

Preliminary



## ITP-802GSM

EN50155 IP67 Managed 8x 10/100Base-TX + 2x100/1000Base-X SFP Ethernet Switch

## ITP-802GTM

EN50155 IP67 Managed 8x 10/100Base-TX + 2x100/1000Base-X Ethernet Switch

## ITP-800M

EN50155 IP67 Managed 8x 10/100Base-TX Eth, Switch

The ITP-802GSM series are managed industrial grade Gigabit switches and/or 2 SFP Gigabit/Fast Ethernet ports that provide stable and reliable Ethernet transmission. The ITP-802GSM series provide L2 management functions supported include STP/RSTP/MSTP/ ITU-T G.8032 Ring and multiple u-Ring for redundant cabling, layer 2 Ethernet IGMP, VLAN, QoS, Security, IPv6, bandwidth control, port mirroring, cable diagnostic and Green Ethernet.

Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for the harshest environments. Especially, ITP-802GSM series switches use M12 connectors to ensure tight, robust connections and to guarantee reliable and anti environmental disturbances operation, such as vibration and shock. ITP-802GSM series are compliant with EN 50155, covering power input voltage, surge, EFT, ESD, vibration, shock, thus making the switches suitable for industrial applications, such as vehicle, rolling stock, ship, vessel. ITP-802GSM series are IP67 rated to protect against dust and water submersion. They are particularly used in environments with extreme temperature, high humidity, oil, dust and in outdoor environments requiring water-proof applications such as automation, city security. ITP-802GSM series can also work with CTC Management platform SmartView to provide convenient, real-time and centralized network management.

## Features

- 8x 10/100Base-TX M12 and 2x 100/1000Base-X SFP Fiber (Total 10 Port) (ITP-802GSM)
- 8x 10/100Base-TX M12 and 2x 100/1000Base-X UTP (Total 10 Port) (ITP-802GTM)
- 8x 10/100Base-TX M12 (Total 8 Port) (ITP-800M)
- M12 and M23 connector against vibration and shock
- IP67 water proof design against dust and water
- Redundant and wide input range voltage, Low voltage (12/24/48VDC) and High Voltage (110/220VDC or 110/220VAC)
- UL60950-1, CE, FCC, Rail Traffic EN50155, EN50121-4 certified
- Industrial Grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- Cable diagnostic, Measuring cable OK or broken point distance
- Supports Green Ethernet IEEE802.3az EEE (Energy Efficient Ethernet) management to optimize the power consumption
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Protection Ring (EPR) for redundant cabling
- Provide up to 5 instances that each supports u-Ring, u-Chain or Sub-Ring type for flexible uses
- u-Ring for Redundant Cabling, recovery time < 10ms in 250 maximum devices
- DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- IEEE802.1q VLAN, MAC based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, GVRP, MVR
- Dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- IGMP snooping V1/V2/V3, IGMP Filtering/ Throttling, IGMP query, IGMP proxy reporting, MLD snooping V1/V2
- Security : Port based and MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Software upgrade via TFTP and HTTP, redundant firmware to avoid in case of upgrade failure
- Support IEEE1588 PTP V2 for precise time synchronization to operate in Master, Boundary, Slave mode by each port
- RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6
- CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management
- Provides SmartConfig for quick and easy mass configuration
- Supports SmartView for Centralized Management

## Specifications

<b>Standard</b>	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)
	IEEE 802.1Q	Virtual LANs (VLAN)
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication
	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)	
<b>VLAN ID</b>	4094	IEEE802.1Q VLAN VID
<b>Switch Architecture</b>	Back-plane (Switching Fabric): 5.6Gbps (ITP-802GSM, ITP-802GTM) 1.6Gbps (ITP-800M)	
<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>	8xM12 (4-Pin, Female,D-Code) 10/100Base-TX UTP , Auto negotiation speed, Auto MDI/MDI-X function, Full/Half duplex. 2x M12 (8-Pin, Female,A-Code) 10/100/1000Base-T UTP (ITP-802GTM) Water proof Fiber Cable Gland support for 2 X 100/1000 Base-X dual speed mode SFP slot, with DDMI (ITP-802GSM) Build-in 2 bypass port (ITP-802GTM)
<b>Console</b>	RS-232 (5-pin A-Code M12 male)
<b>Network Cable</b>	UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m)
<b>Protocols</b>	CSMA/CD
<b>Reverse Polarity Protection</b>	Present
<b>Overload Current Protection</b>	Present
<b>CPU Watch Dog</b>	Present
<b>LED</b>	Per unit: Power 1 (Green), Power 2 (Green), Fault (Amber), CPU Act (Green), Ring Master (Yellow) Per UTP port: 10/100 Link/Active (Green) 1000 Link/Active (Amber) SFP Fiber Per port: Link/Active (Green)
<b>Jumbo Frame</b>	9,6KB
<b>MAC Address Table</b>	8K
<b>Memory Buffer</b>	256K Bytes for packet buffer

<b>Power Supply</b>	Provide 1x M23 (5-Pin, male) for redundant dual input, optional Low or High voltage. Low voltage 12/24/48V (8.4~60VDC) , High voltage 110/220VDC (88~300VDC) , or 110/220VAC (88~265VAC)
<b>Power Consumption</b>	TBD
<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 1 A @24VDC
<b>Operating Temperature</b>	-10 ~ 60°C (ITP-802GSM, ITP-802GTM, ITP-800M) -40 ~ 75°C (ITP-802GSM-E, ITP-802GTM-E, ITP-800M-E)
<b>Operating Humidity</b>	5% to 95% (Non-condensing)
<b>Storage Temperature</b>	-40 ~ 85°C
<b>Housing</b>	Rugged Metal, IP67 water proof protection, Fanless
<b>Dimensions</b>	70x240x168mm (D x W x H)
<b>Weight</b>	TBD
<b>Installation Mounting</b>	DIN Rail mounting or wall mounting
<b>MTBF</b>	TBD (MIL-HDBK-217)
<b>Warranty</b>	5 years

### Software Specifications

<b>Topology</b>	
<b>VLAN</b>	IEEE 802.1q VLAN, up to 4094 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 GVRP (GARP VLAN Registration Protocol) MVR ( Multicast VLAN Registration )
<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 devices allowed in a Ring supported ring is 250.
<b>Loop Protection</b>	Present
<b>ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection )</b>	Recovery time <50ms Single Ring, Sub-Ring, Multiple ring topology network
<b>QoS Feature</b>	
<b>Class of Service</b>	IEEE802.1p 8 active priorities queues for per port
<b>Traffic Classification QoS</b>	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 QCE(QoS Control Entry): Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
<b>Bandwidth Control for Ingress</b>	Rate in steps :1 kbps / Mbps / fps / kfps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame
<b>Bandwidth Control for Egress</b>	Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit Per queue / Per port shaper
<b>DiffServ (RF 2474) Remarkng</b>	
<b>Storm Control</b>	for Unicast, Broadcast, Multicast
<b>IP Multicasting Feature</b>	
<b>IGMP / MLD Snooping</b>	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile, Throttling
<b>IGMP / MLD Snooping</b>	Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port
<b>Security Features</b>	
<b>IEEE 802.1X</b>	Port-Based MAC-Based

<b>Certification</b>	
<b>EMC</b>	CE
<b>EMI (Electromagnetic Interference)</b>	FCC Part 15 Subpart B Class A, CE EN55022 Class A
<b>Railway Traffic</b>	EN50155, EN50121-4
<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
<b>Safety</b>	UL60950-1 (Pending)
<b>Shock</b>	IEC-61373
<b>Freefall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC-61373
<b>ACL</b>	Number of rules : up to 256 entries for L2 / L3 / L4
<b>RADIUS authentication &amp; accounting</b>	
<b>TACACS+ authentication &amp; accounting, TACACS+ 3.0</b>	
<b>HTTPS, HTTP</b>	
<b>SSL / SSH v2</b>	
<b>User Name Password Authentication</b>	Local Authentication
<b>Authentication</b>	Remote Authentication (via RADIUS / TACACS+)
<b>Management Interface Access Filtering</b>	
<b>Management Features</b>	
<b>CLI</b>	Cisco® like CLI
<b>Web Based Management</b>	
<b>Telnet</b>	Server
<b>SNMP</b>	V1, V2c, V3
<b>SW &amp; Configuration Upgrade</b>	TFTP, HTTP Redundant firmware in case of upgrade failure
<b>RMON</b>	RMON I (1, 2, 3, 9 group), RMON II
<b>MIB II</b>	RFC 1213
<b>DHCP</b>	Client, Relay, Snooping Snooping option 82, Relay option 82
<b>IP Source Guard</b>	
<b>Port Mirroring</b>	
<b>Event Syslog</b>	Syslog server (RFC3164) (Support 1 server)
<b>Warning Message</b>	System syslog, e-mail, alarm relay
<b>DNS</b>	Client, Proxy
<b>IEEE1588 PTP V2</b>	Master ,Boundary, Slave Operating mode Operating in each port of these switch
<b>NTP / SNTP</b>	
<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>	
<b>HTTP over IPv6</b>	
<b>SSH over IPv6</b>	
<b>IPv6 Telnet Support</b>	
<b>IPv6 NTP / SNTP Support</b>	
<b>IPv6 TFTP Support</b>	
<b>IPv6 QoS</b>	
<b>IPv6 ACL</b>	Number of rules: up to 256 entries L2 / L3 / L4
<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
<b>Green Ethernet</b>	Lower the power for a port when there is no link LED Power Management :Adjustment LEDs intensity
<b>Cable Diagnostic</b>	Measuring cable OK or broken point distance

Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

## Application

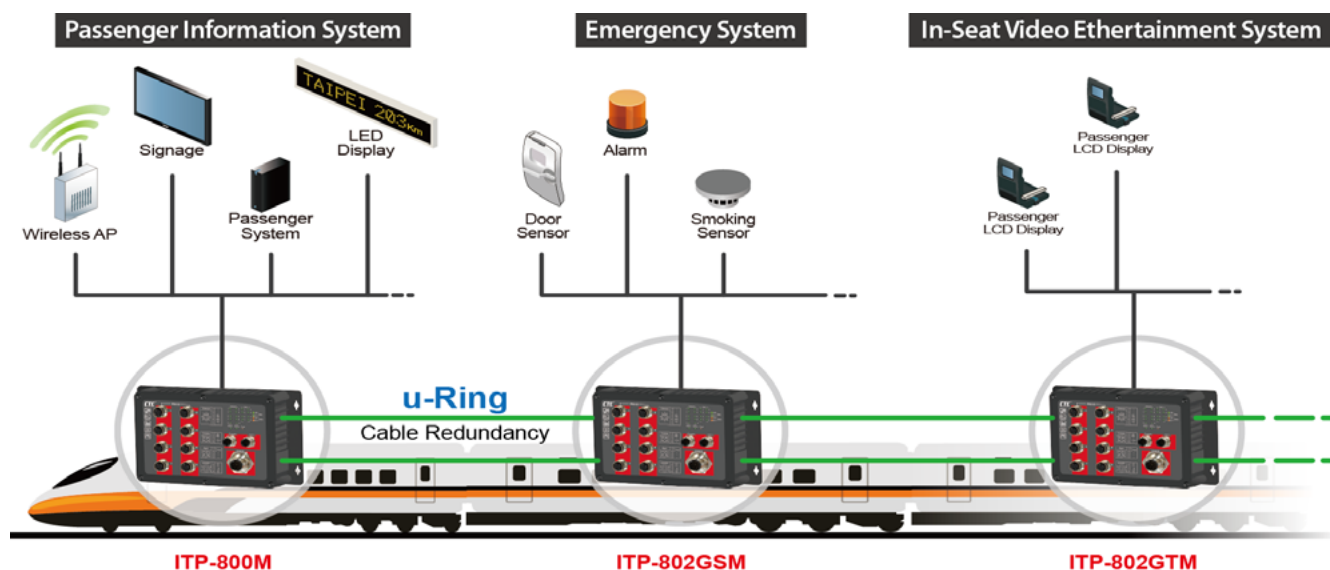


Figure 1 : ITP Series in Onboard Train Application



Figure 2 : ITP Series for Industrial Automation

**u-Ring Configuration** Auto-refresh  Refresh

Delete	Instance	Type	Master	East		West	
				Port	Edge	Port	Edge
Delete	1	u-Ring	<input type="checkbox"/>	1		2	
Delete	2	u-Ring	<input type="checkbox"/>	4		3	
Delete	3	u-Ring	<input type="checkbox"/>	10 (Fiber2)		11 (Fiber3)	
Delete	4	Sub-Ring	<input type="checkbox"/>	6			
Delete	5	u-Chain	<input type="checkbox"/>	5	<input type="checkbox"/>	9 (Fiber1)	<input type="checkbox"/>

Add New Instance

Save Reset

Figure 3 : An illustration of u-Ring instances configured in Web interface

Figure 4 : u-Ring Type

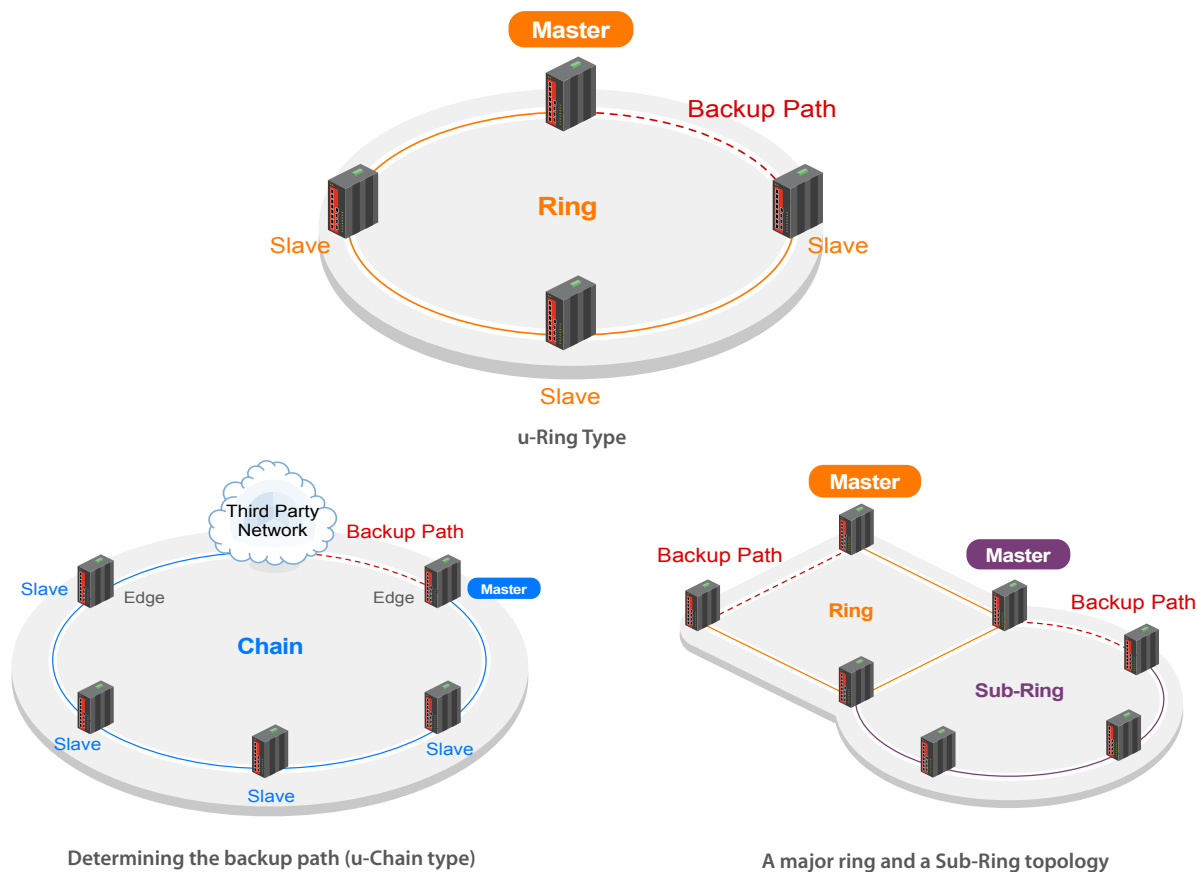
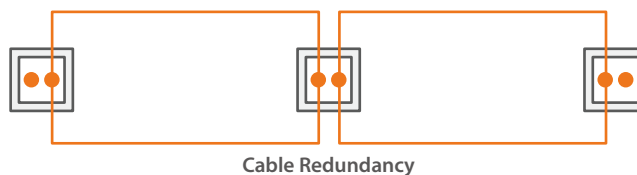
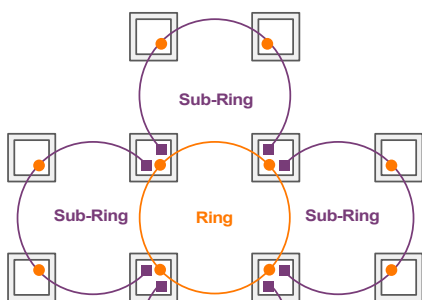
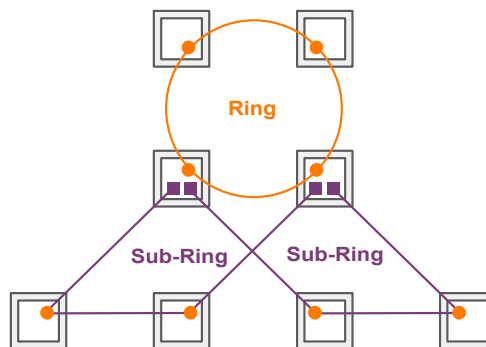
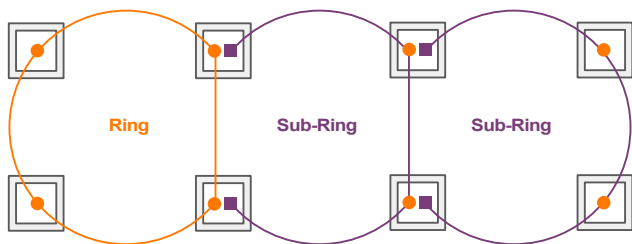


Figure 5 : Ring Configuration Example

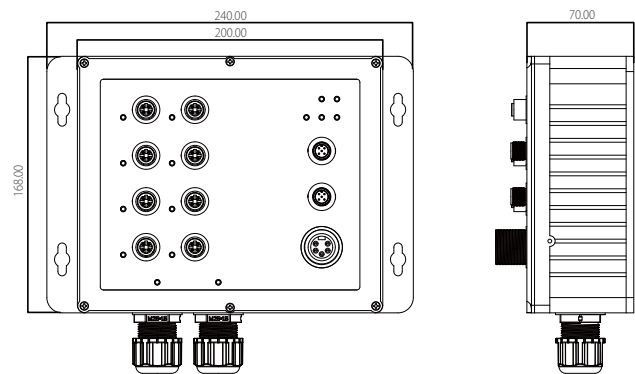
Ring Configuration Type

- u-Ring
- Sub-Ring

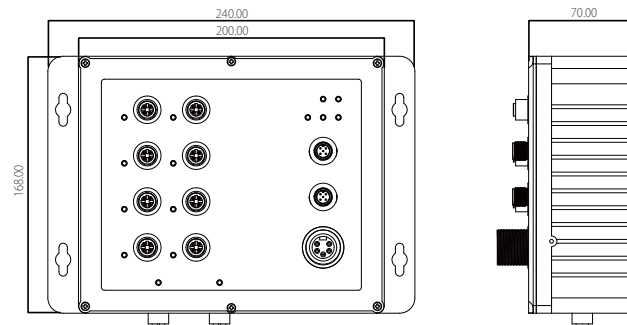


## Dimensions

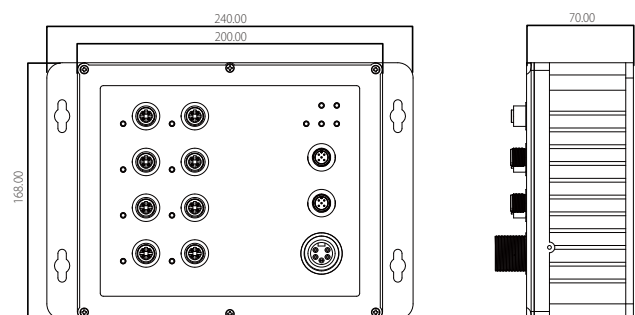
ITP-802GSM



ITP-802GTM



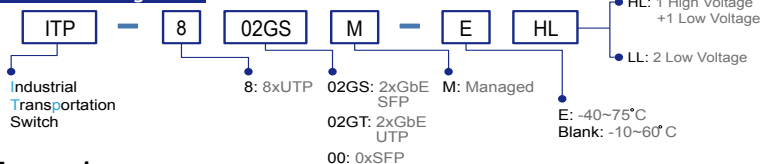
ITP-800M



## Ordering Information

Model Name	Managed	IP67	Total Port	UTP Port M12 10/100 Base-TX	Gigabit Port	Power Supply		Certification			Shock Vibration IEC61373	Operating Temperature	
						Low Volt 12/24/48VDC (8.4~60VDC)	High Volt 110/220 VDC 110/220 VAC	EN50155 EN50121-4	UL60950-1	EN61000-6-2 EN61000-6-4			CE FCC
ITP-802GSM-LL	V	V	10	8	2 SFP	2	—	V	Plan	V	V	V	-10~60 C
ITP-802GSM-HL	V	V	10	8	2 SFP	1	1	V	Plan	V	V	V	-10~60 C
ITP-802GSM-ELL	V	V	10	8	2 SFP	2	—	V	Plan	V	V	V	-40~75 C
ITP-802GSM-EHL	V	V	10	8	2 SFP	1	1	V	Plan	V	V	V	-40~75 C
ITP-802GTM-LL	V	V	10	8	2 UTP	2	—	V	Plan	V	V	V	-10~60 C
ITP-802GTM-HL	V	V	10	8	2 UTP	1	1	V	Plan	V	V	V	-10~60 C
ITP-802GTM-ELL	V	V	10	8	2 UTP	2	—	V	Plan	V	V	V	-40~75 C
ITP-802GTM-EHL	V	V	10	8	2 UTP	1	1	V	Plan	V	V	V	-40~75 C
ITP-800M-LL	V	V	10	8	—	2	—	V	Plan	V	V	V	-10~60 C
ITP-800M-HL	V	V	10	8	—	1	1	V	Plan	V	V	V	-10~60 C
ITP-800M-ELL	V	V	10	8	—	2	—	V	Plan	V	V	V	-40~75 C
ITP-800M-EHL	V	V	10	8	—	1	1	V	Plan	V	V	V	-40~75 C

### Model Naming Rule



### Accessories

**DRP-240-48** Industrial Power, Input 85 ~ 264VAC, Output 48VDC, 240W, -10 ~ +70°C

**SFP Transceiver** Compatible, Reliable, 5-year Warranty

### SFP Naming Rule

