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Data sheet
MACH1000, Full Gigabit Ethernet switch 16 ports - ports on rear - MAR1140-4C4C4C4C9999SLLHPHH05.0.

Industrial Ethernet:Ruggedized Switches:Fast/Gigabit Ethernet Control Cabinet Switches:Full Gigabit Ethernet control cabinet switches:MACH1000, Full Gigabit Ethernet switch 16 ports - ports on rear

Name	**MACH1000, Full Gigabit Ethernet switch 16 ports - ports on rear**
	
Delivery informations	
Document created at	09-08-2010
Availability	available
Product description	
Description	Ethernet/Fast Ethernet/Gigabit Ethernet-Switch, managed, Industrial Switch 19" rack mount, ports on rear, fanless design
Port type and quantity	16 x combo ports (10/100/1000BASE TX RJ45 plus related FE/GE-SFP slot)
Type	MAR1140-4C4C4C4C9999SLLHPHH05.0.
Order No.	MAR1140-4C4C4C4C9999SLLHPHH05.0.
More Interfaces	
Power supply/signaling contact	power supply 1: power supply, 2 pin plug-in terminal block, signal contact, 2 pin plug-in terminal block; power supply 2: power supply, 2 pin plug-in terminal block, signal contact, 2 pin plug-in terminal block
V.24 interface	1 x RJ11 socket
USB interface	1 x USB to connect the AutoConfiguration Adapter ACA21-USB
Network size - length of cable	
Twisted pair (TP)	0 m - 100 m
Multimode fiber (MM) 50/125 µm	cf. Gigabit and Fast Ethernet SFP modules
Multimode fiber (MM) 62.5/125 µm	cf. Gigabit and Fast Ethernet SFP modules
Single mode fiber (SM) 9/125 µm	cf. Gigabit and Fast Ethernet SFP modules
Single mode fiber (LH) 9/125 µm (long haul transceiver)	cf. Gigabit and Fast Ethernet SFP modules
Network size - cascadibility	
Line - / star topology	any
Ring structure (HIPER-Ring) quantity switches	up to 10 ms (10 switches), up to 30 ms (50 switches), up to 40 ms (100 switches), up to 60 ms (200 switches)
Power requirements	
Operating voltage	power supply 1: 24/36/48 V DC, power supply 2: 24/36/48 V DC
Current consumption at 24 V DC	power supply 1: 1080 mA max., if all ports are equipped with SFP; power supply 2: 1080 mA max., if all ports are equipped with SFP
Current consumption at 230 V AC	power supply 1: n/a; power supply 2: n/a
Power output in Btu (IT) h	90 max (350 PoE option)
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, cable diagnostic (TX), disable learning
Configuration	Comand line interface (CLI), TELNET, BootP, DHCP, DHCP option 82, HIDiscovery, auto-configuration adapter (ACA21-USB), DHCP server per port
Security	Port Security (IP und MAC), SNMP V3, SSH, Authentication (802.1x), Radius Authentication for SNMPv3 (Web)
Redundancy functions	HIPER-Ring, Fast HIPER-Ring, MRP (IEC-ring functionality), RSTP 802.1w, MRP and RSTP in parallel, link aggregation, multiple rings
Filter	QoS 4 classes, priorisation (IEEE 802.1D/p), VLAN (IEEE 802.1Q), multicast (IGMP snooping/querier), multicast detection unknown multicast, broadcast-, unicast-, multicast limiter, fast aging, 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, PTP / IEEE 1588, 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	0 °C - 60 °C
Storage/transport temperature	-40 °C - 85 °C

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Relative humidity (non-condensing)	5 % - 95 %
MTBF	119540
Protective paint on PCB	No
Mechanical construction	
Dimensions (W x H x D)	445 mm x 44 mm x 345 mm
Mounting	19" control cabinet
Weight	5600 gram
Protection class	IP30
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.; 1 g, 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); 1 kHz, 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 5 kV (line/earth)
EN 61000-4-6 conducted immunity	30 V, 50 Hz continous; 300 V, 50 Hz 1 s
EN 61000-4-16 mains frequency voltage	30 V, 50 Hz continous; 300 V, 50 Hz 1 s
EMC emitted immunity	
FCC CFR47 Part 15	FCC 47 CFR 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)
Shipbuilding	Germanischer Lloyd (pending)
Railway norm	EN 50121-4, EN50155 (pending), NEMA TS
Substation	IEC 61850-3, IEEE 1613
Transportation	EN 50121-4, EN50155 (pending), NEMA TS
Scope of delivery and accessories	
Scope of delivery	device, operating manual