



HIRSCHMANN

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Product Bulletin

PB 1082HE

MACH4000 family from Hirschmann™

The versatile routing functions and large bandwidth of the modular backbone managed switches from the Hirschmann™ MACH4000 family equip automation networks to deal with current and future network challenges, while making unscheduled downtimes a thing of the past.



These backbone switches support data rates of up to 10 Gbit/s as well as dynamic Layer 2 and Layer 3 routing. Different media modules provide maximum flexibility and fast redundancy methods, while ensuring the highest level of network availability.

- Future-proof backbone solutions, with large bandwidths and versatile routing functions
- Application flexibility, provided by different media modules
- Highest level of network availability, through fast redundancy methods

Already widely used in harsh industrial environments, the modular switches in the MACH4000 family are available in a number of versions, all of which feature high port density. Usable in a cascaded configuration, and combining switching and routing with full Gigabit speed, they all ensure maximum backbone performance. Last but not least, the Industrial HiVision management software from Hirschmann enables convenient network administration. This software includes the MultiConfig™ feature, which can be used to simultaneously configure hundreds of network users during ongoing operation. In addition, the HiFusion tool can be used to integrate all SNMP-capable devices into network management for the very first time – including programmable controllers, I/O modules or HMI panels from different manufacturers.

Applications

Capable of seamless integration into PROFINET and EtherNet/IP environments, the switches in the MACH4000 family can be used in all networks where large bandwidth and versatile routing functions are required. This applies to factory automation, where secure connections

between production and corporate networks are needed – in the automotive area, for example – as well as to rail transport (for networking management, control and security systems, etc.). Because Ethernet is also becoming the standard in the shipping industry, compact backbone systems are in demand. In addition, the MACH4000 family is certified for maritime applications by Germanischer Lloyd (GL). The switches are therefore ideal for use on oil platforms, where they can be employed to set up VLANs or connect support systems. Finally, the MACH4000 switches are ideally suited for power transmission and distribution, wind farms and solar power plants backbone systems.

Customer benefits

As well as enabling high data rates, the backbone switches in the MACH4000 family also support static and dynamic routing, unicast and multicast routing, and router redundancy. This permits reliable data packet addressing within or across networks. The switches can be equipped with different media modules. These include PoE ports for cost-effective powering of devices via the Ethernet cable, or optical interfaces for SFP transceivers that open up the whole world of fiber optic communication. Numerous redundancy methods such as HIPER Ring, MRP or Link Aggregation ensure fast reconfiguration in the event of error, thus guaranteeing smooth data communication.

**A new product to serve your needs.
Be certain.**



MACH4000 family from Hirschmann™



Designed specifically for automation networks, the MACH4000 switches are compact and extremely robust.

The Backbone switches in the MACH4000 family are equipped with 8 or 16 Gigabit Ethernet ports as standard. By adding additional hot-swappable 8-port media modules, the port density can be increased to 24 or 48. Depending on the model of switch (5 versions available), three 10 Gigabit interfaces are also provided.

Further features of these backbone switches include various routing functions, comprehensive management and redundancy methods, as well as numerous security mechanisms. A USB interface can be used for connection to the ACA 21 auto-configuration adapter, which can be used to save all configuration data as well as to conveniently upgrade the operating system.

Due to their robust design, the MACH4000 switches can withstand shocks and vibrations, magnetic fields and electrostatic discharges. The switches also boast a number of industry-specific certifications, making them suitable for use in such areas as transformer substations (IEC 61850), railways (EN 50121-4), and onboard ships (GL).

Benefits at a glance

- Future-proof backbone solutions, due to large bandwidth and effective layer 2 and layer 3 routing functions
- Application flexibility, owing to hot-swappable media modules (including efficient powering of devices via PoE)
- Fast redundancy methods guarantee maximum network availability
- Highest level of data security, with numerous security mechanisms
- Five different versions with high Gigabit Ethernet port density (10/100/1000 BASE-TX) and – depending on the individual model – additional 10 Gigabit interfaces (10000 BASE-FX)
- Convenient network administration using Industrial HiVision management software from Hirschmann
- Robust and compact housing (480 x 88 x 435 mm)
- High resistance to shock, vibration and electromagnetic interference
- Industry-specific approvals
- Operating temperature range from 0°C to +60°C
- IP20 protection rating
- USB interface for ACA auto-configuration adapter
- Can be ideally combined with all switches, routers and access points from Hirschmann, and with Ethernet cable from Belden®





Technical Information

Product Description	
Type	MACH4000 Series
Description	MACH4000 Gigabit Backbone Layer 2/3 Rack-Mount Switches
Switching/Routing	Software Version Layer 2 or 3
Port type and Quantity	8 to 51
More Interfaces	
V.24 Interface	1 x RJ11 socket
USB Interface	1 x USB (ACA21-USB adapter)
Network Size - Cascadability	
Line - / Star topology	Any
Ring structure (HIPER-Ring)	Ring-recovery time < 50ms typ. at LWL
Power Requirements	
Operating Voltage	24 V DC or 48 V DC or 110 to 240 V AC (variant applicable)
PoE (802.3af) Ports Supported	Yes (variant applicable)
PoE Plus (802.3at) Ports Supported	n/a
Ambient Conditions	
Operating Temperature	0°C to +60°C
Storage/Transport Temperature	-25°C to +70°C
Relative Humidity (non-condensing)	10% to 95%
Conformal Coating	n/a
Mechanical Construction	
Mounting	19" Control Cabinet
Protection Class	IP20
Dimensions (WxHxD)	480 x 88 x 435 mm
Weight	7.5 kg
Approvals	
Safety of Industrial Control Equipment	cUL508, cUL60950-1
Hazardous Locations	n/a
Ship	Germanischer Lloyd
Transportation	n/a
Railway (norm)	n/a
Substation	n/a
Reliability	
MTBF	11.1 to 18.9 years
Warranty	5 years (standard)
Scope of Delivery and Accessories	
Scope of Delivery	Device, terminal block, operating manual, fan module
Accessories	Power supply unit, auto-configuration adapter ACA21-USB, Industrial HiVision network management

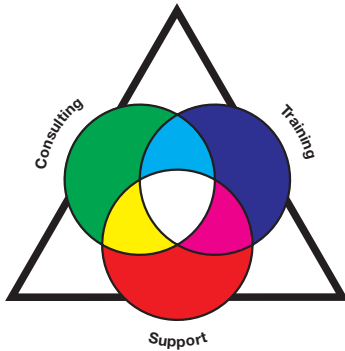
HINWEIS: These are the prominent technical specifications. For complete technical specifications visit: www.hirschmann.com





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The Belden® Competence Center

As the complexity of communication and connectivity solutions has increased, so have the requirements for design, implementation and maintenance of these solutions. For users, acquiring and verifying the latest expert knowledge play a decisive role in this. As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses from a single source: Belden Competence Center. In addition, we offer you the right qualification for every area of expertise through the world's first certification program for industrial networks. Up-to-date manufacturer's expertise, an international service network and access to external specialists guarantee you the best possible support for products from Belden®, GarrettCom®, Hirschmann™ and Lumberg Automation™. Irrespective of the technology you use, you can rely on our full support – from the implementation to the optimization of every aspect of daily operations.

Always Stay Ahead with Belden

In a highly competitive environment, it is crucial to have reliable partners who are able to add value to your business. When it comes to signal transmissions, Belden is the number one solutions provider. We understand your business and want to know your specific challenges and targets to see how effective signal transmission solutions can push you ahead of the competition. By combining the strengths of our four leading brands, Belden®, GarrettCom®, Hirschmann™ and Lumberg Automation™, we are able to offer the solution you need. Today it may be a single cable, a switch or a connector, thus solving a specific issue; tomorrow it can be a complex range of integrated applications, systems and solutions.

About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today's applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

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