

**Product:** [MACH4002-24G+3X-L3P](#) 



**24-port Gigabit Backbone Router with 10G Uplinks, 2 media slots, L3P**

**Product Description**

MACH4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Professional.

**Technical Specifications**

|                       |  |
|-----------------------|--|
| Operating Voltage:    | power supply unit M4-S-xx or M4-Power Chassis with power supply unit please order separately |
| Power consumption:    | 74 W (without media modules)   |
| Redundancy functions: | redundant 24 V power supply by M4-Power basic device, redundant signal contact               |

**Software**

|                       |  |
|-----------------------|--|
| Switching:            | Traffic Shaping, Disable Learning (hub functionality), Independent VLAN Learning, Fast Aging, Static Unicast/Multicast Address Entries, QoS / Port Prioritization (802.1D/p), TOS/DSCP Prioritization, CoS Queue Management, Egress Broadcast Limiter per Port, Flow Control (802.3X), VLAN (802.1Q), Protocol-based VLAN, 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), HIPER-Ring over Link Aggregation, 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, VRRP, VRRP Tracking, HiVRRP (VRRP enhancements)  |
| 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, Link Speed and Duplex Monitoring, RMON (1,2,3,9), Port Mirroring 1:1, Port Mirroring 8:1, System Information, Self-Tests on Cold Start, Copper Cable Test, SFP Management, Configuration Check Dialog, Switch Dump           |
| 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   |
| Time synchronisation: | Buffered Real Time Clock, SNTP Client, SNTP Server   |
| Industrial Profiles:  | EtherNet/IP Protocol, PROFINET IO Protocol   |
| Miscellaneous:        | PoE (802.3AF), 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**

|                                     |          |
|-------------------------------------|----------|
| Operating temperature:              | 0-+60 °C |
| Relative humidity (non-condensing): | 10-95 %  |

**Mechanical construction**

|                     |                         |
|---------------------|-------------------------|
| Dimensions (WxHxD): | 480 mm x 88 mm x 435 mm |
| Weight:             | 7.5 kg                  |
| Mounting:           | 19" control cabinet     |
| Protection class:   | IP20                    |

**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 (ESD): | 6 kV contact discharge, 8 kV air discharge                      |
| EN 61000-4-3 electromagnetic field:         | 10 V/m (80-1000 MHz)  |
| EN 61000-4-4 fast transients (burst):       | 2 kV power line, 1 kV data line                                 |
| EN 61000-4-5 surge voltage:                 | power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line |
| EN 61000-4-6 Conducted Immunity:            | 3 V (10 kHz-150 kHz), 10 V (150 kHz-80 MHz)                     |

## EMC emitted immunity

|                    |                            |
|--------------------|----------------------------|
| EN 55022:          | EN 55022 Class A           |
| FCC CFR47 Part 15: | FCC 47CFR Part 15, Class A |

## Approvals

|   |             |
|---|-------------|
| Safety of industrial control equipment:     | cUL 508     |
| Safety of information technology equipment: | cUL 60950-1 |
| Shipbuilding:                               | DNV         |
| Railway norm:                               | EN 50121-4  |

## Scope of delivery and accessories

|                                  |  |
|----------------------------------|--|
| Accessories to Order Separately: | SFP transceiver (100/1000Mbit/s), Power supply unit, auto-configuration adapter (ACA21-USB), network management with Industrial HiVision |
| Scope of delivery:               | device, terminal block, operating manual, fan M4-AIR installed   |

## Further Instructions

|                        |   |
|------------------------|---|
| Product Documentation: | <a href="https://www.doc.hirschmann.com">https://www.doc.hirschmann.com</a>                                     |
| Certificates:          | <a href="https://www.doc.hirschmann.com/certificates.html">https://www.doc.hirschmann.com/certificates.html</a> |

## Variants

| Item #    | Type                |
|-----------|---------------------|
| 943915301 | MACH4002-24G+3X-L3P |

|                      |  |
|----------------------|--|
| Update and Revision: | Revision Number: 0.136 Revision Date: 01-09-2023 |
|----------------------|--|

## Product description

|                         |  |
|-------------------------|--|
| Description:            | MACH 4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Professional.   |
| Part Number:            | 943915301  |
| Availability:           | Last Order Date: June 30, 2022   |
| Port type and quantity: | up to 24 Gigabit-ETHERNET and 3x 10Gigabit-ETHERNET ports, thereof up to 16 Gigabit-ETHERNET ports via media modules practicable, 3x 10Gigabit XFP sockets and 8 Gigabit TP (10/100/1000Mbit/s) ports are integral installed |

## More Interfaces

|                                 |   |
|---------------------------------|---|
| Power supply/signaling contact: | 1 x plug-in terminal block, 4-pin, 2 x egresses manual or automatic switchable (1 A at max. 60 V DC or max. 30 V) |
| V.24 interface:                 | 1 x RJ11 socket, serial interface for device configuration  |
| USB interface:                  | 1 x USB to connect auto-configuration adapter ACA21-USB   |

## Network size - cascability

|  |                                      |
|--|--------------------------------------|
| Line - / star topology:                        | any                                  |
| Ring structure (HIPER-Ring) quantity switches: | ring recovery time 50 ms typ. at LWL |

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