x 154 x 121 mm	25 x 114 x 79 mm
Weight	177 g		270 g		730 g	420 g	560 g	198 g
Ambient Conditions								
Operating Temperature	0 °C to +60 °C, -40 °C to +70 °C for EEC models					-40 °C to +70 °C	-10 °C to +60 °C	-40 °C to +70 °C
Storage/Transport Temperature	-40 °C to +70 °C, -40 °C to +85 °C for EEC models					-40 °C to +85 °C	-20 °C to +70 °C	-40 °C to +85 °C
Relative Humidity (non-condensing)	0% to 95%							
Conformal Coating	n/a							
Interfaces								
V.24 Interface	n/a							
USB Interface	n/a							
Power Requirements								
Operating Voltage	9.6 to 32 V DC				18 to 32 V DC	21 to 53 V DC	18 to 32 V DC	36 to 57 V DC
PoE (802.3af) Ports Supported	n/a						4	n/a
PoE Plus (802.3at) Ports	n/a					1	n/a	
Powered Device (PD)	no							yes
Regulatory Approvals								
Safety of Industrial Control Equipment	cUL508				cUL508, cUL60950-1	cUL508		
Hazardous Locations	n/a				ISA 12.12.01 C1D2, ATEX Zone 2	n/a		
Reliability								
MTBF Range	138 to 265 years	129 to 360 years	88 to 185 years	114 years	37 years	162 years	55 years	46 to 55 years
Warranty	5 years standard							

NOTE: These are the prominent technical specifications. For complete technical specifications visit: www.belden.com/hirschmann

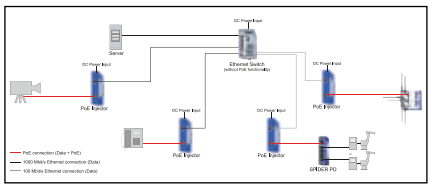
All Copper/RJ45		
Part No.	**Order No.**	**Ports**
SPIDER 3TX-TAP	943 899-001	3 x 10/100 Mbit/s RJ45
SPIDER 5TX	943 824-002	5 x 10/100 Mbit/s RJ45
SPIDER 5TX EEC	943 824-102	5 x 10/100 Mbit/s RJ45
SPIDER 8TX	943 376-001	8 x 10/100 Mbit/s RJ45
SPIDER 8TX EEC	943 376-201	8 x 10/100 Mbit/s RJ45
SPIDER II 8TX	943 957-001	8 x 10/100 Mbit/s RJ45
SPIDER II 8TX EEC	943 958-001	8 x 10/100 Mbit/s RJ45
SPIDER II 16TX EEC	942 120-001	16 x 10/100 Mbit/s RJ45
SPIDER II Giga 5T EEC	943 962-002	5 x 10/100/1000 Mbit/s RJ45
SPIDER II Giga 5T EEC Pro	943 962-102	5 x 10/100/1000 Mbit/s RJ45, QoS according to IEEE 802.1D
SPIDER II Giga 5T EEC Jumbo	943 962-202	5 x 10/100/1000 Mbit/s RJ45, Jumbo Frames with up to 9014 Bytes user data

Copper/RJ45 and Fiber		
Part No.	**Order No.**	**Ports**
SPIDER 1TX/1FX	943 890-001	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 1TX/1FX EEC	943 927-101	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 1TX/1FX-SM	943 891-001	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER 1TX/1FX SM EEC	943 928-001	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER 4TX/1FX	943 221-001	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 4TX/1FX EEC	943 221-101	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 4TX/1FX-ST EEC	943 914-001	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM ST
SPIDER 4TX/1FX SM EEC	943 880-001	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER II 8TX/1FX EEC	943 958-111	8 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER II 8TX/1FX-ST EEC	943 958-121	8 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM ST
SPIDER II 8TX/2FX EEC	943 958-211	8 x 10/100 Mbit/s RJ45, 2 x 100 Mbit/s MM SC
SPIDER II 8TX/2FX-ST EEC	943 958-221	8 x 10/100 Mbit/s RJ45, 2 x 100 Mbit/s MM ST
SPIDER II 8TX/1FX-SM EEC	943 958-131	8 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER II 8TX/2FX-SM EEC	943 958-231	8 x 10/100 Mbit/s RJ45, 2 x 100 Mbit/s SM SC
SPIDER II 16TX/2DS-S EEC	942 121-001	16 x 10/100 Mbit/s RJ45, 2 x 100/1000 Mbit/s SFP
SPIDER II Giga 5T/2S EEC	943 963-002	5 x 10/100/1000 Mbit/s RJ45, 2 x 1000 Mbit/s SFP
SPIDER II Giga 5T/2S EEC Pro	943 963-102	5 x 10/100/1000 Mbit/s RJ45, 2 x 1000 Mbit/s SFP, QoS according to IEEE 802.1D
SPIDER II Giga 5T/2S EEC Jumbo	943 963-202	5 x 10/100/1000 Mbit/s RJ45, 2 x 1000 Mbit/s SFP, Jumbo Frames with up to 9014 Bytes user data

Ethernet Switches powered via PoE		
Part No.	**Order No.**	**Ports**
SPIDER 5TX PD EEC	942 051-001	5 x 10/100 Mbit/S RJ45, 1 x PoE PD according to IEEE 802.3af
SPIDER 1TX/1FX-MM PD EEC	942 051-002	1x 10/100 Mbit/S RJ45, 1 x PoE PD according to IEEE 802.3af, 1 x 100 Mbit/s MM SC
SPIDER 1TX/1FX-SM PD EEC	942 051-003 1	1x 10/100 Mbit/S RJ45, 1 x PoE PD according to IEEE 802.3af, 1 x 100 Mbit/s SM SC

PoE Ethernet Switch/Injector		
Part No.	**Order No.**	**Ports**
SPIDER II 8TX PoE	942 008-001	8 x 10/100 Mbit/s RJ45, 4 x PoE according to IEEE802.3af
SPIDER GIGA 2TX PoE EEC	942 059-001	2 x 10/100/1000 Mbit/s RJ45, 1 x PoE+ according to IEEE802.3at

NOTE: EEC stands for extended environmental conditions (-40 °C to +70 °C).



Example of PoE Injector Installation Illustrating the use of PoE.

SPIDER III Series Unmanged DIN Rail Mount Ethernet Switches

SPIDER III Standard and Premium Line

Transferring large amounts of data in harsh environments and in industrial applications just got easier with the plug-and-play technology built into this full-range line of unmanaged switches. The SPIDER III family of industrial Ethernet switches offers both Standard and Premium options. Which to use depends on the specific requirements for your application. Both are easy to install and will help you maximize your network availability.

SPIDER III Standard Line: Cost-Effective and Compact

SPIDER III Standard Line switches are suitable for both harsh environments and applications in which switch management is unnecessary. This makes them the ideal choice for the OEM machine manufacturing industry where reliability and cost-effectiveness are the driving decision makers.

SPIDER III Premium Line: Full-Featured and User Customizable

The SPIDER III Premium switches expand on the benefits of the Standard Line offerings by adding configurable switch functionality typically only found in managed switches. Plus, you'll find additional hardware options and expanded industrial certifications for broader deployment in what matters – your applications. Approvals include those for use in process industries (ISA12.12.01 and ATEX Class 2), transportation applications (EN 50121-4 and E1) and marine applications (Navy GL and DNV). In addition the switches fulfill PROFINET Conformance Class A requirements to set up PROFINET networks.

USB Configuration Interface

The Hirschmann SPIDER III Premium switches come with a USB interface that allows for quick customization of individual port parameters. The easy-to-use Switch Programing Tool makes it easy to generate a configuration file and transfer it to a switch using a USB drive. This free application is available for both Windows and Linux operating systems. And it's portable so it doesn't require any installation. In order to document the configuration of a particular switch, the Switch Programming Tool can also export a detailed configuration report in PDF format. Plus, you can download the running configuration of a switch and open it with the Switch Programming Tool so the configuration can be read and edited.

Four Easy Steps to Configure a Premium Switch

1. Use the Switch Programming Tool to configure all switch and port parameters.
2. Save the configuration file to a USB drive.
3. Connect the USB drive to the switch.
4. Power-cycle the switch to transfer and apply the new configuration.

Features

- Turn off unused ports to help secure the network.
- Use the potential free-fault relay contact to supervise redundant power status or any port's link status without management software.
- During periods of heavy traffic the flow control mechanism – which acts as an overload protection for the device – holds off additional traffic from the network and ensures that no data packets are lost.
- Activate Broadcast and/or Multicast Storm protection to limit traffic on the ports when Broadcast or Multicast data packets flood the device.
- Enable or disable the transmission of large data packets (jumbo frames) to increase network efficiency.
- Eliminate duplex mismatch errors by matching Auto-Negotiation, Speed and Duplex Mode parameters to the end device settings.
- Use the Quality of Service function to prevent time-critical data traffic (language, video or real-time data) from being disrupted by less time-critical data traffic during periods of heavy traffic. By enabling this feature the switches can be applied in PROFINET conformance class A applications.
- Regulate energy efficiency depending on network traffic through the Energy Efficient Ethernet standard. Save energy by operating the physical layer of a link in low power mode when there is no traffic to send.

Overview of Configurable Parameters

	Parameter	Values
Global	Power Supply Unit 1/2 Alarm	Enable/Disable
	Aging Time	0s … 1048575s
	QoS 802.1 D/p Mapping	VLAN Priority 0 … 7, Traffic Class 0 … 3
	QoS DSCP Mapping	DSCP value 0 … 63, Traffic Class 0 … 3
Per Port	Port State	On/Off
	Flow Control	On/Off
	Link Alarm	On/Off
	Broadcast Mode	On/Off
	Broadcast Threshold	0% … 100%
	Multicast Mode	On/Off
	Multicast Threshold	0% … 100%
	Jumbo Frames	On/Off
	QoS Trust Mode	Untrusted, TrustDot1p, TrustIpDscp
	Port Priority	0 … 7
Per TX Port	Auto-Negotiation	On/Off
	Speed	10 Mbit/s, 100 Mbit/s
	Duplex Mode	FDX/HDX
	Auto-Crossing	On/Off
	MDI State	MDI, MDI-X
	Energy Efficient Ethernet	On/Off
Per FX Port	Duplex Mode	FDX/HDX

The stand-alone SPIDER Switch Programming Tool runs without installation (even from a USB drive), allowing for the customization of each individual port to the application's needs.