



## Product information MACH4002-48G-L3P

Industrial Ethernet:Backbone Switches:MACH4000:Chassis:MACH4002-48G-L3P

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<b>Name</b>	MACH4002-48G-L3P
	MACH 4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Professional.
<b>Delivery informations</b>	
<b>Availability</b>	available
<b>Product description</b>	
<b>Description</b>	MACH 4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Professional.
<b>Port type and quantity</b>	up to 48 Gigabit-ETHERNET ports, thereof up to 32 Gigabit-ETHERNET ports via media modules practicable, 16 Gigabit TP (10/100/1000Mbit/s) thereof 8 as combo SFP(100/1000Mbit/s)/TP ports are integral installed
<b>Type</b>	MACH4002-48G-L3P
<b>Order No.</b>	943 911-301
<b>More Interfaces</b>	
<b>Power supply/signaling contact</b>	1 plug-in terminal block, 4-pin, 2x egresses manual or automatic switchable (1 A at max. 60 V DC or max. 30 V)
<b>V.24 interface</b>	1 x RJ11 socket, serial interface to the configuration of devices
<b>USB interface</b>	1USB interface to connect auto-configuration adapter (ACA21-USB)
<b>Network size - cascadiability</b>	
<b>Line - / star topology</b>	any
<b>Ring structure (HIPER-Ring) quantity switches</b>	ring recovery time < 50 ms typ. at LWL
<b>Power requirements</b>	
<b>Operating voltage</b>	power supply unit M4-S-xx or M4-Power Chassis with power supply unit please order separately
<b>Power consumption</b>	70 W (without media modules)
<b>Service</b>	
<b>Management</b>	serial interface, web interface, SNMP V1/V2/V3, HiVision, file transfer SW HTTP/TFTP
<b>Diagnostics</b>	LEDs (power, link status, data, 100 Mbit/s, auto-negotiation, full-duplex, error, redundancy management, ring-port, LED-test), signal contact, syslog, logfile, RMON, port mirroring, Topology Discovery IEEE 802.1AB (LLDP)
<b>Configuration</b>	command line interface (CLI), TELNET, BootP, DHCP, DHCP Option 82, HiDiscovery, auto-configuration adapter (ACA21-USB)
<b>Security</b>	port-security (MAC- and IP-addresses), access control to agent (VLAN/IP) authentication 802.1x, SSH, SSL, SNMP V3
<b>Other services</b>	QoS 8 classes, prioritisation (IEEE 802.1D/p), VLAN (IEEE 802.1Q), multicast (IGMP snooping/querier), broadcastlimiter, flow control IEEE 802.3x, SNTP (Simple Network Time Protocol), TOS (Type of Service) Diff.-Serv (DSCP), TOS-Prio-Mapping, protocol based VLANs (IP, nonIP Traffic), Traffic Shaping
<b>Prepared for</b>	MSTP-802.1s
<b>Routing</b>	static routing, VRRP router redundancy; layer 3 - ACL, HiVRRP router redundancy < 500 ms
<b>Dynamic routing</b>	RIP V1/2, OSPF
<b>Multicast routing</b>	Multicast routing DVMRP/PIM DM
<b>Redundancy</b>	
<b>Redundancy functions</b>	HIPER-Ring (ring structure), RSTP IEEE 802.1D/w (rapid spanning tree protocol), redundant network/ring coupling (master/slave 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)
<b>Ambient conditions</b>	
<b>Operating temperature</b>	0 °C to +60 °C
<b>Storage/transport temperature</b>	-25 °C to +70 °C
<b>Relative humidity (non-condensing)</b>	10% to 95%
<b>Mechanical construction</b>	
<b>Dimensions (W x H x D)</b>	480 mm x 88 mm x 435 mm
<b>Mounting</b>	19" control cabinet
<b>Weight</b>	7.5 kg
<b>Protection class</b>	IP 20
<b>Mechanical stability</b>	
<b>IEC 60068-2-27 shock</b>	15 g, 11 ms duration, 18 shocks
<b>IEC 60068-2-6 vibration</b>	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
<b>EMC interference immunity</b>	
<b>EN 61000-4-2 electrostatic discharge (ESD)</b>	6 kV contact discharge, 8 kV air discharge
<b>EN 61000-4-3 electromagnetic field</b>	10 V/m (80 - 1000 MHz)
<b>EN 61000-4-4 fast transients (burst)</b>	2 kV power line, 1 kV data line



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<b>EN 61000-4-5 surge voltage</b>	power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line
<b>EN 61000-4-6 conducted immunity</b>	3 V (10 kHz - 150 kHz), 10 V (150 kHz - 80 MHz)
<b>EMC emitted immunity</b>	
<b>FCC CFR47 Part 15</b>	FCC CFR47 Part 15 Class A
<b>EN 55022</b>	EN 55022 Class A
<b>Approvals</b>	
<b>Safety of industrial control equipment</b>	cUL 508
<b>Shipbuilding</b>	Germanischer Lloyd
<b>Safety of information technology equipment</b>	cUL 60950-1
<b>Railway norm</b>	EN50121-4
<b>Scope of delivery and accessories</b>	
<b>Scope of delivery</b>	device, terminal block, operating manual, fan M4-AIR installed
<b>Accessories to order separately</b>	SFP transceiver (100/1000MBit/s), Power supply unit, auto-configuration adapter (ACA21-USB), network management with Industrial HiVision

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