ITP-G802TM

EN50155 Managed Switch

IP67, 10x GbE M12

≫ EN50155, EN50121-4, EN45545-2, EN61000-6-2, EN61000-6-4, CE and FCC Certified

≫ 12/24/48VDC or 110/220VDC Redundant Dual Power Input

≫ Supports TTDP for Train Application

≫ Build-in 2 Bypass GbE UTP Ports

≫ Cable Diagnostics, Identifies Opens/Shorts Distance

CE FC

EN50121-4 | EN61000-6-2 EN61000-6-4 | EN45545-2 | EN50155 | µ-Ring | IP67 | IEEE 1588v2

The ITP series models are managed, industrial grade, L2 GbE switches that provide 10x GbE UTP Ports. Housed in rugged wall mountable enclosures, these switches are designed for the harshest environments. All ITP series switches use M12 connectors to ensure water-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 an IP67 rating, to protect against dust and water submersion, they are particularly useful in environments with extreme temperature, high humidity, oil, dust and in outdoor environments requiring water-proof applications, such as IP surveillance or city security.

Features

- M12 and M23 connector against vibration and shock, A-code M12 for Gigabit port
- STP, RSTP, MSTP, 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)
- 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 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic	
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 802.3x	Flow control for Full Duplex	
IEEE 802.1ad	Stacked VLANs, Q-in-Q	
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)	

瑞虹科技股份有限公司
www.siprotech.com.tw
TEL : (02)2999-0857
FAX : (02)2999-0852
EMAIL : siprotech_sales@siprotech.com.tw
ADD : 新北市三重區光復路一段83巷1號3樓

VLAN ID	4094 IEEE 802.1Q VLAN ID
Switch Architecture	Back-plane (Switching Fabric): 20Gbps (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	10x M12 (8-Pin, Female, A-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
Console	RS-232 (5-pin A-Code M12 male)
Network Cable	UTP/STP Cat. 5e cable or above
	EIA/TIA-568 100-ohm (100 meter)
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 input, optional Low (L) Low voltage (L) : 12/24/48V (8.4~60VDC)

Power Consumption	Input Voltage	ITP-G802TM-LL
	12VDC	10.1W
	24VDC	10.9W
	48VDC	13.1W

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, IP67 grade housing for against water, dust, and oil
Dimensions	69 x 240 x 168mm (D x W x H)
Weight	2.625kg
Installation Mounting	Wall mounting or DIN Rail mounting (Optional)
MTBF	423,602 Hours (MIL-HDBK-217)

Certification

EMC	CE
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE
Railway Traffic	EN50155, EN50121-4
Fire protection of railway vehicles	EN45545-2
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
Shock	IEC-61373
Freefall	IEC 60068-2-32
Vibration	IEC-61373

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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
Spanning Tree	IEEE802.1d STP, IEEE802.1w RSTP, IEEE802.1s MSTP
Multiple u-Ring	Up to 5 instances that each supports u-Ring, u-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 <50ms
	Single Ring, Sub-Ring, Multiple ring topology network
ITU-T G.8031 / Y.1342 EPS (Ethernet Protection Switching)	Supported

QoS Feature

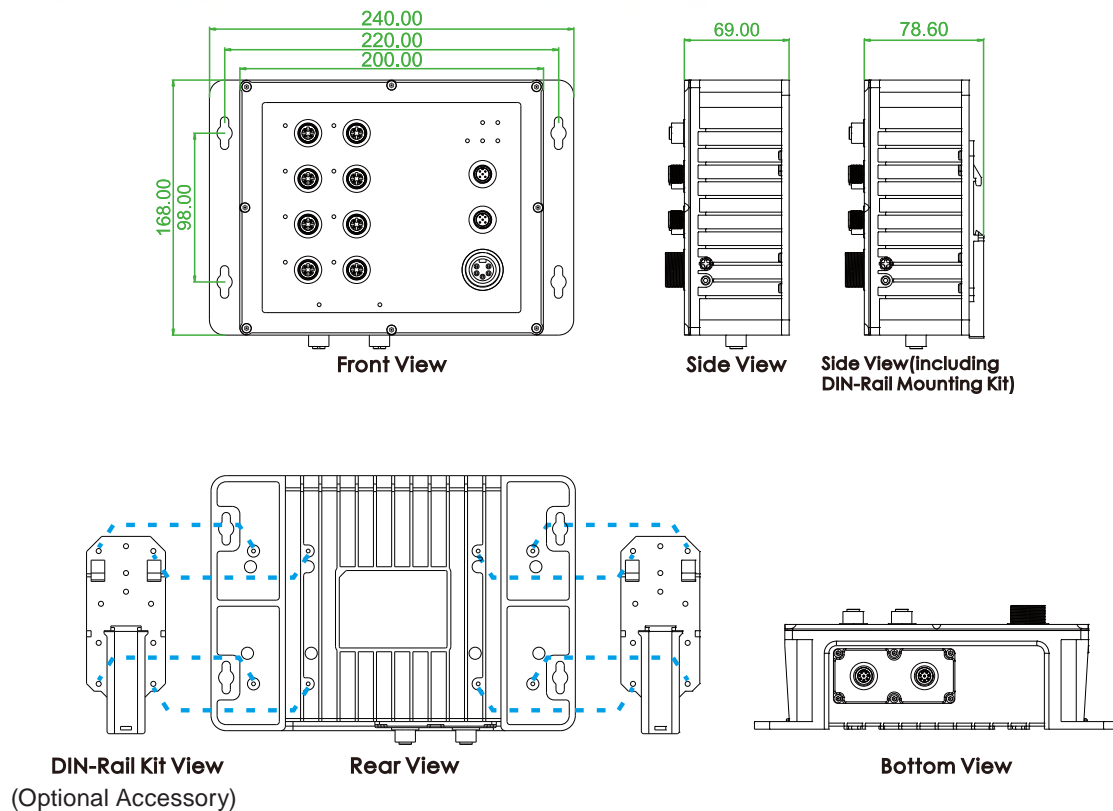|	
Class of Service	IEEE802.1p 8 active priorities queues per port
Traffic Classification QoS	IEEE802.1p based CoS
	IP Precedence based CoS
	IP DSCP based CoS
	QCL (QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI, Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth 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

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	TFTP, HTTP
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

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

240.00
220.00
200.00

168.00
98.00

Front View

69.00

Side View

78.60

Side View(including DIN-Rail Mounting Kit)

DIN-Rail Kit View
(Optional Accessory)

Rear View

Bottom View

Ordering Information

Model Name	Managed	IP67	Total Port	UTP M12	Redundant Power Supply	Certification					Operating Temperature
				10/100/1000 Base-T(X)	Low Volt 12/24/48VDC (8.4~60VDC)	EN50155 EN50121-4	EN45545-2	EN61000-6-2 EN61000-6-4	CE FCC		
ITP-G802TM-ELL	V	V	10	10 (A-code)	2	V	V	V	V		-40~75℃

Optional Accessories

■ **Optional Cable/Connector & Din-Rail Kit**

P/N: CAB-M12AM8-RJ45
M12 A-code Male (8-Pin) to RJ-45, AWG 24 ,IP67, 1 meter

For GbE UTP (A-code model)

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

For Power

P/N: M12A-M8
M12 A-code Male (8-Pin) connector, IP67

For GbE UTP (A-code model)

P/N: M12A-F5
M12 A-code Female (5-Pin) connector, IP67

For Alarm

P/N: IND-DNK04
Din Rail Kit

(130 X52mm / 4 Screws) (2pcs/set)

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ADD：新北市三重區光復路一段83巷1號3樓