



MACH4002-48G-L3P

Industrial Networking:Industrial Ethernet:MACH 4000:Chassis

Product description	
Description	MACH 4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Professional.
Port type and quantity	up to 48 Gigabit-ETHERNET ports, thereof up to 32 Gigabit-ETHERNET ports above media modules practicable, 16 Gigabit TP (10/100/1000Mbit/s) thereof 8 as combo SFP(100/1000Mbit/s)/TP ports are integral installed
Type	MACH4002-48G-L3P
Order No.	943 911-301
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
Configuration	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) 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, OSPF
Multicast routing	Multicast routing DVMRP/PIM DM
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

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