HIRSCHMANN
A BELDEN BRAND

Product: MAR1030-4OTTTTTTTTTTTTTTTTTTTTTTTTTTFMMHPH

Configurator: MAR1030-4OTTTTTTTTTTTTTTTTTTTTTTTTTTFMMHPH



Configurator Description

The MACH1000 is available in a 24 port custom configurable design with 2 or 4 additional Gigabit uplink (RJ45 and/or SFP for fiber) and PoE ports. These switches are available with Layer 2. The fanless design and extremely efficient components are optimized for minimal heat generation and high MTBF (mean time between failure).

Technical Specifications

Product description

Description	Industrial managed Fast/Gigabit Ethernet Switch according to IEEE 802.3, 19" rack mount, fanless Design, Store-and-Forward-Switching
Part Number	943940002
Port type and quantity	In total 4 Gigabit and 24 Fast Ethernet ports \\\ GE 1 - 4: 1000BASE-FX, SFP slot \\\ FE 1 and 2: 10/100BASE-TX, RJ45 \\\ FE 3 and 4: 10/100BASE-TX, RJ45 \\\ FE 5 and 6: 10/100BASE-TX, RJ45 \\\ FE 7 and 8: 10/100BASE-TX, RJ45 \\\ FE 9 and 10: 10/100BASE-TX, RJ45 \\\ FE 11 and 12: 10/100BASE-TX, RJ45 \\\ FE 13 and 14: 10/100BASE-TX, RJ45 \\\ FE 15 and 16: 10/100BASE-TX, RJ45 \\\ FE 17 and 18: 10/100BASE-TX, RJ45 \\\ FE 19 and 20: 10/100BASE-TX, RJ45 \\\ FE 21 and 22: 10/100BASE-TX, RJ45 \\\ FE 23 and 24: 10/100BASE-TX, RJ45

More Interfaces

Power supply/signaling contact	Power supply 1: power supply 3-pin plug-in terminal block, signal contact 2-pin plug-in terminal block ; Power supply 2: power supply 3-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 auto-configuration adapter ACA21-USB

Network size - length of cable

Twisted pair (TP)	FE 1 and 2: 0-100 m \\\ FE 3 and 4: 0-100 m \\\ FE 5 and 6: 0-100 m \\\ FE 7 and 8: 0-100 m \\\ FE 9 and 10: 0-100 m \\\ FE 11 and 12: 0-100 m \\\ FE 13 and 14: 0-100 m \\\ FE 15 and 16: 0-100 m \\\ FE 17 and 18: 0-100 m \\\ FE 19 and 20: 0-100 m \\\ FE 21 and 22: 0-100 m \\\ FE 23 and 24: 0-100 m \\\
Single mode fiber (SM) 9/125 µm	GE 1 - 4: cf. SFP modules M-SFP \\\
Single mode fiber (LH) 9/125 µm (long haul transceiver)	GE 1 - 4: cf. SFP modules M-SFP \\\
Multimode fiber (MM) 50/125 µm	GE 1 - 4: cf. SFP modules M-SFP \\\
Multimode fiber (MM) 62.5/125 µm	GE 1 - 4: cf. SFP modules M-SFP \\\

Network size - cascadibility

Line - / star topology	any
Ring structure (HIPER-Ring) quantity switches	10ms (10 switches), 30ms (50 switches), 40ms (100 switches), 60ms (200 switches)

Power requirements

Current consumption at 230 V AC	Power supply 1: 170 mA max, if all ports are equipped with fiber ; Power supply 2: 170 mA max, if all ports are equipped with fiber
Operating Voltage	Power supply 1: 110/250 VDC, 110/230 VAC ; Power supply 2: 110/250 VDC, 110/230 VAC
Power consumption	max. 38.5 W
Power output in BTU (IT)/h	max. 132

Software

Switching	Disable Learning (hub functionality), Independent VLAN Learning, Fast Aging, Static Unicast/Multicast Address Entries, QoS / Port Prioritization (802.1D/p), TOS/DSCP Prioritization, Egress Broadcast Limiter per Port, Flow Control (802.3X), Jumbo Frames, VLAN (802.1Q), GARP VLAN Registration Protocol (GVRP), Double VLAN Tagging (QinQ), Voice VLAN, GARP Multicast Registration Protocol (GMRP), IGMP Snooping/Querier (v1/v2/v3)

Redundancy	Advanced Ring Configuration for MRP, HIPER-Ring (Manager), HIPER-Ring (Ring Switch), Fast HIPER-Ring, Link Aggregation with LACP, Media Redundancy Protocol (MRP) (IEC62439-2), Redundant Network Coupling, Sub Ring Manager, RSTP 802.1D-2004 (IEC62439-1), MSTP (802.1Q), RSTP Guards, RSTP over MRP
Management	Dual Software Image Support, TFTP, LLDP (802.1AB), LLDP-MED, SSHv1, SSHv2, V.24, HTTP, HTTPS, Traps, SNMP v1/v2/v3, Telnet
Diagnostics	Management Address Conflict Detection, Address Relearn Detection, MAC Notification, Signal Contact, Device Status Indication, TCPDump, LEDs, Syslog, Port Monitoring with Auto-Disable, Link Flap Detection, Overload Detection, Duplex Mismatch Detection, Link Speed and Duplex Monitoring, RMON (1,2,3,9), Port Mirroring 1:1, Port Mirroring 8:1, Port Mirroring N:1, System Information, Self-Tests on Cold Start, Copper Cable Test, SFP Management, Configuration Check Dialog, Switch Dump
Configuration	AutoConfiguration Adapter ACA11 Limited Support (RS20/30/40, MS20/30), Automatic Configuration Undo (roll-back), Configuration Fingerprint, BOOTP/DHCP Client with Auto-Configuration, DHCP Server: per Port, DHCP Server: Pools per VLAN, DHCP Server: Option 43, AutoConfiguration Adapter ACA21/22 (USB), HiDiscovery, DHCP Relay with Option 82, Command Line Interface (CLI), CLI Scripting, Full-featured MIB Support, Web-based Management, Context-sensitive Help
Security	IP-based Port Security, MAC-based Port Security, Port-based Access Control with 802.1X, Guest/unauthenticated VLAN, RADIUS VLAN Assignment, Multi-Client Authentication per Port, MAC Authentication Bypass, Access to Management restricted by VLAN, HTTPS Certificate Management, Restricted Management Access, Appropriate Use Banner, SNMP Logging, Local User Management, Remote Authentication via RADIUS, Password change on first login
Time synchronisation	SNTP Server, PTP / IEEE 1588 in software, realtime clock with energy buffer
Industrial Profiles	EtherNet/IP Protocol, IEC61850 Protocol (MMS Server, Switch Model), PROFINET IO Protocol
Miscellaneous	Manual Cable Crossing

Ambient conditions

Operating temperature	-40-+85 °C
Storage/transport temperature	-40-+85 °C
Relative humidity (non-condensing)	5-95 %
Protective paint on PCB	Yes (conformal coating)

Mechanical construction

Dimensions (WxHxD)	448 x 44 x 310 mm (448 x 44 x 345 mm if power supply type M or L)
Weight	4.0 kg
Mounting	19" control cabinet
Protection class	IP30

Mechanical stability

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
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks

EMC interference immunity

EN 61000-4-2 electrostatic discharge (ESD)	8 kV contact discharge, 15 kV air discharge
EN 61000-4-3 electromagnetic field	20 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	DC power line: 2 kV (line/earth), 1 kV (line/line); AC power line: 4 kV (line/earth), 2 kV (line/line); 4 kV data line; IEEE1613: power line 5 kV (line/earth)
EN 61000-4-6 Conducted Immunity	10 V (150 kHz - 80 MHz)
EN 61000-4-12 damped oscillatory wave	2.5 kV (line/earth), 1 kV (line/line) (1MHz)
EN 61000-4-16 mains frequency voltage	30 V, 50 Hz continous; 300 V, 50 Hz 1 s

EMC emitted immunity

EN 55032	EN 55032 Class A
FCC CFR47 Part 15	FCC 47CFR Part 15, Class A

Approvals

Basis Standard	CE, FCC, EN61131
Safety of industrial control equipment	cUL 508
Hazardous locations	ISA 12.12.01 Class 1 Div. 2
Shipbuilding	DNVGL
Substation	IEC 61850-3, IEEE 1613
Railway norm	EN50121-4
Transportation	NEMA TS2

Scope of delivery and accessories

Scope of delivery	Device, terminal blocks, safety instruction

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