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Data sheet
MACH1000, 2-24 ports Gigabit Ethernet PoE switch - ports on rear - MAR1132-CCTTTTTTMMMMMMMMMM99999999ULMHPHH05.0.

Industrial Ethernet:Ruggedized Switches:Fast/Gigabit Ethernet Control Cabinet Switches:PoE Control Cabinet Switches:MACH1000, 2-24 ports Gigabit Ethernet PoE switch - ports on rear	
Name	**MACH1000, 2-24 ports Gigabit Ethernet PoE switch - ports on rear**
Delivery informations	
Document created at	09-08-2010
Availability	available
Product description	
Description	Ethernet/Fast Ethernet/Gigabit Ethernet-Switch, Power over Ethernet 4 ports, 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	MAR1132-CCTTTTTTMMMMMMMMMM99999999ULMHPHH05.0.
Order No.	MAR1132-CCTTTTTTMMMMMMMMMM99999999ULMHPHH05.0.
More Interfaces	
V.24 interface	1 x RJ11 socket
USB interface	1 x to connect auto-configuration adapter ACA21-USB
Network size - length of cable	
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 and cf. SFP modules M-SFPxx
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 and cf. SFP modules M-SFPxx
Single mode fiber (SM) 9/125 µm	cf. SFP modules M-SFPxx
Single mode fiber (LH) 9/125 µm (long haul transceiver)	cf. SFP modules M-SFPxx
Network size - cascadibility	
Line - / star topology	Any
Ring structure (HIPER-Ring) quantity switches	100 switches
Power requirements	
Operating voltage	Power supply 1: 24/36/48 VDC; Power supply 2: 120/250 VDC, 110/230 VAC
Current consumption at 24 V DC	Power supply 1 and 2: 1400 mA max, if all ports are equipped with fiber
Software	
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	Comand line interface (CLI), TELNET, BootP, DHCP, DHCP option 82, HIDiscovery, auto-configuration adapter (ACA21-USB), watchdog configuration
Security	Port security (IP und MAC), SNMP V3, SSH, authentication (802.1x), radius authentication for SNMPv3 (web)
Redundancy functions	HIPER-ring (ring structure), MRP (IEC-ring functionality), RSTP 802.1D-2004, redundant network/ring coupling, MRP and RSTP in parallel, link aggregation, redundant 24 V power supply
Filter	QoS 4 classes, port priorisierung (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 and PROFINET (2.2 PDEV, GSDML stand-alone generator, automatic device exchange) profiles included, 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
Ambient conditions	
Operating temperature	-40 °C - 85 °C
Storage/transport temperature	-40 °C - 85 °C
Relative humidity (non-condensing)	10 % - 95 %

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Protective paint on PCB	No
Mechanical construction	
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
Mechanical stability	
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 schocks
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 continous; 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
Scope of delivery and accessories	
Scope of delivery	Device, operating manual