


## Data sheet

### MACH1000, Fast Ethernet switch 2-24 ports, ports on rear - MAR1120-99TTTTTTMMMMMMMMMMMM99999999ULLHPH05.0.

Industrial Ethernet:Ruggedized Switches:Fast/Gigabit Ethernet Control Cabinet Switches:Fast Ethernet Control Cabinet Switches:MACH1000, Fast Ethernet switch 2-24 ports, ports on rear	
Name	MACH1000, Fast Ethernet switch 2-24 ports, ports on rear
	
<b>Delivery informations</b>	
Document created at	09-08-2010
Availability	available
<b>Product description</b>	
Description	Ethernet/Fast Ethernet/-Switch, ports on rear, managed, Industrial Switch 19" cabinet mount, fanless Design, software layer 2 Professional
Port type and quantity	Fast-Ethernet ports in total: 16 x ports in total; 6 x Twisted Pair; 10 x Multimode SC;
Type	MAR1120-99TTTTTTMMMMMMMMMMMM99999999ULLHPH05.0.
Order No.	MAR1120-99TTTTTTMMMMMMMMMMMM99999999ULLHPH05.0.
<b>More Interfaces</b>	
V.24 interface	1 x RJ11 socket
USB interface	1 x to connect auto-configuration adapter ACA21-USB
<b>Network size - length of cable</b>	
Twisted pair (TP)	0 m - 100 m
Multimode fiber (MM) 50/125 µm	0 - 5000 m, 8 dB Link Budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km
Multimode fiber (MM) 62.5/125 µm	0 - 4000 m, 11 dB Link Budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km
<b>Network size - cascading</b>	
Line - / star topology	Any
Ring structure (HIPER-Ring) quantity switches	100 switches
<b>Power requirements</b>	
Operating voltage	Power supply 1: 24/36/48 VDC; Power supply 2: 24/36/48 VDC
Current consumption at 24 V DC	Power supply 1 and 2: 1400 mA max, if all ports are equipped with fiber
<b>Software</b>	
Management	Serial interface, Web interface, SNMP V1/V2, HiVision file transfer SW HTTP/TFTP
Diagnostics	LEDs, log-file, syslog, signal contact, RMON, port mirroring, topology discovery 802.1AB, Configuration Check, cable diagnostic (TX), disable learning
Configuration	Command line interface (CLI), TELNET, BootP, DHCP, DHCP option 82, HiDiscovery, auto-configuration adapter (ACA21-USB), watchdog configuration
Security	Port security (IP and MAC), SNMP V3, SSH, authentication (802.1x)
Redundancy functions	HIPER-ring (ring structure), MRP (IEC-ring functionality), RSTP 802.1w, redundant network/ring coupling, dual homing, link aggregation, redundant 24 V power supply
Filter	QoS 4 classes, port prioritisation (IEEE 802.1D/p), VLAN (IEEE 802.1Q), shared VLAN learning, Multicast (IGMP Snooping/Querier), Multicast Detection unknown Multicast, Broadcastlimiter, Fast Aging, Multicast GMRP IEEE 802.1D
Industrial Profiles	EtherNet/IP, PROFINET, configuration and diagnostic via automation software tools like e.g. STEP7, or Control Logix
Time synchronisation	SNTP server, realtime clock with energy buffer
Flow control	Flow Control 802.3x, Port Priority 802.1D/p, Priority (TOS/DIFFSERV), Prio (MAC/IP), Prio Mapping (TOS Layer2), Traffic Shaping (Unicast, Multicast, Broadcast) Ingress / Egress
<b>Ambient conditions</b>	
Operating temperature	-40 °C - 85 °C
Storage/transport temperature	-40 °C - 85 °C
Relative humidity (non-condensing)	10 % - 95 %
Protective paint on PCB	No
<b>Mechanical construction</b>	
Dimensions (W x H x D)	445 mm x 44 mm x 308 mm
Mounting	19" control cabinet
Weight	appr. 5 kg
Protection class	IP30



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**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.; 0.7g, 13.2 Hz - 100 Hz, 90 min.; 3.5 mm, 3 Hz - 9 Hz, 10 cycles, 1 octave/min.; 1g, 9 Hz - 150 Hz, 10 cycles, 1 octave/min.

**EMC interference immunity**

EN 61000-4-2 electrostatic discharge (ESD)	8 kV contact discharge, 15 kV air discharge
EN 61000-4-3 electromagnetic field	35 V/m (80 - 2700 MHz); 1kHz, 80% AM
EN 61000-4-4 fast transients (burst)	4 kV power line, 4 kV data line
EN 61000-4-5 surge voltage	Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line IEEE1613: power line 5kV (line/earth)
EN 61000-4-6 conducted immunity	2,5 kV (line/earth), 1 kV (line/line) (1MHz)
EN 61000-4-16 mains frequency voltage	30V, 50Hz continuous; 300V, 50Hz 1s

**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 (pending)
Hazardous locations	cUL 1604 Class1 Div 2 (pending)
Germanischer Lloyd	Germanischer Lloyd (in preparation)
Substation	IEC 61850-3; IEEE 1613
Transportation	EN 50121-4, NEMA TS

**Scope of delivery and accessories**

Scope of delivery	Device, operating manual
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