



EN50155 工業級乙太網交換器

CTC Union的ITP系列產品都取得EN50155認證，其符合EMC(電磁相容性)規定與EMS(抗電磁干擾防護)規定，合乎Surge、EFT、ESD、PFMF、DIP以及其他規定。此系列產品的機體設計，都採取堅固耐用的IP67等級防水/防塵設計。此外，ITP系列產品還能抵抗環境干擾(包括振動及撞擊變化IEC-61373)。此系列產品是專為設計給如下各種特殊應用：如鐵路、公車、地鐵、高速鐵路等車廂及生產製造、石油、天然氣、採礦及其他嚴苛的工業環境所製造，可以不需要額外的外殼保護。

採用堅固防震的 M12 接頭

1. 此系列的M12接頭具備防振動的特點
2. 通過IEC-61373標準防撞擊及防震動測試
3. 極為適合鐵路、公車或地鐵車廂的震動環境



高速鐵路車廂



捷運車廂



震動的工業環境



震動的工業環境

IP67 防水防塵等級的機體設計，提供防塵、防油和防水保護

1. IP67防水防塵等級，能提供防塵、防油、及防浸水的保護
2. 適用於如鐵路、公車、地鐵、高速鐵路等車廂及生產製造、石油、天然氣、採礦及其他嚴苛的工業環境所設計
3. 置於戶外可以不需要額外的外殼保護。



水廠



粉塵工業環境



氣體工業環境



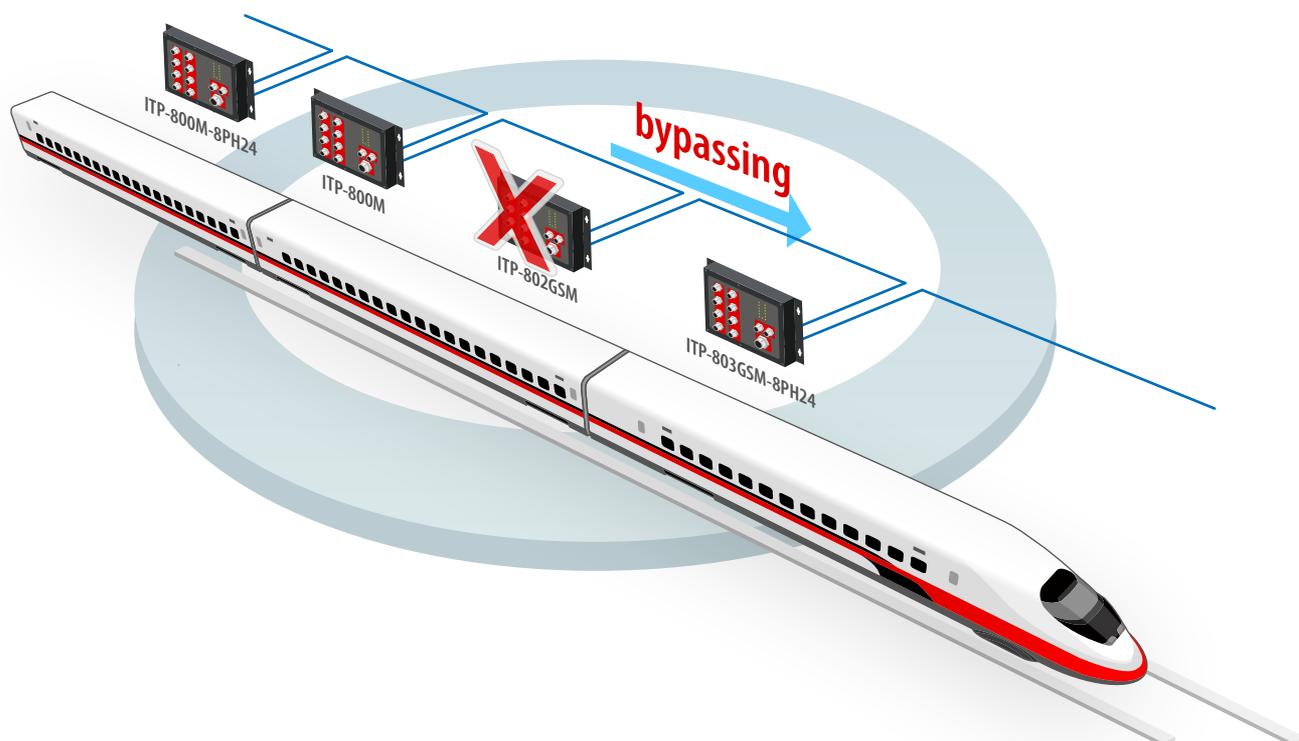
化工廠

支援乙太網供電 (PoE)

1. 在寬範圍的輸入電源 20~57V DC 範圍內，提供穩定的 55VDC 給 PoE PD。
2. 輸出的電壓穩壓在 55VDC (保障 PoE PD 供電穩定)。
3. 非常高效率的升壓技術，高達 94~97%，因升壓效率很高，我們可以提供高達 180W 的 PoE 供電。

菊花鏈 (Daisy-Chain) 拓撲的銅纜介面 Bypass Relay 功能

符合EN50155標準的產品可提供兩個具有自動Bypass Relay功能的銅纜介面，此功能菊花鏈式或線性拓撲結構中發生突然斷電時尤為實用。若火車上的其中一部交換器發生斷電，Bypass Relay功能即會自動將內部電路相互連結以啟用旁路機制，確保車廂之間的連結能不受干擾並且持續運作。有了這項功能，從終端到骨幹間便能有安全的資料傳輸以及更高的網路可用性。



NEW



CE FCC



ITP-500

EN50155 IP67 5x10/100Base-TX Ethernet Switch

ITP-800

EN50155 IP67 8x10/100Base-TX Ethernet Switch

ITP-500(ITP-800)系列產品為非網管型工業等級高速乙太網交換器，配備5(8)個10/100Base-TX高速乙太網端口。此系列非網管型高速乙太網交換器專為最嚴苛的工業環境所設計。ITP-500(ITP-800)系列交換器特別採用M12接頭，以確保緊密、牢固的連接，同時保證其可靠運作，免於振動和撞擊等環境干擾。ITP-500(ITP-800)系列產品通過EN 50155認證，包含工作溫度，且具備防電源輸入電壓變動、突波、ESD、振動和撞擊功能，極適合鐵道車廂、車廂、車輛等工業應用。此系列產品具備IP67等級防塵及防水保護功能，它們尤其適合在極端溫度、高溼度、油、灰塵的環境中，以及需要防水功能的戶外環境(例如IP監視、都市維安)使用，以及使用於需要防水防塵的工業環境(如水廠、化工廠、高粉塵的工廠等)使用。

功能特色

- 8-Port 10/100Base-TX 乙太網交換器 (ITP-800)
- 5-Port 10/100Base-TX 乙太網交換器 (ITP-500)
- 使用 M12 連接器抗震動，抗撞擊適合於鐵道車廂、車廂、車輛的應用
- 支援 flow control
- Din Rail 軌道式安裝或壁掛式
- 支援 broadcast storm 保護
- 支援自動協商及自動 MDI/MDI-X
- 內置兩個 bypass 端口 (ITP-800)
- DC 電源輸入 12/24/48VDC(8.4~60VDC) (ITP-500)
- 雙電源冗餘備援輸入 12/24/48VDC(8.4~60VDC) (ITP-800)
- 防水防塵等級設計有效防水、防塵、及防油
- 寬溫工作範圍 -40 ~ 75 °C (ITP-500-E, ITP-800-E)
- 通過 CE, FCC, EN50155, EN50121-4 鐵道交通認證
- 通過工業級 EMS(抗電磁干擾), EMI (電磁波干擾), EN61000-6-2, EN61000-6-4 認證

產品規格

| 符合標準 | IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE802.3x Flow Control and Back Pressure | | | | | | | | | | | | |
|---------------------|--|---------|---------|---------|-------|------|------|-------|------|------|-------|------|------|
| Switch Architecture | Back-plane (Switching Fabric): 1Gbps (ITP-500) Back-plane (Switching Fabric): 1.6Gbps (ITP-800) | | | | | | | | | | | | |
| Data Processing | Store and Forward | | | | | | | | | | | | |
| Flow Control | IEEE 802.3x (全雙工), Back pressure(半雙工) | | | | | | | | | | | | |
| 提供Broadcast Storm保護 | 提供 | | | | | | | | | | | | |
| MAC Address Table | 1 K | | | | | | | | | | | | |
| Packet Buffer Size | 448Kbits | | | | | | | | | | | | |
| 網路連接器 | 5x M12 D-code Female (ITP-500) 8x M12 D-code Female (ITP-800) 10/100Base-TX auto negotiation speed 自動 MDI/MDI-X 功能 全/半雙工 內置2個 bypass port (ITP-800) | | | | | | | | | | | | |
| 網路線規格 | 10Base-T: 2-pair UTP/STP Cat. 5e cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5e cable EIA/TIA-568 100-ohm (100m) | | | | | | | | | | | | |
| 通訊協議 | CSMA/CD | | | | | | | | | | | | |
| LED指示燈 | Power 1 (綠), Power 2 (綠) (ITP-800) Power (綠) (ITP-500) 每個端口: Link/Active(綠) | | | | | | | | | | | | |
| 電壓極性保護 | 提供, 用來保護輸入電源 | | | | | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | | | | | |
| 電源供應 | 雙DC電源輸入12/24/48V(8.4~60VDC)冗餘備援 (ITP-800) DC電源輸入12/24/48V(8.4~60VDC) DC (ITP-500) | | | | | | | | | | | | |
| 電力 | 5 Pin Male A-Code M12 | | | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>ITP-500</th> <th>ITP-800</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>0.8W</td> <td>1.8W</td> </tr> <tr> <td>24VDC</td> <td>1.0W</td> <td>2.2W</td> </tr> <tr> <td>48VDC</td> <td>1.9W</td> <td>3.4W</td> </tr> </tbody> </table> | 輸入電壓 | ITP-500 | ITP-800 | 12VDC | 0.8W | 1.8W | 24VDC | 1.0W | 2.2W | 48VDC | 1.9W | 3.4W |
| 輸入電壓 | ITP-500 | ITP-800 | | | | | | | | | | | |
| 12VDC | 0.8W | 1.8W | | | | | | | | | | | |
| 24VDC | 1.0W | 2.2W | | | | | | | | | | | |
| 48VDC | 1.9W | 3.4W | | | | | | | | | | | |

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|--|---|
| 工作溫度 | -10°C ~ 60°C (ITP-500, ITP-800) -40°C ~ 75°C (ITP-500-E, ITP-800-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40°C ~ 85°C |
| 外殼 | IP67防水防塵保護、無風扇 |
| 尺寸 | 43 x 30 x 206.5 mm (D x W x H) (ITP-500) 39 x 65.1 x 191.5 mm (D x W x H) (ITP-800) |
| 重量 | 260g (ITP-500) 410g (ITP-800) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 309,668 Hours (ITP-500) 303,728 Hours (ITP-800) (MIL-HDBK-217) |
| 產品保固 | 5年 |
| 認證 | |
| EMC | CE |
| EMI | FCC, FCC Part 15 Subpart B Class A CE EN 55022 Class A |
| 軌道交通 | EN50155, EN50121-4 |
| 重工業環境 抗電磁干擾 | EN61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN61000-6-4 |
| EMS (Electromagnetic Susceptibility) 抗電磁干擾等級 | EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (Burst) Level 3, Criteria B 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 EN 61000-4-11 Voltage Dips EN 61000-4-12 |
| Safety | UL60950-1 (Pending) |
| 防撞擊 | IEC 61373 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 61373 |

應用圖

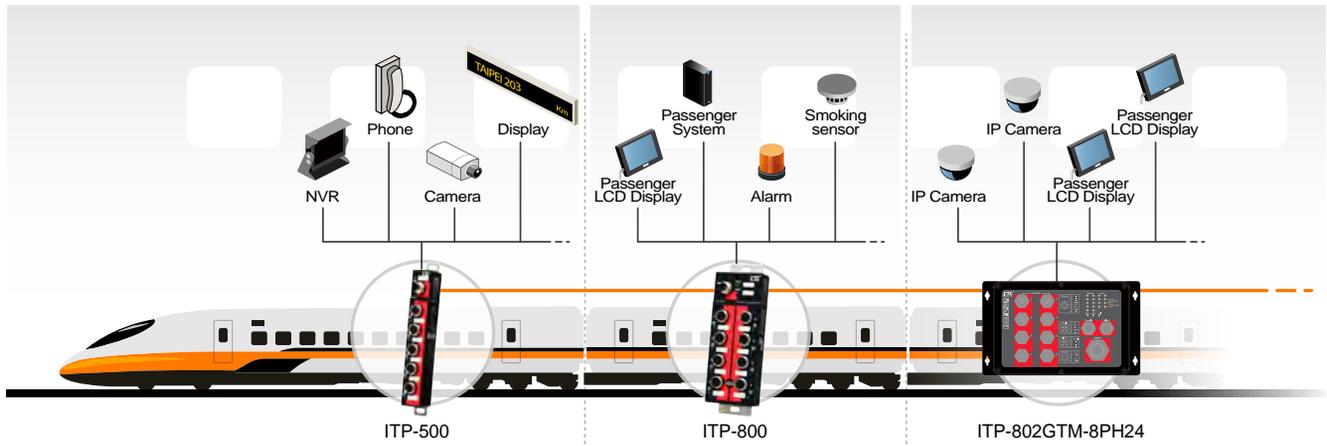


圖1 : ITP Series in Railway Application



圖2 : IP67 Protection



圖3 : Wide Range Temperature



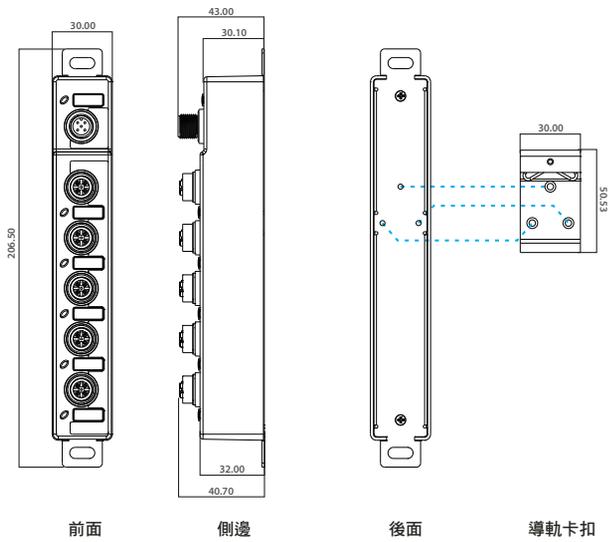
圖4 : ITP Series for Industrial Automation



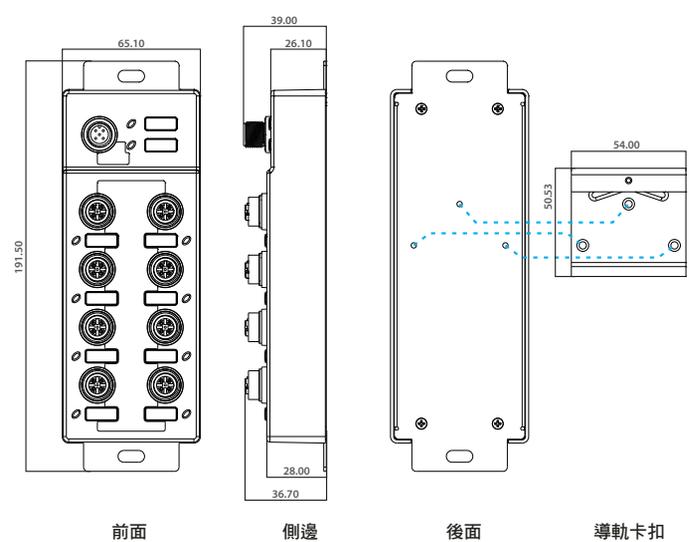
圖5 : Slim and Compact Size

機構尺寸

ITP-500



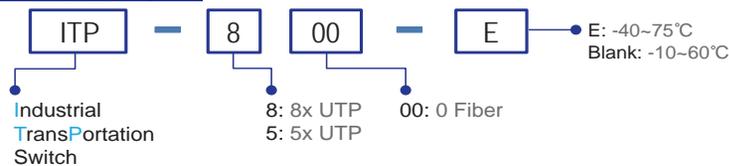
ITP-800



訂購資訊

| 型號 | IP67 | 總埠數 | UTP Port M12 | | 電源供應 | 認證 | | | 防震 | 操作溫度 |
|-----------|------|-----|----------------|-------------------------|------|---------|----------------|-------------------------|----|----------|
| | | | 10/100 Base-TX | 12/24/48VDC (8.4~60VDC) | | EN50155 | 軌道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | | |
| ITP-500 | V | 5 | 5 | 1 | V | V | V | V | V | -10~60 C |
| ITP-500-E | V | 5 | 5 | 1 | V | V | V | V | V | -40~75 C |
| ITP-800 | V | 8 | 8 | 2 | V | V | V | V | V | -10~60 C |
| ITP-800-E | V | 8 | 8 | 2 | V | V | V | V | V | -40~75 C |

型號命名規則



選購配件

Power Supply

DR-4524 Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50°C

MDR-40-24 Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C

M12 Cable



M12 Connector



Preliminary



ITP-G802SM

EN50155 IP67 Managed 8x10/100/1000Base-T + 2x100/1000Base-X SFP Ethernet Switch

ITP-G800M

EN50155 IP67 Managed 8x10/100/1000Base-T Ethernet Switch

ITP-G802SM系列產品為管理型工業等級千兆乙太網交換器，配備8個10/100/1000Base-TX 端口和/或2 個SFP千兆/高速乙太網端口，可用以提供穩定而可靠的乙太網傳輸能力。此系列產品其他Layer 2 乙太網交換機管理功能，包括STP/RSTP/MSTP/ITU-T G.8032 Ring 及 multiple u-Ring的備援佈線、Layer 2 乙太網 IGMP、VLAN、QoS、Security、IPv6、bandwidth control、port mirroring、纜線診斷和節能乙太網(Green Ethernet)。這些交換器位於堅固的DIN軌道或壁掛機箱內，專為最嚴苛環境所設計。此系列交換器特別採用M12接頭，以確保緊密、牢固的連接，同時保證其可靠運作，免於振動和撞擊等環境干擾。此系列產品通過EN 50155認證，具備防電源輸入電壓變動、突波、EFT、ESD、振動和撞擊功能，因此本系列交換器極適合車輛、鐵路車輛、船舶、船隻等工業應用。此系列產品具備IP67等級防塵及防水保護功能，它們尤其適合在極端溫度、高溼度、油、灰塵的環境中，以及需要防水功能的戶外環境(例如IP監視、都市維安)使用，以及使用於需要防水防塵的工業環境(如水廠、化工廠、高粉塵的工廠等)使用。此系列產品也可搭配CTC管理平台SmartView™使用，以提供便利、即時且集中式的網路管理。

功能特色

- 8 個 10/100/1000Base-T M12 及 2 個 100/1000Base-X SFP Fiber (共 10 個端口) (ITP-G802SM)
- 8x 10/100/1000Base-T M12(共 8 個端口) (ITP-G800M)
- M12 和 M23 連接器能有效抗震及防撞
- IP67 防水設計能有效防塵防水
- 雙電源冗餘備援輸入。可選擇低電壓的 12/24/48VDC 或高電壓的 (110/220/240VAC 或 110/220/240VDC) 輸入電源
- 通過 UL60950-1, CE, FCC, 鐵道交通 EN50155, EN50121-4 認證
- 通過工業級 EMS(抗電磁干擾), EMI(電磁波干擾), EN61000-6-2, EN61000-6-4 認證
- 支援網路線斷線診斷，可以診斷網路線故障點，定位線纜的故障點距離
- 支援綠色節能乙太網 IEEE802.3az EEE (Energy Efficient Ethernet) Management，優化電源消耗
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switch(ERPS)
- 每台設備可支援 u-Ring, u-Chain 或 Sub-Ring 型態的環網(圖 4)，最多可設 5 個環網
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 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 和 MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- 支援透過 TFTP 和 HTTP 進行軟體升級，韌體冗餘備份防止升級失敗
- 支援 IEEE1588 PTP V2 精密時間同步，可選擇以下模式操作 Master, Boundary, Slave mode by each port
- 支援 RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- 支援 IPv6 Telnet server/ICMP v6
- 支援 CLI, Web based management, SNMP v1/v2c/v3, Telnet server 管理方式
- 支援 SmartConfig™，提供快速且便利的設定工具，以便於設定大量的設備
- 支援 SmartView™ 集中式的管理系統

產品規格

| | | |
|---------|-----------------------|--|
| 符合標準 | 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) |
| VLAN ID | 4094 | IEEE802.1Q VLAN VID |

| | |
|---------------------|---|
| Switch Architecture | Back-plane (Switching Fabric): 20Gbps (ITP-G802SM) 16Gbps (ITP-G800M) |
| Data Processing | Store and Forward |
| Flow Control | IEEE 802.3x (全雙工), Back pressure(半雙工) |
| 網路連接器 | 8個M12 (8-Pin, Female, A-Code) 10/100/1000Base-T 支援auto negotiation speed, 自動 MDI/MDI-X 等功能全/半雙工 防水 Fiber Cable Gland 支援 2個 100/1000 Base-X 雙速mode SFP 端口, 使用 DDMI (for ITP-G802SM) |
| Console | RS-232 (5-pin A-Code M12 male) |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) |
| 通訊協議 | CSMA/CD |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| CPU Watch Dog | 提供 |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色), CPU Act(綠), Ring Master(黃) 每UTP端口: 10/100 Link/Active(綠), 1000 Link/Active(琥珀色) 每SFP Fiber 端口: Link/Active(綠) |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |

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

ITP-G802SM & ITP-G800M

| | |
|---------|---|
| 電源供應 | 提供1個M23(5-Pin, male)可接雙輸入電源冗餘備援 可選購低電壓或高電壓輸入電源 低電壓: 12/24/48VDC(8.4~60VDC) 高電壓: 110/220/240VAC (88~265VAC) 或 110/220/240VDC (88~300VAC) |
| 耗電量 | TBD |
| 告警方式 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | 5-pin A-code M12 male Relay outputs with current carrying capacity of 1 A @24VDC |
| 工作溫度 | -10 ~ 60°C (ITP-G802SM, ITP-G800M) -40 ~ 75°C (ITP-G802SM-E, ITP-G800M-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼, IP67防水防塵保護、無風扇 |
| 尺寸 | 70x240x168mm (D x W x H) |
| 重量 | TBD |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | TBD (MIL-HDBK-217) |
| 產品保固 | 5年 |

軟體規格

| | |
|---|---|
| Topology | |
| VLAN | 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) |
| 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. 恢復時間 <10ms 每個環最多可達250個設備 |
| Loop Protection | Present |
| ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection) | 恢復時間 <50ms Single Ring, Sub-Ring, Multiple ring topology network |
| QoS特色 | |
| Class of Service | IEEE802.1p 8 active priorities queues for per port |
| Traffic Classification | IEEE802.1p based CoS |
| QoS | 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 |
| Bandwidth Control for Ingress | Rate in steps :1 kbps / Mbps / fps / kfps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit Per queue / Per port shaper |
| DiffServ (RF 2474) Remarkings | |
| Storm Control | for Unicast, Broadcast, Multicast |
| IP Multicasting 特色 | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile, Throttling |
| IGMP / MLD Snooping | 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 |

| | |
|--|--|
| 認證 | |
| EMC | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | EN50155, EN50121-4 |
| 重工業環境抗電磁干擾 | EN61000-6-2 |
| 重工業環境電磁輻射干擾 | EN61000-6-4 |
| EMS (Electromagnetic Susceptibility) 抗電磁干擾等級 | 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 |
| Safety | UL60950-1 (Pending) |
| 防撞擊 | IEC-61373 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC-61373 |

| | |
|--|--|
| RADIUS authentication & accounting | |
| TACACS+ authentication & accounting, TACACS+ 3.0 | |
| HTTPS, HTTP | |
| SSL / SSH v2 | |
| User Name | Local Authentication |
| Password | |
| Authentication | Remote Authentication (via RADIUS / TACACS+) |
| Management | |
| Interface Access | Web, Telnet / SSH , CLI RS-232 console |
| Filtering | |
| Management 特色 | |
| CLI | Cisco® like CL |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| SW & Configuration Upgrade | TFTP, HTTP 有備援韌體以防程式升級失敗 |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB II | RFC 1213 |
| DHCP | Client, Relay, Snooping, Snooping option 82, Relay option 82 |
| IP Source Guard | |
| Port Mirroring | |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| Warning Message | System syslog, e-mail, alarm relay |
| DNS | Client, Proxy |
| IEEE1588 PTP V2 | Master, Boundary, Slave Operating mode Operating in each port of these switch |
| NTP / SNTP | |
| LLDP (IEEE 802.1ab) | Link Layer Discovery Protocol LLDP-MED |
| IPv6特色 | |
| IPv6 Management | Telnet Server/ICMP v6 |
| SNMP over IPv6 | |
| HTTP over IPv6 | |
| SSH over IPv6 | |
| IPv6 Telnet Support | |
| IPv6 NTP / SNTP Support | |
| IPv6 TFTP Support | |
| IPv6 QoS | |
| IPv6 ACL | Number of rules: up to 256 entries L2 / L3 / L4 |
| 其他特色 | |
| Green Ethernet | 支援 IEEE802.3az EEE (Energy Efficient Ethernet)優化電源消耗 依照網路線長短, 自動調節功耗, 以節省短線時的耗電 網路埠無連接時, 自動降低輸出功耗 LED 功率管理 :調節LED強度 |
| Cable Diagnostic | 偵測網路線的故障點距離 |

應用圖

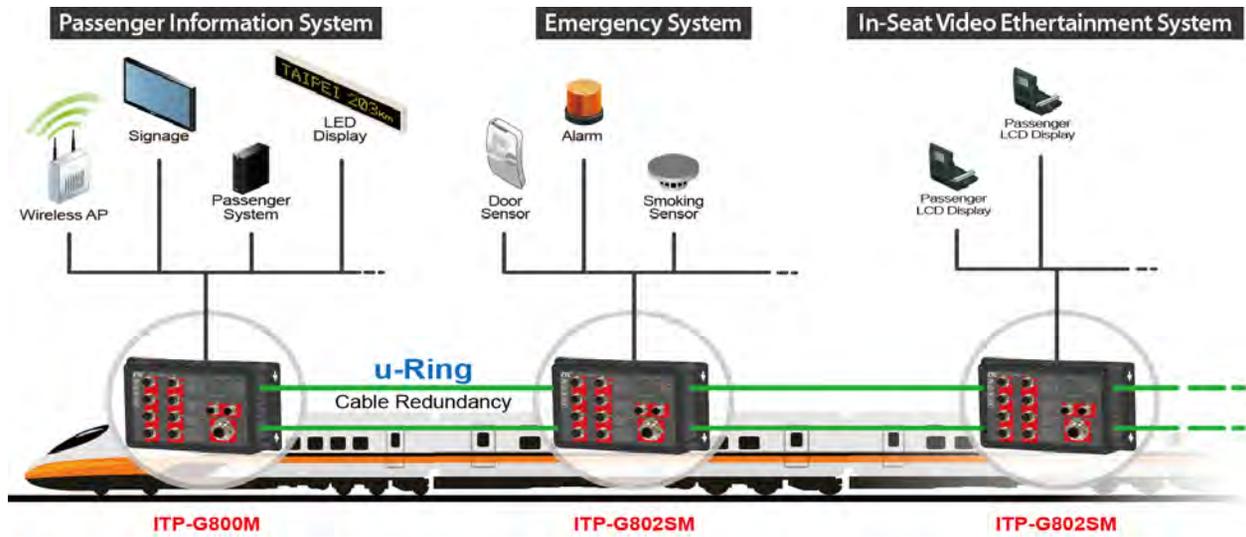


圖1 : ITP Series in Onboard Train Application



圖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 | | 9 (Fiber1) | <input type="checkbox"/> |

圖3 : 方便又容易設定的 u-Ring 功能設定Web 畫面

圖4 : u-Ring 類型

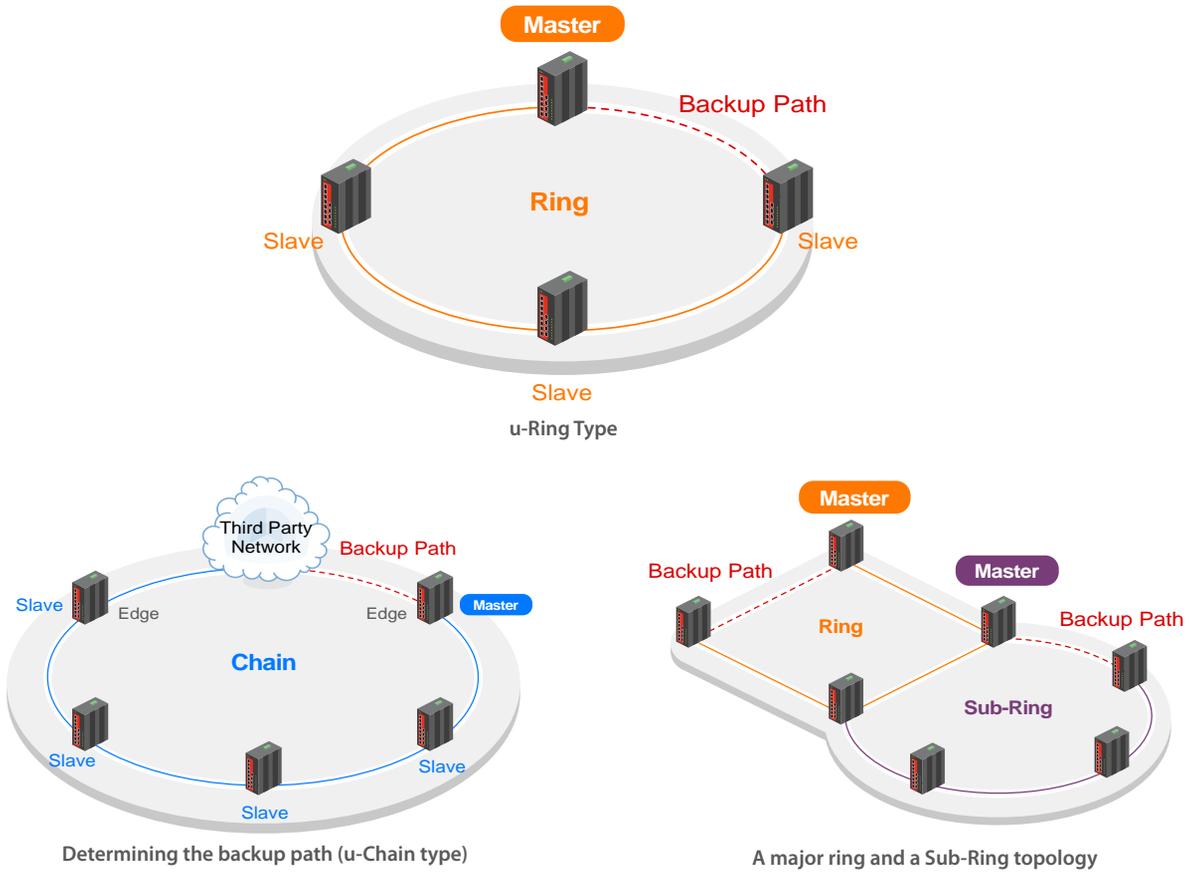
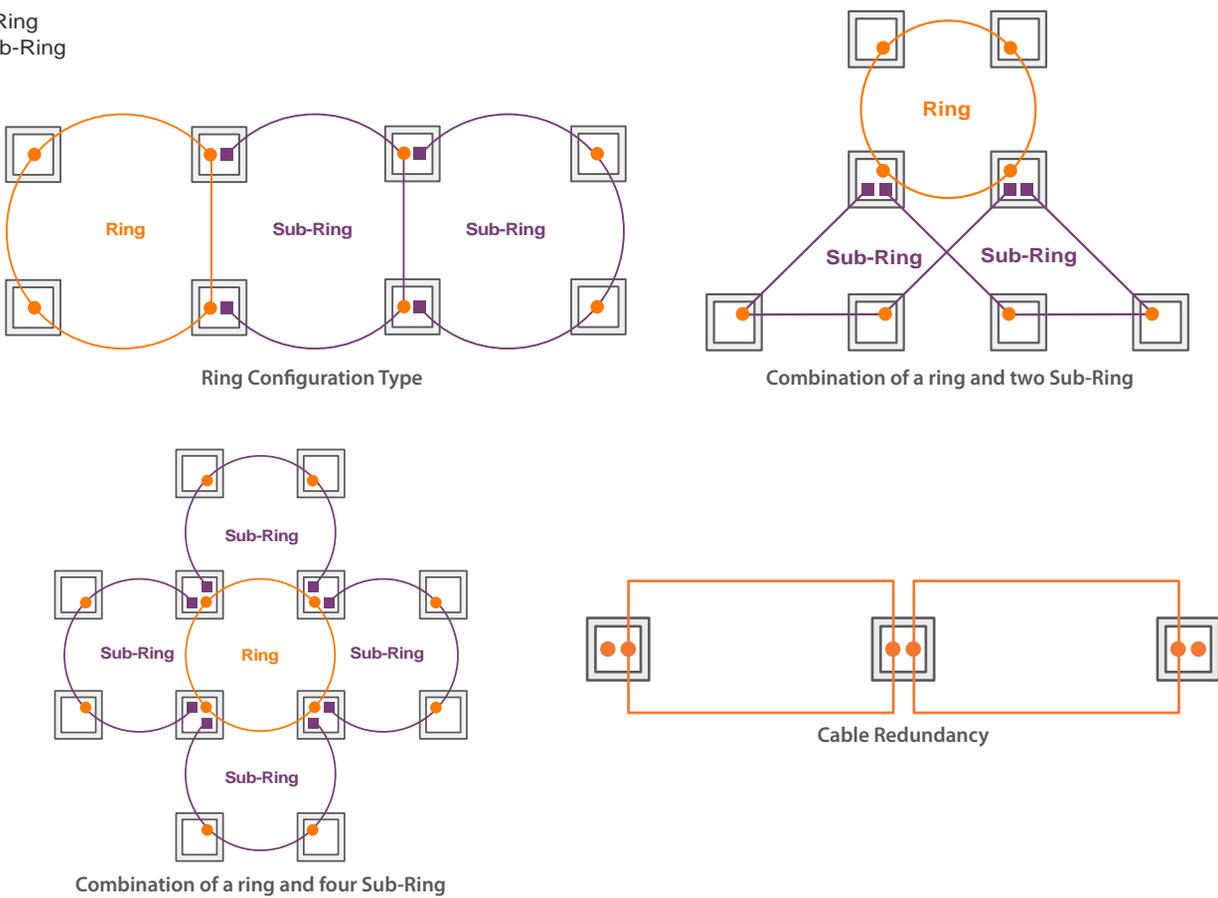


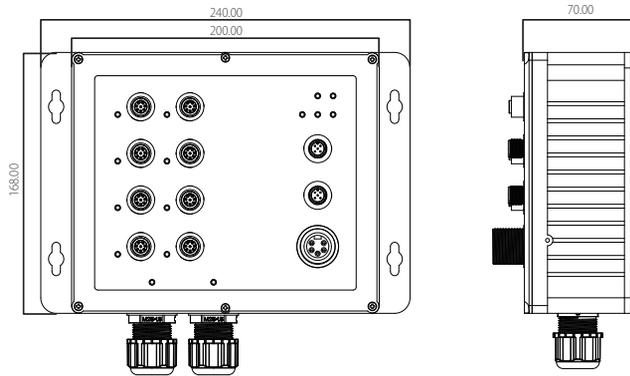
圖5 : u-Ring配置範例

● u-Ring
■ Sub-Ring

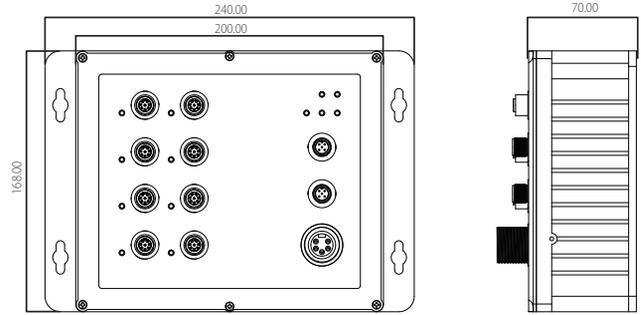


機構尺寸

ITP-G802SM



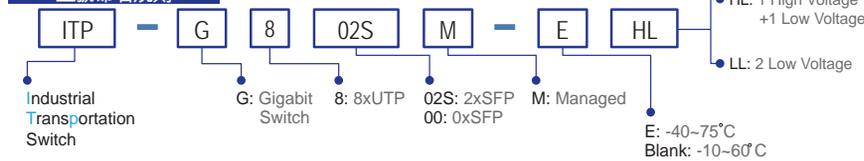
ITP-G800M



訂購資訊

| 型號 | 管理 | IP67 | 總埠數 | UTP Port M12 | | 光纖 | | 電源供應 | | 認證 | | | 防震 | 操作溫度 |
|----------------|----|------|-----|--------------------|-----------------|----------------------------------|-----------------------------------|-------------------|--------------|-------------------------|--------|----------|----------|------|
| | | | | 10/100/1000 Base-T | 100/1000 Base-X | Low Volt 12/24/48VDC (8.4-60VDC) | High Volt 110/220 VDC 110/220 VAC | EN50155 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE FCC | IEC61373 | | |
| ITP-G802SM-LL | V | V | 10 | 8 | 2 SFP | 2 | — | V | Plan | V | V | V | -10~60 C | |
| ITP-G802SM-HL | V | V | 10 | 8 | 2 SFP | 1 | 1 | V | Plan | V | V | V | -10~60 C | |
| ITP-G802SM-ELL | V | V | 10 | 8 | 2 SFP | 2 | — | V | Plan | V | V | V | -40~75 C | |
| ITP-G802SM-EHL | V | V | 10 | 8 | 2 SFP | 1 | 1 | V | Plan | V | V | V | -40~75 C | |
| ITP-G800M-LL | V | V | 8 | 8 | — | 2 | — | V | Plan | V | V | V | -10~60 C | |
| ITP-G800M-HL | V | V | 8 | 8 | — | 1 | 1 | V | Plan | V | V | V | -10~60 C | |
| ITP-G800M-ELL | V | V | 8 | 8 | — | 2 | — | V | Plan | V | V | V | -40~75 C | |
| ITP-G800M-EHL | V | V | 8 | 8 | — | 1 | 1 | V | Plan | V | V | V | -40~75 C | |

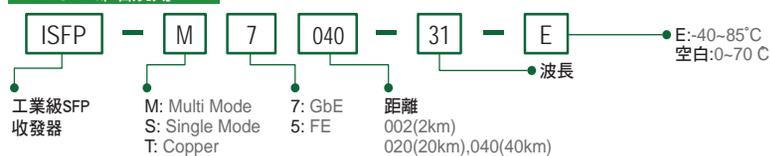
型號命名規則



選購配件

- DR-4524 Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50°C
- MDR-40-24 Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C
- SFP 收發器 Compatible, Reliable, 5-year Warranty

SFP命名規則



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

ITP-802GSM系列產品為管理型工業等級百兆乙太網交換器，配備8個10/100Base-TX 端口和 2 個SFP 或UTP千兆/高速乙太網端口，可用以提供穩定而可靠的乙太網傳輸能力。此系列產品其他Layer 2 乙太網交換機管理功能，包括STP/RSTP/MSTP/ITU-T G.8032 Ring 及 multiple u-Ring的備援佈線、Layer 2 乙太網 IGMP、VLAN、QoS、Security、IPv6、bandwidth control、port mirroring、纜線診斷和節能乙太網(Green Ethernet)。這些交換器位於堅固的DIN軌道或壁掛機箱內，專為最嚴苛環境所設計。此系列交換器特別採用M12接頭，以確保緊密、牢固的連接，同時保證其可靠運作，免於振動和撞擊等環境干擾。此系列產品通過EN 50155認證，具備防電源輸入電壓變動、突波、EFT、ESD、振動和撞擊功能，因此本系列交換器極適合車輛、鐵路車輛、船舶、船隻等工業應用。此系列產品具備IP67等級防塵及防水保護功能，它們尤其適合在極端溫度、高溼度、油、灰塵的環境中，以及需要防水功能的戶外環境(例如IP監視、都市維安)使用，以及使用於需要防水防塵的工業環境(如水廠、化工廠、高粉塵的工廠等)使用。此系列產品也可搭配CTC管理平台SmartView™使用，以提供便利、即時且集中式的網路管理。

功能特色

- 8 個 10/100Base-TX M12 及 2 個 100/1000Base-X SFP Fiber (共 10 個端口) (ITP-802GSM)
- 8 個 10/100Base-TX M12 及 2 個 100/1000Base-T (共 10 個端口) (ITP-802GTM)
- 8 個 10/100Base-TX M12(共 8 個端口) (ITP-800M)
- M12 和 M23 連接器能有效抗震及防撞
- IP67 防水設計能有效防塵防水
- 雙電源冗餘備援輸入。可選擇低電壓的 12/24/48VDC 或高電壓的 (110/220/240VAC 或 110/220/240VDC) 輸入電源
- 通過 UL60950-1, CE, FCC, 鐵道交通 EN50155, EN50121-4 認證
- 通過工業級 EMS(抗電磁干擾), EMI(電磁波干擾), EN61000-6-2, EN61000-6-4 認證
- 支援網路線斷線診斷，可以診斷網路線故障點，定位線纜的故障點距離
- 支援綠色節能乙太網 IEEE802.3az EEE (Energy Efficient Ethernet) Management，優化電源消耗
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switch(ERPS)
- 每台設備可支援 u-Ring, u-Chain 或 Sub-Ring 型態的環網(圖 4)，最多可設 5 個環網
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 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 和 MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- 支援透過 TFTP 和 HTTP 進行軟體升級，韌體冗餘備份防止升級失敗
- 支援 IEEE1588 PTP V2 精密時間同步，可選擇以下模式操作 Master, Boundary, Slave mode by each port
- 支援 RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- 支援 IPv6 Telnet server/ICMP v6
- 支援 CLI, Web based management, SNMP v1/v2c/v3, Telnet server 管理方式
- 支援 SmartConfig™，提供快速且便利的設定工具，以便於設定大量的設備
- 支援 SmartView™ 集中式的管理系統

產品規格

| | |
|---------------------|---|
| 符合標準 | 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) |
| VLAN ID | 4094 IEEE802.1Q VLAN VID |
| Switch Architecture | Back-plane (Switching Fabric): 5.6Gbps (ITP-802GSM, ITP-802GTM) 1.6Gbps (ITP-800M) |
| Data Processing | Store and Forward |

| | |
|-------------------|---|
| Flow Control | IEEE 802.3x (全雙工), Back pressure(半雙工) |
| 網路連接器 | 8個M12 (4-Pin, Female, D-Code) 10/100Base-TX 支援auto negotiation speed, 自動 MDI/MDI-X 等功能全/半雙工 防水 Fiber Cable Gland 支援 2 個 100/1000 Base-X 雙速 mode SFP 端口, 使用 DDMI (ITP-802GSM) 2x M12 (8-Pin, female, A-Code) 10/100/1000Base-T (ITP-802GTM) 內建 2 bypass 端口 port (ITP-802GTM) |
| Console | RS-232 (5-pin A-Code M12 male) |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) |
| 通訊協議 | CSMA/CD |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| CPU Watch Dog | 提供 |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色), CPU Act(綠), Ring Master(黃) P1~8 UTP端口: 10/100 Link/Active(綠) P9,P10 : 10/100 Link/Active(綠), (for ITP-802GTM) 1000 Link/Active(琥珀色) |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |

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

| | |
|---------|---|
| 電源供應 | 提供1個M23(5-Pin, male)可接雙輸入電源冗餘備援 可選購低電壓或高電壓輸入電源 低電壓: 12/24/48VDC(8.4~60VDC) 高電壓: 110/220/240VAC (88~265VAC) 或 110/220/240VDC (88~300VAC) |
| 耗電量 | TBD |
| 告警方式 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | 5-pin A-code M12 male Relay outputs with current carrying capacity of 1 A @24VDC |
| 工作溫度 | -10 ~ 60°C (ITP-802GSM, ITP-802GTM, ITP-800M) -40 ~ 75°C (ITP-802GSM-E, ITP-802GTM-E, ITP-800M-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼、IP67防水防塵保護、無風扇 |
| 尺寸 | 70x240x168mm (D x W x H) |
| 重量 | TBD |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | TBD (MIL-HDBK-217) |
| 產品保固 | 5年 |

軟體規格

| | |
|---|---|
| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 802.1Q VLAN VID 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) |
| 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. 恢復時間 <10ms 每個環最多可達250個設備 |
| Loop Protection | Present |
| ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection) | 恢復時間 <50ms Single Ring, Sub-Ring, Multiple ring topology network |
| QoS特色 | |
| Class of Service | IEEE802.1p 8 active priorities queues for per port |
| Traffic Classification | IEEE802.1p based CoS |
| QoS | 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 |
| Bandwidth Control for Ingress | Rate in steps :1 kbps / Mbps / fps / kfps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit Per queue / Per port shaper |
| DiffServ (RF 2474) Remarkings | |
| Storm Control | for Unicast, Broadcast, Multicast |
| IP Multicasting 特色 | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile, Throttling |
| IGMP / MLD Snooping | 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 |

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| 認證 | |
| EMC | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | EN50155, EN50121-4 |
| 重工業環境 抗電磁干擾 | EN61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN61000-6-4 |
| EMS (Electromagnetic Susceptibility) 抗電磁干擾等級 | 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 |
| Safety | UL60950-1 (Pending) |
| 防撞擊 | IEC-61373 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC-61373 |

| | |
|--|---|
| RADIUS authentication & accounting | |
| TACACS+ authentication & accounting, TACACS+ 3.0 | |
| HTTPS, HTTP | |
| SSL / SSH v2 | |
| User Name | Local Authentication |
| Password | |
| Authentication | Remote Authentication (via RADIUS / TACACS+) |
| Management | |
| Interface Access | Web, Telnet / SSH , CLI RS-232 console |
| Filtering | |
| Management 特色 | |
| CLI | Cisco® like CLI |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| SW & Configuration Upgrade | TFTP, HTTP 有備援韌體以防程式升級失敗 |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB II | RFC 1213 |
| DHCP | Client, Relay, Snooping Snooping option 82, Relay option 82 |
| IP Source Guard | |
| Port Mirroring | |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| Warning Message | System syslog, e-mail, alarm relay |
| DNS | Client, Proxy |
| IEEE1588 PTP V2 | Master ,Boundary, Slave Operating mode Operating in each port of these switch |
| NTP / SNTP | |
| LLDP (IEEE 802.1ab) | Link Layer Discovery Protocol LLDP-MED |
| IPv6特色 | |
| IPv6 Management | Telnet Server/ICMP v6 |
| SNMP over IPv6 | |
| HTTP over IPv6 | |
| SSH over IPv6 | |
| IPv6 Telnet Support | |
| IPv6 NTP / SNTP Support | |
| IPv6 TFTP Support | |
| IPv6 QoS | |
| IPv6 ACL | Number of rules: up to 256 entries L2 / L3 / L4 |
| 其他特色 | |
| Green Ethernet | 支援 IEEE802.3az EEE (Energy Efficient Ethernet)優化電源消耗 依照網路線長短,自動調節功耗,以節省短線時的耗電 網路埠無連接時,自動降低輸出功耗 LED 功率管理 :調節LED強度 |
| Cable Diagnostic | 偵測網路線的故障點距離 |

應用圖

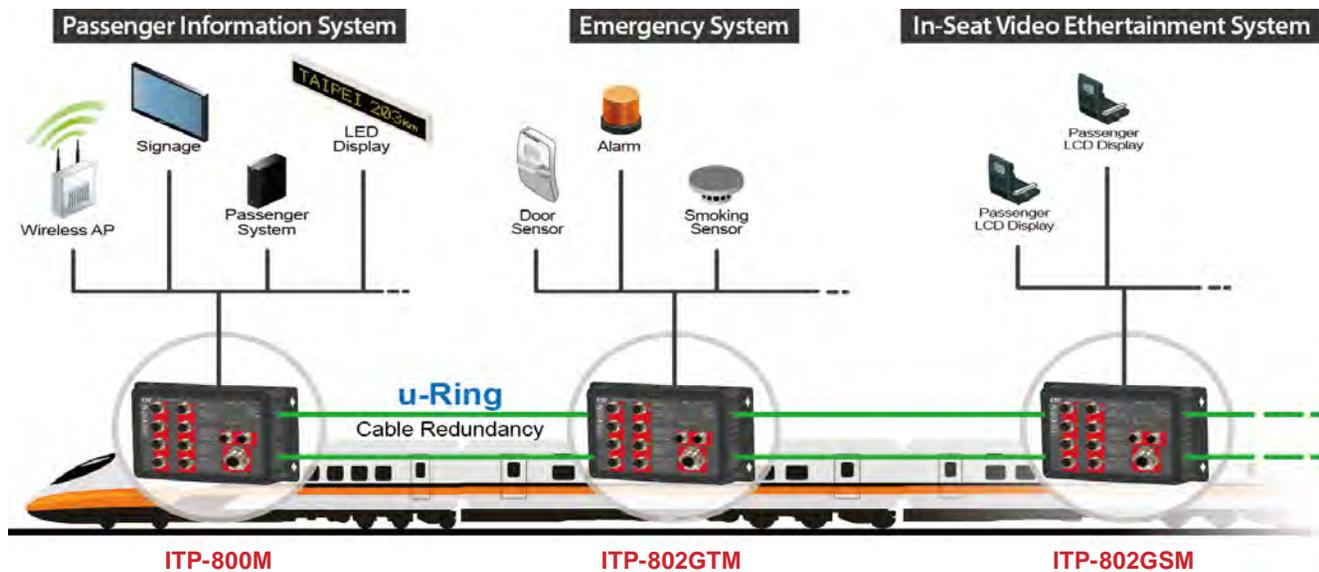


圖1 : ITP Series in Onboard Train Application

3
EN50155 Managed
FE Switches



圖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

圖3 : 方便又容易設定的 u-Ring 功能設定Web 畫面

圖4 : u-Ring 類型

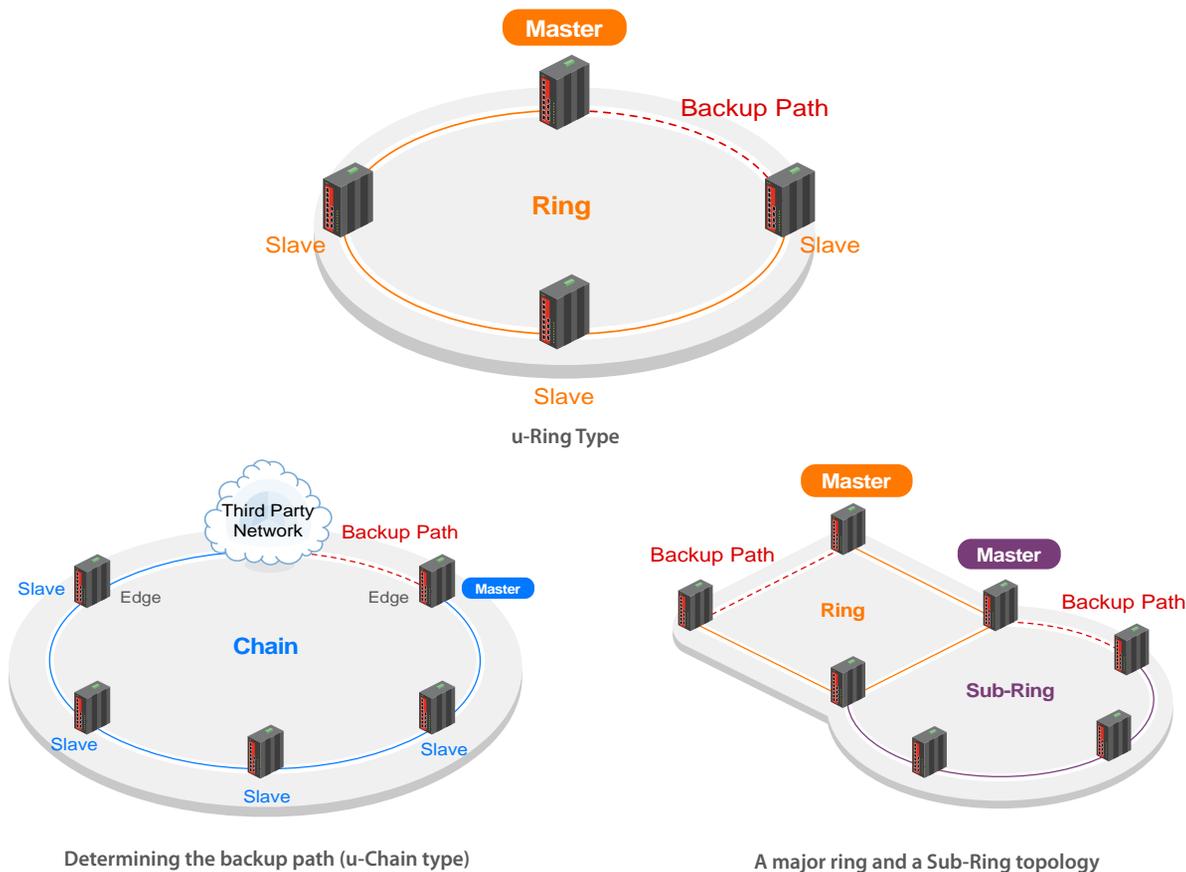
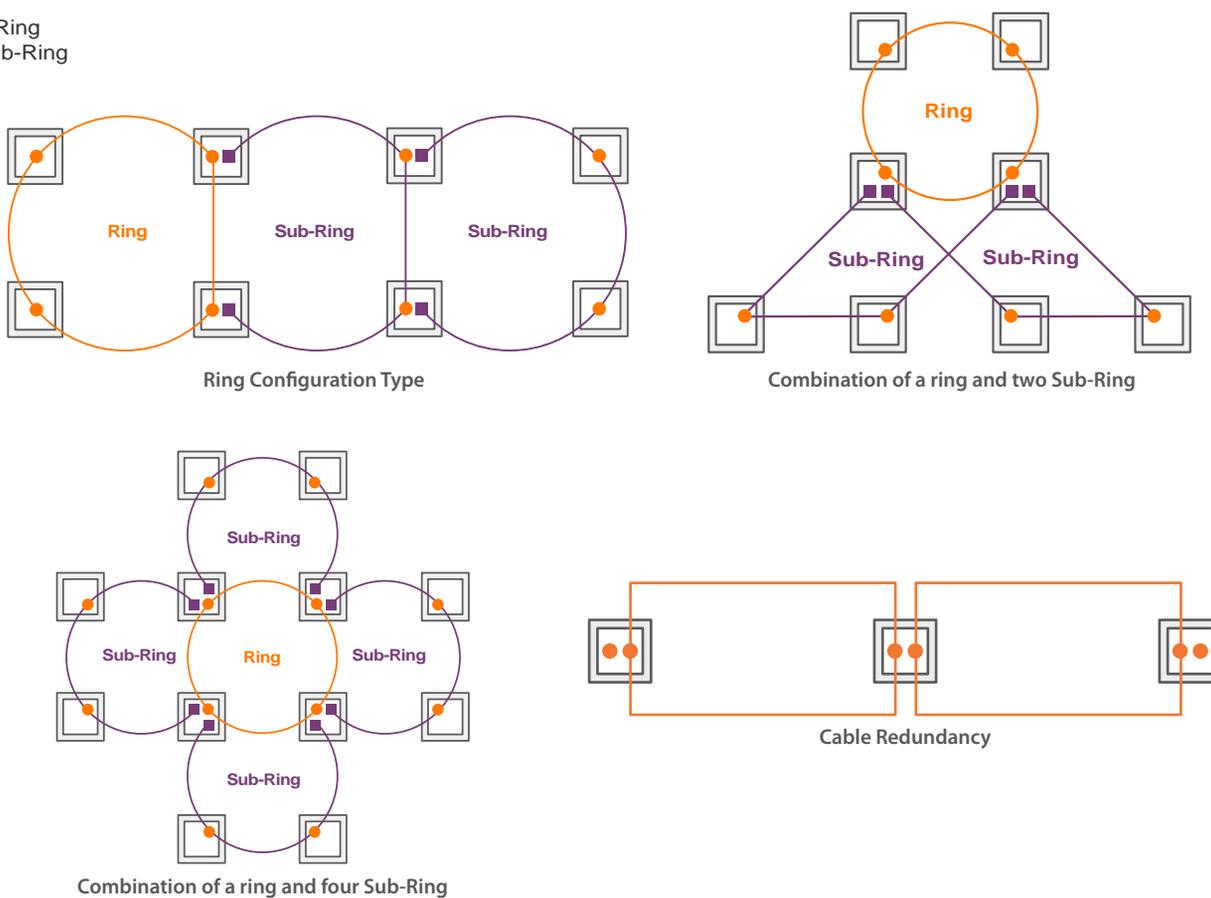


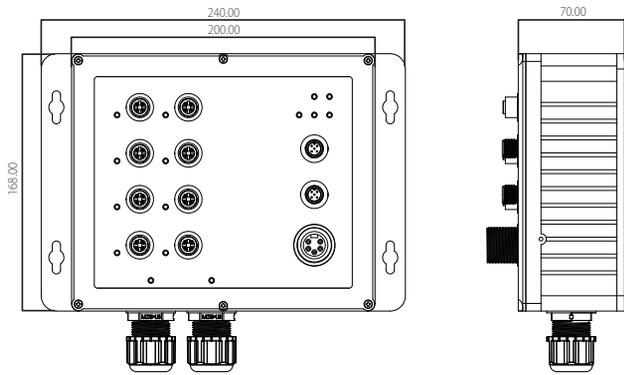
圖5 : u-Ring配置範例

● u-Ring
■ Sub-Ring

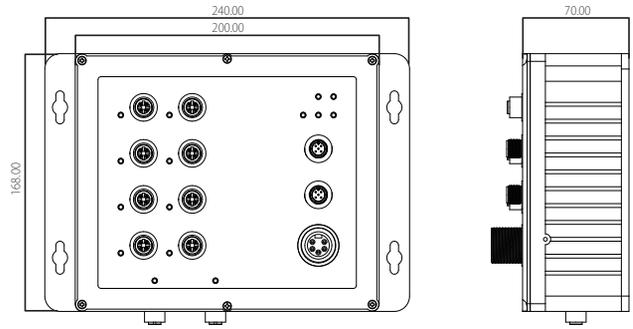


機構尺寸

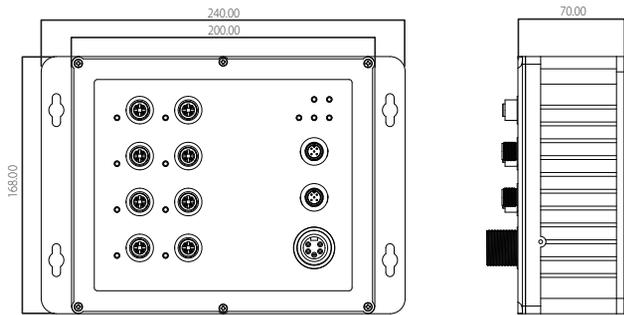
ITP-802GSM



ITP-802GTM



ITP-800M

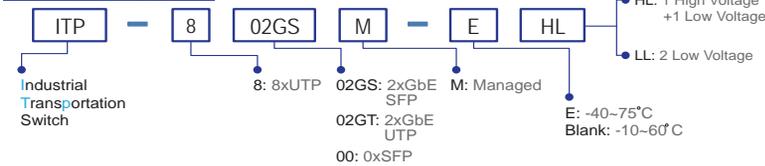


3
EN50155 Managed
FE Switches

訂購資訊

| 型號 | 管理 | IP67 | 總埠數 | UTP Port M12 10/100 Base-TX | Gigabit Port | 電源供應 | | 認證 | | | | 防震 IEC61373 | 操作溫度 |
|----------------|----|------|-----|--------------------------------|--------------|--|---|----------------------|-----------------|----------------------------|-----------|----------------|----------|
| | | | | | | Low Volt 12/24/48VDC (8.4-60VDC) | High Volt 110/220 VDC 110/220 VAC | EN50155 EN50121-4 | 安全 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 | 8 | 8 | — | 2 | — | V | Plan | V | V | V | -10~60 C |
| ITP-800M-HL | V | V | 8 | 8 | — | 1 | 1 | V | Plan | V | V | V | -10~60 C |
| ITP-800M-ELL | V | V | 8 | 8 | — | 2 | — | V | Plan | V | V | V | -40~75 C |
| ITP-800M-EHL | V | V | 8 | 8 | — | 1 | 1 | V | Plan | V | V | V | -40~75 C |

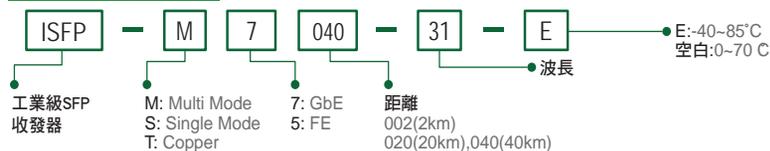
型號命名規則



選購配件

| | |
|-----------|---|
| DR-4524 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50°C |
| MDR-40-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C |
| SFP 收發器 | Compatible, Reliable, 5-year Warranty |

SFP命名規則



Preliminary



180 Watts,
24V Booster

ITP-G802SM-8PH24

EN50155 IP67 Managed 8x10/100/1000Base-T +
2x100/1000Base-X SFP with 8x PoE+ Ethernet Switch

ITP-G800M-8PH24

EN50155 IP67 Managed 8x10/100/1000Base-T
with 8x PoE+ Ethernet Switch



ITP-G802SM-8PH24系列產品為管理型工業等級千兆乙太網供電(PoE)交換器，配備8個10/100/1000Base-TX PoE端口和/或2 個SFP 千兆/高速乙太網端口，可用以提供穩定而可靠的乙太網傳輸能力。ITP-G802SM-8PH24系列產品具備 PoE 功能，可透過單一纜線傳輸電力和資料，因此能大幅減少佈線支出。ITP-G802SM-8PH24系列產品也提供各種不同的PoE操作管理功能，包括PoE裝置自動檢查、自動重設、PoE電源每週排程。支援其他L2管理功能，包括STP/RSTP/MSTP/ITU-T G.8032 Ring 及 multiple u-Ring的備援佈線、第2層乙太網IGMP、VLAN、QoS、Security、IPv6、bandwidth control、port mirroring、纜線診斷和節能乙太網(Green Ethernet)。這些交換器位於堅固的DIN軌道或壁掛機箱內，專為最嚴苛環境所設計。ITP-G802SM-8PH24系列交換器特別採用M12接頭，以確保緊密、牢固的連接，同時保證其可靠運作，免於振動和撞擊等環境干擾。ITP-802GSM-8PH24系列產品通過EN 50155認證，具備防電源輸入電壓變動、突波、EFT、ESD、振動和撞擊功能，因此本系列交換器極適合車輛、鐵路車輛、船舶、船隻等工業應用。ITP-G802SM-8PH24系列產品具備IP67等級防塵及防水保護功能，它們尤其適合在極端溫度、高溼度、油、灰塵的環境中，以及需要防水功能的戶外環境(例如IP監視、都市維安)使用,以及使用於需要防水防塵的工業環境(如水廠,化工廠,高粉塵的工廠等)使用。ITP-G802SM-8PH24系列產品也可搭配CTC管理平台SmartView™使用，以提供便利、即時且集中式的網路管理。

功能特色

- 8 個 10/100/1000Base-T M12 及 2 個 100/1000Base-X SFP Fiber (共 10 個端口) (ITP-G802SM-8PH24)
- 8x 10/100/1000Base-T M12 (ITP-G800M-8PH24)
- M12 和 M23 連接器能有效抗震及防撞
- IP67 防水設計能有效防塵防水
- 雙電源輸入 24/48VDC(20~57VDC) 冗餘備援，內建非常高效率的電源升壓器(94~97%) 可提供穩定的 55VDC 供給 PoE 輸出
- 穩壓功能，穩定輸出電壓 55VDC，供給 PoE 輸出
- 提供 8-port IEEE802.3af / 802.3at PoE 埠輸出 (30W/ 每埠)
- PoE 最大輸出功率可達 180W
- 支援先進的 PoE 管理功能，PoE PD 設備自動檢測，與自動重啟 (當設備當機時)，PoE 設備供電 " 開 / 關 " 時間週排程，PoE 設定與供電規劃
- 通過 UL60950-1, CE, FCC, 鐵道交通 EN50155,EN50121-4 認證
- 通過工業級 EMS(抗電磁干擾)，EMI (電磁波干擾)，EN61000-6-2，EN61000-6-4 認證
- 支援網路線斷線診斷，可以診斷網路線故障點，定位線纜的故障點距離
- 支援綠色節能乙太網 IEEE802.3az EEE (Energy Efficient Ethernet) Management，優化電源消耗
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switch(ERPS)
- 每台設備可支援 u-Ring，u-Chain 或 Sub-Ring 型態的環網 (圖 5)，最多可設 5 個環網
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 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 和 MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- 支援透過 TFTP 和 HTTP 進行軟體升級，韌體冗餘備份防止升級失敗
- 支援 IEEE1588 PTP V2 精密時間同步，可選擇以下模式操作 Master, Boundary, Slave mode by each port
- 支援 RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- 支援 IPv6 Telnet server/ICMP v6
- 支援 CLI, Web based management, SNMP v1/v2c/v3, Telnet server 管理方式
- 支援 SmartConfig™，提供快速且便利的設定工具，以便於設定大量的設備
- 支援 SmartView™ 集中式的管理系統

產品規格

| | | |
|------|-----------------------|--|
| 符合標準 | 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 802.3af | PoE (Power over Ethernet) |
| | IEEE 802.3at | PoE+ (Power over Ethernet enhancements) |
| | IEEE 802.1ad | Stacked VLANs, Q-in-Q |
| | IEEE 802.1p | LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization |

| | |
|---------------------|---|
| 符合標準 | IEEE 802.1ab Link Layer Discovery Protocol (LLDP) |
| | IEEE 802.3az EEE (Energy Efficient Ethernet) |
| VLAN ID | 4094 IEEE802.1Q VLAN VID |
| Switch Architecture | Back-plane (Switching Fabric): 20Gbps (ITP-G802SM-8PH24) 16Gbps (ITP-G800M-8PH24) |
| Data Processing | Store and Forward |
| Flow Control | IEEE 802.3x (全雙工), Back pressure(半雙工) |
| PoE RJ-45 Pin 腳定義 | 8x M12 (8-Pin A-code Female) ports support IEEE 802.3af / IEEE 802.3at End-Span, Alternative A mode. Positive (V+) : M12 pin 4,6 Negative (V-) : M12 pin 5,7. Data (1,2,3,4,5,6,7,8) |
| 網路連接器 | 8個M12 (8-Pin, Female,A-Code) 10/100/1000Base-T 支援auto negotiation speed, 自動 MDI/MDI-X 等功能全/半雙工 防水 Fiber Cable Gland 支援 2個 100/1000 Base-X 雙速 mode SFP 端口, 使用 DDMI (for ITP-G802SM-8PH24) |
| Console | RS-232 (5-pin A-Code M12 male) |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) |
| 通訊協議 | CSMA/CD |
| 電壓極性保護 | 提供 |

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

ITP-G802SM-8PH24 & ITP-G800M-8PH24

| | |
|-------------------|---|
| 電流過載保護 | 提供 |
| CPU Watch Dog | 提供 |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色), CPU Act(綠), Ring Master(黃) 每UTP端口: 10/100 Link/Active(綠), 1000 Link/Active(琥珀色) 每SFP Fiber 端口: Link/Active(綠) PoE Port LED 1 LED /每端口 : • PoE電源輸出啟動: 啟動(綠) • PoE 故障(過載, 短路, 啟動失敗): 閃爍 1次/秒(綠) • PoE輸出電源關閉: 關閉(綠) |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |
| PoE 符合標準 | IEEE802.3af, IEEE802.3at |
| PoE電源輸出 | 最大PoE電源輸出量為180W(30W/每端口) PoE輸出經過穩壓的55 VDC穩定電壓 |
| 電源供應 | 提供1個M23(5-Pin, male)可接輸入雙DC電源 24/48V(20~57VDC)冗餘備援 內建非常高效率的電源升壓器(94~97%)可提供經過升壓與穩壓的55 VDC穩定電壓給PoE 輸出 |
| 耗電量 | TBD |
| 告警方式 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | 5-pin A-code M12 male Relay outputs with current carrying capacity of 1 A @24VDC |
| 工作溫度 | -10 ~ 60°C (ITP-G802SM-8PH24 , ITP-G800M-8PH24) -40 ~ 75°C (ITP-G802SM-8PHE24 , ITP-G800M-8PHE24) |
| 工作濕度 | 5% to 95% (無冷凝) |

| | |
|--|--|
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼, IP67防水防塵保護, 無風扇 |
| 尺寸 | 70x240x168mm (D x W x H) |
| 重量 | TBD |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | TBD (MIL-HDBK-217) |
| 產品保固 | 5年 |
| 認證 | |
| EMC | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | EN50155, EN50121-4 |
| 重工業環境抗電磁干擾 | EN61000-6-2 |
| 重工業環境電磁輻射干擾 | EN61000-6-4 |
| EMS (Electromagnetic Susceptibility) 抗電磁干擾等級 | 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 |
| Safety | UL60950-1 (Pending) |
| 防撞擊 | IEC-61373 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC-61373 |

軟體規格

| | |
|---|---|
| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 802.1Q VLAN VID 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 (Eihernt, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries GVRP (GARP VLAN Registration Protocol) MVR (Multicast VLAN Registration) |
| 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. 恢復時間 <10ms 每個環最多可達250個設備 |
| Loop Protection | Present |
| ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection) | 恢復時間 <50ms Single Ring, Sub-Ring, Multiple ring topology network |
| QoS特色 | |
| Class of Service | IEEE802.1p 8 active priorities queues for per port |
| Traffic Classification | IEEE802.1p based CoS |
| QoS | IP Precedence based CoS IP DSCP based CoS OCL(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 |
| Bandwidth Control for Ingress | Rate in steps :1 kbps / Mbps / fps / kfps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit Per queue / Per port shaper |
| DiffServ (RF 2474) Remarkng | |
| Storm Control | for Unicast, Broadcast, Multicast |
| IP Multicasting 特色 | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile, Throttling |
| IGMP / MLD Snooping | 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 |
| RADIUS authentication & accounting TACACS+ authentication & accounting, TACACS+ 3.0 | |
| HTTPS, HTTP | |
| SSL / SSH v2 | |
| User Name | Local Authentication |
| Password | Remote Authentication (via RADIUS / TACACS+) |
| Authentication | |
| Management Interface Access | Web, Telnet / SSH , CLI RS-232 console |
| Filtering | |
| Management 特色 | |
| CLI | Cisco® like CLI |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| SW & Configuration Upgrade | TFTP, HTTP 有備援韌體以防程式升級失敗 |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB II | RFC 1213 |
| DHCP | Client, Relay, Snooping Snooping option 82, Relay option 82 |
| IP Source Guard | |
| Port Mirroring | |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| Warning Message | System syslog, e-mail, alarm relay |
| DNS | Client, Proxy |
| IEEE1588 PTP V2 | Master, Boundary, Slave Operating mode Operating in each port of these switch |
| NTP / SNTP | |
| LLDP (IEEE 802.1ab) | Link Layer Discovery Protocol LLDP-MED |
| IPv6特色 | |
| IPv6 Management | Telnet Server/ICMP v6 |
| SNMP over IPv6 | |
| HTTP over IPv6 | |
| SSH over IPv6 | |

| | |
|-------------------------|--|
| IPv6 Telnet Support | |
| IPv6 NTP / SNTP Support | |
| IPv6 TFTP Support | |
| IPv6 QoS | |
| IPv6 ACL | Number of rules: up to 256 entries L2 / L3 / L4 |

其他特色

| | |
|----------------|---|
| Green Ethernet | 支援 IEEE802.3az EEE (Energy Efficient Ethernet) 優化電源消耗 依照網路線長短, 自動調節功耗, 以節省短線時的耗電 |
|----------------|---|

| | |
|-------------------------|---|
| Green Ethernet | 網路埠無連接時, 自動降低輸出功耗 LED 功率管理 : 調節LED強度 |
| Cable Diagnostic | 偵測網路線的故障點距離 |
| Advanced PoE Management | PD設備自動檢測, 與自動重開機(當測得PoE PD設備當機時) PoE周排程 (每天定時開啟/關閉, 以周為單位) PoE 設定 PoE 的啟用/關閉 Power limit by classification Power limit by management Total PoE Power budget (maximum 180W) limitation 供電優先順序 |

應用圖

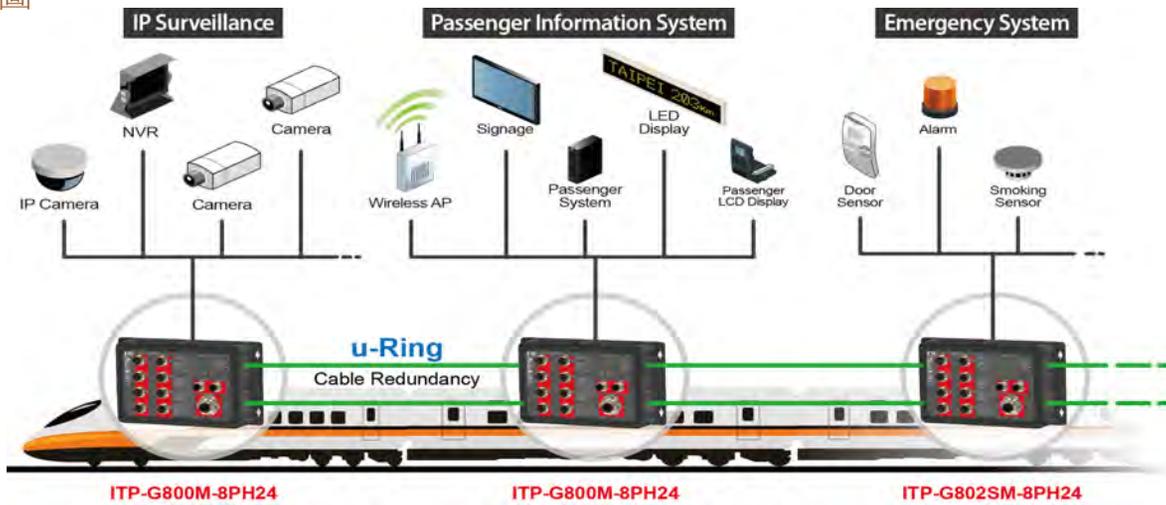


圖1 : ITP Series in Onboard Train Application

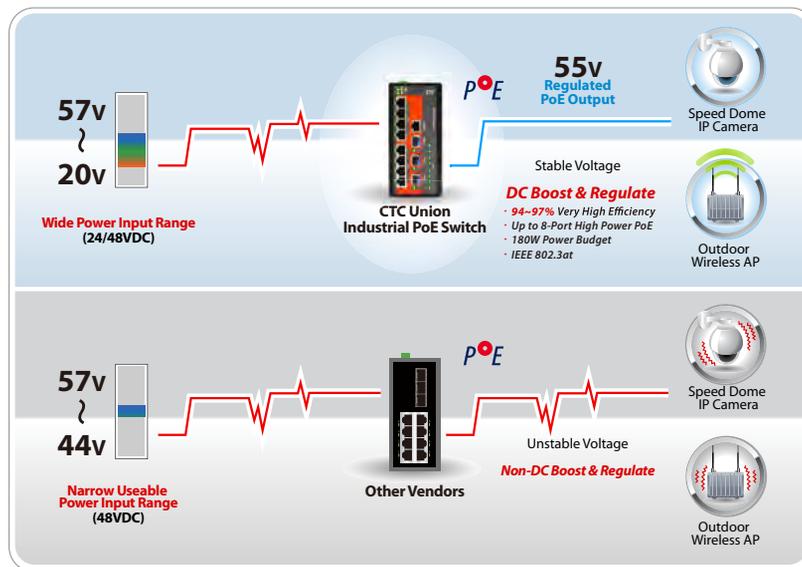


圖2 : PoE 高效率升壓與穩壓技術



圖3 : 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

圖4：方便又容易設定的 u-Ring 功能設定Web 畫面

圖5：u-Ring 類型

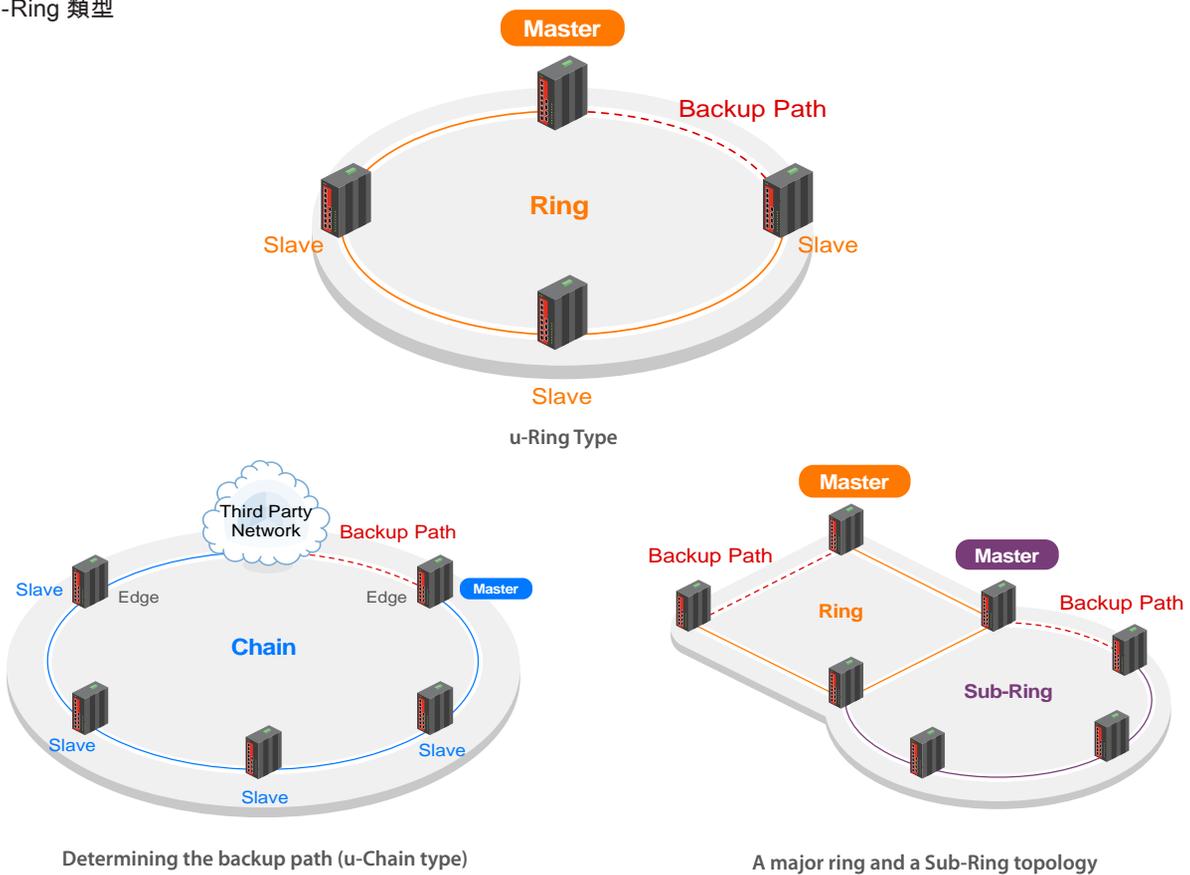
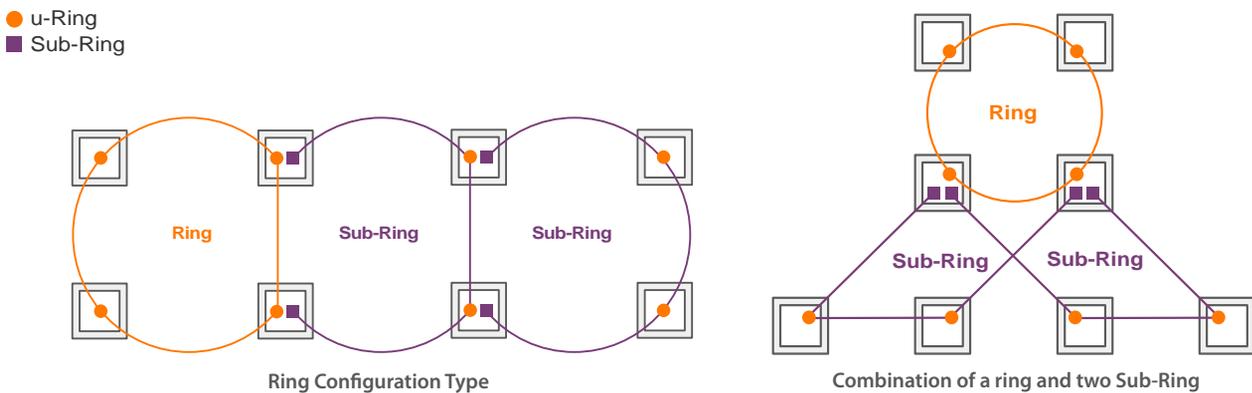
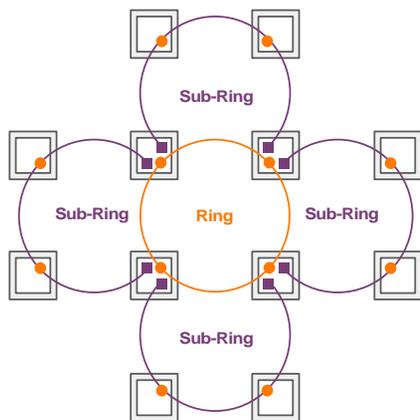
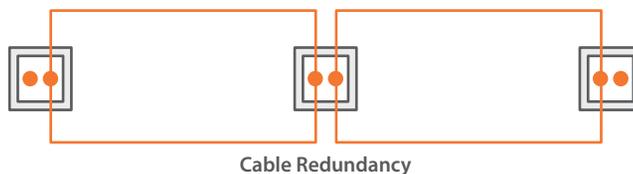


圖6：u-Ring配置範例





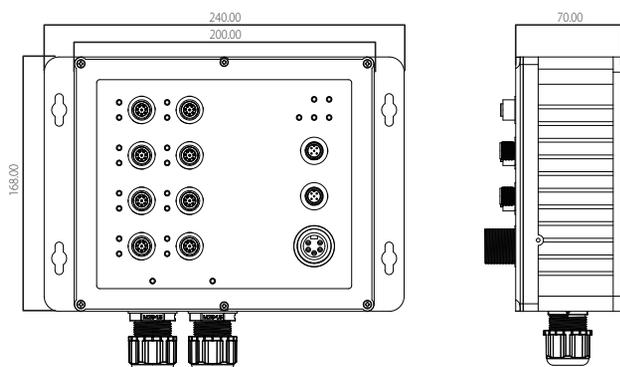
Combination of a ring and four Sub-Ring



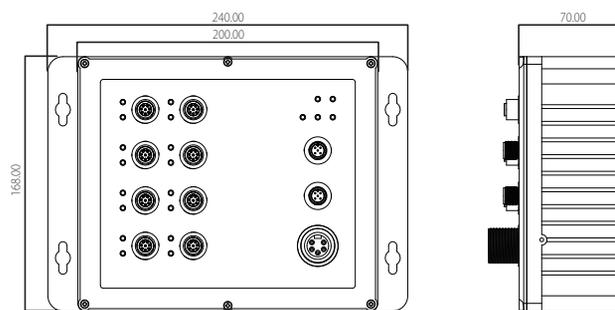
Cable Redundancy

機構尺寸

ITP-G802SM-8PH24



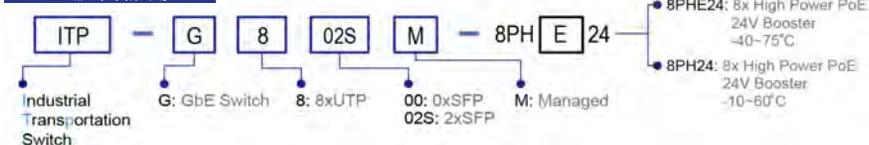
ITP-G800M-8PH24



訂購資訊

| 型號 | 管理 | IP67 | 總埠數 | UTP Port M12 | | 光纖 | PoE Port | PoE Total Power Budget | 輸入電壓 | | 認證 | | | | 防震 | 操作溫度 |
|-------------------|----|------|-----|--------------------|-----------------|----|----------|------------------------|-----------------------|-------------------|--------------|-------------------------|--------|----------|----------|------|
| | | | | 10/100/1000 Base-T | 100/1000 Base-X | | | | 24/48 VDC (20-57 VDC) | EN50155 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE FCC | IEC61373 | | |
| ITP-G802SM-8PH24 | V | V | 10 | 8 | 2 SFP | 8 | 180W | V | V | Plan | V | V | V | V | -10~60 C | |
| ITP-G802SM-8PHE24 | V | V | 10 | 8 | 2 SFP | 8 | 180W | V | V | Plan | V | V | V | V | -40~75 C | |
| ITP-G800M-8PH24 | V | V | 8 | 8 | — | 8 | 180W | V | V | Plan | V | V | V | V | -10~60 C | |
| ITP-G800M-8PHE24 | V | V | 8 | 8 | — | 8 | 180W | V | V | Plan | V | V | V | V | -40~75 C | |

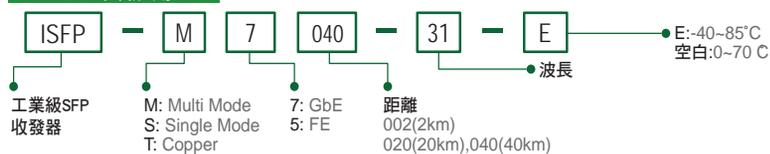
型號命名規則



選購配件

- DRP-240-48 Industrial Power, Input 85 ~ 264VAC, Output 48VDC, 240W, -10 ~ +70°C
- SFP 收發器 Compatible, Reliable, 5-year Warranty

SFP命名規則



Preliminary



180 Watts,
24V Booster



ITP-802GSM-8PH24

EN50155 IP67 Managed 8x10/100Base-T + 2x100/1000Base-X SFP with 8xPoE+ Ethernet Switch

ITP-802GTM-8PH24

EN50155 IP67 Managed 8x10/100Base-T + 2x10/100/1000Base-X Switch with 8xPoE+ Ethernet Switch

ITP-800M-8PH24

EN50155 IP67 Managed 8x10/100Base-T with 8xPoE+ Ethernet Switch

ITP-802GSM-8PH24系列產品為管理型工業等級百兆乙太網供電(PoE)交換器，配備8個10/100Base-TX PoE端口和 2 個SFP或UTP千兆/高速乙太網端口，可用以提供穩定而可靠的乙太網傳輸能力。此系列產品具備 PoE 功能，可透過單一纜線傳輸電力和資料，因此能大幅減少佈線支出。此系列產品也提供各種不同的PoE操作管理功能，包括PoE裝置自動檢查、自動重設、PoE電源每週排程。支援其他Layer 2 交換機管理功能，包括STP/RSTP/MSTP/ITU-T G.8032 Ring 及 multiple u-Ring的備援佈線、Layer 2 Ethernet IGMP、VLAN、QoS、Security、IPv6、bandwidth control、port mirroring、纜線診斷和節能乙太網(Green Ethernet)。這些交換器位於堅固的DIN軌道或壁掛機箱內，專為最嚴苛環境所設計。此系列交換器特別採用M12接頭，以確保緊密、牢固的連接，同時保證其可靠運作，免於振動和撞擊等環境干擾。此系列產品通過EN 50155認證，具備防電源輸入電壓變動、突波、EFT、ESD、振動和撞擊功能，因此本系列交換器極適合車輛、鐵路車輛、船舶、船隻等工業應用。此系列產品具備IP67等級防塵及防水保護功能，它們尤其適合在極端溫度、高溼度、油、灰塵的環境中，以及需要防水功能的戶外環境(例如IP監視、都市維安)使用，以及使用於需要防水防塵的工業環境(如水廠、化工廠、高粉塵的工廠等)使用。此系列產品也可搭配CTC管理平台SmartView™使用，以提供便利、即時且集中式的網路管理。

功能特色

- 8 個 10/100Base-TX M12 及 2 個 100/1000Base-X SFP Fiber (共 10 個端口) (ITP-802GSM-8PH24)
- 8 個 10/100Base-TX M12 及 2 個 10/100/1000Base-TX (共 10 個端口) (ITP-802GTM-8PH24)
- 8x 10/100Base-TX M12 (共 8 個端口) (ITP-800M-8PH24)
- M12 和 M23 連接器能有效抗震及防撞
- IP67 防水設計能有效防塵防水
- 雙電源輸入 24/48VDC(20~57VDC) 冗餘備援，內建非常高效率的電源升壓器 (94~97%) 可提供穩定的 55VDC 供給 PoE 輸出
- 穩壓功能，穩定輸出電壓 55VDC，供給 PoE 輸出
- 提供 8-port IEEE802.3af / 802.3at PoE 埠輸出 (30W/ 每埠)
- PoE 最大輸出功率可達 180W
- 支援先進的 PoE 管理功能，PoE PD 設備自動檢測，與自動重啟 (當設備當機時)，PoE 設備供電 "開 / 關" 時間週排程，PoE 設定與供電規劃
- 通過 UL60950-1, CE, FCC, 鐵道交通 EN50155, EN50121-4 認證
- 通過工業級 EMS(抗電磁干擾)，EMI (電磁波干擾)，EN61000-6-2，EN61000-6-4 認證
- 支援網路線斷線診斷，可以診斷網路線故障點，定位線纜的故障點距離
- 支援綠色節能乙太網 IEEE802.3az EEE (Energy Efficient Ethernet) Management，優化電源消耗
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switch(ERPS)
- 每台設備可支援 u-Ring，u-Chain 或 Sub-Ring 型態的環網 (圖 5)，最多可設 5 個環網
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 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 和 MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- 支援透過 TFTP 和 HTTP 進行軟體升級，韌體冗餘備份防止升級失敗
- 支援 IEEE1588 PTP V2 精密時間同步，可選擇以下模式操作 Master, Boundary, Slave mode by each port
- 支援 RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- 支援 IPv6 Telnet server/ICMP v6
- 支援 CLI, Web based management, SNMP v1/v2c/v3, Telnet server 管理方式
- 支援 SmartConfig™，提供快速且便利的設定工具，以便於設定大量的設備
- 支援 SmartView™ 集中式的管理系統

產品規格

| | | | |
|------|---|---------------------|---|
| 符合標準 | IEEE 802.3 10Base-T 10Mbit/s Ethernet | VLAN ID | 4094 IEEE802.1Q VLAN VID |
| | IEEE 802.3u 100Base-TX, 100Base-FX, Fast Ethernet | Switch Architecture | Back-plane (Switching Fabric): 5.6 Gbps (ITP-802GSM-8PH24, ITP-802GTM-8PH24) 1.6 Gbps (ITP-800M-8PH24) |
| | IEEE 802.3ab 1000Base-T Gbit/s Ethernet over twisted pair | Data Processing | Store and Forward |
| | IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic | Flow Control | IEEE 802.3x (全雙工), Back pressure(半雙工) |
| | IEEE 802.1d STP (Spanning Tree Protocol) | PoE RJ-45 Pin腳定義 | 8x M12 (4-Pin D-code Female) 端口 IEEE 802.3af / IEEE 802.3at End-Span, Alternative A mode Positive (V+) : M12 pin 2,4 Negative (V-) : M12 pin 1,3. Data (1,2,3,4) |
| | IEEE 802.1w RSTP (Rapid Spanning Tree Protocol) | 網路連接器 | 8個M12 (4-Pin, Female, D-Code) 10/100Base-TX, 支援auto negotiation speed, 自動 MDI/MDI-X 等功能全/半雙工 防水 Fiber Cable Gland 支援 2個 100/1000 Base-X 雙速 mode SFP 端口, 使用 DDMI (ITP-802GSM-8PH24) 2x M12 (8-Pin, female, A-Code) 10/100/1000Base-T (ITP-802GTM-8PH24) 內建 2 bypass 端口port (ITP-802GTM-8PH24) |
| | IEEE 802.1s MSTP (Multiple Spanning Tree Protocol) | Console | RS-232 (5-pin A-Code M12 male) |
| | ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection Switching) | 網路線規格 | UTP/STP above Cat. 5e cable, EIA/TIA-568 100-ohm (100m) |
| | IEEE 802.1Q Virtual LANs (VLAN) | 通訊協議 | CSMA/CD |
| | IEEE 802.1X Port based and MAC based Network Access Control, Authentication | 電壓極性保護 | 提供 |
| | IEEE 802.3ad Link aggregation for parallel links with LACP(Link Aggregation Control Protocol) | | |
| | IEEE 802.3x Flow control for Full Duplex | | |
| | IEEE 802.3af PoE (Power over Ethernet) | | |
| | IEEE 802.3at PoE+ (Power over Ethernet enhancements) | | |
| | 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) | | |

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

| | |
|-------------------|---|
| 電流過載保護 | 提供 |
| CPU Watch Dog | 提供 |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色), CPU Act(綠), Ring Master(黃) P1~8 UTP端口: 10/100 Link/Active(綠), P9,P10 : 10/100 Link/Active(綠), (ITP-802GTM-8PH24) 1000 Link/Active(琥珀色) 每SFP Fiber 端口: Link/Active(綠) PoE Port LED 1 LED /每端口 : • PoE電源輸出啟動: 啟動(綠) • PoE 故障(過載,短路,啟動失敗): 閃爍 1次/秒(綠) • PoE輸出電源關閉:關閉(綠) |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |
| PoE 符合標準 | IEEE802.3af, IEEE802.3at |
| PoE電源輸出 | 最大PoE電源輸出量為180W(30W/每端口) PoE輸出經過穩壓的55 VDC穩定電壓 |
| 電源供應 | 提供1個M23(5-Pin, male)可接輸入雙DC電源 24/48V(20~57VDC)冗餘備援 內建非常高效率的電源升壓器(94~97%)可提供經過升壓與穩壓的55 VDC穩定電壓給PoE 輸出 |
| 耗電量 | TBD |
| 告警方式 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | 5-pin A-code M12 male Relay outputs with current carrying capacity of 1 A @24VDC |
| 工作溫度 | -10 ~ 60°C (ITP-802GSM-8PH24, ITP-802GTM-8PH24, ITP-800M-8PH24) -40 ~ 75°C (ITP-802GSM-8PHE24, ITP-802GTM-8PHE24, ITP-800M-8PHE24) |

軟體規格

| | |
|---|---|
| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 802.1Q VLAN VID 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) |
| 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. 恢復時間 <10ms 每個環最多可達250個設備 |
| Loop Protection | Present |
| ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection) | 恢復時間 <50ms Single Ring, Sub-Ring, Multiple ring topology network |
| QoS特色 | |
| Class of Service | IEEE802.1p 8 active priorities queues for per port |
| Traffic Classification | IEEE802.1p based CoS |
| QoS | 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 |
| Bandwidth Control for Ingress | Rate in steps :1 kbps / Mbps / fps / kfps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit Per queue / Per port shaper |
| DiffServ (RF 2474) | Remarkings |
| Storm Control | for Unicast, Broadcast, Multicast |
| IP Multicasting 特色 | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile, Throttling |
| IGMP / MLD Snooping | Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |

| | |
|--------------------------------------|--|
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼, IP67防水防塵保護, 無風扇 |
| 尺寸 | 70x240x168mm (D x W x H) |
| 重量 | TBD |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | TBD (MIL-HDBK-217) |
| 產品保固 | 5年 |
| 認證 | |
| EMC | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | EN50155, EN50121-4 |
| 重工業環境抗電磁干擾 | EN61000-6-2 |
| 重工業環境電磁輻射干擾 | EN61000-6-4 |
| EMS (Electromagnetic Susceptibility) | 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 |
| Safety | UL60950-1 (Pending) |
| 防撞擊 | IEC-61373 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC-61373 |

| | |
|---|--|
| Security Features | |
| IEEE 802.1X | Port-Based MAC-Based |
| ACL | Number of rules : up to 256 entries for L2 / L3 / L4 |
| RADIUS authentication & accounting TACACS+ authentication & accounting, TACACS+ 3.0 HTTPS, HTTP SSL / SSH v2 | |
| User Name Password Authentication | Local Authentication Remote Authentication (via RADIUS / TACACS+) |
| Management Interface Access | Web, Telnet / SSH , CLI RS-232 console |
| Filtering | |
| Management 特色 | |
| CLI | Cisco® like CLI |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| SW & Configuration Upgrade | TFTP, HTTP 有備援韌體以防程式升級失敗 |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB II | RFC 1213 |
| DHCP | Client, Relay, Snooping Snooping option 82, Relay option 82 |
| IP Source Guard | |
| Port Mirroring | |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| Warning Message | System syslog, e-mail, alarm relay |
| DNS | Client, Proxy |
| IEEE1588 PTP V2 | Master, Boundary, Slave Operating mode Operating in each port of these switch |
| NTP / SNTP | |
| LLDP (IEEE 802.1ab) | Link Layer Discovery Protocol LLDP-MED |
| IPv6特色 | |
| IPv6 Management | Telnet Server/ICMP v6 |
| SNMP over IPv6 | |
| HTTP over IPv6 | |
| SSH over IPv6 | |

| | |
|-------------------------|---|
| IPv6 Telnet Support | |
| IPv6 NTP / SNTP Support | |
| IPv6 TFTP Support | |
| IPv6 QoS | |
| IPv6 ACL | Number of rules: up to 256 entries L2 / L3 / L4 |
| 其他特色 | |
| Green Ethernet | 支援 IEEE802.3az EEE (Energy Efficient Ethernet) 優化電源消耗 依照網路線長短, 自動調節功耗, 以節省短線時的耗電 |

| | |
|-------------------------|--|
| Green Ethernet | 網路埠無連接時, 自動降低輸出功耗 LED 功率管理 : 調節LED強度 |
| Cable Diagnostic | 偵測網路線的故障點距離 |
| Advanced PoE Management | PD設備自動檢測, 與自動重開機(當測得PoE PD設備當機時) PoE周排程 (每天定時開啟/關閉, 以周為單位) PoE 設定 PoE 的啟用/關閉 Power limit by classification Power limit by management Total PoE Power budge (maximum 180W) limitation 供電優先順序 |

應用圖

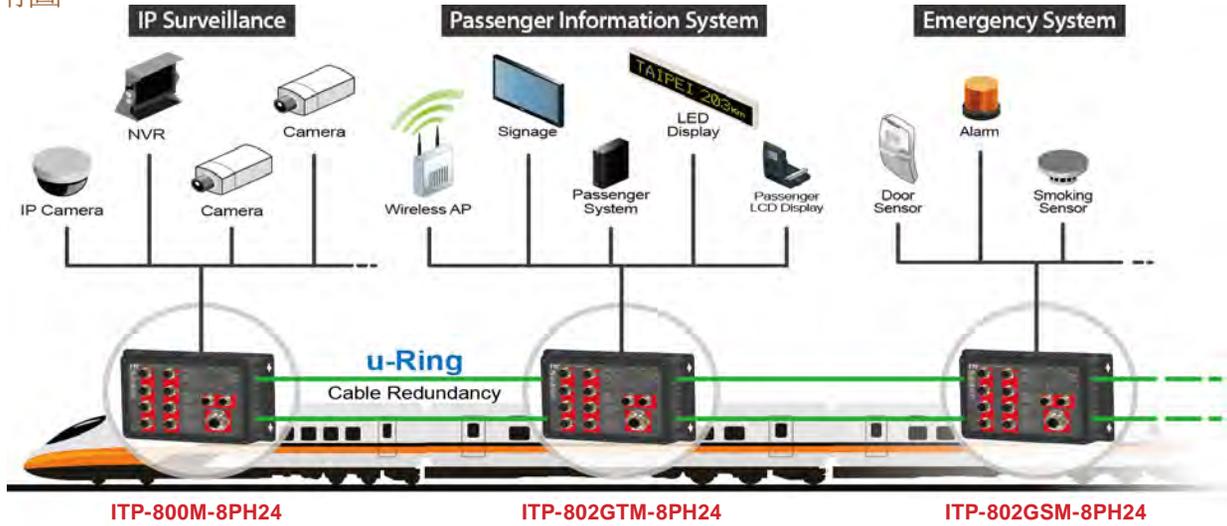


圖1 : ITP Series in Onboard Train Application

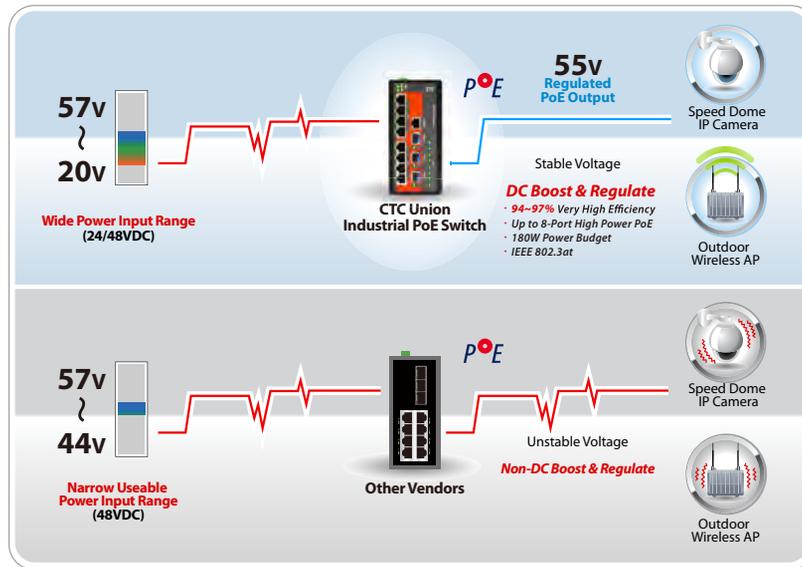


圖2 : PoE 高效率升壓與穩壓技術



圖3 : ITP Series for Industrial Automation

3
EN50155 Managed
FE PoE Switches

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

圖4：方便又容易設定的 u-Ring 功能設定Web 畫面

圖5：u-Ring 類型

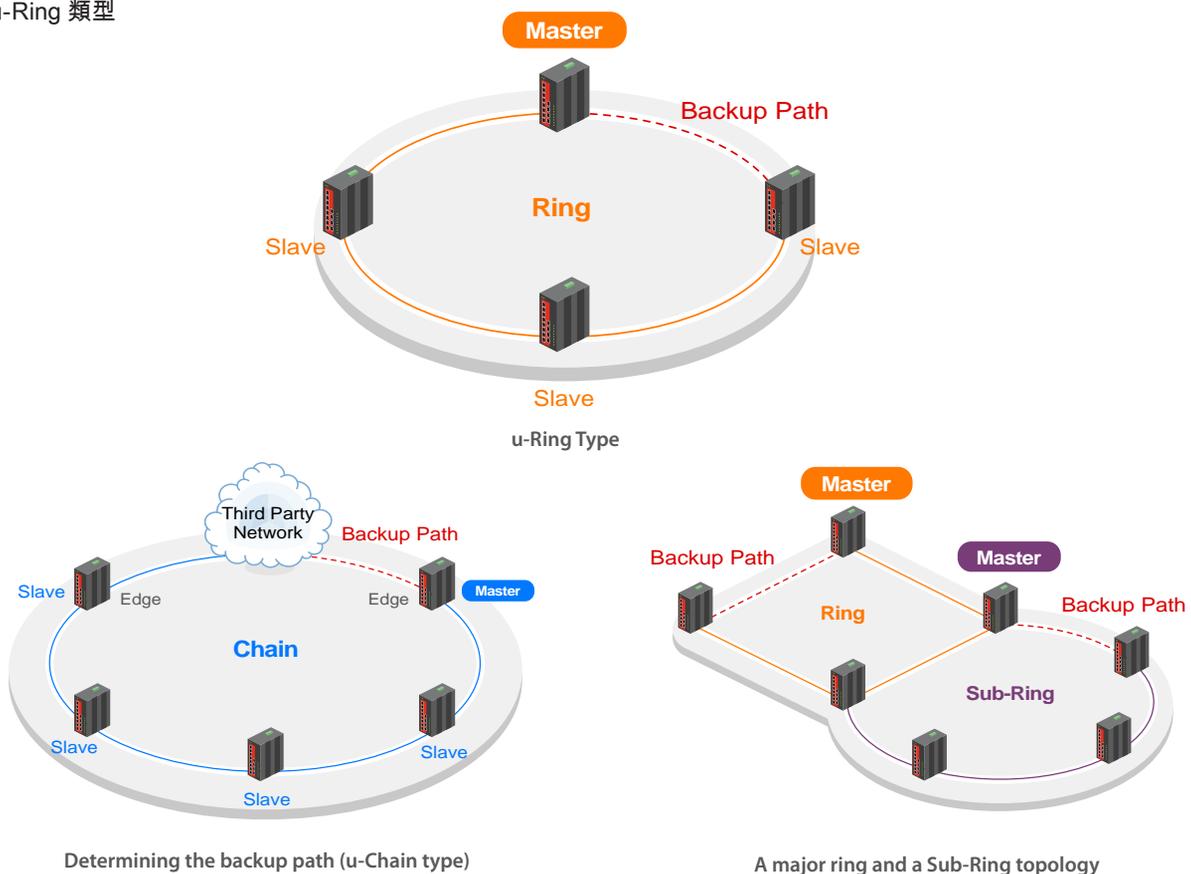
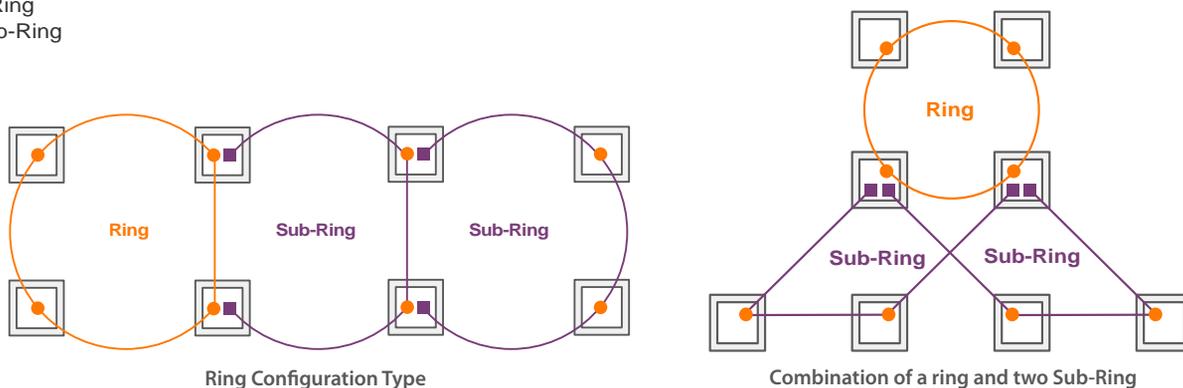
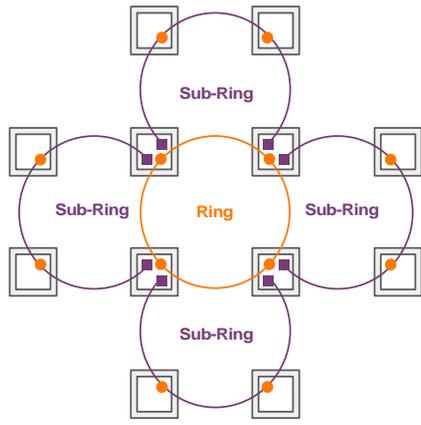


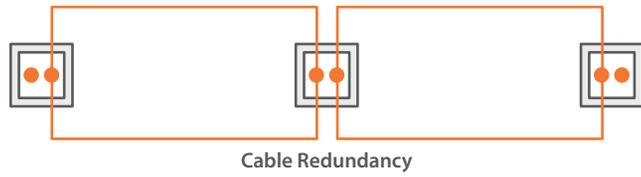
圖6：u-Ring配置範例

- u-Ring
- Sub-Ring



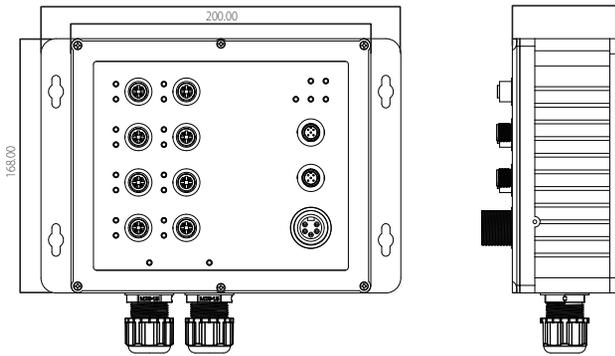


Combination of a ring and four Sub-Ring

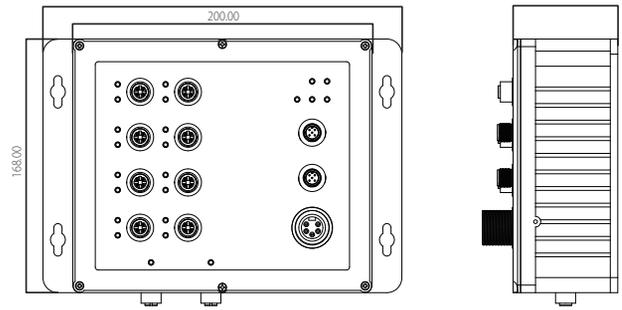


機構尺寸

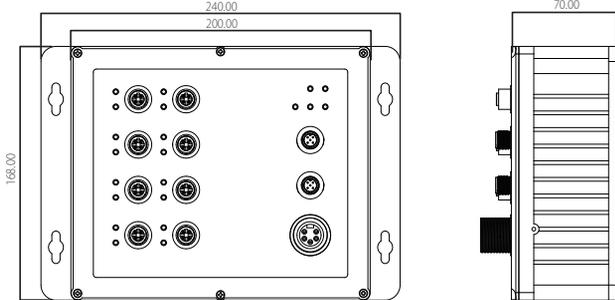
ITP-802GSM-8PH24



ITP-802GTM-8PH24



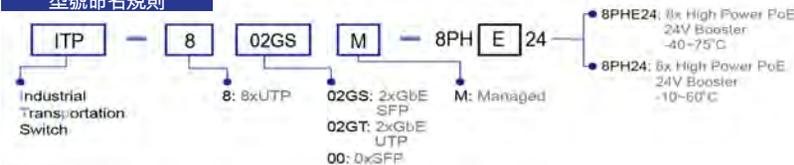
ITP-800M-8PH24



訂購資訊

| 型號 | 管理 | IP67 | 總埠數 | UTP Port M12 | | Gigabit Port | PoE Port | PoE Total Power Budget | 輸入電壓 | | 認證 | | | 防震 | 操作溫度 |
|-------------------|----|------|-----|----------------|---------|--------------|----------|------------------------|-----------------------|---------|------|-------------|--------|----|----------|
| | | | | 10/100 Base-TX | Base-TX | | | | 24/48 VDC (20-57 VDC) | EN50155 | 安全 | EN61000-6-2 | CE FCC | | |
| ITP-802GSM-8PH24 | V | V | 10 | 8 | 8 | 2 SFP | 8 | 180W | V | V | Plan | V | V | V | -10~60 C |
| ITP-802GSM-8PHE24 | V | V | 10 | 8 | 8 | 2 SFP | 8 | 180W | V | V | Plan | V | V | V | -40~75 C |
| ITP-802GTM-8PH24 | V | V | 10 | 8 | 8 | 2 UTP | 8 | 180W | V | V | Plan | V | V | V | -10~60 C |
| ITP-802GTM-8PHE24 | V | V | 10 | 8 | 8 | 2 UTP | 8 | 180W | V | V | Plan | V | V | V | -40~75 C |
| ITP-800M-8PH24 | V | V | 8 | 8 | 8 | — | 8 | 180W | V | V | Plan | V | V | V | -10~60 C |
| ITP-800M-8PHE24 | V | V | 8 | 8 | 8 | — | 8 | 180W | V | V | Plan | V | V | V | -40~75 C |

型號命名規則



選購配件

| | |
|------------|--|
| DRP-240-48 | Industrial Power, Input 85 ~ 264VAC, Output 48VDC, 240W, -10 ~ +70°C |
| SFP 收發器 | Compatible, Reliable, 5-year Warranty |

SFP命名規則



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