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ITP-1204GTM

12x FE M12 + 4x GbE M12

- *EN50155, EN50121-4, EN45545-2, EN61000-6-2, EN61000-6-4 CE, FCC Certified*
- *24/48/72/96/110VDC Redundant Dual Power Input*
- *4KV Surge Protection for UTP Ports*
- *2.25K VDC Hi-Pot Isolation Protection for Ethernet Ports and Power*
- *Cable Diagnostics, Identifies Opens/Shorts Distance*

The ITP series models are managed, industrial grade, L2 Fast Ethernet switches that provide 12x 10/100Base-TX and 4x 10/100/1000Base-T(X) ports. The ITP switches use M12 connectors to ensure tight, robust connections and guarantee reliable connections against vibration and shock. These models are also compliant with EN50155, covering power input voltage, surge, EFT, ESD, vibration and shock, making these switches suitable for industrial applications, such as vehicle, rolling stock, or vessel. With a wide power input range of 24/48/72/96/110VDC (operating range 20 to 137.5VDC), this product series is especially suitable for rolling stock and track side installations.

Features

- M12 and M23 fiber connector against vibration and shock, M12 X-code for Gigabit port
- STP, RSTP, MSTP, ITU-T G.8031 ERP, ITU-T G.8032 Ethernet Protection Ring (ERPS) for redundant cabling
- Provides up to 5 instances that each supports μ-Ring, μ-Chain or Sub-Ring type for flexible uses.
  (Please see CTC Union's μ-Ring white paper for more details)
- μ-Ring for Redundant Cabling, recovery time<10ms in 250 maximum devices
- Supports TTDP for train application
- Supports IEEE 1588 PTP V2 for precise time synchronization to operate in Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave mode by each port
- Supports EMS Management

Specifications

Standard	IEEE 802.3	10Base-T 10Mbit/s Ethernet
	IEEE 802.3u	100Base-TX, 100Base-FX, Fast Ethernet
	IEEE 802.3ab	1000Base-T Gbit/s Ethernet over twisted pair
	IEEE 802.1d	STP (Spanning Tree Protocol)
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)
	ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)
	ITU-T G.8031 / Y.1342	EPS (Ethernet Protection Switching)
	IEEE 802.1Q	Virtual LANs (VLAN)
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication
	IEEE 802.3ac	Max frame size extended to 1522Bytes
	IEEE 802.3ad	Link aggregation for parallel links with LACP (Link Aggregation Control Protocol)
	IEEE 802.1AX	Link aggregation for parallel links with LACP (Link Aggregation Control Protocol)
	IEEE 802.3x	Flow control for Full Duplex
	IEEE 802.3ac	Max frame size extended to 1522Bytes
	IEEE 802.1ad	Stacked VLANs, Q-in-Q

EN50155 Managed Switch

Standard	IEEE 802.1p	LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization
	IEEE 802.1ab	Link Layer Discovery Protocol (LLDP)
	IEEE 802.3az	EEE (Energy Efficient Ethernet)
VLAN ID	4094 IEEE802.1Q VLAN ID	
Switch Architecture	10.4 Gbps (Full wire-speed)	
Data Processing	Store and Forward	
Flow Control	IEEE 802.3x for full duplex mode Back pressure for half duplex mode	
Network Connector	12x M12 (4-Pin, Female,D-Code) 10/100Base-TX UTP + 4x M12 (8-Pin, Female, X-Code) 10/100/1000Base-T UTP	
	UTP port provides Auto negotiation speed, Auto MDI/ MDI-X, Full/Half duplex function	
	Build-in 2x bypass GbE UTP ports (For -BP model optional)	
Console	RS-232 (5-pin A-Code M12 male)	
Network Cable	UTP/STP Cat. 5e cable or above	
	EIA/TIA-568 100-ohm (100meter)	
Protocols	CSMA/CD	
Reverse Polarity Protection	Supported	
Overload Current Protection	Supported	
CPU Watch Dog	Supported	
LED	System: Power 1 (Green), Power 2 (Green), Fault (Amber), CPU Act (Green), Ring Master (Amber)	
	UTP: 10/100 Link/Active (Green), 1000 Link/Active (Amber)	
Jumbo Frame	9.6KB	
MAC Address Table	8K	
Memory Buffer	512K Bytes for packet buffer	
Device Memory	16M Bytes Flash ROM, 128M Bytes RAM	
Power Supply	Provides 1x M23 (5-Pin, male) for redundant dual DC 24/48/72/96/110VDC (16.8~137.5VDC) wide input power	
Power Consumption	Input Voltage: Device Power Consumption 24VDC: 13W 48VDC: 14W 110VDC: 16.5W	
Warning Message	System Syslog, SMTP/ e-mail event message, alarm relay	
Alarm Relay Contact	5-pin A-code M12 male, Relay outputs with current carrying capacity of 1A @24VDC	
Operating Temperature	-40 ~ 75°C	
Operating Humidity	5% to 95% (Non-condensing)	
Storage Temperature	-40 ~ 85°C	
Housing	Rugged Metal, Fanless and IP54 grade housing protection	
Dimensions	113 x 260 x 132mm (D x W x H)	
Weight	2.8kg	
Installation Mounting	Wall mounting	
MTBF	290,905 Hours (MIL-HDBK-217)	
Warranty	5 years	
Certification		
EMC	CE (EN55024, EN55032)	
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE	
Railway Traffic	EN50155, EN50121-4	
Fire protection of railway vehicles	EN 45545-2	
Immunity for Heavy Industrial Environment	EN61000-6-2	
Emission for Heavy Industrial Environment	EN61000-6-4	

EMS (Electromagnetic Susceptibility) Protection Level	EN61000-4-2 (ESD) Level 3, Criteria B
	EN61000-4-3 (RS) Level 3, Criteria A
	EN61000-4-4 (Burst) Level 3, Criteria A
	EN61000-4-5 (Surge) Level 3, Criteria B
	EN61000-4-6 (CS) Level 3, Criteria A
	EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
Hi Pot Protection	DC 2.25KV for power to chassis ground, Ethernet port to chassis ground
4KV Surge Protection	Supported for UTP port
Shock	IEC-61373
Freefall	IEC 60068-2-32
Vibration	IEC-61373

Software Specifications

Topology

VLAN	IEEE 802.1q VLAN, up to 4094 802.1Q VLAN ID
	IEEE 802.1q VLAN, up to 4094 Groups
	IEEE 802.1ad Q-in-Q
	MAC-based VLAN, up to 256 entries
	IP Subnet-based VLAN, up to 128 entries
	Protocol-based VLAN (Ethernt, SNAP, LLC), up to 128 entries
	VLAN Translation, up to 256 entries
	Private VLAN for port isolation
	GVRP (GARP VLAN Registration Protocol)
	MVR (Multicast VLAN Registration)
	Voice VLAN
Link Aggregation (Port Trunk)	Static (Hash with SA, DA, IP, TCP/UDP port), up to 5 trunk group
	Dynamic (IEEE 802.3ad LACP), up to 5 trunk group
	Support IEEE802.1AX passive and active mode
Spanning Tree	IEEE802.1d STP, IEEE802.1w RSTP, IEEE802.1s MSTP
Multiple μ-Ring	Up to 5 instances that each supports μ-Ring, μ-Chain or Sub-Ring type for flexible uses, and maximum up to 5 Rings.
	Recovery time <10ms
	The maximum number of device is allowed 250 nodes in a Ring.
Loop Protection	Supported
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Recovery time <10ms
	Single Ring, Sub-Ring, Multiple ring topology network
ITU-T G.8031 / Y.1342 EPS (Ethernet Protection Switching)	Supported

QoS Feature

Class of Service	IEEE802.1p 8 active priorities queues per port
Traffic Classification QoS	IEEE802.1p based CoS
	IP Precedence based CoS
	IP DSCP based CoS
	QCL (QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI, Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth Control for Ingress	100~1,000,000 when the "Unit" is "kbps", and 1~1,000 when the "Unit" is "Mbps"
Bandwidth Control for Egress	100~1,000,000 when the "Unit" is "kbps", and 1~1,000 when the "Unit" is "Mbps"
	Rate Unit : bit Per queue / Port shaper
DiffServ (RF 2474) Remarking	
Storm Control	For Unicast, Broadcast and Multicast

IP Multicasting Feature

IGMP / MLD Snooping	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2
	Port Filtering Profile, Throttling
	Fast Leave
	Maximum Multicast Group : up to 1022 entries
	Query / Static Router Port

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Security Features	
IEEE 802.1X	Port-Based, MAC-Based
ACL	Number of rules : up to 256 entries
	for L2 / L3 / L4 L2: Mac address SA/DA/VLAN L3: IP address SA/DA, Subnet L4: TCP/UDP
RADIUS	Authentication & Accounting
TACACS+	Authentication
HTTPS, HTTP	Supported
SSL / SSH v2	Supported
User Name Password Authentication	Local Authentication
	Remote Authentication (via RADIUS / TACACS+)
Management Interface Access Filtering	Web, Telnet / SSH, CLI, RS-232 console
Management Features	
CLI	Cisco® like CLI
Web UI	Supported
Telnet	Server
SNMP	V1, V2c, V3
sFlow	Supported
Modbus/TCP	Supports for management and monitoring
SW & Configuration Upgrade	TFTP, HTTP
	Redundant firmware in case of upgrade failure
FTP client	Supports for upload/download configuration
RMON	RMON I (1, 2, 3, 9 group), RMON II
MIB II	RFC 1213
UPnP	Supported
BOOTP	Supported
DHCP	Server, Client, Relay, Relay option 82, Snooping
RARP	Supported
TTDP	Supported (Train Topology Discovery Protocol)
IP Source Guard	Supported
Port Mirroring	Supported
Event Syslog	Syslog server (RFC3164)
Warning Message	System syslog, e-mail, alarm relay
DNS	Client, Proxy
IEEE1588 PTP V2	Supports 5 operating mode in each port : Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master and Slave
NTP, SNTP	Client
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol
	LLDP-MED
IPv6 Features	
IPv6 Management	Telnet Server/ICMP v6
SNMP over IPv6	Supported
HTTP over IPv6	Supported
SSH over IPv6	Supported
IPv6 Telnet	Supported
IPv6 NTP, SNTP	Client
IPv6 TFTP	Supported
IPv6 QoS	Supported
IPv6 ACL	Number of rules: up to 256 entries
	for L2 / L3 / L4 L2: Mac address SA/DA/VLAN L3: IP address SIP, Subnet (32bit) L4: TCP/UDP

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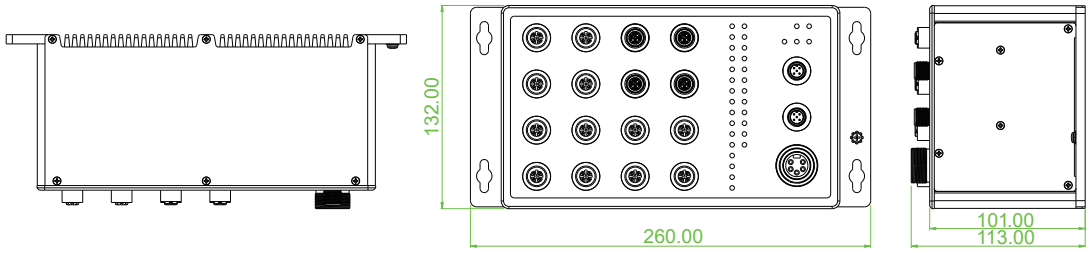
Others Features

Green Ethernet	Supports IEEE802.3az EEE (Energy Efficient Ethernet) Management to optimize the power consumption
	Determine the cable length and lowering the power for ports with short cables
	Lower the power for a port when there is no link
	LED Power Management: Adjustment LEDs intensity
Cable Diagnostic	Measuring UTP cable OK or broken point distance

Dimensions



Rear View　　Front View　　Side View

Ordering Information

Model Name	Managed	Protection	Total Port	FE	GbE	
				D-code M12	GbE X-code M12 UTP	GbE X-code M12 UTP Bypass
ITP-1204GTM-E-BP	V	IP54	16	12	2	2

Redundant Dual Input Power	Certification				
24/48/72/96/110VDC (16.8~137.5VDC)	EN45545-2	EN50155 EN50121-4	EN61000-6-2 EN61000-6-4	CE, FCC	IEC61373
V	V	V	V	V	V

Optional Accessories

■ Optional Cable/Connector

P/N: CAB-M12XM8-RJ45

M12 X-code Male (8-Pin) to RJ-45, AWG 24 ,IP67, 1 meter

For GbE UTP (X-code)

P/N: CAB-M12DM4-RJ45

M12 D-code Male (4-Pin) to RJ-45, AWG 24 ,IP67, 1 meter

For FE UTP

P/N: CAB-M12AF5-OPEN

M12 A-code Female (5-Pin) to open wire , AWG 22 , IP67, 1 meter

For Alarm

P/N: CAB-M23F5-OPEN

M23 Female (5-Pin) to open wire, (AWG 16) , IP67, 1 meter

P/N: M12D-M4

M12 D-code Male (4-Pin) connector, IP67

P/N: M12A-F5

M12 A-code Female (5-Pin) connector, IP67