HIRSCHMANN

Product information
MACH104-16TX-PoEP-E-L3P

942 027-002

Name	**MACH104-16TX-PoEP-E-L3P**
	
	20 Port Gigabit Ethernet Industrial Workgroup Switch (16 x GE TX PoEPlus Ports, 4 x GE SFP combo Ports), managed, Software Layer 3 Professional, Store-and-Forward-Switching, fan less Design, IPv6 Ready
Delivery informations	
Availability	available
Product description	
Description	20 Port Gigabit Ethernet Industrial Workgroup Switch (16 x GE TX PoEPlus Ports, 4 x GE SFP combo Ports), managed, Software Layer 3 Professional, Store-and-Forward-Switching, fan less Design, IPv6 Ready
Port type and quantity	20 Ports in total; 16x (10/100/1000 BASE-TX, RJ45) PoEPlus and 4 Gigabit Combo Ports (10/100/1000 BASE-TX, RJ45 or 100/1000 BASE-FX, SFP)
Type	MACH104-16TX-PoEP-E-L3P
Order No.	942 027-002
More Interfaces	
Power supply/signaling contact	1 x terminal block 2-pins, contact manually or automatically (max. 1 A, 24 V DC or 24 V AC)
V.24 interface	1 x RJ11 socket, serial interface for device configuration
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	see SFP LWL-Module M-FAST SFP-MM/LC and SFP LWL-Module M-SFP-SX/LC
Multimode fiber (MM) 62.5/125 µm	see SFP LWL-Module M-FAST SFP-MM/LC and SFP LWL-Module M-SFP-SX/LC
Single mode fiber (SM) 9/125 µm	see SFP LWL-Module M-FAST SFP-SM/LC und SFP LWL-Module M-SFP-LX/LC
Single mode fiber (LH) 9/125 µm (long haul transceiver)	see SFP LWL-Module M-FAST SFP-SM+/LC
10G-Multimode fiber (MM) 50/125 µm	n/a
10G-Single mode fiber (SM) 9/125 µm	n/a
Network size - cascadibility	
Line - / star topology	any
Ring structure (HIPER-Ring) quantity switches	50 (reconfiguration time < 0.3 sec.)
Power requirements	
Operating voltage	44-57 V DC (min. 52 V DC for PoEPlus)
Heat dissipation	119 Btu (IT) h
Heat dissipation at max. PoE power	146 Btu (IT) h
Power consumption	30 W
Software	
Management	serial Interface, web interface, SNMP V1/V2, HiVision file transfer SW HTTP/TFTP, LLDP-MED
Diagnostics	LEDs, log-file, syslog, relay contact, RMON, port mirroring 1:1 and n:1, egress/ingress traffic configurable, topology discovery 802.1AB, cable tester (TX), address conflict detection, network error detection, SFP diagnostic [temperature, optical input and output power (µW and dBm)], Trap for configuration saving and changing, duplex mismatch detection, disable learning, Port Monitor
Configuration	Comand line interface (CLI), TELNET, BootP, DHCP, DHCP option 82, HIDiscovery, easy device exchange with auto-configuration adapter ACA21-USB (automatic software and/or configuration upload), automatic script load from ACA21, integrated DHCP server per port, DHCP relay, automatic invalid configuration undo, Offline Configuration, SFP Whitelist, ARC automatic ring configuration (MRP), automatic port shutdown (link flapping), configuration signature (water marking), overload detection
Security	ACL/QoS, ACL Layer 4 fragment support, Port Security (IP und MAC) with multiple addresses (MAC 50 per port), SNMP V3, SSH, Authentication (IEEE802.1x), 802.1x Multi Cliant Authentication, Guest VLAN and Unauthenticated VLAN, Port based Radius VLAN assignment, MAC notification
Redundancy functions	HIPER-Ring, MRP, MSTP, RSTP - IEEE802.1D-2004, MRP and RSTP gleichzeitig, Link Aggregation
Filter	QoS 8 classes, priorisation (IEEE 802.1D/p), VLAN (IEEE 802.1Q), Voice VLAN, shared VLAN learning, Q-in-Q double VLAN tagging, multicast IGMP v1/v2/v3, (snooping/querier), multicast detection unknown multicast, broadcast-, unicast-, multicast limiter, fast aging, GMRP IEEE 802.1D, Jumbo Frame Support,

	Industrial Profiles, EtherNet/IP und PROFINET (2.2 PDEV, GSDML Stand-alone generator, automatic device exchange) profiles included, configuration and diagnostic via automation, software tools like e.g. STEP7, oder Control Logix IEC61850 protocol (MMS Server, Switch Model)
Time synchronisation	PTP IEEE 1588 v1/v2 Boundary and Transparent Clock hardware time stamping with accuracies of 30ns, 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
Layer 3	Full wired speed IPv4 routing with lowest latency Multinetting (Aliasing), Net directed broadcasts, Port based router interfaces, Proxy ARP, Static routing with ECMP (Equal Cost Multiple Path), VLAN based router interfaces, CIDR (Classless Inter Domain Routing), ICMP Router Discovery (IRDP), Double VLAN Tagging, Protocol based VLANs Multicast Routing (DVMRP, IGMPv1/v2/v3, Multicast routing and IGMP Unknown Multicast Filtering simultaneously, PIM-DM, PIM-SM / SSM,Router Redundancy (VRRP, VRRP tracking, E-VRRP, Interface Tracking, OSPFv2, Ping Tracking, RIPv1 ,RIPv2, Tracking of static routes)
Ambient conditions	
Operating temperature	0 °C ... 50 °C
Storage/transport temperature	-20 °C ... 85 °C
Relative humidity (non-condensing)	10 % ... 95 %
MTBF	n/a
Mechanical construction	
Dimensions (W x H x D)	448 mm x 44 mm x 345 mm
Mounting	19" control cabinet
Weight	4500 g
Protection class	IP20
Mechanical stability	
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks
IEC 60068-2-6 vibration	3.5 mm, 5–8.4 Hz, 10 cycles, 1 octave/min; 1 g, 8.4–150 Hz, 10 cycles, 1 octave/min
EMC interference immunity	
EN 61000-4-2 electrostatic discharge (ESD)	4 kV contact discharge, 8 kV air discharge
EN 61000-4-3 electromagnetic field	10 V/m (80-3000 MHz)
EN 61000-4-4 fast transients (burst)	2 kV power line, 4 kV data line
EN 61000-4-5 surge voltage	power line: 2 kV (line/earth), 1 kV (line/line), 4 kV data line
EN 61000-4-6 conducted immunity	10 V (150 kHz-80 MHz)
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
Safety of information technology equipment	cUL 60950-1
Scope of delivery and accessories	
Scope of delivery	Device, terminal block for signal contact, 2 brackets with fasteningscrews (pre-assembled), housing feet - stick-on, non-heating appliance cable - Euro model, CD-ROM with user manual, installation user manual
Accessories to order separately	Fast Ethernet SFP modules, Gigabit Ethernet SFP modules, autoConfiguration Adapter ACA21-USB, terminal cable, Industrial Hivision Network Management software