

Product: MAR1040-4C4C4C4C9999SM9HPHH

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

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|------------------------|---|
| Description | Managed Ethernet/Fast Ethernet/Gigabit Ethernet Industrial Switch, 19" rack mount, fanless Design |
| Part Number | 942004001 |
| Port type and quantity | 16 x Combo ports (10/100/1000BASE TX RJ45 plus related FE/GE-SFP slot) |

More Interfaces

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|--------------------------------|---|
| 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

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

Network size - cascadiability

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

Power requirements

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|---------------------------------|---|
| 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

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

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|----------------------|--|
| 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, 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 | PoE (802.3AF), PoE+ (802.3AT), Manual Cable Crossing |

Ambient conditions

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|------------------------------------|------------|
| 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

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

Mechanical stability

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| 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

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| EN 61000-4-2 electrostatic discharge (ESD) | 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 damped oscillatory wave | 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

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

Approvals

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| 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 |

Scope of delivery and accessories

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

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