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

CE FC EN50121-4 EN61000-6-2 EN61000-6-4 EN50155 SmartView u-Ring IP67 IEEE 1588

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 ehancements)
	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	

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(Ethernt, 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 QoS	IEEE802.1p based CoS
	IP Precedence based CoS
	IP DSCP based CoS
	QCL(QoS Control List): Frame Type, Source/ Destination MAC, VLAN ID, PCP, DEI
	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) Remarking	
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 Password Authentication	Local Authentication
	Remote Authentication (via RADIUS / TACACS+)
Management Interface Access Filtering	Web, Telnet / SSH , CLI RS-232 console

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	

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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
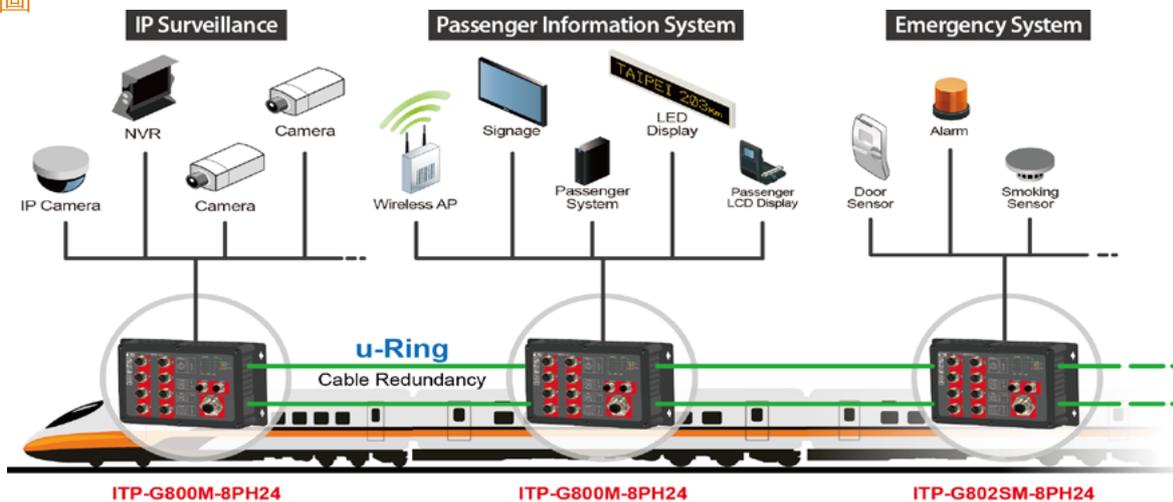
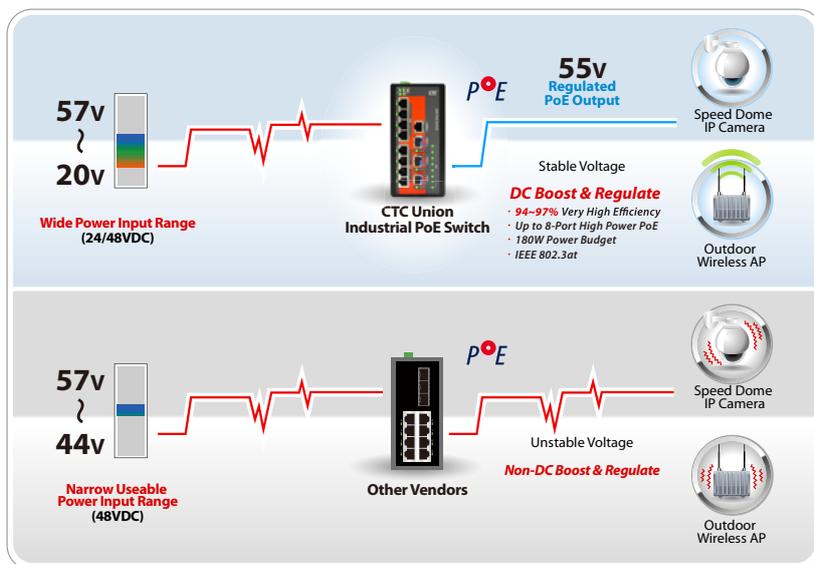圖1 : ITP Series in Onboard Train Application

圖2 : PoE 高效率升壓與穩壓技術

圖3 : ITP Series for Industrial Automation

u-Ring Configuration

Auto-refresh ☐ Refresh

Delete	Instance	Type	Master	East		West	
				Port	Edge	Port	Edge
Delete	1	u-Ring ▼	☐	1 ▼		2 ▼	
Delete	2	u-Ring ▼	☐	4 ▼		3 ▼	
Delete	3	u-Ring ▼	☐	10 (Fiber2) ▼		11 (Fiber3) ▼	
Delete	4	Sub-Ring ▼	☐	6 ▼			
Delete	5	u-Chain ▼	☐	5 ▼	☐	9 (Fiber1) ▼	☐

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
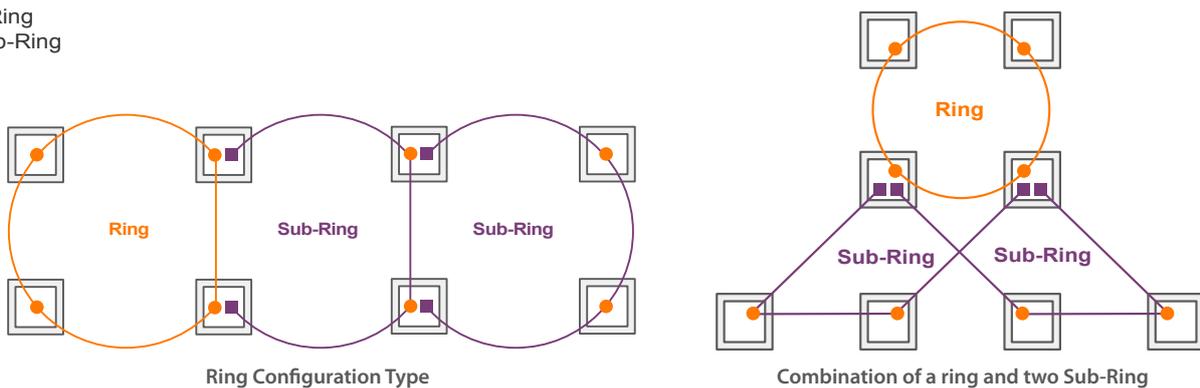

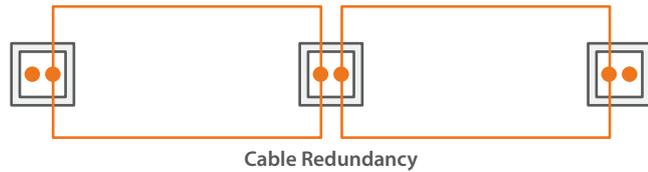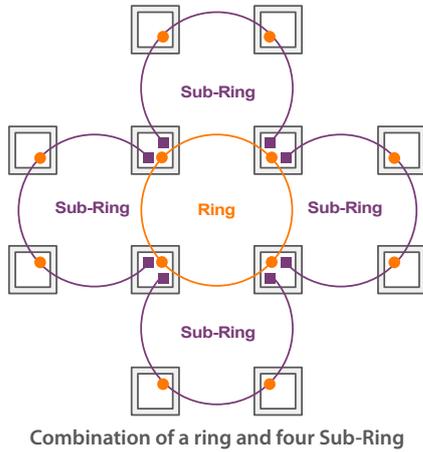u-Ring Type

Determining the backup path (u-Chain type)

A major ring and a Sub-Ring topology
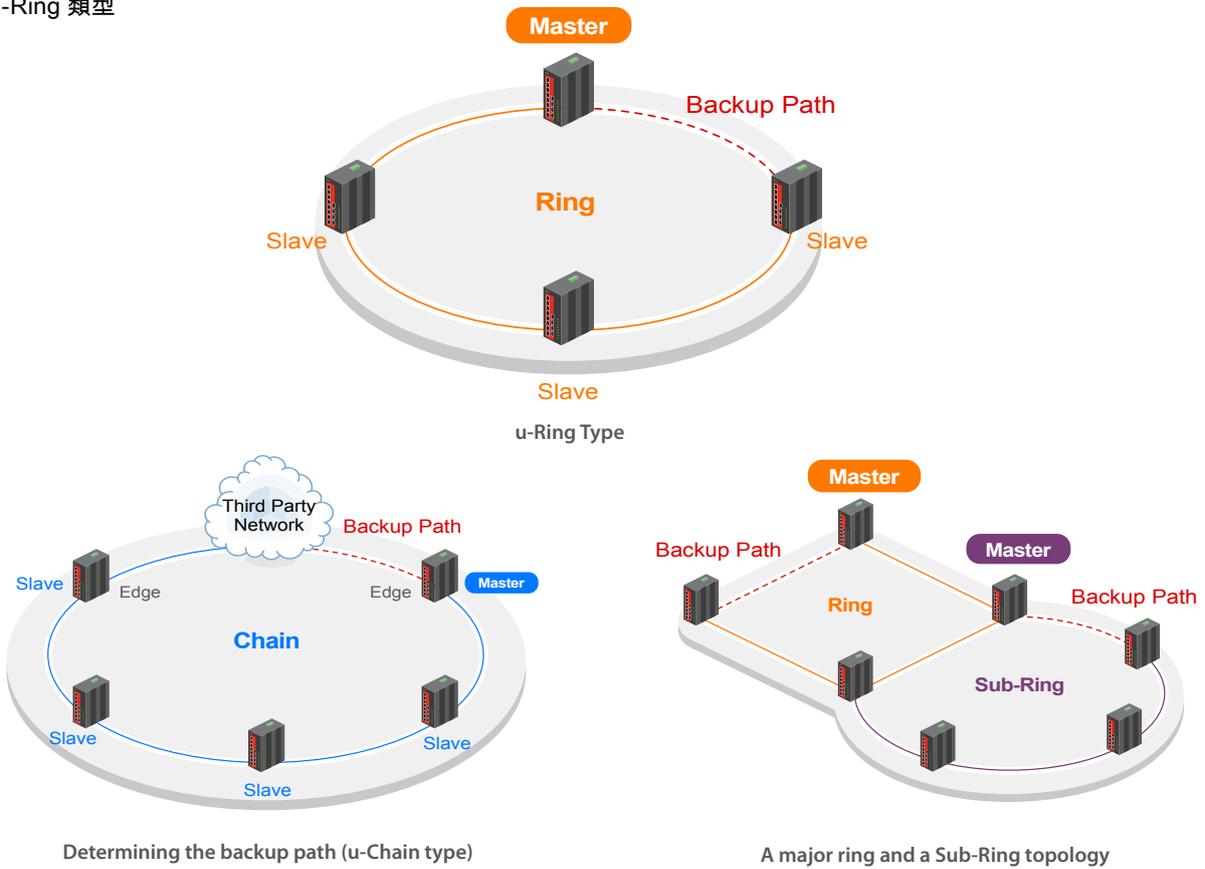
圖6 : u-Ring配置範例

● u-Ring
■ Sub-Ring

Ring Configuration Type

Combination of a ring and two Sub-Ring

Combination of a ring and four Sub-Ring

Cable Redundancy

機構尺寸

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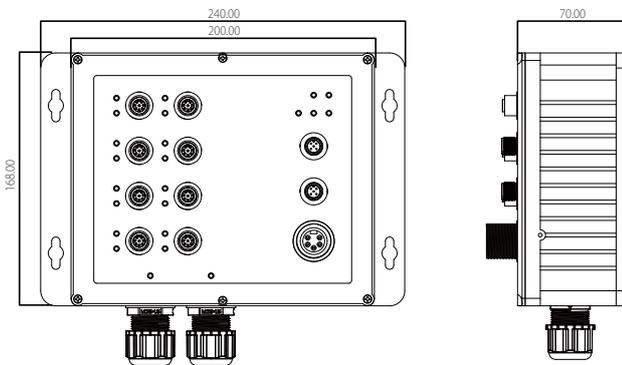
ITP-G800M-8PH24

訂購資訊

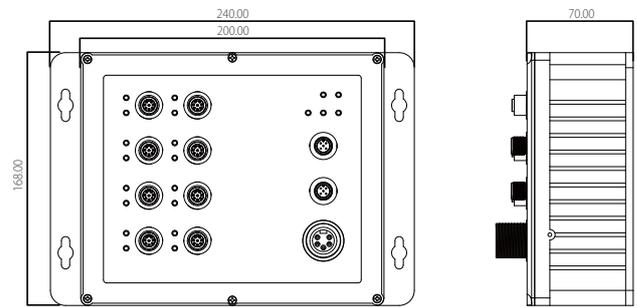| 型號	管理	IP67	總埠數	UTP Port M12 10/100/1000 Base-T	光纖 100/1000 Base-X	PoE Port IEEEE 802.3at	PoE Total Power Budge	輸入電壓 24/48 VDC (20~57 VDC)	認證 EN50155 EN50121-4	安全 UL60950-1	EN61000-6-2 EN61000-6-4	CE FCC	防震 IEC61373	操作溫度
ITP-G802SM-8PH24	V	V	10	8	2 SFP	8	180W	V	V	Plan	V	V	V	-10~60℃
ITP-G802SM-8PHE24	V	V	10	8	2 SFP	8	180W	V	V	Plan	V	V	V	-40~75℃
ITP-G800M-8PH24	V	V	8	8	—	8	180W	V	V	Plan	V	V	V	-10~60℃
ITP-G800M-8PHE24	V	V	8	8	—	8	180W	V	V	Plan	V	V	V	-40~75℃

型號命名規則

ITP - G 8 02S M - 8PH E 24

- 8PHE24: 8x High Power PoE 24V Booster -40~75℃
- 8PH24: 8x High Power PoE 24V Booster -10~60℃

Industrial Transportation Switch

G: GbE Switch
8: 8xUTP
00: 0xSFP
02S: 2xSFP
M: Managed
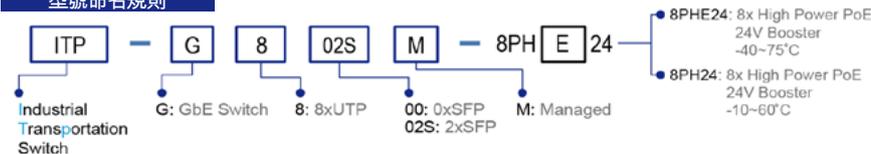
選購配件

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

SFP命名規則

ISFP - M 7 040 - 31 - E

E:-40~85℃
空白:0~70℃

波長

工業級SFP 收發器

M: Multi Mode
S: Single Mode
T: Copper

7: GbE
5: FE

距離
002(2km)
020(20km),040(40km)

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

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

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