

## ITP-802GSM

**IP67, 8x FE M12 + 2x 100/1000Base-X SFP**

- » 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



The ITP series models are managed, industrial grade, L2 Fast Ethernet switches that provide 8x Fast Ethernet UTP plus 2x GbE SFP. 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
- 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 IEEE1588 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	Specification
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)

# EN50155 Managed Switch

5

<b>VLAN ID</b>	4094 IEEE802.1Q VLAN ID									
<b>Switch Architecture</b>	Back-plane (Switching Fabric): 5.6Gbps (Full wire-speed)									
<b>Data Processing</b>	Store and Forward									
<b>Flow Control</b>	IEEE 802.3x for full duplex mode Back pressure for half duplex mode									
<b>Network Connector</b>	8x M12 (4-Pin, Female,D-Code) 10/100Base-TX UTP + 2x 100/1000Base-X SFP UTP port provides Auto negotiation speed, Auto MDI/MDI-X, Full/Half duplex function 2x Water-proof cable connector, 2x 100/1000Base-X SFP slot, support DDMI									
<b>Console</b>	RS-232 (5-pin A-Code M12 male )									
<b>Network Cable</b>	UTP/STP Cat. 5e cable or above EIA/TIA-568 100-ohm (100meter)									
<b>Protocols</b>	CSMA/CD									
<b>Reverse Polarity Protection</b>	Supported									
<b>Overload Current Protection</b>	Supported									
<b>CPU Watch Dog</b>	Supported									
<b>LED</b>	System: Power 1 (Green), Power 2 (Green), Fault (Amber), CPU Act (Green), Ring Master (Amber) UTP: 10/100 Link/Active (Green) SFP Slot: Link/Active (Green)									
<b>Jumbo Frame</b>	9.6KB									
<b>MAC Address Table</b>	8K									
<b>Memory Buffer</b>	512K Bytes for packet buffer									
<b>Device Memory</b>	16M Bytes Flash ROM, 128M Bytes RAM									
<b>Power Supply</b>	Provides 1x M23 (5-Pin, male) for redundant dual input, optional Low (L) Low voltage (L) : 12/24/48V (8.4~60VDC)									
<b>Power Consumption</b>	<table border="1"> <thead> <tr> <th>Input Voltage</th> <th>ITP-G802TM-LL</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>6.9W</td> </tr> <tr> <td>24VDC</td> <td>8.3W</td> </tr> <tr> <td>48VDC</td> <td>9.8W</td> </tr> </tbody> </table>		Input Voltage	ITP-G802TM-LL	12VDC	6.9W	24VDC	8.3W	48VDC	9.8W
Input Voltage	ITP-G802TM-LL									
12VDC	6.9W									
24VDC	8.3W									
48VDC	9.8W									
<b>Warning Message</b>	System Syslog, SMTP/ e-mail event message, alarm relay									
<b>Alarm Relay Contact</b>	5-pin A-code M12 male, Relay outputs with current carrying capacity of 1A @24VDC									
<b>Operating Temperature</b>	-40 ~ 75°C									
<b>Operating Humidity</b>	5% to 95% (Non-condensing)									
<b>Storage Temperature</b>	-40 ~ 85°C									
<b>Housing</b>	Rugged Metal, Fanless, IP67 grade housing for against water, dust, and oil									
<b>Dimensions</b>	69 x 240 x 168mm (D x W x H)									
<b>Weight</b>	2.645kg									
<b>Installation Mounting</b>	Wall mounting or DIN Rail mounting (Optional)									
<b>MTBF</b>	443,868 Hours (MIL-HDBK-217)									
<b>Warranty</b>	5 years									
<b>Certification</b>										
<b>EMC</b>	CE									
<b>EMI (Electromagnetic Interference)</b>	FCC Part 15 Subpart B Class A, CE									
<b>Railway Traffic</b>	EN50155, EN50121-4									
<b>Fire protection of railway vehicles</b>	EN45545-2									
<b>Immunity for Heavy Industrial Environment</b>	EN61000-6-2									
<b>Emission for Heavy Industrial Environment</b>	EN61000-6-4									
<b>EMS (Electromagnetic Susceptibility) Protection Level</b>	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									

# EN50155 Managed Switch

5

<b>Shock</b>	IEC-61373
<b>Freefall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC-61373

## Software Specifications

### Topology

<b>VLAN</b>	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 (Ethernet, 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
<b>Link Aggregation (Port Trunk)</b>	Static (Hash with SA, DA, IP, TCP/UDP port), up to 5 trunk group Dynamic (IEEE 802.3ad LACP), up to 5 trunk group
<b>Spanning Tree</b>	IEEE802.1d STP, IEEE802.1w RSTP, IEEE802.1s MSTP
<b>Multiple u-Ring</b>	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.
<b>Loop Protection</b>	Supported
<b>ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)</b>	Recovery time <50ms Single Ring, Sub-Ring, Multiple ring topology network
<b>ITU-T G.8031 / Y.1342 EPS (Ethernet Protection Switching)</b>	Supported

### QoS Feature

<b>Class of Service</b>	IEEE 802.1p 8 active priorities queues per port
<b>Traffic Classification QoS</b>	IEEE 802.1p 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
<b>Bandwidth Control for Ingress</b>	100~1,000,000 when the "Unit" is "kpbs", and 1~1,000 when the "Unit" is "Mbps"
<b>Bandwidth Control for Egress</b>	100~1,000,000 when the "Unit" is "kpbs", and 1~1,000 when the "Unit" is "Mbps" Rate Unit : bit Per queue / Port shaper
<b>DiffServ (RF 2474) Remarking</b>	
<b>Storm Control</b>	For Unicast, Broadcast and Multicast

### IP Multicasting Feature

<b>IGMP / MLD Snooping</b>	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

<b>IEEE 802.1X</b>	Port-Based, MAC-Based
<b>ACL</b>	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

# EN50155 Managed Switch

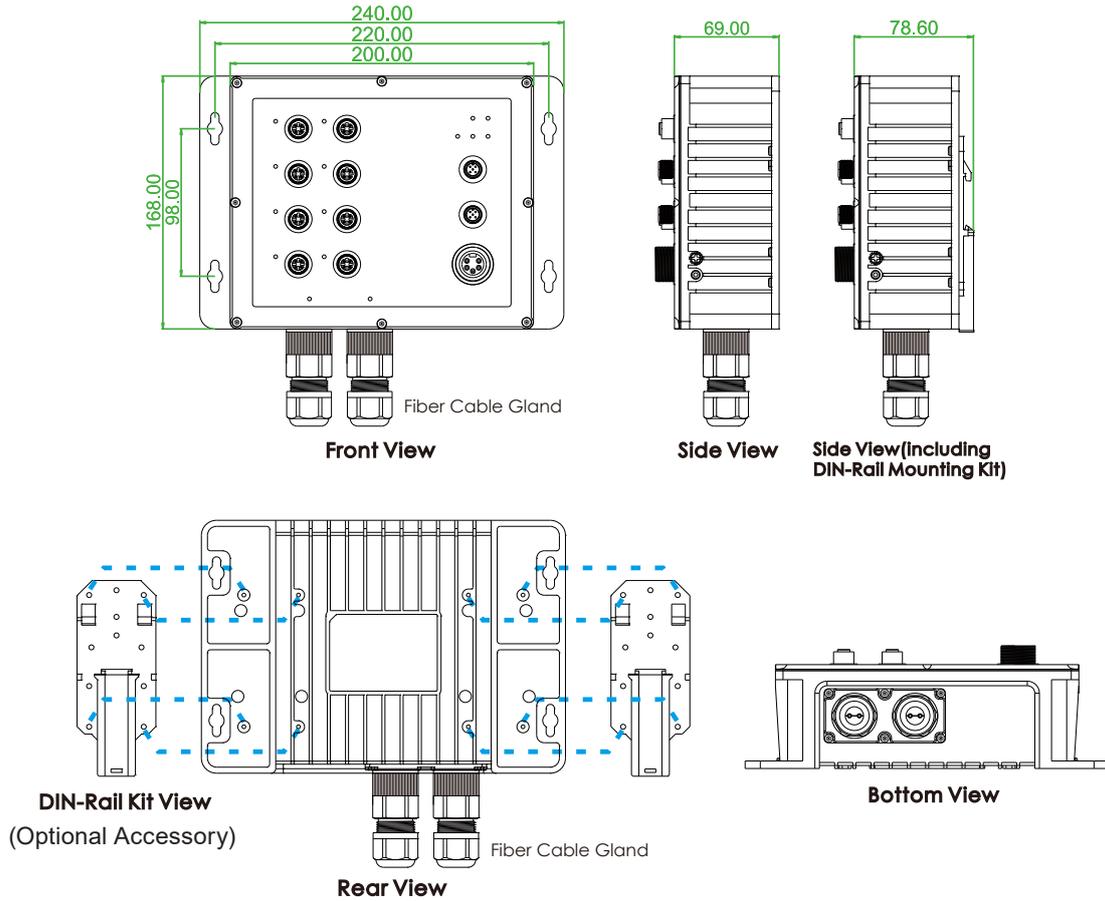
5

<b>RADIUS</b>	Authentication & Accounting
<b>TACACS+</b>	Authentication
<b>HTTPS, HTTP</b>	Supported
<b>SSL / SSH v2</b>	Supported
<b>User Name Password Authentication</b>	Local Authentication
	Remote Authentication (via RADIUS / TACACS+)
<b>Management Interface Access Filtering</b>	Web, Telnet / SSH, CLI RS-232 console
<b>Management Features</b>	
<b>CLI</b>	Cisco® like CLI
<b>Web UI</b>	Supported
<b>Telnet</b>	Server
<b>SNMP</b>	TFTP, HTTP
<b>sFlow</b>	Supported
<b>Modbus/TCP</b>	Supports for management and monitoring
<b>SW &amp; Configuration Upgrade</b>	TFTP, HTTP
	Redundant firmware in case of upgrade failure
<b>FTP client</b>	Supports for upload/download configuration
<b>RMON</b>	RMON I (1, 2, 3, 9 group), RMON II
<b>MIB II</b>	RFC 1213
<b>UPnP</b>	Supported
<b>BOOTP</b>	Supported
<b>DHCP</b>	Server, Client, Relay, Relay option 82 , Snooping
<b>RARP</b>	Supported
<b>TTDP</b>	Supported (Train Topology Discovery Protocol)
<b>IP Source Guard</b>	Supported
<b>Port Mirroring</b>	Supported
<b>Event Syslog</b>	Syslog server (RFC3164)
<b>Warning Message</b>	System syslog, e-mail, alarm relay
<b>DNS</b>	Client, Proxy
<b>IEEE1588 PTP V2</b>	Supports 5 operating mode in each port : Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master and Slave
<b>NTP, SNTP</b>	Client
<b>LLDP (IEEE 802.1ab)</b>	Link Layer Discovery Protocol
	LLDP-MED
<b>IPv6 Features</b>	
<b>IPv6 Management</b>	Telnet Server/ICMP v6
<b>SNMP over IPv6</b>	Supported
<b>HTTP over IPv6</b>	Supported
<b>SSH over IPv6</b>	Supported
<b>IPv6 Telnet</b>	Supported
<b>IPv6 NTP, SNTP</b>	Client
<b>IPv6 TFTP</b>	Supported
<b>IPv6 QoS</b>	Supported
<b>IPv6 ACL</b>	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
<b>Others Features</b>	
<b>Green Ethernet</b>	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
<b>Cable Diagnostic</b>	Measuring UTP Cable OK or broken point distance

# EN50155 Managed Switch

5

## Dimensions



## Ordering Information

Model Name	Managed	IP67	Total Port	UTP M12	SFP	Redundant Power Supply	Certification				Operating Temperature
				10/100M Base-TX	100/1000M Base-X		Low Volt 12/24/48VDC (8.4~60VDC)	EN50155 EN50121-4	EN45545-2	EN61000-6-2 EN61000-6-4	
ITP-802GSM-ELL	V	V	10	8	2	2	V	V	V	V	-40~75°C

## Optional Accessories

### Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with all CTC Union industrial grade Ethernet switches for guaranteed compatibility and performance. Best performance can be guaranteed, even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheets for more items and detailed information.)

ISFP-M7000-85-D(E)	Industrial SFP GbE 1000Base-SX, M/M, 500 meter, wave length 850nm, 7.5dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-S7020-31-D(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-M5002-31-D(E)	Industrial SFP 155M 100Base-FX, MM, 2km, wave length 1310nm, 12dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-S5030-31-D(E)	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDMI, -10~70°C (-40~85°C)

# EN50155 Managed Switch

## 5 ■ 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-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



For Power

**P/N: M12A-M8**

M12 A-code Male (8-Pin) connector, IP67



For GbE UTP (A-code model)

**P/N: M12D-M4**

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



For FE UTP

**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)