



MACH4002 24G-L3E

Industrial Networking:Industrial Ethernet:MACH 4000:Chassis

| Product description | |
|------------------------------------|---|
| Description | MACH 4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Enhanced. |
| Port type and quantity | up to 24 Gigabit-ETHERNET ports, thereof up to 16 Gigabit-ETHERNET ports above media modules practicable, 8 Gigabit combo ports SFP(100/1000Mbit/s) or TP (10/100/1000Mbit/s) are integral installed |
| Type | MACH4002 24G-L3E |
| Order No. | 943 916-201 |
| More Interfaces | |
| Power supply/signaling contact | 1 plug-in terminal block, 4-pin, 2x egresses manual or automatic switchable (1A at 240 V DC) |
| V.24 interface | 1 x RJ11 socket, serial interface to the configuration of devices |
| USB interface | 1USB interface to connect auto-configuration adapter (ACA21-USB) |
| Network size - cascability | |
| Line - / star topology | any |
| Ring structure (HIPER-Ring) | Ring-recovery time < 50 ms typ. at LWL |
| Power requirements | |
| Operating voltage | Power supply unit M4-S-xx or M4-Power Chassis with power supply unit please order separately |
| Power consumption | 70 W (without media modules) |
| Service | |
| Diagnostics | serial interface, web interface, SNMP V1/V2/V3, HiVision, file transfer SW HTTP/TFTP LEDs (power, link status, data, 100 Mbit/s, auto-negotiation, full-duplex, error, redundancy management, ring-port, LED-test), signal contact (24V DC / 1 A), syslog, logfile, RMON, port mirroring, Topology Discovery IEEE 802.1AB (LLDP) |
| Configuration | command line interface (CLI), TELNET, BootP, DHCP, DHCP Option 82, HiDiscovery, auto-configuration adapter (ACA21-USB) |
| Security | port-security (MAC- and IP-adresses), access control to agent (VLAN/IP authentication 802.1x, SSH, SSL, SNMP V3) |
| Other services | QoS 8 classes, prioritisation (IEEE 802.1D/p), VLAN (IEEE 802.1Q), multicast (IGMP snooping/querier), broadcastlimiter, flow control IEEE 802.3x, PTP client (Precision Time Protocol, IEEE 1588), SNTP (Simple Network Time Protocol), TOS (Type of Service) Diff.-Serv, TOS-Prio-Mapping, protocol based VLANs (IP, nonIP Traffic), Traffic Shaping |
| Prepared for | MSTP-802.1s static routing, VRRP router redundancy; layer 3 - ACL, HiRRPv2 (pending) |
| Dynamic routing | RIP V1/2 |
| Redundancy | |
| Redundancy functions | HIPER-ring (ring structure), RSTP IEEE 802.1D/w (rapid spanning tree protocol), redundant network/ring coupling (master/receiver functionality), redundant 24 V power supply by M4-Power basic device, redundant signal contact, link aggregation dynamic and static (max. 7 trunks, 8 ports/trunk, LACP) |
| Ambient conditions | |
| Operating temperature | 0 °C to +50 °C |
| Storage/transport temperature | -25 °C to +70 °C |
| Relative humidity (non-condensing) | 10% to 95% |
| Mechanical construction | |

| | |
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| Dimensions (W x H x D) | 480 mm x 88 mm x 435 mm |
| Mounting | 19" control cabinet |
| Weight | 7,5 kg |
| Protection class | IP 20 |
| Mechanical stability | |
| IEC 60068-2-27 shock | 15 g, 11 ms duration, 18 shocks |
| 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 |
| 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 | |
| FCC CFR47 Part 15 | FCC CFR47 Part 15 Class A |
| EN 55022 | EN 55022 Class A |
| Approvals | |
| Safety of industrial control equipment | cUL 508 (E175531) pending |
| Germanischer Lloyd | pending |
| Safety of information technology equipment | cUL 60950 (E168643) pending |
| Railway norm | EN 50121-4:2000, electromagnetic compatibility along the route (> 10m) |
| Scope of delivery and accessories | |
| Scope of delivery | device, terminal block, operating manual, fan M4-AIR installed |
| Accessories to order separately | SFP transceiver (100/1000MBit/s), Power supply unit, auto-configuration adapter (ACA21-USB), Industrial HiVision network management |