

**Product:** MAR1040-4C4C4C4C9999SM9HRHHXX.X.

**Configurator:** MACH1040 Gigabit Ethernet Switch configurator



### Configurator Description

The MACH1040 is an all-Gigabit version offering 16x 10/100/1000 Mbps RJ45/SFP combo ports to provide countless copper/fiber combinations (including optional 4x PoE ports IEEE 802.3af). All ports support version 2 of the Precision Time Protocol in accordance with IEEE 1588 V2. Layer 3 functionality is available with the R software option for this all-Gigabit switch.

### Technical Specifications

#### Product description

Description	Managed Ethernet/Fast Ethernet/Gigabit Ethernet Industrial Switch, 19" rack mount, fanless Design
Part Number	942004002
Port type and quantity	16 x Combo ports (10/100/1000BASE TX RJ45 plus related FE/GE-SFP slot)

#### More Interfaces

Power supply/signaling contact	Power supply 1: 3 pin plug-in terminal block; Signal contact 1: 2 pin plug-in terminal block ; Power supply 2: not assembled; Signal contact 2: not assembled
V.24 interface	1 x RJ11 socket
USB interface	1 x USB to connect auto-configuration adapter ACA21-USB

#### Network size - length of cable

Twisted pair (TP)	0 - 100 m
Single mode fiber (SM) 9/125	see Gigabit and Fast Ethernet SFP modules
Single mode fiber (LH) 9/125	see Gigabit and Fast Ethernet SFP modules
Multimode fiber (MM) 50/125	see Gigabit and Fast Ethernet SFP modules
Multimode fiber (MM) 62.5/125	see Gigabit and Fast Ethernet SFP modules

#### Network size - cascading

Line - / star topology	any
Ring structure (HIPER-Ring) quant. Switch	10ms (10 switches), 30ms (50 switches), 40ms (100 switches), 60ms (200 switches)

#### Power requirements

Current consumption at 230 V AC	Power supply 1: 110mA max, if all ports are equipped with SFP
Operating voltage	Power supply 1: 110/250 VDC, 110/230 VAC
Power consumption	max. 26 W
Power output in Btu (IT) h	max. 88

#### Software

Switching	CoS Queue Management, Disable Learning (hub functionality), Double VLAN Tagging (QinQ), Egress Broadcast Limiter per Port, Fast Aging, Flow Control (802.3X), GARP Multicast Registration Protocol (GMRP), GARP VLAN Registration Protocol (GVRP), IGMP Snooping/Querier (v1/v2/v3), Independent VLAN Learning, Jumbo Frames, Protocol-based VLAN, QoS / Port Prioritization (802.1D/p), Static Unicast/Multicast Address Entries, TOS/DSCP Prioritization, Traffic Shaping, VLAN (802.1Q), Voice VLAN
Redundancy	Advanced Ring Configuration for MRP, Fast HIPER-Ring, HIPER-Ring (Manager), HIPER-Ring (Ring Switch), HiVRRP (VRRP enhancements), Link Aggregation with LACP, Media Redundancy Protocol (MRP) (IEC62439-2) - Redundancy Client, Media Redundancy Protocol (MRP) (IEC62439-2) - Redundancy Manager, MSTP (802.1Q), Redundant Network Coupling, RSTP 802.1D-2004 (IEC62439-1), RSTP Guards, RSTP over MRP, Sub Ring Manager, VRRP, VRRP Tracking
Management	Dual Software Image Support, TFTP, LLDP (802.1AB), LLDP-MED, SSHv1, SSHv2, V.24, HTTP, HTTPS, Traps, SNMP v1/v2/v3, Telnet

Diagnostics	Management Address Conflict Detection, Address Relearn Detection, MAC Notification, Signal Contact, Device Status Indication, TCPDump, LEDs, Syslog, Port Monitoring with Auto-Disable, Link Flap Detection, Overload Detection, Duplex Mismatch Detection, RMON (1,2,3,9), Port Mirroring 1:1, Port Mirroring 8:1, Port Mirroring N:1, System Information, Self-Tests on Cold Start, Copper Cable Test, SFP Management, Configuration Check Dialog, Switch Dump, Link Speed and Duplex Monitoring
Configuration	AutoConfiguration Adapter ACA11 Limited Support (RS20/30/40, MS20/30), Automatic Configuration Undo (roll-back), Configuration Fingerprint, BOOTP/DHCP Client with Auto-Configuration, DHCP Server: per Port, DHCP Server: Pools per VLAN, DHCP Server: Option 43, AutoConfiguration Adapter ACA21/22 (USB), HiDiscovery, DHCP Relay with Option 82, Command Line Interface (CLI), CLI Scripting, Full-featured MIB Support, Web-based Management, Context-sensitive Help
Security	IP-based Port Security, MAC-based Port Security, Port-based Access Control with 802.1X, Guest/unauthenticated VLAN, RADIUS VLAN Assignment, Multi-Client Authentication per Port, MAC Authentication Bypass, Ingress MAC-based ACL, Ingress IPv4-based ACL, Ingress VLAN-based ACL, Access to Management restricted by VLAN, HTTPS Certificate Management, Restricted Management Access, Appropriate Use Banner, SNMP Logging, Local User Management, Remote Authentication via RADIUS, Password change on first login
Time synchronisation	PTPv2 Transparent Clock two-step, PTPv2 Boundary Clock, Buffered Real Time Clock, SNTP Client, SNTP Server
Industrial Profiles	EtherNet/IP Protocol, IEC61850 Protocol (MMS Server, Switch Model), PROFINET IO Protocol
Miscellaneous	Manual Cable Crossing
Routing	Full Wire-Speed Routing, Port-based Router Interfaces, VLAN-based Router Interfaces, Net-directed Broadcasts, OSPFv2, RIP v1/v2, ICMP Router Discovery (IRDP), Equal Cost Multiple Path (ECMP), Proxy ARP, Static Route Tracking
Multicast routing	DVMRP, IGMP v1/v2/v3, PIM-DM (RFC3973), PIM-SM / SSM (RFC4601)

## Ambient conditions

MTBF (MIL-HDBK 217F: Gb 25 C)	13.6 years
Operating temperature	0-+60 °C
Storage/transport temperature	-40-+85 °C
Relative humidity (non-condensing)	5-95 %

## Mechanical construction

Dimensions	445 mm x 44 mm x 345 mm
Weight	4.4 kg
Mounting	19" control cabinet
Protection class	IP30

## Mechanical stability

IEC 60068-2-6 vibration	1 mm, 2 Hz-13.2 Hz, 90 min.; 0.7 g, 13.2 Hz-100 Hz, 90 min.; 3.5 mm, 3 Hz-9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 Hz-150 Hz, 10 cycles, 1 octave/min
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks

## EMC interference immunity

EN 61000-4-2 electrostatic discharge	8 kV contact discharge, 15 kV air discharge
EN 61000-4-3 electromagnetic field	35 V/m (80-2700 MHz); 1 kHz, 80% AM
EN 61000-4-4 fast transients (burst)	4 kV power line, 4 kV data line
EN 61000-4-5 surge voltage	DC power line: 2 kV (line/earth), 1 kV (line/line); AC power line: 4 kV (line/earth), 2 kV (line/line); 4 kV data line; IEEE1613: power line 5 kV (line/earth)
EN 61000-4-6 conducted immunity	10 V (150 kHz - 80 MHz)
EN 61000-4-12	2.5 kV (line/earth), 1 kV (line/line) (1MHz)
EN 61000-4-16 mains frequency voltage	30 V, 50 Hz continuous; 300 V, 50 Hz 1 s

## EMC emitted immunity

EN 55032	EN 55032 Class A
FCC CFR47 Part 15	FCC 47CFR Part 15, Class A

## Approvals

Basis Standard	CE, FCC, EN61131
Safety of industrial control equipment	cUL 508
Hazardous locations	ISA 12.12.01 Class 1 Div. 2
Shipbuilding	Germanischer Lloyd
Substation	IEC 61850; IEEE1613
Railway norm	EN 50121-4; EN 50155

## Reliability

Guarantee	60 months (please refer to the terms of guarantee for detailed information)
-----------	---

## Scope of delivery and accessories

Accessories	Network management Industrial HiVision auto-configuration adapter ACA21-USB, Power Cord RSR/MACH1000
Scope of delivery	Device, terminal blocks, safety instruction

## Further Instructions

Product Documentation	<a href="https://www.doc.hirschmann.com/index.html">https://www.doc.hirschmann.com/index.html</a>
Certificates	<a href="https://www.doc.hirschmann.com/certificates.html">https://www.doc.hirschmann.com/certificates.html</a>
Software Download	<a href="https://hirschmann-support.belden.com/en-US/downloads">https://hirschmann-support.belden.com/en-US/downloads</a>

© 2025 Belden, Inc

All Rights Reserved.

Although Belden makes every reasonable effort to ensure their accuracy at the time of this publication, information and specifications described here in are subject to error or omission and to change without notice, and the listing of such information and specifications does not ensure product availability.

Belden provides the information and specifications herein on an "ASIS" basis, with no representations or warranties, whether express, statutory or implied. In no event will Belden be liable for any damages (including consequential, indirect, incidental, special, punitive, or exemplary damages) whatsoever, even if Belden has been advised of the possibility of such damages, whether in an action under contract, negligence or any other theory, arising out of or in connection with the use, or inability to use, the information or specifications described herein.

All sales of Belden products are subject to Belden's standard terms and conditions of sale.

Belden believes this product to be in compliance with all applicable environmental programs as listed in the data sheet. The information provided is correct to the best of Belden's knowledge, information and belief at the date of its publication. This information is designed only as a general guide for the safe handling, storage, and any other operation of the product itself or the one that it becomes a part of. The Product Disclosure is not to be considered a warranty or quality specification. Regulatory information is for guidance purposes only. Product users are responsible for determining the applicability of legislation and regulations based on their individual usage of the product.