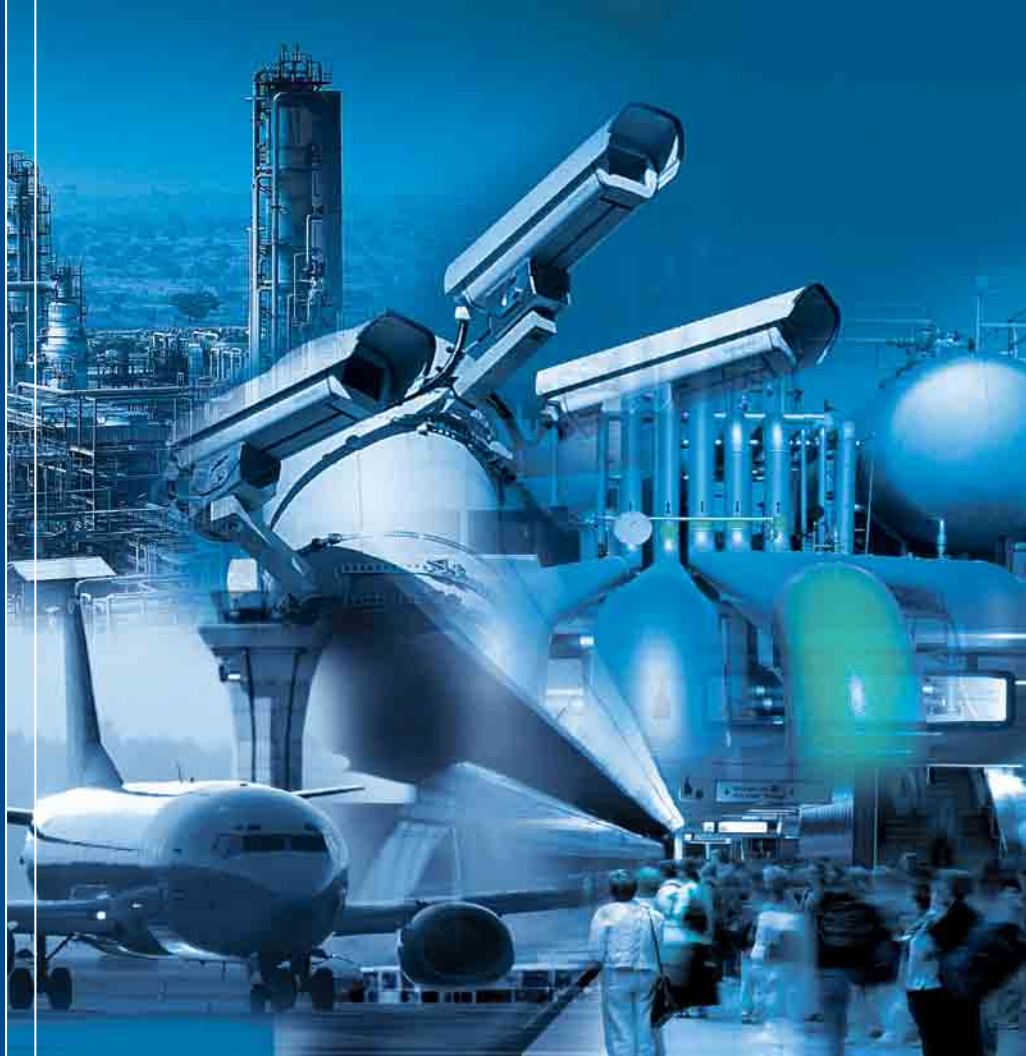


Network Solutions For Mission Critical Security Applications



**Belden® Cable, Switches,
and Connectivity Maximize
Throughput, Simplify Installation,
and Reduce Overall Costs**

More Convenience and More Solutions for Networked Security Applications in Any Environment

Bringing Your Security Devices Together is Our Business

Nothing is more important than having a sound security network and a manufacturer that stands behind its products. Belden is your one source supplier in providing an end-to-end connectivity solution for a wide range of indoor and outdoor mission-critical security applications.

Our Synergy Ensures Continuous Performance

Belden has a tremendous history and unmatched experience in the design, manufacture and support of networking solutions. The result is a full range of top quality, high performance copper, optical fiber and wireless end-to-end networking systems backed by a depth of knowledge unequalled in the marketplace. As an expert in each media type, as well as the mix of these technologies, we have the unique ability to achieve a seamless integration of your networking infrastructure for optimal data transmission performance.

Here are a few more good reasons why Belden is your best choice for networked security applications:

- We have the expertise to integrate your industrial and commercial networks.
- Our products are engineered to perform in tough and difficult 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 and distribution network make our products available to you globally.

Offering Comprehensive Service and 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
- Training
- Technical Support
- System Performance

Network Design

Belden eliminates your design challenges because we understand the issues surrounding the design and operation of networks in 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 surveillance systems for airport fence lines, or integrating into existing industrial IT environments, our highly-trained staff lifts the design burden from your shoulders to ours.

We'll consult with you to develop a strategy - or we'll 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 Ethernet networks.

Belden has developed a series of training programs that are given by Belden-certified individuals - all experts in Ethernet 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 connectors, to cable, to routers and



switches. Based on this comprehensive product portfolio, we have the necessary security solutions DNA to deliver reliability.

For more information on our service/support offering, including our warranties, or to locate a Belden sales representative near you visit www.belden.com/industrial.

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Belden Cable, Connectivity and Networking Solutions Maximize Throughput, Simplify Installation, and Reduce Overall Costs.

Best-in-class Copper, Optical Fiber and Wireless Solutions

No company has a better understanding of networking than we do – offering a vast array of top-quality, end-to-end network infrastructure solutions that provide guaranteed quality and performance. These include:

Copper Networking Solutions - Indoor

IBDN 10GX® System

The IBDN 10GX System is the best Category 6A Structured Cabling System in the industry today. Period. Its performance exceeds the TIA/EIA Category 6A standard and provides the end user with 625 MHz of guaranteed useable bandwidth. Our exclusive enabling technologies ensure this unprecedented, industry leading performance.

IBDN 4800 System

The IBDN 4800 System offers exceptional signal power and signal-to-noise performance, going well beyond the TIA/EIA Category 6 requirements, with the system providing 300 MHz of guaranteed channel bandwidth.

IBDN 3600 System

The IBDN 3600 System offers additional throughput and the type of enhanced, error-free performance needed to support high-traffic and high bit-rate applications. The 3600 System delivers 280 MHz of useable bandwidth.

IBDN 2400 System

The 2400 System exceeds the TIA/EIA Category 6 requirements. It handily supports high-traffic and high-bit-rate applications by delivering 250 MHz of guaranteed usable bandwidth.

IBDN 1200 System

The IBDN 1200 System is the industry's most powerful Category 5e solution, substantially exceeding all requirements for Category 5e channels. The 1200 System's certified bandwidth of 160 MHz is also 60 percent greater than the bandwidth of typical Category 5e systems.

Copper Networking Solutions – Outdoor

Belden's family of ruggedized Ethernet cables and Connectivity is designed to withstand the rigors of outdoor and harsh environments. Whether it's exposure to

sunlight, chemicals, temperature variation, abrasion and crushing, or the presence of electromagnetic interference (EMI) or radio frequency interference (RFI), turn to Belden for the solution.

Optical Fiber Solutions – Indoor/Outdoor

Belden's FiberExpress® Systems offer users a complete, high-performance, end-to-end cabling system that supports in-building or campus backbone cabling configurations, as well as both centralized and fiber-to-the-desk (FTD) topologies. Innovative components like field installable fiber connectors and the availability of factory pre-terminated systems allow for especially fast, easy, reliable installations..

Hirschmann Switches

Hirschmann provides an unparalleled line of cabling, wired and wireless switches, designed to make the installation and networking of your security devices a snap. We're more than just a manufacturer of cable and intelligent networking switches; we're your partner in providing an integrated network security solution.

The managed switches are fully IT-compatible, easy to configure and include media redundancy options, premium electronic components, and effective (fan-less) thermal management.

Wireless – Indoor/Outdoor/ Harsh Environment

As there are applications where the reliability of a hard-wired connection is not practical (or feasible), a wireless solution may be the best solution.

Trapeze Networks Wireless Solution – Indoor/Outdoor

Belden's 802.11n-ready wireless solution fully integrates with our wired systems and allows NonStop Wireless™ operation. It delivers seamless mobility, high availability, and unparalleled reliability, performance, manageability and security to the Enterprise in any environment.

Hirschmann – Harsh Environment

The new line of BAT wireless Ethernet access points/clients/bridges is designed for harsh

environments with rugged metal din rail mount housing, IP67 options, dual radios, redundant connections, expanded temperature ratings and much more.

New Generation - Security and Alarm, Access Control, Surveillance CCTV, and Coaxial Cables

Our New Generation cable line includes one of the largest, most economical and up-to-date selections of reliable multi-conductor and coaxial products on the market today. A full complement of cables for sound, control, and computer interconnect, alarm, security, CCTV and other security applications is offered.

Enclosures and Accessories

Security Enclosures

The complete line of Belden Enclosure solutions are designed to meet the unique needs of data networks and control console systems. Whether it's the protection of sensitive data equipment, the ability to mount equipment of varied sizes and depths, or the need to organize and neatly route installed cable, Belden has the solution you need. Belden provides you with single source convenience for all of your cable management requirements.

Accessories

Belden has a complete line of accessories to facilitate your wiring process including cable ties, raceways, cable termination tools and more.

Premier Ethernet Networking Solutions for Security Devices and Infrastructure Applications

1 MACH4000 Series Gigabit Backbone Layer 2/3 Rack-Mount Switches with POE
Up to 48 Gigabit ports and three 10Gigabit ports - the ultimate high-density Layer 2/3 Gigabit backbone switch for mission-critical applications.

2 MACH1000 Series Über-Rugged™ Rack-Mount Sub Station Switches with POE
8 or 24 permanently installed 10/100 Mbps RJ45 Ethernet ports and two additional Gigabit RJ45/SFP combo ports for connection to the network backbone.

3 MACH100 Series Workgroup Switches
Specifically designed to allow workgroups to be networked by either copper and/or fiberoptic cable and have 8 or 24 permanently installed 10/100 Mbps RJ45 Fast Ethernet ports. Features: Fanless design, hot-swappable modules, redundant power inputs, USB backup device, CLI and Web interface.

4 MS20/30 Modular Switches with PowerMICE Gigabit Layer 2/3 Switch and Media Modules
Modular DIN Rail mount managed switches include (web, SNMP and CLI) - IGMP snooping (multicast filtering), VLAN, port mirroring, port control, port security, link alarms, broadcast limiter, traffic diagnostics, and HIPER-Ring redundancy.

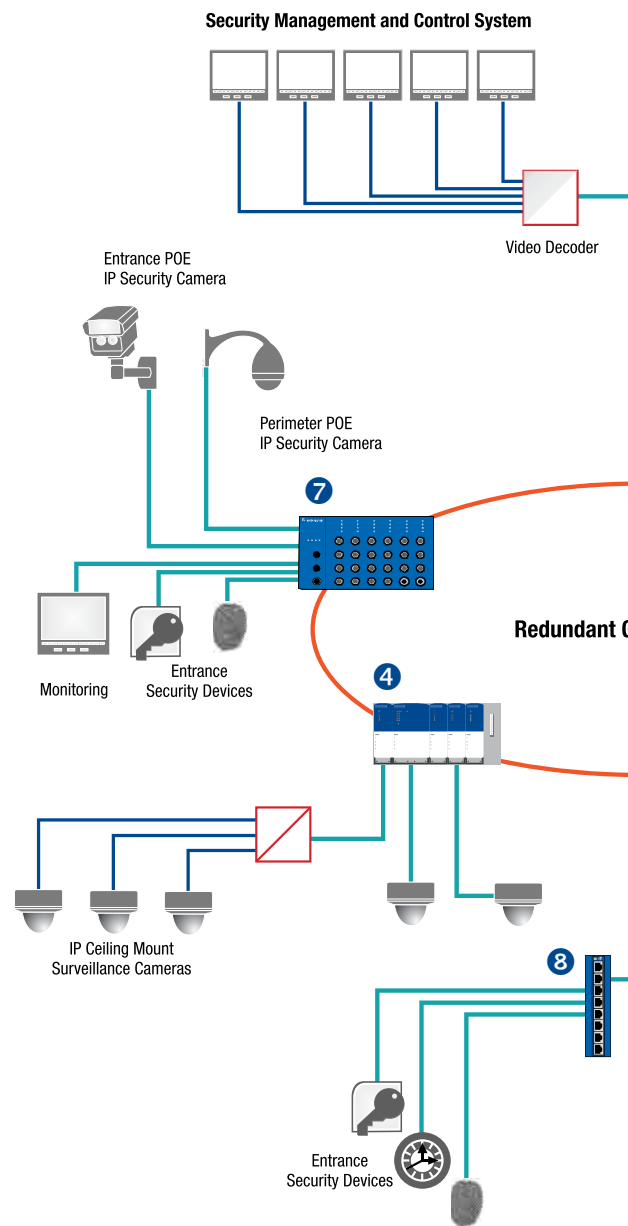
5 EAGLE20 Series Hardened Firewall/VPN Appliance
A hardened 24VDC, DIN rail mount firewall that allows users to secure, isolate or remotely access a network.

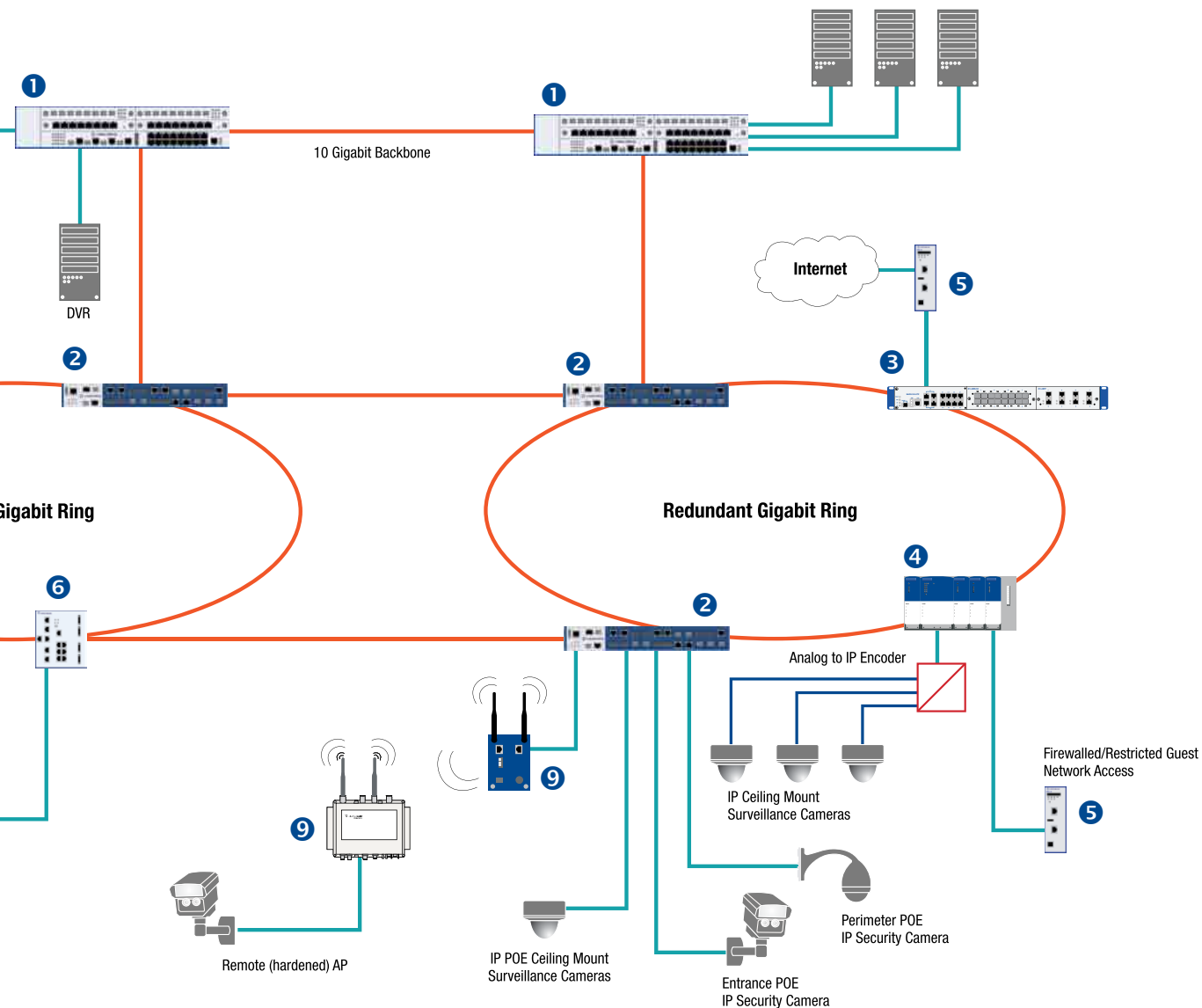
6 RSR20/30 Series Gigabit Managed DIN Rail Mount Switches
Gigabit Managed DIN Rail Mount Switch designed for Fast Ethernet and Gigabit Ethernet applications. These switches come with a variety of uplink port configurations including Gigabit Ethernet, fiber, copper twisted pair, multimode and single mode.

7 OCTOPUS Series
This line of switches are ideally suited for harsh environments with an IP 67 enclosed design. Features include POE, SNMP, Web GUI or TELNET, HIPER-Ring redundancy and Rapid Spanning Tree with Redundant power supply for high availability.

SPIDER Series Rail Transceivers
Transceivers provide RJ45 and Fiber Media Conversion. The fiber optic connections offer capabilities beyond the 100m limitation of twisted pair cabling - up to 80 km without the use of repeaters.

9 BAT Series Wireless Ethernet Access Points/Clients/Bridges
Available in either DIN rail or IP 67/ waterproof hard/pole mount, along with an extensive antenna offering, the BAT wireless Ethernet devices offer 802.11a/b/g/n connectivity via single or dual integrated radios.





Copper Networking Products

Belden security products -- including Belden brand copper cable, connectivity and patch cords - cover all Ethernet applications including copper standards 10GBase-T, 1000Base-T, 100Base-T, -TX and 10Base-T. Our Category 6A, 6, 5e products are available in various design configurations allowing installation in virtually any environment.

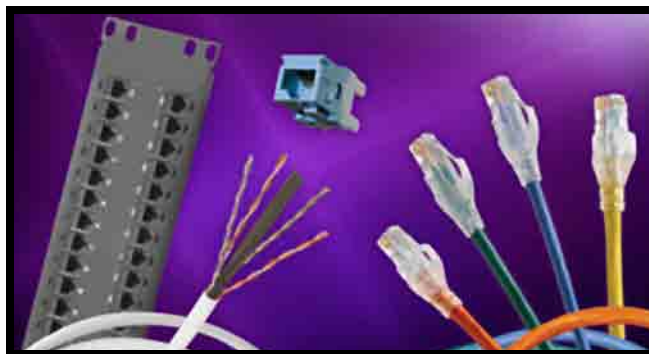
Fiber Networking Products

Belden security products -- including Belden *FiberExpress* brand fiber cable, connectivity and patch cords -- cover all Ethernet applications including fiber standards 1000Base-LX, -SX, 100BaseFX, and 10BaseF. Our fiber optic products are available in both indoor and outdoor designs allowing installation in virtually any environment.

Coax and Multi-Conductor Cable

Our New Generation® line of low voltage specialty electronic cables represent the industry's largest, most economical and up-to-date selection of multi-conductor and coaxial products for security applications.

Copper Networking Cable and Connectivity - Indoor



IBDN 10GX System - Category 6A to 625 MHz

The Belden IBDN 10GX System has been specifically designed to support the needs of bandwidth-intensive applications such as uncompressed high resolution digital video, medical imaging, digital animation, CAD/CAM, high-speed data storage or cluster computing.

Cable

Flame Rating	Bonded-Pair		Nonbonded-Pair	
	10GX	Color	10GX	Color
CMR	10GX32 0061000	Blue	10GX12 0061000	Blue
	10GX32 0091000	White	10GX12 0091000	White
CMP	10GX33 D151000	Blue	10GX13 D151000	Blue
	10GX33 0091000	White	10GX13 0091000	White

Modular Jacks

10GX KeyConnect Modular Jack

Part No.	Color	Part No.	Color
AX102280	Gray	AX104153	Red
AX102281	Almond	AX104154	Yellow
AX102282	White	AX104155	Green
AX102283	Black	AX104156	Blue
AX103073	Ivory	AX104157	Purple
AX104152	Orange		

Patch Cords

Bonded-Pair, CMR

Length	Part No.	Color
7 ft.	CA21106 007	Blue
	CA21109 007	White
10 ft.	CA21106 010	Blue
	CA21109 010	White
15 ft.	CA21106 015	Blue
	CA21109 015	White
25 ft.	CA21106 025	Blue
	CA21109 025	White

IBDN 4800 System - Category 6 to 300 MHz

The Belden IBDN 4800 System's exceptional signal power and signal-to-noise performance characteristics make the system ideal to handle ultra-high speed and multi-Gigabit protocols and large volumes of voice, data, video and multimedia communications.

Cable

Flame Rating	Bonded-Pair		Nonbonded-Pair	
	DataTwist 4800	Color	DataTwist 4800	Color
CMR	7851A 006A1000	Blue	4812 006A1000	Blue
	7851A 009A1000	White	4812 009A1000	White
CMP	7852A D15A1000	Blue	4813 D15A1000	Blue
	7852A 009A1000	White	4813 009A1000	White

Modular Jacks

CAT 6+ KeyConnect Modular Jack

Part No.	Color	Part No.	Color
AX101318	Gray	AX101323	Red
AX101319	Almond	AX101324	Yellow
AX101320	White	AX101325	Green
AX101321	Black	AX101326	Blue
AX103076	Ivory	AX101327	Purple
AX101322	Orange		

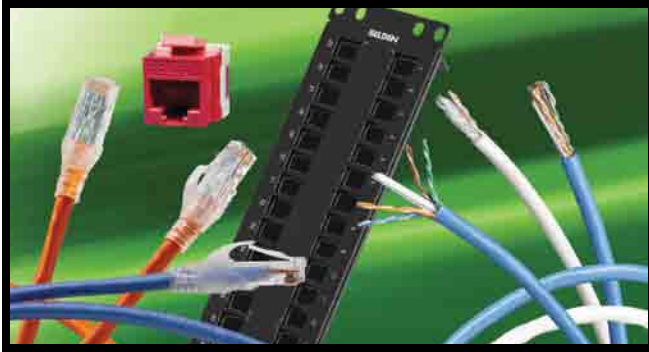
Patch Cords

Bonded-Pair, CMR

Length	Part No.	Color
7 ft.	C601106 007	Blue
	C601109 007	White
10 ft.	C601106 010	Blue
	C601109 010	White
15 ft.	C601106 015	Blue
	C601109 015	White
25 ft.	C601106 025	Blue
	C601109 025	White

NOTE: products with Bonded-Pair technology provide Installable Performance® advantages - refer to Belden's Bonded-Pair Cable Bulletin #CB 006. Ethernet/IP is a trademark of ControlNet International, Ltd under license by Open DeviceNet Vendor Association, Inc.

Copper Networking Cable and Connectivity - Indoor



IBDN 3600 System - Category 6 to 280 MHz

Built on DataTwist 3600 UTP cables and CAT6+ connectivity products, IBDN System 3600 installations provide additional throughput and the type of enhanced, error-free performance needed to support high-traffic and high bit-rate applications.

Cable

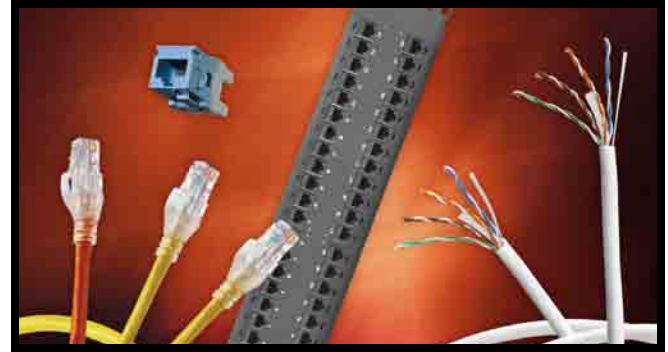
Flame Rating	Bonded-Pair		Nonbonded-Pair	
	DataTwist 3600	Color	DataTwist 3600	Color
CMR	3632 006A1000	Blue	3612 006A1000	Blue
	3632 009A1000	White	3612 009A1000	White
CMP	3633 D15A1000	Blue	3613 D15A1000	Blue
	3633 009A1000	White	3613 009A1000	White

Modular Jacks

CAT 6+ KeyConnect Modular Jack			
Part No.	Color	Part No.	Color
AX101318	Gray	AX101323	Red
AX101319	Almond	AX101324	Yellow
AX101320	White	AX101325	Green
AX101321	Black	AX101326	Blue
AX103076	Ivory	AX101327	Purple
AX101322	Orange		

Patch Cords

Bonded-Pair, CMR		
Length	Part No.	Color
7 ft.	C601106 007	Blue
	C601109 007	White
10 ft.	C601106 010	Blue
	C601109 010	White
15 ft.	C601106 015	Blue
	C601109 015	White
25 ft.	C601106 025	Blue
	C601109 025	White



IBDN 2400 System - Category 6 to 250 MHz

The Belden IBDN System 2400 provides the performance, throughput and reliability necessary to keep your applications and business up and running. This Category 6 system 250 MHz, a 25% increase over the 200 MHz bandwidth of typical Category 6 compliant channels.

Cable

Flame Rating	Bonded-Pair		Nonbonded-Pair	
	MediaTwist	Color	DataTwist 2400	Color
CMR	1872A 006A1000	Blue	2412 006A1000	Blue
	1872A 009A1000	White	2412 009A1000	White
CMP	1874A D15A1000	Blue	2413 D15A1000	Blue
	1874A 009A1000	White	2413 009A1000	White

Modular Jacks

CAT 6+ KeyConnect Modular Jack			
Part No.	Color	Part No.	Color
AX101318	Gray	AX101323	Red
AX101319	Almond	AX101324	Yellow
AX101320	White	AX101325	Green
AX101321	Black	AX101326	Blue
AX103076	Ivory	AX101327	Purple
AX101322	Orange		

Patch Cords

Bonded-Pair, CMR		
Length	Part No.	Color
7 ft.	C601106 007	Blue
	C601109 007	White
10 ft.	C601106 010	Blue
	C601109 010	White
15 ft.	C601106 015	Blue
	C601109 015	White
25 ft.	C601106 025	Blue
	C601109 025	White

NOTE: products with Bonded-Pair technology provide Installable Performance® advantages - refer to Belden's Bonded-Pair Cable Bulletin #CB 006. Ethernet/IP is a trademark of ControlNet International, Ltd under license by Open DeviceNet Vendor Association, Inc.

Copper Networking Cable and Connectivity - Indoor



IBDN 1200 System - Category 5e to 160 MHz

The Belden IBDN System 1200 is the industry's most powerful Category 5e solution, substantially exceeding all requirements for Category 5e channels. The System 1200's certified bandwidth of 160 MHz is 60 percent greater than the bandwidth of typical Category 5e systems.

Cable

Flame Rating	Bonded-Pair		Nonbonded-Pair	
	DataTwist 350	Color	DataTwist1200	Color
CM	1700A 006U1000	Blue	-	-
	1700A 009U1000	White	-	-
CMR	1700R 006U1000	Blue	1212 006U1000	Blue
	1700R 009U1000	White	1212 009U1000	White
CMP	1701A D15U1000	Blue	1213 D15U1000	Blue
	1701A 009U1000	White	1213 009U1000	White

Modular Jacks

CAT5E KeyConnect Modular Jack			
Part No.	Color	Part No.	Color
AX101307	Gray	AX104183	Red
AX101308	Almond	AX104184	Yellow
AX101309	White	AX104185	Green
AX101310	Black	AX104186	Blue
AX103079	Ivory	AX104187	Purple
AX104182	Orange		

Patch Cords

Bonded-Pair, CMR		
Length	Part No.	Color
7 ft.	C501106 007	Blue
	C501109 007	White
10 ft.	C501106 010	Blue
	C501109 010	White
15 ft.	C501106 015	Blue
	C501109 015	White
25 ft.	C501106 025	Blue
	C501109 025	White

KeyConnect Patch Panels

KeyConnect Patch Panels	Part No.
24-port, 1U, Black (Empty)	AX103114
48-port, 2U, Black (Empty)	AX103115
72-port, 2U, Black (Empty)	AX103116
48-port, 1U, Black (Empty)	AX103121

AngleFlex Patch Panels

AngleFlex Patch Panels	Part No.
24-port, 1U, Black (Empty)	AX103248
48-port, 2U, Black (Empty)	AX103249

KeyConnect Workstation Outlets

KeyConnect Faceplates	Almond	Elec. White
1-Port, w/ ID Windows, Single-gang	AX103922	AX102660
2-Port, w/ ID Windows, Single-gang	AX103923	AX102655
4-Port, w/ ID Windows, Single-gang	AX102248	AX102249
6-Port, w/ ID Windows, Single-gang	AX102250	AX102251
12-Port, w/ ID Windows, Double-gang	AX102256	AX102257
Single-gang Back Box, 1.89 in.	AX104127	AX102657
Double-gang Back Box, 1.89 in.	AX104130	AX104131

KeyConnect Side-Entry Boxes, with Shutter Door

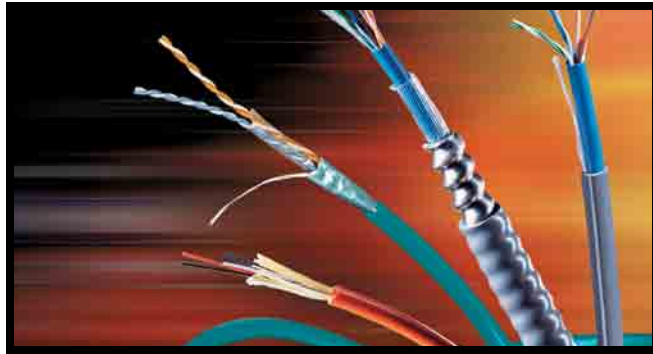
KeyConnect Side-Entry Boxes, with Shutter Door	Almond	Elec. White
1-Port	AX104132	AX102651
2-Port	AX104133	AX102652
4-Port	AX104134	AX102653
6-Port	AX104135	AX102654

KeyConnect Stainless Steel Faceplates with IDwindows

KeyConnect Stainless Steel Faceplates with IDwindows	Part No.
1-Port, Single-gang	AX104230
2-Port, Single-gang	AX104231
4-Port, Single-gang	AX104232
6-Port, Single-gang	AX104233
12-Port, Double-gang	AX104234

NOTE: products with Bonded-Pair technology provide Installable Performance® advantages - refer to Belden's Bonded-Pair Cable Bulletin #CB 006. Ethernet/IP is a trademark of ControlNet International, Ltd under license by Open DeviceNet Vendor Association, Inc.

Copper Networking Cable - Outdoor (Harsh Environments)



Over the past five years or so, Ethernet has moved increasingly from the office environment into the industrial world - mainly for video, control and automation applications. But the two environments couldn't differ more: the office environment offers its cabling system a relatively safe harbor and should a signal transmission fault occur, retries are generally acceptable. The industrial world presents a different reality: the cabling system can be integral to a harsh and hazardous environment and yet there's no margin for error since the cables typically carry signals between devices to make events happen on a very exacting schedule.

Belden's answer is to offer a complete range of high quality, high reliability DataTuff® Industrial Ethernet cables that have been designed for industrial use and tested using state-of-the-art testing equipment. Belden DataTuff cables are also field-proven relative to exceptional day-in/day-out performance in the harshest of environments including sunlight, weather, direct burial, oil, gas, temperature variation and humidity among others.

Part No.	No. of Pairs	Shielding		Conductor		Installation		Environmental Issues								Industrial Grade Jacket			
		Un-shielded	Shielded *	Solid	Stranded **	Installation Stress Resistance†	Pull Tension	Oil Resistance	UV Sunlight Resistance	Weld Splatter Resistance	CMX/ Outdoor	Under-ground (burial)	Gasoline Resistance	LSZH	MSHA	Hi/Lo Temp	Heavy	Upjacket	Armored
DataTuff Industrial Ethernet Category 5e Cable - Ethernet/IP™																			
7932A	2	●		●		●	20	●	●									●	
7933A	2		●	●		●	20	●	●									●	
7923A	4	●		●		●	40	●	●		●				●			●	
7934A	4	●		●		●	40	●	●			●						●	
7928A	4	●		●		●	40	●	●				●			●		●	
11700A	4	●		●		●	40	●	●		●				●			●	
7921A	4		●	●		●	75	●	●		●							●	
7935A	4	●		●		●	40	●	●					●				●	
DataTuff Industrial Ethernet Category 5e Cable																			
7918A	4	●		●		●	35	●	●		●				●			●	
7924A	4	●		●	●	●	40	●	●		●							●	
7930A	4	●		●	●	●	25	●	●		●							●	
7937A	4		●	●		●	40	●	●			●						●	
7939A	4		●	●	●	●	40	●	●		●							●	
7922A (PLTC)	4	●		●		●	40	●	●		●							●	
11700A2 (Oil Resistant I&II)	4	●		●		●	40	●	●		●							●	
121700A	4	●		●		●	40	●	●		●							●	
121700R	4	●		●		●	40	●	●		●							●	
7929A	4		●	●		●	35	●	●		●				●			●	
7936A	4		●	●		●	40	●	●				●					●	
7938A (High-Flex)	4		●	●	●	●	50	●	●	●								●	
7919A	4		●	●		●	25	●	●		●				●			●	
DataTuff Industrial Ethernet Category 6 Cable - Ethernet/IP™																			
7940A	4	●		●		●	45	●	●		●							●	
7953A	4		●	●		●	45	●	●		●							●	
DataTuff Industrial Ethernet Category 6 Cable																			
7927A	4	●		●		●	45	●	●		●							●	
7931A	4	●		●		●	40	●	●			●			●			●	
11872A	4	●		●		●	45	●	●		●							●	
121872A	4	●		●		●	45	●	●		●							●	

* Shielded products are recommended for high-noise environments. ** Stranded products are recommended where more flexibility is needed.

† Products with Bonded-Pair technology provide Installable Performance® advantages - refer to Belden's Bonded-Pair Cable Bulletin #CB 006
Ethernet/IP is a trademark of ControlNet International, Ltd under license by Open DeviceNet Vendor Association, Inc.

Ethernet Patchcords and Cordsets - Outdoor (Harsh Environments)



Industrial Ethernet Media Cordsets Hirschmann by Belden Brand

From the Factory Floor to the Office, Hirschmann has you connected with the industry's largest selection of Industrial Ethernet Media Solutions. Prior to the advent of Industrial Ethernet (standardized Ethernet communications via hardened networking infrastructure), office grade Ethernet cabling and connectors were the only available options. Unfortunately, these traditional media solutions proved unable to withstand the harsh environment of the factory floor or other industrial applications.

The Hirschmann product family of Industrial Ethernet Media Solutions eliminates these issues by combining standard RJ45 connection technology with the proven industrial Micro (M12) connection technology typically found in sensor/actuator machine applications - also available on all OCTOPUS, MICE, and MACH1000 Switches. With the integration of **Bonded-Pair** (see page 25 for details) technology by Belden, these industrial ethernet media cordsets have the highest level of signal quality making them one-of-a-kind.



RJ45 to RJ45



RJ45 to M12



M12 to M12



RJ45 to M12 (Panel Receptacle)

Industrial Ethernet Media Cordsets - TPE - Bonded-Pair, CAT 5e, 24 AWG Unshielded, 2- and 4-Pair

Part No.	Configuration	Standard Cable Lengths	Description
J424TPESTJT...M	RJ45 to RJ45	00.3M, 00.5M, 01.0M, 02.0M, 03.0M, 04.0M, 05.0M, 06.0M, 07.0M, 10.0M, 12.0M, 15.0M, 20.0M, 25.0M, 30.0M, 40.0M, 50.0M	Industrial Ethernet CAT5E, TPE unshielded, 2- and 4-pair, 24 AWG cable, bonded-pairs, stranded (7x32) tinned copper conductors, polyolefin insulation, and industrial grade sunlightand-oil-resistant, teal jacket.
M224TPESTJT...M	RJ45 to M12		
M224TPESTMT...M	M12 to M12		
J224TPESTPT...M	RJ45 to M12 (Panel Receptacle)	00.3M, 00.5M, 01.0M, 02.0M, 03.0M, 04.0M, 05.0M	

Example of completed Part No.: J424TPESTJT00.3M is a 00.3 meter cable.

Industrial Ethernet Media Cordsets - TPE High-Flex - Bonded-Pair, CAT 5e, 24 AWG Unshielded, 2- and 4-Pair

Part No.	Configuration	Standard Cable Lengths	Description
J424THFSTJT...M	RJ45 to RJ45	00.3M, 00.5M, 01.0M, 02.0M, 03.0M, 04.0M, 05.0M, 06.0M, 07.0M, 10.0M, 12.0M, 15.0M, 20.0M, 25.0M, 30.0M, 40.0M, 50.0M	Industrial Ethernet High-Flex CAT5E, TPE High-Flex, unshielded, 2-and 4 pair, 24 AWG cable, stranded copper alloy conductors, polyolefin insulation, teal jacket. Warranted to 10 million flex cycles @ 20X OD and 1M flex cycles @ 10X OD.
M224THFSTJT...M	RJ45 to M12		
M224THFSTMT...M	M12 to M12		
J224THFSTPT...M	RJ45 to M12 (Panel Receptacle)	00.3M, 00.5M, 01.0M, 02.0M, 03.0M, 04.0M, 05.0M	

Example of completed Part No.: J424THFSTJT00.3M is a 00.3 meter cable.

Industrial Ethernet Media Cordsets - PVC - Bonded-Pair, CAT 5e, 24 AWG Unshielded, 2- and 4-Pair

Part No.	Configuration	Standard Cable Lengths	Description
J424PVCSTJT...M	RJ45 to RJ45	00.3M, 00.5M, 01.0M, 02.0M, 03.0M, 04.0M, 05.0M, 06.0M, 07.0M, 10.0M, 12.0M, 15.0M, 20.0M, 25.0M, 30.0M, 40.0M, 50.0M	Industrial Ethernet CAT5E, PVC unshielded, 2- and 4-pair, 24 AWG cable, bonded-pairs, stranded (7x32) tinned copper conductors, polyolefin insulation, and industrial grade sunlightand oil-resistant, teal jacket.
M224PVCSTJT...M	RJ45 to M12		
M224PVCSTMT...M	M12 to M12		
J224PVCSTPT...M	RJ45 to M12 (Panel Receptacle)	00.3M, 00.5M, 01.0M, 02.0M, 03.0M, 04.0M, 05.0M	

Example of completed Part No.: J424PVCSTJT00.3M is a 00.3 meter cable.

Optical Fiber Cable and Connectivity



Security Devices and Infrastructure Cables

Below is a sampling of Belden's Optical Fiber cable offering. The full offering also includes Breakout, Ribbon and Loose Tube designs, in a full range of glass types and fiber counts.

Belden compliments their vast line of optical fiber cables with an innovative set of Fiber Patch Panel Systems, Fiber Connectors and Cable Assemblies. For complete information on Belden's FiberExpress Solutions, please consult the Belden Optical Fiber Catalog at www.belden.com.

No. of Fibers	Belden Part No.				Outside Diameter		Weight		Max. Install Load	
	OM1 62.5/125 micron Std./1 Gb	OM2 50/125 micron Std./1Gb	OM3 50/125 micron 10 Gb - 300 m	OS2 Single-mode Enhanced	Inch	mm	lb/1000 ft.	kg/km	lb	N

Interconnect Cable Series - Simplex and Duplex

Interconnect cables are designed for low fiber-count security and CCTV surveillance environments. They are small and very flexible, making them ideal for confined spaces. Their aesthetic appearance makes these cables suitable for use in open office environments. Available in 1 or 2 fibers. One sub-unit is marked to permit easy identification of transmit and receive fibers. Length markings facilitate installation.

Riser (NEC/CEC OFNR/OFN FT.4)										
1	B97112	B9A001	B9C001	B9W001	0.110	2.9	6	9	119	530
2	B96915	B9A002	B9C002	B9W002	0.11 x 0.22	2.9 x 6.0	10	15	239	1063
Plenum (NEC/CEC OFNP/OFN FT.6)										
1	B98086	B9A003	B9C003	B9W003	0.110	2.9	6	9	119	530
2	B96919	B9A004	B9C004	B9W004	0.11 x 0.22	2.9 x 6.0	12	18	239	1063

Distribution Cable, Tight Buffer - Riser and Plenum

Flexible thermoplastic jacket provides excellent handling characteristics. Fibers and cable subunits are numbered for easy identification. Length markings in meters for easy determination of cable length. Full dielectric construction, no grounding required. For Riser offering, MSHA approved cables are available.

Riser (NEC/CEC OFNR/OFN FT.4) Indoor Outdoor										
2	B9B037T	B9A037T	B9C037T	B9W037T	0.19	4.8	14	21	303	1350
6	B9B039T	B9A039T	B9C039T	B9W039T	0.21	5.3	19	28	303	1350
12	B9B042T	B9A042T	B9C042T	B9W042T	0.24	6.0	26	38	303	1350
Plenum (NEC/CEC OFNP/OFN FT.6) Indoor Outdoor										
2	B9B043T	B9A043T	B9C043T	B9W043T	0.19	4.8	18	27	243	1082
6	B9B045T	B9A045T	B9C045T	B9W045T	0.22	5.5	22	33	243	1082
12	B9B048T	B9A048T	B9C048T	B9W048T	0.26	7.0	34	50	388	1726

Interlocked Armor Distribution Cable, Tight Buffer - Riser and Plenum

Heavy duty construction with interlocking aluminum armor (steel available on request) provides excellent mechanical protection from cutting or crushing and eliminates need for innerduct. Rodent resistant. Also available for outside plant. Loose tube design available on request.

Riser (NEC/CEC OFCR/OFN FT.4)										
6	B9B230	B9A230	B9C230	B9W230	0.57	14.48	23.24	35	286	1272
12	B9B231	B9A231	B9C231	B9W231	0.57	14.48	28.24	42	239	1063
Plenum (NEC/CEC OFNP/OFN FT.6)										
6	B9B240	B9A240	B9C240	B9W240	0.57	14.48	24.24	36	286	1272
12	B9B241	B9A241	B9C241	B9W241	0.57	14.48	31.24	46	239	1063

NOTE: To see Belden's complete cable product offering as well as Fiber Patch Panels, Connectors and Cable Assemblies, refer to the Belden Optical Fiber Catalog at www.belden.com.

Managed Modular DIN Rail Mount Switches

EtherNet/IP™
conformance tested

**PROFI
NET**



MS20 Modular Switches



All ports are 10/100 Mbps. Fully managed (web, SNMP and CLI) – IGMP snooping (multicast filtering), VLAN, port mirroring, port control, port security, link alarms, broadcast limiter, traffic diagnostics, HIPER-Ring redundancy, RSTP, etc.

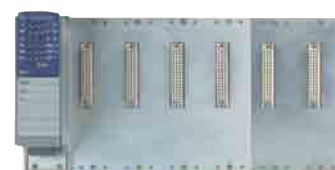
- Available in a 2- and 4-slot version (4-slot can be expanded to a 6 slot using MB-2T)
- Requires the use of media modules
- Dual power inputs and dual fault relay outputs
- USB configuration backup/restore and fast device replacement
- Std. 0° C to +60° C (-40° C to +70° C and conformal coating available)
- Differentiator between similar switches listed is the firmware level/features. (E = Enhanced, P = Professional).



MS20-08



MS20-16



MS20-24 (including backplane extension MB-2T)

MS20 Modular Switches / All Ports are 10/100 Mbps

Part No.	Order No.	Ports
MS20-0800SAAE	943 435-001	2 x any MM2/MM3 (4 slots, max. 8 x 10/100 Mbps ports)
MS20-0800SAAP	943 435-002	2 x any MM2/MM3 (4 slots, max. 8 x 10/100 Mbps ports)
MS20-1600SAAE	943 435-003	4 x any MM2/MM3 (6 slots max. 16 x 10/100 Mbps ports/24 ports w/ MB-2T)
MS20-1600SAAP	943 435-004	4 x any MM2/MM3 (6 slots max. 16 x 10/100 Mbps ports/24 ports w/ MB-2T)

MS30 Modular Switches



Uplink ports are 10/100/1000 Mbps. All other ports are 10/100 Mbps. Same functionality and features as MS20, with the exception of an added slot for a Gigabit Media Module (for 2 x 10/100/1000 Mbps uplinks).

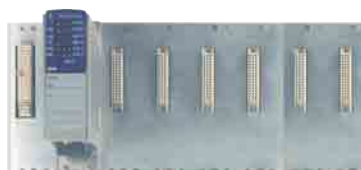
- MS30-08 can have a max of 8 x 10/100 Mbps ports and 2 x 10/100/1000 Mbps ports
- MS30-16 can have 16 x 10/100 Mbps ports (24 ports max w/ MB-2T) and 2 x 10/100/1000 Mbps ports
- Uplinks may be copper and/or fiber. Fiber is available in multimode and singlemode by using Gigabit or 100 Mbps SFPs.



MS30-08



MS30-16



MS30-24 (including backplane extension MB-2T)

MS30 Modular Switches / Uplink Ports are 10/100/1000 Mbps - All Other Ports are 10/100 Mbps

Part No.	Order No.	Ports
MS30-08002SAAE	943 435-005	2 x any MM2/MM3 and 1 x MM4-2TX/SFP (max 10 ports)
MS30-08002SAAP	943 435-006	2 x any MM2/MM3 and 1 x MM4-2TX/SFP (max 10 ports)
MS30-16002SAAE	943 435-007	4 x any MM2/MM3 (6 x w/MB-2T) and 1 x MM4-2TX/SFP (max 26 ports)
MS30-16002SAAP	943 435-008	4 x any MM2/MM3 (6 x w/MB-2T) and 1 x MM4-2TX/SFP (max 26 ports)



PowerMICE Gigabit Layer 2/3 Switches

For applications that require a more powerful and feature-rich switch, Hirschmann offers its PowerMICE modular switches. Similar in functionality and features to the MS30-16 on the previous page, the PowerMICE adds two additional Gigabit ports (for a total of four) and an option to have Layer 3 routing capabilities.

MICE Modular Managed Industrial Ethernet Layer 2/3 Switches with Professional or Enhanced Management

Part No.	Order No.	Layer/Management	Ports	Configurations
MS4128-L2P	943 009-001	Layer 2/Professional	28	24x 10/100 Mbps + 4 Gigabit (any copper/fiber mix)
MS4128-L3E	943 009-201	Layer 3/Enhanced	28	24x 10/100 Mbps + 4 Gigabit (any copper/fiber mix)
MS4128-L3P	943 009-201	Layer 3/Professional	28	24x 10/100 Mbps + 4 Gigabit (any copper/fiber mix)

MS Backplane Extensions

MICE 2-slot backplane extensions are used for MS20-16, MS30-16 and MS4128, Only one per switch may be used for a maximum of six total slots.

MS Backplane Extensions

Part No.	Order No.	Extensions for Use With
MB-2T	943 733-102	MS20-16, MS30-16, and MS4128
MB20-2TAHH	943 435-002	Same as above but with -40°C to +75°C



MICE Media Modules

Any combination of the following hot-swappable media modules may be used to attain the desired port density/type on a MICE switch. The only restriction is the number of slots that the MICE has (one media module per slot).

MICE Modules: Maximum Module Density

Modular Switch	Density
MS20-08	2 x any MM2/MM3
MS20-16	4 x any MM2/MM3 (6 x MB-2T)
MS30-08	2 x any MM2/MM3 plus 1 x MM4-2TX/SFP
MS30-16	4 x any MM2/MM3 (6 x MB-2T), plus 1 x MM4-2TX/SFP
MS4128	4 x any MM2/MM3 (6 x MB-2T), plus 1 x any MM4

NOTE: SFPs are needed for MM4 fiber functionality.

MICE Modules: ALL COPPER

Type	Part No.	Order No.	Ports/Speed
ALL COPPER	MM2-4TX1	943 722-101	4 x 10/100 Mbps RJ45
ALL COPPER	MM2-4TX1-EEC	943 722-151	4 x 10/100 Mbps RJ45, ext. temperature range*

MICE Modules: MULTIMODE

MULTIMODE	MM2-4FXM3	943 721-101	4 x 100 Mbps MM MTRJ
MULTIMODE	MM2-2FXM2	943 718-101	2 x 100 Mbps MM SC
MULTIMODE	MM3-4FXM2	943 764-101	4 x 100 Mbps MM SC
MULTIMODE	MM3-4FXM4	943 835-101	4 x 100 Mbps MM ST
MULTIMODE	MM3-1FXM2/3TX1	943 839-101	1 x 100 Mbps MM SC, 3 x RJ45
MULTIMODE	MM3-2FXM4/2TX1	943 837-101	2 x 100 Mbps M ST, 2 x RJ45
MULTIMODE	MM2-2FXM3/2TX1	943 720-101	2 x 100 Mbps MM MTRJ, 2 x RJ45
MULTIMODE	MM3-4FLM4	943 760-101	4 x 10 Mbps MM ST
MULTIMODE	MM3-2FXM2/2TX1	943 761-101	2 x 100 Mbps MM SC, 2 x RJ45
MULTIMODE	MM3-2FXM2/2TX1-EEC	943 761-151	2 x 100 Mbps MM SC, 2 x RJ45, ext. temperature range*
MULTIMODE	MM3-1FXM2/1FXS2/2TX1	943 929-101	2 x 100 Mbps SC (1 x MM and 1 x SM), 2 x RJ45

NOTE: EEC media modules have an extended temperature range of -40°C to +70°C. Additional EEC modules are available. Please consult your Hirschmann representative or www.hirschmann-usa.com

Managed Modular DIN Rail Mount Switches

MICE Modules: SINGLEMODE

Type	Part No.	Order No.	Ports/Speed
SINGLEMODE	MM 2-2FXS2	943 719-101	2 x 100 Mbps SM SC
SINGLEMODE	MM 3-2FXS2/2TX1	943 762-101	2 x 100 Mbps SM SC, 2 x RJ45
SINGLEMODE	MM 3-2FXS2/2TX1-EEC	943 762-151	2 x 100 Mbps SM SC, 2 x RJ45, ext. temp.*
SINGLEMODE	MM 3-1FXS2/3TX1	943 838-101	1 x 100 Mbps SM SC, 3 x RJ45
SINGLEMODE	MM 3-4FXS2	943 836-101	4 x 100 Mbps SM SC
SINGLEMODE	MM 3-1FXL2/3TX1	943 763-101	1 x 100 Mbps SM, SC Long Haul, 3 x RJ45
SINGLEMODE	MM3-1FXLH+/3TX1	943 930-101	1 x 100 Mbps SM SC Long Haul+, 3 x RJ45
SINGLEMODE	MM 3-1FXS2/3TX1-EEC	943 838-151	1 x 100 Mbps SM SC, 3 x RJ45, ext. temp.*

MICE Modules: GIGABIT

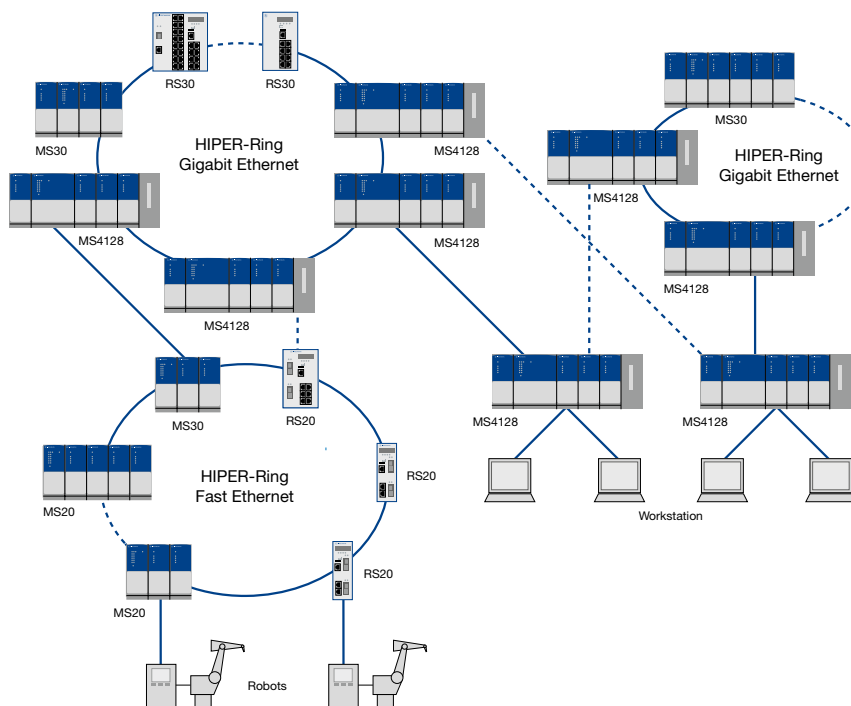
Type	Part No.	Order No.	Ports/Speed
GIGABIT	MM 4-2TX/SFP	943 622-001	2 x Gigabit RJ45 2 SFP Slots** for MS30 and MS4128
GIGABIT	MM 4-4TX/SFP	943 010-001	4 x Gigabit RJ45 4 SFP Slots** for MS4128 only

NOTE: **For every SFP used, one copper port is lost. SFPs need to be purchased separately.

MICE Modules: SPECIAL PURPOSE

Type	Part No.	Order No.	Ports/Speed
AUI	MM3-2AUI	943 840-101	2 x AUI SUB-D 15-pin male D-sub
IP67	MM3-4TX5	943 841-101	4 x M12 socket (D-code), for connectors see OCTOPUS family
POE	MM22-T1T1T1T1SAHH	943 938-002	4 x RJ45 PoE (external PoE power supply)
SFP	MM20-Z6Z6Z6SAHH	943 938-001	4 x 100 Mbps SFP, for MS20, MS30 and MS4128

NOTE: *All media modules are available (special order) with extended temperature range of -40° C to +70° C.



NOTE: All OpenRail switches have the ability of being designed into a redundant ring with 300ms resiliency at 100 Mbps and 30 ms at 1000 Mbps (each with 100 switches in the ring).

All OpenRail switches also have the capability to support redundant ring coupling. Compact and modular switch capabilities are fully compatible in a network.



Example of managed compact and modular switches used in a HIPER-Ring featuring Fast and Gigabit Ethernet.

Über-Rugged™ Managed DIN Rail Mount Switches

RSR Series Compact Über-Rugged™ Switches



RSR-XX Ruggedized Gigabit Ethernet Switches for DIN Rail-Mount

- Extended temperature range: -40°C to +85°C
- Up to two AC/DC inputs with choice of voltage
- DIN rail or panel mounting
- Extremely high RFI/EMI immunity
- Robust metal housing
- Resistant to shock and vibration
- From 8TX to 10 ports fiber
- Panel mount kit available
- Ultra-fast ring recovery time <10ms

RSR30-0802CGZZT1UCCHPHH04.0.		Über-Rugged Managed DIN Rail Mount Switches - Part Configurator	
RSR30-		Design/Model	
		RSR20 Rail Switch Rugged Fast Ethernet	
		RSR30 Rail Switch Rugged Gigabit Ethernet Uplink Ports	
09		Ports Fast Ethernet	
		06 6x 100 Mbps Ethernet	08 8x 100 Mbps Ethernet
		07 7x 100 Mbps Ethernet	09 9x 100 Mbps Ethernet
02		Ports Gigabit Ethernet	
		00 0x 1000 Mbps Ethernet	03 3x 1000 Mbps Ethernet
		02 2x 1000 Mbps Ethernet	
S2		Ports Typ1, Uplink	
		CC 2 x Combo Port Gigabit Ethernet	07 Combo Port Gigabit Ethernet
		00 2 x SFP Slot Gigabit Ethernet	06 SFP Slot Gigabit Ethernet
		TT 2 x Twisted Pair (Tx) / RJ45	T1 Twisted Pair (Tx) / RJ45
		MM 2 x Multimode FX SC	M2 Multimode FX SC
		JJ 2 x Multimode FX MTRJ	M3 Multimode FX MTRJ
		NN 2 x Multimode FX ST	M4 Multimode FX ST
		VV 2 x Singlemode FX SC	S2 Singlemode FX SC
		UU 2 x Singlemode FX ST	S4 Singlemode FX ST
		LL 2 x Singlemode Long Haul FX SC	L2 Singlemode Long Haul FX SC
		GG 2 x Singlemode Long Haul+ FX SC (200 km)	G2 Singlemode Long Haul+ FX SC (200 km)
		ZZ 2 x SFP Slot (100 Mbps)	Z6 SFP Slot (100 Mbps)
M2		Ports Type 2, Uplink	
		ZZ 2 x SFP Slot (100 Mbps)	M4 Multimode FX ST
		07 Compo Port Gigabit Ethernet	S2 Singlemode FX SC
		06 SFP Slot Gigabit Ethernet	S4 Singlemode FX ST
		T1 Twisted Pair (Tx) / RJ45	L2 Singlemode Long Haul FX SC
		M2 Multimode FX SC	G2 Singlemode Long Haul+ FX SC (200 km)
		M3 Multimode FX MTRJ	Z6 SFP Slot (100 Mbps)
T1		Remaining Ports	
		T1 Twisted Pair (Tx) / RJ45	Z6 SFP Slot (100 Mbps)
U		Temperature Range	
		S Standard 0° C up to + 60° C	
		U Extended - 40° C up to + 85° C	
		F Extended - 40° C up to + 85° C inclusive Conformal Coating	
C		Voltage Range 1	
		C 24/36/48 VDC	K 60/120/250 VDC and 110/230 VAC
C		Voltage Range 2	
		9 Not available	K 60/120/250 VDC and 110/230 VAC
		C 24/36/48 VDC	
H		Approvals	
		H UL508, GL, IEC 61850; IEEE 1613; EN 50121	
P		Software Version	
		P Professional	
H		Configuration	
		H Professional	X Customer specific P PROFINET pre-setting E Ethernet/IP pre-setting
H		OEM-Type	
		H Standard X Customer specific	
04.0.		Software Release	
		04.0 Software Release 4.0	XX.X. Newest Software Release

Required Field Optional

Workgroup Rack-mount Switches



Workgroup Switches MACH100 Switches



Hirschmann has expanded its 19" rack switch product portfolio with the release of the MACH100 family, allowing workgroups to be networked by either copper and/or fiberoptic cable. The switches are offered in versions with 8 or 24 permanently installed 10/100 Mbps RJ45 Ethernet ports, or as modular devices with 8 permanent ports and slots for 2 additional 8 port media modules. Both versions offer two RJ45/SFP Gigabit Combo ports for connection to the network backbone. The switches are designed for a temperature range of 0° C to +50° C and support a large range of management and redundancy modes, as well as several functions for configuration and diagnostics. Further features are fanless cooling as well as an optional power supply. As a result the devices of the MACH100 family offer a high level of security and flexibility for Ethernet network design or upgrade in production-related areas.

- Fanless design
- Hot-swappable modules
- Optional redundant power inputs
- ACA 21 USB Backup
- Hirschmann CLI and WEB interface
- L2P firmware - DHCP Option 82, HiDiscovery, HIPER-Ring, MRP, RSTP, disable learning, SNTP, Industrial Profiles (EtherNet/IP, PROFINET)
- Fully integrated in Industrial HiVision
- Temperature range: 0° C to +50° C

NOTE: *SFPs need to be purchased separately (see accessories for SFPs).

MACH100 MODULAR		
Part No.	Order No.	Ports
MACH102-8TP	943 969-001	8x10/100BASE-TX RJ45 ports, 2x GE combo ports (100 or 1000 Mbps SFPs) and 2x 8 port media module slots
MACH102-8TP-R	943 969-101	Same as -001 above, but w/ redundant 110/220 VAC power supply
FIXED PORTS		
Part No.	Order No.	Ports
MACH102-8TP-F	943 969-201	8x10/100BASE-TX RJ45 ports and 2x GE combo ports (100 or 1000 Mbps SFPs)
MACH102-8TP-FR	943 969-301	Same as -201, but w/ redundant 110/220 VAC power supply
MACH102-24TP-F	943 969-401	24x10/100BASE-TX RJ45 ports and 2x GE combo ports (100 or 1000 Mbps SFPs)
MACH102-24TP-FR	943 969-501	Same as -401, but w/ redundant 110/220 VAC power supply
MEDIA MODULES (2 Max. per Modular MACH 100)		
Part No.	Order No.	Ports
M1-8TP-RJ45	943 970-001	8x10/100BASE-TX, RJ45 media module
M1-8MM-SC	943 970-101	8x100BASE-FX MM, SC media module
M1-8SM-SC	943 970-201	8x100BASE-FX SM, SC media module
M1-8SFP	943 970-301	8x100BASE-X SFP media module

Über-Rugged™ Rack-mount Switches

Über-Rugged™ Switches

MACH1000 - 19" Rack-mount Switches



Why Über-Rugged™?

This is the only way to describe a switch that goes above and beyond the already rugged capabilities of Hirschmann's switches by being extremely immune to noise and able to provide maximum uptime in extreme environmental conditions. The MACH1000 features a 24-port custom configurable/modular design that is also available with two or four additional Gigabit uplink (RJ45 and/or SFP for fiber) and PoE ports.

- 19" rack-mount, fanless design
- -40° C to +85° C standard operating temperature (conformal coating available)
- Exceeds IEC 61850-3 and IEEE 1613 standards for electric power substation communication equipment
- Exceeds NEMA TS-2 standard for traffic control equipment
- Redundant 24/36/48 VDC or 120/250 VDC and 110/230 VAC
- Extremely efficient components for minimal heat generation and high MTBF (mean time between failure)
- Ultra-fast ring recovery time < 10 ms



Über-Rugged™ Rack-mount Switches - Configurations

MAR1030-CCMMMMMMVVZZTTTTTTTTTTTT99UGCHPH04.0. / MACH1000 19" Switch			
MAR1030-	Design/Model		
	MAR1020	Fast Ethernet uplink	
	MAR1030	Gigabit Ethernet uplink	
	MAR1022	Fast Ethernet uplink with 4 ports PoE	
	MAR1032	Gigabit Ethernet uplink with 4 ports PoE	
	MAR1120	Fast Ethernet uplink with ports at the back	
	MAR1130	Gigabit Ethernet uplink with ports at the back	
	MAR1122	Fast Ethernet uplink with ports at the back and 4 ports PoE	
	MAR1132	Gigabit Ethernet uplink with ports at the back and 4 ports PoE	
CC	Gigabit Ethernet Ports		
	99	Not present	
	CC	2 ports combo (2x 10/100/1000TX or 2x GE SFP)	
	40	4 ports GE SFP	
	4T	4 ports 10/100/1000TX	
	OT	2 ports GE SFP and 2 ports 10/100/1000TX	
MM	1 + 2	Fast Ethernet Ports - 1 + 2 · 3 + 4 · 5 + 6 · 7 + 8 · 9 + 10 · 11 + 12 · 13 + 14 · 15 + 16 · 17 + 18 · 19 + 20 · 21 + 22 · 23 + 24	
MM	3 + 4	TT	2x Twisted Pair (TX) 10/100 Mbps RJ45
MM	5 + 6	RR	2x Twisted Pair (TX) 10/100 Mbps M12
VV	7 + 8	FF	2x Multimode 10 Mbps ST
ZZ	9 + 10	MM	2x Multimode 100 Mbps SC
TT	11 + 12	JJ	2x Multimode 100 Mbps MTRJ
TT	13 + 14	NN	2x Multimode 100 Mbps ST
TT	15 + 16	VV	2x Singlemode 100 Mbps SC
TT	17 + 18	UU	2 x Singlemode 100 Mbps ST
TT	19 + 20	LL	2x Singlemode LH 100 Mbps SC
TT	21 + 22	GG	2x Singlemode LH+ 100 Mbps SC
99	23 + 24	ZZ	2 x SFP Slot 100 Mbps SFP
		99	Not present
U	Temperature Range		
	S	Standard	0° C up to + 60° C
	U	Extended	- 40° C up to + 85° C
	F	Extended	- 40° C up to + 85° C inclusive Conformal Coating
C	Power Supply 1		
	C	24/36/48 VDC (spring clip)	G 110/250 VDC/110/230 VAC (spring clip)
	L	24/36/48 VDC (plug-in connector)	M 110/250 VDC/110/230 VAC (plug-in connector)
C	Power Supply 2		
	C	24/36/48 VDC (spring clip)	G 110/250 VDC/110/230 VAC (spring clip)
	L	24/36/48 VDC (plug-in connector)	M 110/250 VDC/110/230 VAC (plug-in connector)
	9	not present	
H	Approvals		
	H	cUL508, cUL1604 Class 1 Div2, German Lloyd, IEC 61850-3, IEEE 1613, EN 50121	
P	Software Version		
	P	Professional: extended diagnostics, redundancy and security features	
H	Configuration		
	H	Standard	P Pre-setting/pre-configure E Ethernet/IP pre-setting
H	OEM-Type		
	H	Standard	X Customer specific
04.0.	Software Release		
	X	Current software release	04.0 example: former software release

Required Field	Optional
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NOTE: Use the Hirschmann OpenRail system to configure your substation switch: www.configurator.hirschmann.com

Gigabit Backbone Layer 2/3 Rack-mount Switches



High Density Layer 2/3 Gigabit Backbone Switch MACH400 Switch



Capable of providing as many as 48 Gigabit ports and three 10Gigabit ports, the MACH4000 is the ultimate high-density Layer 2/3 Gigabit backbone switch for mission-critical applications requiring high-availability and high port densities.

The MACH4000 comes standard with up to 16 + ports and can be configured with as many as 32 additional ports (via hot-plug copper/fiber modules).

Standard features include:

- 19" rack-mount
- Two user-definable fault relays
- Hot-swappable media modules for continuous operation – up to 4 Media Modules (8 ports max. each)
- HIPER-Ring, redundant coupling and link aggregation capable
- Flexible power options: 100 – 240 VAC, 24 VDC and 48 VDC
- 0° C to +60° C operating temperature

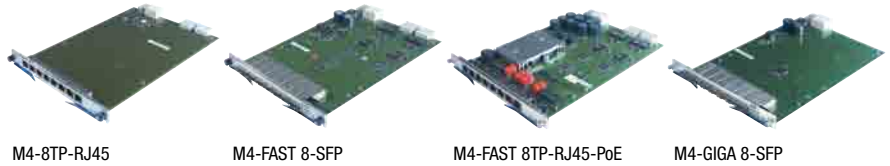
NOTE: *Fan module is included in each chassis. Please purchase media modules and power supply separately. See Accessories for SFPs + XFP. Configuration will dictate final port count and media type.

MACH4000 - High Density Layer 2/3 Gigabit Backbone Switch		
Part No.	Order No.	Ports
MACH4002 48+4G-L2P	943 859-101	Layer 2, Professional Management chassis
MACH4002 48+4G-L3E	943 859-201	Layer 3, Enhanced Management chassis
MACH4002 48+4G-L3P	943 859-301	Layer 3, Professional Management chassis
<ul style="list-style-type: none"> • Fixed ports: 4 x Gigabit Ethernet combo ports* (1000 Mbps SFP socket or 10/100/1000 Mbps RJ45) and 16x RJ45 10/100 Mbps • Media modules: 4 sockets (8 ports max each) for total 32 ports 10/100 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15) 		
MACH4002-24G-L2P	943 916-101	Layer 2, Professional Management chassis
MACH4002-24G-L3E	943 916-201	Layer 3, Enhanced Management chassis
MACH4002-24G-L3P	943 916-301	Layer 3, Professional Management chassis
<ul style="list-style-type: none"> • Fixed ports: 8 x Gigabit Ethernet combo ports* (SFP dual speed socket or TP 10/100/1000 Mbps) • Media modules: 2 x sockets (8 ports max each) for total 16 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15) 		
MACH4002-24G+3X-L2P	943 915-101	Layer 2, Professional Management chassis
MACH4002-24G+3X-L3E	943 915-201	Layer 3, Enhanced Management chassis
MACH4002-24G+3X-L3P	943 915-301	Layer 3, Professional Management chassis
<ul style="list-style-type: none"> • Fixed ports: 3 x 10Gigabit Ethernet XFP socket and 8 Gigabit Ethernet ports TP/RJ45 10/100/1000 Mbps • Media modules: 2 x sockets (8 ports max each) for total 16 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15) 		
MACH4002-48G-L2P	943 911-101	Layer 2, Professional Management chassis
MACH4002-48G-L3E	943 911-201	Layer 3, Enhanced Management chassis
MACH4002-48G-L3P	943 911-301	Layer 3, Professional Management chassis
<ul style="list-style-type: none"> • Fixed ports: 16 Gigabit Ethernet (8 Gigabit Ethernet combo ports* 100/1000 Mbps SFP dual speed socket or 10/100/1000 Mbps + 8 Gigabit 10/100/1000 Mbps RJ45) • Media modules: Four sockets (8 ports max each) for total 32 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15) 		
MACH4002-48G+3X-L2P	943 878-101	Layer 2, Professional Management chassis
MACH4002-48G+3X-L3E	943 878-201	Layer 3, Enhanced Management chassis
MACH4002-48G+3X-L3P	943 878-301	Layer 3, Professional Management chassis
<ul style="list-style-type: none"> • Fixed ports: Three 10Gigabit Ethernet XFP sockets and 16 Gigabit Ethernet ports (100/1000 Mbps SFP dual speed socket or 10/100/1000 Mbps RJ45) • Media modules: Four sockets (8 ports max each) for total 32 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15) 		



MACH4000 Media Modules, Power Supplies and Accessories

The media modules provide maximum flexibility, with 10/100/1000 Mbps over Twisted Pair or 100/1000/10000 Mbps over optic fiber with data transmission ranges of more than 80 km.



MACH4000 Media Modules

Part No.	Order No.	Ports
M4-8TP-RJ45	943 863-001	8 x 10/100/1000 Mbps RJ45 (no 1000 Mbps with MACH4002 48+4G)
M4-FAST 8-SFP	943 864-001	8 x 100 Mbps SFP sockets*
M4-FAST 8TP-RJ45-PoE	943 873-001	8 x 10/100 Mbps RJ45 ports with Power over Ethernet
M4-GIGA 8-SFP	943 879-001	8 x 100/1000 Mbps SFP sockets* (not for MACH4002 48+4G)

NOTE: *SFPs need to be purchased separately (see Accessories on page 31 for SFPs).

MACH4000 Internal Power Supplies

Part No.	Order No.	Voltage
M4-S-AC/DC 300W	943 870-001	110–240 VAC internal power module (redundancy in combination with M4-POWER chassis and power supply)
M4-S-24VDC 300W	943 871-001	24 VDC internal power module (redundancy power input)
M4-S-48VDC 300W	943 872-001	48 VDC internal power module (redundancy power input)

MACH4000 External Power Supplies

Part No.	Order No.	Voltage
M4-POWER	943 874-001	Rack-mounted external power chassis. Requires at least one M4-P power supply (more for redundant power), with a maximum of 3 power supplies
M4-P AC/DC 300W	943 875-001	110–240 VAC power module for use with external M4-POWER chassis
M4-P DC 24V 300W	943 876-001	24 VDC power module for use with external M4-POWER chassis (redundant power input)
M4-P DC 48V 300W	943 877-001	48 VDC power module for use with external M4-POWER chassis (redundant power input)
M4-POWERCABLE	943 922-001	Spare power cable to connect M4-POWER and MACH4002. 1 meter

MACH4000 Accessories

Part No.	Order No.	Voltage
M4-AIR	943 869-001	Fan module (included with chassis), has 4 redundant fans with fault notification
M4-RACKMOUNT-50	943 951-001	19" fixing brackets offer 50 mm more space in the front of the switch for cables
M4-RACKMOUNT	943 951-101	19" spare fixing brackets



M4-AIR. Fan module (included with chassis), has 4 redundant fans with fault notification

Unmanaged DIN Rail Mount Switches



Entry-level Unmanaged Switches SPIDER Family



All ports are 10/100 Mbps. Now available with POE. The SPIDER family of switches provides users with an economical, yet highly reliable Ethernet switch. All copper/RJ45 ports are 10/100 auto-negotiating and auto-crossing – the SPIDERS will work with either patch or cross-over cables. The fiber ports are all 100 Mbps and available in multimode (MM) and singlemode (SM) with either SC or ST sockets. Unless specified, all switches are rated 0° C to +60° C, have a 24 VDC power input via pluggable terminal block and have an average MTBF exceeding 100 years.

ALL COPPER/RJ45 - SPIDER FAMILY / Entry-level Unmanaged Switches

Part No.	Order No.	Ports
SPIDER 3TX-TAP	943 899-001	3 x RJ45
SPIDER 5TX	943 824-002	5 x RJ45
SPIDER 5TX EEC	943 824-102	5 x RJ45
SPIDER II 8TX	943 957-001	8 x RJ45
SPIDER II 8TX EEC	943 958-001	8 x RJ45
SPIDER II 8TX POE	942 008-001	8 x RJ45 and 4 X POE, with metal housing and 24 VDC input

COPPER/RJ45 and FIBER - SPIDER FAMILY / Entry-level Unmanaged Switches

Part No.	Order No.	Ports
SPIDER 4TX/1FX	943 221-001	4 x RJ45 and 1 x MM, SC
SPIDER 4TX/1FX EEC	943 221-101	4 x RJ45 and 1 x MM, SC
SPIDER 4TX/1FX-S EEC	943 914-001	4 x RJ45 and 1 x MM, ST
SPIDER 4TX/1FX SM EEC	943 880-001	4 x RJ45 and 1 x SM, SC
SPIDER 1TX/1FX	943 890-001	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX EEC	943 927-101	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX-SM	943 891-001	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX SM EEC	943 928-001	1 x RJ45 and 1 x SM, SC
SPIDER II 8TX/1FX EEC	943 958-111	8 x RJ45 and 1 x MM, SC
SPIDER II 8TX/1FX-ST EEC	943 958-121	8 x RJ45 and 1 x MM, ST
SPIDER II 8TX/2FX EEC	943 958-211	8 x RJ45 and 2 x MM, SC
SPIDER II 8TX/2FX-ST EEC	943 958-221	8 x RJ45 and 2 x MM, ST
SPIDER II 8TX/1FX-SM EEC	943 958-131	8 x RJ45 and 1 x SM, SC
SPIDER II 8TX/2FX-SM EEC	943 958-231	8 x RJ45 and 2 x SM, SC

FULL GIGABIT - SPIDER FAMILY / Entry-level Unmanaged Switches

Part No.	Order No.	Ports
SPIDER II Giga 5T EEC	943 962-002	5 x RJ45 (10/100/1000)
SPIDER II Giga 5T/2S EEC	943 963-002	5 x RJ45 (10/100/1000), and 2 x SFP Slot (1000)



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

IP67 Switches



Industrial On-Machine Switches OCTOPUS Series - IP 67



The OCTOPUS family of switches, meet all relevant industry standards and are the most robust switches on the market. With Power over Ethernet, Hirschmann has complemented its IP67 solutions with an absolutely future-proof technology. This is deployed in all situations where new end devices such as IP cameras or IP telephones require electrical power without additional installation work.

All products in the OCTOPUS family can be mounted on the wall or directly on the machine. The IP67 variants offer 8/16/24 Twisted Pair ports (each with up to 8 PoE ports), using standardized 4-pin M12 D technology. As the switches are freely cascadable, it is simple to build decentralized structured networks with the shortest possible patch cables to the end devices. The 16- and 24-port versions are also available with two 100BASE-FX uplink ports (microFX).

Standard features include: Totally enclosed IP67 design, ODVA-standardized 4-pin M12 D-code

IP67 Ethernet connector, OCTOPUS M is the industry's first managed IP67 switch, Management via SNMP v1, v2, v3, web GUI or TELNET, Redundancy via HIPER-Ring and Rapid Spanning Tree, Redundant power supply for high availability, Operating temperatures as low as - 40° C to + 70° C, and External signaling of alarms via signal contact or network messaging.



OCTOPUS 5TX EEC



OCTOPUS 8M



OCTOPUS 8M-8PoE



OCTOPUS 16M-2FX



OCTOPUS 16M-8PoE



OCTOPUS 24M

OCTOPUS IP 67 Unmanaged and Managed Switches

Part No.	Order No.	Ports/Functions
OCTOPUS 5TX EEC	943 892-001	5x10/100 Mbps M12-coding, Unmanaged IP 67 Switch
OCTOPUS 8M	943 931-001	8x10/100 Mbps M12, Managed IP 67 Switch
OCTOPUS 8M-Train	943 983-001	8x10/100 Mbps M12, EN 50155, Managed IP 67 Switch
OCTOPUS 16M	943 912-001	16x10/100 Mbps M12, Managed IP 67 Switch
OCTOPUS 16M-Train	943 984-001	16x10/100 Mbps M12, EN 50155, Managed IP 67 Switch
OCTOPUS 16M-2FX	943 912-002	14x10/100 Mbps M12 and 2x100 Mbps Multimode (MicroFX connector), Managed IP 67 Switch
OCTOPUS 24M	943 923-001	24x10/100 Mbps M12, Managed IP 67 Switch
OCTOPUS 24M-Train	943 985-001	24x10/100 Mbps M12, EN 50155, Managed IP 67 Switch
OCTOPUS 24M-2FX	943 923-002	22x10/100 Mbps M12 and 2x100 Mbps Multimode (MicroFX connector), Managed IP 67 Switch
OCTOPUS 8M-6PoE	943 967-101	8x10/100 Mbps M12 with 6 PoE ports, Managed IP 67 Switch
OCTOPUS 8M-8PoE	943 967-001	16x10/100 Mbps M12 with 8 PoE ports, Managed IP 67 Switch
OCTOPUS 16M-8PoE	943 960-001	24x10/100 Mbps M12 with 8 PoE ports, Managed IP 67 Switch
OCTOPUS 16M-8PoE-2FX	943 960-101	14x10/100 Mbit/s M12 with 8 PoE + 2 FX ports, Managed IP 67 Switch

OCTOPUS IP 67 Connectivity Solutions

Part No.	Order No.	Ports/Functions
EM12S OCTOPUS	934 445-001	Field-installable M12 connector
EF12RJ45 OCTOPUS	934 498-001	Bulkhead M12 to RJ45
ACA21-M12 EEC	943 913-002	ACA 21 auto configuration adapter for OCTOPUS managed switches
OCTOPUS Terminal Cable	943 902-001	M12 4-pin to Sub-D- 9-pin terminal cable



Field-Installable M12

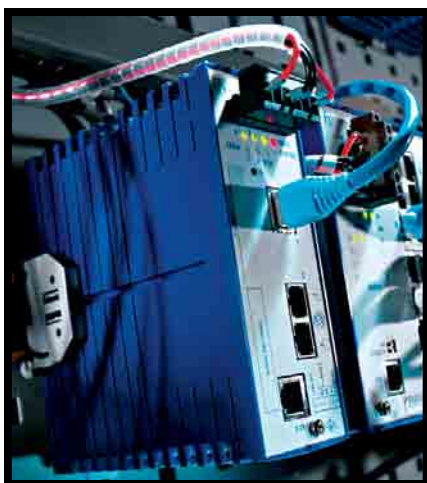


Bulkhead M12 to RJ45



ACA 21 Auto Configurator

Security



Firewall/VPN Router EAGLE20Series

A high speed VPN, firewall, and routing solution all in one package, the EAGLE20 allows users to achieve the highest level of security for Industrial Ethernet networks. All security functions are integrated into the self-contained independent EAGLE20 platform, eliminating the need to reconfigure the system being protected or install additional drivers or software. Integration, regardless of the application or operating system, is easily done with the learning mode and default one-way communication.

Features & Benefits

- Scalable security functionality: pure firewall, and VPN router
- Easy integration: no need to change IP addresses in existing networks
- Simple deployment: visible in HiDiscovery and support for the USB auto configuration adapter
- Extensive diagnostics: web-based management, status LEDs, relay contact, logging to a Syslog server, integrated in HiVision
- Support for redundancy mechanisms: firewall redundancy, redundant ring coupling and dual homing, network segmentation (router mode), fanless design

EAGLE SERIES, Firewall/VPN Router			
Part No.	Order No.	Trusted Port	Untrusted/Public Port
EAGLE20 TX/TX	943 987-001	10/100BASE-TX, RJ45	10/100BASE-TX, RJ45
EAGLE20 TX/MM	943 987-002	10/100BASE-TX, RJ45	100BASE-FX-MM, SC
EAGLE20 TX/SM	943 987-003	10/100BASE-TX, RJ45	100BASE-FX-MM, SC
EAGLE20 MM/TX	943 987-004	100BASE-FX-MM, SC	10/100BASE-TX, RJ45
EAGLE20 MM/MM	943 987-005	100BASE-FX-MM, SC	100BASE-FX-MM, SC

Interfaces

Item	Description
• Supply fault relay output	1 x pluggable terminal block, 6 pin
• V.24 port	1 x RJ11 socket, serial interface for device configuration
• USB interface	1 x USB for connection to ACA 21-USB

Security

Item	Description
• Stateful Inspection Firewall	Firewall rules (incoming/outgoing, modem access, management), IP Masquerading, 1-to-1 NAT, DoS Limiter, MAC-Filter, user firewall for ext. activation of FW-rules
• Multipoint VPN	IPSec, IKEv2, DES, 3DES, AES (-128, -192, -256), Pre-Shared Key, X.509v3 Certificate, MD5, SHA-1, NAT-T, firewall rules for each VPN connection, configuration assistance via web interface, remote-controlled activate/deactivate connection.

Service

Item	Description
• Management	Command Line Interface (CLI), web interface, auto configuration adapter (ACA 21-USB), DHCP, HiDiscovery, Industrial HiVision
• Diagnostics	LEDs (power, link status, data, fault, ACA (V24), relay contact (24 VDC/1A), Log file, Syslog, series configuration check
• Protocols	serial, HTTPS, SSH, SNMP v1/v2/v3, LLDP
• Further features	DHCP server/client, DHCP relay/option 82, DynDNS, firewall-access via V.24 (PPP), SNTP, VLAN support (IEEE 802.1pQ), port-forwarding

Redundancy

Item	Description
• Redundancy functions	Use in redundant network-/ring coupling, dual homing, firewall redundancy (layer 4), redundant 24 V power supply

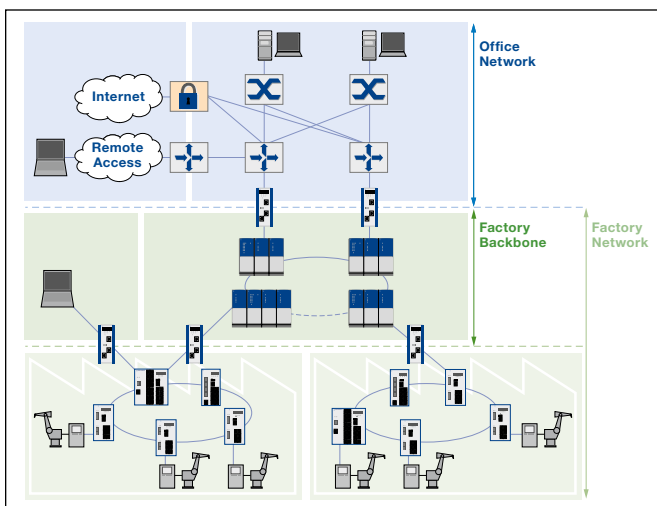


Illustration: Example of firewall/VPN router installation (EAGLE20) in a factory setting.

Switch Accessories

SFP + XFP Transceiver Modules

SFP + XFP Transceiver Modules		
Part No.	Order No.	Description
M-FAST SFP-MM/LC	943 865-001	100BASE-FX, 5 km 50/125 µm MM, 4 km 62.5/12.5 µm MM
M-FAST SFP-MM/LC EEC	943 945-001	100BASE-FX, 5 km 50/125 µm MM, 4 km 62.5/12.5 µm MM
M-FAST SFP-SM/LC	943 866-001	100BASE-FX, 25 km 9/125 µm SM
M-FAST SFP-SM/LC EEC	943 946-001	100BASE-FX, 25 km 9/125 µm SM
M-FAST SFP-SM+/LC	943 867-001	100BASE-FX, 25–65 km 9/125 µm SM
M-FAST SFP-SM+/LC EEC	943 947-001	100BASE-FX, 25–65 km 9/125 µm SM
M-FAST SFP-LH/LC	943 868-001	100BASE-FX, 55–140 km 9/125 µm SM
M-FAST SFP-LH/LC EEC	943 948-001	100BASE-FX, 55–140 km 9/125 µm SM
Gigabit Ethernet		
Part No.	Order No.	Description
M-SFP-SX/LC	943 014-001	1000Base-SX, 550 m 50/125 µm MM, 275 m 62.5/125 µm MM
M-SFP-SX/LC EEC	943 896-001	1000Base-SX, 550 m 50/125 µm MM, 275 m 62.5/125 µm MM
M-SFP-LX/LC	943 015-001	1000Base-SX, 550 m 50/125 µm MM, 550 m 62.5/125 µm MM, 20 km 9/125 µm SM
M-SFP-LX/LC EEC	943 897-001	1000Base-SX, 550 m 50/125 µm MM, 550 m 62.5/125 µm MM, 20 km 9/125 µm SM
M-SFP-LH/LC	943 042-001	1000Base-LX, 16–80 km 9/125 µm SM-LH
M-SFP-LH+/LC	943 049-001	1000Base-LX, 44–120 km 9/125 µm SM-LH
Gigabit Ethernet Bi-Directional (Single Fiber Strand)		
Part No.	Order No.	Description
M-SFP-BIDI-Bundle LX/LC EEC	943 974-101	1000Base-SX, 20 km 9/125 µm SM
M-SFP-BIDI-Bundle LH/LC EEC	943 975-101	1000Base-LX, 23–80 km 9/125 µm SM-LH
10Gigabit Ethernet		
Part No.	Order No.	Description
M-XFP-ZR/LC	943 921-001	10GBASE-SX, 40–80 km 9/125 µm SM
M-XFP-ER/LC	943 920-001	10GBASE-SX, 10–40 km 9/125 µm SM
M-XFP-LR/LC	943 919-001	10GBASE-SX, 2–10 km 9/125 µm SM
M-XFP-SR/LC	943 917-001	10GBASE-SX, 33 m 50/125 µm MM or 300 m w/modal bandwidth 2000 [MHz x km] fiber



Power Supplies and Programming/Configuration Tools

Power Supplies		
Part No.	Order No.	Description
RPS30	943 662-003	24 VDC power supply unit 1.3A
RPS80 EEC	943 662-080	24 VDC power supply unit 3.0A, –25°C up to +70°C
RPS120 EEC	943 662-120	24 VDC power supply unit 4.5A, –25°C up to +70°C
RPS60/48V EEC	943 952-001	48 VDC PoE power supply unit 1.25A, –10°C up to +70°C
PSW 5-24	943 008-001	5 VDC Plug-in power supply 0°C up to +40°C



Programming and Configuration Backup		
Part No.	Order No.	Description
ACA 21-USB EEC	943 271-002	USB configuration adapter for storage/backup and device replacement of (managed) OpenRail, MICE, MACH switches and EAGLE firewalls
ACA21-M12 EEC	943 913-002	USB configuration adapter for storage/backup and device replacement of (managed) Octopus switches devices
ACA11 EEC	943 751-002	Similar to above ACA adapters, but communication via the RS232 interface
Serial/Terminal Cable	943 301-001	Terminal cable for managing and configuring managed switches via the RS232 interface



Hirschmann Wireless Ethernet Access Point/Clients



Wireless Ethernet Access Point/Clients BAT Series



As there are applications where the reliability of a hard-wired connection is not practical (or feasible), a wireless solution may be the best solution. The new line of BAT wireless Ethernet access points/clients/bridges has an extensive feature list that sets it apart from your average commercially-available options - **now supporting 802.11n**.



BAT54

BAT54-Rail and -Rail Client

- 802.11b/g (2.4 GHz) and 802.11a/h (5 GHz)
- Simultaneous 2.4/5 GHz communication and redundant WLAN for BAT54-Rail
- Redundant WLAN connections (BAT54-Rail)
- Up to 108 Mbps bandwidth
- IEEE 802.11i and 802.1x security
- Redundant 24 VDC power inputs (incl. IEEE 802.3af PoE support)
- Redundant connections using RSTP
- Built-in IP routing, fast roaming and firewall
- Operating temperature of -30°C to +50°C
- Includes two 3 dBi dipole dual-band antennas and two 50 Ohm terminators (client: 1 antenna and 1 terminator)



BAT300

BAT300-Rail

- Same features and functionality as BAT54-Rail above, but as a single WLAN with support for 802.11a/b/g/h/n.
- 802.11b/g (2.4 GHz) and 802.11a/h/n (5 GHz)
- Redundant WLAN connections
- Up to 300 Mbps bandwidth (802.11n draft 2.0 with MSC15)
- Includes three 3 dBi dipole dual-band antennas

BAT300-F and BAT300-F FCC NEW

- IEEE 802.11n (draft 2.0)
- 1 x WLAN interface
- Up-to 8 x SSID's per WLAN interface
- Two LAN ports 10/100BASE-TX
- Autosensing, Power over Ethernet (POE), per IEEE 802.3af



BAT54-F

NEW BAT300-F

BAT54-F and BAT54-F X2

- Same features and functionality as BAT54-Rail above
- Waterproof to IP67 standard
- BAT54-F X2 also approved for ATEX zone 2
- Rugged design for operation in extreme conditions
- Designed to operate between -20°C and +55°C
- Full shock and vibration protection
- Antenna(s) sold separately

BAT SERIES, Access Point/Client/Bridge, 802.11a/b/g/h/i/n - DIN Rail Mount

Part No.	Order No.	Description
BAT54-Rail	943 926-001	DIN rail mounted Access Point, Client, Bridge w/antennas (802.11a/b/g/h/i) 4 x RP-SMA connector, (non-U.S. applications only)
BAT54-Rail-FCC	943 926-002	DIN rail mounted Access Point, Client, Bridge w/antennas (802.11a/b/g/h/i) 4 x RP-SMA connector, (U.S. applications)
BAT54-Rail Client	943 926-501	DIN rail mounted Access Client w/antennas (802.11a/b/g/h/i) 2 x RP-SMA connector, (non-U.S. applications)
BAT54-Rail Client-FCC	943 926-502	DIN rail mounted Access Client w/antennas (802.11a/b/g/h/i) 2 x RP-SMA connector, (U.S. applications)
BAT300-Rail	943 989-001	DIN rail mounted Access Point, Client, Bridge w/antennas (802.11a/b/g/h/i/n) 3 x RP-SMA connector, (non-U.S. applications only)
BAT300-Rail FCC	943 989-101	DIN rail mounted Access Point, Client, Bridge w/antennas (802.11a/b/g/h/i/n) 3 x RP-SMA connector, (U.S. applications)

Hirschmann Wireless Ethernet Access Point/Clients

BAT SERIES, Access Point/Client, 802.11a/b/g/h/i/n - IP 67 / Hard Mount

BAT54-F	943 959-111	IP67 Access Point, Client, Bridge w/out antennas (802.11a/b/g/h/i) 4 x N connector (non-U.S. applications only)
BAT54-F FCC	943 959-011	IP67 Access Point, Client, Bridge w/out antennas (802.11a/b/g/h/i) 4 x N connector (U.S. applications only)
BAT54-F X2	943 959-101	IP67 ATEX Zone II - Access Point, Client, Bridge w/out antennas (802.11a/b/g/h/i) 4 x N connector (non-U.S. applications only)
BAT54-F X2 FCC	943 959-001	IP67 ATEX Zone II - Access Point, Client, Bridge w/out antennas (802.11a/b/g/h/i) 4 x N connector (U.S. applications only)
BAT300-F	943 959-118	Dualband Ruggedized Hard Mount Access Point, Client, w/ single independent radio modules w/ IEEE 802.11n (draft 2.0) for Harsh Environments
BAT300-F FCC	943 959-018	Dualband Industrial Performance Hard Mount Access Point, Client, w/ IEEE 802.11n (draft 2.0) for Harsh Environments

BAT SERIES, Dual-Frequency Antennas / 802.11a/b/g/n (2.4 GHz and 5 GHz)

Part No.	Order No.	Type	Standards	Est. Max Outdoor Range
BAT-ANT-N-GABG-IP65	943 981-004	Dual Band Omni-Directional	802.11a/b/g	2.99km
BAT-ANT-N-MiMoDB-5N-IP65	943 981-012	Dual Band Omni-Directional, 2.4GHz 3.5dBi, 5GHz 5.5 dBi, MiMo	802.11a/b/g/n	.5km
BAT-ANT-6ABG-IP65	943 981-007	Dual Band Omni-Directional, 2.4GHz 6dBi, 5GHz 8dBi	802.11a/b/g	0.89km

BAT SERIES, Antennas / 802.11a/n (5 GHz)

Part No.	Order No.	Type	Standards	Est. Max Outdoor Range
BAT-ANT-N-5A-IP65	943 981-003	5GHz Omni-Directional, 5dBi gain	802.11a	0.45km
BAT-ANT-N-9A-DS-IP65	943 981-010	5GHz, Directional antenna, 8dBi gain w/polarization diversity	802.11a/n	1.12km
BAT-ANT-N-MiMo5-9N-IP65	943 981-013	5GHz, Directional antenna, 9dBi gain, MiMo	802.11a/n	1.2km
BAT-ANT-N-18A-IP65	943 981-006	5GHz, Directional antenna, 18dBi gain	802.11a	8.91km
BAT-ANT-N-23A-V-IP65	943 981-007	5GHz, Directional antenna, 23dBi gain	802.11a	15.84km
BAT-ANT-N-23A-VH-IP65	943 981-008	5GHz, Directional antenna, 23dBi gain w/polarization diversity	802.11a/n	15.84km

BAT SERIES, Antennas / 802.11b/g/n (2.4 GHz)

Part No.	Order No.	Type	Standards	Est. Max Outdoor Range
BAT-ANT-N-6G-IP65	943 981-002	2.4GHz Omni-Directional, 6dBi gain	802.11b/g	2.98km
BAT-ANT-N-8G-DS-IP65	943 981-009	2.4GHz Directional, 8dBi gain w/polarization diversity	802.11b/g/n	3.75km
BAT-ANT-N-14G-IP65	943 981-005	2.4GHz Directional, 14dBi gain	802.11b/g	7.49km
BAT-ANT-N-LC-G-50m-IP65	943 981-001	2.4GHz Leaky Coax, 50 meter (1 x N connector)	802.11b/g	
BAT-ANT-N-LC-G-100m-IP65	943 981-101	2.4GHz Leaky Coax, 100 meter (2 x N connectors)	802.11b/g	

BAT SERIES, Accessories

Part No.	Order No.	Type	Standards
BAT-PIGTAIL	943 903-360	Used to adapt BAT Rail products to N-style connector	802.11a/b/g/n
BAT54-F MAST MOUNT	943 966-001	Mast Mounting Kit for BAT (IP67) products	
BAT-CLB-2 N (male-male)	943 981-513	2 meter, N male - N Male	802.11a/b/g/n
BAT-ANT-2 N (male - female)	943 981-514	2 meter, N male - N Female	802.11a/b/g/n
BAT-CLB-15 N m-f	943 903-515	15 meter, N Male - N Female	802.11a/b/g/n
BAT-ANT Protector m-f	943 903-373	RF Surge Arrestor, N male - N Female	802.11a/b/g/n
BAT-LAN Protector m-f	943 903-374	Ethernet Surge Arrestor, RJ45 - RJ45	802.11a/b/g/n

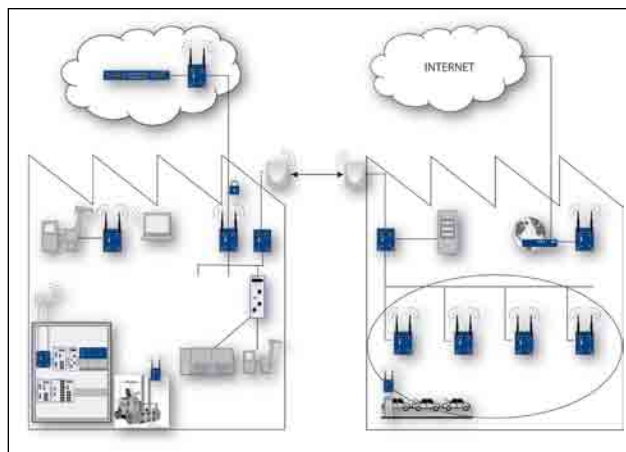


Illustration: Example of employing wireless ethernet BAT54-Rail Client in a factory setting.



Trapeze Networks Mobility Point Family

Trapeze Networks Wireless LAN Family of Products

Trapeze Networks provides all the elements required to deploy a Secure NonStop Wireless LAN (WLAN) for any size enterprise. The solution includes Mobility System Software, a full line of Mobility Exchange controllers, and Mobility Point access points, as well as the award winning RingMaster wireless management suite and other secure mobile applications.

Smart Mobile's secure intelligent switching architecture results in optimized traffic flow, reduced latency, and ultra high performance—all without the high cost of upgrading network controller infrastructure and enabling organizations to cost effectively deploy secure, massively scalable enterprise WLANs that support the most demanding data and voice applications while providing unlimited reach both indoors and outdoors.



Trapeze Mobility Point® Family

- Access point, mesh access point, mesh portal, point-to-point and point-to-multipoint wireless services for Trapeze Smart Mobile™ wireless networks.
- Indoors and outdoors, including voice over WLAN for thousands of users, and are 802.11n ready without the need for expensive controller upgrades.

Indoor Access Points

Part No.	Description
MP-371B	AP with single 802.11a/b/g radio, dual 802.3af PoE Ethernet ports, internal dual-band diversity antennas, external female SMA jacks for .11a and .11b/g antennas (optional - ordered separately, requires RP-SMA Female to SMA Male connector). Meets DFS requirements for UNII band operation (5.25-5.35GHz and 5.47-5.725GHz) in NA.
MP-422B	AP with dual radios: 802.11a and 802.11b/g, dual 802.3af PoE Ethernet ports, internal dual-band diversity antennas, external female RP SMA jacks for .11a and .11b/g antennas (optional - ordered separately), includes Smart Mobile Mesh Services software. Meets DFS requirements for UNII band operation (5.25-5.35GHz and 5.47-5.725GHz) in NA.
MP-422F	AP with dual radios: 802.11a and 802.11b/g, dual 802.3af PoE Ethernet ports, internal dual-band diversity antennas, external female RP SMA jacks for .11a and .11b/g antennas (optional - ordered separately). Manufactured in the USA to comply with TAA, required for FIPS deployments.
MP-82	AP with dual radios: 802.11a/n and 802.11b/g/n, single 10/100/1000Base-T 802.3af PoE Ethernet port (requires 1000Base-T capable PoE switch port or midspan PoE injector for 1000Base-T operation), six internal (2*3) MIMO antennas, includes Smart Mobile Mesh Services software. Not rated for plenum use. Ceiling, wall, and desktop mounting brackets included (included mounting brackets are not compatible with MP-3xx and MP-4xx family). Requires MSS Version 7.0.9.x or later.
MP-432	AP with dual radios: 802.11a and 802.11b/g/n, dual 10/100/1000Base-T 802.3af PoE Ethernet ports with (pre-standard) High Power PoE support (requires 1000Base-T capable PoE switch port or midspan PoE injector for 1000Base-T operation), internal (3*3) MIMO antennas, includes Smart Mobile Mesh Services software. Requires MSS Version 7.0 or later

Outdoor Access Points

Part No.	Description
MP-620B-NA	Outdoor AP with dual radios: 802.11a and 802.11b/g, single custom PoE Ethernet port (custom PoE injector and 50m RJ-45/DIN cable included), external female Type N jacks for .11a and .11b/g antennas (required - ordered separately), includes Smart Mobile Mesh Services software (Note 1). Meets DFS requirements for UNII band operation (5.25-5.35GHz and 5.47-5.725GHz) in NA.
MP-620B-01	Outdoor AP with dual radios and Environmentally Hardened outdoor power supply bundle. Includes one MP-620 and one XPS-6201-OUT (custom PoE injector and cable for the MP-620 is replaced by the XPS-6201-OUT and is not included).
MP-620B-02	Outdoor AP with dual radios and Environmentally Hardened outdoor power supply bundle. Includes one MP-620 and one XPS-6202-OUT (custom PoE injector and cable for the MP-620 is replaced by the XPS-6202-OUT and is not included).

Trapeze Mobility Exchange® Family

All MX controllers create a secure single unified network or Mobility Domain™ service that allows seamless, identity-based roaming across the network, complete with application-specific QoS and user-centric security profiles and NonStop Wireless reliability.

Trapeze Mobility Exchange® Family	
Part No.	Description
MXR-2-NA	MX with 2 x 10/100Base-T ports (1 PoE), single external PSU brick; supports 4 MPs
MX-8-NA	MX with 8 x 10/100Base-T ports (6 PoE), single integrated PSU; supports 12 MPs
MX-8R-NA	MX with 8 x 10/100Base-T ports (6 PoE), dual integrated PSU; supports 12 MPs
MX-200R-NA	MX with 2 x GigE (SFP) and 1 x 10/100Base-T mgmt. ports, dual integrated PSU, including 32 MP license
MX-216R-NA	MX with 2 x GigE (SFP), 16 x 10/100Base-T PoE, and 1 x 10/100Base-T mgmt. ports, dual integrated PSU, including 32 MP license
MX-200R-GS-NA	MX with 2 x GigE (SFP) and 1 x 10/100Base-T mgmt. ports, dual integrated PSU, including 32 MP license. FIPS 140-2 Level 2 Certified
MX-216R-GS-NA	MX with 2 x GigE (SFP), 16 x 10/100Base-T PoE, and 1 x 10/100Base-T mgmt. ports, dual integrated PSU, including 32 MP license. FIPS 140-2 Level 2 Certified.
MX-2800-NA	MX with 2 x 10GigE (XFP), 8 x 10/100/1000Base-T (RJ-45), 8 x GigE (SFP), and 1 x 10/100Base-T mgmt. ports, dual PSU slots (includes 1 x PSU), including 64 MP license (Note 1). Requires MSS Version 7.0 or later.

Mobility System Software

- Trapeze Mobility System Software® (MSS®) is the underlying software that delivers all the security and networking functionality of Trapeze Smart Mobile® wireless LANs. MSS enables intelligent switching, seamless mobility, meshing and NonStop Wireless capabilities across indoor and outdoor deployments
- MSS provides secure WLAN networking that includes support for the 802.11i-based security standard, FIPS-validated encryption algorithms like AES, and enhanced wireless intrusion detection and prevention (WIDS/WIPS) protection to prevent even the most determined hackers

Network Management

- RingMaster® software is an award-winning WLAN life cycle management suite -- providing pre- and post-deployment planning, configuration, monitoring, and optimization of the wireless LAN. It enables centralized management of Trapeze's WLAN system including switches, indoor/outdoor APs and WLAN policies and secure services
- The Trapeze Networks® RM-200 RingMaster Appliance is a highly-scalable, rack-mount management platform. It comes fully-loaded with the latest version of RingMaster®. Supports 250 Access Points out of the box and scales to support as many as 5000 indoor or outdoor Access Points including 802.11n Access Points.

RingMaster® Software	
Part No.	Description
RMTS	RingMaster Tool Suite Base License supporting 5 managed MP Access Points, Software CD & User Manual
RMTS-10	RingMaster Tool Suite License supporting an additional 10 managed MP Access Points (requires RMTS). Available only with RingMaster Version 6.3 and later.
RMTS-50	RingMaster Tool Suite License supporting an additional 50 managed MP Access Points (requires RMTS)
RMTS-100	RingMaster Tool Suite License supporting an additional 100 managed MP Access Points (requires RMTS)
RMTS-250	RingMaster Tool Suite License supporting an additional 250 managed MP Access Points (requires RMTS). Available only with RingMaster Version 6.3 and later.
RMTS-500	RingMaster Tool Suite License supporting an additional 500 managed MP Access Points (requires RMTS)
RMTS-1000	RingMaster Tool Suite License supporting an additional 1000 managed MP Access Points (requires RMTS). Available only with RingMaster Version 6.3 and later.
RM-200-NA	RingMaster Appliance, includes one RMTS Tool Suite Base License and one RMTS-250 Tool Suite License (Note 1). Requires RingMaster Version 6.3 or later.

Sound Security and Alarm Cables

AWG Size	No. of Cond.	Stranding	Non-Shielded				Shielded			
			Non-Plenum		Plenum		Non-Plenum		Plenum	
			Part No.	Rating	Part No.	Rating	Part No.	Rating	Part No.	Rating
Security, Alarm, Commercial Audio and Speaker										
12	2	19	5000UE	CL3R	6000UE	CL2P	5000FE	CL3R	6000FE	CL2P
	3	19	5001UE	CL3R	6001UE	CL2P	—	—	—	—
	4	19	—	—	6002UE	CL2P	—	—	—	—
14	2	19	5100UE	CL3R	6100UE	CL2P	5100FE	CL3R	6100FE	CL2P
	3	19	5101UE	CL3R	6101UE	CL2P	5101FE	CL3R	6101FE	CL2P
	4	19	5102UE	CL3R	6102UE	CL2P	—	—	—	—
16	2	19	5200UE	CMR	6200UE	CMP	5200FE	CMR	6200FE	CMP
	3	19	5201UE	CMR	6201UE	CMP	5201FE	CMR	6201FE	CMP
	4	19	5202UE	CMR	6202UE	CMP	5202FE	CMR	6202FE	CMP
	7	19	5205UE	CMR	—	—	—	—	—	—
18	2	Solid	5320UE	CMR	6320UE	CMP	5320FE	CMR	6320FE	CMP
	2	7	5300UG	CM	6300UE	CMP	5300FE	CMR	6300FE	CMP
	2	7	5300UE	CMR	—	—	—	—	—	—
	3	Solid	5321UE	CMR	6321UE	CMP	—	—	—	—
	3	7	5301UE	CMR	6301UE	CMP	5301FE	CMR	6301FE	CMP
	4	Solid	5322UE	CMR	6322UE	CMP	—	—	—	—
	4	7	5302UE	CMR	6302UE	CMP	5302FE	CMR	6302FE	CMP
	5	7	5303UE	CMR	6303UE	CMP	5303FE	CMR	—	—
	6	7	5304UE	CMR	6304UE	CMP	5304FE	CMR	6304FE	CMP
	7	7	5305UE	CMR	—	—	5305FE	CMR	—	—
	8	7	5306UE	CMR	6306UE	CMP	5306FE	CMR	6306FE	CMP
	9	7	5307UE	CMR	6307UE	CMP	5307FE	CMR	6307FE	CMP
10	7	5308UE	CMR	6308UE	CMP	—	—	—	—	
12	7	5309UE	CMR	6309UE	CMP	—	—	6309FE	CMP	
20	7	530BUE	CMR	—	—	—	—	—	—	
20	2	Solid	—	—	—	—	—	—	6420FE	CMP
	2	7	5400UE	CMR	6400UE	CMP	5400FE	CMR	6400FE	CMP
	3	Solid	—	—	—	—	5421FE	CMR	—	—
	3	7	5401UE	CMR	6401UE	CMP	5401FE	CMR	6401FE	CMP
	4	7	5402UE	CMR	6402UE	CMP	5402FE	CMR	6402FE	CMP
	5	7	5403UE	CMR	6403UE	CMP	5403FE	CMR	—	—
	7	7	5405UE	CMR	—	—	5405FE	CMR	6405FE	CMP
	8	7	5406UE	CMR	6406UE	CMP	—	—	—	—
	9	7	5407UE	CMR	—	—	5407FE	CMR	6407FE	CMP
	10	7	5408UE	CMR	—	—	—	—	—	—
	12	7	5409UE	CMR	—	—	—	—	—	—
	20	7	540BUE	CMR	—	—	—	—	—	—
22	2	Solid	5520UG	CM	—	—	—	—	—	—
	2	Solid	5520UE	CMR	6520UE	CMP	5520FE	CMR	6520FE	CMP
	2	7	5500UG	CM	6500UE	CMP	5500FE	CMR	6500FE	CMP
	2	7	5500UE	CMR	—	—	—	—	—	—
	3	Solid	—	—	6521UE	CMP	5521FE	CMR	6521FE	CMP
	3	7	5501UE	CMR	6501UE	CMP	5501FE	CMR	6501FE	CMP
	4	Solid	5582UG	CM	—	—	—	—	—	—
	4	Solid	5522UG	CM	—	—	—	—	—	—
	4	Solid	5522UE	CMR	6522UE	CMP	—	—	—	—
	4	Solid	5582UE	CMR	—	—	—	—	—	—
	4	7	5502UG	CM	6502UE	CMP	5502FE	CMR	6502FE	CMP
	4	7	5502UE	CMR	—	—	—	—	—	—
	5	7	5503UE	CMR	—	—	5503FE	CMR	—	—
	6	Solid	5524UE	CMR	6524UE	CMP	—	—	—	—
	6	7	5504UE	CMR	6504UE	CMP	5504FE	CMR	6504FE	CMP
	8	Solid	5526UE	CMR	—	—	—	—	—	—
	8	7	5506UE	CMR	6506UE	CMP	5506FE	CMR	6506FE	CMP
	10	7	5508UE	CMR	6508UE	CMP	5508FE	CMR	6508FE	CMP
12	Solid	5529UE	CMR	—	—	—	—	—	—	
12	7	5509UE	CMR	6509UE	CMP	—	—	—	—	

Sound Security and Alarm Cables

"Coax Series or Component Type"	AWG Size	Stranding	Non-Plenum			Plenum		
			Part No.	Rating	Shield/Braid Coverage	Part No.	Rating	Shield/Braid Coverage
CATV/MATV Coax								
RG-59/U	20	Solid	—	—	—	6439C8	CMP	Duofoil + 80% Aluminum
	20	Solid	—	—	—	6439Q8	CMP	Quad Shield
RG-6/U	18	Solid	5339B5	CM	Duofoil® + 60% Aluminum	633938	CMP	Duofoil + 90% Aluminum
	18	Solid	5339Q5	CM	Quad Shield	6339Q8	CMP	Quad Shield
RG-11/U	14	Solid	—	—	—	6139B8	CMP	Duofoil + 60% Aluminum
CCTV Coax								
Mini 59	25	Solid	573945	CM	94% Bare Copper	673948	CMP	95% Bare Copper
RG-59/U	22	7	551945	CM	95% Bare Copper	—	—	—
	20	Solid	543945	CM	95% Bare Copper	643948	CMP	95% Bare Copper
RG-6/U	18	Solid	533945	CM	95% Bare Copper	633948	CMP	95% Bare Copper
RG-11/U	14	Solid	513945	CM	95% Bare Copper	613948	CMP	95% Bare Copper
CCTV Coax, Surveillance								
RG-59/U	20	Solid	—	—	—	7986LC	CMP	95% Bare Copper
RG-6/U	18	Solid	—	—	—	7985LC	CMP	95% Bare Copper
CATV Coax, Water-blocked								
RG-59/U	20	Solid	5439W5	CM	Duofoil® + 95% TC	—	—	—
RG-6/U	18	Solid	5339W5	CM	Duofoil® + 60% Aluminum	—	—	—
Security Coax								
RG-62	22	Solid	—	—	—	6539Y8	CMP	95% Bare Copper
Schlage Coax								
RG-6/U	18	Solid	5399B5	CM	Duobond® + 60% Aluminum	—	—	—
CCTV Composite Coax with Unshielded Pair for Control or Power								
Mini RG-59 UTP	25	Solid	579945	CM	95% Bare Copper	679948	CMP	95% Bare Copper
RG-59 UTP	20	7	—	—	Unshielded	—	—	Unshielded
	20	Solid	549945	CM	95% Bare Copper	649948	CMP	95% Bare Copper
RG-6 UTP	18	7	—	—	Unshielded	—	—	Unshielded
	18	Solid	539945	CM	95% Bare Copper	639948	CMP	95% Bare Copper
RG-6 UTP	18	7	—	—	Unshielded	—	—	Unshielded
	18	Solid	—	—	Unshielded	—	—	Unshielded
Pan/Tilt/Zoom BananaPeel® Composite Coax								
RG-59/U	20	Solid	500PTZ	CMR	95% Bare Copper Braid	600PTZ	CMP	95% Bare Copper Braid
	23	Solid	—	—	Unshielded			
	18	7	—	—	Unshielded			
RG-59/U	20	Solid	501PTZ	CMR	95% Bare Copper Braid	601PTZ	CMP	95% Bare Copper Braid
	22	7	—	—	Beldfoil®			
	18	7	—	—	Unshielded			
RG-59/U	20	Solid	502PTZ	CMR	95% Bare Copper Braid	602PTZ	CMP	95% Bare Copper Braid
	18	7	—	—	Beldfoil®			
	18	7	—	—	Unshielded			
CCTV Surveillance UTP and Composite Cables								
2/C	16	19	5284US	CMR	Unshielded	6284US	CMP	Unshielded
2TP	24	Solid	—	—	Unshielded			
2/C	16	19	5284UE	CMR	Unshielded	6284UE	CMP	Unshielded
2TP	23	Solid	—	—	Unshielded			
2/C	16	19	5288US	CMR	Unshielded	6288US	CMP	Unshielded
4TP	23	Solid	—	—	Unshielded			
4TP	24	Solid	1583A	CM	Unshielded	1585A	CMP	Unshielded
4TP	24	Solid	1500A	CM	Unshielded	1501A	CMP	Unshielded
4TP	24	Solid	1583R	CMR	Unshielded	—	—	—
2TP	24	Solid	1500R	CMR	Unshielded	—	—	—
4TP	23	Solid	7881A	CMR	Unshielded	7882A	CMP	Unshielded
Access Control BananaPeel® Composite Cables								
4/C	18	7	558AFS	CMR	Beldfoil®	658AFS	CMP	Beldfoil®
3TP	22	7	—	—	Beldfoil®			
4/C	22	7	—	—	Beldfoil®			
2/C	22	7	—	—	Beldfoil®			
4/C	16	19	538AFS	CMR	Beldfoil®	638AFS	CMP	Beldfoil®
3TP	18	7	—	—	Beldfoil®			
4/C	18	7	—	—	Beldfoil®			
2/C	18	7	—	—	Beldfoil®			

Enclosures & Accessories

Enclosures & Racks Comparison Chart				
SPECIFICATIONS	XSF	XMF	XME	XMER
Application	Broadcast, Mobile Telecom, Space Optimization	Broadcast	Broadcast, Audio/Video Security	Broadcast, Audio/Video, Security, Head End
Style	Rack Gangable	Rack/Enclosure Stand-alone or gangable	Enclosure with Fixed side panels Stand-alone or gangable	Rack/Enclosure Stand-alone or gangable
Dimensions				
Height	20.5"–87" (10-48RU)	22.25"–103" (11-57RU)	48.87"–83.87" (24-44RU)	48.87"–83.87" (24-44RU)
Width	19.19"	22"	22"	22"
Depth	18", 24" or 30"	24", 30", 36" or 40"	20" or 26.5"	26.5", 31.5" or 36"
Frame Construction	11-gauge steel fully welded	11- and 14-gauge steel fully welded	16-gauge steel fully welded	14- and 16-gauge steel fully welded
Front & Rear Mounting Rails	Yes: Tapped corner posts, (fixed front), adjustable rear rails (5/8" increments)	Yes Fully adjustable	Yes Fully adjustable	Yes Fully adjustable
EIA-310 Compliant	Yes (#10-32 or 12-24 tapped)	Yes (#10-32 or 12-24 tapped)	Yes (#10-32 tapped)	Yes (#10-32 tapped)
Door Options				
Reversible front & rear doors	No	Yes	Yes	Yes
Solid, perforated or tempered glass	—	Solid or vented	Yes	Yes
Top Options	No	Solid, vented, forced air fan	Solid, vented, forced air fan	Solid, vented, forced air fan
Side Panel Options				
Removable	No	Yes	No: fixed	Yes
Panel Style	—	Flush or surface mount	Built in frame	Surface mount
Shelves (Solid, vented & keyboard)	Yes	Yes	Yes	Yes
Caster Bse Options	Yes	Yes	Yes	Yes
Power Strip Mounting Provision	Yes	Yes	Yes	Yes
Cable Management Tie Bar	No	Yes, optional	No	Yes, optional

NOTE: For ordering information visit www.belden.com or reference Belden's Enclosure & Rack Solutions Brochure.



XSF Cabinet Frame



XMF Cabinet Assembly Surface Mount



XMF Full Cabinet



XMER Full Cabinet

Belden Warranty

Too often in our industry today, we see a manufacturer's commitment to the end-customer measured exclusively in the length of the warranties offered. At Belden, we have a significantly different approach.

We believe the best warranty program is the one our customers never have to use, and throughout our history of providing quality products, service and support, that has routinely been the case. Still, because Belden has a lifelong commitment to standing behind our products, our customers get one of the most comprehensive warranty assurance programs in the industry.

- **IBDN System Certification**

For end-to-end copper systems, designed, installed and Certified by a Belden Certified System Vendor (CSV)

- o 25-Year Product Warranty

In effect from the date of installation, our 25-Year Product Warranty warrants against defects in materials and workmanship. For the same period, these components are guaranteed to meet or exceed the specifications of standards organizations including ISO/IEC, CENELEC and TIA/EIA for the category of Belden IBDN System installed.

- o IBDN Lifetime Application Assurance Program

Belden warrants that the IBDN Certified System will be capable of operating the applications, which the System was originally designed to support, as well as any new applications, for as long as you own the System in its original place of installation. New applications are defined as any application introduced in the future by recognized standard organizations or user forums that use the TIA/EIA-568-A or ISO/IEC IS 11801 component and link/channel specifications for cabling. Also guaranteed are the Systems' specified throughput rate and minimum bandwidth capabilities.

- **Belden's Hirschmann Active Switches**

Hirschmann warrants that all products will be free from defect in workmanship or material, under normal use and service, for a 24-month period from the date of purchase/shipment (proved with invoice/sales slip). If a product does not operate as warranted during the applicable warranty period, Hirschmann shall, at its option and expense, repair the defective product or deliver an equivalent product to replace the defective item.

For a one-time only payment Hirschmann Automation and Control offers a warranty extension from originally warranted 24-month period up to a maximum period of 60-months in 12-month only increments.

- **Belden's Trapeze Networks Wireless Solution**

For the Trapeze Network Wireless Solution, Belden offers a 12-month warranty with a return and replacement policy. This is backed by a 90-day software support program that provides for free software upgrades and phone, online and email support during the warranty period. Thereafter, customers may purchase extended warranty programs ranging from software-only support to advanced hardware replacement. No other company offers such a high quality product line- backed by the industry's strongest support organization and its warranties. You can always depend on Belden to exceed your expectations.

- **10-Year Belden Product Warranty**

All A/V, building management, and security installations come with Belden's exclusive 10-Year product warranty. This warranty provides the enterprise customer with comprehensive coverage against defects in materials and workmanship.

Always Just a Phone Call Away

At Belden, we've taken every step to ensure the highest quality products, optimal system performance, simplified building operations, best design and installation and warranty assurance. But we also believe no question should ever go unanswered, which is why we're always just a phone call away.

Call **1.800BELDEN.1** (235-3361) for more information about our products and partners, or to learn how Belden Security Solutions can fulfill your unique application needs.

GLOBAL LOCATIONS

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and Technical Support, visit:
www.belden.com



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