HIRSCHMANN
A BELDEN BRAND

Product: MAR1040-4C4C4C4C9999SMMHPHH

Configurator: MACH1040 Gigabit Ethernet Switch configurator

Configurator Description

The MACH1040 is an all-Gigabit version offering 16x 10/100/1000 Mbps RJ45/SFP combo ports to provide countless copper/fiber combinations (including optional 4x PoE ports IEEE 802.3af). All ports support version 2 of the Precision Time Protocol in accordance with IEEE 1588 V2. Layer 3 functionality is available with the R software option for this all-Gigabit switch.

Technical Specifications

Product description

Description	Managed Ethernet/Fast Ethernet/Gigabit Ethernet Industrial Switch, 19" rack mount, fanless Design
Part Number	942004003
Port type and quantity	16 x Combo ports (10/100/1000BASE TX RJ45 plus related FE/GE-SFP slot)

More Interfaces

Power supply/signaling contact	Power supply 1: 3 pin plug-in terminal block; Signal contact 1: 2 pin plug-in terminal block ; Power supply 2: 3 pin plug-in terminal block; Signal contact 2: 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)	0 - 100 m
Single mode fiber (SM) 9/125 µm	see Gigabit and Fast Ethernet SFP modules
Single mode fiber (LH) 9/125 µm (long haul transceiver)	see Gigabit and Fast Ethernet SFP modules
Multimode fiber (MM) 50/125 µm	see Gigabit and Fast Ethernet SFP modules
Multimode fiber (MM) 62.5/125 µm	see Gigabit and Fast Ethernet SFP modules

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: 110mA max, if all ports are equipped with SFP ; Power supply 2: 110mA max, if all ports are equipped with SFP
Operating Voltage	Power supply 1: 110/250 VDC, 110/230 VAC ; Power supply 2: 110/250 VDC, 110/230 VAC
Power consumption	max. 26 W
Power output in BTU (IT)/h	max. 88

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, 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, Link Speed and Duplex Monitoring
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	PTPv2 Transparent Clock two-step, PTPv2 Boundary Clock, Buffered Real Time Clock, SNTP Client, SNTP Server
Industrial Profiles	EtherNet/IP Protocol, IEC61850 Protocol (MMS Server, Switch Model), PROFINET IO Protocol
Miscellaneous	PoE (802.3AF), PoE+ (802.3AT), Manual Cable Crossing

Ambient conditions

MTBF (MIL-HDBK 217F: Gb 25 ºC)	13.6 years
Operating temperature	0-+60 °C
Storage/transport temperature	-40-+85 °C
Relative humidity (non-condensing)	5-95 %

Mechanical construction

Dimensions (WxHxD)	445 mm x 44 mm x 345 mm
Weight	4.4 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	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	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	Germanischer Lloyd
Substation	IEC 61850; IEEE1613

Scope of delivery and accessories

Accessories	Network management Industrial HiVision auto-configuration adapter ACA21-USB, Power Cord RSR/MACH1000
Scope of delivery	Device, terminal blocks, safety instruction