




## Data sheet

## MACH4002-48G+3X-L3E - MACH4002-48G+3X-L3E

Industrial Ethernet:Backbone Switches:Chassis:MACH4002-48G+3X-L3E	
Name	MACH4002-48G+3X-L3E
	
<b>Delivery informations</b>	
Document created at	09-08-2010
Availability	available
<b>Product description</b>	
Description	MACH 4000, modular, managed Industrial Backbone-Router, Layer 3 Switch with Software Enhanced.
Port type and quantity	up to 48 Gigabit-ETHERNET and 3x 10Gigabit-ETHERNET ports, thereof up to 16 Gigabit-ETHERNET ports via media modules practicable, 3x 10Gigabit XFP sockets and 16 Gigabit TP (10/100/1000Mbit/s) ports are integral installed
Type	MACH4002-48G+3X-L3E
Order No.	943 878-201
<b>More Interfaces</b>	
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)
<b>Network size - cascading</b>	
Line - / star topology	any
Ring structure (HIPER-Ring) quantity switches	ring-recovery time < 50 ms typ. at LWL
<b>Power requirements</b>	
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)
<b>Service</b>	
Management	serial interface, web interface, SNMP V1/V2/V3, HiVision, file transfer SW HTTP/TFTP
Diagnostics	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)
Configuration	command line interface (CLI), TELNET, BootP, DHCP, DHCP Option 82, HiDiscovery, auto-configuration adapter (ACA21-USB)
Security	port-security (MAC- and IP-addresses), 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, SNTP (Simple Network Time Protocol), TOS (Type of Service) Diff.-Serv (DSCP), TOS-Prio-Mapping, protocol based VLANs (IP, nonIP Traffic), Traffic Shaping
Prepared for	MSTP-802.1s
Routing	static routing, VRRP router redundancy; layer 3 - ACL, HiVRRP router redundancy < 500 ms
Dynamic routing	RIP V1/2
<b>Redundancy</b>	
Redundancy functions	HIPER-Ring (ring structure), RSTP IEEE 802.1D/w (rapid spanning tree protocol), redundant network/ring coupling (master/slavefunctionality), 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>	
Operating temperature	0 °C to +60 °C
Storage/transport temperature	-25 °C to +70 °C
Relative humidity (non-condensing)	10% to 95%
<b>Mechanical construction</b>	
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
<b>Mechanical stability</b>	
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



## Industrial Ethernet:Backbone Switches:Chassis:MACH4002-48G+3X-L3E

### 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)
Germanischer Lloyd	GL
Safety of information technology equipment	cUL 60950 (E168643)
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), network management with Industrial HiVision