



HIRSCHMANN

A BELDEN BRAND

New Product Bulletin

NP 1019HE

Hirschmann™ MACH1040 Full Gigabit Ethernet Switch

Extremely robust network solutions for extreme conditions.



Hirschmann™ Full Gigabit Ethernet Switch MACH1040: High-Voltage Resistant, and Optional Layer 3 Software.

MACH1040 with Layer 3 Wire-speed Technology

The new Layer 3 software makes it now possible to use Hirschmann™ Gigabit Ethernet switches from the MACH1040 family as routers. The non-blocking architecture delivers extremely fast functionality; in addition to static and dynamic routing, this also includes multicast routing and router redundancy.

The switches of the Hirschmann™ MACH1000 family provide users with the highest level of both flexibility and security for the future. Its design features 16 Gigabit combo ports with a temperature range from -40°C to +70°C as well as a fanless cooling system. This allows to build fast data networks under severe EMI conditions using either twisted-pair or fiberoptic cabling.

Not only strong in the Power Zone: the MACH1000 Family

Well proven as substation switches, the robust MACH1000 devices have been specifically

designed to meet the requirements of power generation and distribution. Yet their capabilities are not limited to this sector – they also perform exceptionally well under extreme ambient conditions and high temperatures in the fields of transport and industrial automation as well as in the military sector.

Product Features

- 16 GE ports with non-blocking architecture
- PTP IEEE1588v2 on board, accuracy 30 ns
- Highest flexibility through 16 GE combo ports
- Extensive Layer 2 and Layer 3 software
- Fastest ring recovery times
- Optional 4 PoE ports
- Extremely fast boot time: <10 seconds
- High operational safety through:
 - High vibration resistance
 - Immunity to electrostatic discharge and magnetic fields
 - Fanless cooling
 - Redundant power supply





Future-proof, high-performance solution for the power generation and distribution industries.

Managed Gigabit Ethernet-Switch with 16 Ports

This IP30 Layer 2 switch, which is also optionally available with Layer 3 software, is highly vibration-resistant as well as insensitive to electrostatic discharges and magnetic fields. The fanless cooling and redundant power supply systems also contribute to operational safety. Upon request, circuit boards are available with a conformal coating for protection against condensation.

Further features include comprehensive management and redundancy methods for configuration and diagnostics. The high-performance Layer 3 version transmits data in real time (wire-speed). Using a USB interface connected to the auto-configuration adapter ACA 21-USB, it is possible to save and reuse all configuration data and the operating system whenever required.

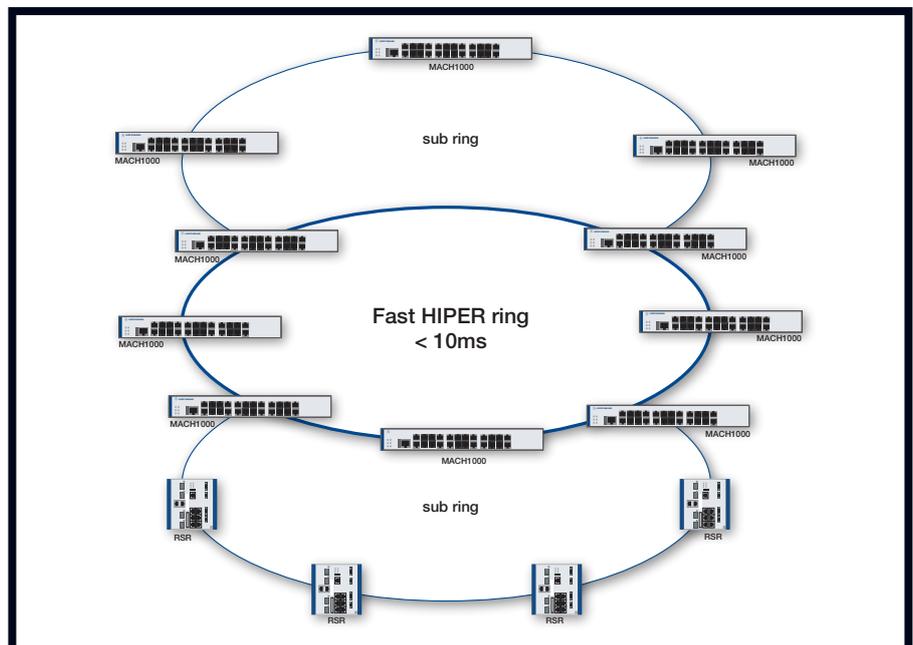
More Choice through more Versions

1. Design	
MAR1040	Full GE-Switch
MAR1042	Full GE-Switch, PoE
MAR1140	Full GE-Switch, backside ports
MAR1142	Full GE-Switch, backside ports, PoE
2. Gigabit Ports	
4C4C4C4C9999	16 ports GE combo ports
3. Temperature Range	
S	0 °C to +60 °C
T	-40 °C to +70 °C
E	-40 °C to +70 °C with conformal coating
4. Power Supply 1	
L	24/36/48 V/DC
M	110/250 VDC, 110/230 VAC
5. Power Supply 2	
9	Empty
L	24/36/48 V/DC
M	110/250 VDC, 110/230 VAC
6. Approvals	
H	cUL508*, cUL/1604 class 1 DIV* 2, GL*, IEC 61850, IEEE1613, NEMA TS*
7. Software	
P	Layer 2 Professional
R	Layer 3

* pending

Example

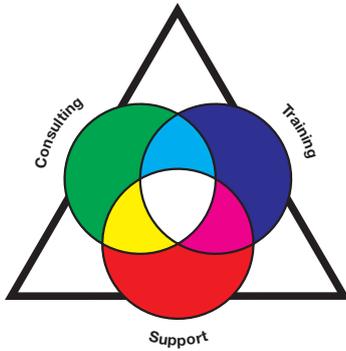
MAR1042	4C4C4C4C9999	E	L	M	H	P
1.	2.	3.	4.	5.	6.	7.





Technical Data

Product Description	
Description	Full Gigabit Ethernet Switch managed, industrial switch for 19" cabinet, fanless design, Software Layer 2 Professional, available with backside ports and 4 PoE ports
Port type and quantity	16 Gigabit Ethernet Combo Ports (1 TX plus related SFP slot), TX Ports support 10/100/1000 BASE TX, SFP slots support FE and GE SFPs
Additional Interfaces	
V.24 interface	1x RJ11-socket
USB interface	1x USB to connect auto-configuration adapter ACA 21-USB EEC
Network Range – Cascadability	
Line/star topology	Any
Ring structure (HIPER ring)	10/100/200 switches
Fault recovery time	< 10 ms/< 40 ms/< 60 ms
Power Supply	
Operating voltage	24/36/48 VDC (18–60 V) or 120/250 VDC (77–320 V) and 110/230 VAC (90–265 V)
Software	
Management	Serial interface, web interface, SNMP v1/v2, HiVision, file transfer via HTTP/TFTP
Diagnostics	LEDs, log file, syslog, relay contact, RMON, port mirroring, Topology Discovery 802.1AB, cable tester (TX), address conflict detection, network error detection, SFP diagnostics (temperature, optical input/output power)
Configuration	Command line interface (CLI), TELNET, BootP, DHCP, DHCP Option 82, HiDiscovery, auto-configuration adapter (ACA 21-USB), integrated DHCP server, automatic invalid configuration undo
Security	Port Security (IP und MAC), SNMP V3, SSH, Authentication (802.1x), Radius Authentication for SNMPv3 (Web)
Redundancy	HIPER-Ring, Fast HIPER-Ring, MRP (IEC-ring functionality), MSTP, RSTP 802.1w, MRP and RSTP in parallel, link aggregation, multiple rings
Filter	QoS 8 classes, port priority (IEEE 802.1D/p), VLAN (IEEE 802.1Q), multicast (IGMP snooping/querier), unknown multicast detection, broadcast/unicast/multicast limiter, fast aging, GMRP IEEE 802.1D, flow control 802.3x
Synchronization	SNTP Server, PTP/IEEE 1588, v1/v2 hardware timestamp with accuracy of 30 ns
Layer 3	Full wired speed IPv4 routing with lowest latency, Multinetting (Aliasing), Net directed broadcasts, Port based router interfaces, Proxy ARP, Static routing with ECMP (Equal Cost Multiple Path), VLAN based router interfaces, CIDR (Classless Inter Domain Routing), ICMP Router Discovery (IRDP), Double VLAN Tagging, Protocol based VLANs, Multicast Routing (DVMRP, IGMPv1/v2/v3, Multicast routing and IGMP Unknown Multicast Filtering simultaneously, PIM-DM), Router Redundancy (VRRP, VRRP tracking, HIPvRRP, Interface Tracking, OSPFv2, Ping Tracking, RIPv1, RIPv2, Tracking of static routes
Ambient Conditions	
Operating temperature	0° to +60°C, or -40°C to +70°C (IEC 60068-2-2 Dry Heat Test +85°C, 16 Hours), optional conformal coating
Storage/transport temperature	-40°C to +85°C
Relative humidity	10% to 95% (non-condensing)
Approvals	
Safety of industrial control equipment	cUL 508 (pending)
Hazardous location	cUL1604 class 1 DIV 2 (pending)
Germanischer Lloyd	GL (pending)
Substation	IEC 61850-3, IEEE1613
Transport	NEMA TS2, EN50121-4, EN50155 (pending)



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Belden is one of the world's leading suppliers of signal transmission solutions including cable, connectivity and active components for mission-critical applications ranging from industrial automation and alternative power generation through to professional broadcasting. Belden offers an extensive portfolio of highly specialized products for management, control and field level, which the company produces and markets under its proprietary Belden®, Hirschmann™ and Lumberg Automation™ brands.

Be Certain with Belden: Single Source Solutions

All Belden products are designed to interact seamlessly. For optimum result we recommend the combined use of Hirschmann™ switches and Belden copper cables for Industrial Ethernet. Used together they deliver the highest quality performance and the most reliable connection in any industrial application.

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